OF THE CALIFORNIA DENTAL ASSOCIATION

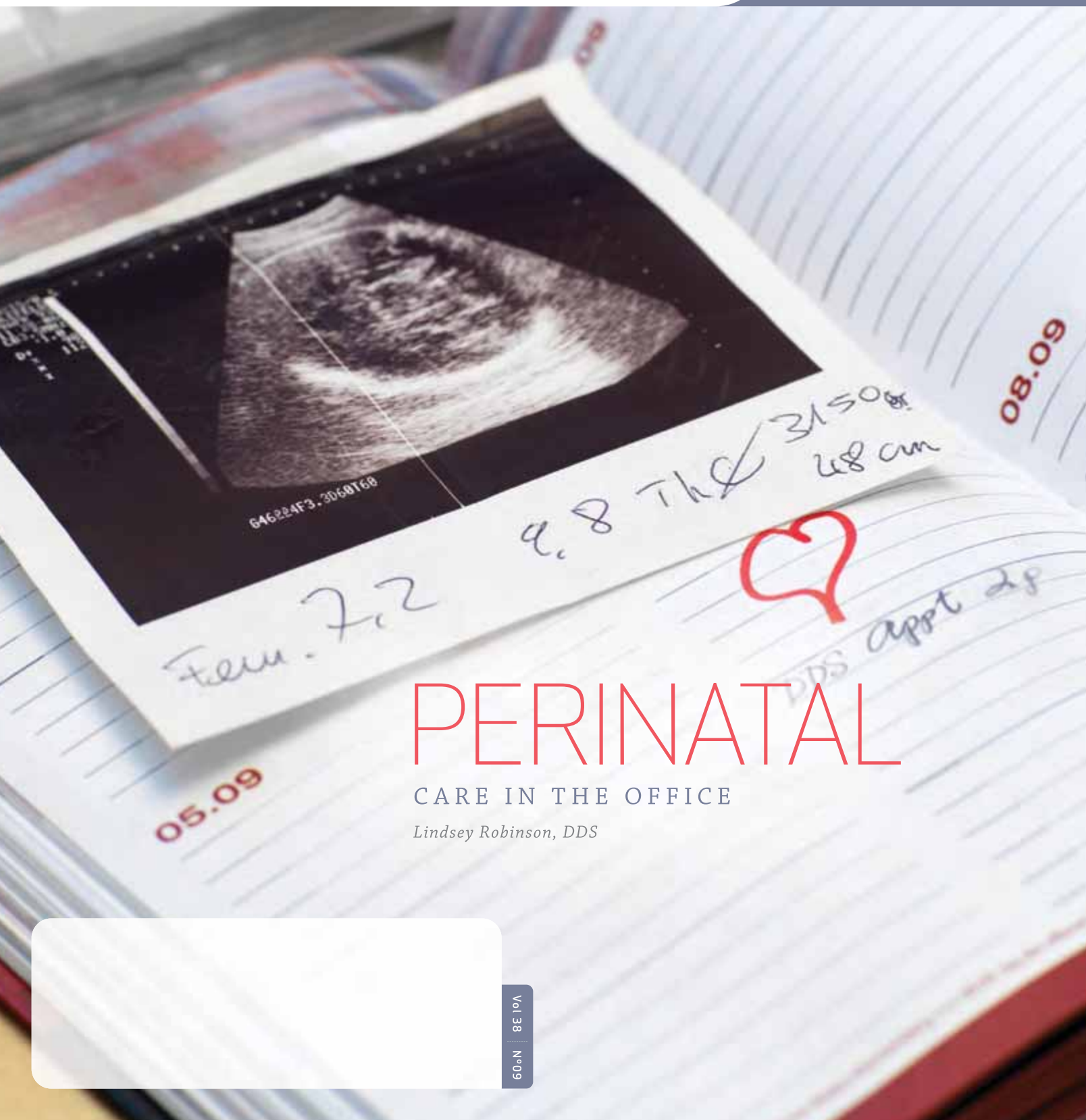
Journal

SEPTEMBER 2010

Legal Issues

Policy Brief

Guidelines in Practice



PERINATAL

CARE IN THE OFFICE

Lindsey Robinson, DDS

Vol 38 No09

Protecting dentists.
It's all we do.

- Professional Liability
- Office Property
- Employment Practices Liability
- Workers' Compensation
- Life/Health/Disability
- Long-Term Care
- Business Overhead Expense
- Home & Auto

Coverage specifically underwritten by The Dentists Insurance Company includes professional liability, office property, and employment practices liability. Workers' compensation, life, health, disability, long-term care, business overhead expense, home and auto products are underwritten by other insurance carriers, brokered through TDIC Insurance Solutions. CA Insurance Lic. #0652783

Stop by the Member Benefits Center, #802, and make sure you have the right protection at the right price.

tdic®

State-of-the-Art

Endodontic

Information

USC Davidson
Conference Center
Los Angeles
Friday - Saturday
November 19 - 20, 2010
8:30 a.m. - 5:00 p.m.

The USC Ninth International Endodontic Symposium

Dr. James Bahcall (USA)

Dr. Charles Goodacre (USA)

Dr. James Gutmann (USA)

Dr. Robert Handysides (USA)

Dr. James Johnson (USA)

Dr. Bertrand Khayat (France)

Dr. Robert Love (New Zealand)

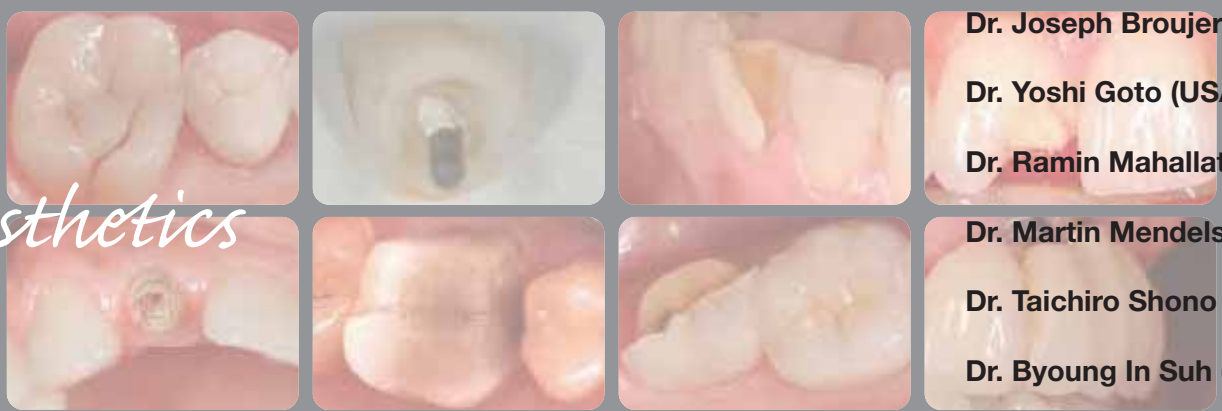
Dr. Ilan Rotstein (USA)

Dr. Christine Sedgley (USA)

Dr. James Simon (USA)

The USC International Restorative Dentistry Symposium

Interdisciplinary



Esthetics

New Technologies

USC Davidson
Conference Center
Los Angeles
Friday - Saturday,
October 8 - 9, 2010
8:30 a.m. - 5:00 p.m.

Dr. Abdi Sameni (USA)

Dr. Alan Atlas (USA)

Dr. Oded Bahat (USA)

Dr. Joseph Broujerdi (USA)

Dr. Yoshi Goto (USA)

Dr. Ramin Mahallatti (USA)

Dr. Martin Mendelson (USA)

Dr. Taichiro Shono (Japan)

Dr. Byoung In Suh (USA)

Mr. Toshiya Tanaka (Japan)

Dr. Marcos Vargas (Peru)

Dr. Roy Yanase (USA)

the Herman Ostrow School of Dentistry of USC

To register, please contact our office at 213.821.2127
or visit our website at http://www.uscdentalce.org

USC UNIVERSITY OF SOUTHERN CALIFORNIA

OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

CDA Journal
Volume 38, Number 9
SEPTEMBER 2010

cda®

Journal of the California Dental Association

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

Reader Guide:

Upcoming Topics
OCTOBER: *Sealants*
NOVEMBER: *General Topics*
DECEMBER: *Dental Workforce*

Manuscript Submissions
Patty Reyes, CDE
ASSISTANT EDITOR
Patty.Reyes@cda.org
916-554-5333
Author guidelines are available at cda.org/publications/journal_of_the_california_dental_association/submit_a_manuscript

Classified Advertising
Jenaé Gruchow
COMMUNICATIONS ASSISTANT
Jenae.Gruchow@cda.org
916-554-5332

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

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

Subscriptions
The subscription rate is $18 for all active members of the association. The subscription rate for others is as follows:
Non-CDA members and institutional: $40
Non-ADA member dentists: $75
Foreign: $80
Single copies: $10
Subscriptions may commence at any time.
Please contact:
Jenaé Gruchow
COMMUNICATIONS ASSISTANT
Jenae.Gruchow@cda.org
916-554-5332

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

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

627

DEPARTMENTS

624 The Editor/*Sometimes I Feel Really Stupid*

627 Impressions

635 Table Clinic Winners

640 *CDA Presents*

691 Classifieds

700 Advertiser Index

702 Dr. Bob/*Going Viral: Getting the Bugs out of Your Travel Plans*

FEATURES

642 OFF THE PAGE AND INTO PRACTICE ...

An introduction to the issue.

Lindsey A. Robinson, DDS

647 LEGAL ISSUES OF PERINATAL ORAL HEALTH

The legal issues involving perinatal dental care are reviewed in this paper, including the laws of malpractice claims by patients, employment claims involving staff, and Dental Board of California investigations involving patient care, and the administration of the business of dentistry.

Arthur W. Curley, JD

655 ORAL HEALTH DURING PREGNANCY AND EARLY CHILDHOOD: BARRIERS TO CARE AND HOW TO ADDRESS THEM

This policy brief is a supplement to recommendations developed by the California Dental Association Foundation and the American College of Obstetricians and Gynecologists, which provide recommended practice guidelines for the delivery, timing, and scope of oral health services for women during the perinatal period.

Dana Hughes, DrPH

663 PHYSIOLOGIC AND PHARMACOLOGIC FACTORS RELATED TO THE PROVISION OF DENTAL CARE DURING PREGNANCY

The authors describe maternal physiologic adaptations and discuss changes in drug processing and placental drug transfer in order to enhance the knowledge base of oral health care professionals.

Christian A. Chisholm, MD, and James E. Ferguson II, MD, MBA

673 APPLICATION OF THE PERINATAL ORAL HEALTH GUIDELINES IN CLINICAL PRACTICE

This paper presents practical strategies based on the recently released "Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines for Health Professionals" to overcome barriers to care.

Irene Hilton, DDS

681 THE ORAL HEALTH CONDITIONS OF THE HOMELESS IN DOWNTOWN LOS ANGELES

This study evaluates a community health project serving the homeless and assesses their oral health.

Hazem Seirawan, DDS, MPH, MS; Laura Kathleen Elizondo, DDS; Niel Nathason, MPH, MS; and Roseann Mulligan, DDS, MS

Protecting dentists.
It's all we do.

Protecting dentists is in our DNA.

It all started 30 years ago when, in the climate of skyrocketing premiums, a brave group of CDA dentists decided it was time to take action and created **The Dentists Insurance Company.**

Today, we continue to evolve in order to deliver on the promise to protect our policyholders better than any other insurance company. And that's one trait that just comes naturally.

tdic®

CDA JOURNAL, VOL 38, Nº9

Sometimes I Feel Really Stupid

KERRY K. CARNEY, DDS

It is unclear whether a particular personality type is attracted to a career in dentistry or whether it is the career in dentistry that reinforces particular personality traits. Whatever the mechanism, it does seem that detail-oriented, obsessive-compulsive, perfectionists are overrepresented in the profession of dentistry. (I count myself among this group.) This is not necessarily a bad thing. Most people would agree that they like their brain surgeons, air traffic controllers, and dentists to be detail-oriented, obsessive-compulsive, perfectionists. In addition to this personality profile, the majority of us share another commonality: dentists are gadget freaks.

We all saw it in dental school. By the end of four years, everyone had a drawer full of things we had tried and discarded. They had been appealing gadgets but after trying them out we found them inefficient, cumbersome, or just plain useless. They went to live in the orphan drawer with things that we never used but could not stand to throw out. In dental school, the things we bought and discarded were not all that expensive but, now, that is not the case.

Technology in dentistry runs the gamut from elemental to elegant. It seemed anachronistic to be using cotton swabs, rubber bands, paper clips, and wax when we were taught to pour and mount models and casts in dental school. Light-initiated polymerization was fairly "new" at that time. Light-cured materials now are de rigueur … or perhaps they have become "so last century." At any rate, advances in materials seem to have lost the limelight. It is all about digital technology now.

By the end of four years, everyone had a drawer full of things we had tried and discarded.

In 1965, Gordon E. Moore wrote "Cramming More Components onto Integrated Circuits."[1] In that paper, he was trying to predict a future of rapid development and innovation in silicon components over the next 10 years. He estimated that every two years, the number of circuits that could be incorporated onto a chip would double. Over time and through various interpretations it became the basis for Moore's Law, which is usually articulated as: Every 18 months the complexity or power of silicon component technology doubles and the cost decreases. At the time, Moore was part of Fairchild Semiconductors, one of the first three Silicon Valley companies.[2] With Robert Noyce, Moore co-founded Intel in 1968. In 1965, it had been possible to incorporate 30 circuits on a chip. Now that number is more than 1 billion.

Technology in dentistry has followed Moore's Law of exponential technological improvement accompanied by a reduction in cost, for the most part. When practice management software was first introduced, the cost to switch from paper and analog to digital was $10,000 to $20,000. By the early '90s, the cost had decreased to $3,000 to $4,000. When intraoral cameras were first introduced, their cost was about $20,000 and they were bulky. There now are small wireless intraoral camera systems for less than $2,000. Early adopters get to pay the higher prices and beta test the soon-to-be obsolete technology. I guess that is why I am not an early adopter. Also, I know my weakness for gadgets. If I had unlimited funds for discretionary spending I would be packing my operatory with new technology. I would need an intervention.

Some friends and I attended an all-day seminar years ago. We saw a demonstration of a $2,000 piece of equipment purported to ease the tasks we perform every day in the dental office. I was impressed and murmured that it was a cool gadget. Immediately, my companions on the right and left turned to me and said, "Do you want to buy mine?" (Hmm … note to self: Purchasing this gadget might not be a good idea.) There is a very simple question that I ask myself now whenever I feel that urge to buy the latest thing. "Will this equipment/technology help me provide better dentistry?"

When the answer is clearly "yes," as was the case with loupes, the gadget is mine! Unfortunately, when the answer is "no" but "it sure is cool" then I have to wait until Moore's Law brings the power/efficiency up and the cost down.

Herein lies the dilemma. When I attend a presentation with my colleagues and we are wowed by technological

CONTINUES ON 626

Rethink EDUCATION

Learn to treat patients of all ages with sedation dentistry!

DOCS Education offers the following courses:

Oral Sedation Dentistry

TEEN SEDATION DENTISTRY

PEDIATRIC Sedation Dentistry

Washington, DC | October 21-23, 2010

San Francisco, CA | November 4-6, 2010

Atlanta, GA | December 2-4, 2010

Academy of General Dentistry
PACE
Approved PACE Program Provider
FAGD/MAGD Credit
1/1/2009 to 12/31/2012

Visit us at CDA Presents:
The Art and Science of Dentistry
Booth #2210

D·O·C·S EDUCATION
MEMBERSHIP · EQUIPMENT

Created by b2d MARKETING
AD-3352

(888) 611-8080 | DOCSeducation.org

EDITOR, CONTINUED FROM 624

advances in computer-assisted design and "goopless" dentistry, I feel really stupid. The presenter makes it clear that a $150,000 investment in this new technology is what every dentist should be doing. If we are not on the cutting edge of technological development, we are back in the last century. I feel really stupid.

Am I doing my patients a disservice by providing restorations that are not computer assisted? Can I be sure that the cost of the investment in the technology might not influence my treatment planning? When I asked a colleague how he likes the equipment he purchased six months ago, he told me he liked it but he had used it for only four cases. The purchase obviously did not influence his treatment planning but it averaged out to more than $25,000 per unit. (Hmm … note to self: Purchasing this gadget might not be a good idea … yet.) ■■■■

REFERENCES

1. Cramming more components onto integrated circuits, ftp://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf. (Accessed July 26, 2010.)
2. Fairchild semiconductors, pbs.org/transistor/background1/corgs/fairchild.html. (Accessed July 26, 2010.)

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

CDA JOURNAL, VOL 38, Nº9

Matt Mullin

Ethical Resources

BY DAVID W. CHAMBERS, PHD

In a mining camp in the California Gold Country, a newcomer was questioning a veteran about two individuals he had seen arguing belligerently. When he passed by again, they were still locked in hostile exchange. The newcomer thought it ridiculous and gave his opinion that one of them should just shoot the other and have done with it. The old-timer slowly shook his head, "The first one to step out of the argument would be admitting he didn't have sufficient reason for his position."

Philosophers describe unsuccessful attempts to control others with their arguments as "lacking ethical resources." Simply put: Lacking resources means one's ethical position can't get the work done. Those whose ethical resources are inadequate may see where they want to go, but they can't get there, so they get mad. It is a very common situation.

CONTINUES ON 629

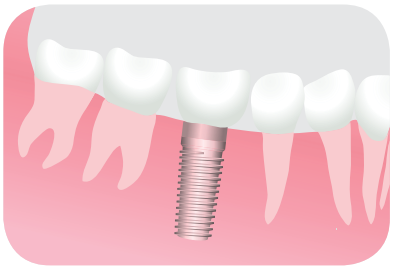
Quality of Life Studied for Those With Velocardiofacial Syndrome

While studies had explored the cognitive and physical facets of velocardiofacial syndrome, none had examined the quality of life for children with the genetic condition that includes symptoms such as palatal deformities, learning difficulties, and congenital heart disease. Until now.

Published in the May issue of the *Cleft Palate-Craniofacial Journal*, "Quality of Life Among Children With Velocardiofacial Syndrome," chronicles the chronic disease and adds to the growing body of knowledge aimed at bettering the well-being and health of those affected by the psychological, social, physical, and other challenges associated with this condition.

Of those children affected by velocardiofacial syndrome, boys in particular suffer from fatigue and have more difficulties functioning in school. In other areas, both girls and boys fared lower in social, emotional, and functioning in a school environment in comparison to their classmates with other chronic illnesses. On the other hand, caring, persistence, enthusiasm, kindness, and humor were identified as the top character strengths that help children with velocardiofacial syndrome cope with their condition, according to the study.

To see the entire article, "Quality of Life Among Children With Velocardiofacial Syndrome," go to www2.allenpress.com/pdf/cpcj47.3FNL.pdf.



Bone Loss Lessened With Two-Step Surgery Method

A study has shown that a two-stage approach for oral implant surgery results in less bone loss. While simultaneously inserted implants that require one operation to transplant bone tissue and to insert implants into the jawbone have shown excellent results, it was shown, however, that when implants were inserted in a second operation six months after the bone tissue grafts, crestal bone loss was reduced, researchers said.

A retrospective study published in a recent issue of the *Journal of Oral Implantology* compared simultaneously inserted implants with delayed implants. The two-stage implants demonstrated a higher success rate for this prosthetic restoration process.

Implants that integrate into the jawbone have proven a successful alternative to traditional dentures to replace missing teeth, according to the article. Restoration of the jawbone is required in instances where there is not enough bone tissue to anchor the implant. An autograft may be used, but, if that is not possible, an option might be to use a homograft in order to have enough bone for graft material. In this study, which examined 81 patients with a median age of 52 in Italy between December 2003 and December 2006, freeze-dried bone was used.

Of this group, 17 patients received grafts and 48 implants in a simultaneous operation. The remaining patients received a total of 302 implants in a second operation a mean of six months following their graft surgeries, according to the study. Three implants were lost, all from the simultaneously inserted implants, but this did not prove to be a significant difference to predict clinical outcome between the two methods. However, examination of crestal bone resorption around the implant's neck and specific cutoff values showed the delayed implant procedure to have better clinical outcomes by allowing less bone loss.

New Technique May Be Excellent Alternative for Dental Implants

A technique that may provide a prospective biological substitute for dental implants has been developed at Columbia University Medical Center. The lab of Jeremey Mao, DDS, PhD, is trying to create a process that's more natural, has quicker recovery, and uses the body's ability to regrow tissue that is sturdy and possibly endure throughout the patient's life.

Mao, the Edward V. Zegarelli Professor of Dental Medicine at Columbia University Medical Center, has created a method that has stem cells migrating to a 3-D scaffold that is infused with a growth factor, holding the translational potential to yield an anatomically correct tooth in as soon as nine weeks once implanted, according to an article in *Science Daily*.

"These findings represent the first report of regeneration of anatomically shaped tooth-like structures in vivo, and by cell homing without cell delivery," said Mao and his colleagues in their study, which was published recently in an issue of the *Journal of Dental Research*. "The potency of cell homing is substantiated not only by cell recruitment into scaffold microchannels, but also by the regeneration of periodontal ligaments and newly formed alveolar bone."

Dentures typically are what people turn to when they have lost all or some of their adult teeth, and in some cases, some individuals opt for dental implants, but this option can fail in certain cases. The tooth can be grown "orthotopically" or in the socket where the tooth will integrate with surrounding tissue in ways that are impossible with hard metals or other materials, according to the study.

Healing times from implant surgery differ and the success rate is dependent on multiple visits to various clinicians such as oral surgeons, periodontists, prosthodontists and general dentists, for example.

Mouthguards Effective Against Injuries

The National Hockey League team of the Chicago Blackhawks has put up impressive numbers in its 84-year history: two conference championships, 14 division championships, and its fourth Stanley Cup win last May.

Blackhawks' Duncan Keith put up astounding numbers of his own during a 2010 playoff game against the San Jose Sharks: A puck shot to the mouth cost the defenseman seven teeth. Seven. And he was wearing a mouthguard.

"I dread picturing the degree of damage that the player might have sustained without wearing a mouthguard," said Matthew Messina, DDS, an American Dental Association consumer adviser and a Cleveland-area general dentist, in a news release following Keith's injury. "A properly fitted mouthguard is an important piece of athletic gear that can help protect your mouth, cushion blows that might otherwise cause broken teeth and injuries to the lips, tongue, face, or jaw."

After Keith's team beat the Sharks, he bared his mouth to show the destruction to his mouth and explained the on-site temporary treatment during the game, "They numbed it after it happened; they just stuck a bunch of needles in there and froze it all up," Keith said in an interview with the *Chicago Tribune*. "It feels a lot better when we win. It would probably be hurting a lot more if we lost."

According to a 2007 evaluation of the effectiveness of mouthguards in reducing injuries, the overall injury risk was 1.6 to 1.9 times greater without a mouthguard, relative to the use of mouthguards during athletic activity. Another study of collegiate basketball teams found that athletes wearing custom-made mouthguards sustained significantly fewer dental injuries than those who did not, said the ADA.

"But you don't have to be on the football field or in a hockey rink to benefit from a properly fitted mouthguard," Messina said. "Findings in sports dentistry show that even in noncontact sports, such as gymnastics, mouthguards will help protect participants, and many experts recommend that everyone—from children to adults—wear a mouthguard during any recreational activity that might pose a risk of injury to the mouth, including practice and training sessions."

"You don't have to be on the football field or in a hockey rink to benefit from a properly fitted mouthguard."

MATTHEW MESSINA, DDS

ETHICAL RESOURCES, CONTINUED FROM 627

The American philosopher Charles Stevenson developed a theory in the 1950s built on ethics as indignation. A sure sign that one had an ethical issue in hand would be how good it felt to use words like "reprehensible," "disgusted," "incredulous." Stevenson is no longer a force in ethics because his emotional theory lacks ethical resources. "I dislike commercialism in dentistry and you should too" only works well among those who already dislike commercialism. Good stuff for editorials, though.

High on the list of necessary resources for ethical positions are statements of best action and good reasons. Show them a better way, and most folks will respond, dentists often being among the first. And it is human nature that we prefer to have a reason in hand just in case we are questioned as we venture into new territory.

It is more resourceful to identify the best alternative than to gloat over failings. It also saves time: It is inefficient to get people to go where they should by telling them where not to go. And since all human action is imperfect, we will never get anywhere trying to cater to all those who have reservations.

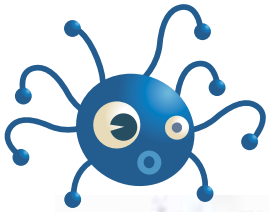
Reasons are great resources, especially the general ones that cover many situations and can be subscribed to by a range of individuals. Reasons serve as places where people who disagree on some points can stand together to see if they have anything in common.

There is much in life that is annoying and just shouldn't be so. Getting mad is understandable, but not very helpful. Instead, get resourceful: articulate the best course forward and present your reasons. There are others who are doing the same.

The nub:

1. Use your emotional reaction to what you find unsettling in dentistry as a personal prompt to begin ethics work, not as a finished product you want to share.
2. Think through, with the help of others if possible, whether there are better (but not necessarily perfect) alternative actions; promote the best solution.
3. Give reasons for what you favor in dentistry: The more inclusive and general your reasons, the more powerful they will be.

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.



Oral Bacteria May Hold Clue for Treating Neurological Illnesses

A gum disease-causing bacteria may hold the key for treating illnesses, including Alzheimer's and Parkinson's, according to researchers from the Florida College of Dentistry during the 110th General Meeting of the American Society for Microbiology in San Diego.

A vital factor of cellular survival and a guard against infecting organisms is autophagy or "self-eating," which is how the cell breaks down and reclaims materials into amino acids that may be used again. Neurological syndromes such as Parkinson's and Alzheimer's are associated with the build up of polypeptides within neurons. Evidence suggests that if the affected cells could degrade plaque build up, it would significantly boost the chances of recovery. Activating autophagy within these cells would be invaluable in the treatment of these types of disorders.

"Although we do not yet completely understand how these diseases develop, we do know that the proteins clump together and form a plaque buildup in affected patients' neurons. If we can direct the cell's own ability to break down waste products against the plaques, we could keep them from forming and potentially intercept the development of these and other diseases," Ann Progulske-Fox, a researcher on the study, said.

Progulske-Fox and her colleagues, in an earlier study, demonstrated that the bacterium *Porphyromonas gingivalis* had the capacity to trigger autophagy when exposed to a human cell line, suggesting the microbe produced an unidentified material that kicked off the process.

In the current study, she and her team reported on a mutant strain of P. gingivalis (PG0717) that does not cause autophagy.

"Understanding how P. gingivalis turns on autophagy in host cells could lead to novel therapeutics for the treatment of neurodegenerative disorders as well as advancements in the general understanding of the autophagic pathway," Progulske-Fox said.

Stay Healthy, Protect Your Toothbrush

Keeping a toothbrush on the bathroom counter is a handy reminder for good oral hygiene but it's not the optimal place. Unless you don't mind bristles doused in toilet water.

In an online article that appeared in *Prevention* magazine, an estimated 3.2 million microorganisms inhabit one square inch in the typical toilet bowl. So, each time the bowl is flushed, the toilet can launch commode-dwelling germs nearly 6 feet. Microbes land in all areas of the space, such as the floor and walls, and including any toothbrushes sitting on the sink.

The best bet is to keep the toothbrush behind closed doors, for example, a cabinet.

UPCOMING MEETINGS

2010	
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.
Oct. 22–24	California State Association of Endodontists, 2010 biennial session, San Francisco, 415-577-2760, csaendo.org.
Oct. 24–27	National Primary Oral Health Conference, Kissimmee/Orlando, nnoha.org/conference/npohc.html.
Nov. 7–13	United States Dental Tennis Association, Grand Wailea, Hawaii, dentaltennis.org.
2011	
April 6–10	California Society of Pediatric Dentistry 36th annual Session/Western Society of Pediatric Dentistry ninth annual session, San Francisco, 831-625-2773, drrstewart@aol.com.
April 10–16	United States Dental Tennis Association, Tampa, Fla., dentaltennis.org.
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.
Sept. 22–24	United States Dental Tennis Association, Palm Desert, Calif., dentaltennis.org.

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

Data Supports U.S. Recommendations on Cholesterol

In a recent issue of *Nutrition Reviews*, Life Science Research Organization has summarized a previous conference that discussed the scientific data supporting the United States' nutrition policy on cholesterol recommendations.

During the December 2008 "Conference on Cholesterol: Where Science and Public Health Policy Intersect," which was organized by the Life Science Research Organization and the Egg Nutrition Center, discussions focused on data supporting U.S. nutrition policy recommendations to limit dietary cholesterol as well as analyzed the results of the nation's government-sponsored food programs, its populace's health and eating patterns, according to a news release.

The country's daily dietary recommendations for cholesterol, however, contrast those of international guidelines recommending a reduction in total fat consumption and opting for unsaturated fats from saturated and trans fats. Current dietary policy in the United States focuses on cholesterol intake and its effect on coronary heart disease risk. The nation's policy recommends limiting the intake of cholesterol to <300 mg/d for the general population and <200 mg/d for those with elevated low-density lipoprotein cholesterol.

Included among the key findings in the report:

- Trans fatty acid, omega-3, and omega-6 polyunsaturated fatty acid intakes, fruits, vegetables, legumes, and food sources of soluble dietary fiber reduce blood cholesterol and coronary heart disease risk.
- Presentation of dietary recommendations in scientific language is potentially confusing to the general public. Numerical recommendations can cause undue focus on one food or nutrient over another with potentially adverse, unintended consequences.
- Improved access to healthy foods and more choices for those receiving food assistance may improve the diets of program participants.
- In adopting healthier eating habits, consumers may improve their health, have more energy and control their weight more effectively.

Honors

Irvin Kaw, DMD, was honored for his business and community leadership by 49th District Assemblyman Mike Eng during the California Small Business Day held recently in Sacramento. Kaw, a general dentist in Monterey Park, has served on the San Gabriel Dental Society Board of Directors, Southern California Burmese Chinese Association, and the Burmese American Dental Association.

"As our state continues to struggle with a depressed economy, it is of great importance that we recognize the contributions and the significant role of our most outstanding entrepreneurs," Eng said. "Dr. Irvin Kaw is an exceptional business leader who transformed his passion as a dentist into his work in the community."

California Small Business Day is dedicated to recognizing the contributions of small business to the state and provides the state's assembly and senate members an opportunity to honor small businesses from their districts.

Gurminder Sidhu, DDS, BDS, MS, and **Leigh Anderson, DDS,** faculty members at Arthur A. Dugoni School of Dentistry, recently were honored by their peers for excellence in innovation, teaching and service during the school's Faculty Development Day last June .

The inaugural Pacific Dental Helix Curriculum Innovation Award was presented to Sidhu, director of radiology, who won first place for her creation of online learning modules in two radiology courses. She received $1,000 earmarked for use within her department toward further learning enhancements.

Anderson, chair of the Physiological Science Department, was honored with the 2010 Distinguished Faculty Award for demonstrating excellence in areas of faculty performance including teaching, scholarship, research, and service. Additionally, he has led the effort to integrate the foundation courses of anatomy, biochemistry, and physiology. This is the first step in the development of the integrated medical sciences strand of the Pacific Helix Curriculum.

"Our faculty members have been doing great work, which is being recognized both inside and outside of our school," said Nader Nadershahi, DDS, associate dean for Academic Affairs. "They truly exemplify the innovative spirit of the Dugoni School of Dentistry."

Nader Nadershahi, DDS, with Gurminder Sidhu, DDS, BDS, MS

Dorothy Burk, PHD, MA, with Leigh Anderson, DDS

Photo courtesy of the National Museum of Dentistry

Latest Advances in the Dental Office

Tour tomorrow now.

The National Museum of Dentistry opened a new exhibit that showcases a number of technologically advanced dental treatment systems available for dental offices. "Operatory of the Future" features cutting-edge dental technology—from digital X-rays that expose patients to less radiation to foot-operated computers—that improve the quality of procedures, reduce patients' time in the office, and improve oral health.

"Operatory of the Future exhibit gives us an opportunity to feature some of the latest advances in dental care, showing how far the techniques of modern dentistry have come and their positive impact on the public," said Jonathan Landers, National Museum of Dentistry executive director.

Visitors can stroll through dentistry's past, from the hand-forged iron tools of the early American dentist on horseback to the 19th century office of "Father of Dentistry" G.V. Black, to its future such as cutting-edge dental equipment available today. The museum presents how dental care has evolved and how oral health has improved through the years.

"We were honored to be selected to put together the 'Operatory of the Future' exhibit for the National Museum of Dentistry," said Charles Cohen, Benco Dental president. "It's an exciting venture, bringing dental technology to the general public." Benco Dental, the largest privately owned, full-service distributor of dental supplies, dental equipment, dental consulting and equipment services in the United States, provided support.

A digital sensor that captures X-rays instead of film, and reduces radiation exposure to patients; preset therapy programs for laser applications in the fields of periodontics, endodontics, surgery and pain relief; and a foot-operated computer mouse and keyboard for hands-free computer use are among the must-see exhibits.

Patient Benefits From One-Step Surgery Combining Tissue Removal and Reconstruction

A case report published in the *Journal of Oral Implantology* described the one-step surgery of a 65-year-old patient with squamous cell carcinoma. Upon two-year follow-up, the results had shown the procedure to have been successful.

An impression was taken immediately after the jaw was reconstructed and the implant installed during initial surgery. Forty-eight hours later, a rigid prosthesis was fabricated and screw-secured to the implants and complementary radiotherapy was started six weeks following surgery and the implant. The prosthesis was modified as necessary six months after completion of the radiotherapy, according to the article.

In general, ablative surgery is performed first to remove cancerous tissue and bone. Radiotherapy follows and often so does tooth loss. At this juncture, reconstructing the jaw and placing a dental implant can be difficult because of the side effects of radiotherapy and poor patient tolerance. However, the advantages of single surgery include a reduced risk of osteonecrosis, which can occur with postradiation surgery, and lessen the need for hyperbaric oxygen therapy.

"Absolute primary implant stability and fabrication of a highly rigid prosthesis are essential from the outset," said the authors, emphasizing this one-step surgery is possible because it follows the concepts of basal implantology.

To read the entire article, "Immediate Functional Loading of an Implant-Supported Fixed Prosthesis at the Time of Ablative Surgery and Mandibular Reconstruction for Squamous Cell Carcinoma," go to www2.allenpress.com/pdf/orim-36-03-224-230_final.pdf.

cda® ENDORSED PROGRAMS

B

B is for buying power. Be it binders, bank loans or a brand new website design, CDA Endorsed Programs has harnessed the buying power of 25,000 dentists to bring you bargains on everything a dentist could need. Check out the bonanza of deals from A-Z when you stop by the CDA Endorsed Programs area in the CDA Presents exhibit hall.

Everything a dentist needs, for less.

Banc of America Practice Solutions™
A subsidiary of Bank of America

Financial products and services
Booth 920

Bank of America

Business and personal credit cards
Booth 918

CareCredit® Patient Payment Plans

Dental patient financing
Booth 1019

dentalxchange.com
Better tools for your practice.

Electronic claims processing
Booth 916

Demandforce®
Growth. On Demand.

Electronic patient communications
Booth 913

Elavon

Merchant credit card processing
Booth 1017

MCKENZIE MANAGEMENT
Success Proven Management Solutions

Practice management consulting
Booth 1013

OSHA Review Incorporated

Spore check system
Booth 914

PROSITES®
Website Design and Internet Marketing

Website design services
Booth 917

STAPLES® Advantage

Office supplies
Booth 1015

NEW LOW PRICE!
BOOTH 626

2010 REALITY Five Star Award
★★★★★
REALITY'S CHOICES

Award-winning lasers. Amazing new prices.

NV™ MICROLASER

Portability, convenience, and award-winning 5-star quality now available at a new, low price. Ask about our 30-day no-questions-asked guarantee and top-notch training programs.

SOFTLASE PRO™

SoftLase Pro brings you a full-featured soft-tissue laser at a value that no other laser system can match. Includes intuitive LCD touch screen, voice confirmation, and training.

PRIDE INSTITUTE

The Dental Products Report 100 2008 PRODUCT of DISTINCTION

MEDICAL DESIGN EXCELLENCE AWARDS

DENTISTRY TODAY TOP 100 PRODUCTS 2009 ★★★★★★★★★

Dental PRODUCT SHOPPER BEST PRODUCT 2009

DISCUS™
Inspired by you.™

CDA JOURNAL, VOL 38, Nº9

Winners of the 2010 Table Clinic Competition

Each year, the California Dental Association encourages dental, dental hygiene, and dental assisting students from across the state to enter the Table Clinic Competition held during *CDA Presents* in Anaheim. Blue-ribbon winners from the May 14–16 contests were invited to write an abstract of their work to appear in the *Journal of the California Dental Association.*

CLINICAL DENTAL STUDENT WINNERS

Amir Chalak, center, is flanked by Drs. Dennis Shinbori, Thomas Stewart, Lindsey Robinson, and Jeffrey Brucia after winning first place in the DDS clinical category during the annual table clinic competition. Chalak is a dental student at the University of California, Los Angeles.

Salivary Biosensor for Psychosocial Stress

Vivek Shetty, DDS; C. Zigler; T. Robles, M. Yamaguchi; A. Chalak; and A. Sharma, University of California, Los Angeles, School of Dentistry

Salivary correlates of the stress response have become increasingly important in psychoneuroendocrinological research and a growing body of literature supports the utility of salivary alpha-amylase (sAA) levels as an expression of sympathetic nervous system (SNS) activity.

OBJECTIVE: To develop and refine a portable sAA biosensor and explore its utility for sAA qualification studies.

METHODS: The authors developed a colorimetric biosensor comprising a saliva absorbent test strip and a hand-held reader. Integrated normalizing equations were adjusted for any variations in ambient temperature and salivary pH. Method validation of the biosensor was performed by comparing its technical performance characteristics (precision, accuracy, reliability) with a laboratory-based Olympus AU 400 clinical analyzer. Subsequently, sAA biomarker qualification was performed by comparing sAA levels measured in 54 healthy subjects

to their subjective distress ratings (i.e., Brief Symptom Inventory-BSI) under low- and high-stress conditions.

RESULTS: The sample-analyze-report cycle for the sAA biosensor was less than 45 seconds. The biosensor accuracy and precision corresponded very closely to the clinical analyzer (R2 0.98; CV=8.1 percent). In the biomarker qualification study, greater sAA levels were related to higher ratings of subjective distress averaged across the day (r=.28, p<.001) and at each measurement point. Individuals who reported clinical distress on the BSI above clinical cutoffs showed lower sAA levels during high stress compared to baseline. Individuals who reported baseline distress below clinical cutoffs showed greater sAA levels during high stress compared to baseline (p=.04 for the interaction).

CONCLUSION: The biosensor provides quick and reliable measurements of sAA levels and possesses a precision, accuracy, and reproducibility that approach laboratory-based analyzers. These properties along with the demonstrated covariance of sAA levels with self-reported subjective distress suggests that the sAA biosensor is a promising tool for POC measurement of exposure to stressors.

Research supported by NIH/NIDA grant 1UO1-DAO23815 (PI: V. Shetty).

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Vivek Shetty, DDS, at vshetty@ucla.edu.

SCIENTIFIC DENTAL WINNERS

Drs. Jeffrey Brucia, Lindsey Robinson, and Thomas Stewart, take a moment with DDS student scientific category winners Michael Hiersche, Bryce Chun, and Larina Chu of Loma Linda University.

Electromechanical Luxation: An Application of Dynamic Loading

Michael Hiersche; Bryce Chun; Larina Chu; Mei Lu, DDS, MS, PhD; and Alan Herford, DDS, MD, Loma Linda University, School of Dentistry

OBJECTIVES: The electromechanical luxation (EML) technique applies dynamic loading to a tooth through use of an electromechanical actuator. Compared with traditional extraction, this study was to demonstrate the advantages of the application of EML, which include the ability to luxate dentition through use of minimal force, decreased time required for extraction postdynamic loading, and reduced trauma during extraction.

METHODS: Three pig heads were used with each mandible and maxilla serving as experimental group on one side and control group on the other side. A total of 44 premolars and molars were extracted. Twenty-two teeth in the control group were extracted by traditional extraction technique using elevators and forceps while 22 teeth in the experimental group were luxated by EML technique and then extracted with proper elevators and forceps. The EML technique utilized an electromechanical actuator to luxate the pig dentition. A load cell measured the applied force during dynamic loading. Tooth mobility was measured pre- and post-EML. The time of extraction was recorded for each tooth. Postextraction, the number of tooth fragments was documented to compare trauma during extraction.

RESULTS: After luxation, the EML technique demonstrated a statistically significant reduction in extraction time. The experimental group demonstrated a statistically significant increase in mobility postdynamic loading with an average of 1.9 mm. The number of documented tooth fragments was less for pig molars with the EML technique. However, no reduction in tooth fragments for the premolars was noted. A maximum of 100 psi was applied to luxate the dentition.

CONCLUSION: EML can be used to luxate teeth by increasing mobility and reducing extraction time with minimal force. This technique also indicates reduced trauma during extraction. This technique warrants a clinical application in oral and maxillofacial surgery, especially in cases of limited open jaw space and/or compromised coronal structure.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Michael Hiersche at mahiersche@llu.edu.

MILITARY

Chemomechanical Caries Removal in the Pediatric Dental Patient

Capt. Karen Zabrowski, Nellis Air Force Base, North Las Vegas

Chemomechanical caries removal (CMCR) is as an alternative means of atraumatic caries removal based on the dissolution of denatured dentin by a combination of sodium hypochlorite, glutamic acid, leucine, and lysine. While CMCR has traditionally been avoided by practitioners due to a longer treatment time and an extra cost of materials, its purported ability to autramatically remove caries without the use of local anesthetic presents a unique advantage for the pediatric patient.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Capt. Karen Zabrowski at karen.zabrowski@nellis.af.mil.

Capt. Karen Zabrowski, of Nellis Air Force Base in North Las Vegas, is congratulated by Dr. Jeffrey Brucia for her military table clinic presentation, 'Chemomechanical Caries Removal in the Pediatric Dental Patient.'

RDH STUDENT WINNERS

Uptake of Fluoride Foam: A Laboratory Study on Human Enamel

Stacy Stroup and Lauren Stewart, Loma Linda University

PURPOSE: The purpose was to determine the effectiveness of topical acidulated phosphate fluoride (APF) foam when compared to the clinically proven effectiveness of topical acidulated phosphate fluoride gel.

MATERIALS AND METHODS: The method was similar to that of FDA test method No. 40 for fluoride uptake by enamel. Test products were an APF gel and APF foam from the same manufacturer and each contained 1.23 percent fluoride ion. Human third molars were sectioned into buccal and lingual halves to get a total of 30 samples. Each sample was randomly assigned to a control, foam, or gel group. One-quarter inch working surfaces were isolated from each sample. The fluoride-rich outer layer of enamel was removed and baseline readings were found using fluoride electrode. White spot lesions were induced and treatment with gel or foam was performed for both one and four minutes, following the manufacturer's guidelines. An analysis was performed and compared against the fluoride standard curve.

Stacy Stroup and Lauren Stewart, of Loma Linda University, display their hard-won prizes in the dental hygiene category with Drs. Jeffrey Brucia, Lindsey Robinson, and Thomas Stewart.

RESULTS: After four minutes, the mean fluoride uptake showed control =0.19±0.08, foam=3.90±3.68, gel=9.57±5.18. After one minute, the mean fluoride uptake showed control =0.33±0.18, foam=2.03±0.91, gel=5.82 ± 1.56. Statistical analysis showed significantly that Gel> Foam> Baseline at p=0.005 for both exposure times.

CONCLUSION: The results demonstrated that the gel had a significantly higher mean fluoride uptake into the enamel at both time intervals when compared to the foam.

Special thanks to Dr. Wu Zhang and Joni Stephens.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Stacy Stroup at stacy.stroup@yahoo.com.

CDA JOURNAL, VOL 38, Nº9

RDA STUDENT WINNERS

Dr. Lindsey Robinson, far left, and Dr. Jeffrey Brucia congratulate dental assisting winners, second from left, Crystal Cabrera, Tanisha Beanez, Lindsey Gooding, and Stacy Gonzalez of Citrus College.

Tongue Disease and the Importance of Cleaning Your Tongue

Lindsey Gooding, Crystal Cabrera, Stacy Gonzalez, and Tanisha Beanez, Citrus College

When most people think about oral hygiene, brushing, flossing, and rinsing come to mind, but more often than not, the tongue is forgotten. The authors decided to look more into tongue scraping and find out how often it is talked about in offices and would like to share the importance of tongue scraping and why it should be implemented in a person's daily routine.

The authors started out by looking on the Internet and finding out the benefits to scraping the tongue and what can happen if is not take care of. Then from there, the authors spoke with a few offices and found that most dentists do not talk to their patients about scraping or keeping their tongue clean unless they complain about bad breath or they have certain conditions, such as a hairy tongue or a coated tongue. The hygienists usually are the ones to talk more about scraping the tongue, but, again, not to every patient.

This gave the authors more incentive to spread the word.

The authors found that studies have shown that with the simple act of scraping the tongue, one can remove 400 percent more bacteria and germs than from brushing the tongue. Scraping the tongue can prevent gingivitis, tooth decay, and help with bad breath. If the tongue is overlooked, bacteria could be spread around the oral cavity, thus leading to potential tooth decay and definitely bad breath.

The authors' goal is to have more dentists aware of the benefits of tongue scraping and have scrapers more prevalent in the office (hopefully distributed with toothbrushes, mouthrinses, and floss) and educating their patients on the practice. Scrape, floss, brush, rinse.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Lindsey Gooding at lindseygooding84@yahoo.com.

COMMUNITY/EDUCATION

Drs. Jeffrey Brucia, far left, Lindsey Robinson, and Thomas Stewart, far right, recognize Loma Linda University dental students Scott Arceneaux, Michael Knutson, and Filip Orban for their first-place win in the community/education category.

A Digital Instruction of Techniques and Principles of Mucoperiosteal Flaps

Scott Arceneaux, Michael Knutson, Filip Orban, Mei Lu, DDS, PhD, MS, and Wayne Tanaka, DDS, Loma Linda University, School of Dentistry

OBJECTIVE: Dental students are expected to become competent in designing and developing mucoperiosteal flaps for exodontia and preprosthetic surgeries. Because didactic mucoperiosteal flap instruction is limited to textbook illustrations and generic descriptions, dental students often struggle to comprehend and develop clinical skills related to intraoral flaps. The aim of this study was to develop and evaluate a multimedia educational resource that improves students' clinical application and comprehension of mucoperiosteal flaps.

METHODS: A multimedia computer program was created containing videos, diagrams, written instructions, and quiz questions outlining the instruments, designs, indications, and techniques of mucoperiosteal flaps commonly used for exodontia. Eighty-eight first-year dental students were randomized into four evenly distributed groups based on past academic performance. Each group was then randomly assigned a study method for learning about mucoperiosteal flaps. The first group was given only a literature review. The second group used the multimedia CD in addition to the literature review. The third group used only the CD, and the fourth group received no study material. After studying 0-4 hours, each student completed a clinical exam on a typodont. In addition to the clinical assessment, the students completed a multiple-choice examination. The flap learning methods were correlated with each student's clinical and didactic performance and results analyzed.

RESULTS: ANOVA and Scheffe analyses showed that students who trained using the multimedia CD performed better clinically and didactically than students who used only the literature review ($p<.001$).

CONCLUSION: The authors' multimedia CD improves student's clinical and didactic comprehension and application of mucoperiosteal flaps. This digital instruction could help students build confidence in designing and preparing mucoperiosteal flaps and could be used widely in training dental students.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Scott Arceneaux at sarceneaux@llu.edu.

Following are the judges for the annual table clinics competition held May 14-16 during *CDA Presents in* Anaheim:

DDS/RDH JUDGES

Denine Rice, DDS
Jo Anne Schram, RDH
Robin Abari, DDS
John Chao, DDS
Cary Charlin, DDS
Jaymie Coria, DDS
Marileth Coria, DDS
Shaun Flynn, DDS
Devang Gandhi, DDS
Hemant Joshi, DDS
James Lau, DDS
Chi Leung, DDS
Gary Shi-Lin ,DDS
Al Ochoa, DDS
Pradip Patel, DDS
Sanjay Patel, DDS
Leonard J. Raimonde, DDS
R. Jerry Smith, DDS
Judith Strutz, DDS
Michael Tanaka, DDS
Zaw Thu, BDS,
Tony Daher, DDS
Donna Klauser, DDS
Mei Lu, DDS
Pankaj Patel, DMD
Evangelos Rossopoulous, DDS
Nadim Baba, DDS
Virgil Benjamin, DMD
Arnold Valdez, DDS
Narendra Vyas, DDS
Dale Wagner, DDS

MILITARY/RESIDENT JUDGES

Jasbir Batra, DDS
Monica Bruce, DDS
Steve Chartier, DDS
Samuel Demirdji, DDS
Roger Fieldman, DDS
Gregg Filippelli, DDS
Kenneth Gallion, DDS
Ramesh Gowda, DDS
Carole Murphy, DDS
Wayne Nakamura, DDS
Ann Steiner, DMD
John Safar, DDS

RDA JUDGES

Izabella Ambartsumyan, RDA
Shari Becker, RDA
Beatriz Blackford, RDA
Kristy Borquez, RDA
Benson B. Dimaranan, RDA
Dan Andrew Legaspi, RDA
Michelle Pendergast, RDA
Georgina Vargas-Burket, RDA
Victoria Wallace, RDA

cda® PRESENTS

THE ART AND SCIENCE OF DENTISTRY

Looking for your **C.E. certificate?**

- Approximately three to four weeks after *CDA Presents* in San Francisco, you will receive an e-mail containing a link that will take you to your printable C.E. certificate.
- You may also access your C.E. certificate at **cdapresents.com.**
- If you would like your certificate mailed to you, call **800.232.7645** approximately four weeks after the show. Please have your three digit course codes available as they may be needed for verification.

Save $100 on course audio recordings!

For $149 you'll get **Digitell's** online library of the *CDA Presents* courses from San Francisco.

- All courses include downloadable audio in MP3 format
- Presentations are available in PDF format
- Transfer audio to your MP3 player, PDA, or cell phone
- Stream the audio via an online media player
- Search the courses by name, title, and *PowerPoint* for easy reference and retrieval
- A subscription includes 3 free co-users for easy sharing with staff, colleagues, and friends
- Additional users can be purchased at a discounted price

Take advantage of this special at **prolibraries.com/cda**

CDA JOURNAL, VOL 38, Nº9

OFF THE PAGE and Into Practice . . .

LINDSEY A. ROBINSON, DDS

GUEST EDITOR

Lindsey A. Robinson, DDS, is a pediatric dentist practicing in Grass Valley. She currently is board chair of the California Dental Association Foundation.

This issue is a companion to the June issue of the *Journal of the California Dental Association,* which showcased the recently released "Evidence-based Perinatal Oral Health Guidelines for Practitioners," and is designed to assist practitioners in adopting the guidelines to clinical practice.

In the last 10 years, there has been an increasing focus on oral health during the perinatal period beginning with the Surgeon General's report in 2000 that emphasized the need for dental care during pregnancy to improve the oral health of both the mother and her infant. Since then, many national organizations including the American Dental Association, the American Academy of Pediatric Dentistry, the American Academy of Periodontology and the American Academy of Pediatrics have released policy statements and recommendations meant to improve perinatal oral health by encouraging dental care during pregnancy, promoting prevention education, and reducing maternal transmission of caries-causing bacteria to their infants. Sadly, and despite these efforts, studies show that only one-quarter to one-half of women in the United States have a dental visit during pregnancy. More than 8 percent of women report that their providers advised against dental care and this was the main reason for not obtaining care.

Sometimes a tragedy can become transformative and a driving force to initiate broad positive change. In response to a fetal death related to a pregnant woman's attempt to self-medicate with an over-the-counter analgesic for a toothache, the New York State Department of Health convened an expert panel to examine the evidence base and develop comprehensive professional guidelines for multiple clinical disciplines in maternal and child health. The California Dental Association Foundation guidelines project was built upon New York's. Our consensus conference was held at CDA headquarters in February 2009; and updated guidelines were produced using literature published since 2006, consensus opinion from an expert panel to fill gaps where there was a lack of controlled studies, and an advisory committee composed of diverse stakeholders.

Each of the authors in this issue expands on the provision of care within the frame of their particular expertise. At the forefront in the minds of many clinicians is concern over causing harm to the pregnant woman or her fetus during the course of treatment. Art Curley

CDA JOURNAL, VOL 38, Nº9

addresses the legal implications including professional liability, and, as a corollary, employment law. Mr. Curley encourages practitioners to maintain an up-to-date knowledge base and thorough understanding of professional guidelines to mitigate risk management concerns.

To improve access, Dana Hughes presents policy recommendations designed to reduce barriers that prevent pregnant women from getting the dental care they need and deserve. Barriers are complex and multifactorial involving the individual patient, health care provider, and the system in which the care is delivered.

Obstetricians, Drs. Chisholm and Ferguson, address physiologic changes throughout the course of pregnancy and their impact on providing dental care. They include important information on pharmacokinetics for commonly used drugs in dentistry including absorption, metabolism, and the impact on breastfeeding.

Finally, Dr. Hilton ties a neat bow around the entire theme by delivering practical, common sense approaches to apply the guidelines in daily clinical practice. To reduce barriers, she emphasizes the importance of collaboration between dental and perinatal providers, and engaging both the individual pregnant woman and community around her in the provision of care.

I would like to thank the authors who contributed their expertise toward this issue meant to augment the reader's understanding of clinical factors and access barriers related to perinatal oral health. Special thanks goes to the CDA Foundation for their leadership as the initiator and convener of the guidelines project which has garnered many national accolades since its release, and for continuing the collaborative momentum to improve the standard of care for maternal and child oral health. ■■■■

LOMA LINDA UNIVERSITY *presents. . .*

School of Dentistry

Bleaching Symposium

Quest for Whiter Teeth-Trends and Traps

Synopsis

This fourth tooth bleaching symposium will provide a state-of-the-art review and discussion on the trends and traps of the topic, including the science and clinical assessment of tooth color, various bleaching systems, facts and myths of safety concerns, and clinical techniques to maximize the efficacy while minimizing potential risks. The internationally renowned speakers are experts in their fields and represent the best collection of the knowledge base for the topic of tooth bleaching. Your attendance of this program will provide the best opportunity to learn the up-to-date information on available bleaching options, current bleaching materials and procedures, approaches to avoid potential traps and risks, and the knowledge to answer questions from your patients.

By attending this symposium you will also have opportunities to meet and directly interact with the speakers. In addition to the presentations, there will be a designated period of time for panel discussion, during which you will be able to present and discuss your specific questions and get the answers.

Course Directors

Yiming Li, DDS, MSD, PhD
Director, Center for Dental Research
Professor, Restorative Dentistry
Loma Linda University, School of Dentistry

Sean Lee, DDS
Director, Clinical Research, Center for Dental Research
Associate Professor, Restorative Dentistry
Loma Linda University, School of Dentistry

Michael Meharry, DDS
Assistant Professor, Restorative Dentistry
Center for Dental Research
Loma Linda University, School of Dentistry

Presenters

Current Perspectives on Tooth Bleaching-Tray, In-Office, or OTC
Van B. Haywood, DMD
Professor, Department of Oral Rehabilitation
Medical College of Georgia, School of Dentistry

Color Science and Tooth Whitening
Rade D. Paravina, DDS, MS, PhD
Associate Professor, Department of Restorative Dentistry
University of Texas Dental Branch at Houston

What is Happening Inside and Outside the Tooth During Bleaching?
Bruce A. Matis, DDS, MSD
Professor and Director, Clinical Research Section
Indiana University School of Dentistry

Restorative Considerations for Bleaching
Cathia Bergeron, DMD, MS
Clinical Associate Professor, Operative Dentistry
The University of Iowa College of Dentistry

Successful Bleaching for Difficult Cases
Ralph H. Leonard, DDS, MPH
Clinical Professor, Diagnostic Sciences and General Dentistry
University of North Carolina, School of Dentistry

Risks for Bleaching – Frequently Asked Questions
Yiming Li, DDS, MSD, PhD
Director, Center for Dental Research
Professor, Restorative Dentistry
Loma Linda University, School of Dentistry

Date: Sunday, November 7, 2010
Time: 8:30 a.m. Registration, 9:00 a.m. – 5:00 p.m. Lecture
Tuition: $195 DDS $135 AUX
Location: Loma Linda University, Centennial Complex
Credit: 8 hours of California continuing dental education credit
AGD code: 780

This program is sponsored in part by

Colgate World of Care
DISCUS Inspired by you.
ULTRADENT PRODUCTS, INC.

To register or for more information, contact Loma Linda University School of Dentistry Continuing Dental Education at (909) 553-4685 or go to www.dentistry.llu.edu

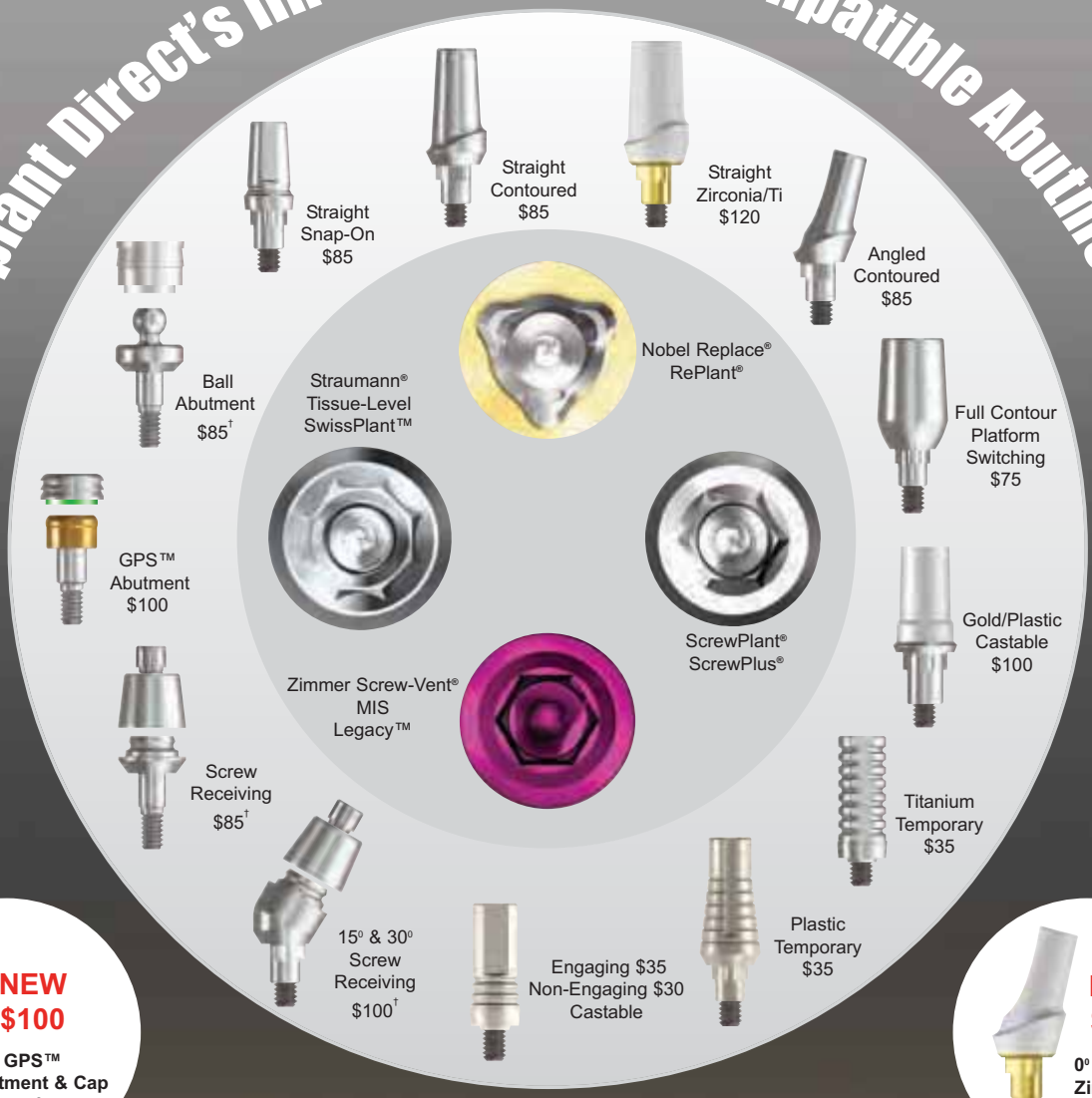
Implant Direct™

simply smarter.

Ask about our new 0°, 8°, and 15° Zirconia/Titanium Abutments and GPS™ Overdenture Abutments*.

*Compatible with Zest Locator® System

Implant Direct's line of Industry Compatible Abutments



NEW $100

GPS™ Abutment & Cap for Overdentures

NEW $120

0°,8°, & 15° Zirconia/Ti Abutments

A complete line of prosthetic components for NobelBiocare Tri-Lobe, Straumann Internal Octagon and Zimmer/BioHorizons/MIS Internal Hex implants.

Hands-On Surgical and Prosthetic Training with Dr. Gerald Niznick, President/Founder of Implant Direct at the Manufacturing Facility in Los Angeles, CA. Register on-line at www.implantdirect.com

8 CE Credits for all attending: $ 295.00

Approved PACE Program Provider FAGD/MAGD Credit Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement. 08/01/2009 to 07/31/2012

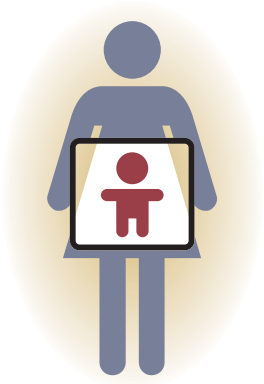
Limited Attendance - Register Early or call 1-888-NIZ-NICK/1-888-649-6425

Implant Direct Int'l 8840 W. Russell Road #210, Las Vegas, NV 89148 Manufacturing/Sales: 1-818-444-3333

www.implantdirect.com

†Price excludes Prosthetic Coping and Attachments.

CDA JOURNAL, VOL 38, Nº9



Legal Issues of Perinatal Oral Health

ARTHUR W. CURLEY, JD

ABSTRACT Every dental health care provider will inevitably be faced with perinatal oral health issues involving patients or staff members. The legal issues involving perinatal dental care are reviewed including the laws of malpractice claims by patients, employment claims involving staff, and Dental Board of California investigations involving patient care, and the administration of the business of dentistry. Recommendations are made for record keeping.

AUTHOR

Arthur W. Curley, JD, is assistant professor, dental jurisprudence, Arthur A. Dugoni School of Dentistry, and president and senior trial counsel with Bradley, Curley, Asiano, Barrabee & Gale PC in Larkspur, Calif.

"Laws should be like clothes. They should be made to fit the people they serve."

— Clarence Darrow, American lawyer, speaker and writer, 1857-1938

Every dental health care provider will inevitably be faced with perinatal oral health issues involving patients or staff members. In addition to having didactic and clinical knowledge of perinatal oral health issues, a prudent practitioner would be well served by an awareness of the associated legal issues. Those issues generally fall into three areas of the law: malpractice claims by patients, employment claims involving staff, or Dental Board of California investigations involving patient care and the administration of the business of dentistry.

The Legal Standard of Care

During the education and training of a dental professional, the practitioner is taught standards of care for the diagnosis and treatment of a dental condition. However, the legal standard of care can be broader and dynamic. The dental standard of care is set by the dental community. In contrast, the law can create standards by legislation, rule or regulation, regardless of the prevailing dental standard of care. For example, the dental standard of care is to educate patients regarding proposed treatment, such as IV sedation, and obtain the patient's consent, known as informed consent. Risk management principles suggest written documentation of most informed consents. However, in California, by statute, all dentists must obtain written informed consent before performing IV sedation. (California Business

CDA JOURNAL, VOL 38, Nº9

and Professions Code 1682e) The prudent practitioner, hoping to avoid being drawn into the legal system, should have an appreciation of the legal standards of care and associated doctrines, and implement that knowledge into practice protocols.

Legal, rather than community, standards of care are generally determined by the laws of the state in which the dental professional practices and is licensed. For example, not all states require written informed consent for IV sedation. Indeed, until recently, not all states required a permit for IV sedation. This article will focus on the laws of the state of California. However, those laws are seldom specific as to any method of diagnosis, plan, or required treatment. Rather, the laws are general as to the definition of the community standards of care. In addition, there are federal laws that can affect the practice of dentistry, such as Health Insurance Portability and Accountability Act and Occupational Safety and Health Administration.[1,2]

The law defines the community standard of care as follows: A dentist is negligent if he/she fails to exercise the level of skill, knowledge, and care in diagnosis and treatment that other reasonably careful dentists would possess and use in the same or similar circumstances. This level of skill, knowledge, and care is sometimes referred to as "the standard of care."[3] The legal standard of care is not just the very best care, or treatment by only the best health care provider. It is also not the average care in the community. Rather, it is that minimum level of care to which a patient is entitled.

Failure to provide standard of care is considered professional negligence or what is commonly referred to as malpractice. For a patient to prevail in a malpractice claim, they must prove four elements: 1) that the dentist owed a duty to the patient, 2) that the dental practitioner failed to meet the legal standard of care, 3) that the failure was the legal cause of, 4) an injury. Only upon proving those four elements can the jury or court awarded damages (money) to a patient.[4]

Attorneys cannot, and therefore do not, determine the standard of care. The legal community standard of care is determined by the opinion of expert witnesses testifying in court or before an administrative law judge in a dental board accusation. The standard of care against which the acts of a dentist are to be measured is a matter peculiarly within the knowledge of experts; it presents the basic issue in a malpractice action and can only be proved by their testimony, unless the conduct required by the particular circumstances is within the common knowledge of the layman.[5] For example, as to the standard of care to be applied to a claim of perinatal injury, expert testimony is required due to the complexity of the issues. By comparison, in a claim alleging extraction of the wrong tooth, expert witness testimony would not be required as to issues of the standard of care, but would still be required as to the issues associated with the appropriate method and costs to replace the tooth.

LEGAL, RATHER THAN community, standards of care are generally determined by the laws of the state in which the dental professional practices and is licensed.

In a malpractice suit, a jury of mostly laypersons will generally determine whether or not a dental practitioner violated the standard of care by comparing and contrasting the evidence provided by each side (plaintiff versus defendant) in a trial. They will hear testimony from expert witnesses for each side as well as be shown X-rays and records. In the case of an accusation by the Dental Board of California, an administrative law judge sitting without a jury, will conduct a hearing and, at the conclusion, make a determination as to any violation of the standard of care by weighing physical evidence, witness and expert testimony, and any applicable statutes, codes or regulations. At that hearing, expert witnesses will testify as to their evaluation of the evidence, records, imaging, and testimony. The jury or administrative law judge's role is to determine the credibility of the evidence such as the testimony of expert witnesses as to what each believes is the standard of care for the procedures at issue, and whether or not there was a violation of that standard.

The legal qualifications for such expert witnesses may include being licensed to perform the treatment in question, or having expertise in the area of one of the issues in dispute, such as perinatal standards of care, or the cause of a particular claim of injury. An expert may be a general practitioner or a specialist in the area of the treatment in question. The law in California does not require an expert to have the identical training or certification of the defendant (In contrast, Arizona does require matching certification). A general dentist can testify against a board-certified specialist, or vice versa. The courts typically rule that credentials and board certification merely go to the credibility of an expert that the jury or administra-

tive law judge may weigh in determining whom to believe. This author has seen juries discount the testimony of board-certified dental specialists who are professors and authors, in favor of a general dentist who testified in a simple logical fashion and rendered easy-to-understand opinions that made common sense, and were supported by the evidence. Therefore maintaining clear and reasonably detailed records regarding the provision of perinatal care is essential in avoiding claims of substandard care.

Expert witness may also testify on issues of causation without having to render opinions as to the standard of care, or even have training in dentistry. For example, in cases of bacterial endocarditis, the law will allow testimony from an expert in heart valves and postdental infections such as a cardiologist or an infectious disease physician.

Expert witnesses typically come from two sources, treating dentists and retained experts.[6] Often they are subsequent treating dental care providers who have expressed some criticisms of the care of another dentist or attributed the cause of some injury to prior dental care or the lack thereof (e.g., failure to diagnose perinatal periodontitis). Such experts are called nonretained expert witnesses.[7] The other source of expert witnesses are those who may not have seen the patient for treatment but are hired by counsel for either the plaintiff or the defendant to evaluate the standard of care and/or causation by reviewing records, X-rays, and testimony, and sometimes examining the patient. Such experts are called retained expert witnesses.[8] Whereas nonretained experts are only paid for the time spent giving testimony, retained experts are typically paid for the time spent reviewing the evidence in the case in addition to time spent in testimony. The practical reality is that each party to a malpractice suit will hire an expert(s) with a proclivity to their side of the case; pro-patients versus pro-dentists.

While the law allows an expert to be both a treating health care provider and a retained expert witness, it is considered unethical and a conflict of interest by the California Dental Association.[9] The section says in part, "It is unethical for a dentist to use information learned as an expert witness for personal gain or advantage … If a dentist accepts a request from an attorney to provide an expert opinion about a person who is not a patient of the dentist, the dentist shall not accept that person as a patient into his or her practice until the litigation or other proceeding, if any, involving that person has concluded."

EXPERT WITNESS MAY also testify on issues of causation without having to render opinions as to the standard of care, or even have training in dentistry.

The conflict issue stems from the potential that a dentist may provide a treatment plan to a patient and then provide testimony that the plan was necessitated by the treatment of the defendant, which was below the standard of care. Simply put, the dentist expert witness tells the jury to give money to the patient to give to the dentist expert witness. Such ethical violations are admissible evidence in trial to challenge the credibility of the expert witness, but will not cause the court to exclude the witness because the conduct is not illegal.

Experts can also render opinions as to the management of dental auxiliaries, such as hygienists, assistants, etc., and their impact on the dentist's ability to perform within the standard of care. Examples would include negligent transmission of referral information, failure to schedule follow-up appointments or recalls, failure to maintain OSHA standards or failure to follow X-ray safety protocols. That rule of law is called respondeat superior, meaning an employer dentist or dental corporation is vicariously liable for the wrongful acts of its employees committed within the scope of their employment, even if they violate office rules or protocols. Equally well established, is the principle that a dental staff person's willful, malicious, and even criminal acts may fall within the scope of employment for purposes of respondeat superior, even though the employer had not authorized the employee to commit crimes or intentional wrongful acts.[10] For example, a staff person charged with collections gets into a heated argument with a patient and pushes that person who falls backwards over a chair and is seriously injured. The employer is liable for that injury because the staff person was performing, albeit poorly, within the scope of their job duties, trying to collect past-due funds. The prudent practitioner should establish protocols to promote staff compliance with standards of care and conduct routine audits to evaluate compliance. Use of specific checklists for various tasks is helpful for training and auditing staff. In cases involving perinatal patients, such checklists might include obtaining and documenting physician clearance for specific tests or procedures such as X-rays and use of N_2O.

Authoritative/Recognized Text

Expert witnesses may bolster their opinions by use of authoritative or well-recognized texts, peer-reviewed journals or treatises. However, whether or not a writing is considered authoritative or well recognized is determined by a judge who considers expert witness testimony as to the qualifications of the text or journal on an issue before it can be read to a jury.[11] Therefore, in cases involving perinatal patients and employees, dental care providers should maintain current knowledge of guidelines such as the California Dental Association Foundation's *Evidence-based Guidelines for Health Professionals*.[12] Other accepted guidelines, such as the American Heart Association, are documents that may also be considered evidence of the standard of care.[13]

Statutes and Codes

In California, the violation of a statute designed and intended to prevent a harm (such as failure to autoclave surgical instruments) is presumptive evidence of a violation of the standard of care, or professional negligence, and, in such cases, expert testimony is not required.[14] A typical case might be the failure to adhere to OSHA regulations for the management of potential blood-borne pathogens. For example, should a patient develop a post-treatment infection, evidence of an *OSHA Blood Borne Pathogens Standards* violation would be considered evidence of substandard care and the defendant's only defense would be to prove the lack of a causation of the infection by the OSHA violation.[15] In such a case, expert testimony would not be required on the issue of a breach of the standard of care. However, expert testimony may still be required as to causation, i.e., Did the statutory violation cause the infection?

Burden of Proof

While the patient's attorney in a typical malpractice suit, or the attorney general of the State of California in a dental board hearing, has the burden of proving (convincing a jury or administrative law judge) a violation of the standard of care, unlike criminal cases where the evidentiary level is beyond a reasonable doubt, the plaintiff in a malpractice case need only provide evidence of a probability (not a certainty) of a breach of the standard of care. This is called a preponderance of the evidence. A probability in the law means greater than 50 percent, meaning a jury can have 49 percent doubt and still find that the defendant failed to meet the standard of care.[16] Because of the reduced level of evidence required in a malpractice case as compared to a criminal case, the dental practitioner in perinatal cases should be vigilant of record keeping and documenting consultations with other health care providers as well as the patient. It has been the trial experience of this author, that juries, in resolving conflicting testimony between a patient and a dentist, will favor the dentist's testimony when supported by detailed and legible documentation.

As a cautionary note, records should be kept in the ordinary course of treatment and not amended in response to a patient filing a suit or complaint with the dental board, or even a threat by the patient to do either. Alteration of records may significantly damage a dental care provider's credibility and lead to a separate claim of alteration of evidence to deceive, a violation of the California Dental Practice Act.[17]

RECORDS SHOULD be kept in the ordinary course of treatment and not amended in response to a patient filing a suit or complaint with the dental board.

Informed Consent

California law and the CDA Code of Ethics require dental care providers to obtain informed consent before providing treatment.[18] A dentist is required to disclose all information relevant to a meaningful decisional process and obtain the fully informed consent of the patient or the patient's legal guardian prior to treatment. If identifiable artifacts (such as photographs, X-rays, study models, etc.) are used as part of the consent process, that fact should be charted and the object or educational tool identified. The laws are not specific as to the details that must be part of the informed consent discussion, only that the patient must be told the significant risks, benefits and alternatives to recommended treatments, therapies or medications. With a few exceptions (IV sedation: California Code of Regulations, 1685) the law does not require that the informed consent be in writing. Written documentation is a deterrent to claims of lack of informed consent because studies have shown that patients do not recall pretreatment discussions and they can insist with credibility that they were not warned.[19]

Again, when judges and juries are asked to weigh conflicting testimony between a patient and a dentist as to the consent process, the dentist will be more often than not be given credibility with evidence of a written consent form

properly dated and signed by the patient, parent, or guardian. It is recommended that the dentist, after the patient, also sign the consent form before any treatment is provided, as a measure to ensure that the form has been reviewed with the patient and the chart is well documented.

Informed Refusal

As dentistry has become more technical and complex, providing more treatment options for perinatal patients, new exposure potentials have evolved, namely the obligation to provide informed refusal, or the risks of declining a recommended treatment, therapy, or medication.[20] An example would be offering a patient the option of composite versus amalgam restorative materials. Dental practitioners are well advised to have a knowledge of the guidelines for perinatal oral health care, and update that knowledge on a regular basis. Such knowledge will allow the practitioner to offer up-to-date options to the patient for oral health care that are current and consistent with what is considered reasonable for the mother and developing fetus.

In the case where a perinatal patient refuses to accept recommended or ideal treatment or advice (for example, due to costs) the prudent dental care provider should obtain and document informed refusal. Simply put, this is known as documenting the discussion of the risks, benefits, and alternatives.

A simple chart note can be effective documentation of an informed refusal discussion. For example, in a case where a patient is advised to seek the care of a specialist, such as a periodontist, and despite discussing risks of not going, the patient declines, the following chart note can be made and then signed by the patient: "[Patient] advised of need to seek care of specialist, periodontist. Patient refuses. Risks, benefits, and alternatives discussed, including the potential for tooth loss. Patient still declines. X_____." By having the patient read and sign a chart entry that notes they were advised of the worst risks of refusal (in this case tooth loss) and still declined, the law assumes they would have declined had they been told of any lesser risks.[21] In the case of electronic records, the patient can either sign a digital pad as used today for credit card purchases, or the form can be printed, signed, and scanned back to the e-file as a PDF document.

DENTAL PRACTITIONERS are well advised to have a knowledge of the guidelines for perinatal oral health care, and update that knowledge on a regular basis.

Maintaining Knowledge Base

Because of the speed of communication and information distribution via the Internet, the standards of care have become dynamic, subject to rapid and significant changes in a short period of time. For example, just a few years ago, health histories had to be modified to add a question regarding a patient's use of the medication known as fen-phen. Today, many experts says that histories need to be updated to include questions about patient use of bisphosphonates prior to performing any dental surgery, citing recent studies.[22] Therefore, the prudent practitioner should stay current with continuing education and communications from dental societies such as the ADA and CDA, as well as governmental agencies such as the CDC and OSHA.[23] Health history forms should be evaluated and, if needed, revised annually to see if questions should be added, changed, or deleted. Also, staff and management protocols should be regularly reviewed, consent forms content evaluated for updates, and record keeping methods periodically evaluated for content, detail, accuracy, and thoroughness.

With the increasing availability of digital systems for the dental office (records, X-rays, and communications), the quality and detail of record keeping in the general dental community is increasing because of the ease of recording and compiling information. Experts and the California Dental Board will often compare a dentist's records to those in the community. As more and more of the dental community goes over to digital record keeping and imaging, the comparisons and possible shortcomings of paper records and standard X-rays become more and more dramatic. Therefore, consideration should be given to transitioning to digital records and imaging, because they facilitate more detail and completeness, as well as easy long-term storage, the latter of which is important in dealing with perinatal issues that may be subject to extended statutes of limitations.[24]

In California, the statute of limitations is one year from the time the patient knew or should have known of the malpractice and the injury, and three years from the onset of the injury. However, for children under the age of 6, it is three years from the date of the wrongful act, or by their eighth birthday, whichever is later.[25] The generally accepted recommendation is to keep original records for at least 10 years after the last date of treatment or consultation with a patient. Disposal should be done in a manner that protects patient confidentiality, such as shredding.[26]

Perinatal Staff Issues and Employment Law

Statistics are not necessary to support the common knowledge that more than 75 percent of dental staff members in California are females and that many may become pregnant. Also, it is commonly understood that many dental offices offer free or discounted dental services to staff members. The guidelines and standards for perinatal oral health care apply equally to staff members and employees who also are patients as much as they do to regular patients. Office protocols should not be relaxed or skipped for staff or family members. Completed and up-to-date health histories, imaging, and consent forms should be utilized without exception for familiarity or method of payment.

However, as employees, dental staff have additional issues related their becoming or being pregnant. There are two basic areas in the law involving pregnant staff members: pregnancy discrimination and maintaining a safe work environment.

Pregnancy Discrimination

The law in California considers pregnancy to be a temporary disability that includes pre- and postdelivery periods during which an employer may not discriminate against the employee. For employers with five or more employees, pregnant employees must be allowed to take up to four months of unpaid leave due to complications or conditions of pregnancy or delivery.[27] In doing so, the employer must provide that at the end of the disability period, the employee can return to their prior position with the same duties, hours, benefits, and rates of pay. Also, if the pregnant employee requests, with the concurrence of her physician, that she be allowed to work in a less strenuous position, the employer must accommodate such a request unless it causes an undue burden on the employer.[28]

For those few dental offices with more than 50 employees working within a 75-mile radius of each other, employees with more than 12 months of service and 1,250 hours within a 12-month period, are entitled to take up to 12 weeks of unpaid family leave, within a 12-month period. Such employers must provide such employees the ability to return to their same or similar position with the same hours and rate of pay.[29] The statutes relating to pregnancy discrimination also prohibit the badges of discrimination such as demotion (forced lower pay, less hours, or demeaning tasks), insensitive comments or jokes, whether oral, written, or in pictures. Owners or managers of dental offices are advised to obtain literature for employees as to pregnancy discrimination issues, rights, and obligations.

THE GUIDELINES AND standards for perinatal oral health care apply equally to staff members and employees who also are patients as much as they do to regular patients.

Safe Work Environment

While evidence-based studies may conclude that some limited exposure to N_2O and ionizing radiation is safe for the mother and fetus, the law requires that if the pregnant employee's physician places limitations on such exposure, the employer, with five or more employees, must make efforts at reasonable accommodations.[30-32] In such cases the employer may allow the employee to work in positions away from where X-rays are being taken or N_2O used.

An effective way to create a uniform policy, understanding, and compliance with perinatal employment laws is to obtain, customize, and distribute an employment manual. These can be purchased from dental societies (ADA, CDA) or some dental malpractice insurance companies.

Conclusion

Recent guidelines, texts, and articles including those in this edition of the *Journal*, present some analysis and recommendations for treatment of patients with perinatal oral health issues. Understanding the legal framework used to measure the information that may be utilized to define a legal standard of care is essential for the modern dental practitioner. Because most perinatal patients have some options regarding evaluation and treatment, informed consent and informed refusal are essential when providing dental care to such patients. Adherence to documentation guidelines provides for good patient communication while promoting effective risk management. Included in such documentation should be consultations, recommendations, and restrictions provided by the physicians and related health care providers of perinatal dental patients. In the case of conflicting options or opinions regarding perinatal oral health care issues, the practitioner should not hesitate to request a second opinion or to contact their malpractice carrier's risk management department for advice. The ounce of prevention versus the pound of cure rule still applies. ■■■■

REFERENCES

1. Health Insurance Portability and Accountability Act, 45 C.F.R., 160 et seq., 1996.
2. Occupational Safety and Health Act, 29 U.S.C. 651 et seq., 1970.
3. Brown v. Colm 11 Cal.3d 639, 642B643, 1974.
4. Rowland v. Christian 69 Cal.2d 108, 111B112, 1968. California

Civil Jury Instructions (CACI) 400, 500, 501, 2010.
5. Landeros v. Flood 17 Cal.3d 399, 410, 1976.
6. California Code of Civil Procedure Section 2034.210, 2010.
7. California Code of Civil Procedure Section 2034.210(a), 2010.
8. California Code of Civil Procedure Section 2034.210(b), 2010.
9. CDA Code of Ethics Section 10A, 2010.
10. Lisa M. v. Henry Mayo Newhall Memorial Hospital, 12 Cal.4th 291, 296B297, 1995.
11. California Evidence Code Section 721, 2010.
12. CDA Foundation. Oral Health during Pregnancy and Early Childhood: Evidence-based Guidelines for Health Professionals, February 2010.
13. Wilson W, Taubert KA, et al, Prevention of infective endocarditis: guidelines from the American Heart Association: a guideline from the American Heart Association Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *AHA Circulation* 116(15):1736-54, Oct. 9, 2007; e-pub, April 19, 2007.
14. California Evidence Code Section 669, 2010.
15. 29 CFR 1910.1030, 2010.
16. Weiner v. Fleischman 54 Cal.3d 476, 483, 1991.
17. California Business and Professions Code Section 1680(s), 2010.
18. CDA Code of Ethics Section 1D, 2010. 19. Robinson G, Merav A, Informed consent-recall by patients tested postoperatively. *Ann Thorac Surg* 22:209-212, September 1976.
20. Vandi v. Permanente Medical Group, Inc. 7 Cal.App.4th 1064, 1069, 1992.
21. Morgenroth v. Pacific Medical Center, Inc. 54 Cal.App.3d 521, 534-535, 1976.
22. Sedghizadeh PP, Stanley K, et al, Oral bisphosphonate use and the prevalence of osteonecrosis of the jaw: an institutional inquiry. *J Am Dent Assoc* 140(1):61-6, January 2009.
23. Edwards BJ, Hellstein JW, et al, Updated recommendations for managing the care of patients receiving oral bisphosphonate therapy: an advisory statement from the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc* 139(12):1674-7, December 2008.
24. California Code of Civil Procedure Section 340.5, 2010.
25. California Code of Civil Procedure Section 340.5, 2010.
26. California Civil Code Section 56, 2010.
27. California Government Code Section 12945 (a), 2010.
28. California Government Code Section 12945 (b)3, 2010.
29. California Government Code Section 12945.2, 2010.
30. CDA Perinatal Oral Health Practice Guidelines, pages 39-43, February 2010.
31. thedentists.com/library/emdk_product_sheet.pdf?prolificView=7. (Accessed July 7, 2010.)
32. California Government Code Section 12945 (b)1, 2010.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Arthur W. Curley, JD, Bradley, Curley, Asiano, Barrabee & Gale PC, 1100 Larkspur Landing, Suite 200, Larkspur, Calif., 94939.

Revolutionizing Nitrous Oxide Delivery

Replace the old grey hoses in your office!

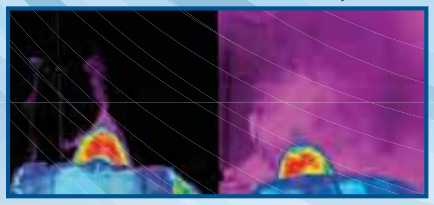
SAFE SEDATE®

Dental Nasal Mask Delivery System for Nitrous Oxide

Controlled delivery of N_2O through nasal cannulas.

Better visibility for the doctor and more comfortable for the patient.

Safe Sedate Traditional System



Even while patient is talking, Safe Sedate scavenges nitrous oxide gases better than traditional systems.

See clinical studies and videos at meddentss.com

Safety

- Eliminates cross contamination - single-patient use product
  - Completely replaces ALL existing rubber hoses, bag, and mask
- Significantly reduces doctor and team exposure to excess N_2O[1]

Patient Comfort

- Adjustable and lightweight
- Allows patient to turn head easily

Convenience

- Smaller size allows better visibility and access to mouth
- Ergonomically removes visual barriers
- Reduced operatory turnover time - resulting in significant savings

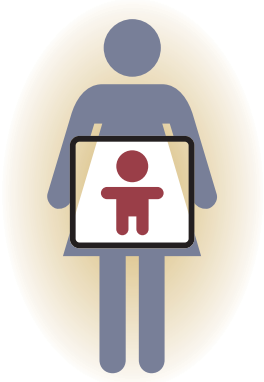
[1]Rademaker etal. JADA (February 2009) 190-199

MED-DENT SAFETY AND SUPPLY CO.

Call **(877) 336-8233** or visit **meddentss.com**

PC-3400

CDA JOURNAL, VOL 38, Nº9



Oral Health During Pregnancy and Early Childhood: Barriers to Care and How to Address Them

DANA HUGHES, DRPH

ABSTRACT This brief supplements recommendations developed by the California Dental Association Foundation and the American College of Obstetricians and Gynecologists that recommended practice guidelines during the perinatal period. This brief addresses the importance and safety of oral health care during pregnancy and outlines some of the multiple system-level barriers that make it difficult for many women to access oral health services, as well as offers specific strategies for mitigating these barriers.

AUTHORS

Dana Hughes, DRPH, is with the Philip R. Lee Institute for Health Policy Studies and School for Family and Community Education, University of California, San Francisco.

SOURCES OF SUPPORT

The American College of Obstetricians and Gynecologists; Anthem Blue Cross Foundation; California Dental Association Foundation; California Healthcare Foundation; First 5 California; and the Sierra Health Foundation

ACKNOWLEDGMENT

This policy brief was developed in conjunction with "Oral Health During Pregnancy And Early Childhood: Evidence-based Guidelines for Health Professionals," a project of the California Dental Association Foundation. "Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines For Health Professionals" can be downloaded from www.cdafoundation.org/guidelines.

Oral health plays an important role in overall health and well-being, as well as a special role during pregnancy. Good oral health has the potential to improve the health and well-being of women during pregnancy and contributes to improving the oral health and well-being of their children. Preventive and restorative dental treatment during the perinatal period is safe and results in better health outcomes. Conversely, delaying necessary treatment could result in harm to the mother. However, oral health care is not routinely considered a part of comprehensive perinatal health care and many women do not visit a dentist before, during, or after pregnancy, even when there are obvious signs of oral disease.

The reasons why women do not receive oral health care during pregnancy are many, but prime among these are misconceptions among patients and providers (both perinatal and dental) about the importance and safety of such care. In addition, many women face barriers to care because they lack insurance coverage for dental care or they are unable to identify providers willing to accept public insurance coverage, such as Medicaid.

This policy brief is a supplement to recommended practice guidelines for the delivery, timing, and scope of oral health services for women during the perinatal period. These recommendations, which can be found in "Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines for Health

Professionals," (guidelines) were developed through collaboration between the California Dental Association Foundation (CDA Foundation), and the American College of Obstetricians and Gynecologists, District IX (ACOG District IX).[1] Primarily, this brief provides recommendations about how these guidelines can be implemented most effectively among the many audiences and partners involved in the delivery of perinatal care.

The guidelines were developed in 2009 by an expert panel of medical and dental professionals who were engaged to review scientific literature on the relationship between health and oral health status, treatment of oral diseases and pregnancy outcomes. The review consisted mainly of evidence published after the release of guidelines developed by the New York State Department of Health in 2006.[2] The guidelines were designed for multiple audiences, including prenatal, oral health, and child health professionals, as well as staff of community-based programs. They suggest specific steps that each care group can take to promote and facilitate use of oral health services during the perinatal period.

Perinatal Oral Health Consensus Statement

The following consensus statement was developed by the expert panel convened to create the guidelines: 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.

Oral Health Care Is Essential and Safe During the Perinatal Period for Mothers and Their Children

It is increasingly recognized that oral health plays an important role in overall health and well-being; yet many women do not visit a dentist before, during, or after pregnancy, even when there are obvious signs of oral disease.[3] Current understanding of maternal and fetal physiology indicates that the benefits of providing dental care during pregnancy far outweigh potential risks.[1] Prevention, diagnosis, and treatment of oral diseases, including needed dental radiographs and use of local anesthesia, is highly beneficial and can be undertaken during pregnancy with no additional fetal or maternal risk when compared to the risk of not providing care.[1]

UNTREATED DENTAL caries in the mother and other caretakers is associated with increased likelihood of dental caries in her child.

Further, assessment of oral health risks in infants and young children with appropriate follow-up and treatment, along with anticipatory guidance for parents and other caregivers, has the potential to prevent early childhood caries, ECC.[4] Many medical and prenatal providers are not aware that the bacteria that cause ECC can be transmitted from mother to child. Early colonization of these bacteria in the child's mouth puts the child at greater risk of ECC. Untreated dental caries in the mother and other caretakers is associated with increased likelihood of dental caries in her child.

Barriers to Receiving Perinatal Oral Health Care

Despite the multiple benefits of oral health care, many women do not receive dental care during pregnancy. During 2002-2007, 65 percent of all women delivering in California received no dental care during pregnancy and about half (52 percent) reported having a dental problem prenatally; 62 percent of those reporting a dental problem during pregnancy received no dental care. The percentage of women who received no dental care was highest among women who were younger, poorer, or non-White. Seventy-nine percent of women enrolled in Medi-Cal did not receive any dental care during pregnancy.[5]

Barriers and limits to utilizing dental services and improving oral health for pregnant women and their children are multifaceted and complex, and relate both to the health care system and to the client herself. Studies have shown that both perinatal and oral health care providers during pregnancy have an inadequate understanding of the importance and safety of oral health care and that this misunderstanding negatively impacts the provision of dental care during pregnancy. Similarly, many dentists needlessly withhold or delay treatment to pregnant women because of a fear of injuring either the woman or the fetus—or because of unfounded worry of litigation.

Further obstacles exist within the health care system itself, including lack of insurance, low public-program reimbursement levels, lack of provider training, maldistribution of resources, capacity challenges, and lack of cultural competency among dental providers. Populations that face the most barriers and have the greatest need include the uninsured and those covered by publicly funded programs. Barriers to adequate care also arise from the misconceptions and needs of pregnant women themselves. For example, many

misperceive need, lack knowledge about the importance of oral health, face financial challenges (including lack of dental insurance or lack of knowledge that Medi-Cal covers some dental services for pregnant women), fear dental care, and have issues related to transportation, child care, and balancing work and health care needs.

Reducing System-Level Barriers to Accessing Oral Health Care Is Essential

Certain aspects of the oral health care delivery system act as barriers to providing adequate oral health education and care to women during the perinatal period. The following are descriptions of gaps in the system as well as strategies to address them.

Lack of Insurance or Underinsurance Prevents Many Women From Accessing Oral Health Care During the Perinatal Period

Nearly 30 percent of women of childbearing age (29.4 percent) nationally have no insurance for dental care.[6] Without insurance, access to services is severely restricted. Uninsured women and those whose coverage lacks comprehensive dental benefits face high out-of-pocket costs for oral health services, especially if they have complex treatment needs.[7] Individuals with public coverage such as Medi-Cal may not be aware that dental services are a covered service (although adult dental coverage was severely restricted in 2009 as a result of California's precarious financial condition) or are unable to locate a dentist willing to accept their form of insurance.[8]

Lack of Knowledge Among Health Professionals, Advocates, and Patients About the Importance and Safety of Dental Care During the Perinatal Period

Perinatal care providers (obstetricians, midwives, nurse practitioners, family physicians, pediatricians, etc.) are often the first health professionals to consult with pregnant women to discuss how to prepare for a healthy pregnancy. These health professionals can play a critical role in emphasizing the importance of oral health and connecting pregnant women to sources of dental care. Although some health profession schools, residency programs, and continuing education efforts do include oral health in their curricula, the practice is not widespread.[9] Similarly, dental school curricula do not address care delivery during pregnancy or very early childhood routinely or adequately. The result is that many providers are limited in their scope of practice to their professional discipline and can miss opportunities to help women obtain the comprehensive services they need, including dental care.

BOTH PERINATAL AND oral health care providers during pregnancy have an inadequate understanding of the importance and safety of oral health care

Women Need Clear Information About Oral Hygiene and Oral Health Care

Expectant parents are especially receptive to health promotion messages and as such, pregnancy is an opportunity to integrate oral health promotion into healthy pregnancy planning efforts. However, pregnancy also presents challenges that can compete with women's efforts to engage in health-promoting behaviors. For example, the physical effects of pregnancy may hinder positive oral health behaviors. In addition, food cravings may lead to frequent consumption of sugary snacks and to a corresponding increased risk of caries.[10] Finally, individual characteristics, such as age, cultural differences, and early life experiences with oral health care can all exert a strong influence on beliefs about the importance of oral health, oral hygiene, and nutritional practices.[11]

Strategies for Improving Oral Health Care During the Perinatal Period

There are many opportunities for maternal and child health leaders, health professional associations, policymakers, community-based organizations, advocates, and other stakeholders to respond to the need for improvements in the provision of oral health services to women during the perinatal period. Wide dissemination of the guidelines among all who provide services to pregnant women — medical and oral health professionals, community-based organizations and advocates — is one of the most important first steps toward broad adoption of the practices recommended. Additional, specific strategies are detailed in the following section.

Promote the Use of the Guidelines in Addressing Oral Health During the Perinatal Period

■ Professional associations and other maternal and child health-related organizations, such as ACOG, CDA and the Association of California Maternal, Child and Adolescent Directors (known as MCAH Action), can formally endorse the guidelines. Endorsements can be through policy statements that both support the guidelines and commit to informing 1) their members about the importance of incorporating the practices into their work, and 2) their clients about the importance of incorporating the practices into their lives. For ex-

ample, the American Academy of Periodontology has informed its members by issuing a statement on periodontal management of the pregnant patient, as has the American Academy of Pediatrics policy statement, "Preventive Oral Health Intervention for Pediatricians."[12,13]

■ These formal organizational policies and the guidelines should be disseminated through platforms such as articles in newsletters and policy briefs to encourage implementation of the guidelines in private practice, as well as in community-based practice settings and organizations.

■ The California Department of Public Health should utilize the guidelines to establish and/or revise policy and practice in Maternal, Child and Adolescent Health (MCAH) programs, including population-specific programs like California's Perinatal Services Program and Black Infant Health Program. Each of these has responsibilities for programs and policies that affect pregnant women and young children and are in a position to ensure that the guidelines, particularly those related to referrals and education, are incorporated into the programs' practices and education materials.

■ The California Department of Health Care Services should endorse the guidelines and use them to establish and/or revise policy and practice in Medi-Cal, Denti-Cal and CHDP to encourage coverage of preconception dental care for women, expand dental benefits for pregnant women (currently limited to exams, some preventive services and periodontal treatment), add coverage for anticipatory guidance/risk assessment for children, and add sealants for children and adults at high risk for developing caries. Other state Medicaid and CHIP programs should follow suit.

Expand Opportunities to Educate Health Professionals on Risk Assessment, Prevention, and Treatment of Dental Problems During the Perinatal Period

■ As indicated, most health profession schools, residency programs, and continuing education programs do not include oral health in their curricula, nor do dental school curricula address care delivery during pregnancy or very early childhood routinely or adequately. Greater collaboration between disciplines in designing curricula to integrate medical and oral health needs is a necessary step toward creating the groundwork for changing practice patterns. For example, several collaborative programs initiated between dental and medical schools have shown positive influence on physician practice.[14-16] While curricula change in academia occurs slowly, the availability of evidence-based research is a key factor in supporting faculty willingness to make modifications.

A COORDINATED EFFORT between the oral health and obstetrical communities needs to occur to improve maternal and child oral health outcomes.

■ Because they have not been trained to understand the relationship between oral health and overall health, many perinatal providers fail to refer their patients regularly to dental care. A coordinated effort between the oral health and obstetrical communities needs to occur to improve maternal and child oral health outcomes. This could happen through cross-discipline education at professional meetings and other training opportunities designed to share information among practicing dentists, perinatal care providers, and others involved with the care of women during the perinatal period.

■ Resources that complement the guidelines are available for clinical providers, policymakers, public health officials, and the public on the importance of perinatal and infant oral health through the Improving Perinatal and Infant Oral Health Project, a collaborative effort of the American Academy of Pediatric Dentistry and the Children's Dental Health Project. A detailed project description can be accessed at: http://www.cdhp.org/programs/improving_perinatal_and_infant_oral_health_aapd/improving_perinatal_and_infant_oral_health_.

■ Another source for professionals is "Bright Futures in Practice: Oral Health Pocket Guide," developed by the National Maternal and Child Oral Health Resource Center. The pocket guide is designed to help health professionals implement specific oral health guidelines during pregnancy, infancy, early childhood, middle childhood, and adolescence. It addresses risk assessment for dental caries, periodontal disease, malocclusion, and injury. The website is mchoralhealth.org/pocket.html.

Ensure Women's Access to Comprehensive Medical and Dental Services Before, During, and After Pregnancy

■ As indicated, large numbers of women lack insurance coverage. National insurance reform that guarantees comprehensive coverage is a critical step toward ensuring that perinatal oral health needs are met. Short of wholesale reform, states can take advantage of opportunities to expand existing programs such as Medicaid and the Children's Health Insurance Program (Medi-Cal and Healthy Families in

California) to cover more comprehensive dental care for pregnant women, preconception dental care for all women and dental coverage of higher income groups, as well as to ensure that all who are eligible for these programs are enrolled.

■ In California, the Access for Infants and Mothers (AIM) program is a small but important state coverage program for pregnant women. Although otherwise comprehensive, it excludes dental care. The Managed Risk Medical Insurance Board should use its influence as the recipient of CHIP federal funds for AIM to encourage the program to include dental care. States with similar programs should advocate for the inclusion of dental care as well.

■ States have the option to provide adult dental benefits as a part of the Medicaid program. In 2009, California restricted Medicaid (Medi-Cal) dental benefits to a select group of adults, including pregnant women (the benefit is limited to exams, cleanings, fluoride application, and treatment of periodontal disease; it does not cover restorative care). Advocacy is needed to reinstate the dental benefit to all Medi-Cal beneficiaries and make dental care a federally mandated benefit for all adults enrolled in the Medicaid program in order to ensure that women receive dental care prior to conception and postpartum. States should also take advantage of any opportunity to offer CHIP (Healthy Families in California) dental benefits to individuals who have medical coverage through other means but are uninsured for dental care (so-called "wraparound" coverage).

■ While reimbursement rates are not the sole factor determining providers' willingness to accept patients, low payment is associated with low participation in public programs. Medicaid is particularly significant to dental care of pregnant women as this program covers approximately one-third of births in the United States and nearly half in California. Medicaid reimbursement rates must be increased to more closely reflect market rates and cumbersome regulations and paperwork should be streamlined.

■ Develop innovative options for expanding the availability of dental care and utilize all members of dental and medical teams, such as midwives, nurse practitioners, and registered dental hygienists in alternative practice, to their full capacity.

ADVOCACY IS NEEDED to reinstate the dental benefit to all Medi-Cal beneficiaries and make dental care a federally mandated benefit.

Provide Women With Information About How to Improve Oral Hygiene and Access Oral Health Care Resources, as Well as Education on the Importance of Preconception Health and Oral Health Care

■ Policy and financial support is needed for provision of anticipatory and other guidance to parents in nonmedical and nondental settings where parents frequent, such as WIC offices.

■ Excellent materials in English and Spanish are available through the National Maternal and Child Oral Health Resource Center, available at mchoralhealth.org/publications.html. Another good source is everywomancalifornia.org/, which includes information and handouts on oral health for women.(See "Healthy Body" link.) Additional materials are needed that focus on the importance of good oral health and oral health care prior to conception, during pregnancy, and afterward for women and children, especially information that is made available through alternatives to written media, such as video.

Expand Advocacy and Education for Perinatal Oral Health

■ With funding from the American Dental Association Foundation, the American Academy of Pediatrics has established a program in which a representative from each of the 66 AAP chapters will be trained to serve as a Chapter Oral Health Advocate, COHA. The COHA will function as the chapter's oral health expert — offering trainings on incorporating oral health assessments into well-child visits; establishing collaborative relationships with general dentists, pediatric dentists, and state and local dental organizations to improve children's oral health in their communities; and providing oral health technical assistance to chapter members. This model should be expanded to include perinatal providers as well.

■ All public perinatal programs that incorporate oral health education, such as the California Perinatal Services Program, should be supported with sufficient resources to ensure that all eligible women receive comprehensive care.

Conclusion

Early, ongoing dental services are an essential part of comprehensive perinatal care, yet far too few pregnant women, and women of childbearing age who are potentially pregnant, receive dental services. "Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines for Health Professionals," based on clinical and epidemiological evidence of efficacy and safety, offer recommendations for services and education directed at both perinatal and oral health services providers.

Widespread dissemination and adoption of these guidelines will promote the health and well-being of women and children. Yet, multiple system-level barriers make it difficult for many women to access oral health services. This brief offers specific strategies for mitigating some of these barriers. While examples of these strategies focus on opportunities in California, many are applicable to other states and/or can be adopted nationally. Ultimately, national practice guidelines and system-level reforms to assure access to comprehensive perinatal and oral health care are needed to best protect and promote the health and well-being of women and children. ■■■■

REFERENCES

1. Oral health during pregnancy and early childhood: evidence-based guidelines for health professionals; CDA Foundation, February 2010.
2. An advisory committee of professionals representing statewide organizations in public and private clinical practice, research, health education, and policy was formed to guide the development of the guidelines. For more information on the process by which the guidelines were developed and which organizations and individuals were involved, see Oral health during pregnancy and early childhood: evidence-based guidelines for health professionals; CDA Foundation, February 2010.
3. Lydon-Rochelle MT, Krakowiak P, et al, Dental care use and self-reported dental problems in relation to pregnancy. *Am J Public Health* 494(5):765-71, May 2004.
4. American Academy of Pediatrics. Policy Statement. Oral health risk assessment timing and establishment of the dental home. *Pediatrics* 111(5):1113-6, May 2003.
5. Marchi L, Fisher-Owens S, et al, Factors associated with nonreceipt of oral health care during pregnancy. *Public Health Reports* (manuscript under review/October 2009).
6. Agency for Healthcare Research and Quality. 1996 and 2006 Medical expenditure panel survey (MEPS).
7. Strafford KE, Shellhaas C, Hade EM, Provider and patient perceptions about dental care during pregnancy. *J Matern Fetal Neonatal Med* 21(1):63-71, 2008.
8. Pourat N, Drilling down: access, affordability, and consumer perceptions in adult dental health. California Healthcare Foundation, 2008. Available at chcf.org/topics/medi-cal/index.cfm?itemID=133795. Accessed June 30, 2010.
9. Krol DM, Educating pediatricians on children's oral health: past, present, and future. *Pediatrics* 1113, e487-e492, 2004.
10. U.S. Department of Agriculture, Food and Nutrition Service. *Oral Health Tidbits* Beltsville, Md., U.S. Department of Agriculture, Food and Nutrition Service, 2003.
11. Brown A, Lowe B, Zimmerman B. Promising approaches and lessons learned for preventing or reducing early childhood caries: summary of a workshop convened by the maternal and child health bureau. Washington, D.C., Health Systems Research, 2005.
12. Task force on periodontal treatment of pregnant women, American Academy of Periodontology. American Academy of Periodontology statement regarding periodontal management of the pregnant patient. *J Periodontol* 75(3):495, 2004.
13. American Academy of Pediatrics policy statement "Preventive Oral Health Intervention for Pediatricians." Available at aappolicy.aappublications.org/cgi/reprint/pediatrics;122/6/1387.pdf. Accessed June 30, 2010.
14. Rozier RG, Sutton BK, et al, Prevention of early childhood caries in North Carolina medical practices: implications for research and practice. *J Dent Educ* 67(8):876-85, 2003.
15. Graham E, Negron R, et al, Children's oral health in the medical curriculum: a collaborative intervention at a university-affiliated hospital. *J Dent Educ* 67(3):338 -47, 2003.
16. Wysen KH, Hennessy PM, et al, Kids get care: integrating preventive dental and medical care using a public health case management model. *J Dent Educ* 68(5):522 -30, 2004.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT

Dana Hughes, DrPH, Philip R. Lee Institute for Health Policy Studies and Department of Family and Community Medicine, University of California, San Francisco, 3333 California St., Suite 265, San Francisco, Calif., 94118.

cda PRESENTS

THE ART AND SCIENCE OF DENTISTRY

THANK YOU TO OUR SPONSORS

These companies are major sponsors of *CDA Presents The Art and Science of Dentistry* in Anaheim. Their sponsorship helps the California Dental Association produce one of the best dental meetings in the nation.

MAJOR SPONSORS

DISCUS
Booths 626

invisalign
Booth 714

Kerr
Booths1802

tdic
Member Benefits Center, Booth 1310

SPONSORS

Banc of America Practice Solutions™
A subsidiary of Bank of America
Booth 920

Colgate
Booth 1102

Demandforce
Growth. On Demand.
Booth 913

DENTRIX
Booth 1725

HENRY SCHEIN® DENTAL
Booth 1726

PracticeWorks
Booth 1414

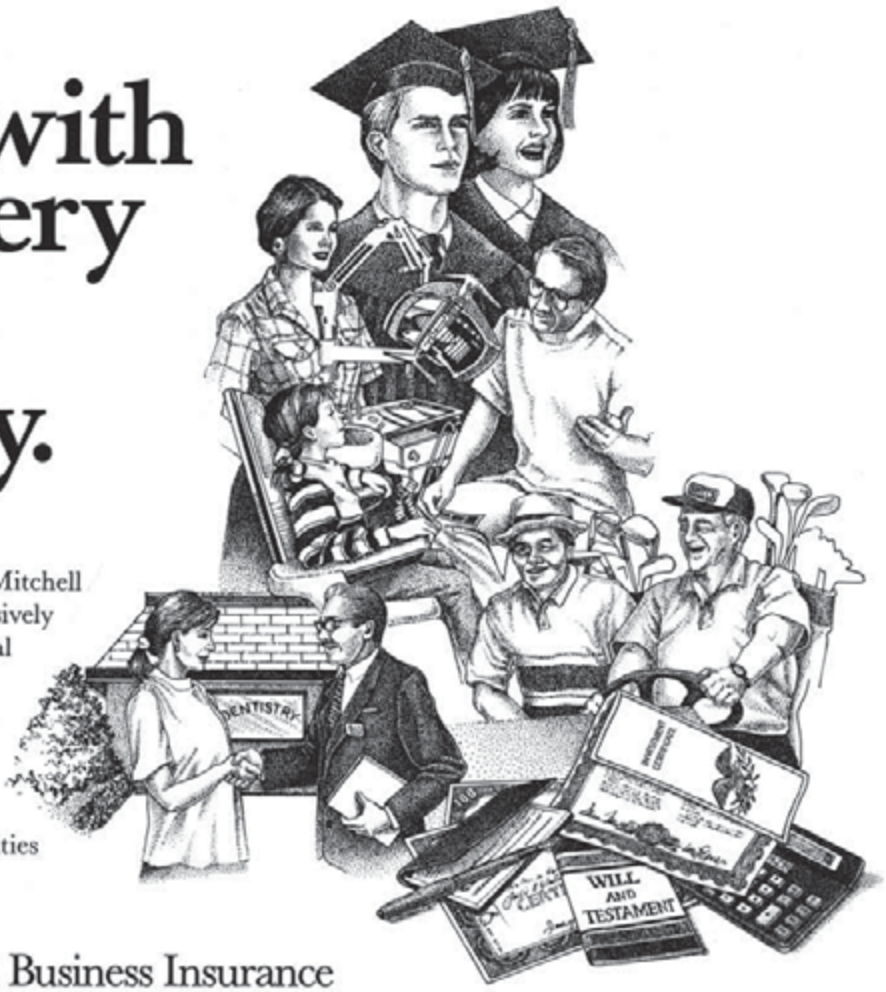
PROSITES
Website Design and Internet Marketing
Booths 917, 2232

SciCan Dental
Your Infection Control Specialist
Booths 2126, 2227

ULTRADENT PRODUCTS, INC.
Booths 702

For more information about sponsorships or advertising in CDA publications, please call:
Corey Gerhard, Advertising Manager, 800.736.7071, ext. 5304 or 916.554.5304, corey.gerhard@cda.org

We're with you every step of the way.



For over two generations, Mitchell & Mitchell has worked exclusively with members of the dental profession, counseling and guiding dentists through all aspects of a dental career. We identify the problems and pitfalls dentists face, and offer solutions and opportunities in many areas including:

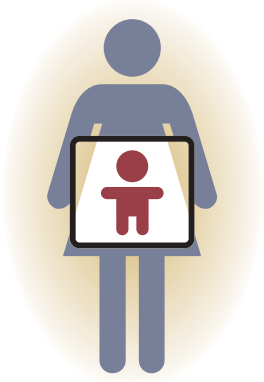
- Professional and Business Insurance
- Practice Opportunities
- Risk Management
- Fiscal Analysis
- Estate Planning

Serving the Dental Community for over two generations.

Mitchell & Mitchell
Insurance Agency, Inc.
250 Bel Marin Keys Blvd., Suite E-1
Novato, CA 94949
Lic. #0620650

(415) 883-2525

CDA JOURNAL, VOL 38, Nº9



Physiologic and Pharmacologic Factors Related to the Provision of Dental Care During Pregnancy

CHRISTIAN A. CHISHOLM, MD, AND JAMES E. FERGUSON II, MD, MBA

ABSTRACT During pregnancy, numerous physiologic changes occur that allow the mother to accommodate the needs of the developing fetus. Oral health care professionals should be knowledgeable about these changes and the impact they have on the safe provision of prophylactic and therapeutic dental care to pregnant women. Herein, the authors describe maternal physiologic adaptations and discuss changes in drug processing and placental drug transfer in order to enhance the knowledge base of oral health care professionals.

AUTHORS

Christian A. Chisholm, MD, and **James E. Ferguson II, MD, MBA,** are with the Department of Obstetrics and Gynecology, University of Virginia School of Medicine, Charlottesville, Va.

A 23-year-old woman, who had a prior delivery at 28 weeks gestation, presented to her obstetrician/gynecologist during the eighth week of gestation. The initial prenatal physical examination was notable for poor dentition (**FIGURE 1**). The obstetrician referred her to her dentist and the oral examination revealed apparent periodontitis. Upon learning the state of her oral health the patient asked, "Can my teeth be fixed?" How does one counsel her and/or proceed?

While it is recognized that good oral health has the potential to improve the health and well-being of pregnant women and contributes to improving the oral health of their children, fewer than half of pregnant women in the United States receive any dental health care, including prophylaxis.[1,2] Although there are undoubtedly many social, financial, and educational factors present to explain this lack of dental care during pregnancy, the attitude of dentists likely plays a role as well. Some dentists withhold or delay treatment of pregnant patients due to concern of causing harm to either the woman or the fetus, which may be attributable both to inconsistent recommendations from national dental associations and a lack of training in the care of pregnant women during dental school.[3,4]

The American Dental Association recommends elective dental care be avoided during weeks one through 14 and 34 through 40 of pregnancy. In contrast, the American Academy of Periodontol-

FIGURE 1. This patient demonstrated plaque, calculus, severe periodontal inflammation, periodontal attachment loss, and gingival recession in early pregnancy.

ogy encourages oral health professionals to provide preventive services as early in pregnancy as possible and to provide treatment for acute infection or sources of sepsis regardless of the stage of pregnancy.[5]

In order to reduce the barriers to care and the concern on the part of dentists, the authors provide information herein related to normal physiologic and pharmacologic changes in the pregnant woman. The primary objective is to provide oral health care professionals with an understanding of common physiologic changes during pregnancy, with a special emphasis on those pertinent to the provision of oral health care.

In addition, the authors will review significant changes in pharmacokinetics during pregnancy as well as fetal considerations related to maternal drug therapy, and provide safety information about drugs commonly prescribed to pregnant patients. Just as there are major physiologic differences between men and women, differences exist between pregnant and nonpregnant women. These changes affect nearly every organ system and have an impact on the pharmacology of many drugs and the choice of drugs selected for use during gestation.

Cardiovascular Physiology

Pregnancy is associated with dramatic changes in the cardiovascular system. Hemodynamic changes can be recognized as early as six to eight weeks of pregnancy and are characterized by an increase in the cardiac output and a fall in the systemic vascular resistance. Early in pregnancy, the increased cardiac output is accounted for primarily by an increase in maternal pulse, whereas later stroke volume assumes a greater importance. The maternal cardiac output increases by 30 percent by 12 weeks of gestation and reaches a stable plateau of 40 percent over baseline by 20 weeks. During pregnancy, maternal heart rate increases by 17 percent while the systemic vascular resistance decreases by 21 percent.[6] The mean blood pressure is modestly decreased in parallel to the decrease in SVR, reaching its nadir at approximately 22 weeks.[7] Additionally, the colloid oncotic pressure is reduced by approximately 15.[6]

THE MATERNAL CARDIAC output increases by 30 percent by 12 weeks of gestation and reaches a stable plateau of 40 percent over baseline by 20 weeks.

Maternal position has a significant effect on systemic hemodynamics. By virtue of occlusion of the inferior vena cava, the supine position is associated with a reduction in cardiac output and stroke volume and an increase in heart rate. The "supine hypotensive syndrome," characterized by hypotension, pallor, and nausea, occurs in 15-20 percent of term pregnant women when they are in the supine position. It is suggested that all women past 20 weeks of gestation be provided with lateral uterine displacement in order to avoid these symptoms.[8] This recommendation may be accomplished by wedging a towel under either hip in the dental chair if the woman is to be placed in the flat supine position.[9]

Even if unaccompanied by the "maternal supine hypotensive syndrome," aorto-caval compression may reduce arterial blood pressure in the lower body and/or increase uterine venous pressure, thus compromising uterine blood flow and causing decreased utero-placental perfusion. These changes can be exacerbated by agents that impair maternal compensatory efforts, such as vasodilators (potent inhalational agents) and sympathectomy (spinal, epidural, combined spinal-epidural). Knowledge of the effect of vasodilators is especially relevant to oral surgeons.

Respiratory Physiology

Respiratory physiology is likewise significantly altered during pregnancy. The increasing size of the uterus causes conformational changes in the chest. The transverse diameter increases by approximately 2 cm whereas the anterior posterior diameter decreases. This change results in an overall increase of 5-7 cm in the chest circumference. In later pregnancy, the diaphragm is elevated approximately 4 cm compared to the nonpregnant state, but diaphragmatic excursion is not decreased. These respiratory changes are also associated with an increase in sleep disorders and a change in the sleep profile. The upper respiratory mucosa becomes hyperemic and there is glandular hyperactivity leading to increased phagocytic activity and mucopolysaccaride content.[10] Additionally, there is a reduction in the airway resistance.

During gestation, the tidal volume increases by 30-40 percent while the inspiratory capacity increases 5-10 percent. The vital capacity and respiratory rate are unchanged; however, the functional residual capacity, expiratory reserve volume, and residual volume each decrease by approximately 20 percent.[11] The functional residual capacity decreases an additional 30 percent if a pregnant woman is placed

in the supine position. Minute ventilation, or the amount of air moved in and out of the lungs in one minute, is the product of tidal volume and respiratory rate. It increases by 40 percent during pregnancy due to the increase in tidal volume. The end result of the increase in minute ventilation is an increase in alveolar and arterial O_2 content, and decreased arterial PCO_2 and bicarbonate.

These alterations effectively make pregnancy a state of respiratory alkalosis with partial metabolic compensation. This is associated with a decrease in the buffering capacity and an increased susceptibility to metabolic acidosis. The respiratory alkalosis serves to facilitate CO_2 transfer from the baby to the mother by increasing the arterial CO_2 pressure gradient.[11] The increase in minute ventilation, in addition to facilitating fetal-maternal CO_2 exchange, also supports the expected 30-60 percent increase in oxygen consumption and the increase in maternal basal metabolism, which increases due to the energy needs of the fetus, as well as the needs associated with an increased cardiac and respiratory work, added breast tissue, and an increase in the mass of uterine muscle.[12]

The combination of the reduction in the functional residual capacity and the increase in oxygen consumption results in a marked decrease in the safe duration of apnea in a pregnant woman. The PaO_2 in the first minute of apnea after preoxygenation decreases 30 percent in a pregnant woman compared to only 10 percent in a nonpregnant woman. This consideration is important in the operative theater. The reduced functional residual capacity, especially when compromised by the supine position, commonly falls below the closing capacity in late pregnancy. This is associated with small airway closure during normal tidal breathing as well as the perfusion of unventilated alveoli (shunting), which leads to hypoxemia. The latter is worsened by aorto-caval compression. The physiologic changes in respiration of a pregnant woman also have a significant effect on inhalational anesthetics and result in a faster induction rate. The minimum alveolar concentration (MAC), a measure of the potency of inhalational anesthetic agents, is decreased by 30-40 percent and this reduction has been noted as early as the eighth week of gestation.[13] A lowered MAC in the pregnant patient will require less nitrous oxide to be administered than in the nonpregnant patient. Maternal hypoventilation can be associated with constriction of umbilical and uterine vessels and lead to an increased incidence of fetal acidosis. This effect can be attenuated with adequate analgesia.

THE PHYSIOLOGIC CHANGES in respiration of a pregnant woman also have a significant effect on inhalational anesthetics and result in a faster induction rate.

Physiologic changes to the hematologic system during pregnancy are manifold. Plasma volume, blood volume, and red blood cell mass all increase during pregnancy but at different rates. The earliest increase is seen in plasma volume whereas the increase in red blood cell mass does not occur until the third trimester.[14] This is frequently associated with a reduction in hematocrit, such that in the final trimester, a hemoglobin concentration of 11 g/dL and a hematocrit of 33 percent are relatively common. Maternal iron demands increase greatly during pregnancy to facilitate the increase in red cell mass. The increased blood volume provides for the increased uterine blood flow and serves as a physiologic "cushion" against blood loss at delivery such that in a healthy pregnant woman, hemorrhage of up to 2 liters may be tolerated without a change in blood pressure or pulse.

During an uncomplicated pregnancy there is a mild decrease in the platelet count, which is thought to be due to increased platelet destruction.[15] Up to 8 percent of pregnant women have gestational thrombocytopenia wherein the platelet count measures between 70,000 to 150,000/mm.[3] Typically there is no increase in bleeding complications and the platelet count returns to normal after delivery. Likewise, there is a slight but significant increase in the white blood cell count during pregnancy with mean values of approximately 8,500 per mm in the third trimester.[3]

Despite numerous changes in the circulating pro- and anti-coagulant factors, neither clotting nor bleeding times are abnormal in pregnancy, yet pregnancy is a hypercoaguable state and immobility adds to the hypercoaguability. The changes in the hemostatic system, which are believed to provide a safeguard against postpartum hemorrhage, are associated with a sixfold increased risk of deep vein thrombosis in pregnancy.[16]

Changes in the skeleton and calcium metabolism include the active transport of approximately 21 grams of calcium across the placenta to the fetus, most of which occurs in late pregnancy. Urinary calcium excretion is doubled at term. Likewise, maternal total calcium levels decrease during pregnancy due to the decrease in albumin and the albumin-bound fraction of calcium. Serum-ionized calcium, which is the physiologically

important form, is unchanged. In order to accumulate the additional needed calcium, the intestinal capacity for calcium absorption doubles in early pregnancy; some calcium reabsorption from the bone will occur as well, especially if the diet is calcium-deficient.

Overall, there is probably some reversible bone loss but the mother should not lose a tooth for each child. Due to the maternal and fetal demands for calcium during pregnancy, oral health care providers should ensure that pregnant women are receiving 1,000-1,300 mg/day of calcium supplementation.[17]

Endocrine System Physiology

Endocrine changes of the most relevance to oral health care providers include those to the thyroid, adrenal, and pituitary glands, as well as the pancreas and fuel metabolism. Thyroid laboratory indices change early in pregnancy. Thyroid binding globulin, and thus total T4, increase and have plateaued by the end of the first trimester. Despite the increase in total T4, free T4 is largely unchanged during pregnancy. TSH, on the other hand, decreases in early pregnancy in an inverse manner to the increase in HCG then returns to normal levels by approximately 20 weeks.[18] The net effect of these changes is that pregnant women remain clinically with normal thyroid gland function. Serum iodide levels do not change in pregnant women in iodine-sufficient areas despite an increased renal excretion of iodide and transfer to the fetus.

Adrenocortical functional changes include an increase in aldosterone, deoxycorticosterone, corticosteroid binding globulin (CBG), cortisol and free cortisol, with the latter two reaching roughly two times nonpregnant concentrations. Additionally, corticotropin-releasing hormone (CRH) increases dramatically during gestation. This is due to an increased production in the hypothalamus as well as production by the placenta. The pituitary gland may increase in size somewhat during gestation and the prolactin concentration is increased tenfold compared to the nonpregnant state.

Ovarian and placental function likewise are associated with an increase in human placental lactogen as well as progesterone and estrogens. The altered fuel metabolism of pregnancy places significant demands on the pancreas. Overall, there is a deterioration of glucose tolerance and pregnancy results in fasting hypoglycemia, postprandial hyperglycemia, and hyperinsulinemia. Care should be exercised to ensure that a pregnant woman has had adequate oral intake before procedures, especially in the morning, in order to avoid the potential for hypoglycemia.

DUE TO THE MATERNAL and fetal demands for calcium during pregnancy, oral health care providers should ensure that pregnant women are receiving 1,000-1,300 mg/day of calcium supplementation.[1]

Neurophysiology

The most significant physiologic change related to the neurologic system is the 30 percent reduction in the minimum alveolar concentration as noted earlier. This is likely due to the increase in serum progesterone levels as a result of placental production. Additionally, there is a further decrease near term due to serum endorphins. The combination of a decreased minimum alveolar concentration and decreased functional residual capacity, plus the increase in minute ventilation, increases the likelihood of a pregnant woman unintentionally losing consciousness when inhalational analgesia is being administered. This must be taken into account when such treatment is administered during gestation.

Immunological Physiology

Pregnancy is a state of altered immune tolerance, a necessary variation to allow the fetus to grow and develop without being "recognized" and "rejected" by the maternal immune system. In fact, evidence is emerging that in some cases, recurrent miscarriage and perhaps hypertensive disorders of pregnancy may in part be due to maladaptation of the maternal immune system. The maternal immune system shifts its focus from cell-mediated immunity (T helper 1 and natural killer cells) to antibody-mediated immunity (T helper 2 and B cells), although this shift is not reflected in an increase in antibody concentrations in maternal circulation. The decreased cell-mediated immunity is associated with an increase in susceptibility to viral infections.[19]

Reduced resistance of the oral tissues to disease from a reduction in blood levels of immunoglobulins in the second half of pregnancy, often leads to increased colonization by oral pathogens with increased potential severe, sustained oral infection such as periodontal disease, for example. Despite the numerous and dramatic changes in the immune system during pregnancy, most pregnant women tolerate these changes without an increase in infectious complications.[20]

The remaining sections of the paper will focus on pharmacology and pregnancy, as well as the attendant physiological changes and their impact on pharmacokinetics. The authors will also focus on the use of

medications during pregnancy within the context of pharmacokinetic changes and fetal safety. It is important to emphasize that most drugs are poorly studied during pregnancy, and pregnancy is unique in that the medication taken by one person (the mother) may affect another (the fetus).

Pharmacology

Pharmacokinetics is the process involved in drug absorption, distribution, metabolism, and biotransformation, and excretion. Pharmacokinetics during pregnancy is unique as the maternal handling of drugs is altered by the normal physiological changes of pregnancy. Further, some drugs can be metabolized by the fetus and placenta. Physiologic changes during pregnancy influence plasma concentrations, half-lives, distribution, renal excretion, and hepatic metabolism of drugs. Concentrations of specific drugs may be higher than, equal to, or lower than those found in nonpregnant women. Consequently, a pregnant woman may have relatively too much or too little of a drug.

Drug use during pregnancy is common. In a survey of women from 22 countries, it was noted that the average women took 2.9 medications during pregnancy (range one to 15 drugs).[21] In a longitudinal survey from the United States, there was an average of 1.14 prescribed drugs to pregnant women excluding vitamins and iron. Pregnant women were noted to take an average of 2.95 over-the-counter drugs and fully 45 percent reported using herbal agents.[22] Drug compliance during pregnancy is also problematic as up to 50 percent of women either do not take their prescribed medications or discontinue therapy before receiving a full course.[23] This is most likely because women are concerned about teratogenic effects. Typically, women dramatically overestimate the risk of common agents, estimating the personal (fetal) risks as high as 25 percent. This value is greatly in excess of that associated with any common medication and indeed approaches that seen with a potent teratogen such as thalidomide. When counseling pregnant women about use of a specific medication in pregnancy, she should also be apprised that there is a 3-5 percent background risk of birth defects in the general population. This risk exists irrespective of whether she takes medications or not.

MOST DRUGS ARE poorly studied during pregnancy, and pregnancy is unique in that the medication taken by one person (the mother) may affect another (the fetus).

Pharmacology and Impacts on Pregnancy Physiology

Drug absorption during pregnancy is altered by physiological changes in the pulmonary, gastrointestinal, and vascular systems. Aside from the changes noted above in the pulmonary system, hyperventilation can lead to an increased rate of drug absorption across alveoli as well as play an increased role in drug and metabolite excretion. The increases in peripheral blood flow and plasma volume lead to increased absorption and distribution of topical agents during pregnancy. The gastrointestinal tract undergoes significant physiological changes during pregnancy that can have an impact on drug absorption. The appetite is increased and there is a need for an additional 300 kcal per day in the pregnant woman. This increase in caloric needs is often met by frequent snacking, which can have deleterious effects on the teeth.

Additionally, some women (especially those with nausea and vomiting) suffer from ptyalism, and up to 1-2 liters of saliva may be lost each day. Nausea and vomiting, which are not uncommon during pregnancy, can also lead to acid erosion of tooth enamel (perimylolysis), as well as to reduce drug absorption. This may be compounded by poor food choices (or limited food options) options in pregnancy, including fast food, simple and complex carbohydrate snacks, and high-calorie drinks.

Pregnancy causes a change in gastric orientation due to the intrathoracic displacement of the intrabdominal portion of the esophagus. This is associated with decreased tone and effectiveness of the lower esophageal sphincter, which can be associated with heartburn and reflux. The lower esophageal sphincter responsiveness to agonists is reduced, potentially related to the dramatic increase in serum progesterone concentrations during pregnancy. The stomach produces less hydrochloric acid during pregnancy, which in turn affects the ionization and absorption of drugs. Likewise, there is a delay in gastric emptying that can increase the bioavailability of slowly absorbed drugs and decrease peak plasma levels of rapidly absorbed drugs. The intestines demonstrate increased transit time as well as an increase in mucus production and decreased intestinal motility. Theoretically, these changes could lead to alterations in absorption related to slower transit time and longer exposure time of intestinal contents to the mucosa.

These changes could be beneficial in that they could allow more time for drug absorption or they could be detrimental in that they could be associated with bacterial overgrowth. Because the therapeutic

window for orally administered medications is usually wide, these physiologic changes typically do not significantly alter therapeutic effects.[24] These physiologic changes in the gastrointestinal tract are of significant consequence if oral health care providers are considering anesthesia during pregnancy. It is recommended that pregnant women who are greater than 18-20 weeks of gestation or have reflux symptoms be treated as "at risk" for pulmonary aspiration of gastric contents and be provided nonparticulate antacid prophylaxis. If general anesthesia is required, rapid sequence induction with cricoid pressure and intubation are suggested. Many anesthesiologists treat all pregnant patients as "at risk" for aspiration.

Changes of import in hepatic physiology during pregnancy include an increase in total body protein synthesis — an effect of the increased circulating estrogen levels. Among the proteins whose synthesis is increased are clotting factors and binding globulins. Despite increased protein synthesis, the accompanying increase in plasma volume leads to a decrease in the total protein concentration of approximately 25 percent at term, which, in turn, results in decreased protein binding of drugs and increased plasma concentrations of free (active) drugs. During gestation there is a slight decrease in serum cholinesterase (which is an extra-hepatic enzyme, also known as red blood cell cholinesterase) as well as a similar reduction in pseudocholinesterase.

Pseudocholinesterase is produced by the liver and degrades cholinester drugs. The reduction in pseudocholinesterase results in delays in metabolism of suxamethonium and could lead to prolonged paralysis after anesthesia when such a medication is used. Hepatic changes can alter the biotransformation of drugs by the liver and clearance of drugs by the maternal serum. Typically first-pass metabolism is generally thought to be unchanged. Second-pass metabolism is more dependent on liver enzymes and undergoes variable changes during gestation. The cytochrome P450 mono-oxygenase system is essential for hepatic metabolism of drugs. CYP1A2 is responsible of the hepatic elimination of about half of all drugs and is decreased during gestation. Other cytochromes are increased during gestation.

Changes in the renal system during pregnancy include an increase in the renal plasma flow of approximately 75 percent and in the glomerular filtration rate of 50 percent. This results in increased excretion of glucose, amino acids, calcium, and bicarbonate. The increase in glomerular filtration rate can be associated with increased excretion of water-soluble drugs such as penicillin G and the aminoglycosides. Typically these changes are not clinically significant so as to require an alteration in the drug dose.

Drug distribution is dependent on the amount of body water as it affects the "Vd" volume of distribution, the degree to which drug is bound to plasma proteins or body tissues and the presence of the fetal placental unit. Vd is increased for many drugs due to the increase in plasma volume, blood volume, cardiac output, total body water, and body mass associated with pregnancy. These changes may lead to decreased drug levels in the central compartment, decreased serum levels of drugs and necessitate larger loading doses. Increases in total body water affect primarily water-soluble (polar) drugs that tend to stay in the extracellular space.

TABLE 1

Effect of Physiologic Changes in Pregnancy on Drug Disposition

Pharmacokinetic Parameter	Change in Pregnancy
Absorption	
Gastric emptying	Increased
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

TABLE 2

United States Food and Drug Administration Pregnancy Drug Labeling

Category	Description
A	Controlled studies in pregnant women fail to demonstrate a risk to the fetus in the first trimester, and the possibility of fetal harm seems remote.
B	Animal studies do not indicate a risk to the fetus and there are no controlled human studies; or animal studies do show an adverse effect on the fetus, but well-controlled studies in pregnant women have failed to demonstrate a risk to the fetus.
C	Studies have shown the drug to have animal teratogenic or embryocidal effects, but no controlled studies are available in either animals or women.
D	Positive evidence of human fetal risk exists, but benefits in certain situations (e.g., life-threatening situations or serious diseases for which safer drugs cannot be used or are ineffective) may make use of the drug acceptable despite its risks.
X	Studies in animals or humans have demonstrated fetal abnormalities, or evidence demonstrates fetal risk based on human experience, or both, and the risk clearly outweighs any possible benefit.

Some lipid-soluble drugs, for example thiopental, have a longer half-life in the pregnant woman, whereas polar drugs (for example, ampicillin) tend to have a shorter half-life. Drugs and plasma can either be unbound (free) or bound to plasma proteins, primarily albumin or alpha1 acid glycoprotein. Alpha1 acid glycoprotein does not change during pregnancy.[25,26] For a summary of the influence of pregnancy on the physiologic aspects of drug disposition, see **TABLE 1**.

Many oral health professionals are concerned about the effects of medications that they may dispense during pregnancy. Teratogens are agents that act to irreversibly alter growth, structure or function of the developing embryo or fetus. Examples include viruses (rubella, CMV, congenital lymphocytic choriomeningitis virus) environmental factors (hyperthermia, irradiation), chemicals (mercury, alcohol), and therapeutic drugs (for example ACE inhibitors, thalidomide, isotretinoin, warfarin, valproic acid, tetracycline derivatives, and carbamazepine).

These drugs all reach the maternal bloodstream, thus exposure of and effect on the fetus depend upon several critical factors including gestational age, route of administration, absorption of the drug, dose of the medication, maternal serum levels, and the maternal and placental clearance system.

To cause a birth defect, a teratogen must act during the critical periods of embryonic or fetal development to induce to embryopathy or a fetopathy. Relevant to teratogenesis, pregnancy is divided into three periods. Preimplantation (fertilization to implantation) is known as the "all or nothing" period as injury to large number of cells may cause pregnancy loss; however, with lesser exposures compensation occurs and normal outcomes are to be expected. The embryonic period of pregnancy occurs between the second and the ninth week; organogenesis is thought to occur from the second to the eighth week. Weeks four through nine after the last menstrual period is the period of greatest vulnerability to the effects of teratogenic agents. The fetal period is that occurring from the ninth week of gestation until term.

The current U.S. Food and Drug Administration system of categorizing medications for use during pregnancy can be found in **TABLE 2**. This system is limited in its value, in large part because very few medications have been specifically tested in rigorously controlled trials in pregnant women. In **TABLE 3**, the authors have outlined common medications that the oral health care professional may use as well as have identified the teratogenic risk and the quality of the evidence involved. When counseling a pregnant woman about the potential use of a medication during gestation, she should be counseled that irrespective of whether she ingests a particular medication or not there is always a 3-5 percent "background" risk of her fetus having a major or minor malformation.

Aside from the potential for a specific fetal effect, dentists should also keep in mind that the neonatal abstinence syndrome is a common side effect when certain narcotic analgesics are used for a long period of time. Therefore, therapeutic benefit is associated with short-term use, if possible. Several excellent sites that may be used for questions about a specific medication include Reprotox (reprotox.org), Teris (depts.washington.edu/terisweb), and FDA (www.fda.gov/womens/registries/). If uncertainty exists about the specific use of medication during pregnancy, it is prudent to consult with an obstetrician/gynecologist or maternal-fetal medicine specialist. Likewise, women may require oral health care and medication treatment during the postpartum period, at which time they may be lactating. The above resources also provide excellent guidance regarding the relative safety of medication use during breastfeeding, although it is important to recognize that in many cases, there is even less data on medication safety in breastfeeding when compared to use during pregnancy. The World Health Organization maintains a useful document listing a wide variety of medications and their relative safety in breastfeeding (http://

CDA JOURNAL, VOL 38, Nº9

TABLE 3

Medications Commonly Prescribed by Oral Health Professionals

Agent	FDA Category	Teratogenic Risk	Quality of Evidence	Lactation Concerns
Antibiotics				
Penicillin and derivatives	B	None	Good	None
Amoxicillin / clavulanate	B	Unlikely; placental passage of clavulanate limited	Fair	None
Erythromycin	B	Minimal	Fair	None
Cephalosporins	B	Unlikely	Fair to limited	None
Fluoroquinolones	C	Unlikely; avoid in pregnancy due to toxicity to developing cartilage in animal studies	Fair	Possible concentration in milk
Tetracycline and doxycycline	D	Dental staining: moderate Malformations: unlikely	Good Fair to good	Low risk with short duration of use; low milk concentration
Analgesics				
Acetaminophen	B	None to minimal	Fair to good	None
Ibuprofen	B	Minimal; limit use to short courses and avoid use before 12 weeks and after 28 weeks	Fair to good	None
Naproxen	B	Minimal; limit use to short courses and avoid use before 12 weeks and after 28 weeks	Limited to fair	None
Oxycodone / acetaminophen (Percocet)	B	Undetermined; small risk cannot be excluded	Limited	Short courses not associated with adverse effects
Codeine (also codeine / acetaminophen)	C	Unlikely	Fair to good	Short courses not associated with adverse effects
Hydrocodone / acetaminophen (Vicodin)	C	Undetermined; small risk cannot be excluded	Limited	Short courses not associated with adverse effects; possible infant sedation with higher doses
Aspirin	C	Minimal; limit use to short courses and avoid use before 12 weeks and after 28 weeks	Good	Avoided; possible association with metabolic acidosis and Reye's syndrome
Lidocaine and related local anesthetics	B	None	Fair	Does not enter milk when administered for local anesthesia

Adapted from TERIS (www.depts.washington.edu/terisweb), REPROTOX (www.reprotox.org).

whqlibdoc.who.int/hq/2002/55732.pdf). Consultation with an obstetrician-gynecologist, pediatrician, or lactation consultant may be of additional value.

Summary

Throughout pregnancy, important changes occur in the mother that affect physiologic function, may exacerbate underlying disease processes, and have direct relevance to the safe provision of oral care for pregnant women. The fetus is potentially exposed to any medication provided to the mother; however, as outlined in **TABLE 3**, the majority of medications that a dentist or oral surgeon might prescribe are not associated with teratogenic effects or adverse effects of fetal growth and development. The authors recommend that:

- Oral health care professionals provide usual preventive dental care early in pregnancy;
- If oral cavity infection is present, it should be treated upon diagnosis, without regard to the stage of pregnancy, and with antibiotic therapy guided by best evidence (see **TABLE 3**);
- Local anesthetic agents can be applied either topically or by injection to the oral cavity without risk to the fetus; and
- Dental radiography can be performed at any stage of pregnancy with the use of abdominal shielding. ■■■■

REFERENCES

1. Boggess KA, Maternal oral health and pregnancy. *Obstet Gynecol* 111(4):976-86, 2008.
2. Gaffield ML, Gilbert BJ, et al, Oral health during pregnancy: an analysis of information collected by the pregnancy risk assessment monitoring system. *J Am Dent Assoc* 132(7):1009-16, 2001.
3. Silk H, Douglass AB, et al, Oral health during pregnancy. *Am Fam Physician* 77(8):1139-44, 2008.
4. Dellinger TM, Livingston HM, Pregnancy: physiologic changes and considerations for dental patients. *Dent Clin North Am* 50(4):677-97, 2006.
5. American Academy of Periodontology statement regarding periodontal management of the pregnant patient. *J Periodontol* 75(3):495, 2004.
6. Clark SL, Cotton DB, et al, Central hemodynamic assessment of normal term pregnancy. *Am J Obstet Gynecol* 161(6 Pt 1):1439-42, 1989.
7. MacGillivray I, Rose G, Rowe B, Blood pressure survey in pregnancy. *Clin Sci* 37:396, 1969.
8. Bonica JJ, McDonald JS, Principles and Practice of Obstetric Analgesia and Anesthesia, second ed., Williams & Wilkins: Baltimore, 2004.
9. Rosen MA, Management of anesthesia for the pregnant surgical patient. *Anesthesiology* 91(4):1159-63, 1999.
10. Toppozada H, Michaels L, et al, The human respiratory nasal mucosa in pregnancy. An electron microscopic and histochemical study. *J Laryngol Otol* 96:613-26, 1982.
11. Crapo RO, Normal cardiopulmonary physiology during pregnancy. *Clin Obstet Gynecol* 39(1):3-16, 1996.
12. Prowse CM, Gaensler EA, Respiratory and acid-base changes during pregnancy. *Anesthesiology* 26:381-92, 1965.
13. Becker DE, Rosenberg M, Nitrous oxide and the inhalation anesthetics. *Anesth Prog* 55(4):124-31, 2008.
14. Pritchard J, Changes in blood volume during pregnancy and delivery. *Anesthesiology* 26:393-9, 1965.
15. Fay R, Hughes A, Farron N, Platelets in pregnancy: hyperdestruction in pregnancy. *Obstet Gynecol* 61:238, 1983.
16. Bremme K, Haemostatic changes in pregnancy. *Best Pract Res Clin Haematol* 16(2):153-68, 2003.
17. United States Department of Agriculture, Dietary Reference Intakes for Calcium. Accessed April 26, 2010 at nal.usda.gov/fnic/DRI/DRI_Calcium/1-20.pdf. (Accessed July 2, 2010.)
18. Burrow GN, Fisher DA, Larsen PR, Maternal and fetal thyroid function. *N Engl J Med* 331(16):1072-8, 1994.
19. Adams KM, Shields LE, Maternal-Fetal Immunology. In: obstetrics – normal and problem pregnancies, Gabbe SG, Niebyl JR, Simpson JL (eds.), fifth edition, Churchill Livingstone Elsevier: Philadelphia, 2007.
20. Lawrence HP, Salivary markers of systemic disease: noninvasive diagnosis of disease and monitoring of general health. *J Can Dent Assoc* 68(3):170-4, 2002.
21. Larimore WL, Petrie KA, Drug use during pregnancy and lactation. *Prim Care* 27(1):35-53, 2000.
22. Glover DD, Amonkar M, et al, Prescription, over-the-counter, and herbal medicine use in a rural, obstetric population. *Am J Obstet Gynecol* 188(4):1039-45, 2003.
23. Butters L, Howie CA, Awareness among pregnant women of the effect on the fetus of commonly used drugs. *Midwifery* 6(3):146-54, 1990.
24. Blackburn ST, Maternal fetal and neonatal physiology: a clinical perspective, third ed., Saunders Elsevier: St. Louis, 2007.
25. Hale TW, Medications and mother's milk, 11th ed., Amarillo, Texas, Pharmasoft Medical, 2004.
26. Weiner C, Buhimschi C, Drugs for pregnant and lactating women, London: Churchill Livingstone, 2004.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Christian A. Chisholm, MD, Department of Obstetrics and Gynecology, P.O. Box 800712, Charlottesville, Va., 22908-0712.

You're a genius at taking impressions.

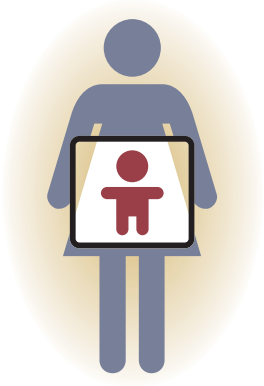
Let's work on raising that benefit plan I.Q.

Dentists are great at being dentists, but dealing with insurance companies? Not so much. Thankfully, there's a new Dental Benefit Plan Handbook free from CDA. This clever resource will make your staff experts at everything from verifying patient eligibility, filing claims, even preparing for quality assurance audits. It'll have your Accounts Payable running smarter than ever. And it's only on the Compass.

cdacompass.com | where smart dentists get smarter.™

cda PRACTICE SUPPORT CENTER SM

CDA JOURNAL, VOL 38, Nº9



Application of the Perinatal Oral Health Guidelines in Clinical Practice

IRENE HILTON, DDS, MPH

ABSTRACT While dental treatment during pregnancy is safe, pregnant women go to the dentist less frequently than women who are not pregnant. METHODS: Practical strategies to reduce barriers to care based on the guidelines are presented. RESULTS: Collaboration with perinatal providers is critical to refer pregnant women into dental care. Recommendations regarding timing of care, treatment sequence, and patient positioning will help providers deliver care. CONCLUSION: Practical implementation of the guidelines can increase access to dental care for pregnant women and improve the oral health of the pregnant woman and her child.

AUTHOR

Irene V. Hilton, DDS, MPH, is a clinical dentist at the San Francisco Department of Public Health.

ACKNOWLEDGMENT

The author thanks the HRSA Oral Health Disparities Collaborative for the development of the self-management goal tool shown in **FIGURE 1** through High Plains Health Center.

Dental care during pregnancy has been shown to be safe and pregnancy is not a reason to defer routine dental care or treatment of dental problems.[1] Despite this evidence, pregnant women receive dental care less frequently than the general female population.[2] Although finances and cost are important barriers, women with both private dental insurance coverage and Medicaid coverage utilize dental care more frequently when they are not pregnant than when they are pregnant.[3,4] Nationwide data from the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System, PRAMS, showed that 34.7 percent of women across four states had a dental visit while pregnant.[5] The California Maternal and Infant Health Assessment, MIHA, is an annual, statewide representative survey of women who recently gave birth to a live infant. The latest MIHA data shows California mirroring national trends with 35.1 percent of pregnant women having a dental visit in 2006. Of the women surveyed, 53.8 percent stated they had an oral health problem during pregnancy, but of those 62.3 percent did not visit the dentist while pregnant.[6]

There are multiple contributing factors to this lack of utilization of dental services at a time when medical care is generally being accessed on a regular basis. Patient-centered factors include attitudes toward dental care and especially dental care

CDA JOURNAL, VOL 38, Nº9

while pregnant.[7] Women have concerns regarding certain aspects of dental care and do not necessarily verbalize those concerns to their perinatal providers. Preliminary analysis of PRAMS qualitative data shows that some women may believe that poor oral health status during pregnancy is normal; also, they may fear certain aspects of dental care during pregnancy.[8] Additionally, pregnant women may have low awareness of the importance of maternal oral health and its relationship to their infant's long-term oral health.[9]

Perinatal providers may lack knowledge about the importance of a pregnant women's oral health status on general health and quality of life, as well as the impact on the future oral health of her infant. Perinatal providers unfamiliar with these connections do not perform routine assessment and referral of pregnant women into dental care, and may not have enough information to provide a rationale to pregnant women why attending dental visits is important.[10]

Dentists may be reluctant to provide comprehensive dental treatment to pregnant women. Insufficient training combined with a lack of experience in treating pregnant women during dental school does not instill confidence toward treating pregnant women. In a survey of Oregon dentists, 41.5 percent of respondents said they were concerned about being sued if something went wrong with a patient's pregnancy.[11] The perception amongst ob-gyns is that dentists are reluctant to treat pregnant women.[12] A recent survey of dentists and ob-gyns in Ohio revealed that among dentists, the most common reasons for hesitation in treating pregnant patients were concerns about the safety of procedures, followed by patient perceptions of risk and malpractice concerns. The obstetricians when asked to indicate their perceptions of dentist's hesitation to treat pregnant patients cited the same concerns.[13]

Surveys show there is a desire among both dentists and ob-gyns for professional guidelines and education to assist in providing care.[11,13] The first set of evidence-based guidelines disseminated on a national level was the New York State guidelines.[14] The New York guidelines were developed as a reaction to a fetal fatality resulting from maternal kidney failure as a result of excessive acetaminophen ingestion for an untreated dental abscess. California's "Oral Health During Pregnancy and Early Childhood: Evidence-based Guidelines for Health Professionals" (hereafter referred to as the "guidelines") have been developed to give pregnant women, perinatal providers, and dental providers the information needed to increase access to care by increasing demand for service, facilitating the exchange of information and referral, and providing evidence-based clinical guidelines for dental care that improves pregnant women's oral health and provides a foundation for optimal oral health for her child.

PREGNANT WOMEN MAY have low awareness of the importance of maternal oral health and its relationship to their infant's long-term oral health.

Guidelines are meaningless if they are not translated to everyday clinical use. Presented here are the key elements of the guidelines and discussion on how to develop practical applications in the private practice and safety-net dental setting in the following areas: educating perinatal providers about the importance of oral health, developing a referral system for perinatal patients that facilitates access and information exchange, incorporating preventive dental care activities into dental practice, and dental treatment considerations to deliver appropriate treatment that is comfortable for both patient and provider.

Educating Perinatal Providers

The guidelines contain a section targeted toward perinatal care professionals. Since it is not guaranteed that perinatal providers in a given community understand perinatal oral health, it is an excellent topic from which to initiate or improve professional medical-dental collaboration. Every community is different so the first step might be for the appropriate committee of the component dental society or the local safety-net dental providers to identify the primary perinatal providers in the community, which could include obstetricians, family practitioners, nurse-midwives, and nurse practitioners. Some communities have perinatal consortiums composed of the local perinatal providers that serve low-income women while others may have only one site that provides perinatal services such as Kaiser, a county hospital, or an ob-gyn group. These providers may be interested in learning more about how oral health impacts their perinatal patients. This provides an opportunity to educate perinatal providers by introducing them to the guidelines.

The key roles of the perinatal provider include asking a woman if she has a current source of dental care and assessing current oral health status. The perinatal provider should already have been made familiar with the sources of dental care available to women with private and pub-

lic insurance so that any woman without a regular source of dental care can be directed to the proper dental providers.

Another critical aspect is for the perinatal provider to ask the woman if she has any concerns about receiving dental care while pregnant. Many women receive referrals or even have dental appointments arranged by the perinatal office, yet never attend the dental visit because of concerns they do not share with the perinatal provider unless asked. The perinatal provider can begin to highlight the impact of the mother's oral health on the child, a message that will be reinforced in the dental setting, encouraging the mother to seek and complete needed dental care.

Lastly, a perinatal provider can begin introducing prevention concepts. Encouraging the consumption of fluoridated water (if available) and twice-daily brushing with fluoridated toothpaste are preventive actions that will improve both the mother and child's oral health.

Referral of Perinatal Patients

The guidelines contain a sample referral from the perinatal provider to the dental office. Although a medical consult is not required for dental treatment in a normal pregnancy, dentists may feel more comfortable knowing the perinatal provider is aware of the other health care services the patient is receiving. Referral forms can be faxed between offices and clinics and/or given to patients. The sample form features check boxes for all elements based on feedback from perinatal providers. Another key feature is the consult completion section. To close the referral loop, dentists should complete the bottom part of the form and fax it back to the perinatal provider, who can become your partner in encouraging the patient to complete needed treatment, or in reinforcing compliance with the preventive recommendations if noted.

The highest levels of referral are obtained when women are assisted in making dental appointments. Perinatal offices frequently make appointments for ultrasounds and other services for patients and a dental visit is viewed as another referral. Dental offices upon receiving referrals from perinatal providers can call patients to set up visits, an approach already used by some dental specialists.

It must be noted that in California, a pregnant woman with private dental insurance coverage and her dental provider have the option, for whatever reason, to delay treatment assuming coverage will still be in place postpartum. The reality is that for low-income women, the perinatal period is the only time in their lives when they may have access to any level of dental insurance coverage, in this case public Denti-Cal coverage (Medicaid). Denti-Cal coverage ends approximately two months after delivery, resulting in a limited window of opportunity in which to provide needed care and deliver preventive interventions.

THE PERINATAL PROVIDER can begin to highlight the impact of the mother's oral health on the child, a message that will be reinforced in the dental setting,

Preventive Dental Care

Pregnancy provides a unique opportunity to deliver oral health preventive information and services that will benefit the women and her family. As stated in the guidelines, the basis for developing the appropriate preventive approach is the risk assessment. Sample risk assessments are found in the guidelines' appendices. The risk assessment will point out the lifestyle and behavior changes a woman can make to lower her risk of dental caries and periodontal disease. Many of these habits and decisions will also impact her child's oral health.

Many preventive activities should be appropriately delegated. Completing the risk assessment form with the patient, demonstrating self-care skills, and lifestyle and behavior interventions can be provided by trained dental team members.

Educating women about the impact of their own oral health on their child in the future is a powerful tool. Most women are unaware of the transmissible nature of dental caries infection and do not understand the role of diet on the caries process. During pregnancy a woman is open to hearing positive health messages and making lifestyle changes. How information is presented is critical. Behavioral approaches that determine readiness for change are more appropriate than just telling the patient what to do.

A sample take-home tool for pregnant patients to be used in helping patients decide which risk reducing changes they are ready to make at that moment is shown in **FIGURE 1**. The October and November 2007 issues of the *Journal of the California Dental Association* highlighting caries management by risk assessment, CAMBRA, featured a similar tool for early childhood caries prevention. For example, after completing the risk assessment it is determined that the patient has several untreated carious teeth and drinks bottled water and two cans of soda per day. After learning how soda contributes to dental caries and that the tap water is safe and contains fluoride to make teeth stronger, the patient is asked if she feels she can make these changes. The patient decides that between now

Perinatal Oral Health Action Plan/ Self-Management Goals

Name

DOB

MRN

PCP

Select Two Goals

Quit bad habits

Brush twice a day with fluoride toothpaste

No soda

Rinse after morning sickness

Less/no candy and junk food

Floss nightly

Complete dental treatment

Chew xylitol gum/mints

Use fluoride rinse/gel regularly

Take prenatal vitamins daily

Eat better

Drink tap water

FIGURE 1. A sample take-home tool for pregnant patients.

and the next dental visit for restorative care she will reduce her soda intake. This is noted for the patient on the take-home sheet and in the chart, and compliance will be assessed at the next visit.

When selecting health education materials for pregnant women, the characteristics of the dental practice and the community it serves are important. Perinatal oral health DVDs can be shown in the waiting room or in dental treatment rooms. Patient education pamphlets are generally available in English and Spanish from several websites listed in the guidelines' appendices. Having materials that are appropriate to the literacy level, language, and culture of the patient is critical to reinforcing the verbal message.

Pregnant women identified at high risk for dental caries can benefit from additional strategies to reduce bacterial load as mentioned in the guidelines. All women, especially high-risk women can benefit from drinking fluoridated water and using fluoridated toothpaste and rinses. Prescribed topical fluoride may be a covered benefit for some patients but others may not be willing or able to pay for this treatment. Antimicrobials such as xylitol and chlorhexidine can be difficult to obtain for some patients. Xylitol-containing products are readily available on the Internet or in health food stores, but patients must self-pay. Dental offices may consider buying xylitol products in bulk and dispensing at cost. Safety-net providers may consider applying for grants to purchase and dispense these products to low-income patients. Prescribing chlorhexidine mouthrinse may require preauthorization under public insurance plans; however, some offices routinely have patients use chlorhexidine in-office before dental procedures to reduce aerosol bacterial loads.

Preventive approaches are especially important for low-income women because dental insurance benefits will be lost postpartum. Therefore, it is important to take advantage of the window of opportunity afforded to us to introduce and encourage behaviors that will lead to improved oral health.

Dental Treatment Considerations

With very simple modifications, dental treatment can be comfortable for both patient and provider throughout pregnancy. Adding the time from when a woman misses her first menstrual cycle, makes a pregnancy test appointment, and attends a follow-up initial perinatal evaluation where the provider will suggest a dental referral, the woman can easily be into the third month of pregnancy by the time she initially presents at the dental office. Although morning sickness may no longer be an issue, each woman may feel better at different times of the day throughout the pregnancy. The techniques suggested by some practice management consultants of presenting the specific date and time of the next appointment is not as pregnancy-friendly as asking "What time of day do you feel best coming in for a cleaning/filling?"

HAVING MATERIALS
that are appropriate to the literacy level, language, and culture of the patient is critical to reinforcing the verbal message.

When developing the treatment plan sequence, consider the location of needed work. While treatment can be delivered in any quadrant at any time, if possible, treatment can be provided in the upper posterior quadrants first, before the lower and anterior teeth, while the patient can still be lowered back comfortably in the dental chair. In the later months, treatment can be more comfortably delivered (for both patient and provider) in the upper anterior region with the provider standing behind the patient. Treatment on the lower arch can be provided in the traditional sitting position all during pregnancy.

Postural hypotensive syndrome is mentioned in the guidelines and is a clinical concern. Any woman in the last trimester or who is no longer sleeping face up at home should be seated with a small pillow or rolled up jacket under her hip to maintain open circulation of the large blood vessels. If a woman reports feeling dizzy, faint, cold, or has chills, have her lay on her side in the dental chair, cover her with a blanket or coat and wait a few minutes. Remember the symptoms are caused by the weight of the fetus cutting off the returning venous circulation through the inferior vena cava. Turning the patient on her side will relieve the pressure and restore circulation.

Most women at all stages of pregnancy can tolerate routine dental appointments of 30-45 minutes in length if attention is paid to postural concerns. Later in the pregnancy, longer procedures such as root canals may necessitate more frequent restroom breaks and postural changes to complete treatment.

Discussion

There are successful examples of local programs that have created integration between dentists and perinatal providers and increased access to dental care for pregnant women. Following the release of the New York perinatal guidelines in 2006, several innovative programs were developed in New York to implement the

recommendations and increase access to care. These programs highlight some of the successes and challenges of implementing perinatal collaboration.[15] Positive outcomes included that once educated, perinatal providers were extremely receptive to the information provided. Private practice providers found that the women referred, who were all low-income, were highly motivated and appreciative. The cancellation and no-show rates for program participants were not significantly different from fee-for-service patients.

Challenges included the inability to get sufficient numbers of private practice providers to accept all program participants. Other challenges related to insurance. Perinatal providers saw patients before Medicaid insurance coverage was active, while dentists sometimes had to wait several months before coverage was activated and program participants could be treated.

Another collaborative program in Oregon targeted a county in which more than 50 percent of perinatal patients were Medicaid beneficiaries.[16] The program reached all three members of the treatment triad, providing training and education to both dentists and perinatal providers and case management to patients in order to increase access to care. Clinically, the program focused on prevention, dispensing fluoride, and xylitol products directly to pregnant women.

The philosophies of the participants involved in planning these local programs are that interdisciplinary professional partnerships are key to improving oral health and services for mothers and children, and that communities with well-developed perinatal systems provide an opportunity for dental professionals to build partnerships.

Other pertinent studies have looked at preferences in receiving information. A survey of pregnant Minnesota women with public and private insurance showed that 68 percent of the women preferred receiving oral health information by mail, compared to 34.4 percent who favored face-to-face individual encounters.[17] Respondents also favored infant-specific topics to topics that concerned both the mother and infant, implying that one way to interest pregnant women to address their own self-care would be to highlight the impact of their oral status on their child. A small study assessing the impact of a lecture on children's oral health knowledge to pregnant women from vulnerable black and Hispanic of Mexican origin populations, showed that while one session increased oral health knowledge from baseline for both groups, there were differences in the areas of deficient knowledge that varied by racial/ethnic group, providing support for the need to tailor interventions.[18]

Education and training of perinatal providers on oral health and pregnancy is increasing. For example, oral health competencies, including perinatal, have been incorporated into family medicine residency programs. Articles discussing oral health and pregnancy have been appearing in both medical and nursing journals.[19-21]

Dentists also need to be made aware of the most recent evidence regarding the safety of providing treatment to pregnant women. Data from the Obstetrics and Periodontal Therapy (OPT) trial showed that women receiving fillings, extractions, and root canals during the second trimester of pregnancy did not experience adverse birth outcomes at higher rates than women who did not require these treatments.[1] The much larger Maternal Oral Therapy to Reduce Obstetric Risk (MOTOR) trial also showed that women receiving anesthesia and root planing during the second trimester did not incur higher rates of adverse birth outcomes than women who did not receive treatment.[22] The guidelines do not restrict treatment to the second trimester, but recommend dental care throughout pregnancy.

Conclusion

As dental professionals, our duty is to deliver needed care to all patients. Pregnant women are experiencing a normal biological state and ethically deserve the same level of care as any other patient. Whereas in the past, lack of knowledge and anecdotal concerns may have influenced dental practice, we now have an evidence base that not only shows that appropriate dental care is necessary during the perinatal period, but that it is safe.

Dental professionals have a wonderful opportunity to collaborate with our medical colleagues and women and their families to ensure access to services that will improve oral health in our communities. ■■■■

REFERENCES

1. Michalowicz BS, DiAngelis AJ, et al, Examining the safety of dental treatment in pregnant women. *J Am Dent Assoc* 139(6):685-95, June 2008.
2. Jiang P, Bargman EP, et al, A comparison of dental service use among commercially insured women in Minnesota before, during and after pregnancy. *J Am Dent Assoc* 139(9):1173-80, September 2008.
3. Iida H, Kumar JV, Radigan AM, Oral health during perinatal period in New York state. Evaluation of 2005 pregnancy risk assessment monitoring system data. *N Y State Dent J* 75(6):43-7, November 2009.
4. Thoele MJ, Asche SE, et al, Oral health program preferences among pregnant women in a managed care organization. *J Public Health Dent* 68(3):174-7, Summer 2008.
5. Gaffield ML, Gilbert BJ, et al, Oral health during pregnancy: an analysis of information collected by the pregnancy risk assessment monitoring system. *J Am Dent Assoc* 132(7):1009-16, July 2001.
6. Marchi KS, Fisher-Owens SA, et al, Most pregnant women do not receive dental care: Findings from a population-based study. *Public Health Reports*, in press, November/December 2010.
7. Al Habashneh R, Guthmiller JM, et al, Factors related to utilization of dental services during pregnancy. *J Clin Periodontol* 32(7):815-21, July 2005.

8. Ressler-Maerlender J, Krishna R, Robison V, Oral health during pregnancy: current research. *J Womens Health* 14(10):880-2, December 2005.
9. Cruz GD, Roldós I, et al, Community-based, culturally appropriate oral health promotion program for immigrant pregnant women in New York City. *N Y State Dent J* 71(7):34-8, December 2005.
10. Morgan MA, Crall J, et al, Oral health during pregnancy. *J Matern Fetal Neonatal Med* 22(9):733-9, September 2009.
11. Huebner CE, Milgrom P, et al, Providing dental care to pregnant patients: a survey of Oregon general dentists. *J Am Dent Assoc* 140(2):211-22, February 2009.
12. Rayburn WF, Phelan ST, Promoting healthy habits in pregnancy. *Obstet Gynecol Clin North Am* 35(3):385-400, viii, September 2008.
13. Strafford KE, Shellhaas C, Hade EM, Provider and patient perceptions about dental care during pregnancy. *J Matern Fetal Neonatal Med* 21(1):63-71, January 2008.
14. Kumar J, Samelson R, eds, Oral Health Care During Pregnancy and Early Childhood: Practice Guidelines. Albany, NY: New York State Department of Health, 2006. http://www.health.state.ny.us/publications/0824.pdf. (Accessed July 20, 2010.)
15. Kerpen SJ, Burakoff R, Improving access to oral health care for pregnant women. A private practice model. *N Y State Dent J* 75(6):34-6, November 2009.
16. Milgrom P, Ludwig S, et al, Providing a dental home for pregnant women: a community program to address dental care access — a brief communication. *J Public Health Dent* 68(3):170-3, Summer 2008.
17. Thoele MJ, Asche SE, et al, Oral health program preferences among pregnant women in a managed care organization. *J Public Health Dent* 68(3):174-7, Summer 2008.
18. Kaste LM, Sreenivasan D, et al, Pediatric oral health knowledge of African American and Hispanic of Mexican origin expectant mothers. *Pediatr Dent* 29(4):287-92, July-August 2007.
19. Murphey C, Rew L, Three intervention models for exploring oral health in pregnant minority adolescents. *J Spec Pediatr Nurs* 14(2):132-41, April 2009.
20. Silk H, Douglass AB, et al, Oral health during pregnancy. *Am Fam Physician* 15;77(8):1139-44, April 2008.
21. Russell SL, Mayberry LJ, Pregnancy and oral health: a review and recommendations to reduce gaps in practice and research. *MCN Am J Matern Child Nurs* 33(1):32-7, January-February 2008.
22. Offenbacher S, Beck JD, et al, Maternal oral therapy to reduce obstetric risk (MOTOR) investigators. Effects of periodontal therapy on rate of preterm delivery: a randomized controlled trial. *Obstet Gynecol* 114(3):551-9, September 2009.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Irene V. Hilton, DDS, MPH, Silver Avenue Family Health Center, 1525 Silver Ave., San Francisco, Calif., 94134.

Foundation

Creating smiles...changing lives.

The CDA Foundation would like to thank our corporate philanthropic supporters:

- Henry Schein, Inc.
- The Dentists Insurance Company
- Olympic Dental & Medical Devices
- Star Refining
- Sun Dental Studio
- Demandforce
- Medelita
- Dental Specialist Info
- Ultradent Products, Inc.
- McKenzie Management
- ProSites
- 3M ESPE Dental Products

Thank you

CDA JOURNAL, VOL 38, Nº9

The Oral Health Conditions of the Homeless in Downtown Los Angeles

HAZEM SEIRAWAN, DDS, MPH, MS; LAURA KATHLEEN ELIZONDO, DDS; NIEL NATHASON, MPH, MS; AND ROSEANN MULLIGAN, DDS, MS

ABSTRACT The aim of this study is to evaluate a community health project serving the homeless and to assess their oral health. Clinical charts of 1,088 patients were evaluated. The prevalence of untreated caries was 58 percent among adults with a mean of 6.3 decayed teeth. Homeless individuals are in great need of restorative, surgical, and periodontal dental procedures. Community health projects are important in assessing and improving the oral health of the underserved homeless population.

AUTHORS

Hazem Seirawan, DDS, MPH, MS, is a research assistant professor, Division of Pediatric Dentistry and Dental Public Health, University of Southern California, School of Dentistry, Los Angeles.

Laura Kathleen Elizondo, DDS, is an assistant professor of clinical dentistry, Division of Pediatric Dentistry and Dental Public Health, University of Southern California, School of Dentistry, Los Angeles.

Niel Nathason, MPH, MS, is an assistant professor of clinical dentistry and assistant dean for Community Health Programs, Division of Pediatric Dentistry and Dental Public Health, University of Southern California, School of Dentistry, Los Angeles.

Roseann Mulligan, DDS, MS, is professor and division chair, Division of Pediatric Dentistry and Dental Public Health, University of Southern California, School of Dentistry, Los Angeles.

ACKNOWLEDGMENT

The authors would like to acknowledge and thank the exemplary dentists who have taken time from their professional and personal lives to volunteer at our clinic. Their dedication and commitment to our patients and students has illustrated the philanthropic nature of the dental profession. Our community service programs for the indigent are supported solely through the assistance of volunteers, donations, and grants. Please contact us if you can help as a dental volunteer or a financial supporter.

It is estimated there are more than 68,000 homeless people in Los Angeles County. Of that figure, more than 22,000 are in metro Los Angeles and many are concentrated in the 50-square block area known as Skid Row.[1] Homeless people represent approximately 1.5 percent of Los Angeles County's total population with less than one-fifth of the county's homeless (17 percent) temporarily housed in shelter facilities.[1] About one-third of the homeless are between 41-50 years old (34 percent) and are adult males (59 percent) with children comprising 15 percent of the total.[1] Most of the homeless in the county are black (50 percent), followed by Hispanics (24 percent), and whites (19 percent).[1]

Access to health care is vital to one's well-being. While many Los Angeles County residents struggle with the high costs of health care, homeless residents are particularly vulnerable to multiple unique challenges regarding their health. About a quarter (24 percent) of homeless individuals in a given year report the need of medical care but an inability to receive it. More than that, nearly half of the homeless (48 percent) seek their medical care in hospital emergency rooms, and about 12 percent seek care from a free or community clinic. About one-half of the homeless (52 percent) suffer from depression and about one-third of them (31 percent) experience other mental illnesses.[1]

It has been postulated that the establishment and maintenance of good oral health should be a priority in helping homeless adults return to the workforce and resume productive roles in society; yet, there are few studies that describe the status of oral health conditions of homeless people and clearly document the extent of need.[2,3] Those reports that have been published have been consistent in describing the suffering of the homeless due to poor oral health conditions and lack of access to dental care, and recommending that more accessible dental services need to be designed for homeless people.[2-8] To help in the rehabilitation of homeless individuals and to lessen the impact

CDA JOURNAL, VOL 38, Nº9

of poor oral health conditions on their quality of life, the University of Southern California and the Union Rescue Mission (URM) established a community clinic to improve and maintain the oral health of the homeless in downtown Los Angeles.

In this study, the authors attempted to describe the development of the USC+URM Dental Clinic, to illustrate its success as a model of a community-campus partnership developed to improve the access of dental care among the homeless population, as well as demonstrate the oral health conditions of the homeless visiting this clinic.

Methods

Oral health concerns about the URM shelter clients were first brought to the attention of USC's School of Dentistry community faculty by URM administrators. The concerns voiced were that the URM rehabilitation program clients were suffering from pain due to untreated oral infections and as a result of the individuals' inability to "stay clean" of alcohol or other drugs, a critical aspect to their continuous enrollment in the URM rehabilitation program. Their attempts to self-medicate to deaden the pain ultimately caused them to be in violation of the tenets of the rehab program, and thus were dismissed from the program. At that time of the initial discussion, the URM was providing the clients with shelter, food, clothing, medical care, mental health counseling, recovery programs, and job training, but not oral health care. They determined oral health services to be a sorely unmet need that had a significant impact on the overall success/failure rate of the rehabilitation effort.

As a result, the USC School of Dentistry and URM collaborated to build the USC+URM Dental Clinic inside the URM facility, which became a reality in 1999 after five years of careful planning, fundraising, and negotiations with the city government for ordinance waivers. The clinic operates five full days a week, and recently, the clinic expanded from six to eight chairs due to the increasing unmet needs. Today, it remains fully operational and has expanded its services beyond caring for the clients at URM to include the provision of comprehensive dental care to clients referred from rehabilitation programs located in numerous missions and shelters in the Skid Row area in downtown Los Angeles, as well as offering emergency dental services for the homeless on the streets, and referred from more than 30 social service and assistance agencies.

THEY DETERMINED ORAL health services to be a sorely unmet need that had a significant impact on the overall success/failure rate of the rehabilitation effort.

In the planning stage of the USC+URM clinic, the authors considered many of the administrative and clinical considerations cited in the literature in establishing a shelter-based dental clinic.[9] For example, the authors considered barriers to dental care and identified and developed resources. Later, the authors addressed those considerations in the implementation and evaluation of the clinic. Notably, the clinic is free to patients (addressing the cost barrier), located in Skid Row (addressing the transportation barrier), and staffed by Spanish-speaking employees (addressing the predominant language barrier). The clinic is coordinated and staffed by faculty, dental assistants, dental students, and dental hygiene students from the USC School of Dentistry. The clinic provides both comprehensive and emergency care to patients. Treatment plans are developed by the dental students and must be approved by the dental faculty. Although all care was rendered free to the homeless patients, fixed crown and bridge work, and cast partial dentures were not treatment planned due to laboratory materials and fabrication costs.

Homeless people present the dental profession with difficult challenges in the delivery of oral health care.[9] Therefore, the authors developed eligibility criteria whereby homeless individuals seen at the USC+URM Dental Clinic must fulfill certain requirements in order to qualify for comprehensive dental care at the clinic. Generally speaking, the potential patients need to be in rehabilitation programs at URM or other qualifying missions/agencies for a minimum of 90 days (emergency care excepted). This requirement ensures better compliance and continuity of care, and also actually acts as an incentive for clients in promoting life changes. Compliance with health care can be hampered due to the social conditions of street life.[2] By being in a more "controlled" environment such as one of the appropriate missions/agencies, case managers can facilitate communication and act as agency contacts. Additionally, the problem of noncompliance is reduced. Other challenges to oral health care for the homeless include financial difficulties and transportation problems. These are resolved since the USC+URM Dental Clinic is a free clinic and the patients reside either in the URM or close by at the other qualifying missions/agencies.

TABLE 1

Sociodemographic Characteristics of URM Patients

Characteristics		N	%
Age	0-17	74	18.09
	18-39	78	19.07
	40-49	131	32.03
	50-59	92	22.49
	60-69	28	6.85
	70-79	6	1.47
Gender	Female	92	22.49
	Male	317	77.51
Race	Black	202	49.39
	Asian	7	1.71
	White	62	15.16
	Hispanic	126	30.81
	Other	12	2.93
Total		409	100.00

This study investigated the oral health conditions of the "regular" patients at the USC+URM Dental Clinic. "Regular" patients are defined as those patients for whom a comprehensive dental exam was performed and a completed dental treatment plan was made (i.e., versus emergency patient).

Statistical Methods

The data was downloaded from AxiUm (Exan Academic), the electronic dental record system utilized by the USC School of Dentistry then transported to SAS version 9.1 for data management and statistical analyses. Descriptive statistics were generated and reported appropriately. Chi-square, Wilcoxon and Kruskal-Wallis tests were used to investigate whether the prevalence and severity of untreated caries was statistically significantly different by the age categories, gender, or race. A generalized linear regression model was used to study the association between age and missing teeth. The study received an approval from the USC Institutional Review Board.

Results

The clinic examined 1,088 patients during 2006. Of that figure, 409 patients were classified as "regular" patients and 679 (or 62 percent) were classified as emergency patients. The authors present in this paper only the analyses of the "regular" patients. The patients had a mean age of 39 years (SD=17) ranging from 2 to 79 years old. Children under the age of 18 comprised 18 percent of the patients. The majority of the patients were in the age ranges of 40-49 (32 percent) and 50-59 (22 percent), with an additional 8 percent at least 60 years old. Most of the patients were males (78 percent). About half of the patients were black (49 percent) and about one-third of them were Hispanic (31 percent) (TABLE 1). The sample was not equally distributed by age, gender, or race. For example, the majority of adult patients were male patients with the majority of white and black patients being in the age group 40-49 years (42 percent and 43 percent, respectively), while the majority of Hispanic patients were children (48 percent) (TABLE 2). The prevalence of diabetes, hepatitis, and high blood pressure were 8 percent, 8 percent, and 15 percent, respectively in the authors' sample (data not displayed); with the prevalence of depression being 10 percent, and 8 percent of the sample undergoing treatment for mental health conditions.

The mean number of clinic visits by the patients was 9.3 visits (SD=6.1); and the mean number of procedures per visit was 2.7 procedures (SD=1.9). Compared to males, females had a statistically significantly lower mean number of visits but higher mean number of procedures per visit than did the males (6.8 versus 10.0 and 3.0 versus 2.7, respectively, both $p<.001$). There were no statistically significant differences between whites and other races in the mean number of visits or the mean number of procedures per visit (9.7 versus 9.2 and 2.8 versus 2.7, respectively). This cohort of patients missed 367 appointments out of 3,786 scheduled appointments, which is about a 10 percent cancellation or no-show rate. The authors conjecture that this rate may be reflective of the patients' low awareness of the importance of oral health.

Oral health instructions were provided more to male than to female patients (84 percent versus 63 percent) and more to adults than to children patients (99 percent for those between 18 and 39 years old versus 38 percent for children). Hispanic patients were provided fewer oral health instructions than white and black patients (65 percent versus 84 percent and 86 percent, respectively). Sealants were provided to 72 percent of the children with a mean of 4.6 sealants per child, and were provided more to female than to male patients (31 percent versus 11 percent), and more to Hispanic than to black patients (39 percent versus 4 percent). Amalgam or composite restorations were provided more to male than to female patients (58 percent versus 50 percent). These resto-

CDA JOURNAL, VOL 38, Nº9

TABLE 2

Cross-Tabulation of URM Patients by Age, Gender, and Race

Characteristics		Age Group						Female	Male
		0-17	18-39	40-49	50-59	60-69	70-79		
	N	36	13	21	16	4	2		
Female	row %	39.13	14.13	22.83	17.39	4.35	2.17		
	col %	*48.65*	*16.67*	*16.03*	*17.39*	*14.29*	*33.33*		
	N	38	65	110	76	24	4		
Male	row %	11.99	20.50	34.70	23.97	7.57	1.26		
	col %	*51.35*	*83.33*	*83.97*	*82.61*	*85.71*	*60.67*		
	N	9	23	87	61	19	3	32	170
Black	row %	4.46	11.39	43.07	30.20	9.41	1.49	15.84	84.16
	col %	*12.16*	*29.49*	*66.41*	*66.30*	*67.86*	*50*	*34.78*	*53.63*
	N	3	2	2	0	0	0	4	3
Asian	row %	42.86	28.57	28.57	0	0	0	57.14	42.86
	col %	*4.05*	*2.56*	*1.53*	*0*	*0*	*0*	*4.35*	*0.95*
	N	1	15	26	16	4	0	6	56
White	row %	1.61	24.19	41.94	25.81	6.45	0	9.68	90.32
	col %	*1.35*	*19.23*	*19.85*	*17.39*	*14.29*	*0*	*6.52*	*17.67*
	N	60	35	12	12	4	3	47	79
Hispanic	row %	47.62	27.78	9.52	9.52	3.17	2.38	37.30	62.70
	col %	*81.08*	*44.87*	*9.16*	*13.04*	*14.29*	*50*	*51.09*	*24.92*
	N	1	3	4	3	1	0	3	9
Other	row %	8.33	25.00	33.33	25.00	8.33	0	25.00	75.00
	col %	*1.35*	*3.85*	*3.05*	*3.26*	*3.57*	*0*	*3.26*	*2.84*

rations were more frequent in the age group 18-39 where they were provided to 73 percent of the patients. White patients were less likely to receive those restorative procedures than Hispanic (50 percent versus 63 percent, respectively) (TABLE 3).

Endodontic procedures were more frequent in the age group of 40-49, where they were provided to 18 percent of the patients. More than half (57 percent) of the patients in the age group of 60-69 had received either a complete maxillary or mandibular denture, or both. The differences were not noticeable by gender, but white and black patients received more dentures than Hispanic patients (18 percent and 21 percent versus 8 percent, respectively). Those in the age range of 50-59 had greater need for partial dentures (28 percent) than any other age group. Again, Hispanic patients were less likely to receive a partial denture compared to white and black patients (8 percent versus 13 percent and 20 percent) (TABLE 3). More men received quadrant scaling and root planing treatments than women (60 percent versus 33 percent), as did white and black patients (both at 60 percent) than Hispanic patients (40 percent). Simple extractions or root removal occurred most frequently in the age group of 40-49 (319 extractions) but was provided to a higher percentage of patients in the age group of 50-59 (58 percent), with an overall mean of 1.75 extractions per patient (TABLE 3).

The mean number of missing teeth (for any reason) was 16 among adults and was not different by gender. However, it was different by age ($P<.001$) and race ($P=.009$). The mean number of missing teeth was the highest in the age category of 60-69 (17.4), and among black adults (13.5) compared to whites and Asians (both at 10.3). Hispanic adults had the lowest number of 8.9 missing teeth. On average adults lost 0.40 teeth per year ($P<.001$) (data not shown).

Overall, this clinic provided 1,334 restorations as a part of comprehensive treatment plans in 2006. The authors estimate the overall (among those who are edentulous or dentate) prevalence of untreated caries to be 58.9 percent (63.5

TABLE 3

Numbers of Significant Procedures Provided and Percentages of URM Patients Received These Procedures (at Least Once) by Sociodemographic Characteristics

Characteristics	N	Oral Health Instructions	Sealants	Amalgam or Composite Restorations	Endo Treatment	Perio Treatment	Complete Dentures	Partial Dentures	Surgery
Total	409	948 (79.22)	364 (15.4)	1334 (56.48)	75 (13.2)	926 (53.79)	119 (15.89)	82 (14.43)	714 (45.23)
Age									
0-17	74	29 (37.84)	340 (71.62)	164 (59.46)	4 (4.05)	3 (2.7)	0 (0)	0 (0)	39 (27.03)
18-39	78	247 (98.72)	22 (11.54)	352 (73.08)	18 (16.67)	269 (76.92)	0 (0)	9 (7.69)	69 (43.59)
40-49	131	387 (93.13)	2 (0.76)	478 (54.2)	34 (17.56)	373 (64.89)	38 (16.03)	33 (19.08)	319 (51.15)
50-59	92	226 (79.35)	0 (0)	251 (51.09)	8 (8.7)	243 (66.3)	41 (25)	38 (28.26)	203 (57.61)
60-69	28	56 (75)	0 (0)	84 (39.29)	11 (25)	36 (39.29)	30 (57.14)	2 (7.14)	78 (28.57)
70-79	6	3 (50)	0 (0)	5 (16.67)	0 (0)	2 (16.67)	10 (83.33)	0 (0)	6 (50)
Gender									
Female	92	128 (63.04)	202 (30.43)	156 (50)	9 (7.61)	107 (32.61)	24 (14.13)	15 (11.96)	113 (41.3)
Male	317	820 (83.91)	162 (11.04)	1178 (58.36)	66 (14.83)	819 (59.94)	95 (16.4)	67 (15.14)	601 (46.37)
Race									
Black	202	540 (85.64)	43 (4.46)	682 (54.46)	38 (13.37)	552 (60.4)	78 (21.29)	56 (19.8)	431 (48.02)
Asian	7	12 (71.43)	26 (42.86)	20 (57.14)	2 (28.57)	14 (42.86)	0 (0)	0 (0)	2 (28.57)
White	62	163 (83.87)	1 (1.61)	216 (50)	18 (19.35)	134 (59.68)	21 (17.74)	13 (12.9)	118 (45.16)
Hispanic	126	203 (65.08)	292 (38.89)	364 (62.7)	15 (8.73)	198 (40.48)	18 (7.94)	12 (7.94)	140 (42.06)
Other	12	30 (100)	2 (8.33)	52 (58.33)	2 (16.67)	28 (58.33)	2 (8.33)	1 (8.33)	23 (41.67)

percent for children and 57.9 percent for adults) and the mean overall severity of decay (among those with or without the disease) to be 3.3 decayed teeth per person in this sample (2.2 per child and 3.5 per adult) (data not shown). Among those who are dentate, the prevalence of untreated caries was 63.6 percent, with a severity of 5.8 decayed teeth among those with the disease (TABLE 4). The prevalence was not statistically significantly different by age, gender, or race, but the severity was statistically significantly different by all of these factors. Male patients had 6.4 decayed teeth compared to female patients who had 3.39 decayed teeth (P<.001). The highest severity of untreated caries was among patients age 60-69 with 7.6 decayed teeth. Hispanics had only 4.6 decayed teeth (TABLE 4).

Discussion

The study results described the oral health needs of a sample of homeless people in downtown Los Angeles who visited a dental clinic located in the midst of Skid Row over a one-year period. The authors' study is consistent with other studies that show that the dental health conditions of homeless people are in general poorer than the general popula-

TABLE 4

Prevalence and Severity of Untreated Caries Among Patients by Sociodemographic Characteristics

Characteristics		Number of Dentate Patients	Prevalence of Dental Decay n (% of patients) ±	Number of Decayed Teeth (Mean/Std) †
Age	0-17	74	47 (63.51)	3.73 (2.70)β
	18-39	78	60 (76.92)	6.18 (4.29)
	40-49	119	74 (62.18)	6.73 (5.40)
	50-59	82	46 (56.10)	5.34 (4.26)
	60-69	19	11 (57.89)	7.64 (4.67)
	70-79	4	1 (25.00)	5 (-)
Gender	Female	89	52 (58.43)	3.39 (2.30)
	Male	287	187 (65.16)	6.37 (4.77) μ
Race	Black	179	112 (62.57)	6.20 (4.44)α
	Asian	6	4 (66.67)	5 (6.06)
	White	58	32 (55.17)	6.97 (6.11)
	Hispanic	122	83 (68.03)	4.61 (3.62)
	Other	11	8 (72.73)	7.43 (5.13)
Total		376	239 (63.56)	5.77 (4.54)

±: Among dentate patients (n=376).
†: Among patients with the disease.
α 0.01<p<=0.05; β 0.001<p<=0.01; μ p<=0.001

tion. For example in Stockholm, homeless adults consistently had three to four fewer remaining teeth than the general population from the corresponding age group.

Generally, in their study, the authors' found that a larger number of dental procedures were provided to male than to female patients. This difference can be explained due to the fact that historically homeless populations are composed more of males than females. In the authors' study, only 22 percent of the population were females, with 39 percent of them being children compared to 12 percent of the male patients being children. Also the racial/ethnic differences in the delivery of some dental procedures, such as sealants and prosthetic treatment, can be explained at least between blacks and Hispanics since most of the Hispanics were children or adults age 18-39, and most patients in the older age groups were typically black.

Homeless individuals throughout the world typically have high rates of dental disease with a mean DMFT of 9 in Hong Kong (DT=3, MT=5, FT=0.6) with a prevalence of untreated caries of 75 percent; 27 (D=7, MT=10, FT=9) in Stockholm; and 17 (DT=4, MT=8, FT=5) in Belfast.[7,6,10] In studies from the United States, the DMFT was 16 (DT=4, MT=8, FT=4) among homeless U.S. veterans and 16.2 (DT=4, MT=9, FT=4) in New Jersey.[5,8] In Boston, a study of homeless persons attending a dental clinic demonstrated a DFT averaging 11, with a prevalence of untreated caries of 91 percent; whereas in Minnesota, homeless individuals had a mean of 2.3 grossly decayed teeth.[3,4] Among the general population of adults in the United States, the prevalence of untreated dental caries was 22.7 percent with a DT of 0.67 and a MT of 3.58.[11] In comparison, the adult homeless in this study had a mean of 6.26 decayed teeth and 15.7 missing teeth, significantly higher than what is reported at the national level. There is no comparable data at the state level.

Similar patterns of poor oral health in homeless individuals were found relative to periodontal conditions with a 96 percent prevalence of periodontal pockets in Hong Kong and 75 percent demonstrating bleeding gingiva and calculus and 22 percent with a loss of attachment of 4 mm of more in Belfast.[6,10] In the authors' study, 66.7 percent of adult patients were in need of scaling or root planing.

Additionally, oral health diseases were found to impact the quality of life of the homeless. In Belfast, 31 percent of the sample experienced 10 or more negative oral health impacts, an association that increased with higher DMFT, higher DT, or poorer periodontal conditions; whereas in a study of New Jersey homeless, 87 percent reported negative oral health impacts.[10,8] Clearly, the authors' study is consistent with other studies that shows a need of the homeless for restorative and preventive dental procedures.[3] It also is important to highlight that the purpose of this paper was to characterize the range of dental procedures needed by those homeless patients who elected to receive comprehensive care and not all homeless who came to the clinic wishing to do more than relieve their emergency condition.

Poor oral health conditions of homeless people can be associated in part with their inadequate access to dental care. Homeless adults, as compared with a general population, were half as likely to visit a dental clinic within the past year.[4] For example, in New Jersey, only 28 percent of the homeless visited a dentist in the year prior to the study.[8]

The authors noted in their study that Hispanic patients were provided fewer oral health instructions than white and black patients. This outcome may be due to language barriers between the patients and providers. Although the faculty and staff were bilingual, the dental students were less likely to be bilingual; another demonstration of an access obstacle that can impede care delivery might be assumed in this population.

Poor oral health is also associated with the homeless individual's perception of the significance of oral health and his/her needs for oral health care. In the United Kingdom, half of the dentate and edentulous homeless men found to be in need of prosthetic treatment had a self-perception of that need. Those in need were found to be 48 percent of dentate men without dentures and 89 percent of dentate men with dentures.[12] These percentages seem to be higher than the percentages of the authors' patients who received prosthetics treatment. In Belfast, 47 percent of the sample felt at least occasionally self-conscious and/or ashamed by the appearance of their teeth; whereas in Hong Kong, this rose to 70 percent of the homeless perceiving that they had need for oral health care.[10,7] Others investigators have found that the homeless who were drug users had especially low perceptions of oral health and usually received only emergency dental attention; however, as they progressed in their rehabilitation programs, they perceived dental treatment as an important component in restoring their human dignity and recovering their total body health.[13]

The setting where the dental care is provided and the quality of the provided dental care are also issues impacting oral health care among homeless people. For example, in Montreal, 65 percent of the homeless preferred to be treated in private practices instead of a dental clinic in the shelter.[14] Perhaps there is some basis for their preferences, as one Stockholm study that found the homeless did not receive the same quality of dental care as the general population and were provided with insufficient oral hygiene instructions and nonconservative periodontal treatment (resulting in higher rates of extraction).[6] However, other studies have found that the utilization of dental services by the homeless is low when provided in traditional settings with limited access.[9]

STUDIES HAVE FOUND that health and psychosocial factors related to homelessness must be incorporated in the delivery of appropriate oral health care for this population.

The USC+URM dental clinic is a successful model of providing homeless people with access to dental care, thus meeting their oral health needs. Any proposed solution to the homeless' underserved oral health needs should consider the homeless individuals.[14] During the development of this project, the homeless community were equal partners during the planning, construction, and furnishing stages. In fact, homeless individuals who were enrolled in various skills training programs at the mission participated in the physical build-out and finishing of the dental clinic itself. In the day-to-day operation of the clinic, protocols have been developed that call for regular consultations with case managers, chaplains, and other administrators, not only of the URM but of the other several missions and social services agencies located in the Skid Row area whose homeless clients also are patients.

The success of the USC+URM clinic has often been told in numbers of testimonials from former residents who no longer felt the need to speak with their hands in front of their mouths, afraid to smile through their nervousness of their first job interview, or to eat a meal in public.[15-17] In recognition of the authors' efforts, in 2005, the USC+URM Dental Clinic was presented with an Award of Excellence from the National Health Services Corps. Studies have found that health and psychosocial factors related to homelessness must be incorporated in the delivery of appropriate oral health care for this population.[10] The authors' clinic has become deeply incorporated in the rehabilitation program of the URM and other agencies that refer clients for comprehensive care.

The uniqueness of the authors' study can be found in two areas: sample size and detailed treatment needs. Compared to other studies about the homeless, this study has one of the largest sample sizes, second in size after the veteran study, and it is the first to describe in detail the specifics of oral health treatment of the homeless.[5] The authors' study confirms previous recommendations about the importance of providing more accessible and affordable oral health care to the homeless.[4-7] Since the clinic was built, it consistently has had a waiting list of patients seeking care. The study presents a successful model of building relationships, operating a dental clinic inside of a community not-for-profit facility, and providing comprehensive oral health care to the homeless in a large metropolitan area.

The study has several limitations. The sample was composed of those home-

less patients who were in rehabilitation programs operated by a group of Los Angeles shelters and missions and those who decided to take advantage of comprehensive and free treatment at the USC+URM Dental Clinic. Thus, the authors' sample might only be characteristic of homeless individuals with higher motivation to seek dental care and to regain their productive roles in the society. Since it could not be determined whether an extraction had been performed for a perio reason or because of dental decay, and since the authors assumed that the treatment was comprehensive, it is most likely that our estimation of the prevalence and severity of dental decay was conservative. In spite of those limitations, this paper does, however, describe the most common dental treatments needed for a homeless population and therefore is informative for others as they consider providing services to similar populations in their communities. The authors currently are investigating other research questions relative to this population that explore the impact of oral health treatment on their quality of life, self-esteem, and employability. ■■■■

REFERENCES

1. The Los Angeles Homeless Services Authority, 2007 Greater Los Angeles homeless count. Los Angeles: the Los Angeles Homeless Services Authority, 2007.
2. King TB, Gibson G, Oral health needs and access to dental care of homeless adults in the United States: a review. *Spec Care Dent* 23(4):143-7, 2003.
3. Kaste LM, Bolden AJ, Dental caries in homeless adults in Boston. *J Public Health Dent* 55(1):34-6, 1995.
4. Gelberg L, Linn LS, Rosenberg DJ, Dental health of homeless adults. *Spec Care Dent* 8(4):167-72, 1988.
5. Gibson G, Rosenheck R, et al, A national survey of the oral health status of homeless veterans. *J Public Health Dent* 63(1):30-7, 2003.
6. De Palma P, Frithiof L, et al, Oral health of homeless adults in Stockholm, Sweden. *Acta Odontol Scand* 63(1):50-5, 2005.
7. Luo Y McGrath C, Oral health status of homeless people in Hong Kong. *Spec Care Dent* 26(4):150-4, 2006.
8. Conte M, Broder HL, et al, Oral health, related behaviors and oral health impacts among homeless adults. *J Public Health Dent* 66(4):276-8, 2006.
9. Bolden AJ, Kaste LM, Considerations in establishing a dental program for the homeless. *J Public Health Dent* 55(1):28-33, 1995.
10. Collins J, Freeman R, Homeless in north and west Belfast: an oral health needs assessment. *Brit Dent J* 202(E31), 2007.
11. Beltran-Aguilar ED, Barker LK, et al, Surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis — United States, 1988-1994 and 1999-2002. *Morbidity Mortality Weekly Report* 54(3):1-43, 2005.
12. Blackmore T, Williams SA, et al, The dental health of single male hostel dwellers in Leeds. *Comm Dent Health* 12(2):104-9, 1995.
13. De Palma P, Nordenram G, The Perceptions of homeless people in Stockholm concerning oral health and consequences of dental treatment: a qualitative study. *Spec Care Dent* 25(6):289-95, 2005.
14. Pizem P, Massicotte P, et al, The state of oral and dental health of the homeless and vagrant population of Montreal. *J Can Dent Assoc* 60(12):1061-5, 1994.
15. Archibald A, Clinic brings smiles to those in need. *Daily Trojan* Aug. 30, 2007.
16. Riggot J, Something to smile about. Los Angeles *Downtown News* July 12, 2007.
17. Ly J, USC program provides free dental services. *Daily Trojan* Aug. 31, 2005.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Hazem Seirawan, DDS, MPH, MS, Division of Health Promotion, Disease Prevention and Epidemiology, University of Southern California, School of Dentistry, 925 W. 34th St., Suite 4208, Los Angeles, Calif., 90089.

My name: Bob Marws Profession: Dentist / iPad app developer

CDA member since: 1997 Pet peeve: Bad spelling

Last CDA benefit used: CDA presents– Anaheim

Advice for new dentists: Don't get too serious

Dream profession: take over for Steve Jobs

Favorite CDA benefit: TDIC Insurance, CDA Compass

Inspiration: My family – Karen, Katie, Matt, Jon

CDA: Vital

Latest project: Developing my iPad app for dentists... DDS GP

Specializing in the Selling and Appraising of Dental Practices

CALIFORNIA PRACTICE SALES INC.

Serving California Since 1974

"Your local Southern California Broker"

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

John Knipf & Robert Palumbo

LOS ANGELES COUNTY

BEVERLY HILLS – Great opportunity for GP or Spec. w/4 eq. ops., 1 lg room is plumbed not eq, perfect for open bay chairs. ID #351k
GLENDALEGP – Turn-key, 3 fully eq. ops., 5 plumbed not eq., 1,200 sq. ft. suite, two story medical/dental building. ID #2591
GLENDORA GP – 4 fully eq. ops., 1,600 sq. ft., located in 2 story building. 43 yrs of goodwill. NET $457K. ID #3041
LOS ANGELES GP – Long established practice with excellent street visibility and amazing views. NET $100,681. ID #3251
LOS ANGELES GP – Practice is in a well known center with good street visibility. Leasehold & equipment only! ID #3231
MISSION HILLS – Leasehold & equip. Location has been a dental office for 30 yrs. 1,313 sq. ft. suite located in a medical plaza. ID #3541
WESTLAKE VILLAGE – New build out! Equipment w/some charts. Beautiful office in upscale area. 5 plumbed ops, 2 eq. ID #3211
WHITTIER – Priced for quick sale. Leasehold & equip only. 4 eq. ops., 2,500 sq. ft. ste, single strip mall w/excellent signage. ID #2291
WHITTIER PERIO – 5 eq. ops., plmbd for N2O2. Single story free standing bldg. Bldg for sale.70 yrs of goodwill. NET $159K. ID #3521

ORANGE COUNTY

ALISO VIEJO GP – Modern design turn-key practice with great views and beautiful decor. 5 eq. ops., 1 plmbd not eq. ID #3301
*__BREA__ – Equipment w/charts! Well designed office w/3 eq. ops., 2 plmbd not eq., 1,600 sq. ft. office located in shopping center. ID #3381
FULLERTON GP – 4 eq. ops., 1,100 sq. ft. office located in downtown Fullerton in a one story, free standing historical building. ID #3111
GARDEN GROVE GP – Equipment w/charts, 2 eq. ops., 1 plmbd not eq., 1,000 sq. ft. suite, 2 story bldg in busy strip center. ID #3091
IRVINE – Leasehold & equipment only! 5 eq. operatories, 1,450 sq. ft suite located in busy Ralph's shopping center. ID #3401
*__IRVINE__ – GP practice located in a busy shopping center next to a medical building. Easy freeway access. ID #3471
LAGUNA HILLS – Leasehold improvement, equipment & charts. Located in a shopping center with low rent. ID #3481
LAKE FOREST GP – Turn-key. Well designed modern office w/great growth potential in a 2 story bldg in busy shopping center. ID #3351
SAN JUAN CAPISTRANO GP – Leasehold improvements & equip. only! Suite located in 2 story professional bldg w/3 eq. ops. ID #3071
*__S. ORANGE COUNTY__ – Beautiful office w/6 eq. ops., 1 esthetician rm, 3,350 sq. ft. ste. Single free standing bldg. NET $274K. ID #3391
*__TUSTIN GP/SPECIALIST__ – Leasehold & equip. only! 3 eq. ops., 960 sq. ft. suite located in single story medical/dental bldg. ID #3371

RIVERSIDE / SAN BERNARDINO COUNTIES

CORONA – Equipment & some charts! 4 fully eq. ops., 1 plumbed not eq., 1,592 sq. ft. suite located a busy shopping center. ID #3431
MORENO VALLEY GP – Turn-key practice in busy Ralph's shopping center. 3 eq. ops., 2 plmbd not eq. ops., 1, 650 sq. ft. ste. ID #3311
MURRIETA – Leasehold & equip. & some charts only! 4 eq. ops., 1,350 sq. ft office located in a single story condo. ID #3221
RANCHO CUCAMONGA GP – 6 eq. ops., 1,800 sq. ft. suite, 2 story med/dent bldg. Leasehold improvements & equip only! ID #3191

SAN DIEGO COUNTY

E.SAN DIEGO COUNTY – Great practice, 5 eq. ops., 1, 800 sq. ft. suite located in a med/dent professional bldg. Project approx. $665K for 2010. ID #3411
SAN DIEGO COUNTY – Solo practice, 3 eq. ops., 1 plmd not eq. 2,200 sq. ft. office, free standing bldg. Seller owns bldg. ID #3031
SAN DIEGO COUNTY – Busy shopping center with major anchor tenants. 4 fully eq. ops., 1,178 sq. ft. suite. Absentee owner. ID #3341
SAN DIEGO – Leasehold improvement with some charts & building for sale!! 5 fully eq. ops., 1,300 sq. ft. office. ID #3141
SAN DIEGO – Located on major thorough fare in the heart of SD, 30 yrs goodwill. Project approx. $884K for 2010. NET $314K. ID #3501

VENTURA / SANTA BARBARA / SAN LUIS OBISPO / KERN COUNTIES

BAKERSFIELD GP – 6 eq. ops., 2,000 sq. ft. ste, 1 story strip center. Collected approx. $323K for 2009. NET $124K. ID #3081
*__SANTA BARBARA COUNTYGP__ – Long established practice 3 eq. ops., 1,010 sq. ft. 2 story strip mall. NET OF $300K. ID#2881

*** UNDER OFFER**

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

John Knipf
President

(Neff)

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

How to Place a Classified Ad

CDA and ADA members are charged $50 for up to 20 words and $10 for each additional 10 words or less. Confidential CDA box numbers are available for an additional $10 per month. Rates for non-CDA/ADA members are $75 for up to 20 words and $15 for each additional 10 words or less. Confidential CDA box numbers are available for an additional $15 per month. All advertisements must be prepaid either by check, VISA, MasterCard or American Express. Ads are not accepted over the phone. All ads will be placed on the CDA Web site on the 15th of the month prior to the month of publication and will remain online for 45 days at no extra fee.

The deadline for classified advertising is the first day of the month, prior to the month of publication. Example: Jan. 1 at 5 p.m. is the deadline for the February issue of the *Journal*. If the first falls on a weekend or holiday, then the deadline will be 5 p.m. the following workday. After the deadline closes, ads will not be accepted, altered or canceled. Deadlines are firm.

To receive a classified ad request form, please contact Jenaé Gruchow at 916-554-5332 or Jenae.Gruchow@cda.org.

Reply to ads with CDA box numbers as follows:
Classified Box Replies
CDA Box_____
California Dental Association
P.O. Box 13749
Sacramento, CA 95853

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

Licensed agents and brokers may not place classified ads. For information on display advertising, please contact Corey Gerhard at 916-554-5304 or Corey.Gerhard@cda.org.

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

OFFICES FOR RENT OR LEASE

BAKERSFIELD PEDIATRIC DENTAL OFFICE FOR RENT — Long established pediatric dental office. Four plumbed operatories. Newly remodeled. Quiet room. 1,000 sq. ft. office. Tremendous amount of underserviced young families in the area. $1150 a month. Please call 661-871-0780.

DENTAL SPACE AVAILABLE — Fully equipped space in Vista, CA. Sublease 2-4 days per week. 760-724-1011 or e-mail scnave@yahoo.com.

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 Trask Leonard at 650-282-4620, by e-mail at tleaonard@baysiderp.com, or call seller at 408-781-4599.

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.

OFFICES FOR RENT OR LEASE — 1200 and 2200 sq. ft. suites available in Greenhaven area of Sacramento. Contact 916-391-4848.

CONTINUES ON 692

CLASSIFIEDS, CONTINUED FROM 691

OFFICES FOR SALE

MODERN FOUR OPERATORY DENTAL BUILDING IN DUNSMUIR FOR SALE OR LEASE — A beautiful mountain setting in Northern California with hunting, fishing, skiing. Building well maintained. Seller motivated, all terms negotiable. Seller would consider forgiving lease/sale payments for first year to help practitioner establish a practice. Contact seller at mollyruss@sbcglobal.net or Doris Moss Realty, Brett Waite, Broker, 530-926-3807 or brett@mtshastarealty.com.

CENTRAL OREGON PRACTICE FOR SALE — Come live/work in Sunny Central Oregon. Best G/P in Central Oregon. Spectacular high-end practice in fabulous location and great visibility. Equipment and building only 5 years old. Collecting over $1.2 million annually. Doctor and wife (office manager) will stay to help in transition and tenured staff will stay with practice to assist new owner. Contact buckinvest@comcast.net or call 503-680-4366.

OPPORTUNITIES AVAILABLE

DENTAL ASSISTANT PROGRAM DIRECTOR WANTED — Program director wanted to develop curriculum/teach at new center in Tarzana, California. Experience required. Call Laura 818-758-3557.

OPPORTUNITY AVAILABLE — NORTHWESTERN WASHINGTON — Seeking experienced dentist for busy, established, rapidly growing, fee-for-service group dental practice. Excellent immediate income opportunity ($180K to $375K + per year) depending on productive ability and hours worked. Secure long-term position. You can concentrate on optimum patient treatment without practice management duties. Newly equipped, modern office with excellent staff and lab services provided. If you are bright, energetic with a desire to be productive, very personable, people oriented and have great general and specialty clinical skills, please fax resume to Otto J. Hanssen at 425-484-2110.

CONTINUES ON 696

Buyers and Sellers:

Trust the winning team

Professional Practice Sales, Inc.

Thomas Fitterer
Dean George
Ray Irving and Edna Irving

over 100 years experience in selling Dental practices

PPS excels at explaining Options to enhance your bottom line.
This is the Hottest Sellers market in history.
Consider cashing in and doing it again in a rapid growth area!

BUYERS AND SELLERS
Register for HOT LISTINGS & IMMEDIATE NOTIFICATION

Free Appraisal for Sellers:

Professional Practice Sales, Inc.

Southern California:
18410 Irvine Blvd., Suite A, Tustin, CA 92780
714-832-0230 • 800-695-2732
Fax: 714-832-7858
www.PPSdental.com

Northern California:
4 Harris Hill Drive, Novato, CA 94947-2904
415-899-8580 • 530-894-0700
Fax: 415-899-8588
www.PPSsellsDDS.com

Serving the Dental Professions since 1966

For Personal Service, mail or fax back. Inquiries will be kept in confidence.
PPS, Inc., 18410 Irvine Blvd., Suite A, Tustin, CA 92780 Ph: 714-832-0230, 800-695-2732 • Fax: 714-832-7858

I want immediate attention on a Practice to buy.

Location_____Grossing $_____

I want to sell my practice.

Name_____

Address_____City_____State_____Zip_____

E-mail_____Phone_____Mobile_____Home_____

HENRY SCHEIN®
PROFESSIONAL PRACTICE TRANSITIONS

"DENTAL PRACTICE BROKERAGE"

Making your transition a reality.

CDA FALL 2010
Booth #1733

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

For more information regarding the listings below:
VISIT OUR WEBSITE AT:
WWW.PPTSALES.COM
(Practice Opportunities)

Practice Sales • Mergers
Partnerships • Appraisals
Patient Record Sales

- **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. Pan & 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 $90,495. 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 DORADO HILLS:** *For Sale*-General Dentistry Practice. 2009 GR $790,758 adjusted net income of $312K. Intra-oral camera, pano, Softdent software, 4-equipped ops. 6-hygiene days. Practice has been in its present location for past 18 years. Owner retiring. #14324
- **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 $350K, 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
- **FOLSOM:** *For Sale* - General Dentistry Practice. 2009 Collections $513K. Adjusted net income $191K. 4 ops (plumbed for 5), Intra oral camera, fiber optics, laser ops. Patient base software. Owner retiring.
- **FOLSOM/CITRUS HEIGHTS/ORANGEVALE AREA:** *For Sale* - General Dentistry Practice. Approximately 4 miles from Lake Natomas.This 5 op, 1,700 sq ft office has 8 days of hygiene. Receipts were one million one fifty four last year with $480K adjusted net income. The practice has shown increases every year the past five years. Practice has Panoramic machine and Practice Works software. Practice has been in its present location for 18 yrs of its 29 years. Owner is retiring.
- **GRASS VALLEY:** *For Sale*-This Pediatric 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
- **GREATER AUBURN AREA:** *For Sale*-General Dentistry Practice and Free Standing Dental Building. Outstanding opportunity to purchase well established, very successful, 4 Op Fee for Service practice and well maintained, 3,000 sq ft. dental building in the Sierra Foothillls. No PPO Or HMO. Collections of $763K on 3 ½ days with 5 ½ days hygiene. Owner is retiring
- **LAGUNA BEACH:** *For Sale* - General Dentistry Practice. 2008 Gross Receipts $898K. 4 operatories (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.
- **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.
- **LIVERMORE:** *For Sale* - General Dentistry Practice. 2009 Collections were $688K with an adjusted net income of $287K. There are 4 ops in this nicely updated 1,082 sq ft office space. Dentrix software, 6-days/wk hygiene. Owner has been in same location for 36 years with long-term employees. Owner is retiring. #14326
- **LOS ANGELES:** *For Sale* - General Dentistry Practice: This practice 80% Dentical and has approximately 3000 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
- **NORTH HOLLYWOOD:** *For Sale* - General Dentistry Practice. 2009 GR $642K with adjusted net income of $251K. Office has 3 operatories 1 Addt. plumbed op, 1350 sq. ft. in a small shopping center, very busy intersection-corner. Intra-oral camera, laser, Easy Dental software. Owner relocating. #14328
- **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.
- **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 desireable location with 5 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. #14318
- **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 Sale* - General Dentistry Practice and Dental Building: 2009 Gross Receipts $517K with adjusted net income of $165K. 4 ½ hygiene days/week. 1, 800 sq ft Plan 6 equipped ops. (7 Avail). Dentrix software, Paperless Practice has been in its present location for 40 years. Owner retiring.
- **ROSEVILLE:** *For Sale* - General Dentistry Practice. Great Location. 2009 GR $900K with adjusted net income of $300K. 1975 sq ft with 4 ops, 8 days hygiene/wk. Digital, Intraoral camera, Dentrix, Trojan, fiber optics, P & C chairs - all less than 5 years old. Owner is retiring.
- **SAN FRANCISCO:** *For Sale-Patient Base for Sale*-Owner passed away last June and the practice has continued 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. #14315
- **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. #14321
- **SAN JOSE:** *For Sale* - 3 op Office space & equipment only in south valley area of San Jose. Fully equipped including hand instruments. If you are going to start up a practice or add a satellite practice you can save hundreds of thousands of dollars. New lease available from landlord with the option to purchase suite.
- **SOUTH LAKE TAHOE:** *For Sale*-General Dentistry Practice. Office is 647 sq ft w/3 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. #14320

SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD SALE PENDING SOLD

CALIFORNIA / NEVADA REGIONAL OFFICE

HENRY SCHEIN PPT INC.
California Regional Coporate Office
DR. DENNIS HOOVER, Broker
Office:(800) 519-3458 Office (209) 545-2491
Fax (209) 545-0824 Email: dennis.hoover@henryschein.com
5831 Stoddard Road, Ste.808 Modesto, CA 95356

Henry Schein PPT Inc., Real Estate Agents
and Transitions Consultants
Dr. Tom Wagner (916) 812-3255 N. Calif. Mario Molina (323) 974-4592 S. Calif.
Hallie Johnson-Nelson (209) 545-2491 N. Calif. Thinh Tran (949) 533-8308 S. Calif.

PRACTICE TRANSITION PARTNERS

realizing the possibilities

EXPERT GUIDANCE. IMPECCABLE SERVICE. UNPARALLELED INTEGRITY.

Robert Stanbery
Owner

Kerri Matz McCullough
S. California Representative

Don Stanley
S. California Representative

FEATURED LISTINGS

LOS ANGELES COASTAL COMMUNITY - *New Listing!*
Profitable, 6 op GP located in a highly desirable Los Angeles coastal community. This practice is well established with over 28 years of goodwill. Collections in 2009 exceeded $650,000. The seller is retiring.

KERN COUNTY
Well established, 6 op GP with a great location for the dentist desiring a rural lifestyle in a friendly community. This practice collected over $523,000 in 2009 with amazing growth potential

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.

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

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

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

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.

SOLD!

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

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.

Please visit our website for an up to date list of practices available.

Assisting dentists with selling and purchasing their practices since 1997

Additional practices available in:
Arizona, Nevada and Washington

888.789.1085

www.practicetransitions.com

DENTAL PRACTICE: SALES > ACQUISITIONS > MERGERS > VALUATIONS > TRANSITIONS

CLASSIFIEDS, CONTINUED FROM 692

OPPORTUNITY IN TEMECULA/ SURROUNDING AREA — Creative opportunity. Established GP looking to expand. We are open to speaking with anyone who may want to reduce time in their practice for any reason, reduce overhead, expiring lease, minimize management responsibilities, begin transition to buy-out for semi or full retirement. E-mail inquiries to pwadental@aol.com.

OPPORTUNITIES WANTED

IN HOUSE PERIODONTIST/IMPLANT SURGEON AVAILABLE FOR YOUR PRACTICE — In the Greater San Francisco Bay Area. Implant Surgeon/Bone Grafting/ Perio Surgery/3rd Molar Extractions. E-mail bayareaperio@gmail.com or call 617-869-1442.

PRACTICES FOR SALE

GP TURN-KEY PRACTICE FOR SALE — Three equipped ops, one plumbed not equipped, 1,493 sq. ft. in a two story professional building. 75% PPO, 25% cash, no HMOs. Computerized, digital X-rays, Dentrix. Collected approximately $410K in 2009. Excellent location, Manhattan Beach adjacent. Call 310-490-1050.

MONTEREY PRACTICE FOR SALE — This is a four operatory, high-quality practice that has consistently grossed approximately $1.1 million for the past few years. The owner is retiring and will help with the transition. Leave name and phone number by e-mail at sellingdoc@gmail.com.

ORAL AND MAXILLOFACIAL SURGERY PRACTICE AND/OR BUILDING FOR SALE IN PHEONIX, AZ — Excellent opportunity for Oral Surgery Practice and real estate investment. Immediate opening for associate/buy-in. Busy, full scope practice for over 25 years. Call 623-435-2300, fax 623-435-1700 or e-mail bassett@dlv.cc.

PRACTICE FOR SALE IN BEAUTIFUL NORTHEASTERN CALIFORNIA — Good patient base in nice facility. Collection over $550K on three days per week. Sell for $225K or best offer. Building for sale or lease. Contact 530-233-2900 or 530-233-8274.

CARROLL & COMPANY

"MATCHING THE RIGHT DENTIST TO THE RIGHT PRACTICE"

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

Serving you: Mike Carroll & Pamela Gardiner

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.

3030 NORTH BAY AREA PERIO

Owner retiring from well established periodontal practice with excellent referral sources in a 2,411 square foot state-of-the-art office facility with 4 fully equipped operatories and a dedicated staff. Looking for buyer with high ethical standards and great clinical skills. Great location and owner willing to help for a smooth transition. Asking $600K.

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.

3031 WEST SAN JOSE GP

Owner retiring from well-est. practice in great location. 3 fully-equipped [illegible] 1,000 sq. ft. facility. Avg. GR [illegible] 4 Dr. days & 4 hygiene days/w[illegible] All fee-for-service, great upside potential. Owner willing to help for smooth transition Asking $349K

PENDING

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 retiring and able to help for a smooth trans[illegible] sq. ft. office with 4 fully e[illegible] GR $829K+. Asking Pric[illegible]

PENDING

3016 CONTRA COSTA COUNTY PERIO

Est. 1990 in desirable bedroom community 20 miles from SF. 1,068 sq. ft. beautifully remodeled office w/4 fully-equipped ops., & excellent staff. Assignable 5 year lease w/5 year option. Seller will[illegible] help in the transition of the practic[illegible]R $441K+, 2009 GR projected to [illegible]K+ 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 area. Avg. GR for past 5 years $379K w/44% over[illegible]ad & great upside potential. Qua[illegible]wner willing to help w/smooth tran[illegible] 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 w/ 3 fully-equipped ops. & excellent lease terms. ~[illegible]pts. all fee-for-service. Avg. GR $438[illegible]g. overhead 64% w/ 3.5 doctor days/wk. Great upside potential. Asking $273K.

SOLD

UPCOMING:

Campbell General Practice

SF General Group Practice

2 doctor days/wk expandable to 4

Our New Address:
Carroll & Company
2055 Woodside Road, Ste 160
Redwood City, CA 94061

Phone:
650.403.1010

Email:
dental@carrollandco.info

Website:
www.carrollandco.info

CA DRE #00777682

WESTERN PRACTICE SALES

John M. Cahill Associates

Visit Us at the CDA Fall Scientific Session
BOOTH # 711
Moscone South Convention Center September 9th - 11th, 2010

BAY AREA

A-817 BELMONT- Surrounded by dental specialties in 2-story Prof. Bldg. 860sf w/2 ops +1 **$210k**

A-829 SAN FRANCISCO Facility – Attractive Office w/traditional décor. 1600sf & 2 ops. **$69k**

A-8911 SAN FRANCISCO— Don't hesitate! One of the areas most prestigious addresses! 2,073 sf, 4 ops + plumbed for 1 add'l op. **$585k**

A-8941 SAN FRANCISCO– Ready to Move In. Fully Equipped. 2 ops. Plumbed for 1 add'l **$85k**

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

B-902 HAYWARD-Easy Freeway access. Near Busy Shopping Mall. 2400sf, 5 ops office. Gross Receipts over $977k in 2009! **$795k**

B-906 PLEASANT HILL – Most Desirable Community in Contra Costa Co. 2,501 sf & 6 fully equipped ops **$550k**

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

C-869 NAPA VALLEY AREA - Quality, fee-for-service practice. Dental Prof Bldg w/ ~ 800 sq. ft. & 2 ops. Option for 3rd op. **$450k**

C-884 FAIRFIELD –2,856 sf & 4 ops w/ possible expansion w/ plumbing of additional op **$350k**

C-8901 SANTA ROSA– Residential area. 40+ new pats/mo. Highly Visible! 1291sf & 3 + 1 op. **$475k**

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. **$225k**

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. **$485k**

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

D-877 LOS ALTOS -Pristine Professional plaza. Office is ~ 2,400sf - 6 ops **2009 Collections - $819k!! Asking only $425K**

D-9091 ATHERTON -Turnkey operation – no construction hassles, equipment purchase. Would cost nearly twice our asking price to duplicate. 969 sf & 3 ops ***Call for Details!***

BAY AREA CONTINUED

D-908 SAN JOSE -Well-established, fee-for-service/ PPO. Paperless, fully computerized office. 1,550 sf & 4 ops. **$450k**

NORTHERN CALIFORNIA

E-729 AUBURN - Busy retail shp ctr w/excellent signage & good traffic flow. 1750sf, 4ops. Plumbed for 2 add'l ops **REDUCED! NOW ONLY $250k**

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

E-818 SACRAMENTO-Increase the part-time, relaxed workweek & watch the practice grow! Collections $350k+ in '07. 1,200sf & 4 ops. **$315k**

E-872 ROCKLIN– Remarkable opportunity w/ a steady increase in monthly collections! 2450sf w/ 6 ops**. REDUCED $445k**

E-881 SACRAMENTO-State-of-the-art Practice with growing patient base. 2,400 sf & 3 ops. Plumbed for 3 add'l. Seller flexible w/ transition plans**$250k**

E-888 AUBURN - Highly esteemed FFS practice. Well respected. Doesn't get any better than this! Very desirable free standing building. Practice offers unparalleled dental care! 1,480sf w/3 ops. **This IS your dream practice! Call for Details!**

G-751 RED BLUFF/CHICO- Complete remodel ~5 yrs ago. FFS GP. 2350sf /4 ops. Plumbed for 2 add'l. **Current Lender Willing to Carry Qualified Buyer. Practice Offered at $175k / Real Estate $250k**

G-875 YUBA CITY–Estab. 30 + years, GP, FFS, 3575sf /9 ops, great location. **$1.5m**

G-882 YUBA CITY - 3 ops, ~ 850 sf. Thriving Practice! Call for Details! **$190k**

H-634 WEST OF RENO - 1500 sf/ 4 ops, Lease below market value. **$250k**

G-883 CHICO VICINITY – Quality FFS GP. Attractive Professional plaza. 1,990 sf w/ 5 ops **$535k**

H-668 NORTHEASTERN CA–4 ops 1600sf office. 2007 gr rcpts exceed $650k! **$395k**

H-856 SOUTH LAKE TAHOE Over 50 new patients/ mo Respected & Growing! 1568 sf & 4 ops **$425k**

CENTRAL VALLEY

I-685 TURLOCK - 1700sf, 7 ops. Rrecently remodeled. Free standing bldg. Mostly Adec Eqpmt. **REDUCED! NOW ONLY $305k**

I-772 *Facility* STOCKTON-Desirable, affluent health care area. 2,140sf/4 ops **REDUCED! $150k**

I-889 MERCED- Heart of town, bustling with activity & foot traffic. 3 ops **$265k**

I-8961 SAN JOAQUIN CO– 1000sf/ 2 ops. ~ 400 charts. FFS. 24+ yrs. Seller Retiring. **ONLY $60k**

I-905 CERES - Brand new, start-up facility which has all marketing systems implemented and spectacular equipment primed for success w/ a growing patient base! Excellent location! 1,500+ sf & 3 ops w/ plumbing for additional op. **$225k**

J-9031 SLO Co– Nestled between Pacific Ocean and beautiful foothills! 1218sf, w/ 4 ops. **$350k Real Estate also available**

SOUTHERN CALIFORNIA

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

K-887 ESCONDIDO-Beautifully landscaped dental prof bldg 1,705 sf w/5 ops **REDUCED! Now $175k**

K-900 LA HABRA– 1700sf w/4 ops. Plumbed for 2 add'l. Newer EQ and Improvements **$250k**

SPECIALTY PRACTICES

C-6821 SOLANO CO. PROSTHO- Personalized treatment in caring environment. 1040sf, 3ops **$225k**

I-7861 CTRL VLY ORTHO- 2,000sf, open bay w/8 chairs. Garden View. Antique Exam Room. 45 years Goodwill. FFS. 60-70 patients/day. Prof Plaza. **$370k**

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! $125k**

D-892 MORGAN HILL ORTHO- Remarkable Oppty! Floor to Ceiling windows—wooded courtyard. 1900sf & 6 chairs in open bay. **$275k**

800.641.4179

View all of our available practices at:

w e s t e r n p r a c t i c e s a l e s . c o m

LEE SKARIN AND ASSOCIATES
Dental Practice Sales

QUESTIONS MOST OFTEN ASKED BY . . .

. . . SELLERS

1. Can I get all cash for the sale of my practice?
2. If I decide to assist the Buyer with financing, how can I be guaranteed payment of the balance of the salesprice?
3. Can I sell my practice and continue to work on a part-time basis?
4. How can I most successfully transfer my patients to the new dentist?
5. What if I have some reservation about a prospective Buyer of my practice?
6. How can I be certain my Broker will demonstrate absolute discretion in handling the transaction in all aspects, including dealing with personnel and patients?
7. What are the tax and legal ramifications when a dental practice is sold?

. . . BUYERS

1. Can I afford to buy a dental practice?
2. Can I afford not to buy a dental practice?
3. What are ALL of the benefits of owning a practice?
4. What kinds of assets will help me qualify for financing the purchase of a practice?
5. Is it possible to purchase a practice without a personal cash investment?
6. What kinds of things should a Buyer consider when evaluating a practice?
7. What are the tax consequences for the Buyer when purchasing a practice?

Lee Skarin & Associates, Inc.
Offices
CA DRE #00863149
(805) 777-7707
(818) 991-6552

1800-SKARIN#1
1-800-752-7461

LEE SKARIN & ASSOCIATES gives straightforward answers to these important questions as well as others you may have – by phone or in person – **without obligation!**

Lee Skarin & Associates have been successfully assisting Sellers and Buyers of Dental Practices for nearly 30 years in providing the answers to these and other questions that have been of concern to Dentists.

Call at anytime . . . for a no obligation response to any or all of your questions.
GO AHEAD AND CALL – **IT'S PAINLESS!**

LEE SKARIN AND ASSOCIATES

ADVERTISER INDEX

California Practice Sales	calpracticesales.net	690
Carroll & Company Practice Sales	carrollandco.net	697
CDA Endorsed Programs	cdaendorsedprograms.com	633
D&M Practice Sales and Leasing	dmpractice.com	696
Discus Dental	discusdental.com	634
DOCS Education	docseducation.com	625
Full Breath Corporation	888-285-8038	644
Golden State Practice Sales	925-743-9682	692
Implant Direct	implantdirect.com	646
Lee Skarin and Associates, Inc.	leeskarinandassociates.com	699
Loma Linda University	llu.edu/llu/dentistry/cde	645
LVI Global	lviglobal.com	626
Med-Dent	meddentss.com	654
Midwest Dental	midwest-dental.com	653
Mitchell & Mitchell	415-883-2525	662
Practice Transition Partners	practicetransitions.com	695
Professional Practice Sales	ppsdental.com	693
Professional Practice Transitions	pptsales.com	694
Select Practice Services, Inc.	betterobin.com	703
The Dentists Insurance Company	tdicsolutions.com	618, 622-623
TOLD Partners, Inc.	told.com	691
Ultradent Products	ultradent.com	704
USC School of Dentistry	uscdentalce.org	619
Western Practice Sales/John M. Cahill Associates	westernpracticesales.com	698
Wood and Delgado	dentalattorneys.com	692

DR. BOB, CONTINUED FROM 702

The Blarney Stone

Statistics indicate that 400,000 ~~nuts~~ people puckered up and kissed Ireland's Blarney Stone last year. Why would otherwise sane individuals want to do this? Because by hanging upside down and risking the sudden onset of cerebral hemorrhage, an ancient tradition is fulfilled.

Originated by leprechauns (the same guys who brought us the Pot-at-the-End-of-the-Rainbow hoax), the tradition claims the gift of eloquence will be yours as your lips join the remains of some 92 million kissers before you. In a society where logorrhea is already pandemic, the last thing we need is a bunch of rock kissers whose only hope of employment is in the over-crowded field of politics.

Oscar Wilde's Tomb

The body of author and playwright Oscar Wilde (1854-1900) is interred in the Père Lachaise Cemetery in Paris. Women who wouldn't be caught dead inverted at the Blarney Stone, have smooched a veritable rainbow of lipstick hues on Wilde's tombstone to the extent his name is no longer visible. Someday in the future, a germaphobic maintenance person at the cemetery may sanitize the site, only to discover that for the last 50 years smoochers have bestowed their respects to one Marcel Flaubert, a fishmonger from Marseille. Then we will know what wild is really like.

Grauman's Chinese Theater

In 1927, movie star Norma Talmadge accidentally stepped into some wet cement at the theater and immediately called her attorney. No, what probably happened was owner Sid Grauman called his lawyer and a settlement involving 50 pairs of new shoes placated the plaintiff. Sid, however, shrewdly parlayed this incident, accurately predicting that having celebrities imprint their hand and footprints into more wet cement would galvanize more than 4.5 million fans a year to flock to Whacko Central, USA, to compare their own plebian extremities. As far as can be determined, anti-bacterial wipes for the fans are unavailable, but the site is mopped daily and steam cleaned once a week.

Also known as Piazza San Marco or, locally, as Piazza de Pigeon Poope, this Venetian attraction is visited by millions of tourists and pigeons who view each other with mutual loathing.

St. Mark's Square

Also known as Piazza San Marco or, locally, as Piazza de Pigeon Poope, this Venetian attraction is visited by millions of tourists and pigeons who view each other with mutual loathing. What began as a simple goodwill gesture by tourists anxious to spend as many lira as possible in the shortest amount of available time, started offering the resident pigeons little treats in the form of inedible pizza crusts. Word got around and soon birds from as far away as Times Square flew in on the jet stream to partake of the largesse. Pigeons, as an avian species, are lacking a sphincter where it most counts and as a result, tourists sans umbrellas were up to their patellas in airborne pigeon runoff before Imodium could be incorporated by local pizzerias.

Fortunately, Venice city officials have begun to work hard to discourage pigeons from hanging around the square. Tourists are dissuaded from feeding the diarrheic birds and the desecraters have been given specific flight plans to Naples or alternate ports like Rome.

Market Theater Gum Wall

For those citizens whose collapsed 401(k) plans have negated foreign travel, it is no longer necessary to look beyond Seattle's infamous Gum Wall. Located in the Pike Place Market, there stands a wall of chewed gum some 50 feet long and 15 feet high. Originally a convenient place to park one's gum before entering the nearby Market Theater, it immediately polarized the largely college patrons to stick to the custom until now it ranks as one of the most colorful displays of germ-enhanced monuments in the world. Believing that domestic germs are superior in every respect to foreign species, people eager to gain a place on the World's Germiest Tourist Attraction roster, aided by people who don't even normally chew gum, have helped amass this chicle-based masterpiece. Foreigners, who have somehow slipped through customs with European and Asian gum, have happily contributed to the ~~mess~~ mass and refuse to go home without a loopy-grinning picture taken to commemorate their visit.

Travelers, adventurers and all those who like to prattle endlessly of their treks, obviously need to visit all these attractions, because, like Everest, they are there. If you wish to vie for the honor of being the World's Oldest Person Who Can Operate His Own Wheelchair, you might give them a miss. ■■■■

CDA JOURNAL, VOL 38, Nº9

Going Viral: Getting the Bugs Out of Your Travel Plans

It is widely believed that Allingham's record-breaking lifespan is directly attributable to the fact that he never hung around any of the "germiest tourist attractions" in the world.

→ Robert E. Horseman, DDS

ILLUSTRATION BY DAN HUBIG

Today's germophobic public displays a deep instinct for self-preservation, one that has been heightened to the point where patrons of supermarkets, users of handrails, pushbuttons and grocery carts are encouraged to avail themselves of thoughtfully provided anti-bacterial wipes before they touch anything except their wallets.

Market managers with a jaundiced eye on the produce-squeezers, melon-thumpers and the "sell-by-date" searchers, recognize their establishments are hotbeds of sepsis. Hence, the free wipes calculated to reduce the annoyance of clients decimating each other with some exotic amalgam of customer-borne communicable diseases. It's the right thing to do; the out-of-round, three-wheeled carts provide enough angst as it is.

All of which makes the recent death of the world's oldest man more newsworthy. At 113 years of age, U.K.'s Henry Allingham, still keen as mustard, remembered clearly his birth in 1896 when there were no bacteria, just vapors, assorted plagues and wimpy germs that responded willingly to the wonderful emollient effect of chest poultices of camel dung and the popular malodorous asphidity bags worn around the neck.

It is widely believed that Allingham's record-breaking lifespan is directly attributable to the fact that he never hung around any of the "germiest tourist attractions" in the world as delineated in a recent CNN article. In case you wish to enter your son's college dorm on the list, here's the competition:

CONTINUES ON 701

"Dr. Robin's experience as a dentist, along with her credentials as a broker and an attorney, allows her to offer a unique combination of services that I believe is hard to surpass."

--Dana Rockey, D.M.D.

BetteRobin, DDS, JD

DENTIST ATTORNEY BROKER

Loma Linda Dental 83 Southwestern Law 95

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


Opalescence®
BOOST
Dazzle
Without Delay
Chemically activated,
38% hydrogen peroxide whitening.
BOOST
WHITEN
ULTRADENT
PRODUCTS, INC.
Improving Oral Health Globally
www.ultradent.com | 800.552.5512
© 2010 Ultradent Products, Inc. All rights reserved.