OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

JUNE 2010

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Vol 38 No06

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DEPARTMENTS

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FEATURES

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CDA JOURNAL, VOL 38, Nº6

Ladies in Attendance

KERRY K. CARNEY, DDS

Someone sent me an Internet link to a film from pre-1906 earthquake San Francisco.[1] The camera was secured to the front of a streetcar travelling down Market Street. It is a long, real-time trip down the thoroughfare to the turnaround at the Ferry Building. I have watched it several times. The feeling of being there is uncanny.

It is a different world. Traffic laws appear nonexistent or universally ignored. Automobiles, horse-drawn carts, and pedestrians move in any direction they please. Several vehicular accidents miraculously do not occur and more than one pedestrian barely escapes with his life.

It is a world of men and boys, with only rarely the occasional woman. It is four years into the Edwardian period and six years before California would grant women the right to vote. It is a haberdasher's paradise as almost everyone is wearing a hat of some kind. It is the kind of world in which Dr. C. Edmund Kells would have felt right at home.

Kells was born in the family home on Canal Street in New Orleans in 1856. His father was a dentist and "Eddie" followed in his footsteps. He graduated from the New York Dental College in 1878 and returned to New Orleans to practice with his father. While he was studying in New York, he became fascinated with electricity and visited Thomas Edison's laboratory. He had a curious and innovative mind that kept him at the forefront of dentistry. His practice and techniques were often considered controversial.

The electric drill had been previously introduced into the practice of dentistry but it was run on batteries and was too cumbersome to be adopted by many. Kells wired his own office and was the first to run a drill from current connected to the street current. He used the street current to provide light for his operatory. It was not the high intensity light we employ today but it allowed illumination not dependent on gaslight or the sunlight from an open window.

In the history of dental assisting, Dr. Kells is attributed the honor of having hired the first dental assistant.

Kells was an inventor who held more than 30 patents covering a diverse array of inventions. He held patents for a fire extinguisher, a fire alarm, an automobile jack, an electric thermostat, an automobile engine starter, an elevator starter and brake, and compressed air for use in dental operations. He promoted restoring the pulpless tooth and developed instruments for measuring and filling root canals.

Though documentation is questionable, he is generally given credit for taking the first dental radiograph on a live patient. This was no mean feat. He read about Dr. Roentgen's X-ray experiments in Germany and built his own machine for clinical use. The procedure took 15 minutes of exposure and required the fabrication of intraoral-sized film, an intraoral holder and the first attenuating filter (a thin piece of wood used to stabilize the head). His patents also included a processing or developing unit.

The invention that has had perhaps the greatest impact on dental and medical surgery was the electric suction pump. You need to have the suction go down only once during a dental procedure to appreciate, personally, the importance of Dr. Kells' contributions to your everyday practice.

In the history of dental assisting, Dr. Kells is attributed the honor of having hired the first dental assistant. The facts supporting this claim are not so absolute. It seems that men were the first assistants. Kells is said to have seen or heard of colleagues in the metropolitan areas of New York and Chicago who advertized a "lady in attendance" to reassure women of the propriety of seeking dental care in such an office. In 1885, Mrs. Kells was his assistant and he could advertize a "lady in attendance" in his office. By 1895, Dr. Kells hired another female assistant. Eventually, Dr. Kells hired Malvina Cueria, who is considered, by some sources, to be the first female dental assistant of modern history.

Kells recognized the need to overcome the prevailing social norms to make dental care accessible for women who could not be accompanied by a chaperone. His move to incorporate women into his practice was an example of his innovative thought. He was using the assistant to bridge a gender gap just like many practices use assistants today to bridge cultural and linguistic gaps.

The obvious economic advantage of increasing the patient base for his practice did not go unnoticed. Initially, the senior

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EDITOR, CONTINUED FROM 369

Dr. Kells found his son's working alongside a woman inappropriate, but, like his other colleagues, he soon realized the advantages and also hired female assistants.

Dr. Kells went on to become a great advocate for the incorporation of dental auxiliaries into the dental practice. He recognized the efficiencies that auxiliaries could facilitate. He is quoted as having said, "The lady assistant is one of the dental institutions of the day and is due to survive as long as dentistry lives. The lady assistant is absolutely essential to the modern dental office."[2]

During 2003 to 2007, the average number of chairside assistants per dentist in the primary private practice of independent dentists hovered around 1.6.[3] (Specialists during that same time employed an average of 2.6 chairside assistants.)

One comparison of gross billings per practice hour showed that the mean figure for those dentists with no assistant was $169.70. The mean for those dentists with one chairside assistant was $300.51; for those with two chairsides assistants, the mean figure was $427.35.[3]

The obvious improvements in efficiency in the dental delivery system resulted in grants to dental schools to promote dental auxiliary utilization, DAU. Even in this economic downturn, a recent Internet posting of the 20 fastest-growing occupations included dental assistants.[4]

Productivity aside, the increased emphasis on universal precautions and recognition of the need to maintain sterile techniques make practicing without an assistant almost as difficult as performing surgery in the operating room without a surgical nurse.

Some say the relationship we enjoy with the members of our practice team is the single, most important element in a successful practice. Efficiency, productivity, issues of sterilization, and bridging the cultural gap are of major importance but working with great assistants simply makes my life much nicer. Their ability to anticipate my needs, eliminate schedule log jams, make patients comfortable, and take the initiative in improving office team work are skills that I appreciate every day.

I imagine as I watch that 1905 film that if the resolution were a bit better, I might be able to see a sign in the window of a dental office on Market Street. It might read, "Lady in Attendance," and I could witness an early indicator of the dental team that Dr. C. Edmund Kells championed more than a century ago. ■■■■

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Address comments, letters, and questions to the editor to kerry.carney@cda.org.

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Monday's presentation will focus on the next dimension in implant esthetics, facial gingival tissue stability in esthetic implant dentistry, general consideration for custom ceramic abutments, and rationale and indications for custom ceramic abutments. A lecture and demonstration on a newly developed interactive program on head and neck anatomy for dentistry will be presented.

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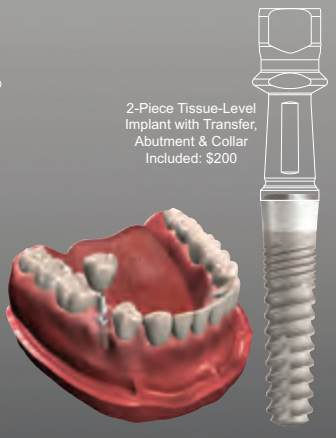

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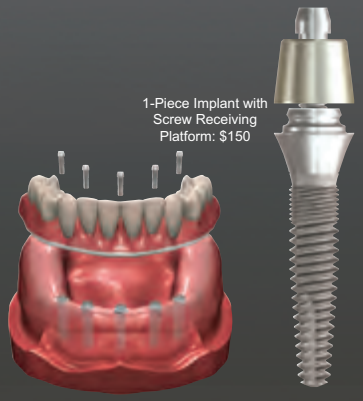

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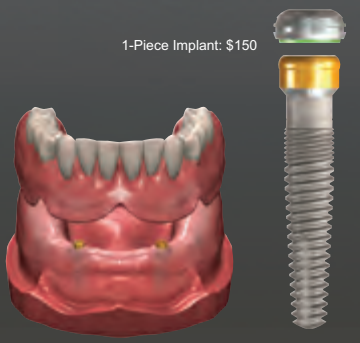

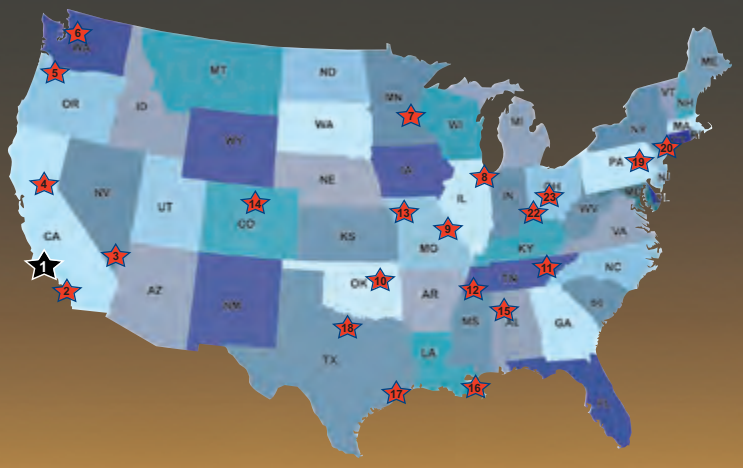

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Matt Mullin

Enduring Patients

BY DAVID W. CHAMBERS, PHD

"Patient" is not a term used to describe a person in need of oral health care or medical treatment, generally. Many Americans suffer the pain of tooth loss or oral cancer and have no charts in any dental office. On the opposite side, there are Americans who attend the dentist regularly to hear that there is nothing amiss in their mouths or to get their teeth a few shades whiter.

A patient is an individual who has agreed to follow recommendations, provide information, pay for services, and otherwise do as health professionals expect. A patient of record is an individual who has been treated under such terms and thus enjoys specific rights, such as access to continuing and emergency care, or access to their records.

The patients of one dentist are not automatically patients of another, and,

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More Volunteers Needed for Medical Mission in Central America

International Medical Alliance has assembled a team of dentists, nurses, physicians, and support staff for a 10-day medical mission, from July 28–Aug. 28, to Somoto, Nicaragua. However, it still is looking for more volunteers, including an oral and maxillofacial surgeon, an anesthesiologist, a surgical tech, and two recovery nurses in addition to a gynecologist, a pediatrician, and a pharmacist.

"If we can recruit a few more volunteers, we can perform more life-changing surgeries and medical examinations," said Ines Allen, IMA's founder and president of the Southern California-based nonprofit organization.

IMA volunteer surgeons typically perform surgeries to remedy cleft lips, cleft palates, and other facial deformities. "We have a very diverse group of volunteers joining us for our medical mission, including general, plastic and maxillofacial surgeons," Allen said.

Room and board are provided by the Nicaraguan government; volunteers, however, are responsible for their own airfare.

For more information about the organization or to volunteer, go to internationalmedicalalliance.org or call Ines Allen at 760-485-8963.

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Dentists Are Screening Patients for HIV

A small number of dentists and clinics across the country now are screening patients for HIV through a new and quick saliva analysis.

"The surprise factor is you are offering this," said Catrise Austin, DDS, who estimated she has screened some 100 patients for HIV since last July, according to a news release. "The topic of HIV can be uncomfortable for some, so we decided we would talk about it with patients in a matter-of-fact way, the way we talk about cavities and gum disease," said the New York City-based practitioner.

Using a kit costing approximately $15, Austin said she has tested some of her patients for the antibodies to HIV-1 and HIV-2. The wait time for the results is between 20 to 40 minutes.

According to one manufacturer of a HIV screening kit, there are several methods of collection for screening. Among the modes are swab, fingerstick, venipuncture whole blood, and plasma. In the swab test, the sample is collected from the patient's upper and lower gums. Similar to a home-pregnancy test, a change in swab color determines "nonreactive" or "preliminary positive" for the virus. A nonreactive result means anti-HIV antibodies were not detected during the swab test and interpreted as "negative." A preliminary positive means HIV antibodies were detected in the sample. In those cases, it is recommended another method be used as a confirmatory test.

The Centers for Disease Control and Prevention advocates routine HIV screening and a few public health agencies throughout the nation want to bring HIV testing to the dental chair, according to a news release. These efforts are being made because, the CDC has determined:

- An estimated one in 10 U.S. residents will see a dentist at least once a year, but not a physician.
- More than 1.1 million U.S. residents are infected with HIV.
- Nearly 233,000 individuals are infected with HIV but are unaware of their status. This group is responsible for 54 to 70 percent of the 56,000 new infections each year.
- Seventy-five percent of those who are HIV+ have been shown to change their unsafe behaviors when they are aware of their health status.

FDA Approves Anti-numbing Agent

Many patients dislike that hours long, blunt feeling following dental work with anesthesia. But a solution is on its way. A newly developed anti-numbing agent recently was approved by the Food and Drug Administration for use in adults and children older than 6.

Injecting the anti-numbing agent immediately after the dental work is done reverses the effects of anesthesia.

"It causes vasodilation, so it makes those blood vessels dilate in the area, and the act of the dilation helps to reverse the affects of the anesthetic," said Vidya Sankar, DMD, MHS, director of Oral Medicine Clinic at the University of Texas Health Science Center.

In clinical trials with four common dental anesthetics, the reversal agent got patients back to normal in about an hour, cutting recovery time in half, according to the study. "It shortens the length of anesthetic, soft tissue anesthesia, and return to normal function," Sankar said.

The anti-numbing treatment, however, generally is not covered by insurance.

Will Plasma Nudge out Handpiece?

Do results from a new study mean high-speed handpieces could go the way of belt-driven ones? It's a possibility.

In a recent issue of *Journal of Medical Microbiology,* researchers analyzed the effectiveness of using plasma jets, as an option to the dentist's drill, in removing caries-causing bacteria, such as *Streptococcus mutans* and *Lactobacillus casei,* which form on the tooth surface and can lead to the erosion of enamel and dentin. Mouth pain, severe gum infections, and tooth loss may occur if not treated.

Saarland University, Homburg, Germany, dentists and Leibniz-Institute of Surface Modifications, Leipzig, scientists, using four strains of bacteria, infected dentin from extracted human molars that then were exposed to low temperature plasma jets for six, 12, and 18 seconds.

The more the dentin was exposed to the plasma, the more bacteria was reduced, some 10,000-fold, according to a news release. The findings, researchers said, could indicate that plasma technology could be used to remove infected tissues in the mouth.

"The low temperature means they can kill the microbes while preserving the tooth. The dental pulp at the center of the tooth, underneath the dentin, is linked to the blood supply and nerves and heat damage to it must be avoided at all costs," said Dr. Stefan Rupf, assistant professor of dentistry at Saarland University, who led the research. He also said the recent development of cold plasmas that have temperatures of around 40 degrees Celsius show great promise for use in dentistry.

"Drilling is a very uncomfortable and sometimes painful experience, Rupf said. "Cold plasma, in contrast, is a completely contact-free method that is highly effective. Presently, there is huge progress being made in the field of plasma medicine and a clinical treatment for dental cavities can be expected within three to five years."

Currently, plasma, when formed into a high-temperature reactive oxygen species, can annihilate microbes such as in cases to disinfect surgical instruments.

ENDURING PATIENTS, CONTINUED FROM 375

in some cases, would not be accepted as patients. The ADA Code of Professional Conduct allows some latitude to practitioners in selecting their patients, although patient status cannot be determined by characteristics such as disability or sexual orientation. However, this must be determined by the dentist's competence to treat the presenting conditions.

The noun "patient" — a person who has agreed to the terms of treatment — and the adjective "patient" — minor suffering without complaint — have the same root. In that sense, the title of this column is essentially redundant.

Sociologist Talcott Parsons coined the phrase "sick role" to describe societal expectations around the notion of debilitating health. Those who are sick are excused from many obligations, such as going to school or work, and even excused from observing polite etiquette. It is a precondition of this status that they did not choose to be sick, as by excessive drinking, reckless driving, overeating, or refusing to brush one's teeth. A second condition on the sick role is that individuals must exercise personal responsibility for seeking competent help and following expert advice.

American society has changed since Parsons developed his ideas about the sick role more than half a century ago. We have, through the American with Disabilities Act and other legislation, relaxed the precondition about sickness not resulting from personal choice. The access issue is all about the second condition – personal responsibility and seeking help. Access is not a numbers issue (as the proportion of Americans receiving dental care is slightly better than in times past). The debate we are not having are over the conditions that must be fulfilled to qualify for care, with individuals seeming to abandon some of their responsibility for their own health and practitioners seeming to expect to concentrate their service on the most idealized cases. The conversation we are avoiding is about what it means to be a patient.

The nub:

1. Review the conditions individuals in need of oral health care must meet to qualify as patients in your practice.
2. We should ask ourselves how patient we are with our patients.
3. The patient issue is who has access to whom and under what conditions.

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

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ADA Develops Kit to Help Dentists Comply With HIPAA Rule Changes

To help dentists comply with HIPAA Privacy and Security and the enhanced requirements that were part of HITECH Act, the American Dental Association now is offering the ADA Practical Guide to HIPAA Compliance: Privacy and Security Kit.

Included in the HITECH Act is how and when dentists are required to provide notification if protected health information has been exposed in a security breach, and well as the breach notification process that a business associate must follow. The ADA recommends dentists review and revise their Health Insurance Portability and Accountability Act compliance programs and make any necessary changes to their Notice of Privacy Practices.

The ADA's Privacy and Security Kit includes Sample Notice of Privacy Practices and Business Associate Agreement Amendment provisions, workforce training guidance, and an analysis of 12 HIPAA Privacy and Security Attributes, along with a companion CD-ROM. Those who purchase the kit will receive a subscription to the ADA's annual HIPAA Compliance Update Service through January 2013 and be eligible to earn up to eight continuing education credits after successfully completing the HIPAA test at adaceonline.org. The fee for the test is $29 for members.

The cost of the kit for ADA members is $225; $337.50 for nonmembers. For more information, call the ADA at (800) 947-4746 or go to adacatalog.org.

UPCOMING MEETINGS

2010	
June 24-26	ADA Committee on the New Dentist, San Diego, (312) 440-2779, newdentist@ada.org.
July 8-11	Academy of General Dentistry, Annual Meeting and Exhibits, New Orleans, agd.org/neworleans.
Aug. 20-21	World Congress of Minimally Invasive Dentistry 11th annual conference, San Diego, wcmidentistry.com.
Sept. 2-5	FDI Annual Dental World Congress, Salvador, Brazil, congress@fdiworldental.org.
Sept. 9–11	*CDA Presents The Art and Science of Dentistry*, San Francisco, 800-CDA-SMILE (232-7645), cdapresents.com.
Oct. 9-12	ADA 151st Annual Session and World Marketplace Exhibition, Orlando, ada.org/goto/session
Nov. 7–13	United States Dental Tennis Association, Grand Wailea, Hawaii, dentaltennis.org.
2011	
May 12-14	*CDA Presents* the Art and Science of Dentistry, Anaheim, 800-CDA-SMILE (232-7645), cdapresents.com.
Sept. 22-24	*CDA Presents* the Art and Science of Dentistry, San Francisco, 800-CDA-SMILE (232-7645), cdapresents.com.

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

Correction

The April 2010 issue of the *Journal of the California Dental Association* highlighted a new product by WOW Oral Care — SPRAY WHITE PRO. The website information for the product was incorrect. To find out more information about WOW Oral Care's SPRAY WHITE PRO, visit woworalcare.com.

Honors


Paul E. Subar, DDS


Patrick J. Ferrillo Jr., DDS


Nader Nadershahi, DDS

Paul E. Subar, DDS, has been selected by the Research Committee at the Arthur A. Dugoni School of Dentistry to be the first to receive the Research Enhancement Award. The award, given to support a tenure-track junior faculty research project, is a one-time, nonrenewable $25,000 grant.

Subar, director of the Special Care Clinic and an assistant professor in the Department of Dental Practice, will, using this funding, add Caries Management by Risk Assessment, CAMBRA, to Virtual Dental Home, a distance collaborative project. Through the teledentistry pilot project, Virtual Dental Home allows registered dental hygienists with advanced training to provide on-site dental care to patients while exchanging treatment information with a dentist electronically.

The project serves patients who are disabled or immobilized in underserved areas. Subar's research project will specifically focus on institutionalized patients.

"I'm honored that the dental school's Research Committee has acknowledged this project with the Research Enhancement Award," said Subar in a news release. "The information we gather through these assessments will allow the dental profession to better understand preventative care for institutionalized patients in our communities."

Patrick J. Ferrillo Jr., DDS, dean at Arthur A. Dugoni School of Dentistry, has been appointed interim provost for University of the Pacific. **Nader Nadershahi, DDS,** currently associate dean for academic affairs at Dugoni, will be acting dean of the dental school.

P. Gingivalis Pulls No Punches in its Persistence

P. gingivalis is one ornery and offensive organism.

Scientists at the University of Louisville have just uncovered how the bacteria impair the immune system and employ inflammation as its survival mechanism.

In the February issue of *Science Signaling,* the research team led by George Hajishengallis, DDS, PhD, a dentistry researcher, said the discovery may be significant for treating periodontal disease that can lead to bone and gum disease and, eventually, tooth loss. Additionally, researchers said, *P. gingivalis* may take a part in stroke, heart disease, and other key systemic health difficulties.

According to researchers, *P. gingivalis* "hijacks" a complement protein for communication with toll-like receptors. These receptors alert white blood cells to a bacterial presence then stimulate the cells to eradicate the pathogen. This complement protein, C5, generally acts as a weapon for the host, enlisting white blood cells that eat and destroy bacteria.

But after *P. gingivalis* sets in motion its commandeering method, its target is the C5 molecule. Bacteria produce C5a for exploiting the white blood cells via damaging the communication system between TLR2 and the C5a receptor. This ruins the cells ability to obliterate this oral pathogen.

"*P. gingivalis* is very sophisticated, in that it activates aspects of white blood cell function that will help it and inhibits aspects that hurt it," Hajishengallis said. "This is the first report of a pathogen capable of proactively instigating and exploiting communication signaling between complement and toll-like receptors, rather than undermining either system independently. It's like infiltrating between your enemy's lines."

Research has shown that impeding the C5a receptor thwarts further destruction by *P. gingivalis* and prevents swelling. The team would like this mechanism to translate to humans in an effort to prevent periodontal disease, as well as have applications to other systemic illnesses.

"*P. gingivalis* is very sophisticated, in that it activates aspects of white blood cell function that will help it and inhibits aspects that hurt it."

GEORGE HAJISHENGALLIS, DDS, PHD

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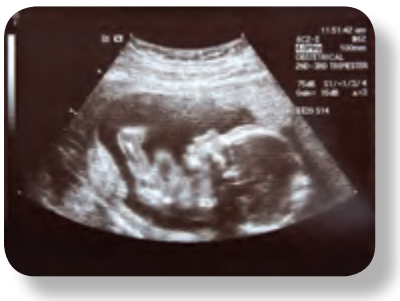


Stress Early on in Life May Hasten Death

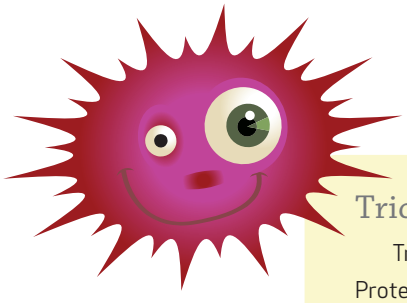
Researchers at Emory University said traumatic events occurring in utero or early in one's life may be linked to premature mortality.

"Prehistoric remains are providing strong, physical evidence that people who acquired tooth enamel defects while in the womb or early childhood tended to die earlier, even if they survived to adulthood," said George Armelagos, Emory University anthropologist.

Under Armelagos' lead, a systematic review of untimely death and defects in teeth enamel was conducted. The findings, published in *Evolutionary Anthropology,* are the first summary of prehistoric evidence for the Barker hypothesis, the idea that many adult diseases originate during fetal development and early childhood.

In the 1980s, David Barker, an epidemiologist, started studying links between early infant health and later adult health. The theory, also known as the Developmental Origins of Health and Disease Hypothesis, has expanded into wide acceptance.

"Teeth are like a snapshot into the past," said Armelagos, who examines skeletal remains to determine how disease and diet impacted populations. "Since the chronology of enamel development is well known, it's possible to determine the age at which a physiological disruption occurred. The evidence is there, and it's indisputable."

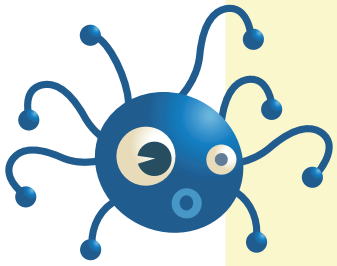


Triclosan: FDA, EPA Re-evaluating Anti-bacterial Ingredient

Triclosan is getting another look from the Food and Drug Administration, as well as from the Environmental Protection Agency. In the years since its original development as a surgical scrub, it has been added to more consumer products. Many hand sanitizers and liquid soaps contain triclosan.

According to the Centers for Disease Control and Prevention, an estimated 75 percent of the population has triclosan in their urine. Research indicates the anti-bacterial may upset the human endocrine system. Five years ago, an FDA advisory panel said there was no evidence that soap and water were outperformed by anti-bacterial soaps.

"The proliferation of triclosan in everyday consumer products is so enormous, it is literally in almost every type of product," said Rep. Edward J. Markey (D-Mass.) The European Union, as well as other countries have restricted or prohibited the use of triclosan.

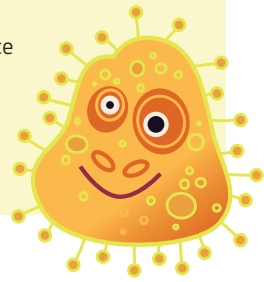


Brian Sansoni, vice president of Communication and Membership of the Soap and Detergent Association, said concerns about triclosan are unfounded. "It's more important than ever that consumers continue to have access to these products. It's a time of increased threats from disease and germs."

Sarah Janssen, staff scientist at the Natural Resources Defense Council, disagreed saying that the soap industry was taking advantage of consumer fears. "Especially with the H1N1 outbreak, people get really scared and think they need to take extra precautions without thinking that soap and water works just as well."

Doug Throckmorton, MD, deputy director of the FDA's Center for Drug Evaluation and Research, said the FDA is also revisiting the 1997 approval it gave for the use of triclosan in toothpaste because at the time, scientists had not yet raised concerns that triclosan can disrupt the endocrine system.

"The science is changing," Throckmorton said. "Based on what we know, we don't have evidence to suggest this chemical is a threat to human health. However, we have to understand better the health effects; and we have to work with other agencies to collect that information and decide whether or not we need to change how it's regulated."



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Sascha Jovanovic, DDS, MS

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	Clinical Techniques in Pediatrics	Friday and Saturday afternoon lecture
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	Medicine and Dentistry	Thursday afternoon lecture
	Periodontitis and Peri-implantitis: The Good, the Bad and the Ugly	Friday lecture

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Pharmacology	Street Drugs Exposed: What Your Patients and Your Kids Are Not Telling You!	Friday lecture
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Practice Management	Leadership Challenge: Playing Your "A" Game	Friday lecture
	Conversations With Patents That Work	Saturday morning lecture
	Growth Strategies — Marketing, Acquisitions and Transitions	Saturday afternoon lecture

Mark A. Latta, DMD, MS

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CDA Presents will feature more than 400 exhibiting companies showcasing the latest in dental technology, products and services. Stay ahead of the curve by checking out the innovative new products being launched in the exhibit halls.

Experience the new Exhibit Hall page at **cdapresents.com** to search for products, services and show specials.View the interactive floor plan to maximize your tradeshow experience.

Please note new days: Thursday – Saturday, September 9–11, 2010

To celebrate our new days, we are hosting a happy hour in the exhibit hall on Thursday from 4:30–6 p.m. Complimentary refreshments will be served.

New Exhibit Hall Days and Hours

Thursday, Sept. 9, 10 a.m.–6 p.m.
Friday, Sept. 10, 9:30 a.m.–5:30 p.m.
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CDA members and their guests will enjoy exclusive entrance into MOMA from 7 to 10 p.m. The evening will consist of a buffet that will serve as either a perfect prelude for a dinner in San Francisco or a light dinner for those who wish to stay and enjoy the entire evening visiting some of the fascinating exhibits.

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CDA JOURNAL, VOL 38, Nº6

Presenting EVIDENCE-BASED PERINATAL ORAL HEALTH GUIDELINES FOR PRACTITIONERS

JON R. ROTH, MS, CAE

GUEST EDITOR

Jon R. Roth, MS, CAE, is executive director of the California Dental Association Foundation.

"The mouth is connected to the rest of the body" is a phrase often used as an important reminder of the systemic connection between an individual's oral health and their general health and well-being. Research over the past several decades has solidified the evidence base for this connection and is exemplified when looking at the benefits of oral health care services to pregnant women and the improved health outcomes to mother and child.

The ideal prevention of oral disease can begin no earlier than during the fetal development of a child and postpartum period after birth. Ensuring that pregnant women receive proper preventive education and appropriate oral health services during this period can significantly benefit an infant's trajectory toward positive oral health.

Yet, many women do not seek – and are not advised to seek – dental care as part of their prenatal care. Barriers to improving oral health and utilizing oral health services for pregnant women and their children are multifaceted and complex. In most cases, these factors are influences by the system of care as well as the patient herself.

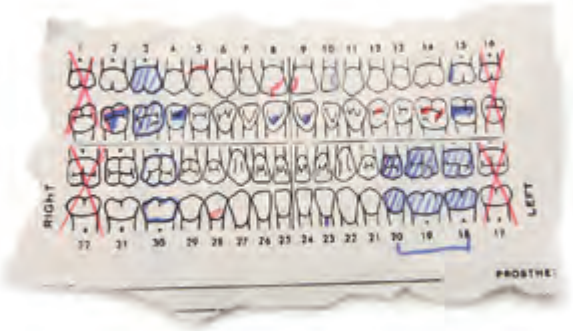
This entire issue of the *Journal* is focused on this very subject: Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines for Health Professionals. In this edition, readers will discover the most current, evidence-based perinatal oral health guidelines for practitioners. The guidelines are intended to assist health care professionals in collaborating with one another to provide oral health services to pregnant women and their children.

These guidelines were developed by a convening of state and national medical, dental and public health experts and organizational representatives who were brought together through collaboration between the California Dental Association Foundation and the American College of Obstetricians and Gynecologists, District IX. The CDA Foundation initiated the partnership with the goal of providing the most up-to-date science on perinatal oral health research as well as the commitment to producing guidelines that were displayed in a user-friendly format for quick reference and use by health professionals. Following the summary guidelines are the in-depth science reviews and supporting evidence for each of the protocols. Finally, recommendations for systems improvements and public policy changes that support expanded oral health care for pregnant women accompany the clinical guidelines.

The CDA Foundation would like to thank the California HealthCare Foundation; First 5 California; Anthem Blue Cross Foundation; and the Sierra Health Foundation for the generous funding that made this project possible. Special thanks to the project co-chairs, Jane Weintraub, DDS, and Ellen Stein, MD, as well as the entire advisory committee and expert panelists for their commitment to this project and the betterment of perinatal oral health.

For an electronic version of these guidelines, please go to cdafoundation.org.

Sure, you could do dental charting blindfolded.



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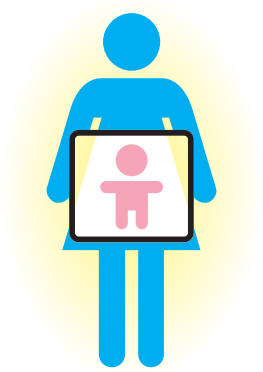

ORAL HEALTH DURING PREGNANCY AND EARLY CHILDHOOD: EVIDENCE-BASED GUIDELINES FOR HEALTH PROFESSIONALS

ACKNOWLEDGMENTS

The CDA Foundation would like to thank the project's co-chairs, Advisory Committee and expert panel for their dedication to this project. Also, special thanks to the numerous practitioners who participated in the development process by providing careful and thoughtful review of draft documents prior to publication.

Oral Health During Pregnancy and Early Childhood: Evidence-Based Guidelines for Health Professionals was supported through a generous grant from the California HealthCare Foundation and support from First 5 California, Sierra Health Foundation and Anthem Blue Cross Foundation.

Executive Summary

These Perinatal* Oral Health Practice Guidelines are intended to assist health care professionals in private, public and community-based practices in delivering oral health services to pregnant women and their children, and are based on a review of the current science-based literature. Their development was guided by a group of state and national medical, dental and public health experts and organizational representatives brought together through a collaborative process by the California Dental Association Foundation and the American College of Obstetricians and Gynecologists, District IX. This document first presents the Guidelines in a quick-to-read bullet format, and then follows with the supporting evidence and references for readers interested in the rationale behind the Guidelines. Several useful forms, such as a client referral form for pregnant women, are included in the Appendices as is a glossary of terms. Recommendations for systems improvement and public policy changes are addressed in a document accompanying these Guidelines.

* While the term "perinatal" generally refers to the period around childbirth (i.e., three months prior to and a month following), it is used in this document to more broadly include the entire prenatal and postpartum periods. In its *broadest* sense of maternal and child health, "perinatal" could include time after and between pregnancies.

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The benefits of providing dental care during pregnancy far outweigh potential risks.

Background

Good oral health and control of oral disease protects a woman's health and quality of life before and during pregnancy, and has the potential to reduce the transmission of pathogenic bacteria from mothers to their children. Yet many women do not seek — and are not advised to seek — dental care as part of their prenatal care, although pregnancy provides a "teachable moment" as well as being the only time some women are eligible for dental benefits. Barriers and limits to improving oral health and utilizing oral health services for pregnant women and their children are multifaceted and complex, and the factors relate both to the health care system and to the client herself.

Prenatal and oral health providers are limited in providing oral health care during pregnancy by their lack of understanding about its impact and safety. Many dentists needlessly withhold or delay treatment of pregnant patients because of fear about injuring either the woman or the fetus — or because of fear of litigation. Because they have not been trained to understand the relationship between oral health and overall health, many prenatal providers fail to refer their patients regularly to dental providers. A coordinated effort between the oral health and prenatal communities can benefit maternal and child oral health outcomes.

Key Findings

Current understanding of maternal and fetal physiology indicates that the benefits of providing dental care during pregnancy far outweigh potential risks. Prevention, diagnosis and treatment of oral diseases, including needed dental radiographs and use of local anesthesia, are highly beneficial and can be undertaken during pregnancy with no additional fetal or maternal risk when compared to the risk of not providing care. The American Academy of Periodontology, for example, urges oral health professionals to provide preventive services as early in pregnancy as possible and to provide treatment for acute infection or sources of sepsis irrespective of the stage of pregnancy. The timing of such care is vital given that the oral health of pregnant women has the potential to impact the oral health status of their children. Further, assessment of oral health risks in infants and young children with appropriate intervention, along with anticipatory guidance for parents and other caregivers, has the potential to prevent the transmissibility and development of early childhood caries (ECC).

The most common complications of pregnancy include spontaneous abortion (miscarriage), preterm birth, preeclampsia and gestational diabetes. The current scientific studies, referenced in this document, regarding these conditions related to dental care indicate:

- Control of oral diseases in pregnant women has the potential to reduce the transmission of oral bacteria from mothers to their children.
- There is no evidence relating early spontaneous abortion to first trimester oral health care or dental procedures.
- Preeclampsia is a challenging condition in the management of the pregnant patient, but preeclampsia is not a contraindication to dental care.
- While research is ongoing, the best available evidence to date shows that periodontal treatment has no effect on birth outcomes of preterm labor and low preterm birthweight and is safe for the mother and fetus.
- Best practice suggests that because it has been shown to be safe and effective in reducing periodontal disease and periodontal pathogens, periodontal care should be provided during pregnancy.

Consequently, the following consensus statement (see box) was developed by the expert panel convened to create these Guidelines:

PERINATAL ORAL HEALTH CONSENSUS STATEMENT

Prevention, diagnosis and treatment of oral diseases, including needed dental radiographs and use of local anesthesia, are highly beneficial and can be undertaken during pregnancy with no additional fetal or maternal risk when compared to the risk of not providing care. Good oral health and control of oral disease protects a woman's health and quality of life and has the potential to reduce the transmission of pathogenic bacteria from mothers to their children.

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Practice Guidelines for Providers of Care

These Perinatal Oral Health Practice Guidelines are based on the clinical evidence for the importance of oral health care for women and their children before and during pregnancy and early childhood. They apply to health care providers and other professionals in public, private and community-based practices. The Guidelines are organized by provider type (with some unavoidable duplication). Where possible, the material was adapted from the 2006 New York State Department of Health "Oral Health Care During Pregnancy and Early Childhood Practice Guidelines," and supplemented, updated and rewritten based on current evidence.

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Prenatal Care Professionals

Oral health care services should be routinely integrated with prenatal care services for all pregnant women.

Prenatal care professionals are encouraged to take the following actions for pregnant women:

- Educate the pregnant woman about the importance of her oral health, not only for her overall health, but also for the oral health of her children.
- Provide education and dental referrals for oral health care, understanding that such care may have relatively low priority for some women, particularly those challenged by financial worries, unemployment, housing, intimate partner violence, substance abuse or other life-stressors.
- Ask the woman if she has any concerns/fears about getting dental care while pregnant. Based on her response, be ready to inform her that dental care is safe during pregnancy and address specific concerns.
- Advise the pregnant woman that:
  - Prevention, diagnosis and treatment of oral diseases (including needed dental X-rays and use of local anesthesia) are highly beneficial and can be undertaken any time during pregnancy with no additional fetal or maternal risk as compared to not providing care.
  - Dental care can improve her overall health and the health of her developing fetus and her children.
- Determine and document in the prenatal record whether the patient is already under the care of an oral health professional; if a referral is needed, make a referral and document this in the prenatal record.
- Encourage all women at the first prenatal visit to schedule a dental examination if one has not been performed in the past six months, or if a new condition has developed or is suspected.
- Facilitate dental care by providing written consultation or an oral health referral form (see sample in Appendix A). While many medical providers understand there is no need for dentists to consult with an MD for routine dental care on a healthy patient, such a form from the obstetrical provider reassures the patient as well as the dentist that dental care is acceptable/permissible during pregnancy. Include this form as part of routine new-prenatal patient paperwork.
- Obtain or develop and maintain a list of community dental referral sources that will provide services for pregnant women, particularly for women enrolled in publicly funded programs (e.g., Medicaid).
- As a routine part of the initial prenatal examination, conduct and document an oral health assessment of the teeth, gums, tongue, palate and mucosa.
- Share appropriate clinical information with the oral health professional and answer questions that the oral health professional may ask about a patient or condition.
- Encourage and support all women to adhere to the oral health professional's recommendations for appropriate treatment and follow-up care for oral disease.
- Encourage and support a woman's decision to breastfeed, providing appropriate oral hygiene instructions for after feeding, and have ready access to resources.

- Educate women and encourage behaviors that support good oral health:
  - Brushing teeth twice daily with fluoridated toothpaste, especially before bedtime, and flossing daily.
  - Taking prenatal vitamins, including folic acid to reduce the risk of birth defects such as cleft lip and palate, and eating foods high in protein, calcium, phosphorus and vitamins A, C and D.
  - Chewing xylitol-containing gum or other xylitol-containing products, four to five times a day, after eating.
  - Not delaying necessary dental treatment.
  - Limiting foods containing fermentable carbohydrates — sugars (including fruit sugars), cookies, crackers, chips — to mealtimes only. Frequent between-meal consumption of these foods increases caries risk.
  - Limiting drinking juice, soda, sports drinks or carbonated drinks (including diet soda) between meals. These drinks contain sugar that can cause caries. Even diet sodas contain acids that can weaken the enamel of teeth, especially those containing caffeine and citric acid.
- Advise pregnant women experiencing frequent nausea and vomiting to reduce erosion of tooth surfaces by:
  - Eating small amounts of nutritious yet noncariogenic foods — snacks rich in protein, such as cheese — throughout the day.
  - Using a teaspoon of baking soda (sodium bicarbonate) in a cup of water to rinse and spit after vomiting, avoiding tooth brushing directly after vomiting as the effect of erosion can be exacerbated by brushing an already demineralized tooth surface.
  - Using gentle tooth brushing and fluoride toothpaste twice daily to prevent damage to demineralized tooth surfaces.
  - Using a fluoride-containing mouthrinse immediately before bedtime to help remineralize teeth.
- Advise women that the following actions may reduce the risk of caries in their children:
  - Wiping an infant's gums or teeth, especially along the gum line, with a soft cloth after breast or bottle feeding.
  - Helping a child brush their teeth until they are about 7 years old.
  - Avoiding putting the infant to bed with a bottle or sippy cup containing anything other than water.
  - Avoiding saliva-sharing behaviors, such as kissing the baby on the mouth, sharing a spoon when tasting baby food, cleaning a dropped pacifier by mouth or wiping the baby's mouth with a cloth moistened with saliva. For older children, avoiding the sharing of straws, cups or utensils.
  - Using a bottle or sippy cup between meals containing only water.
  - Begin weaning children from at-will bottle and sippy cup use (such as in an effort to pacify a child's behavior) by about 12 months of age.
  - Choosing fresh fruit rather than fruit juice to meet the recommended daily fruit intake.
  - Regularly lifting the lip and looking in their child's mouth for white or brown spots on the teeth.
- Encourage women to learn more about oral health during pregnancy and early childhood by accessing available consumer information including reputable websites.
- Advise and encourage the woman to obtain necessary follow-up dental care and oral health maintenance during the postpartum period and thereafter.

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Oral Health Care Professionals — Pregnant Women

The role of oral health professionals includes providing preventive services and restorative treatment along with anticipatory guidance for pregnant women and their children. Oral health professionals should render all needed dental services to pregnant women.

Pregnancy is not a reason to defer routine dental care or treatment of oral health problems.

It is not necessary to have approval from the prenatal care provider for routine dental care of a healthy patient.

Oral health professionals are encouraged to take the following actions for pregnant women:

- Provide education and dental referrals for oral health care, understanding that such care may have relatively low priority for some women, particularly those challenged by financial worries, unemployment, housing, intimate partner violence, substance abuse or other life-stressors.
- Ask the woman if she has any concerns/fears about getting dental care while pregnant. Based on her response, be ready to assure her that dental care is safe during pregnancy and address specific concerns.
- Advise the pregnant woman that prevention, diagnosis and treatment of oral diseases, including needed dental X-rays and use of local anesthesia, are highly beneficial and can be undertaken with no additional fetal or maternal risk when compared to not providing care.
- Plan definitive treatment based on customary oral health considerations, including:
  - Chief complaint and health history
  - History of tobacco, alcohol or other substance use
  - Clinical evaluation
  - Radiographs and other diagnostics when indicated
- Develop and discuss a comprehensive treatment plan that includes preventive, treatment and maintenance care throughout pregnancy. Discuss the benefits, risks and alternatives to treatments.
- Provide emergency/acute care at any time during pregnancy as indicated by oral condition.
- Perform a comprehensive periodontal examination, which includes a periodontal probing depth record.
- Consider the following as strategies to decrease maternal cariogenic bacterial load:
  - Recommend brushing teeth twice daily with fluoridated toothpaste along with fluoride mouth rinses, especially before bedtime, and flossing daily.
  - Restore untreated caries.
  - Recommend chlorhexidene mouth rinses and fluoride varnish as appropriate.
  - Recommend the use four to five times a day of xylitol-containing chewing gum or other xylitol products.
  - Encourage drinking optimally fluoridated tap or bottled water.

- Use the following when clinically indicated (See **TABLE 2** for acceptable and unacceptable drugs.):
  - Radiographs with thyroid collar and abdominal apron.
  - Local anesthetic with epinephrine.
  - Analgesics, preferably acetaminophen, not to exceed daily dosages.
  - Antibiotics including penicillin, cephalosporins and erythromycins.
- Do not use the following medications (See **TABLE 2** for acceptable andunacceptable drugs.):
  - Nonsteroidal anti-inflammatory drugs (NSAIDs) are not routinely a part of prenatal care, however in rare clinical situations they can be use for 48 to 72 hours; avoid use in the first and third trimesters.
  - Avoid erythromycin estolate and tetracycline.
- Ask all women of childbearing age if they take a multivitamin supplement containing folic acid, and recommend initiation if they do not.
- Support a woman's decision to breastfeed and have ready access to patient education resources. Address the topic by integrating it into regular patient education, such as saying "After breast or bottle feeding, be sure to wipe your baby's gums."
- Reinforce medical recommendations at oral health office visits, including tobacco and alcohol cessation.
- During treatment of a pregnant patient:
  - Place pregnant women in a semireclining position as tolerated, encourage frequent position changes, and/or place a small pillow under her hip to prevent postural hypotensive syndrome.
  - Utilize a rubber dam during restorative procedures and endodontic procedures.
  - Use safe amalgam and safe composite practices when placing restorative materials intraorally.
- Consult with the perinatal care provider when considering:
  - Deferring treatment because of pregnancy. (Note: There is no need to consult with the prenatal care provider for routine dental care of a healthy patient.)
  - Comorbid conditions that may affect management of dental problems such as diabetes, pulmonary issues, heart or valvular disease, hypertension, bleeding disorders, or heparin-treated thrombophilia.
  - The use of nitrous oxide as an adjunctive analgesic to local anesthetics.
  - Anesthesia other than a local anesthesia such as intravenous sedation, nitrous oxide or general anesthesia needed to perform the dental procedure.
- Provide any necessary follow-up evaluation to determine if the oral health care interventions have been effective.
- Provide health education or anticipatory guidance about oral health practices for her children to prevent early childhood caries.
- Encourage women to learn more about oral health during pregnancy and early childhood by accessing available consumer information including reputable websites. (See list in Appendices.)
- Advise and encourage the woman to obtain necessary follow-up dental care and oral health maintenance during the postpartum period and thereafter.
- Provide dental care for other family members to prevent transmission of cariogenic bacteria to her infant or other children.

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Oral Health Care Professionals — Infants and Young Children

Oral health professionals are encouraged to take the following actions for infants and young children:

- Assess the risk for oral diseases in children starting by age 1 by identifying risk indicators including:
  - Inadequate or inappropriate fluoride exposure.
  - Past or current caries experience of child, siblings, parents and other caregivers.
  - Restorations placed in children within past two years.
  - Insufficient or lack of age-appropriate oral hygiene efforts by parents/caregivers.
  - Frequent or prolonged exposure to fermentable carbohydrates especially between meals.
  - Use of nighttime bottle or sippy cup containing anything other than water.
  - Frequent use of medications that contain sugar or that inhibit salivary flow (e.g., anticholinergics, asthma, seizure and attention-deficit hyperactivity medications or antibiotics with added sugary syrup).
  - Clinical findings of heavy accumulation of plaque or any signs of decalcification (white spot lesions).
  - Low socioeconomic status.
  - Special health care needs (developmental delays or disabilities).
- Provide necessary treatment for children assessed to be at increased risk for oral disease or in whom carious lesions or white spot lesions are identified.
- Engage caregivers, whenever possible, in providing anticipatory guidance to increase the potential for changing oral health behaviors.
- Impress upon the parents or caregiver the importance of the child's primary dentition (e.g., avoid pain and suffering, for proper nutrition, avoidance of caries in permanent dentition, loss of school attendance, to save space for permanent teeth, for proper speech development).
- Apply fluoride varnish two to three times per year for children at moderate to high caries risk starting at 1 year of age.
- Advise parents about the most appropriate type of water to use to reconstitute infant formula. While occasional use of water containing optimal levels of fluoride should not appreciably increase a child's risk for fluorosis, mixing powdered or liquid infant formula concentrate with fluoridated water on a regular basis for infants primarily fed in this way may increase the chance of a child's developing enamel fluorosis.

- Advise parents and other caregivers about the following interventions to disrupt the chain of events that is implicated in the development of early childhood caries:
  - Reduce the bacterial reservoir in mothers and caretakers by using therapeutic agents such as chlorhexidene solutions and xylitol and restoring untreated dental caries.
  - Avoid saliva-sharing behaviors of mothers and other caregivers, such as kissing the baby on the mouth, tasting food before feeding, cleaning a dropped pacifier by mouth or wiping the baby's mouth with a cloth moistened with saliva. For older children, avoiding the sharing of straws, cups or utensils.
  - Avoid saliva-sharing behaviors between children via their toys, pacifiers,utensils, etc.
  - Encourage drinking optimally fluoridated tap or bottled water. If not possible, prescribe fluoride drops or tablet supplements. (See Fluoride Supplementation, **TABLE 3**, p. 48.)
  - Limit exposure to fermentable carbohydrates (e.g., crackers, chips, cookies, dry cereals) to mealtimes only — and limit the amount — and to caries-promoting sugars such as fruit juices, infant formula preparations, and sugary snacks.
  - Never allow at-will and nighttime use of bottles and sippy cups unless they contain only water. The last thing to touch the child's teeth before bedtime should be a toothbrush or water.
  - Wipe an infant's teeth after breast or bottle feeding, especially along the gum line, with a soft cloth or soft-bristled toothbrush.
  - Brush the child's teeth using a pea-sized (the size of a child's pinky nail) amount of toothpaste, especially before bedtime. Children older than 2 should use fluoride toothpaste; children younger than 2 should use a smear of fluoride toothpaste on the brush only if they are at moderate to high risk of caries.
  - Help the child with brushing their teeth until they are about 7 years old.
  - Visit an oral health professional beginning when the child is 12 months of age, or when the first tooth erupts.
  - Encourage parents to lift the lip and look in their child's mouth for white or brown spots on the teeth, showing them how to do this if necessary.
- Explain the importance of each family member having their own toothbrush.
- Regularly clean toys in the dental office waiting room, using an antibacterial solution.

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Child Health Care Professionals

Child health care professionals should develop the knowledge to perform oral risk assessments on children beginning at 6 months of age (American Academy of Pediatrics). In addition, children at moderate to high risk for caries should receive an aggressive anticipatory guidance and intervention program.

Child health care professionals are encouraged to:

- Assist parents/caregivers in establishing a regular source of dental care (a "dental home") for the child and for themselves. The first visit should occur when the child is 12 months of age or when the first tooth erupts.
- Provide counseling and anticipatory guidance to parents and other caregivers concerning oral health and protective behaviors during well-child visits.
- Impress upon the parents/caregivers the importance of the child's primary dentition.
- Assess the risk for oral diseases in the child beginning at 6 months of age by identifying risk indicators such as:
  - Inadequate or inappropriate fluoride exposure.
  - Past or current caries experience in child, siblings, parents and other caregivers.
  - Restorations placed in a child within the past two years.
  - Insufficient or lack of age-appropriate oral hygiene efforts by parents/caregivers.
  - Frequent and prolonged exposure to sugary substances especially between meals including bottle or sippy cup use.
  - Use of at-will and nighttime bottle or sippy cup containing anything other than water.
  - Frequent use of medications that contain sugar or cause xerostomia (inhibit saliva flow) (e.g., anticholinergics, asthma, seizure and attention-deficit hyperactivity medications or antibiotics with added sugary syrup)
  - Clinical findings of heavy accumulation of plaque or any signs of decalcification (white spot lesions).
  - Low socioeconomic status.
  - Special health care needs (developmental delays or disabilities).
- Facilitate appropriate referral for management of children assessed to be at increased risk for oral disease or in whom carious lesions or white spot lesions are identified.
- Obtain or develop and maintain a list of community oral health referral sources that will provide services to young children and children with special health care needs.
- Encourage drinking optimally fluoridated tap or bottled water. If not possible, prescribe fluoride drops or tablet supplements. (See Fluoride Supplementation **TABLE 3**, p. 48.)
- Advise parents about the most appropriate type of water to use to reconstitute infant formula. While occasional use of water containing optimal levels of fluoride should not appreciably increase a child's risk for fluorosis, mixing powdered or liquid infant formula concentrate with fluoridated water on a regular basis for infants primarily fed in this way may increase the chance of a child's developing enamel fluorosis.

- Advise parents (and demonstrate as needed) that the following actions may reduce the risk of caries in children:
  - Wipe an infant's teeth, especially along the gum line, with a soft cloth after feeding from the breast or bottle.
  - Brush the child's teeth using a pea-sized (the size of a child's pinky nail) amount of toothpaste, especially before bedtime. Children older than 2 should use fluoride toothpaste; children younger than 2 should use a smear of fluoride toothpaste on the brush only if they are at moderate to high risk of caries.
  - Help children with brushing until they are about 7 years old.
  - Give each family member their own toothbrush.
  - Never put the child to bed with a bottle or sippy cup containing anything other than water. The last thing to touch the child's teeth before bedtime should be a toothbrush or water.
  - Begin weaning children from at-will bottle and sippy cup use (such as in an effort to pacify a child's behavior) by about 12 months of age.
  - Feed the child foods containing fermentable carbohydrates (e.g., crackers, cookies, dry cereals) at mealtimes only and limit the amount.
  - Avoid saliva-sharing behaviors, such as kissing the baby on the mouth, sharing a spoon when tasting baby food, cleaning a dropped pacifier by mouth, or wiping the baby's mouth with a cloth moistened with saliva. For older children, avoiding the sharing of straws, cups or utensils.
  - Avoid saliva-sharing behaviors between children via their toys, pacifiers, utensils, etc.
  - Lift the lip and look in the child's mouth for white or brown spots on the teeth.
  - Visit an oral health professional beginning when the child is 12 months of age, or when the first tooth erupts.
  - Apply fluoride varnish applications two to three times a year for children at moderate to high risk of caries.
- Educate pregnant women and new parents about care that will improve their own oral health:
  - Brush teeth twice daily with a fluoride toothpaste and floss daily, especially before bedtime.
  - Eat foods containing fermentable carbohydrates at mealtimes only and in limited amounts.
  - Avoid sodas and other sugary beverages of any type, especially between meals.
  - Choose fresh fruit rather than fruit juice to meet the recommended daily fruit intake.
  - Obtain necessary dental exam and treatment before delivery when possible.
  - Chew sugarless or xylitol-containing gum or other xylitol-containing products, four to five times a day, after eating.
  - Do not smoke or use tobacco products.

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Community-Based Programs

Successful intervention to improve oral health during pregnancy and early childhood is benefited by comprehensive community-based efforts. A "health commons approach"[1] to oral health — where community-based, primary care safety net practices include medical, behavioral, social, public and oral health services — can enhance dental service capacity and increase access for low-income populations. Professionals working in these settings, including agencies such as Women, Infants and Children and Head Start, should provide anticipatory and other guidance to parents and integrate parent oral health curriculum into their client education services.

Public health and community-based organization professionals are encouraged to:

- Assist parents/caregivers in establishing a regular source of dental care (a "dental home") for the child and for themselves. The first visit should occur when the child is 12 months of age or when the first tooth erupts.
- Provide counseling and anticipatory guidance to parents and other caregivers concerning oral health during well-child visits.
- Impress upon the parents the importance of the child's primary dentition (e.g., avoid pain and suffering, for proper nutrition, avoidance of caries in permanent dentition, loss of school attendance, to save space for permanent teeth, for proper speech development).
- Facilitate appropriate referral for management of children assessed to be at increased risk for oral disease or in whom carious lesions or white spot lesions are identified.
- Follow up on referrals to ensure that timely dental care has been provided.
- Obtain or develop and maintain a list of oral health referral sources that will provide services to young children and children with special health care needs.
- Encourage parents with children at moderate to high risk of caries to receive fluoride varnish applications two to three times per year.
- Encourage drinking optimally fluoridated tap or bottled water. If not possible, prescribe fluoride drops or tablet supplements. (See Fluoride Supplementation **TABLE 3**, p. 48.)
- Advise parents about the most appropriate type of water to use to reconstitute infant formula. While occasional use of water containing optimal levels of fluoride should not appreciably increase a child's risk for fluorosis, mixing powdered or liquid infant formula concentrate with fluoridated water on a regular basis for infants primarily fed in this way may increase the chance of a child's developing enamel fluorosis.
- If making home visits, conduct an in-home assessment of oral health practices. For example:
  - Inquire whether each family member has his or her own toothbrush.
  - Ask if an adult helps children younger than 8 with tooth brushing.

- Advise parents (and demonstrate where necessary) that the following actions may reduce the risk of caries in children:
  - Wipe an infant's teeth after bottle or breastfeeding, especially along the gum line, with a soft cloth.
  - Brush the child's teeth using a pea-sized (the size of a child's pinky nail) amount of toothpaste, especially before bedtime. Children older than 2 should use fluoride toothpaste; children younger than 2 should use a smear of fluoride toothpaste on the brush only if they are at moderate to high risk of caries.
  - Help children with brushing until they are about 7 years old.
  - Give each family member their own toothbrush.
  - Never put the child to bed with a bottle or sippy cup containing anything other than water. The last thing to touch a child's mouth at bedtime should be a toothbrush or water.
  - Begin weaning children from at-will bottle and sippy cup use (such as in an effort to pacify a child's behavior) by about 12 months of age.
  - Limit foods containing fermentable carbohydrates — cookies, crackers, chips, dry cereals, candy (including fruit sugars) — to mealtimes only.
  - Avoid saliva-sharing behaviors, such as kissing the baby on the mouth, sharing a spoon when tasting baby food, cleaning a dropped pacifier by mouth, or wiping the baby's mouth with a cloth moistened with saliva. For older children, avoiding the sharing of straws, cups or utensils.
  - Avoid saliva-sharing behaviors between children via their toys, pacifiers, utensils, etc.
  - Lift the lip and look in the child's mouth for white or brown spots on the teeth.
  - Visit an oral health professional the with child by 12 months of age or when the first tooth erupts.
- Educate pregnant women and new parents about care that will improve their own oral health:
  - Brush teeth twice daily with a fluoride toothpaste and floss daily, especially before bedtime.
  - Eat foods containing fermentable carbohydrates at mealtimes only and in limited amounts.
  - Avoid sodas and sugary beverages (including juices and sports drinks), especially between meals.
  - Choose fresh fruit rather than fruit juice to meet the recommended daily fruit intake.
  - Obtain necessary dental treatment before delivery when possible.
  - Chew sugarless or xylitol-containing gum or other xylitol-containing products, four to five times a day, after eating.
  - Do not smoke or use tobacco products.

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The Evidence-Based Science

Oral health care is particularly important for the health of infants, young children, new mothers, and women who are pregnant or may become pregnant. There is sufficient, strong evidence to recommend appropriate oral health care for these groups of patients. These Perinatal* Oral Health Practice Guidelines are intended to assist health care practitioners in private, public and community-based settings in understanding the importance of providing oral health services to pregnant women and their children and making appropriate decisions regarding their care.

* While the term "perinatal" generally refers to the period around childbirth (i.e., three months prior to and a month following), it is used in this document to more broadly include the entire prenatal and postpartum periods. In its broadest sense of maternal and child health, "perinatal" could include time after and between pregnancies.

Studies suggest that only about one-quarter to one-half of women in the United States receive any dental care, including prophylaxis, during their pregnancies.

The Guidelines are based on a review of current medical and dental literature related to perinatal oral health, and their development was guided by a group of national experts. Because these Guidelines do not represent a static standard of community practice and are established based on current scientific evidence, the recommendations in this document should be reviewed regularly by medical and dental experts in the light of scientific advances and improvement in available technology, approaches or products.

Good oral health has the potential to improve the health and well-being of women during pregnancy,[2] and contributes to improving the oral health of their children. Pregnancy and early childhood are particularly important times to access oral health care since the consequences of poor oral health can have a lifelong effect[3] — and because pregnancy is a "teachable moment" when women are receptive to changing behaviors that can benefit themselves and their children.

However, oral health care in pregnancy is often avoided and misunderstood by dentists, physicians and pregnant women because of the lack of information or perceptions about the safety and importance of dental treatment during pregnancy.[4] Dental and obstetrical professionals who care for women during pregnancy need evidence-based and practical information concerning the risks and benefits of dental treatment to oral and overall health, and an understanding of the factors that affect a woman's dental care used to support more effective practice behaviors. While evidence-based practice guidelines, such as those developed by the New York State Department of Health[5] and other professional advisories, are evolving to support practitioners, many dentists withhold or delay treatment of pregnant patients because of a fear of injuring either the woman or the fetus.[6] And, because they have not been trained to understand the relationship between oral health and overall health, many prenatal providers fail to refer their patients regularly for dental care.[7,8] A coordinated effort between the oral health and prenatal care communities can benefit maternal and child oral health outcomes. In addition to obstetricians, family physicians and other primary care providers play a pivotal role in preventing oral disease, especially among minority and underserved populations who have limited access to dental services and poorer oral health status; and they in a unique position to fill gaps in access to care.[9] Emerging data on important oral-systemic linkages suggest an increasing need for dental-medical collaboration and cross-training.[10]

Although pregnancy places women at higher risk for some oral conditions, such as tooth erosion and periodontal disease,[11,12] various studies suggest that only about one-quarter to one-half of women in the United States receive any dental care, including prophylaxis, during their pregnancies.[13,14] The likelihood of low-income and uninsured women receiving such care is even lower. In California, for example, one study found that in 2004 fewer than one in five pregnant women enrolled in Medicaid received any dental services.[15]

Dental caries is well documented as the most prevalent chronic disease of children — especially among low-income families — despite the fact that tooth decay is largely preventable.[16] Nationally, 28% of 2 to 5-year-olds show visual evidence of dental caries;[17] and in California, more than half (53%) of all children have experienced dental caries by the time they reach kindergarten, with 28% having untreated caries.[18] Poor oral health also impacts academic achievement as dental problems result in millions of lost school days each year.[19,20]

Guidelines Development Process

In addition to the 2006 New York State Practice Guidelines — which have served as an early model — a number of organizations have recently undertaken efforts to address oral health care during pregnancy and early childhood. To reinforce these recommendations and to add to the growing repository of evidence, the California Dental Association Foundation (CDA Foundation) and the American College of Obstetricians and Gynecologists, District IX (ACOG District IX) collaborated on an effort to substantiate the relationship between health and oral health status, treatment of oral disease and pregnancy outcomes. An expert panel of medical and dental professionals was engaged to review the scientific literature and, on the basis of evidence and professional consensus, derive practice guidelines.

An Advisory Committee of professionals representing statewide organizations in public and private clinical practice, research, health education, and policy was formed to work with the CDA Foundation, ACOG District IX, and the project co-chairs to guide the process.

The committee was composed of professionals representing organizations such as the American Academy of Pediatrics, California Primary Care Association, California Nurse-Midwives Association, American Dental Association, American Association of Public Health Dentistry, National Network for Oral Health Access, and American Academy of Pediatric Dentistry. Its role included helping to identify the expert panel, developing the agenda for the consensus conference and reviewing, and giving feedback on the Guidelines during their development.

The interdisciplinary expert panel was selected for their subject matter expertise in oral health and perinatal medicine and represented medical and dental specialties such as maternal-fetal medicine and periodontology. Panel members were charged with performing a literature search on the available science and presenting a summary of evidence-based studies that provided the framework for developing the Guidelines according to the following definition of evidence-based decision making: practices and policies guided by documented scientific evidence of effectiveness, particular to and accepted by the specific field of practice. The experts were charged with identifying existing interventions, practices and policies; assessing issues of concern; and developing recommendations.

Consensus Conference

The expert panel made their presentations at a two-day consensus conference held in Sacramento, Calif., on Feb. 20-21, 2009. In addition to the Advisory Committee members, the conference was also attended on the first day by representatives of about 50 multidisciplinary stakeholder groups involved in maternal and child health. Many of these representatives — from such organizations as the California Department of Public Health's Maternal, Child and Adolescent Health program; Kaiser Permanente; and the California Primary Care Association Dental Director's Network — have direct involvement in the care of pregnant women and young children. The engagement of stakeholders early in the process encouraged buy-in and gave these groups the opportunity to provide feedback about the practicality of implementing the Guidelines as they were being developed.

Following the research presentations on the first day, the panelists and Advisory Committee on the second day reviewed numerous comments submitted from the audience the previous day and identified common themes, unanswered questions, key messages and recommendations. Major findings pertaining to each topical area were then re-reviewed relative to specific clinical Guidelines for prenatal, oral health and child care professionals to identify areas of agreement as well as ambiguity. The group relied on expert consensus when controlled studies were not available or conclusive to address specific issues and concerns.

The documentation and proceedings from this conference were summarized and supplementary material added to create these Guidelines, and several drafts were reviewed by the expert panel and Advisory Committee. Prior to dissemination, the final draft was revised to reflect additional feedback from "reality testing" focus groups with local dentists and physicians from private, public and community-based practices that provided valuable feedback about their content, utility and prospective acceptance, as well as suggestions for dissemination.

The Guidelines are organized around key issues addressed during the consensus conference to reflect a patient-centered model of care — a model that takes into account the various factors that influence a woman's individual needs, personal circumstances, and ability to access services, in addition to advice and counsel from health professionals.

Perinatal Oral Health Consensus Statement

The key consensus statement developed by the expert panel and Advisory Committee conference participants is in the box above.

PERINATAL ORAL HEALTH CONSENSUS STATEMENT

Prevention, diagnosis and treatment of oral diseases, including needed dental radiographs and use of local anesthesia, are highly beneficial and can be undertaken during pregnancy with no additional fetal or maternal risk when compared to the risk of not providing care. Good oral health and control of oral disease protects a woman's health and quality of life and has the potential to reduce the transmission of pathogenic bacteria from mothers to their children.

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THE IMPORTANCE OF ORAL HEALTH FOR WOMEN AND YOUNG CHILDREN

Oral Health Care as an Integral Part of Perinatal Health

Control of oral disease is important because it protects a woman's health and quality of life and has the potential to reduce the transmission of pathogenic bacteria from mothers to their children. A woman's preconception as well as pregnancy experience not only influences her own oral health status but also may increase her risk of other diseases. Health care professionals providing preconception care, including primary and general women's health care, between pregnancies should be educated to recognize the relationship between oral health and pregnancy, and maternal oral health status and future caries risk during early childhood.

Maintaining good oral health during pregnancy can be critical to the overall health of both pregnant women and their infants. As part of routine prenatal care, pregnant women should be referred to oral health professionals for examinations and any needed preventive care or dental treatment. Despite clear links between oral and overall general health, oral health is not accorded the same importance in health care policy as is general health.[21] Reimbursement models and clinical practice typically view the oral cavity as separate from the rest of the body. While oral health should be an integral part of comprehensive care for pregnant women, variations in oral health practice patterns reflect the fact that oral health screening and referral are not routinely included in prenatal care.[22] Moreover, some oral health professionals are hesitant to treat pregnant women because of misconceptions, fear of lawsuits or lack of evidence-based information.[23]

Preconception

Maintaining a healthy lifestyle, including optimal oral health, is essential for women who are currently pregnant or who may become pregnant. The most critical periods of fetal development occur in the earliest weeks following conception, before many women even know they are pregnant. Because at least one-third of pregnancies are estimated to be unplanned,[24] women frequently conceive while experiencing less than optimal health.[25] While oral health should be a goal in its own right, preconception prevention and treatment of oral health conditions as a mechanism to improve both women's oral and general health and their children's dental health must be considered.[26] Improving preconception health by providing health promotion, screening and interventions can result in improved reproductive health outcomes, with potential for reducing societal costs as well.[27,28] Ensuring that evidence-based interventions are implemented to further improve infant and maternal pregnancy outcomes among women living with chronic conditions, which includes poor oral health, should also be a priority preconception care activity.[29]

During Pregnancy and Early Childhood

Pregnancy and early childhood are particularly important times to access oral health care because the consequences of poor oral health can have a lifelong impact.[30] Improving the oral health of pregnant women prevents complications of dental diseases during pregnancy (e.g., abscessed teeth, toothache), and has the potential to subsequently decrease early childhood caries (ECC)* in their children.

Poor periodontal health is associated with chronic conditions such as diabetes, cardiovascular disease and some respiratory diseases. For women with diabetes diagnosed prior to pregnancy, for example, oral health is essential because acute and chronic infections make control of diabetes more difficult.[31] Diabetes control is particularly important during the first trimester. Rates of congenital anomalies increase as the degree of uncontrolled diabetes increases. Ongoing control of diabetes during pregnancy further decreases the risk of adverse pregnancy outcomes such as preeclampsia and large-for-gestational-age newborns.[32]

It is well-documented that the use of folic acid before and during pregnancy reduces the risk of neural tube defects. Some studies suggest it may also reduce the risk of oral congenital defects such as cleft lip, cleft palate and cleft lip with cleft palate.[33] Oral clefts are among the most common congenital malformations, with an estimated prevalence of 1.5 per 1,000 births.[34] Primary prevention of birth defects by adequate preconception and prenatal maternal folic acid supplementation is

* Also known as "baby bottle caries" or "baby bottle tooth decay," Early Childhood Caries (ECC) is a common bacterial infection characterized by decay in the teeth of infants or young children. According to the American Academy of Pediatric Dentistry, ECC is defined (2003) as: one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child <71 months (i.e., age 6). In children <age 3, any sign of smooth-surface caries is indicative of severe ECC.

More than 8% of women reported that the main reason they did not get dental services was that their providers advised against care.

"a major public health opportunity"[35] with implications for oral health. As part of routine care for pregnant patients and all women of childbearing age, dental professionals should remember to ask women if they take folic acid (most commonly in multivitamin supplements) and recommend it if they do not.

Some oral health professionals have postponed treatment during pregnancy because of uncertainty about the risk of radiographs and bacteremia that can occur with dental prophylaxsis and restoration.[36,37] However, deferring appropriate treatment may cause harm to the woman and possibly to the fetus for several reasons. First, women may self-medicate with potentially unsafe over-the-counter medications such as aspirin to control pain. (See later section on Pharmacology Issues.)

Second, untreated dental caries in mothers increases the risk of her children developing caries. Finally, untreated oral infection may become a systemic problem during pregnancy.

The American Academy of Periodontology urges oral health professionals to provide preventive services as early in pregnancy as possible and to provide treatment for acute infection or sources of sepsis irrespective of the stage of pregnancy.[38] For many women, completing treatment of oral diseases during pregnancy assumes greater importance because health and dental insurance may be available only during pregnancy. Consequently, the prenatal period is a unique opportunity for obtaining oral health services that would otherwise be unavailable. Moreover, assessment of oral health risks in infants and young children, along with anticipatory guidance for parents and other caregivers, has the potential to prevent ECC.

Utilization of Oral Health Services During Pregnancy

While for some women pregnancy is the only time they have medical and dental insurance[39] — thus providing a unique opportunity to access care — reports indicate that dental care use by women during pregnancy is less than optimal. In four states where oral health data are collected as part of the Pregnancy Risk Assessment Monitoring System (PRAMS, an ongoing, population-based survey that obtains information from mothers who recently delivered live-born infants), reports of dental care use during pregnancy ranged from 22.7% to 34.7%. In three states, 12.2% to 25.4% of respondents reported having a dental problem and, of these, 44.7% to 54.9% went for care. Among mothers reporting a dental problem, insurance through public funding and late prenatal care entry were significantly associated with their not getting dental care.[40]

Among women surveyed in another PRAMS study about the likelihood of women using dental services during pregnancy, 58% reported no dental care during their pregnancy. Among women with no dental problems, those at increased risk of not receiving dental care during pregnancy included women who received no counseling on oral health care, were overweight or obese, or reported smoking.[41]

Maternal and Infant Health Assessment (MIHA) data for California — where nearly 1 in 7 births occurs in the United States — found that 65% of all women delivering in California during 2002-2007 received no dental care during pregnancy, and about half (52%) reported having a dental problem prenatally; 62% of those reporting a dental problem received no dental care. The percentage of women with nonreceipt of dental care was higher among women who were lower income, had a lower education level, did not have private prenatal insurance or prenatal coverage during the first trimester of pregnancy, had no usual source of medical care prior to becoming pregnant, were non-English speaking or of nonwhite ethnicity, than among their counterparts. Seventy-nine percent of women with Medi-Cal (California's Medicaid program) did not receive any dental care during pregnancy. This is particularly significant as Medi-Cal is the payer for nearly half (46%) of all births in California hospitals,[42] and women with Medi-Cal coverage during pregnancy have also been eligible for a limited range of Medi-Cal dental program (Denti-Cal) benefits since the end of 2005.[43] The primary reasons women reported not receiving dental care were lack of perceived need for that care, followed by financial barriers (including cost and lack of dental insurance). More than 8% of women reported that the main reason they did not get dental services was that their providers advised against care.[44] The implications of these and the above findings are that there is a need for education of providers and women on the importance of dental care during pregnancy, and that the financial and other barriers to care must be addressed and reduced.

MATERNAL PHYSIOLOGIC CONSIDERATIONS IN RELATION TO ORAL HEALTH

Because of the two-fold (mother and fetus) responsibility that dental professionals face in treating the pregnant patient, it is essential that they understand the physiology of pregnancy, fetal development, normal changes during pregnancy, potential oral complications of pregnancy, and the effects that dental intervention may have on the woman, her fetus or her neonate.[45]

Normal Changes

Maternal cardiovascular response to pregnancy involves enormous changes. During gestation, plasma volume and cardiac output increase, peripheral vascular resistance decreases, and there is a modest decline in mean blood pressure during midgestation. Myocardial contractility increases during all trimesters of pregnancy resulting in the development of a mild ventricular hypertrophy. The increased load, which develops in tandem with additional blood volume, leads to an increase in left atrial diameter.[46] Due to the enlarging uterus from about midpregnancy, women in the supine position are at risk for aortic and venal caval compression by the gravid uterus. Thus, avoiding the flat supine position, particularly in a dental chair, by displacing the uterus laterally is important.[47] Although influenced primarily by the size of the uterus and the exact maternal and fetal position, "frank hypotensive syndrome" — characterized by hypotension, pallor, and nausea — occurs in about 15-20% of term pregnant women when supine unless a pillow under the hip is used for displacement.[48]

As pregnancy progresses, the enlarging uterus assumes a more important role in the alteration of respiratory functions. Conformational changes in the chest (e.g., rise in the diaphragm) may affect sleep patterns. Shortness of breath reflects increased respiratory drive and airway edema.[49] Total lung volume and lung capacities are not greatly changed by pregnancy; changes are primarily limited to the functional residual capacity (FRC), which is decreased 15-20% in the woman at term, and tidal volume, which is increased 30-40%. While vital capacity, taken in the upright position, remains essentially unchanged during normal pregnancy, obesity or cardiovascular or pulmonary dysfunction can cause a decrease in vital capacity.[50] Respiratory changes that occur during pregnancy are of special significance concerning anesthesia. The supine position impairs respiratory function late in pregnancy, worsening hypoxemia by aorto-caval compression. Reduced FRC, especially when compromised by the supine position, commonly falls below the closing capacity of the lungs (lung volume during expiration) in late pregnancy.

Pregnancy is also associated with pressure on the stomach caused by the enlarged uterus. Heartburn, nausea and vomiting and rapid satiety (feeling of fullness) are common. Heartburn is primarily a result of decreased gastroesophageal junction tone and increased gastric reflux.[51]

Stomach acid refluxed up through the esophagus and into the oral cavity is a concern because excessive vomiting can result in enamel erosion.[52]

Common hematologic changes during pregnancy include a mild decrease in mean platelet count (gestational thrombocytopenia), mild increases in mean white blood cell counts, and increased iron demands secondary to increased erythropoiesis which requires iron supplementation to maintain hemoglobin level and avoid depletion.[53] Other vascular changes include "spider angiomata" and palmar erythema. Pregnancy also increases procoagulants and reduces anticoagulants although neither clotting nor bleeding times are abnormal. All women are at increased risk for venous thromboembolism during pregnancy.[54]

There are substantial changes in the maternal innate and adaptive immunity systems that affect the maternal-fetal relationship. The immune system can respond through numerous pathways depending on a multitude of factors, including the nature and concentration of the offending agent, the conditions that prevail in the immediate microenvironment of the responsive cells, and the host's functional capacity to respond. In view of these varying conditions, the system must constantly be adaptive, mobilizing and functionally integrating its numerous cell types for rapid response.[55] Reduced resistance of the oral tissues to disease from a reduction in blood levels of immunoglobulins (IgG) in the second half of pregnancy often leads to increased colonization by oral pathogens with increased potential for severe, sustained oral infections such as periodontal disease, for example.[56]

Common Complications of Pregnancy

The most common complications of pregnancy include spontaneous abortion (miscarriage), preterm birth, preeclampsia and gestational diabetes. Pregnancy loss of less than 20 weeks' gestation occurs in approximately 15 to 25% of pregnancies.[57,58] Most are not preventable. The etiologies of spontaneous abortion include endocrine factors, uterine malformations, and chromosomal abnormalities, which account for the greatest majority (60-80%) of losses.

Preeclamptic women present a high prevalence of periodontitis, suggesting that active periodontal disease may play a role in the pathogenesis of preeclampsia.

There is no evidence relating early spontaneous miscarriage to first trimester oral health care or dental procedures.

Preterm birth is the delivery of an infant before 37 completed weeks' gestation,[59] and accounts for about 11% of all deliveries in the United States.[60] Factors that contribute to the etiology of preterm labor are infection, increased uterine volume, indicated iatrogenic causes and idiopathic factors. There are no proven primary prevention interventions for all women for preterm labor or birth. Secondary prevention includes tocolytics (medications used to arrest or slow down premature labor) in an attempt to obtain additional gestational time, and the use of antibiotics to prolong the latency period in the setting of preterm rupture of the membranes. Preterm premature rupture of membranes occurs in 3% of pregnancies and is responsible for approximately one-third of all preterm births; the etiology may be subclinical infection.[61] Three recent large, well-designed randomized clinical trials,[62,63,64] all of which involved nonsurgical periodontal therapy during the second trimester, have failed to demonstrate that treatment of periodontal disease decreases the incidence of preterm labor and low preterm birthweight. Other periodontal intervention strategies involving different timing and/or treatment intensity have not been rigorously tested.

While research is ongoing, the best available evidence to date shows that periodontal treatment during pregnancy does not alter the rates of preterm birth or low birth weight and is safe for the mother and fetus.

Preeclampsia — pregnancy-induced hypertension (>140/90) plus proteinuria usually presenting after 20 weeks of gestation — affects 3-7% of pregnant women, usually primigravidas and women with pre-existing hypertension or vascular disorders (e.g., renal disorders, diabetic vasculopathy).[65] While the causes and pathophysiology of preeclampsia are unknown, the greater the pre-pregnancy blood pressure or pre-pregnancy weight, the greater is the risk for preeclampsia.[66] Immunogenic risk factors include multiple gestations, change in paternity, paternal family history and differing parental ethnicity.[67] Severe preeclampsia is associated with blood pressure >160/110, pulmonary edema, >5 gram of proteinuria in 24 hours, HELLP syndrome (hemolysis, elevated liver enzymes, and low platelet count), and increased risk of fetal IUGR (intrauterine growth restriction).[68] Treatment considerations must balance the risks for the mother and those of the baby with that of preterm delivery. While the best treatment is delivery, primary prevention strategies for some subgroups include aspirin, antiplatelet agents, calcium supplementation, and heparin. Secondary prevention includes careful monitoring of blood pressures,[69] laboratory tests, and symptoms of severe preeclampsia to prevent complications of the disease. Diabetic pregnancies complicated by preeclampsia are of concern because of poor perinatal outcome.

Periodontitis is associated with preeclampsia in pregnant women. Studies have shown that preeclamptic women present a high prevalence of periodontitis, suggesting that active periodontal disease may play a role in the pathogenesis of preeclampsia.[70] Oral pathogens have been found in placentas of women with preeclampsia, which imply a possible contribution of periopathogenic bacteria to the pathogenesis of this syndrome.[71]

Despite the complexity of symptoms and challenges of preeclampsia in patient management, preeclampsia is not a contraindication to dental care.

Common oral problems in the general population of people with diabetes include tooth decay, periodontal disease, salivary gland dysfunction, infection and delayed healing. Gestational diabetes mellitus (GDM) — diabetes with initial onset or recognition during pregnancy — occurs in 3-7% of all pregnancies and is increasing, paralleling the obesity epidemic. Longer term outcomes include increased risk of Type 2 diabetes for the mother.[72,73] According to a six-year prospective cohort study, GDM is associated with increased likelihood of macrosomia (newborns with excessive birthweight), increased cord-blood serum C-peptide, higher primary caesarean delivery rate, and neonatal hypoglycemia.[74] Pregnant women who develop GDM are also at greater risk for periodontal disease than women who do not develop GDM. Once periodontal disease occurs, it makes control of diabetes more difficult. Appropriate detection and active management and treatment of periodontal disease can improve glycemic control of the diabetic patient.[75]

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ASSOCIATION OF PREGNANCY AND ORAL CONDITIONS

Common Oral Conditions

The physiologic changes in the mouth that occur during pregnancy are well- documented. Combined with lack of routine exams and delays in treatment for oral disease, these changes place pregnant women at higher risk for dental infections. Clinically important alterations in the woman's immune system during pregnancy have important implications for oral health. Pregnancy-associated immunologic changes, particularly suppression of some neutrophil functions, are the probable explanation for the exacerbation of plaque-induced gingival inflammation during pregnancy, for example. Inhibition of neutrophils is particularly important in pregnancy-periodontal disease associations.[76,77]

Nausea and vomiting during pregnancy (Nter. Although NVP is predominantly associated with early pregnancy, some women continue to VP) are very common; 70-85% of women experience these symptoms, which tend to be self-limiting after the first trimesexperience it past the first trimester. Hyperemesis gravidarum is a severe form of NVP that occurs in about 0.3-2.0% of pregnancies,[78] and may lead to surface enamel loss primarily through acid-induced erosion.[79]

Changes in salivary composition in late pregnancy and during lactation may temporarily predispose to erosion as well as dental caries,[80] however there are no convincing data to show that dental caries incidence increases during pregnancy or during the immediate postpartum period, though existing, untreated caries will likely progress.

Gingivitis due to accumulation of plaque is the most common clinical periodontal condition of women during pregnancy, occurring in 60-75% of women,[81] which speaks to the importance of establishing periodontal preventive and treatment measures during pregnancy. Gingival changes generally occur between three and eight months of pregnancy and gradually decline after delivery. While gingival changes usually occur in association with poor oral hygiene and local irritants, especially bacterial flora of plaque, the hormonal and vascular changes that accompany pregnancy often exaggerate the inflammatory response to these local irritants.[82] The most marked changes are seen in gingival vasculature. This type of gingivitis, known as pregnancy gingivitis, is characterized by gingiva that is dark red, swollen, smooth and bleeds easily.[83] Generalized supra- and/or subgingival periodontal therapies should be initiated to eliminate plaque buildup along with intensive, effective oral hygiene education.

In addition to generalized gingival changes, pregnancy may also cause single, tumor-like growths of gingival enlargement referred to as a "pregnancy tumor," "epulis gravidarum," or "pregnancy granuloma." This lesion occurs most frequently in an area of inflammatory gingivitis or other areas of recurrent irritation, or from trauma or any source of irritation.[84] It often grows rapidly, although it seldom becomes larger than 2 cm in diameter. Poor oral hygiene invariably is present, and often there are deposits of plaque or calculus on the teeth adjacent to the lesion. Scaling and root planing, as well as intensive oral hygiene instruction, should be initiated before delivery to reduce the plaque retention.[85] Generally, the pregnancy granuloma will regress somewhat postpartum. There are situations, however, when the lesion needs to be excised during pregnancy, such as when it is uncomfortable for the patient, disturbs the alignment of the teeth, or bleeds easily on mastication. However, the patient should be advised that the pregnancy granuloma excised before term may recur.[86]

Generalized tooth mobility in the pregnant patient is probably related to the degree of gingival diseases disturbing the attachment apparatus, as well as to mineral changes in the lamina dura.[87] Longitudinal studies demonstrate that as the gingival inflammation increases so do the probing depths, attributable to the swelling of the gingiva.[88] While most research concludes that generally no permanent loss of clinical attachment occurs during pregnancy,[89,90] in some individuals the progression of periodontitis can and does occur[91] and can be permanent.

Physiologic xerostomia (abnormal dryness of the mouth) is a common oral complaint. The most frequently reported cause of xerostomia is the use of medications that produce dryness as a side effect,[92] including antispasmodics, antidepressants, antihistamines, anticonvulsants and others. Adults or children using these medications long term may benefit from increased oral hygiene efforts and more frequent fluoride exposure to reduce the increased risk of caries.[93] Physiologic xerostomia also occurs during sleep, when salivary glands do not secrete spontaneously. With little or no saliva to buffer pH and clear away fermented bacterial products from teeth during sleep, the most important time for plaque removal is just before bedtime for both mothers and children.

Periodontal Disease and Adverse Pregnancy Outcome

Destructive periodontal disease affects about 15% of women of childbearing age and up to 40% of pregnant women, with a dispropor-

Gingivitis due to accumulation of plaque is the most common clinical periodontal condition of women during pregnancy, occurring in 60-75% ofwomen.

tionate burden among low-income women.[94,95] Advancing age, smoking and diabetes are risk factors for the development of periodontal disease.[96] These same risk factors present for adverse pregnancy outcomes. The destructive process involves both direct tissue damage resulting from plaque bacterial products and indirect damage through bacterial induction of the host inflammatory and immune responses.

Earlier studies showed conflicting evidence of maternal periodontal disease association with adverse pregnancy outcomes such as preterm birth and low birthweight, but recent random controlled studies have not. Two large cross-sectional studies reported positive associations of periodontal disease and adverse pregnancy outcome(s),[97,98] while three cross-sectional studies reported no associations.[99,100,101] Similarly, a number of case-control studies have reported a positive association,[102,103,104] while other case-control studies have not shown a relationship.[105,106,107] In the case-control studies, those with positive associations tended to have relatively small sample sizes.

Prospective studies also demonstrate conflicting results. Several studies conducted in the United States, including the OCAP (Oral Conditions and Pregnancy) Cohort Study and additional studies around the world between 2001-2008, have shown an increased risk of adverse pregnancy outcome(s) with periodontal disease.[108,109,110,111] The OCAP studies also showed increased odds of the adverse pregnancy outcomes of preeclampsia,[112] fetal immune response,[113] and very early preterm birth,[114] among other conditions. Conversely, several other prospective cohort studies, such as the Mobeen et al. investigation of 1,152 Pakistani women enrolled at 20-26 weeks gestation[115] reported no risk of adverse preterm birth/low birthweight with periodontal disease.[116,117,118] Two large prospective cohort studies from the United Kingdom reported no association of preterm birth or low birthweight, but they did report a correlation between late miscarriage and periodontal disease.[119,120] In the United States, a multicenter prospective cohort study of pregnant women enrolled between six and 20 weeks' gestation (311 with periodontal disease compared with 475 without) found no association between periodontal disease and adverse pregnancy outcomes (preterm birth, preeclampsia, fetal growth restriction or perinatal death).[121]

Intervention trials for treatment of periodontal disease during pregnancy have demonstrated consistently improved maternal oral health, although findings regarding a positive association of treatment for preterm birth reduction are conflicting.[122] Early preliminary studies outside of the United States and preliminary U.S. clinical trials reported that periodontal therapy reduces adverse pregnancy outcomes. However three large multicenter U.S. trials, conducted with women during 13-23 weeks of pregnancy, concluded that there is no effect of routine periodontal therapy on reducing adverse pregnancy outcomes.[123,124,125] Importantly, however, evidence from these randomized clinical trials — which are a stronger research design than the earlier work of observational studies (cross-sectional, cohort, and case-control) — also showed that routine, essential dental care, nonsurgical periodontal care, and the use of topical or local anesthesia for dental procedures were not associated with any adverse serious medical events or adverse pregnancy outcomes.[126] Additionally, periodontal therapy can be effective in reducing signs of periodontal disease and reducing periodontal pathogens,[127,128] providing evidence to support the provision of periodontal care during pregnancy.

Because it has been shown to be safe and effective in reducing signs of periodontal disease and reducing periodontal pathogens, best practice suggests that periodontal care should be provided during pregnancy.

Transmission of Cariogenic Bacteria

It is well-established that dental caries is a bacterial infection,[129] and studies during the past 25 years clearly indicate that the bacteria involved are transmissible.[130] Dental caries involves multiple acidogenic species of bacteria that consume fermentable carbohydrates — sugars (including fruit sugars) and cooked starch (bread, cereal, crackers, chips) — and produce acid byproducts that diffuse into the tooth and dissolve minerals; the two principal groups of bacteria that have been implicated are the mutans streptococci and the *Lactobacilli* species. The principal species in the mutans streptococci group are *Streptococcus mutans* and *Streptococcus sobrinus*. Early colonization in an infant's mouth by *S. mutans* is a major risk factor for early childhood caries as well as future dental caries.[131]

It is helpful for health care providers to view caries as an ongoing and often changing balance between pathological factors and protective factors: If the pathological

Control of oral diseases in pregnant women has the potential to reduce the transmission of oral bacteria from mothers to their children.

factors outweigh the protective factors, then caries progresses. In the reverse situation, caries may be arrested or an incipient lesion reversed. The pathological factors include the acidogenic bacteria, reduced salivary function, and the frequency of ingestion of fermentable carbohydrates. The protective factors include saliva and its numerous caries-protective components; the saliva flow; antibacterials, both intrinsic from saliva and extrinsic from other sources; fluoride in multiple forms and other factors that can enhance enamel remineralization; good oral hygiene to remove plaque; and dental sealants for susceptible pits and fissures. In most individuals, there are numerous acid challenges daily as fermentable carbohydrates are ingested and the battle between the pathological factors and the protective factors takes place.[132]

Control of oral diseases in pregnant women has the potential to reduce the transmission of oral bacteria from mothers to their children.[133] While the restoration of carious lesions is an essential first step to control the caries disease process and restore function, restorative treatment for the mother does not sufficiently affect the bacterial load nor the transmissibility of bacteria to the infant if high levels of cariogenic bacteria remain in her mouth. A mother with tooth decay, or recent tooth decay, can still transmit the caries-causing bacteria to the child. Antibacterial therapy as well as fluoride treatment for the mother is essential to control caries and reduce the severity of bacterial transmission to the infant.

The mother is the most common cariogenic bacterial donor as noted in DNA fingerprinting studies that show genotype matches between mothers and infants in more than 70% of cases.[134] In a study of Caesarean deliveries, 100% of infants harbored a single genotype of *S. mutans* that was identical to their mothers, and acquired that bacterium nearly 12 months earlier than did vaginally delivered infants.[135] This observation suggests that additional care should be taken to reduce the transmission of cariogenic bacteria to infants of mothers with Caesarean deliveries.

It is now well-established that mutans streptococci can be acquired and readily transferred through vertical transmission — from mother to child or caregiver to child[136,137,138] — or through horizontal transmission — from child to child, including unrelated children such as in preschool,[139,140,141] or adult to adult as between spouses.[142,143] Cariogenic or decay-causing bacteria are typically transferred from the mother or caregiver to child by behaviors that directly pass saliva, such as sharing a spoon when tasting baby food, cleaning a dropped pacifier by mouth, or wiping the baby's mouth with a cloth moistened with saliva. Early acquisition of *S. mutans* is a key event in the natural history of early childhood caries as children infected early have more caries later. Delaying or preventing primary infection by mutans streptococci reduces the risk for future dental caries.[144] Pregnant women who may not be concerned about their own oral health are generally very receptive to information about the consequences it can have on their children,[145,146] again marking pregnancy as a teachable opportunity for improving health behaviors.

Evidence on effective interventions to reduce mother-to-child transmission of cariogenic bacteria supports recommendations for the appropriate use of fluorides, antibacterials and dietary control to reduce maternal salivary reservoirs of cariogenic bacteria, particularly for women who have experienced high rates of dental caries.[147] Xylitol, a naturally occurring sugar alcohol approved for use in food by the U.S. Food and Drug Administration since 1963, has been shown to reduce *S. mutans* levels in plaque and saliva and to markedly reduce tooth decay.[148] Xylitol can inhibit bacterial transfer and is also antibacterial and nonfermentable. Maternal use of xylitol chewing gum or lozenges (four to five times a day) has been shown to be effective in reducing *S. mutans* colonization and caries in infants.[149] Studies involving schoolchildren have demonstrated that habitual use of xylitol-containing products decreased dental caries. In a school-based randomized clinical trial, *S. mutans* and *S. sobrinus* were reported to be reduced among children when xylitol was consumed in specially formulated gummy bear candy, although there was no change in *Lactobacillus* levels.[150]

While the transmission of mutans streptococci and its link to caries has been shown to correlate with breastfeeding experience,[151] human milk by itself does not promote tooth decay. Poor oral hygiene and health practices such as lack of a consistent and early oral hygiene regimen, supplementation or replacement of breast milk feedings with sugary liquids or solids,[152] and falling asleep with the breast nipple in the mouth[153] are the underlying causes of caries among breastfed infants. Continued breastfeeding — e.g., for more than one year and beyond eruption of teeth — may be positively associated with early childhood caries,[154,155] but there are conflicting findings to support a definitive link, and the research is often blurred by many uncontrolled factors. Pediatricians should work collaboratively with the dental community to ensure that women are encouraged to breastfeed and use good oral hygiene practices.

PREGNANCY AND DENTAL CARE

Preventive Care

The American Academy of Periodontology has urged oral health professionals to provide preventive services as early in pregnancy as possible and to provide treatment for acute infection or sources of sepsis irrespective of the stage of pregnancy.[156] Primary prevention is the prevention of dental caries and gingivitis in a completely healthy oral cavity. An important strategy in caries prevention includes measures to avoid infection and colonization of the oral cavity with primary cariogenic mutans streptococci, especially *S. mutans* and *S. sobrinus*.[157]

Establishing a healthy oral environment for the pregnant patient is the most important objective in planning dental care. This objective is achieved at home by the woman with adequate plaque control (brushing, flossing, toothpastes, and use of antimicrobial agents such as xylitol and chlorhexidine rinses) and with professional prophylaxis including coronal scaling, root planing and polishing.[158]

Although primarily used in caries prevention for children on unrestored permanent posterior teeth, dental sealants also benefit adults who have teeth with occlusal (biting) surfaces at risk for caries, and on the pits and fissures of susceptible primary teeth of children at risk for caries. In 2008, the American Dental Association released evidence-based sealant guidelines including a recommendation for sealant placement on both adult teeth and primary teeth at risk for caries. Evidence suggests that pregnant women similarly would benefit from pit-and-fissure sealants on teeth at risk of caries.[159]

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Dental treatment for a pregnant woman who has oral pain, an emergency oral condition or infection should not be delayed.

Treatment Considerations

Informed Consent

The concept of informed consent is rooted in medical ethics and has been codified as legal principle. The dental patient must be provided with full information concerning risks, benefits and alternative procedures available to respond to her oral health condition. Specific consent should be obtained for any invasive/surgical procedures in compliance with the prevailing standard of care. No additional or special informed consent is necessary because of pregnancy.

Dental Treatment During Pregnancy

Dental treatment for a pregnant woman who has oral pain, an emergency oral condition or infection should not be delayed as the consequences of not treating an active infection during pregnancy outweigh the possible risks presented. The American Academy of Periodontology has urged oral health professionals to provide treatment for acute periodontal infection or sources of sepsis irrespective of the stage of pregnancy.[160] Treatment for dental caries is recommended to reduce the level of caries-causing bacteria in the pregnant woman's mouth. If the woman does not receive treatment by the time of delivery, her infant could increase its own chance of early acquisition of cariogenic bacteria by transfer in saliva from the mother. There are practical considerations as well: After the baby is born, the mother may be too busy to attend to dental appointments or may lose pregnancy-related health insurance coverage.

While treatment of periodontal disease during pregnancy has not been shown to prevent preterm birth, fetal growth restriction or preeclampsia, the treatment itself is not hazardous to the woman or pregnancy;[161,162] and the benefits from treatment and risks from lack of treatment must be considered. The treatment approach tested so far consists of nonsurgical periodontal therapy in the second trimester. Evidence supporting the potential benefits of periodontal treatment on pregnancy outcomes shows that essential dental treatment, including the use of topical and local anesthetics, is safe and is not associated with an increased risk of experiencing serious medical adverse events or adverse pregnancy outcomes.[163] While the period covered in this study was 13 to 23 weeks' gestation, these findings do not imply that treatment earlier or later in pregnancy is not also safe.

Higher anxiety levels associated with pregnancy may intensify the stress of a dental appointment. Dental care during pregnancy should accommodate these changes with short appointments, judicious use of drugs and radiographs, and avoidance of flat supine positioning.[164]

Diagnostic Radiation

Radiographic imaging of oral tissues is not contraindicated in pregnancy and should be utilized as required to complete a full examination, diagnosis and treatment plan.

Diagnostic radiographs are an important tool in the diagnosis and treatment of dental problems and are considered safe during pregnancy.[165,166] Dental radiographic examinations require exposure to very low levels of radiation, which makes the risk of potentially harmful effects extremely small. Recommendations about radiographs developed by an expert panel from the dental profession under the auspices of the U.S. Food and Drug Administration[167] do not need to be altered because of pregnancy. The number and type of radiographs will depend upon the clinical conditions and the patient's health history. As standard practice, the oral health professional should provide protection from radiation exposure for the pregnant woman's abdomen and neck using an abdominal and neck shield.

One new dental technology involving dental radiographs, which is also safe during pregnancy, is digital radiographs. They offer the advantage of a reduction in radiation, no need for film or processing chemicals, and production of a nearly instantaneous image. The dental office also can print or copy digital radiographs. The main disadvantage is the cost, limiting their use in many dental practice settings.

Positioning the Pregnant Patient

When the pregnant woman lies flat on her back, the uterus in the third trimester can press on the inferior vena cava and impede venous return to the heart, which can lead to the supine hypotensive syndrome. This syndrome (which only occurs in 15-20% of pregnant women) can be avoided during dental treatment by placing the patient in a semireclining position, encouraging frequent position changes, and/or by placing a wedge underneath one of her hips to displace the uterus. A small pillow or folded blanket under either hip moves the uterus off the vena cava to prevent postural hypotensive syndrome.[168]

Pregnant women are at increased risk for gastric aspiration as a result of reduced gastroesophageal sphincter tone. Additionally, gastric emptying may be delayed by narcotics, onset of labor, pain and trauma. Maintaining a semiseated position and avoiding excessive sedation are required to prevent aspiration.

Use of Nitrous Oxide

Nitrous oxide is used extensively to provide sedation and analgesia during labor and has been studied widely. Its widespread use in obstetrical analgesia is related to its ease of administration, minimal toxicity, minimal cardiovascular depression, lack of effect on uterine contractions, and the fact that it has not been implicated as one of the agents capable of causing malignant hyperthermia,[169] a severe biochemical reaction triggered by exposure to certain general anesthetics. In obstetrics, nitrous oxide has been used alone or in combination with other methods of pain control. In dentistry, nitrous oxide/oxygen is the most commonly used inhalation anesthetic. It is commonly used in ambulatory surgery centers and emergency centers as well.[170]

As a single agent, nitrous oxide has impressive safety and is excellent for providing minimal and moderate sedation for apprehensive dental patients.[171] Higher anxiety levels associated with pregnancy are not uncommon and may intensify the stress of a dental appointment for a pregnant woman.[172] Where a patient's anxiety may prevent cooperation with essential treatment, and behavioral management strategies are insufficient to manage her fear and anxiety, nitrous oxide may be regarded as the sedation agent of choice.[173] Because the issue under consideration here is the use of nitrous oxide sedation during a single appointment for nonelective dental treatment of a pregnant patient — and the treatment is not prolonged — apprehension for these patients should be allayed by using the safest agents available;[174] and the judicious use of nitrous oxide fulfills this requirement.[175,176]

To compare the relative potencies of anesthetic gases, anesthesiologists have accepted a measure known as MAC (minimum alveolar concentration)[177] — a measure of the potency of inhalational anesthetic agents. A lowered MAC for the pregnant patient will require less

Fertility was not compromised among assistants who placed a large number of amalgams per week if their workplace practices were hygienic.

nitrous oxide to be administered as compared to the nonpregnant patient.

Because pregnancy is associated with decreased anesthetic requirements, lower concentrations of nitrous oxide may be adequate for sedation and patient comfort. Prolonged dental treatments and nitrous oxide exposure should be avoided if possible. Adequate precautions and monitoring must be taken to prevent hypoxia, hypotension and aspiration. Continuous monitoring of vital signs and adequate scavenging of exhaled gases are recommended. Proper use of scavenging devices while nitrous oxide is provided to patients in the dental setting eliminates any significant risk.[178]

Reduced fertility has been implicated with long-standing or chronic occupational exposure to nitrous oxide without proper scavenging apparatus, and prolonged exposure to even ambient concentrations of nitrous oxide has the potential to inhibit cell division. Short exposure during general anesthesia with such anesthetic agents as nitrous oxide and thiopental has not been shown to have deleterious effects or to be teratogenic.[179] Retrospective studies of nearly 6,000 general anesthetics in pregnant patients, which virtually all included nitrous oxide, failed to reveal any adverse outcomes for the patient or fetus.[180,181]

Important maternal anatomic and physiologic changes, with implications for anesthetic management, cause pregnant women to differ from nonpregnant women. During pregnancy, oxygen consumption increases and functional lung capacity decreases. Consequently, reserve decreases and pregnant women may develop hypoxia and hypercapnia more easily with decreased ventilation. Airway management can be difficult in pregnant women due to weight gain, increased chest wall diameter, breast enlargement, and laryngeal edema.[182] Plasma volume and cardiac output increase, and peripheral vascular resistance decreases. This explains why from midgestation onward women in the supine position are at risk for compression of the great vessels by the uterus, which may result in significant hypotension, a common complication that can be easily avoided during dental treatment by proper positioning of the patient as described previously.

When used alone for mild to moderate sedation, nitrous oxide does not depress ventilation. However, when it is combined with sedatives or opioids that depress ventilation, a more pronounced and clinically important depression may result.[183] Therefore, administration of nitrous oxide in combination with opioids or central nervous system depressants should be performed by knowledgeable and appropriately trained personnel only. Prior to planned use of nitrous oxide/oxygen during dental treatment, consultation with an obstetrician or maternal-fetal medicine subspecialist is recommended to check for any pulmonary concerns, in addition to standard nitrous oxide protocols in dentistry.

Restorative Materials

Safety considerations for treating dental caries arise in relation to the presence, placement, and removal of dental restorative materials, including amalgam, composite resin and the associated adhesive materials. Best practices in using dental restorative materials are based on perinatal and child outcomes from studies on pregnant women as well as from relevant research conducted on dental professionals who may, during their pregnancies, receive higher exposures to these same materials through their workplace activities.

Amalgam, an alloy of silver, copper, tin and mercury,[184] is the most commonly used dental restorative material for repairing posterior teeth. The elemental mercury found in dental amalgam is inorganic, in contrast to organic forms such as methyl mercury, found largely in fish and seafood, and thimerosal, an ethyl mercury-based preservative found in pharmaceuticals. Current-day exposures to mercury are predominantly to methyl mercury from food intake, with inorganic mercury present at much lower concentrations. Oral habits such as bruxism and gum chewing can lead to higher concentrations of inorganic mercury in blood.[185,186] Similarly, use of teeth whitening products, which contain or generate hydrogen peroxide, results in release of inorganic mercury from dental amalgams,[187] and hence consideration should be given to avoiding these whitening products during pregnancy.

Placement and removal of amalgam restorations results in transiently higher blood mercury concentrations.[188] Mercury vapor is inhaled during placement and removal and carried to the lungs where it can enter the bloodstream and cross the placental barrier.[189] During both placement and removal, use of a rubber dam and high-speed suction can markedly reduce vapor inhalation during procedures. It is advisable to delay removal until after pregnancy or weaning if a rubber dam and high-speed suction cannot be used. However, even during placement and removal, studies do not show any adverse reproductive effects if safe amalgam practices are used.[190]

Much of the research related to gestational mercury exposures has been conducted in women with occupational exposure;[191,192,193] these studies have exam-

Short-term exposures associated with the placement of dental sealants and composite restorations have not been shown to have any health risks.

ined fertility level, spontaneous abortion and low birthweight. For example, a study of dental assistants found fertility was not compromised among assistants who placed a large number of amalgams per week if their workplace practices were hygienic.[194] Two Scandinavian studies of women working in dental offices with low mercury levels found no association of self-reported exposures to mercury with risks for spontaneous abortion.[195,196] A Swedish study found a small elevation in risk for delivering a low birthweight baby in dental assistants but not in dentists or dental hygienists.[197] Studies in Washington state and the United Kingdom focused on nonoccupationally exposed populations. In the former, births to enrollees in a dental insurance plan showed no increased risk for low birthweight if mercury-containing dental fillings were placed during pregnancy; but the analysis was flawed due to adjustment for a variable heavily influenced by intrauterine growth.[198] In a large birth cohort from the United Kingdom, no increased risk of low birthweight was observed in association with placement, removal or presence of amalgams.[199]

After review of about 200 scientific studies, the FDA on July 27, 2009, reaffirmed its view that dental amalgam is a safe, effective material for use in dental restorations. According to the FDA, the levels released by dental amalgam fillings "are not high enough to cause harm in patients," and "the best available scientific evidence supports the conclusion that patients with dental amalgam fillings are not at risk."[200] It further determined that "long-term clinical studies in adults and children aged 6 and older with dental amalgam fillings have not established a causal link between dental amalgam and adverse health effects." The FDA reversed an earlier caution against their use in certain patients, including pregnant women and children. It explored potential health effects of dental amalgam in developing fetuses, breast-fed infants and children younger than 6 and acknowledged that while research on these populations is more limited, "the scientific evidence that is available suggests that these populations also are not at risk."[201]

The FDA ruling classifies encapsulated amalgam as a class II medical device (moderate risk), which places it in the same class as gold and composite fillings. By classifying a device into class II, the FDA can impose special controls (in addition to general controls such as good manufacturing practices that apply to all medical devices regardless of risk) to provide reasonable assurance of the safety and effectiveness of the device. These special controls include recommended performance tests to ensure that essential information is provided to the FDA when devices are submitted for evaluation.

Composite resins, glass-ionomer, gold and porcelain restorations are alternative restorative dental materials. Composite resins are composed of a polymerized resin and inorganic filler. Recent research on methacrylate monomers, MMA, HEMA and TEGDMA, and on bisphenol-A (BPA), Bis-GMA, and Bis-DMA indicates that even after polymerization, monomers are released into the oral environment, diffuse through the dentin, and reach the pulp.[202] These compounds have estrogenic properties, but the clinical relevance of the amounts released is unknown.[203] While BPA may not be a direct ingredient in a dental sealant or resin material, it can be a byproduct of the degradation by salivary enzymes of other monomers used in these materials.[204] In a study by Joskow et al.[205] small amounts of BPA were found in saliva for about an hour after dental sealants were placed. Short-term exposures associated with the placement of dental sealants and composite restorations have not been shown to have any health risks; data is lacking on the effects of long-term exposures.[206]

Given the risks associated with untreated dental caries in pregnant women, oral health professionals should recommend prompt treatment of dental caries and, in consultation with the pregnant woman, determine the appropriate options for treatment and restorative materials.

Pharmacologic Considerations

Pharmacologic treatment during pregnancy is of concern as the maternal metabolism of drugs is altered by the normal physiologic changes of pregnancy, and certain medications can reach the fetus and cause harm. The physiologic changes of pregnancy influence absorption, plasma levels, drug distribution, half-lives and elimination of drugs (**TABLE 1**). Consequently, drug concentrations may be higher than, equal to or lower than those found in nonpregnant women. Physiologic changes in the pulmonary, gastrointestinal and peripheral blood flow can alter drug absorption. Alterations in the gastrointestinal system include decreased hydrochloric acid production that affects ionization and absorption of drugs, and delayed gastric emptying that increases bioavailability of slowly absorbed drugs. Hepatic changes can alter biotransformation of drugs by the liver and clearance of drugs from the maternal serum: While first-pass metabolism is generally unchanged, second-pass metabolism is vari-

TABLE 1

Influence of Pregnancy on Physiologic Aspects of Drug Disposition

Pharmacokinetic Parameter	Change in Pregnancy
ABSORPTION	
Gastric emptying	Decreased
Intestinal motility	Decreased
Pulmonary function	Increased
Cardiac output	Increased
Blood flow to skin	Increased
DISTRIBUTION	
Plasma volume	Increased
Total body water	Increased
Plasma proteins	Decreased
Body fat	Increased
METABOLISM	
Hepatic metabolism	Increased or decreased
Extrahepatic metabolism	Increased or decreased
Plasma proteins	Decreased
EXCRETION	
Renal blood flow	Increased
Glomerular filtration rate	Increased
Pulmonary function	Increased
Plasma proteins	Decreased

Source: Blackburn ST., Maternal, Fetal and Neonatal Physiology: A Clinical Perspective, 3rd ed., 2007. Saunders Elsevier: St. Louis.

able and more dependent on liver enzymes. Renal plasma flow and glomerular filtration rate increase by 75% and 50%, respectively, though typically changes in renal drug excretion are not clinically significant enough to require alterations in drug dosage.

Neurologic changes during pregnancy are important because anesthetics have differing effects on cerebral neuronal activity. The MAC value of volatile anesthetic agents, for example, is reduced from early in pregnancy by about 25-40% probably due to increased progesterone levels.[207]

Teratogens are agents that act to irreversibly alter growth, structure or function of the developing embryo or fetus. These include viruses, environmental factors (hyperthermia, irradiation), chemicals (alcohol), and therapeutic drugs (ACE inhibitors, thalidomide, isotretinoin, warfarin, carbamazepine). Because many teratogens reach the fetus by the maternal bloodstream, exposure depends upon several critical factors such as gestational age, route of administration, absorption of the drug, dosage, maternal serum levels, and the maternal and placental clearance system. To cause a birth defect, a teratogen acts during critical periods of embryonic or fetal development and induces embryopathy or fetopathy. During organogenesis (five to 10 weeks after last menstrual period) fetal tissues begin to differentiate, and this interval is the period of greatest vulnerability for tetragenesis.

Research shows that drug-taking is common in women of childbearing age, and few women avoid drugs even when planning a pregnancy.[208] Epidemiological studies have also shown that pregnant women continue to take substantial quantities of drugs, particularly those readily available to them without prescription. A drug survey from 22 countries showed that the average woman took 2.9 medications (range: one to 15) during pregnancy.[209] According to a longitudinal study from the United States, pregnant women reported using an average 1.14 prescription drugs, excluding vitamins and iron; the U.S. women also took an average of 2.95 over-the-counter drugs and nearly half (45%) used herbal agents.[210] Health care professionals should become accustomed to querying each pregnant patient about her medications, her use of herbal and natural supplements, and her health. The best time to ask is during a brief medical update at the beginning of each appointment.[211]

Most of the common medications used in medical and dental settings have not been utilized in clinical trials with pregnant women. Very few drugs have been tested on pregnant women for obvious reasons. A number of resources describing drug effects during pregnancy are available, although not all answer the question of whether or not to treat, or which drug to use. A compilation of common drugs with FDA classifications and restrictions is displayed in TABLE 2. Tetracycline, for example, is a drug that should be avoided during pregnancy. If uncertain about drugs and medications during pregnancy, check with a pharmacist and the prenatal care provider to evaluate the benefits, risks and alternatives of using a particular drug. Additionally, neonatal withdrawal syndrome is a common side effect of prolonged use of certain analgesics (acetaminophen with codeine, codeine, hydrocodone, meperidine, morphine). Therefore, use of dental analgesics commonly used in dentistry should be considered a short-term option until definitive dental treatment can be performed.

TABLE 2

Pharmacological Considerations for Pregnant and Breastfeeding Women

Drug	FDA Classification	Teratogenic Risk**	Quality of the Evidence**	Restrictions/Special Considerations
ANALGESICS				
Aspirin	C	Minimal	Good	▪ Short duration of use ▪ Avoid in 1st and 3rd trimester [a] ▪ Avoid if breastfeeding
Acetaminophen	B	None to minimal	Good	▪ Analgesic and antipyretic of choice
Ibuprofen	B	Minimal	Fair to good	▪ Short duration of use ▪ Avoid in 1st and 3rd trimester [a] ▪ Do not use for >48–72 hours ▪ Compatible with breastfeeding
Naproxen	B	Minimal	Fair	▪ Short duration of use ▪ Avoid in 1st and 3rd trimester [a] ▪ Do not use for >48–72 hours ▪ Compatible with breastfeeding
Codeine	C	Unlikely	Fair to good	▪ Compatible with breastfeeding ▪ At high maternal doses, may cause depression/ drowsiness in breastfeeding infants
Morphine	B/D	Unlikely	Fair to good	▪ Withdrawal symptoms in neonate may occur with prolonged or chronic use ▪ At high maternal doses, may cause depression/ drowsiness in breastfeeding infants ▪ Category D with prolonged use
Meperidine	B/D	Unlikely	Fair	▪ Category D with prolonged use ▪ Compatible with breastfeeding
ANTIBIOTICS				
Penicillin	B	None	Good	▪ No restrictions
Amoxicillin	B	Unlikely	Good	▪ No restrictions
Cephalosporins	B	Unlikely	Fair to limited	▪ No restrictions
Clindamycin	B	Unlikely	Limited	
Erythromycin	B	Minimal	Fair	▪ Erythromycin estolate is avoided due to potential maternal hepatotoxicity
Tetracycline	D	Moderate for tooth staining	Good	▪ Avoid during pregnancy; use after 25 weeks may result in staining of teeth and possible effects on bone growth
Fluorquinolones	C	Unlikely	Fair	▪ Avoid during pregnancy and lactation due to toxicity to developing cartilage in animal studies
Clarithromycin	Undetermined		Limited	▪ Alternative antibiotics are recommended because number of cases of pregnancy exposure is too small to conclude no risk
ANESTHETICS				
Lidocaine (local)	B	None	Fair	▪ No restrictions
MISCELLANEOUS				
Chlorhexidine mouthrinse	C	Unlikely	Poor	▪ Has not been evaluated for possible adverse pregnancy effects
Xylitol	Undetermined	Unlikely	Not available	▪ No references available on possible adverse pregnancy effects

FDA Category Ratings: A = Controlled studies show no risk; adequate, well-controlled studies in pregnant women failed to demonstrate risk to fetus. B = No evidence of risk in humans; either animal studies show risk but human findings do not or, if no adequate human studies have been done, animal findings are negative. C = Human studies lacking and animal studies are either positive for fetal risk or lacking as well. However, potential benefits may justify the potential risk. D = Positive evidence of risk; investigational of post-marketing data show risk to fetus. Nevertheless, potential benefits may outweigh risks, such as some anticonvulsive medications.

[a] Recent studies have reported NSAIDs (nonsteroidal anti-inflammatory drugs) may be associated with gastroschisis if given in the first trimester. See for example: Kozer E, et al. Aspirin consumption during the first trimester of pregnancy and congenital anomalies: a meta-analysis. Am J Obstet Gynecol 2002 Dec;187(6):1623-30. Sustained use in the third trimester may be associated with closure of the fetal ductus arteriosus.

**Teratogenic risk and quality of the evidence is based on adapted information from the Teratogen Information System (TERIS) and Reprotox electronic databases.

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ORAL HEALTH AND EARLY CHILDHOOD

Dental caries is the single most common chronic disease of childhood and a public health problem that continues to affect infants and preschool children worldwide. Any dental caries in the primary teeth occurring before age 6 is generally defined as early childhood caries (ECC). Dental caries impacts children's functioning including eating, sleeping, speaking, learning and growth. Because most children have visited a child health professional close to a dozen times by age 3 — but may not have visited a dentist — medical providers as well as nurses, health educators and community health workers can play a significant role in reducing the burden of this disease if they have been properly trained. It has been estimated that primary care providers who provide care to children before age 2 have the opportunity of providing oral health screening seven times more frequently than dentists as a result of well-child visits.[212]

Infant oral health care begins ideally with prenatal oral health counseling for parents, a service that should be provided by all health professionals. This early involvement will form the foundation on which positive experiences can be built. While mothers usually are the primary decision-makers on matters affecting their children's health, it should be remembered that other family members, especially grandparents, can exercise a wide influence on children's accessing dental care.[213] Ideally a regular source of oral health care (a "dental home") should be established at a young age (i.e., not later than 12 months of age).[214]

Because dental caries is now recognized as a bacterial infection that can be transmitted from a parent or another intimate caregiver to an infant or child,[215,216] health professionals should identify women at high risk for dental caries as early as possible, preferably prior to pregnancy, to provide anticipatory guidance and early intervention. Parents should also be advised that caries is an infectious disease, and caries-causing bacteria, including *S. mutans,* can be spread from mother, intimate caregiver, siblings and other children by saliva-sharing behaviors. Because *S. mutans* may colonize the child's mouth even before the first tooth erupts, appropriate interventions can alter children's risk for developing caries.[217]

The value of the therapeutic use of fluoride for children should be impressed upon parents.

Evaluation of existing literature suggests a number of strategies for the prevention of ECC. The value of the therapeutic use of fluoride for children should be impressed upon parents, and at-home product use should focus on regimens that maximize topical content, preferably in lower-dose, higher-frequency approaches.[218] (See **TABLE 3**.) A small amount of fluoride toothpaste should be used twice daily as a primary preventive procedure.[219,220] While the appropriate amount of toothpaste and other fluoride products varies by a child's age and weight, an amount "the size of the child's pinky nail," "the size of a pea," or "a smear" are understandable descriptions to nearly all parents and provides general guidance. (Note: parents who are avid brushers for their children — even those with "high dental IQ" — may use too much fluoride, resulting in fluorosis on permanent teeth.) Parents or caregivers of children younger than 8 should brush children's teeth or supervise brushing. Because children younger than 6 have not fully developed the swallowing reflex, using

TABLE 3

Daily Dietary Fluoride Supplementation Schedule

Age	Fluoride Ion Level in Drinking Water (ppm)*		
	<0.3 ppm F	0.3-0.6 ppm F	>0.6 ppm F
Birth – 6 months	None	None	None
6 months – 3 years	0.25 mg/day	0	0
3 – 6 years	0.50 mg/day	0.25 mg/day	0
6 years to at least 16 years	1.00 mg/day	0.50 mg/day	0

* 1.0 ppm = 1 mg/liter
** 2.2 mg sodium fluoride contains 1 mg fluoride ion.

Note: For children not consuming optimally fluoridated water. Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Date last reviewed: Oct. 8, 2008. Approved by the American Dental Association, the American Academy of Pediatrics, and the American Academy of Pediatric Dentistry.

large quantities of toothpaste should be discouraged during the period of tooth development. Children younger than 2 should use fluoride toothpaste only after consultation with a dentist; however, children in this age group at moderate to high risk for caries may need to use a smear or pea-sized amount of fluoride toothpaste on a child-size toothbrush to help prevent ECC.[221]

Because feeding sugary liquids including milk and juice, especially at night, may increase the risk for caries, child health care professionals should focus on the message to reduce the exposure to fermentable carbohydrates (common sugars).[222] The teeth should be cleaned after feeding (breastfeeding, bottle use and sippy cup use) and before putting the child to sleep. The last thing to touch the child's teeth before bedtime should be a toothbrush or water.

Caregivers should be advised to begin weaning children from at-will bottle and sippy cup use (such as in an effort to modify or pacify a child's behavior) by about 12 months of age. Health care professionals should exercise cultural sensitivity when discussing this topic with parents in communities where extended bottle usage is normative.

While every child should be seen by a dentist before the first birthday, or when the first tooth erupts, it is particularly important to refer and follow up on children who have risk indicators[223] (e.g., low socioeconomic status, lack of age-appropriate oral hygiene efforts by parents). Three sample risk assessment forms are included in the Appendices (see Attachments 2, 3 and 4). Child health professionals should utilize community resources, where available, such as caseworkers and community health workers for conducting follow-up and facilitating transportation to dental appointments.

The last thing to touch the child's teeth before bedtime should be a toothbrush or water.

Fluoride is a very effective caries preventive agent; but water fluoridation varies, and lack of fluoridation may disproportionately affect poor and minority children who do not have other sources of fluoride.[224] Health providers should be aware of community water fluoridation, or lack of it, in the region where their patients live and go to school, and depending on the child's age and risk for caries, prescribe fluoride drops or chewable fluoride tablets for children's teeth.

Although only a small factor in the risk for enamel fluorosis, the American Dental Association[225] and the Centers for Disease Control and Prevention[226] have issued guidance for parents and caregivers of infants younger than 12 months of age to consult with their medical or dental provider on the most appropriate type of water to use to reconstitute infant formula. Recent evidence suggests that mixing powdered or liquid infant formula concentrate with fluoridated water on a regular basis for infants primarily fed in this way may increase the chance of a child's developing the faint white markings of very mild or mild enamel fluorosis. Occasional use of water containing optimal levels of fluoride should not appreciably increase a child's risk for fluorosis. Studies have not shown that teeth are likely to develop more esthetically noticeable forms of fluorosis, even with regular mixing of formula with fluoridated water.[227]

One of the most important ways for health professionals to ensure that infants and young children enjoy optimal oral health is by performing risk assessments to identify those at risk for oral health problems, including dental caries, malocclusion and injury.[228] The American Academy of Pediatrics recommends that all child health care professionals develop the knowledge to perform oral health risk assessments on all patients beginning at 6 months of age. Risk assessment of infants and young children for oral health problems is based on the premise that all infants and children are not equally likely to develop such problems. Performing a risk assessment for infants and young children allows a plan to be developed to meet each infant's or young child's preventive and treatment needs and referral to a dentist. At each well-child visit, questions about oral health issues can be asked and anticipatory guidance provided while discussing other age-appropriate concerns. Children with chronic disease may require special assessment and treatment of oral diseases.

ACCESS TO CARE

Barriers to Care

Despite the importance of dental care during pregnancy, many women, including those with private insurance, fail to receive care during this time due to personal challenges and barriers in accessing the delivery system.

Access to oral health services for both pregnant women and young children is limited by a number of factors. On the health system side, these include lack of available resources, restrictive policies, provider attitudes and lack of cultural competency among dental providers. Common patient barriers are lack of perceived need and knowledge about the importance of oral health, financial (including lack of dental insurance), dental fear, lack of education, and limitations due to transportation, child care and work leave time issues. Public policies that reduce or eliminate barriers and support comprehensive dental services for vulnerable women of childbearing age need to be expanded, not only to safeguard their own oral and general health but also to reduce their children's risk of caries.[229]

System/Structural and Provider Barriers

Systems barriers to improving oral health and utilization of oral health services for pregnant women and their children are multifaceted. Low public-program reimbursement levels, lack of provider training, maldistribution of resources, capacity issues and provider attitudes limit access. Populations in which the greatest need/barriers exist include the uninsured and those covered by publicly funded programs. Women insured through medical and dental safety net programs often have difficulty finding participating providers. For instance, dentists may have concerns about treating low-income pregnant women because they may have a large burden of untreated dental disease and a short time period of eligibility for dental benefits.[230]

Fear of lawsuits may also be one of the factors for dentists' reluctance or refusal to see pregnant patients, although the incidence of lawsuits concerning pregnancy and dental care appears to

Prenatal care providers can play a crucial role in breaking down barriers to access and raising awareness about the importance of oral health.

be extremely low. Fear of medico-legal consequences related to radiographs and/or dental service tends to influence dentists, according to a U.K. study of general dentists.[231] However, The Dentists Insurance Company (TDIC) — which is endorsed by eight U.S. state dental associations and insures 17,000 dentists nationwide — reports only one incidence in the past 15 years or more. This case involved a pregnant patient who claimed her miscarriage was associated with radiographs, a claim not supported by scientific evidence.[232]

Oral health problems may also be exacerbated as a result of disparities such as an inadequate number of health care providers with cross-cultural training. Lack of provider diversity, particularly lack of multiple language capacity or interpreter services, may affect the ability to communicate oral health information in a sensitive and comprehensive manner.

Education and training on the specific oral health needs of infants and young children is inadequate in many dental education programs in the United States. Training has been shown to make a difference in increasing dentists' skills and comfort level in seeing children younger than 5 and in being willing to include more of this age group in their practices.[233] Attitudinal barriers about managing and treating young children can be reflected in medical and dental providers' practice behaviors. Believing that "parents aren't motivated and don't value baby teeth" or "it's a dentist's responsibility, not a physician's," for instance, have been cited as reasons for lack of involvement by dentists and primary care physicians, respectively.[234]

Prenatal care providers can play a crucial role in breaking down barriers to access and raising awareness about the importance of oral health. Health provider recommendations have been identified by patients as critical to the behaviors they incorporate into their daily activities.[235,236] Furthermore, as pregnancy is a "teachable moment" when women are motivated to change behaviors associated with poor pregnancy outcomes, providers can dispel misconceptions, such as the belief that bleeding in the mouth is "normal" during pregnancy, pain during dental procedures is unavoidable, radiographs during pregnancy are harmful to the fetus, and postponing treatment until after pregnancy is safer for the fetus and mother.

Patient Barriers

Many things occur during pregnancy that work against optimal oral health. Pregnancy is a life-changing event that can cause stress and uncertainty. Many factors can influence a woman's decision not to seek oral health services during pregnancy such as: financial pressures, the perception that oral health is not an important component of overall general health, dental care not being high on the list of life priorities, and fear of dental services and perceptions of potential danger of care during pregnancy.[237]

For low-income women, the cost of care can be prohibitive. Close to half of the 8,558 women surveyed in 2002-2007 in the California Maternal and Infant Health Assessment (MIHA) described earlier reported a dental problem of some sort during pregnancy. The main reasons for not receiving dental care during pregnancy among women with dental problems were financial barriers, cited by 28%; no perceived need, cited by 21%; and attitudinal barriers, cited by 21%. Having insurance did not guarantee access, particularly for women with Medicaid; 79% of women with Medicaid (who should have had financial access to at least a minimal range of dental benefits at some point during pregnancy) did not receive dental care during pregnancy.

Employer-based health insurance does not always include dental benefits. Even when it does, not all private plans cover all dental services. Most employers of low-wage workers do not offer a dental insurance benefit; if offered, the employee portion of the premium is generally not affordable.[238] Lack of insurance leads many low-income pregnant women to avoid preventive dental visits for themselves and their children, and it puts added strain on emergency departments as patients resort to emergency services for serious dental problems.[239]

Children from low-income families are at higher risk of dental caries, and it may be hard for them to comply with recommendations that require the purchase of additional rinses, chewing gum and other products. Dental providers and early childhood professionals should be aware of this limitation.

Transportation and getting time off from work are practical barriers frequently cited by low-income parents that contribute to the factors that

Many parents, including those who are well-educated, believe baby teeth are not important because they will be replaced by permanent teeth.

discourage providers from seeing these families: "No show" for appointments is a recognizable example. Acculturation and language barriers — difficulty speaking English to effectively communicate with health care providers — have also been shown to have some impact on determining use of dental care.[240]

Lack of education about the importance of dental care can result in parents' not understanding the connection between diet and tooth decay and failing to seek oral health services for young children. Many parents, including those who are well-educated, believe baby teeth are not important because they will be replaced by permanent teeth. The views of low-income and immigrant parents are especially important as these families have more limited access to resources and face greater challenges when seeking care. Results from the *First Smiles* evaluation (a $7 million oral health education and training program funded by First 5 California in 2004-2008), for instance, showed that while most parents attending WIC and Head Start sites reported an awareness of early childhood caries, 30% did not associate it with sugary contents.[241] Dental care and fear or anxiety have long been linked in popular culture,[242] and a number of *First Smiles* caregivers also disclosed this concern about themselves as a reason for not taking their child to a dentist. Personal experiences with dental care when encountering pain may also influence caregivers' attitudes about access and enthusiasm for dental care for young children.[243]

Beliefs and customs related to health also influence adoption of positive oral health practices. Use of nonfluoridated bottled and filtered water, besides being costly, may result in adverse dental health outcomes. For some families, drinking bottled water is a cultural norm. Latino immigrants for example, who have very high rates of caries, may be wary of drinking tap water and avoid it because they fear it causes illness.[244,245] Dental and other health care professionals should be aware of this belief and encourage the use of tap water in fluoridated areas, both for pregnant women and children, since community water fluoridation is a primary preventive intervention. Where the public water supply is not fluoridated, bottled water containing fluoride may be available.

Behavior change is a complex process. Understanding the process of change helps in ascertaining key influences that promote change and increase the likelihood of success in making positive changes. Various theories and belief models help to explain determinants such as the role of normative beliefs, although values, beliefs and practices vary across different social and cultural groups. Psychosocial factors such as oral health beliefs, norms of caregiver responsibility, and positive caregiver dental experiences have been shown to be associated with children's utilization of oral health services.[246] Motivation plays an important role in recognizing the need for change, being willing to overcome barriers to seek services, and achieving successful, sustained change. In general, motivation refers to the "personal considerations, commitments, reasons, and intentions that move individuals to perform certain behaviors."[247] For women who are pregnant, stage of pregnancy may be related to stage of readiness to change. Research related to quitting smoking, for example, suggests women in the first trimester show the greatest intention to stop smoking, signaling that pregnant women may be most receptive to quitting earlier in pregnancy than those who are further along.[248] While health behavior models that focus on the individual have implications for reducing patient barriers and promoting oral health behavior change, they tend to ignore the role of "macro-level influences within the larger framework of political, economic and cultural forces"[249] that limit the choices of women for whom societal inequities or ignorance reduce access to dental care.

POLICIES NEEDED FOR IMPROVEMENT

Systems improvement and public policy changes are needed to increase utilization and quality of perinatal oral health services by women and young children. A policy brief that accompanies these Guidelines includes recommendations for funders, policymakers, dental and medical schools, and other advocates of maternal and child health to increase access to services and promote greater collaboration between the oral health and obstetrical communities.

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Appendices

GLOSSARY OF TERMS

ACOG
American College of Obstetricians & Gynecologists. A nonprofit organization of women's health care physicians advocating high standards of practice and quality health care for women.

ADA
American Dental Association. A national association that promotes good oral health to the public.

Anticipatory guidance
A proactive developmentally based counseling technique that focuses on the needs of a child at each stage of life. Practical, timely information for parents and other caregivers allows them to anticipate impending changes and maximize their child's oral and general health potential.

CDA Foundation
California Dental Association Foundation. The philanthropic affiliate of the California Dental Association whose mission is to improve the oral health of Californians by supporting the dental profession and its efforts to meet community needs.

Chlorhexidine
An antimicrobial agent used as a surgical scrub, mouthrinse and topical antiseptic. It is effective against gram-positive organisms, gram-negative organisms, aerobes, facultative anaerobes and yeast.

Decalcification
The loss of calcium from the bones or teeth. Tooth decalcification is caused by the excessive buildup of plaque on the tooth enamel.

Demineralization
The process of removing minerals, in the form of mineral ions, from dental enamel. Demineralization is another term for "dissolving the enamel." It occurs when the bacteria that are normally found in the mouth use the sugars and carbohydrates from the food we eat to produce acids that dissolve the tooth structure, depleting it of calcium and phosphate.

Dental home
The ongoing relationship between the dentist who is the primary dental care provider and the patient, which includes comprehensive oral health care, beginning no later than age 1 (the official policy of the American Dental Association adopted October 2005). This relationship has beneficial consequences of appropriate care and reduced treatment costs, and provides access to otherwise unavailable services. The concept of a dental home is analogous to the "medical home" construct.

Early Childhood Caries
Also known as "baby bottle caries" or "baby bottle tooth decay," early childhood caries (ECC) is a common bacterial infection characterized by decay in the teeth of infants or young children. According to the American Academy of Pediatric Dentistry, ECC is defined as: one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child <71 months (i.e., age 6). In children <age 3, any sign of smooth-surface caries is indicative of severe ECC.

Eclampsia
Seizures (convulsions) in a pregnant woman that are not related to brain conditions. Also referred to as "toxemia with seizures," eclampsia follows preeclampsia. Treating preeclampsia may prevent eclampsia.

Fermentable carbohydrates
Foods containing all forms of sweets and sugars, cooked starches such as pasta and rice, bread, and chip products. These are the ideal substrate for microbial action that stimulates caries development. A food's form influences how long it will be retained in the mouth and consequently the exposure of teeth to acids. Foods that contain fermentable carbohydrates when in contact with oral microorganisms can cause plaque pH to drop, thereby initiating the caries process.

Folic acid
A B vitamin that helps prevent birth defects of the brain and spinal cord when taken before pregnancy, or by the first months of pregnancy. It is available in most multivitamins, as a folic acid-only supplement and in some foods.

Gestational diabetes
A condition in which women without previously diagnosed diabetes exhibit high blood glucose levels during pregnancy. Pregnancy hormones and other factors are thought to interfere with the action of insulin, causing glucose to remain in the bloodstream and glucose levels to rise.

MCAH
Maternal, Child and Adolescent Health. A comprehensive program that supports services and educational programs to maximize the health and quality of life for women, infants, children and adolescents and their families.

MIHA
Maternal and Infant Health Assessment.

Mutans streptococci
Cariogenic bacteria found in dental plaque and one of two index organisms (*Lactobacillus* is the other) used to assess caries susceptibility.

NSAIDs
Nonsteroidal anti-inflammatory drugs are drugs with analgesic, antipyretic (lowering an elevated body temperature and relieving pain without impairing consciousness) and, in higher doses, anti-inflammatory effects. The most prominent members of this group of drugs are aspirin, ibuprofen, and naproxen, partly because they are available over-the-counter in many areas. There is little difference in clinical efficacy among the NSAIDs when used at equivalent doses. Differences among compounds tend to be with regards to dosing regimens (related to the compound's elimination half-life), route of administration, and tolerability profile.

Perinatal
Generally the period around childbirth (i.e., 3 months prior to and a month following). The term is used in this document to more broadly include the entire prenatal and postpartum periods. In its broadest sense of maternal and child health, "perinatal" could include time after and between pregnancies.

Periodontal disease
Also known as gum disease, periodontal disease is caused by infection and inflammation of the gingiva (gum), the periodontal connective tissues and the alveolar bone, which can lead to tooth loss.

Postural hypotensive syndrome
An abnormal decrease in blood pressure when a person stands up that may lead to fainting. A slight fall in systolic blood pressure is normal upon rising. Abnormal postural hypotension involves a decrease in both systolic and diastolic pressures with changes in heart rate.

PRAMS
Pregnancy Risk Assessment Monitoring System. A surveillance project of the Centers for Disease Control and Prevention and state health departments that collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy.

Preeclampsia
High blood pressure and protein in the urine that develops after the 20th week of pregnancy. Some women develop high blood pressure without the proteinuria (protein in urine); this is called pregnancy-induced hypertension (PIH) or gestational hypertension. Both preeclampsia and PIH are regarded as very serious conditions and require careful monitoring of mother and baby.

Remineralization
Remineralization is the process of replacing the essential minerals lost from teeth by demineralization.

Supine position
A position of the body: lying down with the face up, as opposed to the prone position, which is face down.

Xylitol
A "tooth friendly" nonfermentable sugar alcohol with indicated dental heath benefits in caries prevention.

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ATTACHMENT 1

Oral Health Referral Form for Pregnant Women*

PATIENT NAME
DOB
PRIMARY CARE PROVIDER
Patient ID / Addressograph

Date: _____ Referred to: _____
Reason for referral: ☐ Routine ☐ Bleeding gums ☐ Pain ☐ Other _____
Weeks' gestation *(at time of referral)*: ____ Estimated delivery date: _____ Patient phone: _____
Primary language spoken: _____

☐ This patient is cleared for routine evaluation and dental care, which may include but is not limited to:

- Dental X-rays as needed for diagnosis *(with abdominal and neck lead shield)*
- Oral health examination
- Dental prophylaxis
- Scaling and root planing
- Restoration of untreated caries
- Extraction
- Standard local anesthetic *(lidocaine with or without epinephrine)*
- Analgesics (if needed): acetaminophen and/or acetaminophen with codeine *(Nonsteroidal anti-inflammatory drugs are not recommended during pregnancy)*
- Antibiotics (if needed and no known allergies): penicillin, amoxicillin, cephalosporin, clindamycin, erythromycin — not estolate form *(Cipro and tetracycline are not recommended during pregnancy.)*

Significant Medical Conditions:
☐ NONE ☐ YES *(e.g., heart condition, liver disease, kidney disease, etc.)*

_____
_____
_____

Known Allergies: ☐ NONE ☐ YES
Drug(s)/Reactions(s): _____

_____
_____
_____

Current Medications: ☐ NONE
☐ Prenatal vitamins ☐ Iron ☐ Calcium
☐ OTHERS *(Attach updated list of active Rx)*

_____
_____
_____

Any Precautions: ☐ NONE ☐ SPECIFY *(List if any coments or instructions)*

_____
_____
_____

Prenatal care provider *(print name)*: _____
Phone/pager: _____ Fax #: _____
Signature: _____ Date: _____

Dentist: Please fax information back (to prenatal care provider, fax # above) after initial dental visit:
Exam date: _____ ☐ Normal exam/recall ☐ Missed appointment
☐ Needs additional treatment visits for: ☐ Caries ☐ Periodontitis ☐ Referral to oral surgery ☐ Other _____
Comments: _____

_____
_____
Dentist signature: _____ Date: _____
Phone: _____

*Adapted from San Francisco General Hospital and Trauma Center, Community Health Network

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ATTACHMENT 2

Caries Risk Assessment Form (Ages 0-6)

Patient Name: **Score:**

Birth Date: **Date:**

Age: **Initials:**

		Low Risk (0)	Moderate Risk (1)	High Risk (10)	Patient Risk
	Contributing Conditions				
I.	**Fluoride Exposure** (through drinking water, supplements, professional applications, toothpaste)	Yes	No		
II.	**Sugary or Starchy Foods or Drinks** (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)	Primarily at mealtimes	Frequent or prolonged between meal exposures/day	Bottle or sippy cup with anything other than water at bed time	
III.	**Eligible for Government Programs** (WIC, Head Start, Medicaid or SCHIP)	No		Yes	
IV.	**Caries Experience of Mother, Caregiver and/or Other Siblings**	No carious lesions in last 24 months	Carious lesions in last 7-23 months	Carious lesions in last 6 months	
V.	**Dental Home**: established patient of record in a dental office	Yes	No		
	General Health Conditions				
I.	**Special Health Care Needs***	No		Yes	
	Clinical Conditions				
I.	Visual or Radiographically Evident **Restorations/Cavitated Carious Lesions**	No carious lesions or restorations in last 24 months		Carious lesions or restorations in last 24 months	
II.	**Non-cavitated (incipient) Carious Lesions**	No new lesions in last 24 months		New lesions in last 24 months	
III.	**Teeth Missing Due to Caries**	No		Yes	
IV.	**Visible Plaque**	No	Yes		
V.	**Dental /Orthodontic Appliances** Present (fixed or removable)	No	Yes		
VI.	**Salivary Flow**	Visually adequate		Visually inadequate	
				TOTAL:	

Instructions for Caregiver:

*Patients with developmental, physical, medical or mental disabilities that prevent or limit performance of adequate oral health care by themselves or caregivers.

ADA American Dental Association®

See instructions on Page 433.

Instructions for Attachment 2, Page 432

Indicate 1 or 10 in the last column for each risk factor. If the risk factor was not determined or is not applicable, enter a 0 in the patient risk factor column. Total the factor values and record the score at the top of the page.

A score of 0 indicates that a patient has a low risk for the development of caries. A single high risk factor, or score of 10, places the patient at high risk for development of caries. Scores between 1 and 10 place the patient at a moderate risk for the development of caries. Subsequent scores should decrease with reduction of risks and therapeutic intervention.

The clinical judgment of the dentist may justify a change of the patient's risk level (increased or decreased) based on review of this form and other pertinent information. For example, missing teeth may not be regarded as high risk for a follow-up patient; or other risk factors not listed may be present.

The assessment cannot address every aspect of a patient's health and should not be used as a replacement for the dentist's inquiry and judgment. Additional or more focused assessment may be appropriate for patients with specific health concerns. As with other forms, this assessment may be only a starting point for evaluating the patient's health status.

This is a tool provided for the use of ADA members. It is based on the opinion of experts who utilized the most up-to-date scientific information available. The ADA plans to periodically update this tool based on: 1) member feedback regarding its usefulness, and; 2) advances in science. ADA member-users are encouraged to share their opinions regarding this tool with the Council on Dental Practice.

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ATTACHMENT 3

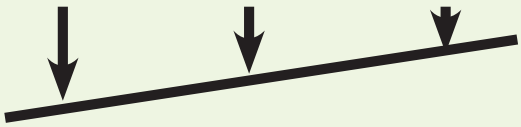
TABLE 1

Caries Risk Assessment Form — Children Age 6 and Over/Adults

Patient Name: _____Chart #:_____Date:_____

Assessment Date: Is this (please circle) base line or recall

Disease Indicators (Any one "YES" signifies likely "High Risk" and to do a bacteria test)**	YES = CIRCLE	YES = CIRCLE	YES = CIRCLE
Visible cavities or radiographic penetration of the dentin	YES		
Radiographic approximal enamel lesions (not in dentin)	YES		
White spots on smooth surfaces	YES		
Restorations last 3 years	YES		
Risk Factors (Biological predisposing factors)		YES	
MS and LB both medium or high (by culture**)		YES	
Visible heavy plaque on teeth		YES	
Frequent snack (> 3x daily between meals)		YES	
Deep pits and fissures		YES	
Recreational drug use		YES	
Inadequate saliva flow by observation or measurement (**If measured, note the flow rate below)		YES	
Saliva reducing factors (medications/radiation/systemic)		YES	
Exposed roots		YES	
Orthodontic appliances		YES	
Protective Factors			
Lives/work/school fluoridated community			YES
Fluoride toothpaste at least once daily			YES
Fluoride toothpaste at least 2x daily			YES
Fluoride mouthrinse (0.05% NaF) daily			YES
5,000 ppm F fluoride toothpaste daily			YES
Fluoride varnish in last 6 months			YES
Office F topical in last 6 months			YES
Chlorhexidine prescribed/used one week each of last 6 months			YES
Xylitol gum/lozenges 4x daily last 6 months			YES
Calcium and phosphate paste during last 6 months			YES
Adequate saliva flow (> 1 ml/min stimulated)			YES
****Bacteria/Saliva Test Results: MS: LB: Flow Rate: ml/min. Date:**			



VISUALIZE CARIES BALANCE
(Use circled indicators/factors above)
(EXTREME RISK = HIGH RISK + SEVERE SALIVARY GLAND HYPOFUNCTION)
CARIES RISK ASSESSMENT (CIRCLE): EXTREME HIGH MODERATE LOW

Doctor signature/#: _____ Date:_____

Table reprinted from *Journal of the California Dental Association*, October 2007, p. 704.

ATTACHMENT 4

TABLE 1

CAMBRA for Dental Providers (0-5) Assessment Tool

Caries Risk Assessment Form for Age 0 to 5

Patient name:_____ I.D.#_____ Age _____ Date_____

Initial/base line exam date_____ Caries recall date_____

Respond to each question in sections 1, 2, 3, and 4 with a check mark in the "Yes" or "No" column	Yes	No	Notes
1. Caries Risk Indicators — Parent Interview**			
(a) Mother or primary caregiver has had active dental decay in the past 12 months			
(b) Child has recent dental restorations (see 5b below)			
(c) Parent and/or caregiver has low SES (socioeconomic status) and/or low health literacy			
(d) Child has developmental problems			
(e) No dental home/episodic dental care			
2. Caries Risk Factors (Biological) — Parent Interview**			
(a) Child has frequent (greater than three times daily) between-meal snacks of sugars/cooked starch/sugared beverages			
(b) Child has saliva-reducing factors present, including: 1. Medications (e.g., some for asthma or hyperactivity) 2. Medical (cancer treatment) or genetic factors			
(c) Child continually uses bottle - contains fluids other than water			
(d) Child sleeps with a bottle or nurses on demand			
3. Protective Factors (Nonbiological) — Parent Interview			
(a) Mother/caregiver decay-free last three years			
(b) Child has a dental home and regular dental care			
4. Protective Factors (Biological) — Parent Interview			
(a) Child lives in a fluoridated community or takes fluoride supplements by slowly dissolving or as chewable tablets			
(b) Child's teeth are cleaned with fluoridated toothpaste (pea-size) daily			
(c) Mother/caregiver chews/sucks xylitol chewing gum/lozenges 2-4x daily			
5. Caries Risk Indicators/Factors — Clinical Examination of Child**			
(a) Obvious white spots, decalcifications, or obvious decay present on the child's teeth			
(b) Restorations placed in the last two years in/on child's teeth			
(c) Plaque is obvious on the child's teeth and/or gums bleed easily			
(d) Child has dental or orthodontic appliances present, fixed or removable: e.g., braces, space maintainers, obturators			
(e) Risk Factor: Visually inadequate saliva flow - dry mouth			
****If yes to any one of 1(a), 1(b), 5(a), or 5(b) or any two in categories 1, 2, 5, consider performing bacterial culture on mother or caregiver and child. Use this as a base line to follow results of antibacterial intervention.**	Parent/Caregiver Date:		Child Date:
(a) Mutans streptococci (Indicate bacterial level: high, medium, low)			
(b) Lactobacillus species (Indicate bacterial level: high, medium, low)			
Child's overall caries risk status: (CIRCLE) Extreme / Low	Moderate		High

Recommendations given: Yes _____ No _____ Date given _____ Date follow up: _____

SELF-MANAGEMENT GOALS 1) _____ **2)**_____

Practitioner signature_____ Date_____

Table reprinted from *Journal of the California Dental Association*, October 2007, p. 689.

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HELPFUL WEBSITES FOR PATIENTS

ccfc.ca.gov/parents
Information on health, education, services and support for children younger than 5 and their families from First 5 California.

first5oralhealth.org
Site of First Smiles, a California initiative to address the "silent epidemic" of early childhood caries affecting children ages 0-5.

aapd.org/foundation/hints.asp
Answers to commonly asked questions from the Foundation of the American Academy of Pediatric Dentistry's "Healthy Smiles, Healthy Children."

cdph.ca.gov/certlic/drinkingwater/Documents/Fluoridation/Fluoridationdatafor2008.pdf
California statewide fluoridation table provides information by county on water systems that add fluoride to the optimal level.

cda.org/page/patient_education_tools
Patient education tools on a variety of topics available in English, Spanish, Hmong, Chinese, Russian and Vietnamese.

cda.org/clinics
Search for clinics in California that offer free or discounted dental services.

everywomancalifornia.org
Developed by the Preconception Health Council of California in collaboration with the Maternal Child and Adolescent Health Division of the California Department of Public Health, this website provides information about health considerations for women and their partners before they become pregnant for the first time or between pregnancies, often called preconception health.

mchoralhealth.org/materials/perinatal.html
National Maternal and Child Oral Health Resource Center.

cavityfreeatthree.org/GetMaterials/PatientEducationMaterials
Patient education materials in English and Spanish developed by "Cavity Free at Three," a project of the Caring for Colorado Foundation.

cdhp.org/resource/surprising_truth_about_cavities
October 2006 article that appeared in *Parents Magazine*, accessed through the Children's Dental Health Project.

womenshealth.gov/faq/oral-health.cfm
Frequently asked questions about oral health answered by the National Women's Health Information Center.

dhcs.ca.gov/services/chdp/Pages
The Child Health and Disability Prevention is a preventive program that delivers periodic health assessments and services to low income children and youth in California.

sharethecaredental.org/website/resources/dentalhealth
The Dental Health Initiative of San Diego/Share the Care offers a number of educational resources featuring their dental mascot, Baxter Beaver.

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Continuing Education Courses

C.E. courses offered by California's dental schools, local dental societies, ethnic dental societies and specialty organizations, from July through December 2010. For more information, please contact the course provider.

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
ARTHUR A. DUGONI SCHOOL OF DENTISTRY					**415-929-6487**
Certification in Radiation Safety	July 17; Aug. 14	Gurminder Sidhu, BDS, MS, DDS	San Francisco	$625	32
Hospital Dentistry	July 24, 25	Paul Glassman, DDS, MA, MBA; Allen Wong, DDS, FACD, DABSCD	San Francisco	$335 Dentist/ $295 Hygienist, Assistant, Office Staff	13.5
Certification in Radiation Safety	Sept. 24; Oct. 22	Elena Francisco, BSDH, RDHAP; Deborah Horlak, RDH, BA, MS	Stockton	$625	32
BUTTE-SIERRA DISTRICT DENTAL SOCIETY					**530-671-9312**
Office, Oral Surgery and Medical Emergencies	Aug. 20	James A. Garibaldi, BS, DDS, MA	Grass Valley	TBD	6, Cat. I
Oral Cancer and Leukoplakia Revisited	Sept. 10	Sol Silverman, Jr., MA, DDS	Yuba City	TBD	6, Cat. I
California Dental Practice Act	Oct. 8	TBD	Yuba City	TBD	2, Cat. I
CPR/BLS Refresher Course for HCP	Oct. 8	Multiple	Yuba City	$65	3, Cat. I
Infection Control	Oct. 8	TBD	Yuba City	TBD	2, Cat. I
OSHA - BBP Refresher Course	Oct. 8	TBD	Yuba City	TBD	2, Cat. I
CALIFORNIA SOCIETY OF PEDIATRIC DENTISTRY					**831-625-2773**
Online Continuing Education at cspd.org	Year round	Multiple	Online	$35 per credit hour	1-5
FRESNO-MADERA DENTAL FOUNDATION					**559-225-5630**
Update in Endodontic Therapy	Sept. 10	Dr. Ove Peters	Fresno	$170 Dentist/ $85 Hygienist, Assistant, Technician	7
Update on Cone Beam CT Radiology	Oct. 8	TBD	Fresno	$190 Dentist/ $100 Hygienist, Assistant, Technician/ $75 Student	7
TBD	Nov. 5	Dr. William Carpenter; Dr. Charles Carpenter	Fresno	$170 Dentist/ $85 Hygienist, Assistant, Technician	7

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
FRESNO-MADERA DENTAL SOCIETY					**559-438-7284**
Clinical Decision-Making About When To Do Direct vs. Indirect Restorations	Aug. 20	Ed McLaren, DDS	Fresno	$150 Member/ $275 Non-Member	7, Cat. I
Cone Beam CT — An Introduction To Acceptable X-rays	Aug. 20	Gurminder Sidhu, BDS, MS, DDS	Fresno	$100 Staff	7
Medical Emergencies in the Dental Office	Oct. 19	Jack Heir, DDS	Fresno	$35 CDA Member/ $80 Non-CDA Member/ $25 Staff	3
HERMAN OSTROW SCHOOL OF DENTISTRY OF USC CONTINUES ON NEXT PAGE					**213-821-2127**
Clinical Intravenous Sedation	July 8-11, 16-18	Stanley Malamed, DDS; Faculty	Los Angeles	$10,950 Dentist	49
Avoiding and Managing Complications Associated with Implant Therapy: Lecture and Impact Panel	July 10	Bach Le, DDS, MD, FICD; Faculty	Los Angeles	$325Dentist/ $205 Auxiliary	8
Contemporary Applications of Porcelain Veneers: A New Paradigm for the 21st Century (Part I – Lecture)	July 16	Abdi Sameni, DDS; Faculty	Los Angeles	$295 Dentist	21
Contemporary Applications of Porcelain Veneers: A New Paradigm for the 21st Century (Part I & II — Lecture & Hands-On Workshop)	July 17-18	Abdi Sameni, DDS; Faculty	Los Angeles	$1,995 Dentist	21
Esthetic Full-Mouth Implant Reconstruction: Advanced Prosthodontic Techniques for Challenging Patients (Module I)	July 23	Harel Simon, DMD; Faculty	Los Angeles	$255 Dentist/ $155 Auxiliary	7
Esthetic Full-Mouth Implant Reconstruction: Advanced Prosthodontic Techniques for Challenging Patients (Module I, II & III)	July 23, 30, 31	Harel Simon, DMD; Faculty	Los Angeles	$1,795 Dentist/ $1,595 Auxiliary	21
Esthetic Full-Mouth Implant Reconstruction: Advanced Prosthodontic Techniques for Challenging Patients (Module II)	July 30	Harel Simon, DMD; Faculty	Los Angeles	$255 Dentist/ $155 Auxiliary	7
Esthetic Full-Mouth Implant Reconstruction: Advanced Prosthodontic Techniques for Challenging Patients (Module III)	July 31	Harel Simon, DMD; Faculty	Los Angeles	$1,645 Dentist	7
36th Annual Review of Continuing Education in Dentistry	Aug. 1-4	Jacinthe M. Paquette, DDS; Cherilyn G. Sheets, DDS	Maui, Hawaii	$595 Dentist	16
Clinical Intravenous Sedation	Aug. 5-8, 13-15	Stanley Malamed, DDS; Faculty	Los Angeles	$10,950 Dentist	49
The Artistic Dentist: Excellence in Direct Anterior and Posterior Composites	Aug. 20-21	Jose-Luis Ruiz, DDS, FAGD; Faculty	Los Angeles	$1,175 Dentist/ $295 Auxiliary	14
Esthetic Management of Extraction Sites (Module IA & IB)	Aug. 28	Bach Le, DDS, MD, FICD	Los Angeles	$875 Dentist/ $595 Auxiliary	8
Fundamentals of Implant Surgery and Restoration	Sept. 10-12, Oct. 2-3, Nov. 6-7	Homayoun H. Zadeh, DDS, PhD; Faculty	Los Angeles	$4,195 Dentist/ $1,950 Auxiliary	55

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
HERMAN OSTROW SCHOOL OF DENTISTRY OF USC CONTINUES ON NEXT PAGE					213-821-2127
Team Driven Diagnosis, Treatment Planning and Acceptance for a Successful Esthetic Practice	Sept. 24-25	Jose-Luis Ruiz, DDS, FAGD; Faculty	Los Angeles	$545 Dentist/ $255 Auxiliary	14
Esthetic Periodontal Surgery for the General Practitioner (Module I)	Sept. 25	Ziv Simon, DMD, MSc	Sacramento	$245 Dentist/ $115 Auxiliary	7
Mastering Bone Grafting for Implant Site Development (Module I)	Oct. 8	Bach Le, DDS, MD, FICD; Faculty	Los Angeles	$995 Dentist/ $555 Auxiliary	8
Mastering Bone Grafting for Implant Site Development (Module I & II)	Oct. 8-9	Bach Le, DDS, MD, FICD; Faculty	Los Angeles	$2,640 Dentist/ $1,510 Auxiliary	15
The USC Third International Restorative Dentistry Symposium	Oct. 8-9	Abdi Sameni, DDS; Faculty	Los Angeles	$495 Dentist/ $325 Auxiliary	14
Esthetic Periodontal Surgery for the General Practitioner: A Hands-On Course (Module I)	Oct. 22	Ziv Simon, DMD, MSc	Los Angeles	$245 Dentist/ $115 Auxiliary	7
Esthetic Periodontal Surgery for the General Practitioner: A Hands-On Course (Module I & II)	Oct. 22-24	Ziv Simon, DMD, MSc	Los Angeles	$1,695 Dentist	21
Emerging Diseases, Infection Control and California Dental Practice Act	Oct. 23	Joyce Galligan, RN, DDS; Gerald Vale, DDS, JD	Los Angeles	$175 Dentist/ $125 Auxiliary	6
The USC Third Geriatric Dentistry Symposium: In Sickness and in Health: Providing Dental Care for Geriatric Patients Across the Functional Spectrum	Oct. 29-30	Roseann Mulligan, BA, DDS, MS, FADPD, DABSCD; Faculty	Los Angeles	$395 Dentist/ $215 Auxiliary	14
Esthetic Full-Mouth Implant Reconstruction: CAD/CAM Restorations and Computer Guided Technology (Module I)	Nov. 12	Harel Simon, DMD; Faculty	Los Angeles	$255 Dentist/ $155 Auxiliary	7
Esthetic Full-Mouth Implant Reconstruction: CAD/CAM Restorations and Computer Guided Technology (Module I, II & III)	Nov. 12-14	Harel Simon, DMD; Faculty	Los Angeles	$1,795 Dentist/ $1,595 Auxiliary	21
Esthetic Full-Mouth Implant Reconstruction: CAD/CAM Restorations and Computer Guided Technology (Module II)	Nov. 13	Harel Simon, DMD; Faculty	Los Angeles	$255 Dentist/ $155 Auxiliary	7
Esthetic Full-Mouth Implant Reconstruction: CAD/CAM Restorations and Computer Guided Technology (Module III)	Nov. 14	Harel Simon, DMD; Faculty	Los Angeles	$1,645 Dentist	7
Pediatric Oral Sedation Certification Program	Nov. 17-19	Stanley Malamed, DDS; Faculty	Los Angeles	$2,795 Dentist/ $295 Auxiliary	21
The USC Ninth International Endodontic Symposium	Nov. 19-20	Ilan Rotstein, DDS; Faculty; Guest speakers	Los Angeles	$445 Dentist/ $245 Auxiliary	14
Pediatric Advanced Life Support (PALS)	Nov. 20-21	Stanley Malamed, DDS; Faculty	Los Angeles	$185	14
A Contemporary Approach to Diagnosis, Treatment Planning and Therapy in Periodontics	Dec. 3	Ziv Simon, DMD, MSc; Casey Chen, BDS, PhD, DDS	Los Angeles	$235 Dentist/ $145 Auxiliary	7

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HERMAN OSTROW SCHOOL OF DENTISTRY OF USC CONTINUED					213-821-2127
Implant Therapy for Edentulous Patients	Dec. 4-5	Homayoun H. Zadeh, DDS, PhD; Faculty	Los Angeles	$1,295 Dentist/ $695 Auxiliary	16
Supra-Gingival Dentistry Workshop: Easy, Predictable, Porcelain Veneer Onlays and Full Crowns	Dec. 10-11	Jose-Luis Ruiz, DDS, FAGD; Faculty	Los Angeles	$1,750 Dentist	14
HUMBOLDT-DEL NORTE DENTAL SOCIETY					707-443-7476
Update on Dentin Bonding and Root Restorations	Oct. 22	Michal Staninec, DDS, PhD	Bayside	$135 Member	6
KERN COUNTY DENTAL SOCIETY					661-327-2666
Infection Control, Dental Practice Act, OSHA Compliance	July 30	Rodney Stine	Bakersfield	$180 Member/ $280 Non-Member/ $65 Auxiliary	6, Cat. II
Medical Emergencies & Post-Operative Complication	Sept. 17	James Garibaldi, DDS	Bakersfield	$200 Member/ $300 Non-Member/ $75 Auxiliary	6, Cat. II
Predictible, Durable Adhesion in Esthetic Restorative Dentistry	Oct. 22	Edmond R. Hewlett, DDS	Bakersfield	$200 Member/ $300 Non-Member/ $75 Auxiliary	6, Cat. II
LOMA LINDA UNIVERSITY SCHOOL OF DENTISTRY					909-558-4685
Complete Mouth Rehabilitation: Principles, Concepts and Treatment Options	Sept. 12	Tony Daher, DDS, MSEd, FACP	Loma Linda	$160 Dentist/ $110 Auxiliary	7
MTA Symposium: Why, When and How to Use MTA	Sept. 19	Mahmoud Torabinejad, DMD; George Bogen, DDS; et al.	Loma Linda	$195 Dentist/ $135 Auxiliary	8
Esthetic Essentials	Oct. 3	Nick Davis, DDS	Loma Linda	$160 Dentist/ $110 Auxiliary	7
Cone Beam Computed Tomography (CBCT) Symposium	Oct. 17-18	Yoon Kim, DDS; Joseph Caruso, DDS; et al.	Loma Linda	$350 Dentist/ $250 Auxiliary	16
Infection Control and California Practice Act	Nov. 14	Eugene Rathbun, DDS; Bette Robin, DDS, JD	Loma Linda	$160 Dentist/ $110 Auxiliary	7
All Ceramic Crowns	Dec. 5	Nadim Baba, DDS	Loma Linda	$160 Dentist/ $110 Auxiliary	7
MARIN COUNTY DENTAL SOCIETY CONTINUES ON NEXT PAGE					415-472-7974
TBD	Sept. 21	TBD	San Rafael	$45 Member, Staff/ $90 Non-Member, Staff	2
Health Care Provider CPR Class	Sept. 30	Certified BLS Instructors	San Rafael	$60 Member, Staff/ $120 Non-Member, Staff	3.5

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
MARIN COUNTY DENTAL SOCIETY CONTINUED					415-472-7974
Early Childhood Assessment	Oct. 26	A. Jeffrey Wood, DDS	San Rafael	$45 Member, Staff/ $90 Non-Member, Staff	3
BLS/CPR Health Care Provider CPR	Oct. 28	BLS/CPR Certified Instructors	San Rafael	$60 Member, Staff/ $120 Non-Member, Staff	3.5
The Art of Dental Therapeutics	Dec. 14	Peter L. Jacobsen, PhD,DDS	San Rafael	$45 Member, Staff/ $90 Non -Member, Staff	3
NAPA-SOLANO DENTAL SOCIETY					707-428-3894
Immediate Implant Placement in the Esthetic Zone	Sept. 3	Moshe Goldstein, DDS	Fairfield	$295	6
Imaging for Implant Treatment	Oct. 7	Craig Dial	Fairfield	$60	2
Dental Law, OSHA and Infection Control	Nov. 18	Art Curley, JD	Fairfield	$60	4
NORTHERN CALIFORNIA DENTAL SOCIETY					530-527-6764
Practice Management	Sept. 24	William Vandyk, DDS	Red Bluff	$125 Member/ $225 Non-Member/ $55 Auxiliary ($15 late registration fee)	6
Comfort Zone Cosmetics — Digital Portrait to Completed Case	Oct. 15	Martin B. Goldstein, DMD	Red Bluff	$125 Member/ $225 Non-Member/ $55 Auxiliary ($15 late registration fee)	7
Understanding and Managing Dental Caries Using CAMBRA	Nov. 5	Steven Steinberg, DDS	Red Bluff	$125 Member/ $225 Non-Member/ $55 Auxiliary ($15 late registration fee)	7
ORANGE COUNTY DENTAL SOCIETY					714-634-8944
Predictable Orthodontics for the GP	Sept. 7	James J. Hilgers, DDS, MS	Irvine	$49 Member, Staff/ $139 Non-Member	2.5
Esthetic Peridontal Surgery for the GP	Oct. 7	Ziv Simon, DMD, MSc	Irvine	$49 Member, Staff/ $139 Non-Member	2.5
Fear of Dentistry... A Contemporary Look at Sedation Techniques	Nov. 9	Stanley Malamed, DDS	Irvine	$49 Member, Staff/ $139 Non-Member	2.5
PACIFIC COAST SOCIETY OF ORTHODONTISTS					888-242-3925
PCSO Annual Session	Oct. 9-13	Various	Honolulu, Hawaii	Registration Fee	Up to 20 CEs

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
PUNJABI DENTAL SOCIETY					**323-351-3383**
Creating Endodontic Excellence	Aug. 22	Jerome H. Stroumza, DDS, MS, DSC	San Jose	$99 Member/ $109 Non-Member	7
Endodontics for General Dentists	Aug. 22	Jerome H. Stroumza, DDS, MS, DSC	San Jose	$89 Member/ $99 Non-Member	7
Periodontics for General Dentists	Sept. 26	Dr. Simon	Brea	$79 Member/ $89 Non-Member	7
Creating Endodontic Excellence	Nov. 21	Alex Fleury, DDS, MS	Brea	$79 Member/ $89 Non-Member	7
Endodontics for General Dentists	Nov. 21	Alex Fleury, DDS, MS	Brea	$79 Member/ $89 Non-Member	7
SACRAMENTO DISTRICT DENTAL SOCIETY					**916-446-1227**
CPR Renewal - Basic Life Support (BLS)	Aug. 7	SDDS Instructors	Sacramento	$55 Member/ $110 Non-Member	4
CPR First Timer Basic Life Support Course	Aug. 28	SDDS Instructors	Sacramento	$70 Member/ $140 Non-Member	5
Sleep Disorders, Sleep Medicine and Dentistry	Sept. 14	Peter Chase, DDS	Sacramento	$57 Member/ $117 Non-Member	2
Navigating the Wage/Hour Minefield (HR Issues) — HR Audio Conference	Sept. 21	Mari Bradford, California Employers Association	Sacramento	$35 Member/ $70 Non-Member	1
Hiring and Firing Boot Camp	Sept. 23	Mari Bradford, California Employers Association	Sacramento	$69 Member/ $138 Non-Member	2
Adult Oral Conscious Sedation Recertification Course — Intro, Update and Renewal	Oct. 8	Michael Silverman, DMD	Sacramento	$450 Member/ $750 Non-Member	7
Crown Lengthening for Restorability and Esthetics	Oct. 12	William Lundergan, DDS, MA	Sacramento	$57 Member/ $117 Non-Member	2
CA Dental Practice Act, Infection Control and OSHA Refresher	Oct. 22	LaDonna Drury-Klein, RDA, CDA, BS	Sacramento	Contact SDDS	6
Bras, Boyfriends and Tattoos (HR Issues)	Oct. 28	Mari Bradford, California Employers Association	Sacramento	$69 Member/ $138 Non-Member	2
Direct and Indirect Restorative (Nash) and Ultrasonics (Hays)	Nov. 5	Ross Nash, DDS; Karen Hays, RDH	Sacramento	Contact SDDS	5
CPR Renewal — Basic Life Support (BLS)	Nov. 6	SDDS Instructors	Sacramento	$55 Member/ $110 Non-Member	4
Patient First: Maximize Every Interaction!	Nov. 9	Debbie Castagna; Virginia Moore	Sacramento	$57 Member/ $117 Non-Member	2
Investigate Employee Misconduct	Nov. 17	Mari Bradford, California Employers Association	Sacramento	$35 Member/ $70 Non-Member	1
SAN FERNANDO VALLEY DENTAL SOCIETY					**818-884-7395**
Achieving Success in Endodontics	Nov. 17	Illan Rotstein, DDS	Van Nuys	$100 Member/ $200 Non-Member/ $65 Student, Auxiliary/ $50 Retired	3

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
SAN FRANCISCO DENTAL SOCIETY					**415-928-7337**
Bone Regeneration: Clinical Applications for the Dental Practice	Aug. 12	Martin Chin, DDS	TBD	$69 Member/ $110 Non-Member/ $45 Auxiliary, Student/ $50 PGM	2
CE Express: Infection Control, Bloodborne Pathogens & Hazarodous Communication Refreshers	Aug. 20, Nov. 5	Marcella Oster, RDA; Diane Morgan, BS	San Francisco	$95 Member, Auxiliary, Staff/ $140 Non-Member	4
CPR Basic Life Saving (BLS) Course	Aug. 28	Adrian Curry, EMT	San Francisco	$95 Member, Auxiliary, Staff/ $140 Non-Member (additional cost for text)	7
CPR Renewal	Sept. 29, Oct. 27	Adrian Curry, EMT	San Francisco	$65 Member, Auxiliary, Staff/ $100 Non-Member	4
Restorative Care: Endo, Implants or Fixed Partial Dentures?	Oct. 14	Warden H. Noble, DDS	San Francisco	$69 Member, Auxiliary/ $110 Non-Member/ $45 Student/ $50 PGM	2
TMD Can Be A Pain In The Neck	Dec. 2	Charles McNeill, DDS; Patricia Rudd, PT, DPT, CCTT	San Francisco	TBD	2
SAN GABRIEL VALLEY DENTAL SOCIETY					**626-285-1174**
Occlusion — The Solution for the Confusion	Sept. 21	Mark Yamamoto, DDS, MAGD	Alhambra	$65 Member/ $100 Non-Member	3
TBD	Oct. 19	TBD	Alhambra	$65 Member/ $100 Non-Member	3
Head and Neck Pathology	Nov. 16	Parish Sedghizadeh, DDS, MS	Alhambra	$65 Member/ $100 Non-Member	3
SAN JOAQUIN DENTAL SOCIETY					**209-951-1311**
Small Implants Provide Big Returns	Sept. 16	Eugene Labarre, DMD	Lodi	TBD	3
Coming Live — A Jam-Packed Evening of Employment Law Tips	Nov. 18	Sue Ann Van Dermyden, Esq.	Stockton	TBD	3
SAN MATEO COUNTY DENTAL SOCIETY **CONTINUES ON NEXT PAGE**					**650-637-1121**
AUG Cal-OSHA & Regulatory Requirements	Aug. 27	Julian Goduci, CHMM	Redwood City	$70 Member/ $80 Non-Member	4
AUG Dental Board of California Requirements	Aug. 27	Julian Goduci, CHMM	Redwood City	$60 Member/ $70 Non-Member	4
BLS CPR Renewal Course	Sept. 21	Stephen R. John, DDS	Redwood City	$45 Member/ $60 Non-Member	4
Staff Resilience: Stress-Busting Humor	Sept. 23	Kelli S. Vrla, CSP	San Carlos	$50 Member/ $60 Non-Member	3
Getting The Most Out Of Your Organized Dentistry Membership	Sept. 30	Conor McNulty; Robyn Thomason	Redwood City	$10 Member/ $25 Non-Member	0

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
SAN MATEO COUNTY DENTAL SOCIETY CONTINUED					**650-637-1121**
BLS CPR Renewal Course	Oct. 11	Richard A. Fagin, DDS	Redwood City	$45 Member/ $60 Non-Member	4
Treatment Planning Decision-Making: Endo, Implants or Fixed Partial Dentures?	Oct. 21	Warden H. Nobel, DDS, MS	Foster City	$45 Member/ $55 Non-Member	3
Financial Planning Strategies for a Challenging Economy	Oct. 28	Robert Cheney, Financial Planner	Redwood City	$10 Member/ $25 Non-Member	0
Cal-OSHA & Regulatory Requirements	Nov. 5	Julian Goduci, CHMM	Redwood City	$70 Member/ $80 Non-Member	4
Dental Board of California Requirements	Nov. 5	Julian Goduci, CHMM	Redwood City	$60 Member/ $70 Non-Member	4
BLS CPR Renewal Course	Nov. 16	Stephen R. John, DDS	Redwood City	$45 Member/ $60 Non-Member	4
Strengthen Your Team, Client Base, & Bottom Line	Nov. 18	Tiffany Smith Nielsen	Foster City	$45 Member/ $55 Non-Member	3
BLS CPR Renewal Course	Dec. 13	Richard A. Fagin, DDS	Redwood City	$45 Member/ $60 Non-Member	4
SANTA BARBARA-VENTURA COUNTY DENTAL SOCIETY					**805-656-3166**
New Approches for Antimicrobial Treatment of Periodontal Disease	July 14	Jorgen Slots, DDS, DMD, PhD, MS, MBA	Santa Barbara	$185	7
Infection Control and Dental Practice Act	Aug. 11	Noel Kelsch, Wood & Delgado	Westlake Village	$150	4
The Wonderful World of Lasers in Dentistry	Sept. 10	Donald J. Coluzzi, DDS	Oxnard	$185	7
Infection Control and Dental Practice Act	Oct. 8	Noel Kelsch, Wood & Delgado	Santa Barbara-Goleta	$150	4
Current Concepts in Adhesion Dentistry	Nov. 5	Raymond L. Bertolotti, DDS, PhD	Oxnard	$185	7
SANTA CLARA COUNTY DENTAL SOCIETY					**408-289-1480**
Provisional Restoration: Materials, Techniques and Updates	Sept. 9	George Cho	Campbell	$35 Non-Member	2
How to Refer and Work with Physical Therapists for the TMD Patient	Oct. 14	Dr. Charles McNeill; Dr. Patricia Rudd	Campbell	$35 Non-Member	2
Periodontal Microsurgery and Periodontal Endoscopy: Seeing is Believing!	Nov. 11	Dr. John Kwan	Campbell	$35 Non-Member	2
Oral Surgery/TBD	Dec. 9	Dr. Brian Schmidt	Campbell	$35 Non-Member	2
SOUTHERN CALIFORNIA OROFACIAL ACADEMY					**626-287-1185**
Harvesting Stem Cells for Bone Graft Success	Oct. 20	Dennis G. Smiler, DDS, MScD	Pasadena	$350	8

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
TRI-COUNTY DENTAL SOCIETY					**909-370-2112**
Infection Control, The Dental Practice Act and Patient Benefit Through Staff Motivation	Sept. 17	Dr. Gene Rathbun; Bette Robin, DDS, JD; Debra Quarles	Colton	$225 Member/ $325 Non-Member/ $225 Student/ $95 Auxiliary, Retired	7
TULARE-KINGS DENTAL SOCIETY					**559-625-9333**
Advanced Lawsuit Protection and Tax Reduction Strategies for Dentists	Aug. 13	G. Kent Mangelson, BS, CFP	Visalia	TBD	4
Seminar in Periodontal Surgery: Soft & Hard Tissue Considerations Using Various Laser Wavelengths	Aug. 13	Douglas Gilio, DDS	Visalia	TBD	3
California Dental Practice Act & Infection Control; HIPAA	Oct. 22	Leslie Canham, RDS, CDA Speaker's Bureau	Visalia	TBD	6
UNIVERSITY OF CALIFORNIA OF LOS ANGELES CONTINUES ON NEXT PAGE					**310-206-8388**
Pre-Conference Hawaii 2010	June 26	Gerard Chiche, DDS	Princeville, Kauai, HI	$198	4
UCLA Hawaii 2010: Esthetics and Periodontics	June 28-July 2	Gerard Chiche, DDS; Jimmy Eubank, DDS; Ed McLaren, DDS	Poipu, Kauai, HI	$795 Dentist/ $395 Hygienist/ $295 Auxiliary	30
Aesthetic Continuum 2010	July 22-25, Aug. 19-22, Sept. 16-19	Jimmy Eubank, DDS; Brian LeSage, DDS; Others	Los Angeles	$6995	90
Complete Dentures: Back to the Future	July 31	Eleni Roumanas, DDS	Los Angeles	$198	7
Orofacial Pain and Fly Fishing Mammoth, CA	Aug. 6-8	Robert Merrill, DDS, MS; Donald Primack, DDS	Mammoth Lakes	$298	6
RDA: Infection Control	Aug. 14	Cara Batson, RDA; Charlene Flowers-Taylors, RDA	Los Angeles	$250	8
Dentoalveolar Surgery	Aug. 21	Earl G. Freymiller, DMD, MD; Alan L. Felsenfeld, DDS	Los Angeles	$198	7
Periodontal Surgery Workshop	Aug. 28-29	Paulo Camargo, DDS, MS; Philip Melinck, DDS	Los Angeles	$895 before July 31/ $995 after July 31	16
New Registered Dental Assistants in Extended Functions — Module 2	Starts Aug. 28-29	Richard Stevenson, DDS; Barbara Blade-Jacobs, RDAEF; Joseph Cooney, DDS; Others	Los Angeles	$4495	128
Sleep Medicine Mini-Residency	Sept. 10-11, Oct. 15-16, Nov. 12-13	Dennis R. Bailey, DDS; Robert Merrill, DDS, MS	Los Angeles	$3495	10
Dental Ethics for a Changing Profession	Sept. 25	Gary Herman, DDS	Los Angeles	$198	7
Certification In Pediatric Oral Sedation	Sept. 30-Oct. 3	John A. Yagiela, DDS, PhD; Christine Quinn, DDS, MS	Los Angeles	$2995 Dentist/ $225 Auxiliary	26
Re-Certification in Pediatric Oral Sedation	Oct. 2	John A. Yagiela, DDS, PhD; Christine Quinn, DDS, MS	Los Angeles	$295	7

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
UNIVERSITY OF CALIFORNIA OF LOS ANGELES CONTINUED					310-206-8388
Recent Advances in Detection Management of PreCancer Lesions	Oct. 2	Diana V. Messadi, DDS, MMSc, DMSc	Los Angeles	$135	4
CA Dental Practice Act & Infection Control	Oct. 9	Andy Wong, DDS	Los Angeles	$135 Dentist/ $95 Auxiliary	4
Medical Emergencies for Your Dental Team	Oct. 16	John Yagiela, DDS, PhD; Fred Dennis, MD	Los Angeles	$198	7
RDA: Pit & Fissure Sealants	Oct. 16-17	Cara Batson, RDA; Charlene Flowers-Taylors, RDA	Los Angeles	$575	16
Practical Occlusion for Esthetics & Function	Oct. 22-24	Jimmy Eubank, DDS	Los Angeles	$4495	20
HIV Infection: An Update on Management & Emerging Issues	Oct. 23	Fariba S. Younai, DDS	Los Angeles	$198 Dentist/ $98 Auxiliary	7
6th Annual Distinguished Lecture Series: Pulp Biology Regenerative Approaches	Oct. 30	Songtao Shi, DDS, PhD; Martin Trope, DMD; Cun-Yu Wang, PhD	Los Angeles	$250	7
Hot Topics in Dentistry	Nov. 6	Henry Takei, DDS, MS; Edmond Hewlett, DDS; Bernice Ko, DDS; George Perri, DDS; Robert Merrill, DDS; Todd Schoenbaum, DDS	Los Angeles	$59 Delta Dental Dentist/ $198 Dentist, Auxiliary	7
Advanced Implant Therapy: Live Surgery and Hands-On Workshop	Nov. 8-12	Sascha A. Jovanovic, DDS, MS; Henry H. Takei, DDS, MS; Others	Los Angeles	$3995	40
Diagnostic Box: Esthetics, Occlusion, Comprehensive Care	Nov. 19-21	Jimmy Eubank, DDS	Los Angeles	$3995 Dentist/ $395 Staff	24
Your Patient's Medical History: What You Don't Know Can Hurt You	Nov. 20	Earl G. Freymiller, DMD, MD; Alan L. Felsenfeld, DDS	Los Angeles	$198	7
UNIVERSITY OF CALIFORNIA SAN FRANCISCO CONTINUES ON NEXT PAGE					415-476-1101
Orofacial Pain Study Group	Sept. 17-18, Oct. 29-30, Dec. 10-11, 20	Charles McNeill, DDS	San Francisco	TBD	42
Review of Oral Conscious Sedation: A Renewal Course	Oct. 1	Frank Grimaldi, DDS	San Francisco	TBD	7
Roundtable Seminars in General Dentistry	Oct. 8	Various	San Francisco	TBD	42
Healthy Mouth, Body, Practice and the Fattening of America	Oct. 9	Lisa F. Harper Mallonee, BSDH, MPH, RD/LD	San Francisco	TBD	7
Sleep Apnea	Oct. 15	Glen Clark, DDS, MS	San Francisco	TBD	7
Esthetic Dentistry	Oct. 22	Cherilyn Sheets, DDS	San Francisco	TBD	7
Oral Health Products	Nov. 6	Karen Baker, BS, MS	San Francisco	TBD	7

TOPIC	DATE	LECTURER(S)	LOCATION	COST	UNITS
UNIVERSITY OF CALIFORNIA SAN FRANCISCO CONTINUED					415-476-1101
Implications of Systemic Diseases on Clinical/ Periodontal Implant Practice	Nov. 13	Joan Otomo-Corgel, DDS	San Francisco	TBD	7
Pucker Up, Stick Out Your Tongue	Dec. 3	Denis Lynch, DDS, PhD	San Francisco	TBD	7
Posterior Composites: Workshop	Dec. 4	Ram Vaderhobli, BDS, MS; Samuel Huang, DDS	San Francisco	TBD	7
WESTERN LOS ANGELES DENTAL SOCIETY					310-349-2199
Implants	Sept. 14	George Cho, DDS	Los Angeles	$75 Member/ $120 Non-Member/ $60 Non-Dentist	3
Infection Control & Dental Practice Act/ Oral Microbiology	Oct. 22	Nancy Andrews, RDH, BS; Jorgen Slots, DDS, DMD, PhD, MS, MBA	TBD	TBD	4 + 3
Cone Beam Imaging/Application to Dentistry	Nov. 30	Sotirios Tetradis, DDS, PhD; Sanjay Mallya, BDS,MDS, PhD	Los Angeles	TBD	3
WESTERN SOCIETY OF PERIODONTOLOGY					562-493-4080
Annual Scientific Session	Oct. 2-3	TBD	Las Vegas, Nevada	TBD	10

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LOS ANGELES COUNTY

***ARCADIA GP** - 5 eq. ops, 1,465 sq.ft. ste, 2 story professional medical bldg. 7 yrs goodwill. Grossed $390,420 for 2009. ID #3121
***BALDWIN PARK** - Turn-key, 4 eq. ops., 1 plmbd not eq. op., 1,200 sq. ft. office, 1 story med/dent bldg. ID #2651 **SOLD**
ENCINO GP - 3 eq. ops., 1,200 sq. ft. suite, 7 story professional building. Collected approx. $514,348 for 2009. NET OF $149K. ID #2631
***LAWNDALE GP & Bldg** - Excellent practice w/8 eq. ops., 3,000 sq. ft., free standing bldg. Collected $919,578 in 2009. ID #2901
LOS ANGELES GP - 1,300 sq. ft. practice in a strip shopping center w/5 eq. ops. Collected approx. $360,151 in 2009. ID #2771
LOS ANGELES GP - Turn-key, 3 eq. ops., multi story med/dent bldg. Collected approx. $197,238 in 2009. Great views. ID #2831
MONTEBELLO - Long Established Practice, equip. & charts only! 2 eq. ops., in single story busy shopping center. ID #2701
***REDONDO BEACH GP** - 3 eq. ops. in large remodeled shopping center. Collected approx. $276,831 in 2009. NET $84K. ID #2821
***ROLLING HILLS GP** - Long established practice w/5 eq. ops., 1,760 sq. ft. suite in a 2 story med/prof. bldg. NET $140K. ID #2981
SAN GABRIEL - Equipment only, newly remodeled spacious 1,254 sq. ft. suite w/3 eq. ops., 1 plumbed not eq. op. ID #3161
***SHERMAN OAKS GP** - Excellent street visibility, 3 eq. ops., med/dent bldg. Collected approx. $404,565 for 2009. ID #2491
WESTLAKE VILLAGE - New build out! Equipment w/some charts. Beautiful office in upscale area. 5 plumbed ops, 2 eq. ID #3211

ORANGE COUNTY

***FULLERTON GP / Bldg** - 4 eq. ops., 1,100 sq. ft. office located in downtown in a 1 story free standing historical bldg. ID #3111
GARDEN GROVE GP - Equipment w/charts, 2 eq. ops., 1 plmbd not eq., 1,000 sq. ft. ste., 2 story bldg in busy strip center. ID #3091
***SAN JUAN CAPISTRANO GP** - Well designed & modern office w/4 eq. ops., 3 plmbd not eq., in a 2 story prof. bldg. ID #3021
SAN JUAN CAPISTRANO GP - Leasehold improvements & equip. only! Suite located in a 2 story prof. bldg w/3 eq. ops. ID #3071
***SANTA ANA GP** - 36 years of goodwill. 3 eq. ops., 2 plmbd not eq ops., 3 story medical bldg. at busy intersection. ID #3101

RIVERSIDE / SAN BERNARDINO COUNTIES

APPLE VALLEY GP - 3 eq. ops., 1,000 sq. ft. office located in a 1 story bldg w/6 suites. Established in 1978. NET $52K. ID #2461
LA QUINTA - Leasehold & equip. only! 3 eq. ops., 1,000 sq. ft. suite in a strip shopping center. Established in 1995. ID #3011
***ONTARIO GP** - Excellent growth potential office w/4 eq. ops. in a single strip plaza at major intersection. ID #2791
PALM SPRINGS Perio/GP - Leasehold improv. & equip. only! 2 eq. ops., 1 plmbd not eq., 1,510 sq. ft. office, 1 story bldg. ID #3151
RANCHO CUCAMONGA GP - 6 eq. ops., 1,800 sq. ft. suite, 2 story med/dent blg. Leasehold improvements & equip only! ID #3191
SAN BERNARDINO GP - 4 eq. ops., 1 plmbd not eq. located off the freeway w/beautiful courtyard in a 3 story glass prof. bldg. ID #3201

SAN DIEGO COUNTY

EL CAJON - Solo practice, 3 eq. ops., 1 plmd not eq. 2,200 sq. ft. office, free standing bldg. Seller owns bldg. NET $123K. ID #3031
OCEANSIDE - 4 eq. ops., 1,500 sq. ft. office, one story med/dent bldg. Collected approx. $345,049. ID #1641 Great Location!
***SAN DIEGO** - Leasehold improvement with some charts & building for sale! 5 fully eq. ops., 1,300 sq. ft. office. ID #3141

VENTURA / SANTA BARBARA / SAN LUIS OBISPO COUNTIES / KERN

BAKERSFIELD GP - 6 eq. ops., 2,000 sq. ft. suite, 1 story strip center. Collected approx. $323K for 2009. NET $124K. ID #3081
***SANTA BARBARA COUNTY GP (New)** - Long Estabilised Practice, 3 eq. ops., 1,010 sq.ft, 2 story strip mall. NET OF $219K. ID #2881
VENTURA GP - 6 eq. ops., 2 story med/dent bldg. Great corner location with excellent street visibility. NET OF $200K. ID #2741

SPECIALTY PRACTICES

EL CAJON/CORONADO (Ortho) - 2 locations included. Primary location: 4 eq. ops., 1,400 sq. ft. office located in one story shopping center. Seller rent space in Coronado and owns approx. 80 active patient charts. NET OF $83K. ID #3171

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CONTINUES ON 454

CLASSIFIEDS, CONTINUED FROM 453

DENTAL SUITES FOR LEASE — SILICON VALLEY — Renovated ortho, pedo, general office space with views in Los Gatos, an affluent community. Close to schools, downtown and freeways. Contact 408-781-4599; e-mail 2340akmeadow@sbcglobal.net.

DENTAL SUITES FOR LEASE IN RANCHO BERNARDO — POWAY AREA — Pomerado Medical Building. Present dentists include general dentists and specialists. One is built out for pediatric use. Near major hospital in high-income area of San Diego County. Call agent 858-822-9215 or Dr. John Sottosanti 858-245-0560. E-mail: rgraves@cbcworldwide.com.

EXCLUSIVE DENTAL SUITES FOR LEASE — Short/long term lease, state of the art equipment and accommodations. Conveniently located off the 101 freeway. Carlos Vazquez 818-758-3557.

OFFICE SPACE FOR RENT — Excellent Torrance location in large modern business complex. New office with the latest in equipment and technology. Share space and reduce your overhead. Call 424-237-2057.

S.F. PRIME FINANCIAL DISTRICT OFFICE — Ground level suite with five ops, computer and digital radiography equipped. Large sterilization area, small lab, private lunchroom and bathroom. Available to share with a dentist with current patient base or looking to start a practice. Great opportunity for buy-in or purchase in the next three years. Flexible and open for discussion. Contact: Dr. Paul Hoyt at 415-399-9999 or 415-516-9670, e-mail: paulhoyt@aol.com.

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- **APTOS:** *For Sale* - General Dentistry Practice. Highly desirable location. 2008 Gross Receipts over $1Mil. w/adjusted overhead at 51%. 3 operatories in 1,000 sq ft. Pano & Modi computerized software. 9-hygiene days per week. Practice operated for past 33 years in same location. Open 5 days a week. Owner willing to work back for new owner 2 days/wk. #14305
- **ATWATER:** *For Sale* - General Dentistry Practice. Gross receipts $177K with adjusted net income of $67,495. Practice has been in its present location for the past 30 years. 1,080 sq ft. 2-equipped operatories. Owner to retire. #14307
- **CENTURY CITY:** *For Sale*-Office Space, equipment and leaseholds only. Opportunity for low cost startup practice and or satellite. Asking $100K.
- **CITRUS HEIGHTS:** *For Sale*-General Dentistry Practice. Well-designed 6 operatories with 1,500 sq. ft. office in professional building. Desirable location. 2-3 days hygiene. Owner is retiring. #14311
- **EL SOBRANTE:** *For Sale*-General Dentistry Practice: Ideal for recent grad or DDS looking for satellite practice. 3 ops. w/potential of 5. '08 receipts $300K, adj. net income $124K. 3 days of hygiene, Pano. Easy Dental software. 1,300 sq. ft. Seller is retiring after 35years in same location. #14302
- **FRESNO AREA:** *For Sale*-**Exceptional** General Dentistry Practice. This outstanding practice has annualized collections of $1,921,467, $798K adj. net income. The office has Dentrix, Laser, Intra-oral camera, digital x-ray and Pano. Bldg. may be avail. for sale. Owner is retiring. #14283
- **FRESNO:** *For Sale*-General Dentistry IV Sedation Practice. Collections $1,064,500. Seller looking for either an outright sale or a buyer to purchase 1/2 of the practice. Buyer will need IV sedation skills or have been trained to provide IV sedation. Facility 1,500 sq. ft. w/5 equipped operatories & 7 days of hygiene. #14250
- **GRASS VALLEY:** *For Sale*-This Periodontal Practice is located in a very desirable growing community. Practice has been in its present location for the past 28 years. Office consists of 1,500 sq ft 3 ops, Intral-oral camera. Practice has 5 days of hygiene. #14272
- **LAGUNA BEACH:** *For Sale* - General Dentistry Practice. 2008 Gross Receipts $898K. 4 operatory (5 ops available) 2,000 sq. ft. office. There are 4 days of hygiene. Practice has been in the same location for approx. 16 years. Owner is retiring.
- **LAGUNA HILLS:** *For Sale* - General Dentistry Practice. Owner aquired practice in 1992. Office remodeled in 2004. 3 days of hygiene, 1,324 active patients, 20 new pts/month, 6 operatories, Eagle Soft software. Receipts were $868 in 2008. Wonderful location.
- **LAKE FORREST:** *For Sale* - General Dentistry Practice. This 4 operatory, 1,200 sq. ft. office had gross receipts of 1.2 million in 2009. There are 5 days of hygiene and approx 2,000 collective patients. Approx. 10% of receipts are from two HMO plans. Seller has practiced in the same location for approx. 30 years. Owner is retiring.
- **LOS ANGELES:** *For Sale* - General Dentistry Practice: This practice 80% Dentical and has approximately 2000 active patients. Owner has operated in same location for 31 years. 2009 receipts were $709,000. 6 equipped tx rms, laser, intra-oral camera Pano and Ceph. Call for details.
- **MODESTO:** *For Sale* - General Dentistry Practice. 5 operatories, 32-years in practice. Gross Receipts $884K w/adjusted net income of $346. Dentrix, Cerec, and Intra-oral camera. Owner to retire. #14308
- **MURRIETA/TEMECULA:** *For Sale* - 2009 receipts were $648,000. This 4 op, 1,500 sq. ft. office space with 4.5 days of hygiene. Average age of Dental Equip is 7 years. #14313
- **NORTHERN CALIFORNIA:** For Sale- Pediatric practice. Owner has operated in same location for 32 years. Approx. 1,760 active patients, 1,160 sq. ft., panoramic X-ray, Dexis Digital and Dentrix software in this 5-chair office. 2009 Gross Receopits $713K with 48% overhead. Owner retiring. Call for details.
- **NO. CA WINE COUNTRY:** **ENDO PRACTICE** For Sale-GR 958K adj net $673K 4 Ops, 1,500 sq ft. Overhead 29% Owner to retire #14296
- **OROVILLE:** *For Sale* - General Dentistry Practice. Owner dentist recently deceased. 2009 collections $770K. Very nice stand alone dental building with basement. 7 ops digital x-ray 5 days of hygiene. Bldg 3,000 sq ft Basement 540 sq ft. Temporary Dentist in place. #14310
- **PALM SPRINGS:** *For Immediate Sale* - General Dentistry Practice. 2008 Gross Receipts $906K with adj. net income of $346K. Highly desirable location with 4 ops. Laser, and Intra-oral camera. 5 days of hygiene. Owner recently deceased.
- **PLUMAS COUNTY:** *For Sale*-3 equipped ops. Space available for 4th op. 1245 sf office in good location. 2009 gross receipts $475K. Practice in present location over 50 years. Owner is retiring.
- **PORTERVILLE:** *For Sale*-One of two partners is retiring in this highly successful General Dentistry Practice. Receipts $2Mil. adj. net $1,257,000. 2,000 sq ft 6 ops. Intra-Oral camera, Pano, Dentrix.10 days of hygiene. #14291
- **RED BLUFF:** *For Sale*-General Dental Practice **"REDUCED PRICE"** Facility overlooks the Sacramento River, 3,500 sq ft, has 8 ops, 10 hygiene days. Appraised Value or Best Offer. Historically Gross Receipts have been over $1 Mil per year. 100% financing available. Sale of Building (optional) #14252
- **REDDING:** *For Sale*-Owner looking for Assoc. trans. into Partnership w/Buy-Out. GR $1 Million dollars income $436K. 5.5 days hygiene, 2,200 sq. ft. #14293
- **RENO: FOR IMMEDIATE SALE** **DECEASED DENTIST** - General Dentistry Practice 2 Ops, 17yrs. present location '07 GR $763K with adj. net of $263K w/65% overhead. Bldg. also for sale. Owner deceased.
- **ROSEVILLE:** *For Sale*-General Dentistry Practice. 2008 Receipts $834K with adjusted net income of $297,218. 64.4% overhead. Practice has been in this present location for the past 7 years. 13-15 New Patients a month. 6-treatment rooms in 2,100 sq ft. Laser, Intra-oral camera, and digital radiography. Owner relocating out of office.
- **SAN FRANCISCO:** Financial District 4 ops, 1,500 sq. ft. MERGER - Buyer needs to bring in Pt. base #14288
- **SAN FRANCISCO:** *For Sale-Patient Base for Sale*-Owner passed away last June and the practice has continued on 4 days a week with an associate. Lease can't be renewed. There are approx. 1,000 acive patients in the practice. The patient base can be purchased at no risk to buyer since the purchase price is paid according to the receipts collected on the patients that transfer. #14312
- **SAN DIEGO:** *For Sale*-General Dentistry Practice. This office is plumbed for 4 ops. 3 ops. are equipped with Promo Equipment. Lease is $2,200 per month. 2009 receipts were $185,645. PPO and Fee for service practice.
- **SAN DIEGO/CITY HEIGHTS:** For Sale-General Dentistry practice. Owner has operated in same location for 12 years. Approx. 1,000 active patients, panoramic X-ray, Intra Oral Camera, in this 3-chair office.
- **SOUTH LAKE TAHOE:** *For Sale*-General Dentistry Practice. Office is 647 sq ft, 1 ops. Practice has been in its present location for the past 26 years. Owner to retire. #14277
- **TORRANCE:** For Sale- General Dentistry Practice: Owner has operated in same location for 20 years. Approx. 1,000 active patients, 1,080 sq. ft., Brican System, and Camsight software in this 2 equipped, 3 available-chair office. 2009 Gross receipts $434K with 38% overhead. Owner relocating.

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SOUTH SAN FERNANDO VALLEY
3 op GP located in a busy strip shopping center. The office has computers in each op and utilizes a Digital Schick X-ray system. 2009 collections $357,000+.

ORANGE COUNTY COASTAL COMMUNITY - (Perio)
Busy periodontal practice with a highly desirable location. 5 op, very profitable business with long term goodwill and a great staff. 2009 collections $900,000+. The seller is retiring.

LANCASTER
Long established, 4 op GP with an excellent location in a professional complex. Strong patient base developed over 34 years. 2009 collections exceeded $670,000. The seller is retiring.

SAN JOAQUIN COUNTY (Pedo)
Price Reduction - Motivated Seller!
Long established pediatric dental practice with a fantastic presence in a busy and popular location. The large "child friendly" office includes 11 equipped ops. The seller is retiring.

INLAND ORANGE COUNTY
Motivated Seller!
Newer, 3 op GP start-up opportunity. Located in a shopping mall, the practice is currently open only two days per week and is positioned for growth.

SAN DIEGO AREA
Multi office opportunity. Contact us for more details.

SACRAMENTO COUNTY (Ortho)
Spacious 6 op, well established orthodontic practice in a full service easily accessible office building. 2009 collections $440,000+.

LOS ANGELES (Endo)
Price Reduction!
4 op, long established endodontic practice. Located in an easily accessible professional building next to a major intersection

MORENO VALLEY
Spacious, 2,700 sq ft, 7 op (6 equipped), GP with a busy location, 25 years goodwill, strong patient base & plenty of room for growth.

VENTURA COUNTY
Long established 3 op GP with a convenient strip mall location. Well trained staff. Collections are consistently growing with 2009 gross $431,000+.

Pending

SOLANO COUNTY
Price Reduction!
4 op (3 equipped) GP with strong patient base. Efficient facility and proven systems.

CHINO
Price Reduction!
4 op GP located in a dental complex. Stand alone building. 2009 collections $368,000+.

Sold

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ALHAMBRA – (2) op G.P. Mostly cash pts. w some Ins/PPO. 2009 Collect $140K on a very limited schedule. Seller quotes 1,200 active pts. Seller retiring, but will assist w transition. **NEW**
ANAHEIM – (3) op computerized G.P. Low overhead office. Cash/Ins/PPO/Denti-Cal patient base. Annual Gross Collect. $260K+ p.t. Will do more f.t. Seller motivated. **REDUCED**
ARCADIA – (4) op computerized G.P. Cash/Ins/PPO only. Gross Collect $315K+/yr on a (4) day week. In a well known, easily accessible medical/dental bldg on a main blvd. **SOLD**
BAKERSFIELD #22 – (5) op G.P. (4) eqt'd. Strip Ctr. Gross Collect ~ $200K/yr p.t. **NEW**
BAKERSFIELD #23 – **Partner Wanted! 50% Ownership!** (12) op comp. G.P. in a retail ctr. Cash/Ins/PPO. Digital x-rays & Pano. Paperless office. Annual Gross Collect. $2M+. **NEW**
CALABASAS – "Build to Suit" Dental space avail for long term lease. 1,200 – 3,600 sq. ft. **NEW**
FRESNO – (3) op G.P. (4) yr old eqt. Mixed patients. 2009 Collections $220K+ p.t. **NEW**
FRESNO SUBURB – (3) op G.P. Gross Collect. $375K/yr. No competition. **PENDING**
HIGHLAND #2 – (3) op compt. G.P. in a shop ctr. Mixed Pt. Base. '09 Collect. $447K. **NEW**
LOS ANGELES (KOREA TOWN) – 7 op computerized State of the Art G.P. with an Annual Gross Collection of $1.4M+ and an Annual Net Income of ~ $450K. Cash/Ins/PPO only.
SAN JACINTO (HEMET AREA) – (4) op Computerized G.P. Absentee owned HMO pract. w $6K/mos Cap Checks. No Denti-Cal. 2009. Gross Collect. ~ $400K on a (3) day wk. **PENDING**
SANTA CLARITA VALLEY – (11) op comput. G.P. (10) ops eqt'd 11th op plmb. Cap Cks. $14K-$16K/mos. Cash/Ins/PPO/HMO/min Denti-Cal. Annual Gross ~ $1.6M. **Back on Market**
SOUTHGATE – (5) op built out DDS office for lease. On a main Blvd. in a free standing bldg. Highly recognizable Govt Ctr. across the street. Excellent exposure/visibility/signage. **NEW**
TUSTIN – (4) op Turnkey Office w newer eqt. No pts. On a main blvd. Reasonable rent. **NEW**
WESTLAKE VILLAGE – (4) op compt. G.P. in a highly desirable area. (3) ops eqt'd. Digital x-rays. Drop Dead Gorgeous! Cash/Ins/PPO only! '09 Gross Collections ~ $629K. **PENDING**
VALLEY VILLAGE (SHERMAN OAKS) – (4) op computerized G.P. 2009 Collect. $477K. Cash/Ins/PPO pts. Seller is a 1-800-DENTIST. In a free stand. bldg. w visibility. **REDUCED**
VENTURA Multi-Specialty – 5 op comput paperless office, digital x-rays/Pano. Newer Eqt. '09 Gross $623K+. 2 days/wk Pedo, 3 days/mos O.S., 2 days/wk Endo, 1 day/mos Perio. **REDUCED**
VENTURA – (3) op computerized G.P. and a free standing bldg. located in a highly desirable area. Cash/Ins/PPO and small amount of HMO. Seller is a 1-800 DENTIST provider. Dentrix s/w and Pano eqt'd. 20-25 new pts. per mos. Annual Gross Collections $400K+. **NEW**
WOODLAND HILLS – (3) op comput. G.P. Dentrix s/w. Located in a strip ctr. Cash/Ins/PPO only. 2009 Gross Collect. ~ $570K. Newer eqt., digital x-rays/intra oral camera. **SOLD**

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3028 NAPA-SOLANO COUNTY GP

Owner retiring from well-est. practice in 1,400 sq. ft. facility with 5 ops. All fee-for-service pts. with great word-of-mouth reputation. 2009 GR $731K+, June 2010 FY on schedule for $771K+ with just 4/doctor-days. Asking $518K.

3006 MONTEREY COUNTY ORTHO

Est. Ortho practice in 2,668 sq. ft. office with 5 open bay chairs in a professional dental complex. Panorex and Cephlometric X-ray machines. Stable and loyal referral base. Annualized GR as of Oct 2009 are $335K+. Owner retiring and willing to help for a smooth transition. Asking 227K.

2986 SAN JOSE FACILITY & EQUIP

A 3 year-old stunning facility with small pt. base that has all the bells and whistles. 2,000 sq. ft. office. Located in desirable comm./ residential neighborhood close to O'Connor Hosp. & Valley Fair Mall. 6 ops and new equip. For the est. GP who is looking to move into a larger facility or for the assoc. GP who is ready to start out on their own. Asking $475K.

3017 SOUTH BAY

Est. Cosmetic and Restorative Practice in desirable area. Seller [illegible] able to help for a smooth [illegible] sq. ft. office with 4 fully equipped ops. 2009 GR $829K +. Asking Price $658K

PENDING

3013 SOUTH VALLEY, GP

Clean air, quiet living and a small town atmosphere are found in this bedroom community to Northern California's San Jose/Silicon Valley. Quality, well-est. GP offering 31 years of goodwill in a state-of-the-art, fully equipped, attractive 6 op practice in 2,246 sq. ft. Seller is the originator of "Alternative Lightwire Functional" appliances but the practice includes every aspect of whole person dentistry at the cutting edge from Cerec to PRGF augmented surgery. Approx. 2,500 active pts. with a waiting list for new patients to join the practice!!! 2008 GR $870K+. Asking $563K.

3016 CONTRA COSTA COUNTY PERIO

Est. 1990 in desirable bedroom community 20 miles from SF. 1,068 sq. ft. beautifully remodeled office w/[illegible]lly-equipped ops., & excellent staff. [illegible] 5 year lease w/5 year option. [illegible] willing to help in the transition of the practice. 2008 GR $441K+, 2009 GR projected to $460K+ as of Oct. Terrific upside potential. Asking $275K.

SOLD

3022 MODESTO GP

Owner retiring from well est. friendly, family practice w/3 ops. in 1,150 sq. ft. office + spacious storage. [illegible]vg. GR for past 5 years $379K [illegible]overhead & great upside potential. Quality staff. Owner willing to help w/smooth transition. Partnership in building available. Asking $278K for practice.

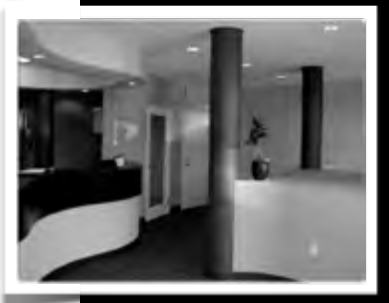
SOLD

3023 NORTH BAY

Seller retiring from service oriented practice with loyal patients and seasoned staff. ~2K sq. ft. office [illegible]y-equipped ops. & excellent lease [illegible]880 active pts. all fee-for-service. Avg. GR $438K+ Avg. overhead 64% w/ 3.5 doctor days/wk. Great upside potential. Asking $273K.

SOLD

UPCOMING
South Bay GP



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BAY AREA

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A-807 SAN FRANCISCO - Well-known Medical/Dental Prof bldg in heart of downtown financial district. Quality, state-of-the-art practice. 800sf w/2 fully equipped ops. Plumbed for 1 add'l **$250k**

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A-829 SAN FRANCISCO Facility – Attractive Office w/traditional décor. 1600sf & 2 fully equipped ops. **ONLY $49k**

A-8711 SAN FRANCISCO— Don't miss your opportunity to practice in a well-established, fee-for-service practice in a renowned building! 1,700 sf, 4 ops and plumbed for 1 add'l **$725k**

B-7881 TRI VALLEY, CA - *Facility Only -* Location, Location, Location! 1070 sf, 4ops, ADEC chairs and equipment. Fully networked Dentrix computers. **$325k**

B-846 OAKLAND- Long-established, fee-for-service practice. Excellent reputation. Dental Prof Bldg. 2,100sf w/ 3 fully equipped ops **$325k**

C-7811 SOLANO CO - 2,997 sf w/6 fully equipped ops + 2 Hyg ops + 1 add'l op! Buy the whole practice for $1.3m or only 50% for $650k. **Call for Full Details!**

C-869 NAPA VALLEY AREA - Quality, fee-for-service practice. Relaxed lifestyle & gorgeous scenery! Dental Prof Bldg w/ ~ 1,000 sq. ft. and 2 fully equipped ops. Option for 3rd op. **$450k**

BAY AREA CONTINUED

D-842 PLEASANTON –General Dentistry. 1,488sf w/ 2 ops **$295k**

D-779 SUNNYVALE - Well established GP in heart of Silicon Valley! 4 ops, 1050sf. Call for more information! **$225k**

D-790 MORGAN HILL FACILITY - SPECTACULAR! Dental Prof Plaza on busy intersection. 1,730 sf/5ops, 3 of which are fully equipped. ***This is an Ideal Satellite Office for Specialty Practice!*** **$75k**

D-824 SANTA CLARA- GP - 35+ new pats/mo by word-of-mouth referrals. Just 6 years old w/ 1,500 sf & 3 fully equipped ops. Plumbed for 1 add'l op **$485k**

D-8301 SAN JOSE- FFS - "One Stop Shop" w/multiple Specialists under one roof. Exc Pt Base. Amazing opportunity in a highly desirable, family-oriented community. 2,400 sf & 8 ops, **$1.2m**

D-845 SAN JOSE - *Facility* -Attractive office. Traditional décor. Retail Plaza. 2,240 sf & 5 ops. **$150k**

D-8521 SAN MATEO-Facililty - SPECTACULAR office -Quality dental care - Modern facility. Just blocks off of Hwy. 92 and I-280. 2-Story Shp Plza. 2,076 sf & 4 ops + 3 add'l **$150k**

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D-863 SAN JOSE-Excellent location & Stellar Reputation! Professionally Decorated in Popular Retail Shopping Ctr. 1500sf & 3 fully equipped ops **$495k**

D-857 MOUNTAIN VIEW- Quality practice. Busy traffic flow. Significant walk-in patients-continuous growth. Free-standing bldg w/ ample exclusive patient parking. 3,400sf - 11 ops **REDUCED! $595k**

BAY AREA CONTINUED

D-870 CUPERTINO– CAT6 fully computerized office. 2100sf & 3 ops. '09 collections over $800k! **$650k**

D-877 LOS ALTOS - Located in a spectacular and pristine Professional plaza. Office is ~ 2,400sf and consists of 6 fully equipped ops. **$425K**

NORTHERN CALIFORNIA

E-729 AUBURN - Busy retail shp ctr w/ excellent signage & good traffic flow. Well maintained FFS practice. 1750sf, 4ops. Plumbed for 2 add'l ops **$300k**

E-7121 SACRAMENTO AREA – Largely FFS. 1800sf, 4ops (+2 add'l plumbed). 2-story Prof bldg. **$695k**

E-818 SACRAMENTO-Increase the part-time, relaxed workweek and watch the practice grow! Loyal Patient Base. Collections over $350k in 2007. 1,200sf & 4 ops. ***Building previously appraised @ $260k in 2004. $315k for Practice AND Building***

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E-872 ROCKLIN– Remarkable opportunity w/ a steady increase in monthly collections! 2450sf w/ 6 ops. **$495k**

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G-875 YUBA CITY– Sets the bar for excellence! Established 30 + years, GP, FFS, 3575 sf / 9 ops, great location. **$1.5m—Associate Buy Opportunity!**

F-7651 COASTAL EUREKA AREA- Near Thriving University. Vibrant student/staff population. Seller retiring. 2700sf, 6 ops. **$480k**

H-634 WEST OF RENO - On the Feather River in Plumas Co. 1500 sf/ 4 ops, excellent location. Lease below market value. **$250k**

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H-856 SOUTH LAKE TAHOE Live and Practice in the Beautiful and Unique Tahoe Area! This GP accepts over 50 new patients each month! Respected and Growing! 1568 sf & 4 fully equipped ops **$425k**

I-772 *Facility* STOCKTON-Desirable, affluent health care area. 2,140sf/4 ops **$250k**

CENTRAL VALLEY

I-685 TURLOCK - 1700sf, 7 ops. Avgs 14 patients & 11 Hyg Pats/day! Practice recently remodeled. Highly attractive free standing building. Mostly Adec Eqpmt. **$350k**

I-838 MODESTO- Retail Shopping Center adjacent to a popular Supermarket, drawing walk-in patients from traffic flow & word-of-mouth referrals. 1,200 sf & 4 fully equipped ops **$295k**

I-840 TRACY- Must See to Appreciate! Major thoroughfare / desirable area. 2,165 sf & 6 ops. Plumbed for 1 add'l op. **REDUCED!! $345k**

I-866 TRACY - This amazing opportunity can be yours! ~ 6-8 patients, 25-40 + new patient per month, 4 ops, ~ 1,300sf. **$320k**

J-801 FRESNO– Facility. ~ 1300sf and 4 ops. Traditional Décor. **ONLY $70k**

SOUTHERN CALIFORNIA

K-735 ALISO VIEJO FACILITY - Upscale 2 story Prof Bldg. 1,800sf/4 ops. $4k sublet income at this location too! **$225k**

K-762 INDIAN WELLS– Well Respected practice w/loyal patient base. Newly remodeled, 1400+ sf, 5 ops **REDUCED!! $425k**

K-816 MISSION VIEJO-Reputation as one of the best dentists in this vibrant OC Comm. Top-notch office in popular Rtl Shp Ctr. Close proximity to Gov. amenities & schools. 1,300 sf & 2 ops **ONLY $290k**

K-858 CHATSWORTH– Seasoned Staff supported by Excellent Specialists. Stable Loyal Patient Base. 2150 sf & 4 + fully equipped ops **$295k**

NEVADA

LV-756 LAS VEGAS-Brand new 1,600sf/ 3 op office (Plumbed for 1 addl op) Attractive & well-equipped in Rtl Shpng Ctr. **$150k**

LV-796 HENDERSON - Master-planned community! Excellent location & easy freeway accessibility. Spacious, like-new office. 2,080 sf w/3 fully equipped ops & plumbed for 3 add'l ops **$295k**

LV-694 LAS VEGAS - Well established, large GP. 2200 sf & 6 ops. Gross Receipts over $900k. Equipment less than 5 years old. Office recently painted & carpeted. **$545k**

LV-800 LAS VEGAS-Well Established FFS practice. Emphasis on prevention. Seasoned Staff. 3350 sf & 6 ops. **$785k**

LV-861 LAS VEGAS– FFS Quality Practice—Stable Patient Base & Seasoned Staff. Professionally Remodeled 1750sf, 5 op office. Call for Info! **$180k**

R-810 DAYTON-Gross Rcpts over $1mil in 08! Amazing, quality, well-estab w/loyal, stable patient base & seasoned staff. Excellent signage, easy freeway accessibility, ample parking. 1,500sf & 5 ops. **$595k**

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E-811 SIERRA FOOTHILLS ORTHO- Fast growing area. Patient Oriented, Well respected Ortho practice. Avg 30 pats/day. 1200 sf & 3 chairs in open bay. **PRICE REDUCED! SELLER ANXIOUS TO SELL. NOW ONLY $125k**

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DR. BOB, CONTINUED FROM 466

on the bottle's label that is intentionally enhanced with positive words in several languages. The company says it "uses words, colors, music and vibrations as the inspiration and driving force behind our intention-infused, interactive natural spring water." To those who demand even more from their water, please note it is "thermal friendly," i.e., can be made either hot or cold, and comes already wet.

In Hollywood, where powerful intentions are frequently matched by an innocence largely devoid of logic, reasoning and good manners, being thirsty is not necessarily relevant. Rather, in a milieu where detoxing is a popular pastime, and personal maintenance is a full-time dedication, an exotic water intensified by love, perfect health, gratitude, prosperity, willpower, joy, or peace, has found instant popularity.

Word gets around. A leader in the revolutionary field of intention-enhanced food is Intentional Chocolate, a Canadian company dedicated to the concept that intention offers measurable power and energy that can manifest itself across time and space. Googling this phenomenon provides further explanation: "Experienced meditators at the Deer Park Buddhist Monastery in Madison, Wisconsin, project positive intention into a device developed by the HESA Institute that is designed to capture, hold, and then transfer intention into food." This "device" is apparently not available online, or everybody would be clamoring for one. At present, my only intention with food is to eat it. Clearly, I am missing the Big Picture.

Mars Inc., makers of Mars Bars, choreographed M&Ms and other caries-friendly confections must be regretting their intensive advertising didn't focus on "joy" and "peace" rather than the forthright appeal to go out and buy candy right now! Experts agree that with the right marketing, embedded foods could be huge, as could the customers unless combined with a vigorous exercise program not involving bulimia.

There are skeptics, of course. Packaging spirituality raises the eyebrow of James Fallon, a professor of psychiatry at the University of California, Irvine, School of Medicine. "Nah," he says briefly. Likewise is Oscar Wilde, who observed, "The worst work is always done with the best intentions." Turns out Oscar is already permanently embedded, having died in 1900, so intention focusing on him is largely wasted.

Up in Canada, a trio of ladies named Janet, Alison, and Jocelyn formed a small company named Creo Mundi International Clothing that embraces the intention-infusion idea to include made-to-order clothing.

Their website enthusiastically states, "Now you, too, can wear the clothing that intuitives, healers, yoga practitioners, naturopathic doctors, reiki masters and others in touch with their energy have described as positively bursting with energy!" Dentists are not specifically mentioned, maybe because we are not normally in touch with our energy, especially around 4:30 p.m. I am, however, close to being an "intuitive." There are times I experience a psychic-like feeling of being positively bursting with something, but I'm sure it isn't energy. Dentists are not in the same class as reiki masters who have auras, crystals, drums, and touchless healing as part of their armamentarium. Touchless healing never caught on big in dentistry.

One of the prime offers of Creo Mundi is a T-shirt hand-crafted from made-in-USA yarns that doesn't feature a clever pronouncement on the front such as "I'm With Stupid," but has all the printing on the inside of the garment. Besides the thoughtful suggestion to launder in cold water and tumble dry on the gentle cycle, there are more than 200 other positive words in 15 different languages embracing your skin. If my dermatologist convinces me that powerful words against my skin will not result in some irreparable damage, I intend to get one of these. The shirt can be machine-washed, hopefully without sending my Maytag into orbit because the power of intention was more than it could handle.

Unfortunately, as usual, dentistry lags behind the rush to infuse our lives with positive energy. Clinging to old-fashioned concepts of hard-wired science, we need to open our narrow viewpoints for the benefit of our patients, if not all mankind.

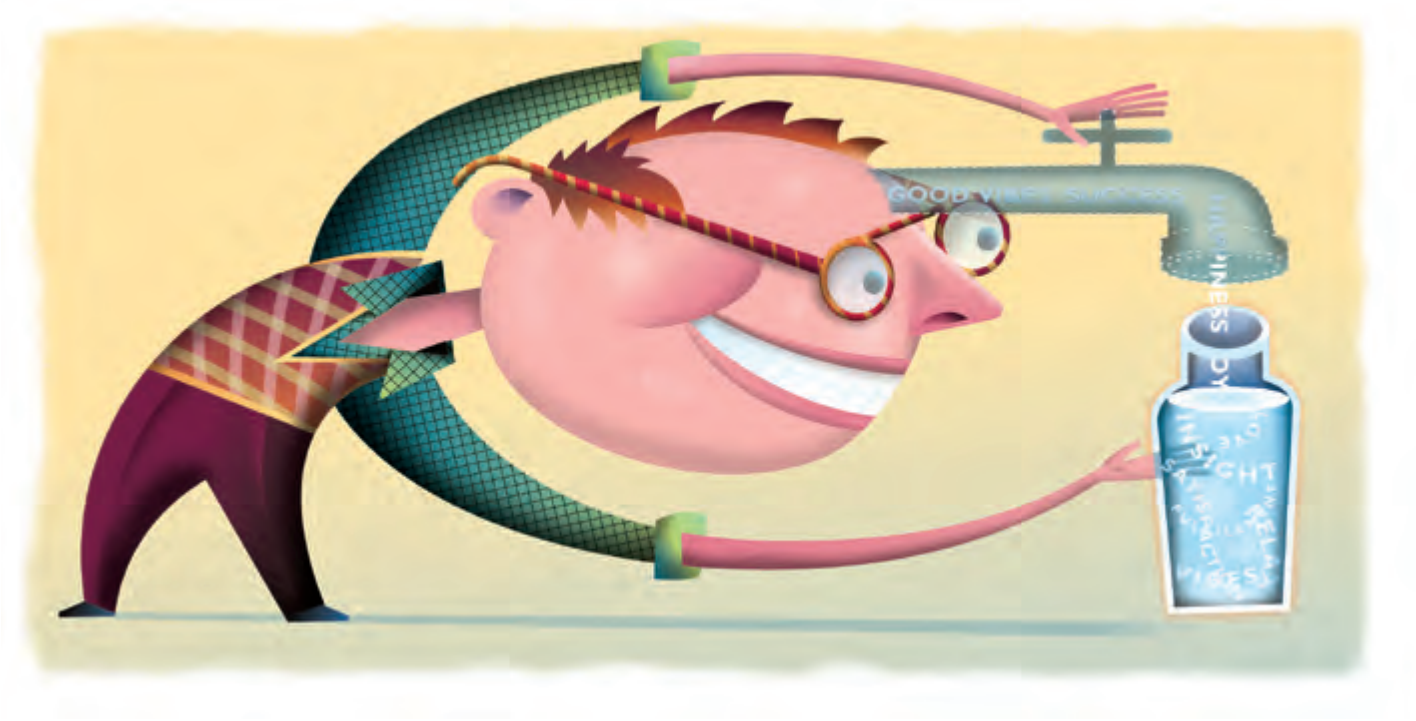
We can start with encouraging the personnel in our local water departments to gather solemnly around the device that dispenses fluoride into our water systems. With an appropriate mantra of pax vobiscum and the combined focusing of their minds on the words "sugar-free" and "see-your-dentist-twice-a-year," the benefits of the fluoride would be intensified to its full capacity.

No dental laboratory would deliver any porcelain restoration that didn't have embedded in it beyond the usual silica, the powerful focused intentions of a concerned group of ceramists. Infused with the energized vibes of not wishing to do a remake, coupled with the dulcet music of Lawrence Welk quietly playing "Smile" in the background, dental labs, along with their products and clients would be on the threshold of a whole new life.

It couldn't hurt. I'm just saying. ■■■■

CDA JOURNAL, VOL 38, Nº6

Nosh for the Body, Fuel for the Soul



To those who demand even more from their water, please note it is "thermal friendly," i.e., can be made either hot or cold, and comes already wet.

→ Robert E. Horseman, DDS

ILLUSTRATION BY DAN HUBIG

Intention \ in-'ten-chan\ n b. the object for which a prayer, mass, or pious act is offered.

Ask any adherent of a mixed, but growing group of citizens what the most important thing in life is and the seriously enthusiastic answer is "intention, intention, intention!" In essence, this amounts to having a major stare down with an object, focusing good thoughts and positive words on it until the object absorbs the "intentions" and starts to vibrate happily with newfound energy. Mind over matter with benefits. Eat the "embedded" food, use the infused object and all the benefits accrue to you. I like it!

According to *Time* (April 6, 2009 issue), the latest wrinkle in nutrition is "embedded" foods infused with "positive intentions via prayer and music." In some cultures, like the Navajo, this is a centuries-old concept involving peyote, a stimulant drug derived from mescal cactus buttons. More a consciousness-expanding practice than a commercial enterprise, it is surprising it took so long to embed everything else from water to chocolate to clothing with the power of "intentionizing" them.

Harken to the words of the CEO co-founder Lex Lang of a bottled water company called H2Om: "Intention is the foundation of all creation. Our slogan is 'think it while you drink it.'" In line with H2Om's claim as being the "world's first interactive bottled water with intention," drinkers are instructed to focus

CONTINUES ON 465

"Dr. Robin made a process I thought would be a nightmare quick and easy with a better result than I ever could have imagined!"
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