OF THE CALIFORNIA DENTAL ASSOCIATION

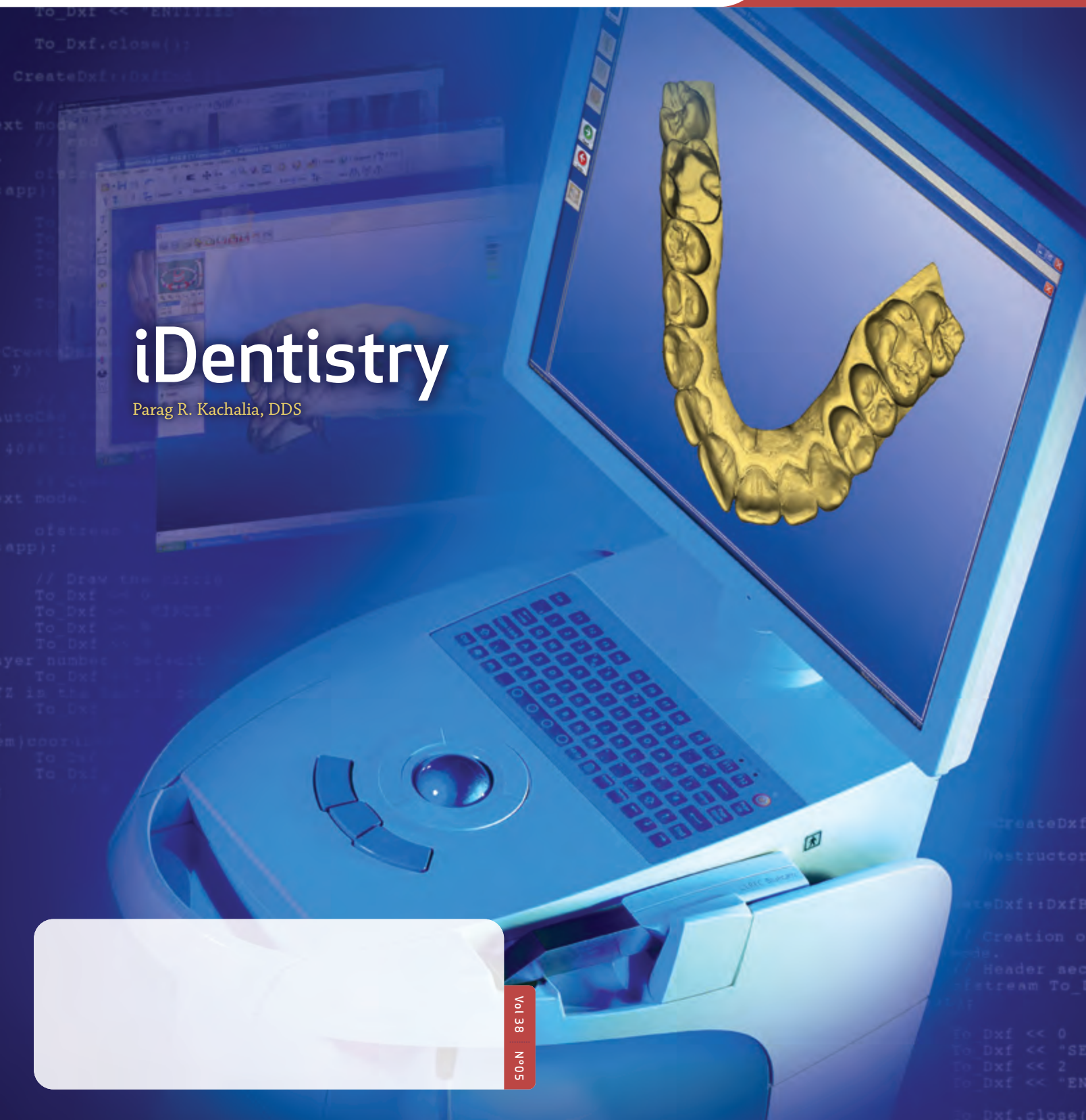
Journal

MAY 2010

In-office CAD/CAM

Traditional vs. Computerized Models

Implementing Strategies



iDentistry

Parag R. Kachalia, DDS

Vol 38 No05

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

800.733.0633 tdicsolutions.com CA Insurance Lic. #0652783

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.

tdic®

DEPARTMENTS

223

FEATURES

OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

CDA Journal
Volume 38, Number 5
MAY 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
JUNE: *Perinatal Guidelines*
JULY: *Office Design*
AUGUST: *Esthetics*

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
PUBLICATIONS 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
PUBLICATIONS 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.

CDA JOURNAL, VOL 38, Nº5

Move Over, George Foreman

BRIAN K. SHUE, DDS

Do your patients fancy a good grill? Google the word "grills," and you will find 11,800,000 results. The first entries that appear are Weber Grills, Wal-Mart Grills and then Paul Wall Grills. Paul Wall is a well-known griller, but he doesn't specialize in hickory smoke or mesquite flavoring. He's no Bobby Flay. And you don't ask him if he prefers charcoal briquettes or propane gas. For Paul Wall makes grillz.

Grills, grillz, or fronts — are all terms that mean the same thing, the vernacular depending on your gentle cohorts and/or what city you are from. The American Dental Association defines grillz as "decorative covers often made of gold, silver or jewel-encrusted precious metals that snap over one or more of (the) teeth."[1]

Musical artist Nelly can be blamed for popularizing these shiny objects that harbor more dental plaque than an amalgam overhang on the distal of a bicuspid. Perhaps you remember his 2006 No. 1 Billboard song *Grillz* featuring Paul Wall, et al.? It contained such lyrics as:

My mouthpiece simply certified a total package,
Open up my mouth and you see mo' karats than a salad,
My teeth are mind blowing, givin' everybody chillz,
Call me George Foreman cuz I'm sellin' everybody grillz.

Not iambic pentameter, but you get the picture. Nelly and Paul Wall succeeded where others had failed (or wisely did not even try), rhyming the word "grillz" in a song. Paul Wall does sell all kinds of grillz through his hip-hop Web site, in addition to jewelry and apparel (but no Snuggies yet).

For the budget-minded, there is the attention-grabbing (vitamin A-deficient) $49.95 Karat Salad Grill with silver, cubic zirconia, and a row of blue stones near the incisal edges. These budget grillz require a silicone strip submerged in hot water and the "griller" must physically bend the grill across the teeth. Nothing says you are genuine more than low-cost grillz with margins open less than 100 microns. There is also the blinged-out (high-end) grillz, such as the $3,200 "Party don't stop disco ball." This one covers eight teeth with Leonardo DiCaprio-approved diamonds that can be upgraded with "fangs." If you are spending that much for your grillz, you may want to splurge a little and pay extra for that Robert Pattison *Twilight* grin.

Wearing this dental jewelry represents a sign of wealth and accomplishment in its rudimentary form.

Why do grillz continue to thrive in the realm of pop culture? Wearing this dental jewelry represents a sign of wealth and accomplishment in its rudimentary form. Grillz let you "Put your money where your mouth is."

Historically, it is rooted in displaying to others one's elevation from the baseline level of existence to a much higher level socially and/or economically. In other words, you've made it. Such an example can be the neighborhood kid who becomes a professional ballplayer or successful musical artist. These plaque-growing metallic petri dishes are looked upon with approval by one's associates, and by the opposite gender.

Mention grillz to your very young patients and notice the smile and the dreamy look on some of their faces. In our golden age of celebrity, reality TV, "Rock Band" and "Guitar Hero," any accessory that can bring a person closer to rockstar status (real or imagined), reinforces the longevity of this fad. A music personality recently sported a prominent set of full-metal choppers at the American Music Awards: Grillz are not going away any time soon.

But are grillz harmful? An ADA online video news release discusses possible damage to the oral structures that can be caused by long-term wearing of grillz.[2] ADA said, "At present there are no studies that show that grills are harmful to the mouth," but also qualifies it by saying, "but there are no studies that show that their long-term wear is safe, either." There is a NIDCR grant just waiting to be written.

What do you tell your patients who ask for your professional opinion about grillz? Or more importantly, what do you tell your patients who already are wearing them? Prepare yourself. Patients who wear grillz should be concerned about safety. The CDA Web site has grillz patient education materials downloadable in English, Spanish, Hmong, Chinese, Russian, and Vietnamese.[3]

CONTINUES ON 308

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, Nº5

ASSOCIATE EDITOR, CONTINUED FROM 305

According to these PDF handouts:

- Grillz can spread contagious diseases. What CDC? Jewelers do not work in the "standard universal precautions" environment.
- Nonprecious metals in grillz can cause allergic reactions. The concern is not from material from overseas laboratories but from the inexpensive metals used.
- Grillz can limit the ability to close the mouth, hence, the "sneer" appearance often seen on the grillz wearer.
- Grillz can lead to headaches, teeth grinding, or soreness. (Researchers are undecided if these symptoms are caused by the grillz or from listening to today's pop music.)
- Grillz do not fit the teeth well.
- Grillz can promote tooth decay. You will likely never see the tagline: "Grillz — The ultimate *Streptococcus Mutans* habitat."
- Grillz may contribute to bad breath. How good is a 26 percent alcohol-based mouthwash versus NiCrCD?

Don't look for the ADA seal of acceptance on these pop culture fashion statements anytime soon, unless a fluoride-releasing, xylitol-flavored set of grillz hits the market. ■■■■

REFERENCES

1. American Dental Association. Oral health topics A-Z, dental grills (grillz or fronts) http://www.ada.org/public/topics/grills.asp. Accessed March 11, 2010.
2. American Dental Association. Video news release, dental grills. Posted June 28, 2006. https://www.ada.org/public/media/videos/vnr/index.asp. Accessed March 11, 2010.
3. California Dental Association. Patient education tools. http://www.cda.org/library/articles/grills.english.pdf. Accessed March 11, 2010.

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

CDA JOURNAL, VOL 38, Nº5

Article on Formocreosol Is 'Misleading'

I am writing with serious concern about an article that was published in your February issue titled "The Obsolescence of Formocresol" (*Journal of the California Dental Association*, 38(2):103-7).

This article has presented false and misleading information to your readers, and has put those who are using formocresol at risk.

The author of this paper has taken great liberty with the information he references about formocresol, and the result is frankly biased and misleading. I know this for a fact because he misquotes a manuscript of mine. The statement "Seal (sic) and Glickman have reported on the November 2007 pulp therapy symposium of these two organizations. One of the clear understandings held between those pulp therapy specialty groups, a result of chi-2 tests given before and after the symposium, is that formocresol should not be a primary tooth pulpotomy agent." The question actually asked attendees for their opinion of the statement "formocresol will be replaced as a primary tooth pulpotomy agent, not because of its danger to patients, but because there is much controversy about its potential to be dangerous." More than 75 percent of both specialty attendees agreed or strongly agreed.[1] These individuals believe that it will be replaced because there is controversy over it, not because it should not be used. In fact, it is still the most widely used and taught primary tooth pulpotomy agent in the United States.

An important point that Dr. Lewis failed to mention, because it was contrary to his anti-formocresol agenda, is that when attendees were asked to weigh in on whether they believed "formocresol, when used as a primary tooth pulpotomy agent presents documented danger to the patient," 95 percent of pediatric dentists and 85 percent of endodontists disagreed.[1] For the vast majority of attendees in both groups, the case against formocresol has not been proven.

Formocresol has been used as a primary tooth pulpotomy agent for almost 80 years in dentistry, and there is no evidence to prove that it has harmful effects when used as we do.

The AAPD recommends Buckley's solution of formocresol as an acceptable primary tooth pulpotomy agent in its 2009-2010 reference manual, which contains the clinical guidelines endorsed by the organization.[2]

My most serious concern is for the impression that this false and misleading manuscript leaves with not only the dental readers of your journal, but also with other individuals who could interpret this manuscript to mean that the dentists of California, and the nation in general, are knowingly using an agent that has been proven to be harmful to pediatric dental patients.

Formocresol has been used as a primary tooth pulpotomy agent for almost 80 years in dentistry, and there is no evidence to prove that it has harmful effects when used as we do. Dr. Lewis is confusing chronic exposure to formaldehyde (which we know is harmful) to an exposure of five minutes or less to an exceedingly low dose (microgram quantities) of formocresol for which there is absolutely no evidence of harm in humans.

Additionally, according to Milnes, in mammals, amino acid metabolism,

oxidative demethylation, and purine and pyrimidine metabolism have all been shown to produce formaldehyde.[3] Importantly, however, mammalian cells are physiologically equipped to manage this exposure through multiple pathways for oxidation of formaldehyde to formate and incorporation into biologic macromolecules via tetrahydrofolate-dependent, 1-carbon biosynthetic pathways.[3]

N. SUE SEALE, DDS, MSD
REGENTS PROFESSOR
Baylor College of Dentistry
Texas A&M Health Science Center
Dallas

REFERENCES

1. Seale NS, Glickman GN, Contemporary perspectives on vital pulp therapy: views from the endodontists and pediatric dentists. *Pediatr Dent* 30(3):230-6, May-June 2008.
2. Clinical guideline for pulp therapy for primary and immature permanent teeth. American Academy of Pediatric Dentistry reference manual 2009/2010. *Pediatr Dent* 31(6 reference manual):179-86, 2009.
3. Milnes AR, Is formocresol obsolete? A fresh look at the evidence concerning safety issues. *Pediatr Dent* 30(3):237-46, May-June 2008.

grow

with CDA ENDORSED PROGRAMS

Look for exclusive show specials offered by these endorsed companies at *CDA Presents.*

ProSites
Web site design
Booths 1373, 610

Staples
Office supplies
Booth 713

OSHA Review
Spore check system
Booths 702, 727

McKenzie Management
Practice management services
Booth 715

Demandforce
Electronic patient communications
Booth 709

Elavon
Merchant credit card processing
Booth 704

Bank of America
Credit Cards
Booth 706

CareCredit
Dental patient financing
Booth 710

Banc of America Practice Solutions™
Financial products
Booth 803

cda®
ENDORSED PROGRAMS

access these programs through cdaendorsedprograms.com

CDA JOURNAL, VOL 38, Nº5

Matt Mullin

Dr. Congeniality

BY DAVID W. CHAMBERS, PHD

There is a belief circulating that being ethical is the consolation prize for practitioners who cannot be successful. Most famously, the German philosopher Friedrich Nietzsche, in his *Genealogy of Morals*, argued that morality functions as a cloak of justification for those who are not strong enough to compete in the real world.

It is easy to think of instances where a dentist pockets more money charging for work that is unnecessary or was never performed. But such acts do not prove that material success trumps ethics. If it did, all the world would be cutthroat competition. It is the pattern that matters: Which is the better policy, generally ethical competition or competition that abuses ethics?

Research clearly favors the ethical organization. The Malcolm Baldrige National Quality Award has been given for about 20 years to organizations — including hos-

CONTINUES ON 313

Night Grinders Report Having More Nerve-Wracking Lives

Sleep bruxers are apt to be more anxious and avoid conflict when faced with problems, according to German researchers in an article published in *Head & Face Medicine* journal.

The study, headed by Maria Giraki of Heinrich-Heine-University in Dusseldorf, involved 48 people who were bruxers. "Its causes are still relatively unknown, but stress has been implicated," said Giraki of people who grind their teeth while they sleep. "We aimed to investigate whether different stress factors and different coping strategies were more or less associated with these bruxism symptoms."

Thin plates to measure grinding were placed in the participants' mouths. Those who bruxed more than others reported more daily stress, including that in the workplace. No specific age group, education level or gender were found to be at higher risk for night grinding, according to a press release.

"Our data support the assumption that people with the most problematic grinding do not seem to be able to deal with stress in an adequate way. They seem to prefer negative coping strategies like 'escape,'" Giraki said in a previous interview. "This, in general, increases the feeling of stress, instead of looking at the stressor in a positive way."

CDA JOURNAL, VOL 38, Nº5

How Staff Meetings Can Improve Your Dental Practice

Regular staff meetings, even in dental practices of fewer than 20 employees, establish an *esprit de corps* that can help improve efficiency, reduce cost, and lower liability exposures, said Kathleen Roman, a risk management expert, in *KDA Today*, a publication of the Kentucky Dental Association.

Among the benefits of a regularly scheduled staff meeting:

- **Everyone is on the same page.** When all staff members are apprised of developments in the office, misunderstandings and deviations from policy are greatly reduced.
- **The group has a forum.** Employees with good ideas about increasing efficiency and profitability know that they will have an opportunity to discuss their thoughts with their co-workers.
- **The better the team, the better the leader.** In offices that don't encourage the sharing of information, the dentist is often the last to know when things aren't working according to plan.
- **The better the team, the better their satisfaction.** Studies have shown that employees' sense of inclusion is the single most important factor in ensuring the retention of an outstanding workforce.
- **A highly professional staff reduces a doctor's workload and liability exposure.** Because it's impossible for a dentist to monitor everything at once, it's crucial for team members to rely on one another, and this is made easier when team members are close.

Important elements of communication can get lost in the day-to-day shuffle in a busy office, said Roman. Regular staff meetings "provide an opportunity, away from the ongoing interactions with patients, for doctors and their staffs to answer questions, address challenges, formulate plans, and improve team effectiveness and satisfaction."

CDA members may find more practice management information on the CDA Compass, cdacompass.com.

Significant Studies on Oral Health Under Way

The National Research Council, together with the Institute of Medicine, and through collaborative efforts between the Board on Children, Youth, and Families and the Board on Health Care Services, embarked on a study last fall that evaluates the current U.S. oral health system of care.

The study's aim is to explore its strengths, weaknesses and future challenges; describe a desired vision for the oral health care system; and recommend strategies to achieve that vision, according to a press release. Issues affecting underserved populations most at risk to oral disease, as well as the public and private safety net providers, will be examined with a particular focus on oral health services provided to women and children.

The California HealthCare Foundation and the U.S. Department of Health and Human Services are supporting the project that started last September and is estimated to be completed in two years.

Additionally, the IOM, Board on Health Care Services, also in collaboration with the Board on Children, Youth, and Families, is studying the entire U.S. population, the use and promotion of the oral health care system, as well as looking at methods to improve literacy for oral health and evaluating a potential DHHS oral health initiative, among other recommended actions for DHHS agencies, according to a press release. The U.S. Department of Health & Human Services and the Health Resources & Services Administration are sponsoring the project, which also started last fall and will be conducted over the next two years.

DR. CONGENIALITY, CONTINUED FROM 311

pitals and medical group practices — and includes ethics and community orientation among its criteria. Winners of the Baldrige Prize consistently outperform the market. Business school researchers have summarized the central findings of studies showing that ethical firms, including those that create positive cultures, outperform their competitors in the following areas: productivity, innovation, quality, customer retention, employee loyalty, and profitability. Perhaps paradoxically, ethical firms extend their lead over these preoccupied with material success in difficult circumstances, such as the airlines following Sept. 11 and the recent economic downturn.

Researchers have reported that scores on tests of moral judgment predict good clinical judgment of physicians, high scores on moral reasoning and related to high clinical performance of dental students. There are several studies showing that moral skills are associated with fewer malpractice claims among medical practitioners.

Let's be as fair as we can about the evidence for the association between ethics and success. Although it demonstrates that such a connection can be found in general, it is not inevitable. Further, there is no way to determine for certain which way the causal arrow is pointing. It is possible that individuals and organizations that are successful can afford the luxury of being moral. It is quite plausible that faulty ethics symptomatic of low competence in the material sense. All of this said, the smart money would be on pursuing a career grounded in both excellence in dentistry and moral strength: they are certainly not incompatible.

The discussion above has one major qualification: it is only true when the prevailing ethic in society is positive toward morality. The strong association between ethics and success would not be likely in a prison environment, among gangs and groups of con artists, or even in some industries. When the prevailing culture is winner take all, the ethical practitioner is only eligible for the Dr. Chump Prize.

The nub:

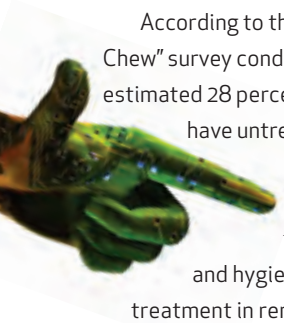
1. Never use ethics as an excuse for not having succeeded as a dentist.
2. Never use the goal of success as an excuse for skimping on ethics.
3. Build a general culture of ethics as a protection against being caught as a chump.

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.

Underserved Populations to Benefit From 'Virtual Dentists' Project

Thanks to a four-year pilot project called Virtual Dental Home, underserved adults and children in various parts of California will be able obtain dental care free of charge.

With support from the California Dental Association Foundation, the Paradise Valley Community Health Fund of the San Diego Foundation, Verizon, and the California HealthCare Foundation, the Arthur A. Dugoni School of Dentistry was able to develop the project that widens and improves access to dental care.



According to the "Mommy, It Hurts to Chew" survey conducted four years ago, an estimated 28 percent of children in California have untreated tooth decay.

Participating dentists will use virtual technology to direct dental assistants and hygienists to provide preventive treatment in remote/underserved communities. The dentists will be able to access the dental records of a patient and recommend a treatment plan as part of the pilot program. The dentists will be able to direct the remote auxiliaries to temporize emergent restorative needs; travel assistance will be available to those patients requiring treatment by the dentist.

Prestigious Dental Museum Looking to Boost Fan Base

The National Museum of Dentistry is looking for friends, Facebook fans specifically, and will award a private tour package to one lucky winner.

The Maryland-based museum is looking to reach 5,000 Facebook fans by June 1 in an effort to raise its profile globally and assist in its goal to improve oral health throughout the country.

Those who join by the deadline have an opportunity to win a tour that includes an exclusive curator-led tour of the museum for six people, including a rare chance to get up close and personal with George Washington's choppers; a peek into the museum vault, where some of the most curious dental treasures are stored; a swag bag from the museum's gift shop; as well as smile kits for each of the winner's guests, including toothbrushes, toothpaste and floss.

The winner will be selected at random June 4 and has until Dec. 31 to redeem the tour package.

To become a Facebook fan, go to http://www.facebook.com/pages/Baltimore-MD/National-Museum-of-Dentistry/175645079998 and for more information go to smile-experience.org.

UPCOMING MEETINGS

2010	
May 13–16	*CDA Presents The Art and Science of Dentistry*, Anaheim, 800-CDA-SMILE (232-7645), cdapresents.com.
May27-29	Canadian Academy of Periodontology 55th annual general meeting, Vancouver, BC, cap-acp.ca.
June 24-26	ADA Committee on the New Dentist, San Diego, (312) 440-2779, newdentist@ada.org.
Aug. 20-21	World Congress of Minimally Invasive Dentistry 11th annual conference, San Diego, wcmidentistry.com.
Sept. 2-5	FDI Annual Dental World Congress, Salvador, Brazil, congress@fdiworldental.org
Sept. 9–11	*CDA Presents The Art and Science of Dentistry*, San Francisco, 800-CDA-SMILE (232-7645), cdapresents.com.
Nov. 7–13	United States Dental Tennis Association, Grand Wailea, Hawaii, dentaltennis.org.
2011	
May 12-15	*CDA Presents* the Art and Science of Dentistry, Anaheim, 800-CDA-SMILE (232-7645), cdapresents.com.
Sept. 22-24	*CDA Presents* the Art and Science of Dentistry, San Francisco, 800-CDA-SMILE (232-7645), cdapresents.com.

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

Honors

During the Arthur A. Dugoni School of Dentistry's 111th annual alumni meeting, **Richard Fredekind, DDS**, and **N. Karl Haden, PhD**, were honored with the school's Medallion of Distinction Awards. The awards were in recognition of their years of service and support to the dental school.

Fredekind serves as professor and associate dean for clinical services. He continues to be a project director of the Future of the Clinic Information System project, and assisted in the implementation of a new, paperless clinic information system — throughout all clinics — to improve the way dentistry is taught and how patients are treated.

Richard Fredekind, DDS, (left) with Marvin Carnow, DDS, former Alumni Association president.

Dr. Carnow (left), N. Karl Haden, PhD (center), Dean Patrick J. Ferrillo, Jr., DDS (right).

Haden is the founder and president of the Academy of Academic Leadership and has been instrumental in developing the school's strategic plan, as well as consulted with both the Alumni Association and Pacific Dugoni Foundation to help these organizations with their strategic planning. Haden helped the dental school launch a new initiative, the Center for Advancing Learning and Teaching, to foster career development in the areas of learning, teaching, and leadership.

The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.

ALBERT EINSTEIN

Prestigious Max Planck Award Given to NY Researcher

This year's Max Planck Research Award has been given to Timothy Bromage, PhD, of New York University College of Dentistry.

Bromage will collaborate with Friedemann Schrenk, PhD, of Frankfurt's Senckenberg Research Institute to research the microanatomical structure of teeth and bones, as well as the links between metabolic states, growth rates, life spans, and biological features such as body size and gender, according to a press release.

Presented by the Max Planck Society and Alexander von Humboldt Foundation, the honor includes a stipend of $1.02 million. The award, given to two researchers yearly, will be presented this June during the annual meeting of the Max Planck Society in Hanover, Germany. Michael Tomasello, director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, is this year's other winner.

The selection committee, commenting on Bromage's qualifications, said his research on the microanatomical structure of ancestral human teeth and bones have established the modern fields of human evolution growth, development, and life history — the pace by which an organism grows. Bromage is a professor of basic science and craniofacial biology and of biomaterials and biomimetics.

"Dr. Bromage has fundamentally altered the field of human evolution by prompting paradigm shifts in morphology, fieldwork, and experimental biology, thereby establishing the modern field of growth, development, and life history in paleoanthropology," said Charles N. Bertolami, DDS, DMedSc, dean of the NYU College of Dentistry, and former professor and dean at the University of California, San Francisco, School of Dentistry.

Timothy Bromage, PhD

CDA JOURNAL, VOL 38, Nº5

Early Births 'Linked' to Gum Disease

Pregnant women whose gum treatment was unsuccessful had three times the risk of delivering their baby prior to 35 weeks. And while experts from the United Kingdom referred to the finding as "controversial," they still advised the expectant mothers to look after their gums and teeth.

The study, conducted by researchers at the University of Pennsylvania, involved 160 women who were between six and 20 weeks' pregnant, according to a press release. It had been established previously by physicians that severe gum infections may lead to a boost in the production of prostaglandin and tumor necrosis factors, chemical reactions that can induce labor, to be produced. All of the participants suffered from gum disease and were given treatment, of which only one-third of the cases were successful. According to a press release, researchers found a "strong and significant association" between successful treatment and full-term births. Those whose treatment failed were "significantly more likely" to deliver their baby prior to 35 weeks.

"This paper adds to the growing evidence around links between gum disease and preterm babies," said Nigel Carter, DDS, chief executive of the British Dental Health Foundation.

UK experts acknowledged the study was small, adding more research should be conducted. Iain Chapple, PhD, BDS, a professor from Birmingham Dental School, said this was a "controversial area," and that while some previous studies had shown an association between gum disease and early births, others had shown no association, according to a press release. Additionally, Chapple said the results "could reflect behavioral differences in the successfully treated group versus the unsuccessfully treated group" for example, "poorer diets, smoking status, alcohol intake, and many other issues."

The *Journal of the California Dental Association* will devote two issues this year on this topic. In June, the *Journal* will publish the complete perinatal guidelines from the Perinatal Oral Health Consensus Conference. In September, the *Journal* will cover clinical applications of those guidelines.

GlaxoSmithKline to Switch to Zinc-Free Products

Concerns over "potential health risks associated with long-term excessive use of zinc-containing denture adhesives" have prompted GlaxoSmithKline to willingly cease the distribution as well as the manufacture of denture creams that contain that mineral.

Howard Marsh, MD, GSK's chief medical officer, said the company's voluntary decision was a precautionary measure and asked that doctors with patients who report neurological symptoms associated with long-term, excessive denture adhesive use to report such cases by calling 866-640-1017, according to a recent press release.

The Food and Drug Administration currently has not issued any advisory to the public nor to the dental profession regarding these zinc-containing creams. The GSK products affected are: Super Poligrip Original, Super Poligrip Ultra Fresh, and Super Poligrip Extra Care. The company will start making zinc-free versions of these listed products. To read the entire GSK statement, go to gsk.com/media/pressreleases/2010/2010_pressrelease_10017.htm

cda PRESENTS

THE ART AND SCIENCE OF DENTISTRY

San Francisco | Moscone South

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

cdapresents.com

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 email containing a link that will take you to your C.E. certificate online, which can be printed.

- You may also access your C.E. certificate on **cdapresents.com.** Please be prepared to enter your last name and license number as listed with the dental board.

- If you would like a copy of your certificate mailed to you, just call 800.CDA.SMILE approximately three to four weeks after the show. To ensure credit for all fully-completed courses, please have your three digit course codes available.

Save $100 on course audio recordings!

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

Online Library

- 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**


View Control
ADA 11
ADA 14
ADA 15
1. Import
2. Segment

CDA JOURNAL, VOL 38, Nº5

iDentistry — Recent Advances Within the Digital Restorative Arena

PARAG R. KACHALIA, DDS

GUEST EDITOR

Parag R. Kachalia, DDS, is an assistant professor and director of New Technologies, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, and in private practice in San Ramon, Calif.

When Bill Gates and Paul Allen founded Microsoft nearly 35 years ago, they started with a vision that a personal computer at some point would be in every home. It is safe to say at that time they could not have imagined that the cell phones many of us now carry in our pockets are essentially computers that are far more powerful than anything that existed then. This exponential advancement in technology even allows digital radiographs or video to be transferred to devices, such as the iPhone, with exceptional resolution and quality. This example of the digital world as it relates to dentistry is just the tip of the iceberg.

CDA JOURNAL, VOL 38, Nº5

In fact, many of the technologies that are now present in the marketplace were actually conceived in the minds of our patients, in addition to the research labs of dental schools around the country. One clear example of this is the development of Invisalign by Zia Chishti and Kelsey Wirth who had a background in business and computer science. Essentially they utilized computer-aided design and computer-aided manufacturing, CAD/CAM, to create orthodontic aligners that have now treated more than one million patients. The move toward CAD/CAM technology is particularly evident in the dental restorative arena. Within restorative dentistry, innovations are being made that will ultimately allow more comfortable patient experiences at a level of precision that was unfathomable 20 years ago.

Today's digital dental world is literally one in which a patient can come to our offices fully edentulous and leave one to two hours later with a complete dentition restored with a computer-guided implant placement. Case planning occurs over a series of appointments, but the actual treatment time may be relatively short because of the advancements in technology. While the "teeth in an hour" technological advancements provide a great service to our patients, the vast majority of our patients require single-tooth restorations; it is within this area of dentistry that CAD/CAM technology has truly advanced.

While all of us have the intention of providing a great service to our patients utilizing the finest materials, unfortunately indirect restorations can be fraught with error. The traditional process starts with an impression material that must capture fine detail in a moist environment with adequate soft-tissue retraction, it must then maintain dimensional stability, an accurate master cast must be poured, followed by a precisely trimmed die, and, ultimately, a restoration must be fabricated using a lost wax technique. Fortunately, with a combination of meticulous clinicians and highly trained laboratory technicians more often than not, excellent restorations are provided to our patients. Most of us can agree that in an ideal world a device would be able to capture an accurate digital image through soft tissue and fabricate a very accurate restoration chairside with materials that are naturally colored, yet maintain physical properties that are better than or mimic natural tooth structure.

Today's digital dental world is literally one in which a patient can come to our offices fully edentulous and leave one to two hours later with a complete dentition restored with a computer-guided implant placement.

This ideal world has not become a reality yet; however, we are headed in the right direction. In this issue, a series of articles will be presented concentrating on recent advances in technology as well as the incorporation of technology into the average practice. In particular, articles in this issue will demonstrate that the adoption of the digital dentistry can be as simple as the adoption of new restorative materials or a more extensive adoption involving the purchase and implementation of hardware and software.

Dr. Marc Geissberger and I address the advancements in the chairside digital restorative arena. The paper provides information as it relates to digital impression systems as well as systems that allow digital impression capture, as well as restoration fabrication. The article will examine the current technology in terms of image acquisition, laboratory communication, model fabrication, restoration fabrication, and capital investment.

Dr. James B. Morris provides insight into a paradigm change in regard to implant dentistry. He provides an overview of implant treatment case planning utilizing software platforms that incorporate information obtained from computerized tomography. In addition, he will give a brief overview of the costs involved of incorporating this technology within one's practice.

Finally, Dr. Foroud Hakim will discuss strategies and implications of incorporating technology at the private practice level. He will examine the implementation of technology through a discussion of practice demographics and the image a practice would like to demonstrate. In addition, he also will offer a more broad scope approach to determining one's return of investment.

The primary goal of this article is to give today's practitioner insight into the world of digital dentistry. It is the belief of the authors that the digital arena will continue to expand and it is incumbent upon the profession to keep abreast of these advances. Direct to patient marketing has been very successful in the pharmaceutical arena and we can probably expect to see dental marketing that goes right to our patients as well. Our patient population is becoming more and more educated about options that are available in the marketplace and it will be our jobs as health care providers to help separate fact from fiction. It is to be understood that any technological advancement is simply a new instrument within our armamentarium and nothing replaces our decision-making ... at least not yet. ■■■■

CDA JOURNAL, VOL 38, Nº5

Dentistry a la Carte: In-office CAD/CAM Technology

PARAG R. KACHALIA, DDS, AND MARC J. GEISSBERGER, DDS

ABSTRACT This article examines the differences among four in-office computer-aided design/computer-aided manufacturing restorative technologies. Two acquisition media systems, 3M ESPE's Lava COS and Cadent's iTero, are compared and contrasted. Additionally, two acquisition and manufacturing media, Sirona's CEREC AC and D4D's E4D, are examined. Image acquisition techniques and cast fabrication methodologies are compared between Lava COS and iTero. In addition, image acquisition, cast fabrication, and restoration fabrication methodologies are discussed as related to CEREC AC and E4D. Strategies for computer-aided design/computer-aided manufacturing incorporation into practice are explored.

AUTHORS

Parag R. Kachalia, DDS, is an assistant professor and director of New Technologies, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, and in private practice in San Ramon, Calif.

Marc J. Geissberger, DDS, is an associate professor and chair, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry.

More than 20 years ago, digital dentistry entered the marketplace with the introduction of CEREC (ceramic reconstruction) 1 and shortly thereafter NobelProcera Crown Titanium. These two technologies essentially serve as the match that lit the fuse for the advancement of digital dentistry, as it is known it today. Drs. Werner Mörmann and Marco Brandestini, the developers of CEREC, had a vision to restore teeth within a single visit to proper function and form utilizing tooth colored restorations.[1] This vision, in their eyes, would be accomplished with a chairside device that would precisely image the prepared tooth and produce a custom restoration. At the time of CEREC's initial launch, their vision became a reality even though these restorations were rudimentary in nature. Today, the world of dental computer-aided design/computer-aided manufacturing, CAD/CAM, technology has truly expanded well beyond the initial vision of Drs. Mörmann and Brandestini, and it is ever expanding.

It is safe to say the world of digital dentistry truly exists today and it is not simply a bench-top modality that resides in the garage of a Silicon Valley startup. Digital dentistry, as it relates to the restorative arena, primarily exists in two forms loosely termed acquisition media and acquisition and manufacturing media. If one is contemplating an entry into the digital dental world, the practitioner essentially needs to decide whether he or she would like a technology that captures a digital impression or a technology that both captures a digital impression and fabricates a single-unit restoration. This article will focus on the attributes of each of these modalities and give the practitioner

FIGURE 1. Lava COS.

FIGURE 2. Cadent iTero.

FIGURE 3. CEREC AC with the CEREC Bluecam.

insight into the specific nuances of each of the systems that are being presented.

At the time of this writing, four technologies control the vast majority of market share as it relates to the in-office restorative CAD/CAM arena. The Lava chairside oral scanner, Lava COS, (**FIGURE 1**) manufactured by the Brontes division of 3M ESPE, and iTero (**FIGURE 2**), manufactured by Cadent Corporation, are the two primary technologies that would be classified solely as acquisition technologies. CEREC AC (**FIGURE 3**) by Sirona Dental Systems and E4D (**FIGURE 4**) by D4D Technologies are technologies that were developed to accomplish both digital acquisition and in-office manufacturing of restorations. This article will initially focus on each technology in relation to image acquisition, followed by laboratory communication as it relates to data transfer and model fabrication, restoration fabrication, and, finally, capital investment.

Image Acquisition

iTero

In terms of digital image acquisition, all four systems that will be presented have their own unique capturing technology. Of the technologies that will be discussed, iTero by Cadent was the first system to assume the role solely as a digital impression system for traditional crown and bridge dentistry. The iTero system accomplishes its scanning technique by a modality that the company terms parallel confocal imaging. In this imaging technique, parallel beams of light are sent through a small hole and the various optical components of the system before making contact with the object that is to be scanned. The beams that hit the object at the perfect focal length bounce off of and back through a small hole.

Ultimately, these beams of light hit a sensor and a conversion to a digital image occurs. iTero further expands on this principle by projecting 100,000 beams of parallel red laser light at 300 different focal depths that are spaced approximately 50 microns apart. This spacing allows for an approximate depth of scan between 13 and 15 mm. In total, the system captures approximately 3.5 million data points for each arch that is scanned.[2] Being that the iTero system can image all restorations and various components of natural dentition without the use of any type of opaque scanning powder, the operator can literally place the scanner directly in contact with the dentition without any image distortion. The portion of the scanner that makes contact with dentition is a disposable hard plastic imaging sleeve that protects the optics internally (**FIGURE 5**). The sleeves' disposable nature also eases the clean up for the practitioner and his or her staff.

After the practitioner has performed proper soft-tissue retraction by any method that he or she chooses, the practitioner can begin the scanning process after filling out an electronic lab slip. It is important to note that an electronic laboratory work authorization form must be filled out in the iTero system before any imaging is allowed. During the laboratory form phase, the clinician will notate on the form the type(s) of restoration(s) that will be fabricated, the type of margin design that is being utilized, the shade, if necessary, will also be notated here, as well as the type of master cast that is being requested. The clinician has the option of choosing a quadrant scan, an extended quadrant scan that includes the contralateral canine, or full-arch scan. As would be expected, the total imaging time increases any time an extended quadrant or full-arch scan is requested.

Once this laboratory form has been filled out, the clinician can begin to scan the patient based on automated verbal and text prompts that are being presented by the iTero unit. Essentially, the clinician will capture a minimum of five views of all the prepared teeth including occlusal, buccal, lingual, and both interproximal views.

In addition, the clinician must also capture angled buccal and lingual views

FIGURE 4. E4D by D4D Technologies.

of all the remaining teeth that would fall into the arch form. After each scan, the clinician has the opportunity to accept or reject any scan that is deemed successful by the system. In the event that a completely inaccurate scan is taken, the software will actually force the clinician to retake the scan to prevent poor data from being integrated into the virtual model. Once these views have been captured, the clinician will then take a virtual interocclusal record by having the patient close down into maximum intercuspation. This record will complete the required scan protocol and the cast will begin to be rendered on the screen.

During the rendering period, the software essentially merges common data between all the scans as well as the interocclusal record scan allowing a virtually articulated cast to appear. In this rendered view, the clinician has the opportunity to move the virtual casts in any direction looking for any potential voids in data acquisition that will be appropriately color-coded, as well as visualize prep form and interocclusal clearance (**FIGURE 6**). At this point, the clinician has free reign to take any additional scans and the software will automatically add these scans to the virtual casts and re-render the image. Once the clinician is satisfied with the virtual models, the file is sent to Cadent for cast fabrication.

FIGURE 5. Cadent iTero camera positioned intraorally.

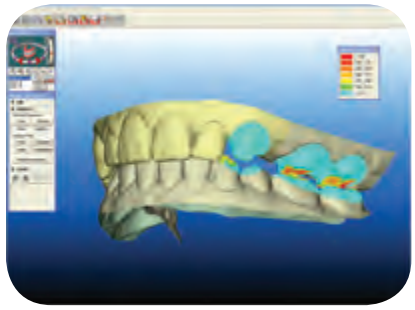


FIGURE 6. Cadent iTero rendered scan depicting intraoral restorative clearance

Lava COS

3M ESPE has used the Lava brand name for a number of years now. This Lava brand has historically referred to a proprietary zirconia substructure and the corresponding in-lab cast scanning and coping fabrication technology. 3M ESPE now uses the term Lava as a somewhat generic term in reference to products related to its digital workflow. In 2006, 3M purchased Brontes Technologies Inc. of Lexington, Mass., for nearly $100 million in cash in order to gain access to the technology that would lead to the development of the Lava COS.[3] While all the other technologies that will be presented use some form of still image acquisition, the Lava COS system is the only digital impression system in the marketplace that captures images at a video rate. The camera used to capture this video has a series of 192 blue LED lights and 22 lenses (**FIGURE 7**).

The system has the three complimentary metal oxide semiconductor, CMOS, sensors that are able to capture data from three different perspectives simultaneously. As the operator utilizes the wand in a clockwise to counterclockwise rotation, the camera captures continuous data sets and a virtual cast is rendered in real time as the data sets are being captured. The Lava COS technology captures 20 3-D data sets per second and each data set contains 10,000 data points of information. The rendered digital impression will be a culmination of the roughly 24 million data points captured per arch. The operator has a field of view of approximately 10 mm by 13.5 mm in which data is being captured.

In addition, the operator must stay at a working depth of 5 mm to 15 mm from the surface being captured. If the operator violates this range, the system automatically stops capturing data until the operator is back into the proper working depth. This ability for the system to stop the data capture is essentially a fail-safe component built into the unit so that poor data is not integrated into the rendered scan.[4]

Similar to other systems that will be discussed, the Lava COS requires proper soft-tissue retraction before any data capture can occur. The system with its blue LED acquisition technology requires a very light dusting of any surfaces that will be scanned. The light dusting, utilizing a titanium dioxide powder, essentially allows the oral structures to be highlighted so that video capture can be initiated. As the operator begins to capture data and an image is rendering on the screen, the operator is allowed to quickly visualize areas of low data that are displayed with a reddish hue versus areas of complete data that appear as a grayish-white colorization.

Upon completion of scanning both arches, an interocclusal record will also be captured. Similar to the iTero system, a buccal view of the patient's arch form is captured while the patient is closing into maximum intercuspation. The system then utilizes the orientation to merge the scans of the maxillary and mandibular arch form into proper articulation. Upon completion of the scanning, the operator is able to view the virtual mode in all

FIGURE 7. Lava COS intraoral wand.

FIGURE 8. Blue light pattern displayed over powdered occlusal and axial surfaces.

dimensions as the system allows a free rotation. And, unlike any other system in the marketplace, the operator can view a true 3-D rendering by putting on 3-D glasses. This view literally lets the clinician visualize the prepared finish line into the depth of the sulcus assuming proper retraction was achieved. Once the operator has approved all the data capture, a laboratory work authorization form is sent out and a digital impression is sent to the laboratory via an Internet connection.

CEREC AC With Bluecam

CEREC by Sirona Dental Systems is the most recognized name within the in-office CAD/CAM dentistry. In the last 20 years, CEREC has undergone an evolution beyond fabricating simply inlays and onlays, the original goal of the technology. Until recently, the technology was solely dedicated to digital image acquisition in order to fabricate single-unit all-ceramic restorations utilizing CEREC's proprietary in-office milling system. In the most recent evolution of the technology, Sirona has now positioned the CEREC business model so that a clinician can purchase the scanning unit of the system without purchasing the milling unit. In this model, the clinician is able to use the scanning unit, termed CEREC AC, acquisition center, as a digital impression system.

Current versions of CEREC AC utilize a blue LED technology to scan the dentition (**FIGURE 8**). Prior versions of CEREC utilized a red light technology with a larger wavelength compared to the shorter wavelength associated with CEREC AC. In addition to the change in the type of light used to image the dentition, Sirona has also implemented improved optics and image sensors compared to the CEREC 3-D technology. Once proper soft-tissue management has been achieved, the operator is able to position the camera along the path of insertion or occlusal view and capture the required data. Unlike other systems being discussed, only a single orientation of the camera is required and the camera is theoretically able to capture all the details of the dentition from this single orientation. At times, more scans may be required and the operator is able to add these additional scans. The operator then steps around the arch form and overlapping data is merged to create a virtual cast that will be rendered on the screen.

It is important to note, in comparison to other technology in the marketplace, CEREC AC is the only system that does not force the operator to acquire images from multiple angles; rather, it is able to capture appropriate data from a path of insertion view only; however, it does require a fair amount of the titanium dioxide opaquing powder in order to accomplish the data acquisition. The amount of powder utilized is significantly less than prior generations of the CEREC technology. The CEREC AC system with Bluecam utilizes a technique known as active triangulation.[5] In this technique, the camera essentially shines a varying pattern of blue light onto the dentition and the reflective light is read back at a slightly different angle, ultimately creating a digitized cast. As the camera is positioned over the area to be imaged, the camera will record a series of images without the operator having to manually capture an image via the activation of a foot pedal. In fact, this newest version of CEREC does not even come with a foot pedal because it is not needed. As soon as the camera is positioned without any drastic movement, image acquisition occurs and images that may contain inaccurate data are automatically filtered out.

The optical component changes relative to CEREC 3-D now allow the camera to operate with a greater depth of field. To relate the prepared dentition to the opposing occlusion, the clinician simply takes a partial interocclusal record utilizing a special reflective registration material if the operator is planning to mill the restoration utilizing one of Sirona's milling platforms. If the clinician is essentially using the CEREC AC system as a digital impression system that will lead to a master cast, then he/she must also scan the opposing dentition in addition to the partial interocclusal record scan. Once all the necessary images are acquired, the operator can either choose to fabricate the restoration within the office setting if he/she has also purchased the milling center or the images can be sent to a laboratory within Sirona's CEREC Connect network. The CEREC Connect network is a group of labs that have partnered with Sirona and they have the ability to mill ceramic or composite resin restorations or a master cast can be fabricated allowing the clinician essentially free reign in terms of restorative material options.

E4D

E4D, Evolution for Dentistry, manufactured by D4D technologies in Richardson, Texas, is the newest arrival to the marketplace in terms of a device that offers a total office solution. In 2003, D4D technologies was launched, and, in 2006, Henry Schein, 3M ESPE, and Ivoclar

FIGURE 9. ICE "I see everything view" depicting clear margins after intraoral scanning with the E4D system.

made an investment into the company along with the formation of a strategic partnership.[6] The D4D business model is one of vertical integration. In this model, nearly everything related to the E4D systems occurs in Richardson. This allows the company to maintain control along the entire stream from the time a concept is thought of through production of the system and training of the customer. D4D believes this vertical integration model allows the company to quickly respond to customer feedback allowing continual improvement of their products. Similar to the CEREC AC system, E4D allows the clinician to purchase the digital impression scanning system solely or he/she can pair it with an in office milling system. While E4D shares a similar generic concept to CEREC its technology varies greatly from that of CEREC AC.

Unlike Lava COS and CEREC AC, E4D does not require the use of any imaging powder or coating in most cases. At times when a patient has very translucent enamel at the cavosurface or a metallic restoration is present on an adjacent tooth, the system does require the area to be coated with a titanium dioxide liquid. The system utilizes a red light laser and micromirrors that oscillate at 20,000 cycles per second to capture a series of images and ultimately render a 3-D model. This red laser technology does require the clinician to obtain scans from multiple angles around the tooth or teeth that have been prepared. Theoretically, this multi-image view increases the total image capture time relative to the CEREC AC system; however, this allows the system to truly capture all the surfaces of the dentition being scanned without the use of an opaquing medium.

During the image acquisition phase, the operator has the option to choose either a manual scan technique that forces the operator to depress a foot pedal or he/she is able to use a rapid-scan feature where the camera will automatically capture an image when it is in focus. The operator can also choose to use a combination of these features during any scanning sequence as it is very simple to toggle back and forth between manual and rapid scan. The technology also allows the clinician to customize the sensitivity and rate at which the rapid scan feature operates. The intraoral wand that is used for scanning maintains a fixed distance from the area being imaged by utilizing a specially designed autoclavable rubber stopper. As images are captured, a 3-D cast is generated on the screen in real time and the operator is able to rotate the cast in all directions to visualize the completeness of data capture. In the event a specific area of the model does not have adequate data, a varying color will appear on the monitor informing the operator to acquire more data at a given location.

IN ALL THE technologies that have been discussed, moisture control is critical in order to obtain an accurate digital impression.

The software also allows the operator to view the 3-D model in a view termed ICE, "I see everything," mode. In this mode the operator is essentially able to visualize a series of individual images that were obtained to render a specific area on the model (**FIGURE 9**). This view is recommended for the operator to visualize areas such as subgingival finish lines that may be difficult to differentiate on the rendered cast. Similar to other technologies in the marketplace, the E4D system also requires precise tissue management, so that a proper scan can be made. Being that the technology generally does not utilize an opaquing media for scanning, it has the ability to also scan casts or traditional polyvinyl or polyether impressions. This is particularly advantageous if a patient has a limited opening or a very high salivary flow.

In all the technologies that have been discussed, moisture control is critical in order to obtain an accurate digital impression. The ability to scan an impression or cast is also helpful for situations where the finish line on a tooth may be significantly subgingival. In this scenario, it may be feasible to obtain proper retraction so that impression material may flow to the area and capture an accurate impression; however, the finish line may be in an area that would be very hard to acquire an accurate image. Prior to the release of the E4D, the clinician would have had to fabricate this restoration utilizing a laboratory. While this multimedia scanning advancement would still allow this restoration to be fabricated in-house if the milling system was also purchased.

In the vast majority of scenarios where the clinician is able to capture a digital impression intraorally, similar to CEREC technology, single or multiple restorations can be fabricated in-house

FIGURE 10A. Master cast displaying accurate soft tissue. Cast fabricated by Cadent after completing intraoral iTero scan.

FIGURE 10B. Restorations depicted in Figure 10a delivered to patient. Note accuracy of soft tissue between Figures 10a and 10b.

FIGURE 11. Master cast created via steriolithography by 3M ESPE.

if a milling unit is present or the digital file can be sent to a partner laboratory for restoration fabrication. D4D technologies soon will also allow the digital data set to be converted into a master cast so that any restoration can be fabricated.

Cast Fabrication

In the marketplace today, two techniques in cast fabrication are present. Generally speaking, these techniques can be termed subtractive or additive. The iTero system uses a subtractive technique for cast fabrication while Lava COS, CEREC AC, and E4D all transmit their data files to a process that will create casts via an additive process of polymer resin in a defined shape.

The iTero system uses a modeling process that utilizes a computer numerical-controlled five-axis milling manufactured by Haas Automation Inc. of Oxnard, Calif.[2] The machine takes the data from the scan and converts it into a language the milling machine can understand. Most recently, the iTero system has expanded its technology to open architecture software. In this format, the scan and corresponding data that is acquired can be utilized by various CAD/CAM systems. This open architecture software allows a coping to be fabricated prior to a cast being milled. This could also potentially allow all-ceramic, full-contour restorations to be fabricated without having to fabricate a master cast. The iTero milling system is setup so that the maxillary arch, mandibular arch, and dies are milled separately from a polyurethane material, and then married together.

The casts are designed so they can be mounted utilizing a proprietary iTero hinge articulator. This articulation is based on the digital interocclusal record that was made from an intraoral scan. In addition, considering the dies are milled independently of the maxillary and mandibular arch form, the soft-tissue integrity is maintained on the cast. In traditional cast fabrication, the dies need to be sawed out, leading to a soft-tissue architecture that is essentially destroyed on the cast. In Cadent's modeling technique, this soft-tissue architecture is preserved to a much greater level and is particularly helpful in fabricating restorations in the esthetic zone (**FIGURES 10A AND 10B**)

Lava COS, CEREC AC, and E4D all utilize a process known as stereolithography, SLA, to fabricate their casts from digital information. It is important to note that as of the writing of this article, E4D has mentioned it will have the possibility to generate SLA models with a partner laboratory, but the option is not available at this time.

In regard to Lava COS, once the digital information is captured within one's individual office, the information is sent to an authorized partner laboratory where they digitally cut the die and mark the finish line. Once this is completed, 3M ESPE receives the digital file and the die is virtually trimmed, and the data is articulated with the operative, opposing and interocclusal record scans. This information then is sent to the partner laboratory and the lab can choose to start concurrent manufacturing. In this concurrent manufacturing model, while 3M ESPE is fabricating an SLA model, the partner laboratory can essentially create either wax or zirconia copings before physically receiving the SLA model (**FIGURE 11**). If a partner laboratory is equipped with a Lava CNC 500 milling machine, the laboratory will have the ability to mill a full-contour glass ceramic restoration as well.

In the Lava digital workflow business model, the clinician is not restricted to only using 3M partner laboratories, he/she can utilize any laboratory. A nonpartner laboratory can still receive the SLA models form 3M ESPE, but it must work with a partner lab to digitally cut the die and mark the finish line. Currently an incremental cost of approximately $10 will be charged to the nonpartner lab for this service, in addition to any cost incurred for cast fabrication. The CEREC AC system can also export its data to create an SLA cast. The CEREC AC user simply uploads the information to the CEREC Connect portal and a partner laboratory makes a decision whether a physical cast is needed.

Generally speaking, single-unit, noncoping-based all-ceramic or composite restoration may be fabricated without the need of a physical cast. In this scenario the partner laboratory would utilize a CEREC inLab milling system to fabricate the restoration. If a physical cast is needed, the partner laboratory can simply order a cast form using Sirona's outsourcing lab infiniDent. This lab will produce an SLA cast and a concurrent manufacturing process similar to Lava COS digital workflow is possible. In the current business model, a practitioner must utilize a laboratory that is part of the CEREC Connect network.

FIGURE 12. E4D monitor depicting the ability to concurrently design multiple restorations.

TABLE 1

Cost Structure Associated With Each System

	Scanning Unit	Scan and Mill	Scan Cost to Doctor
iTero	$28,000	Not available	$25-$35 per scan
Lava COS	$26,900	Not available	$16-$20 per scan + $2 for each additional prepared tooth
CEREC AC	$23,995	$119,995 w/ (MCXL milling unit) $89,995 (compact milling unit)	$24.95 per scan, unlimited plan is available with increased upfront cost
E4D	$41,100	$116,500	Not yet announced

In-office Manufacturing

Currently, the E4D system and CEREC AC with Bluecam are the only two systems that have the ability to manufacture restorations within the office when they are paired with their respective milling systems. While in principle the two systems ultimately create single-unit, all-ceramic or composite resin restorations out of similar or identical material, each system designs and mills these restorations in their own proprietary fashion. Both systems have anatomic libraries that have been created and the systems utilize the information from the library as well as the anatomic form of the patient's own dentition and occlusion to create a proposed restoration. Ultimately these proposed restorations can be modified in any dimension with a series of virtual wax adders and wax knives.

After making these modifications, the individual designing the restoration is able to visualize material thickness as well as strength of proximal and occlusal contacts. The designer also has the ability to modify specific aspects of the restoration such as the thickness of virtual die spacer that will be used. One of the major differences between the systems is in the processing of multiple restorations. While both systems have the ability to create multiple restorations on a given patient, each operates this process differently. The key difference between the systems is that in the CEREC workflow, the designer must design one restoration at a time and cannot go back and forth between multiple restorations. The E4D system literally allows the designer to work concurrently on up to 16 restorations. This feature can be particularly beneficial if the clinician wishes to utilize the technology for restorations in the esthetic zone (**FIGURE 12**). An additional benefit of the E4D technology is that a clone feature is built into the software to allow the designer to scan a diagnostic wax-up or preprepared dentition that the system clones for the fabrication of the final restoration.

Incorporation Into Practice

Digital dentistry is not something that is in the far-off future, rather it is something that is here to stay and may eventually replace impression material and gypsum casts as we know it. If a practitioner has the desire to incorporate digital dentistry into his/her practice, the question that needs to be asked is, "To what level do I want to incorporate digital dentistry?" If a practitioner simply wants to replace impression material, any of the four systems in the marketplace will satisfy this goal. However, iTero and the Lava COS system were developed as impression systems only. These "impression-only" systems may actually be the perfect entry point into the digital arena. If the practitioner wants a digital impression system with the option of adding a milling system, he/she should consider either CEREC or E4D. These two systems should also be considered if a total office solution is desired from Day One. It is also understood that implementation of digital technology also comes with a significant investment and that investment should be viewed beyond the actual dollar amount that is paid for the technology.

In purchasing a digital impression solution, the practitioner must understand the investment may ultimately replace the cost of impression material and may potentially reduce chairtime in terms of impression acquisition and restoration delivery if it is proven that a digital solution on average provides a more accurate result. It is to be understood that to date these digital impression systems are relatively new to the marketplace and very little scientific literature is available demonstrating accuracy via a double-blind study. In terms of units, such as E4D and CEREC AC, that yield a more complete restorative solution, a cost savings related to impression material, provisional material, reduction in chairtime, and laboratory bill can ultimately offset the practitioner's investment.

At this time, those looking at in-office CAD/CAM systems should understand that only single-unit restorations can be fabricated from either porcelain or resin, as well as splinted provisional restoration made out of acrylic resin. Taking this material limitation into account it is safe to say that as long as the practitioner is comfortable with the use of these materials in the posterior dentition approxi-

mately 60 percent to 70 percent of one's laboratory bill can be reduced. A brief outline of the cost structure associated with each system is displayed in **TABLE 1**.

Where Do We Go From Here?

The advances in technology over the last few years have been phenomenal. Anytime a major advancement occurs with technology a certain level of excitement and fear surround the technology. The advancements seen today are ones that should be embraced as they will ultimately lead to more comfortable appointments for patients and potentially more accurate restorations considering the inaccuracies of impression material and laboratory stone may be taken away in a digital world. The digital world is continuing to evolve as advancements are made via pairing of technologies such as cone beam computed tomography and in-office CAD/CAM technology.

D4D technologies is also critically looking at the application of a technology known as optical coherence tomography, OCT, that will allow digital impressions to be taken without the need for soft-tissue retraction as this technology will be able to distinguish tooth structure, bone, and soft tissue.[7] There are also some companies looking at the utilization of technologies similar to ultrasound to capture virtual impressions of the oral environment. In addition to these advancements, all of the manufacturers mentioned is this article, as well as others, are looking at new approaches to the imaging of implants and abutments, as well as fabrication of implant restorations.

The digital world will continue to evolve and the practitioner will need to look closely at the various players involved in the marketplace. Practitioners will need to carefully evaluate service plans and the ability to upgrade their purchases without facing tremendous additional costs, as new improvements are developed and available on the market.

The reader should be made aware the systems reviewed in this paper all primarily operate within the in-office environment. Many CAD/CAM systems are available for the laboratory environment (i.e., NobelProcera Scanner) and the authors chose not to review these systems at this time. ■■■■

REFERENCES

1. Mörmann WH, The evolution of the CEREC system. *J Am Dent Assoc* 137:7S-13S, September 2006.
2. Henkel GL, Introducing an intraoral scanning device. *Compend Educ Dent* 28(8):422-4, 426-8, 430-1, August 2007.
3. *Boston Business Journal*, Brontes technologies acquired by 3M, October 2006, http://boston.bizjournals.com/boston/stories/2006/10/16/daily5.html. Accessed March 5, 2010.
4. 3M ESPE, Lava chairside oral scanner, technical data sheet, August 2009.
5. Birnbaum NS, Aaronson HB, et al, 3-D digital scanners: a high-tech approach to more accurate dental impressions. *Inside Dent* April 2009. http://www.insidedentistry.net/print.php?id=2682. Accessed March 5, 2010.
6. *Business Wire*, D4D Technologies announces business partnership with Henry Schein, Ivoclar Vivadent, and 3M, July 2006. http://findarticles.com/p/articles/mi_m0EIN/is_2006_July_19/ai_n26930001/. Accessed March 5, 2010.
7. Otis LL, Everett MJ, et al, Optical coherence tomography: a new imaging technology for dentistry. *J Am Dent Assoc* 131:511-4, April 2000.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Parag R. Kachalia, DDS, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, 2155 Webster St., Room 522, San Francisco, Calif., 94115.

Compared to our 100 years of experience, our competitors simply can't fill our shoes.

It's hard to follow in Medical Protective's footsteps. No one else has over 100 years of proven experience defending malpractice claims. No other dental malpractice competitor's financial strength is ranked higher by independent rating agencies. And today, more than ever, the financial strength, integrity and powerful backing of Warren Buffett's Berkshire Hathaway is crucial to the quality of your dental malpractice protection.

Should you trust your career to the best or something less?

Contact us today for a Protection & Price Check-Up

PROTECTION & PRICE CHECK-UP

Email dental@medpro.com

Visit www.medpro.com

Call 800-4MEDPRO

Trust the dental malpractice experts.

MEDICAL PROTECTIVE

Strength. Defense. Solutions. Since 1899.

a Berkshire Hathaway Company

MISCH INTERNATIONAL IMPLANT INSTITUTE

Can You Afford to Enter the World of Implant Dentistry?

Actually, You Can't Afford Not To.

As a dental practitioner, you have the opportunity to improve your patients' health and your bottom line by offering the services of implant dentistry.

New 12-Day Surgical Program
Los Angeles, California

Soft Tissue Solutions
Chicago, Illinois

9-Day Prosthetic Program
Chicago, Illinois

Dr. Carl E. Misch has trained thousands of dentists in predictable implant dentistry at the Misch International Implant Institute. Founded 25 years ago, the Misch International Implant Institute is recognized as the standard of advanced dental implant education. Here, you can learn the skills and implant techniques required to bridge the gap between dental school and the critical knowledge you need to develop a new level of patient care and practice success.

www.misch.com

16231 W. Fourteen Mile Rd. Suite 100, Beverly Hills, Michigan, 48025 USA

Misch International Implant Institute
888-Misch99 or
248-642-3199
info@misch.com
www.misch.com

Academy of General Dentistry
PACE Program Approval for Continuing Education

ADA C·E·R·P Continuing Education Recognition Program

AD4-10

CDA JOURNAL, VOL 38, Nº5

CAD/CAM Options in Dental Implant Treatment Planning

JAMES B. MORRIS, DDS

ABSTRACT Several software platforms are available that use computerized tomography files and proprietary 3-D reformatting to aid in diagnosis, plan implant location, and complete the surgical placement and restoration of dental implants. This article will review traditional versus computerized model of surgical planning, advantages and disadvantages of computer-aided design/computer-aided manufacturing planning, variability in treatment sequence, and a cost analysis of investment into this treatment modality.

AUTHOR

James B. Morris, DDS, FACP, is an assistant professor, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, and in private practice in Mill Valley, Calif.

The use of computer-aided design/computer-aided manufacturing, CAD/CAM, and rapid prototyping techniques are increasingly common in today's manufacturing industry (**FIGURE 1**). Dentistry currently utilizes additive and subtractive types of rapid prototyping: Subtractive rapid prototyping is used in the milling of implant abutments, single- and multiple-unit fixed prostheses and their respective substructures. Examples of additive rapid prototyping include stereolithographic anatomic models, orthodontic alignment indexes, implant placement templates, and duplicate prostheses. Both methods of rapid prototyping require digital image information in combination with proprietary software for planning the restoration (CAD) and appropriate manufacturing equipment for fabrication of a final product (CAM).[1]

Implant treatment planning to include analysis of the proposed location, size, and type of implant system can be completed virtually from a restorative and functional perspective by visualizing the pretreatment functional position of the prosthesis. The files from a computerized tomogram, CT, are imported into the software application where they are reformatted three dimensionally in order to facilitate the planning. If the implants will be restored at the time of surgery, the planning requires the use of a radiographic template or a radiopaque prosthesis set in place during the CT scan.[2] The fabrication of the implant placement template and the prosthesis in some applications is completed as part of the virtual plan.[3] There are similarities and some definite differences between traditional and CAD/

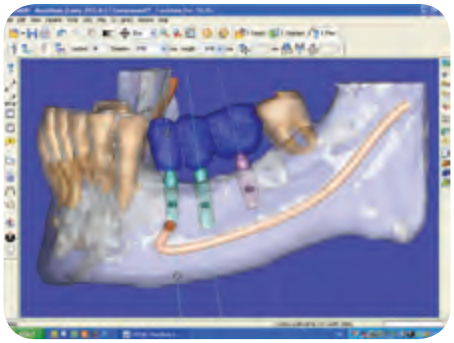


FIGURE 1. Implant position planning via a translucent mandible. *Image courtesy of Astra Tech.*

TABLE 1

Differences Between a Traditional Technique and Virtual Implant Treatment Planning and Restoration

Traditional case sequence	CAD/CAM case sequence
Radiographs/tomographic, 2-D plan	1. CT scan, 3-D virtual plan
Traditionally fabricated models and surgical drill guide	2. Rapid prototyped models and surgical drill and implant placement guide
Surgical implant placement within estimated parameters	3. Guided implant surgery from 3-D plan. Implant position is predetermined
Existing prosthesis modified to fit implants	4. New provisional or definitive prosthesis delivered
Traditional impression techniques for definitive prosthesis fabrication	

CAM treatment planning and delivery. **TABLE 1** compares the flow of treatment using a traditional radiographic model-based plan versus a CAD treatment plan.

Advantages for a patient undergoing virtual surgical planning and treatment delivery are noteworthy: The surgeon visualizes the procedure preoperatively allowing the treatment time, resulting trauma, anesthetic, and blood loss to be reduced.[4] Using cross-sectional images, virtual implants from a library of types and sizes can be placed into proposed sites at the correct orientation and depth for optimal restoration (**FIGURE 2**). The disadvantages are limited to increased costs for treatment, a technology learning curve, and an increase in imaging radiation exposure due to the CT scan being slightly higher in radiation than traditional panoramic imaging. It should be noted that by using a pulsed exposure cone beam CT this radiation increase is negligible.[5]

Several software systems are available directly from the manufacturer or available via a contracted dental laboratory[6] (**TABLE 2**). CT scan protocol differs for the software systems currently available. A scan prosthesis with radiopaque markers is not common to all systems. The markers may be in the form of 2 mm gutta percha dots, a barium sulfate mixture in the acrylic, or a proprietary radiopaque marker that is incorporated into the scan prosthesis. The scan prosthesis is worn during the CT scan and the reformatting procedure positions the prosthesis outline over the 3-D hard- and soft-tissue model.[7]

Once the CT is made, the image data is loaded into the software via a typical media disk. The software then reformats the digitized information into a 3-D model that can be manipulated in three planes. Most of the systems can section the patient's anatomic reproduction into sagittal, coronal, or frontal planes in order to visualize anatomy and pathology while planning the position of the implants. The systems available allow for a variety of implant manufacturers with the exception of NobelGuide that only allows Nobel Biocare implants. Once the virtual plan is complete with implant size, type, and position, a surgical guide is fabricated. The design is completed either by the operator or by the manufacturing facility that will fabricate the surgical guide. Regardless of who designs the guide, the finalized plan is transferred electronically to the manufacturing facility sponsored by the software manufacturer. Successful documentation of the immediate loading concept in implant prosthodontics allows the clinician to decide whether a provisional or definitive prosthesis is going to be delivered at the implant

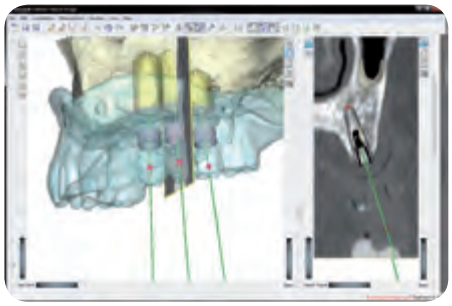


FIGURE 2. Maxillary virtual implant placed in relation to bone availability and restoration requirements. *Image courtesy of Nobel Biocare.*

FIGURE 3. Mandibular virtual surgical guide. *Image courtesy of Nobel Biocare.*

FIGURE 4. A surgical kit consists of a drill guide and implant carrier sleeves that fit into the surgical guide. *Image courtesy of Astra Tech.*

TABLE 2

Software Systems and Their Respective Manufacturers

Software system	Manufacturer
Simplant	Materialise
NobelGuide	Nobel Biocare
Facilitate	Astra Tech/Materialise
Scan 2 Guide (S2G)	I-Dent
Easy Guide	Keystone
VIP	Implant Logic Systems / Bio Horizons
Anatomage	InVivo

TABLE 3

Summary of Initial Start-up and Treatment Costs: Cost Analysis

Software purchase	$3,000-6,000
Dedicated computer	$1,800
Total initial start-up costs	$4,800-7,800
Computerized tomography	$400
Treatment and lab supplies	$4,300 (Scan prosthesis, surgical guide, and related components for a six-implant case)
Acrylic prosthesis	$3,000 (A)
Titanium-ceramic prosthesis	$6,000 (B)
Total treatment costs (A) or (B)	$7,300 (A)-10,300(B)

placement surgery.[8] Once the planning is complete, the surgical, laboratory, and restorative components are ordered.

With the accuracy of stereolithographic rapid prototyping and the patient data within the planning software, the virtual master casts required for the surgical guide as well as the desired prosthesis can be fabricated. The virtual surgical guide data (FIGURE 5) is sent electronically to the rapid prototyping machine. The current fabrication technique used by several systems is stereolithography. The virtual data is sent to the fabrication machines, which consist of a vat of light-cured resin, a movable platform, and a laser. The platform lowers as the laser fires on three axes. The micromovement of the platform and laser cures resin into the desired shape of the surgical guide (FIGURE 3). A surgical kit consists of a drill guide and implant carrier sleeves that fit into the surgical guide (FIGURE 4).

Prior to the surgery, a completed surgical guide is used to align the implants and their analogs into the planned positions and a soft-tissue master cast is fabricated with traditional laboratory techniques. Next, the casts are positioned on the articulator with the aid of a duplicated version of the optimized provisional and an index of occlusion made in preparation for the preoperative CT scan. This combination of soft-tissue master cast, duplicated prosthesis, and occlusal registration index allows the casts to be mounted accurately and preserves vertical dimension in edentulous cases. Traditional laboratory techniques are then used for fabrication of the provisional prosthesis.

In the case of the NobelGuide system, special copings with a small amount of vertical and horizontal freedom of movement fit onto the abutments. The copings are not engaged and immobilized in the prosthesis until fit is verified intraorally at the time of the guided surgery. Minor inaccuracies are compensated for with the specialized abutment/coping combination. This unique abutment system allows for a new definitive prosthesis to be delivered at the time of surgery. Traditionally, autopolymerizing acrylic resin has been used to engage abutments with an intraoral reline technique for immediate delivery of a prosthesis.[9]

Once the implants and abutments are placed, the provisional is relieved for passivity around the abutments and the resin is used to attach the screw-retained abutments to the prosthesis. By using the guided surgical and prefabricated prosthesis technique, a practitioner not only decreases procedure time but avoids potential patient trauma and discomfort from complications arising from acrylic resin use in a fresh surgical site.

CAD/CAM technology can be costly and utilization of these techniques can be cost prohibitive if treatment fees are not structured appropriately. An example of costs involved for a six implant case for an edentulous arch are represented in TABLE 3.

A method of reducing costs to the practitioner and the patient is allowing dental laboratories to make the software purchase and provide a tentative design proposal. A dentist can forward the digital imaging and communications in medicine, DICOM, file from the CT scan and a design prescription to the dental laboratory certified by the software manufacturer. A design can then be provided to the dentist who approves the case design prior to manufacturing of the surgical guide and or prosthesis.[10] Fees associated with subcontracting design, scan prosthesis, and surgical guide fabrication to the dental laboratory range from $350 to more than $1,000.

In summary, technology exists today to improve the techniques for diagnosis and treatment planning for implant surgery and respective restoration. A variety of options exist with a wide range of associated costs. Whether a dentist decides to invest in the technology personally, or use the services of a dental laboratory, practicing to a technologically advanced standard of care is becoming the new standard of care. ■■■■

REFERENCES

1. NobelGuide technique, Procera software, Nobel Biocare USA, Yorba Linda, Calif.
2. Facilitate software, Astra Tech, Gothenburg, Sweden.
3. Van Steenberghe D, Molly L, et al, The immediate rehabilitation by means of a ready-made final fixed prosthesis in the edentulous mandible: a one-year follow-up of 50 consecutive patients. *Clin Oral Implants* Res 15:360-5, 2004.
4. Moy P, Palacci P, Ericsson I, Immediate function and esthetics in implant dentistry. *Quintessence Int* 2008.
5. Ludlow JB, Davies-Ludlow LE, Brooks SL, Dosimetry of two extraoral direct digital imaging devices: NewTom cone beam CT and Orthophos Plus DS panoramic unit. *Dentomaxillofac Radiol* 32(4):229-34, July 2003.
6. Advertisement, Roe Dental Laboratories, Cleveland, Ohio.
7. Verstreken K, Van Cleynenbreugel J, et al, Computer-assisted planning of oral implant surgery: a 3-D approach. *Int J Oral Maxillofac Implants* 11:806-10, 1996.
8. Schnitman PA, Wohrle PS, et al, Ten-year results for Branemark implants immediately loaded with fixed prostheses at implant placement. *Int J Oral Maxillofac Implants* 12:495-503, 1997.
9. Balshi TJ, Wolfinger GL, Immediate loading of Branemark implants in edentulous mandibles: a preliminary report. *Implant Dent* 6:83-8, 1997.
10. Advertisement, Glidewell Dental Laboratories, Newport Beach, Calif.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
James B. Morris, DDS, FACP, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, 2155 Webster St., Room 522, San Francisco, Calif., 94115.

CDA JOURNAL, VOL 38, Nº5

Implementation Strategies for Incorporating New Technologies Into the Dental Practice

FOROUD HAKIM, DDS, MBA, AND PARAG R. KACHALIA, DDS

ABSTRACT Staying ahead of the technology curve is an ongoing challenge for all dentists. Ignoring advancements in technology and the related improvements in diagnostics and delivery of care, as well as the impact technology may have on productivity in practice, is simply not an option for the modern clinician who aims to maintain a successful contemporary practice. This article delivers some insight into the challenges that arise when upgrades in technology and the related acquisition investment are considered.

AUTHORS

Foroud Hakim, DDS, MBA, is an assistant professor and vice chair, restorative curriculum director, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, San Francisco, and in private practice in San Ramon, Calif.

Parag R. Kachalia, DDS, is an assistant professor and director of New Technologies, Department of Restorative Dentistry, Arthur A. Dugoni School of Dentistry, San Francisco, and in private practice in San Ramon, Calif.

All of us are aware of the relatively recent explosion in dental technologies. Of course, scientists, inventors, and manufacturers have been at it from the start and the profession has enjoyed a steady stream of technological advancements over the years. However, the scope and impact of these interjections has undoubtedly escalated over the last 15 years.

Recent technological advances impacting patient care with regard to efficiency, precision and quality have been at a magnitude that has driven awareness beyond the oral health care provider and to the consumer (patients). One would be hard pressed to find a doctor in contemporary private practice who has not periodically and increasingly fielded patient's questions or comments along the lines of "Doc, my friend just had a crown done by her dentist, all in one visit," "What can you tell me about the commercial I saw advertising laser dentistry without the use of a drill?" or "My previous dentist had a camera that allowed me to take a tour of my mouth magnified on a TV monitor. Do you have that?"

The old adage "If you're not moving forward, you're falling behind" has never been more true. When the propensity of practitioners to invest in technological upgrades is examined, dental professionals find themselves all over the map. There are those who define their practice by being on the cutting edge. These are the "gotta have it" doctors, the sales representative's dream. At the other end of the spectrum are some who may be extremely slow adopters, the "all those gadgets are just bells and whistles, not necessary to practice good old-fashioned, quality dentistry"

CDA JOURNAL, VOL 38, Nº5

crowd. Most doctors know where they fall along this spectrum. However, they may not be positioned optimally along the technology continuum to maximize patient care, efficiency, and productivity.

Further, their rationale for underinvestment or even, overinvestment may be fundamentally flawed. The balance of this article will touch on some criteria that may offer some perspective for the pragmatic practitioner considering a significant investment in new technologies.

Patient Profile

When considering patients, two factors should impact the acquisition of new technology, existing patient profile, as well as the patient profile a practice may be targeting to market toward and draw into the practice pool. First, would a significant portion of current patients benefit from and appreciate the acquisition that is being considered? For example, a practice with an elderly patient profile (perhaps where periodontal therapies, prevention, removable prosthodontic, and direct restorations comprise a large portion of annual production) may not benefit enough from an in-office computer-aided design and computer-aided manufacturing, CAD/CAM, indirect restorative system to justify the related expenditure.

On the other hand, if a new owner or partner in the same practice aims to re-brand the practice and increase indirect restorative productivity while marketing to and drawing in a previously untapped population of patients, a new CAD/CAM system may in fact be an invaluable investment that will differentiate the practice from others in the area.

A useful mechanism for patient profile evaluation may be for doctors considering a purchase to simply survey their existing patient pool. Questions may be "What features of our practice are factors that weigh heavily on your decision to trust us with your oral health care?" or "What is your perception of our practice's position relative to cutting-edge dental technology?"

Practice Culture

Practice culture refers to the characteristics of the doctor(s) and more importantly, the employees of a practice. The capability and willingness of staff members to embrace new technology and become proficient in its use is often the single most important determinant of implementation success. No matter how appropriate a new acquisition may be for a given practice, nothing can stall successful integration, or result in abandonment, than resistance from key personnel. Many issues may lay at the core of an employee's reluctance or resistance. Complacency, perception of increased workload, comfort in the familiar and routine, or just plain lack of buy-in to the value of the new technology may be hurdles to overcome. In any case, the doctor who is more in tune with their practice culture and employee tendencies will have a better chance of anticipating potential resistance and address this prior to launch. In some scenarios, personnel changes may ultimately be necessary for complete success.

THE OLD ADAGE
"If you're not moving forward, you're falling behind" has never been more true.

One of the most important steps toward gaining employee acceptance and giving employees a feeling of responsibility and empowerment is to have them fully participate in the initial training, which is often significant, as well as periodic continual education that goes hand in hand with complex new technologies.[1] Too often, well-intentioned doctors, energized and motivated after a weekend training program for their new purchase, assume they will be the champion and trainer for the new product. The strongest corporations, fielding the most successful new technologies, are often successful not only because they have a good product, but also because they generally have the best training, support, and service arms. They are the first to tell perspective doctors, "Don't try this on your own."

Return on Investment

A favorite term of accountants, practice consultants, and sales representatives alike, return on investment (ROI) is a seemingly simple concept, too often reduced to a cliché. True attention to developing valid return forecasts or calculating accurate end returns is paramount. When considering ROI for new technology acquisition, returns may be subcategorized further into tangible and intangible returns.

Tangible returns refer to those that can be readily quantified for end measures or estimated for forecasted returns. These returns should directly be attributable to, and measured against, the acquisition investment, related debt service, and maintenance costs. A conventional approach to calculating tangible returns is to populate a simple Excel file with variables that accurately reflect productivity parameters within the practice and offset the income by the cost of ownership. A simplified example of such a calculation is presented in TABLE 1. In this example, the probability of improved productivity from the addition of an in-office CAD/CAM system

TABLE 1

Projected ROI for New In-office CAD/CAM System

Crowns/Inlays/Onlays Number of restorations per month that can be converted to CAD/CAM	30
Cost of traditional lab fabricated restorations (lab fee)	$150
Cost of in-office CAD/CAM restoration (materials)	- $30
Savings	$120
Composites Number of class II composites per month that can be converted to CAD/CAM	15
Class II CAD/CAM indirect composite fee	$525
Class II composite fee	-$300
Increase	$225
	Per month
Increased profit/ Savings for CAD/CAM indirect restorations (30x120)	$3,600
Increased profit/Savings from direct composite conversions (15x225)	$3,375
Total increased profitability	$6,975
Deduct monthly lease/loan payment	- $3,175
Monthly net profit	$3,800
Annualized increased profitability	$45,600

is evaluated. Logically, when immediate positive ROI is quantifiable, acquiring an expensive piece of equipment becomes much more enticing compared to when an investment recuperation lag is expected.

It is important for a perspective buyer to keep a few thoughts in mind when estimating potential ROI. First, be conservative. That is, do not allow a sales representative to be overly influential in choosing the estimated variables for one's practice. For example, rather than inserting the average number of crowns per month into the calculation of TABLE 1, insert the number of crowns typical of a slow month. Check for liabilities in a worst-case scenario. Second, rely on qualified counsel like a certified public accountant, CPA, versed in dental accounting and to help with ROI estimations. Finally, seek out comparable practices that have already integrated the same piece of technology and inquire if their actual ROI fell short of projections, and, if so, why? Ultimately, when colleagues have had favorable outcomes, a qualified financial adviser supports acquisition and positive ROI is demonstrated with conservative estimations (i.e., self-sustainability in worst-case scenarios), a prospective doctor may invest with more confidence.

Intangible returns are a bit trickier to calculate. Here, the authors attempt to assign dollar figures to gains that cannot be directly assigned to a billable procedure completed by a piece of equipment. Intangibles may encompass more nebulous concepts like overall practice growth, which may loosely be attributed to the beneficial reputation enhancements that follow when a practice is perceived to be more modern or on the cutting edge. The "wow factor" is certainly a powerful marketing tool. Other intangibles require less imagination to appreciate but may have just as significant an impact as tangible returns.

The same CAD/CAM system used in the previous example may go beyond decreasing lab fees and saving on consumables like impression material. If, in fact, treatment time and total appointments are decreased, what dollar value should be assigned to the increased capacity (open treatment hours) and the likelihood this time would be well utilized? Another great example is digital radiology. The obvious outlays are sensor, software and hardware acquisition, and installation costs. The offsets include the decrease in time needed to complete radiographs, elimination of chemicals storage, and reduction in retake delays.[2] But again, it is hard to assign a dollar value to a very real phenomenon like increased productivity due to diagnostic improvement, decrease in collection lag related to insurance billing, or improved patient acceptance as a result of visualization.

Ultimately, a doctor who makes a decision to invest in a new technology solely based on concrete and tangible ROI criterion may in fact, be missing a key opportunity. Ignoring less tangible ROI forecasts is a naïve approach that often stifles true practice potential and growth. To develop a viable and contemporary practice, there are instances when investment in new technology becomes critical, even when the ROI calculations don't seem to support the cost/benefit equation. This point is best driven home by the following example. Surprisingly, there are still a large number of practices operating in urban settings that do not employ any form of robust practice software system, that is, they may use some rudimentary software to maintain accounts receivables and patient ledgers, but that is all. Now pretend such a practice has attracted a new patient (a head of a household of four) in his early 30s who has moved to the area due to a job transfer and works in the technology sector. Upon completion of the new patient exam, the doctor turns over the patient to the receptionist sitting with the traditional bound appointment book open to the following week's calendar ready to schedule the patient for the recommended treatment. Meanwhile, the patient

CDA JOURNAL, VOL 38, Nº5

TABLE 2

History of Section 179

Year	
2002 (old law)	$25,000
2003	$100,000
2006 (adjusted for inflation)	$108,000
2007	$125,000
2008	$250,000
2009	$250,000
2010 (scheduled to go back to)	$125,000*
2011	$25,000**

*Since the time of this writing, the updated figure for 2009 is $134,000.

*On March 18, 2010, President Obama signed into law The Hiring Incentives to Restore Employment (HIRE) Act (HR 2847) extending section 179 expensing to $250,000 for another year.

stands at the counter with his iPhone in hand and the scheduling application open. Imagine the conversation that may follow:

Receptionist: "Ok, let's see ... The doctor has next Wednesday from 10:30-11:30 a.m. to start your crown. Does that work?"

Patient: "Oh no. I'm lucky if I have time to get a bite to eat on Wednesdays, they are the worst days at our company, but, I don't have to be at work till 9 a.m. Friday. Can the doctor see me at 8 a.m.?"

Receptionist: "No, hmm ..."

Patient: "Never mind, this tooth is not hurting me, let's look at next month. On some Tuesday afternoons I get off early. Do you have any Tuesdays next month?"

Receptionist (frantically flipping pages): "Let's see, I don't see any next month but I will probably find some Tuesdays if I go two months out. I do have a lot of Thursday mornings next month; will any work?"

Patient: "No, and I don't have my work travel schedule set yet for two months out. I would hate to set something up and cancel on you. You know it's funny, the scheduling coordinator at my previous dental office would just enter my appointment criterion into the computer and a few good options would just pop up on their appointment

TABLE 3

Depreciation

Software	3 years
Dental equipment	5 years
Furniture and fixtures	7 years
Leasehold improvements	15 or 39 years
Commercial property	39 years

software. One of those usually worked out for me. Your job is tough!"

Receptionist (laughing): "Oh dear, it's not that bad! I've been doing it for years and we generally get you in one way or another."

Patient: "I know what, I will have my administrative assistant, log onto your Web site and as long as your schedule is available online, I'll have him choose an appointment for me once my Outlook calendar for the month after next is populated."

The receptionist sits speechless, deer in headlights stare.

Anyone can quickly surmise that this patient is highly unlikely to ever get an appointment, much less a series of appointments, booked with the new office. The naïve doctor will chalk it up as a lost new patient who was "high maintenance" when it came to booking appointments. The true loss is four new patients at the very least (remember, head of household), not counting an untold potential number of referrals of friends, extended family, or co-workers. Certainly, the departure was not the result of the patient being high maintenance, rather, because proper software systems were not in place to appoint what was really a relatively easy patient to convert.

Capital Outlay

Once the value of a new technology is ascertained, there is still the matter of paying for it. Numerous acquisition strategies exist and no matter how beneficial the new product may be, a purchase is always more palatable when relative savings are maximized.

When the decision to acquire is made, a buyer's first dilemma is often whether to finance or to purchase outright. Realistically, many buyers may not have the capital available to purchase an expensive piece of technology outright. When capital is available for outright purchase, the key decision points are fairly simple. These usually revolve around true dollar cost versus opportunity cost. True cost simply refers

TABLE 4

After-Tax Cost of Equipment Purchase of $350,000

	First-year depreciation	First-year cost
Acquisition cost		$350,000
Section 179	$250,000	
Bonus depreciation	$50,000	
(50% of remaining cost)		
Regular depreciation	$10,000	
($50,000 over five years)		
Total first-year depreciation	$310,000	
Tax saved at 40% ($310,000x40%)		$124,000*
Net first-year true cost		$226,000

*Assumes income available to offset

to the price tag for the new technology, minus the tax benefit associated with the capital purchase as it relates to Section 179 of the Internal Revenue Service tax code as displayed in **TABLE 2**. Section 179 allows for business depreciation. The Economic Stimulus Act of 2008 restated the law to provide for temporary increased incentives for 2008 and 2009 as well as to revive bonus first-year depreciation to 50 percent for certain property acquired and placed into service between Jan.1, 2008, and Dec. 31, 2009[3] (**TABLE 3**). True cost for an outright purchase is illustrated in a simplified example in **TABLE 4**. On the other hand, opportunity cost refers to the lost business, savings or earnings resulting from diverting dollars slated for purchase away from a competing opportunity.

In other words, could the $350,000 spent on equipment acquisition in **TABLE 4** have been more wisely utilized to pay down a less desirable high-interest loan, deposited in a retirement plan, or perhaps invested in real estate? When capital is not available to purchase a high price tag item outright, or when the decision is made that competing dollars are better spent elsewhere, financing remains the most common vehicle for acquisition. The most obvious advantage to financing is the ability to acquire without immediate capital outlay. Even so, Section 179 incentives can be realized to full capacity as in an outright purchase scenario. Said another way, the entire qualifying tax savings related to a capital purchase can be realized in the acquisition year while the pay-off is spread over the financing life cycle. Furthermore, the interest related to the debt services is also deducted in the subsequent years of repayment.

When financing options are weighed, several considerations arise. First, can financing be secured? What was rarely an issue historically has become more challenging in the recent economic climate. What interest rate and loan specifications are available? Finally, does the income basis exist to fully realize the Section 179 tax incentives? In the event the income basis is not high enough to maximize Section 179 tax savings, the unrealized amount can be carried forward to subsequent tax years. A loss however, cannot be taken. A further complication is that "basis" is defined differently in the three typical practice business models (sole proprietorships, C-corporations, and S-corporations).

THE ENTIRE QUALIFYING tax savings related to a capital purchase can be realized in the acquisition year while the pay-off is spread over the financing life cycle.

Conclusion

Dental technologies are advancing at faster rates than ever before. A contemporary practice that does not strive to keep abreast of technological advancements and new product entries may find itself out of date and struggling to make up lost ground if reinvestment lag extends too long.

The challenge for practitioners is twofold. Not only do they have to differentiate between, and select the right technologies to invest in to optimize their practice, they also have to discover the best acquisition strategies. The latter challenge is often territory where typical doctors may not be well-qualified to navigate. It is highly recommended that any significant capital purchase considered be scrutinized with respect to considerations like adoption, ROI, and tax planning. The Academy of Dental Certified Public Accountants, www.adcpa.org, is an excellent resource for recommendations toward a CPA firm that specializes in dental accounting, tax, and advisory services. ■■■■

REFERENCES

1. Chilcutt AS, Exploring leadership and team communication within the organizational environment of a dental practice. *J Am Dent Assoc* 140(10):1252-8, October 2009.
2. Dalin J, Beyond return on investment, Dent Econ, September 2002. dentaleconomics.com/articles/print.html?id=154040&bPool=DE.pennnet.com%2farticle_tool_bar. Accessed March 9, 2010.
3. Internal Revenue Service, United States Department of the Treasury: instructions for form 4562. irs.gov/pub/irs-pdf/i4562.pdf. Accessed March 9, 2010.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Foroud Hakim, DDS, MBA, Arthur A. Dugoni School of Dentistry, 2155 Webster St., Room 522, San Francisco, Calif., 94115.

Implant Direct™

simply smarter.

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

Taking Mini-Implants to a New Dimension

Application Specific Implants with All-in-One Packaging

Hands-On Surgical and Prosthetic Training with Dr. Gerald Niznick, President/Founder of Implant Direct

This course is for Dentists starting to place implants, those who want to expand treatment options beyond conventional mini-implants and for Implantologists or Surgical Specialists who want to minimize bone grafting and offer edentulous patients Teeth-In-1Day™ treatment.

1. **Monthly, Los Angeles, CA**
2. Sunday May 23rd, Newport Beach, CA
3. Saturday June 5th, Las Vegas, NV
4. Monday July 12th, Sacramento, CA
5. Tuesday July 13th, Portland, OR
6. Wednesday July 14th, Seattle, WA
7. Monday July 19th, Minneapolis, MN
8. Tuesday July 20th, Chicago, IL
9. Wednesday July 21st, Saint Louis, MO
10. Thursday July 22nd, Tulsa, OK
11. Monday August 9th, Knoxville, TN
12. Tuesday August 10th, Memphis, TN
13. Wednesday August 11th, Kansas City, MO
14. Thursday August 12th, Denver, CO
15. Monday August 23rd, Birmingham, AL
16. Tuesday August 24th, New Orleans, LA
17. Wednesday August 25th, Houston, TX
18. Thursday August 26th, Dallas, TX
19. Sunday October 17th, Philadelphia, PA
20. Tuesday October 19th, Brooklyn, NY
21. Wednesday December 1st, Cincinnati, OH
22. Thursday December 2nd, Columbus, OH

8 CE Credits for all attending: $ 295.00

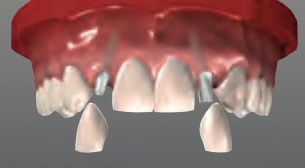
Approved PACE Program Provider FAGD/MAGD Credit Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement.
08/01/2009 to 07/31/2012

Register on-line at www.implantdirect.com

Narrow One- and Two-Piece Implants

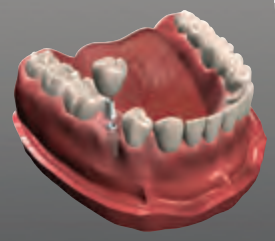
3.0mmD ScrewDirect

1-Piece Implant with Straight Abutment, Snap Transfer & Cap Included: $150



3.2mmD Legacy3

2-Piece Bone-Level Implant with Transfer, Abutment & Collar Included: $175

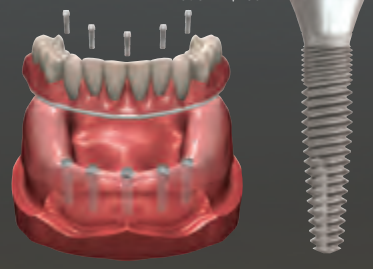


3.3mmD SwissPlant

2-Piece Tissue-Level Implant with Transfer, Abutment & Collar Included: $200

3.0mmD ScrewIndirect

1-Piece Implant with Screw Receiving Platform: $150



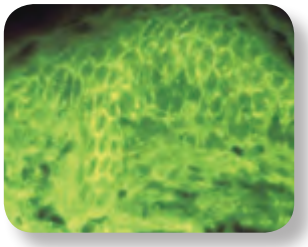
3.0mmD GoDirect

1-Piece Implant: $150

Monthly training dates at Implant Direct's Manufacturing Facility in Los Angeles, CA: 4/9, 5/21, 6/25, 7/9, 8/20, 9/11, 10/8, 11/19, 12/17

Limited Attendance - Register Early
www.implantdirect.com
or call 1-888-NIZ-NICK/1-888-649-6425

CDA JOURNAL, VOL 38, Nº5



Pemphigus Vulgaris With Significant Periodontal Findings: A Case Report

A.R. PRADEEP, MDS; S. THORAT MANOJKUMAR, BDS, MDS; AND RAJU ARJUN, MBBS

ABSTRACT The purpose of this article is to report a case of pemphigus vulgaris associated with periodontitis (plaque-induced inflammation), and the role of a dermatologist and a periodontist in its management. This case reaffirms the fact that plaque control is the most important procedure in preventing periodontal infection in pemphigus vulgaris patients. These patients should be informed about the risk of periodontitis and encouraged to pursue long-term periodontal follow up to prevent their periodontal disease progression.

AUTHORS

A.R. Pradeep, MDS, is a professor and head, Department of Periodontics, Government Dental College and Research Institute, Bangalore, Karnataka, India.

S. Thorat Manojkumar, BDS, MDS, is a postgraduate student, Department of Periodontics, Government Dental College and Research Institute, Bangalore, Karnataka, India.

Raju Arjun, MBBS, is a final year student at Bangalore Medical College and Research Institute, Karnataka, India.

ACKNOWLEDGMENTS

The authors thank the head of the department and postgraduate students, Department of Dermatology, Bangalore Medical College and Research Institute, for their help in taking the skin biopsy and for their constant support.

Pemphigus is a term derived from the Greek pemphix (bubble or blister) for a group of potentially life-threatening autoimmune mucocutaneous diseases characterized by epithelial blistering affecting cutaneous and/or mucosal surfaces.[1,2] It has worldwide distribution affecting 0.1-0.5 patients per 100,000 population per year.[3] Pemphigus is divided into pemphigus vulgaris, PV, with suprabasal acantholysis causing separation of basal cells from keratinocytes of the stratum spinosum, and pemphigus foliaceus, PF, with acantholysis in the granular layers of the epidermis.[4]

The discovery of IgG autoantibody production in the pathogenesis of pemphigus by Anhalt et al. was based on studies on circulating autoantibodies in which antibody fractions from pemphigus patients were isolated and passively transferred into mice. The mice developed cutaneous blisters and erosions with histological, ultrastructural, and immunofluorescence features similar to pemphigus. However, the pathological changes depended on the antibody titre, demonstrating that circulating antibody titre is correlated to disease severity.[5] Benetic predispositions for PV is recognized. HLA serologic studies have demonstrated a strong association between the presence of HLA-DR4 (Dw10) and HLA-DR6 (DQw1) haplotypes.[6,7]

The distribution and expression of desmoglein (Dsg) 1 and Dsg 3 can be responsible for the characteristic distribution of lesions. Dsg 3 is expressed throughout the oral mucosa, but only in the basal and immediate suprabasal layers of epidermis. Conversely, Dsg 1 is ex-

FIGURE 1. Irregular lesions over the right side of the neck.

FIGURE 2. Irregular lesions over the extensor aspect of the left elbow joint.

FIGURE 3. Irregular oral lesions over the left buccal mucosa.

FIGURE 4. Irregular oral lesions over the hard and soft palate and upper-lower lips involvement.

FIGURE 5. Poor oral hygiene and probing pocket depth 6 mm and attachment loss 5 mm.

pressed throughout the epidermis, more intensely in the superficial oral mucosa but weakly in the deep layers.[8] Recent studies have shown that pemphigus-like blisters can form in absence of anti-Dsg 3 autoantibodies but their formation is closely related antibody reaction to keratinocytes receptors for acetylcholine (Ach), with loss of cholinergic regulation of cellular adhesion and destabilization of the desmoglein-desmoplakin bond.[9]

The mucosa of the cheeks and the palate are frequently involved; other mucosal surfaces include the vulva, conjunctiva, pharynx, larynx, esophagus, urethra, vagina, cervix, penis, and anus.[10] Any area in the oral cavity can be involved: The soft palate, buccal mucosa and lips are predominantly affected. Gingival lesions are very common and, when solitary, are often first recognized by periodontists.[11]

Periodontitis is a multifactorial disease and defined as plaque-induced inflammation involving and destroying the supporting alveolar bone, cementum, and periodontal ligament.[12] Patients with PV are affected by the long-term use of topical and systemic steroids or other immunosuppressive drugs may have an impaired ability to perform efficient and effective oral hygiene practices and may make individuals less liable to visit their dentists regularly for checkups and cleanings. Persistent lesions are painful, thereby limiting effective toothbrushing. This leads to a lack of effective oral hygiene, and plaque accumulation may increase the risk of long-term periodontal disease.

To date, there is not a single case report in the literature showing periodontal findings in PV patients. This case presents a case of PV with significant clinical and radiological findings of periodontitis. This report also revises the management and related oral and periodontal care for these patients.

A Case Report

A 47-year-old male patient was reported to the Department of Periodontics, with the chief compliant of oral ulcerations and burning sensation of mouth for the past three years. This patient was referred by the Department of Dermatology, Bangalore Medical College, Bangalore. The patient also presented with ulcerative skin lesions and was not able to eat or drink adequately. He was not able to brush his teeth daily and had reduced the frequency of brushing for one year. The patient had not visited a dentist during the past three years.

A detailed family history was obtained and was not contributory. Medical history revealed that he was a known case of PV and was under the topical and systemic corticosteroid therapy for the past three years.

On extraoral examination, there were irregular scaly lesions over the right side of the neck and over the extensor surface of the left elbow joint region (**FIGURES 1 AND 2**). Nikolky's sign (loss of epithelium occasioned by rubbing apparently unaffected skin), a characteristic of PV, was positive. On intraoral examination, there were multiple irregular-shaped erosions involving buccal mucosa (**FIGURE 3**), palatal mucosa (involving part of the soft palate) and upper-lower lips (**FIGURE 4**). The plaque and calculus indices showed the poor oral hygiene status.

A periodontal examination was done. Gingiva was generalized as reddish blue, soft, and oedematous and showed bleeding on probing. Also, there was generalized attrition of teeth and gingival recession. Overall probing pocket depth was ≥6 mm and clinical attachment loss was ≥5 mm (**FIGURE 5**).

Orthopentamogram, OPG, showed a combination of horizontal and vertical bone loss (**FIGURE 6**). A biopsy of the skin lesion was performed by a dermatologist. At scanning magnification there was intraspinous separation, which was

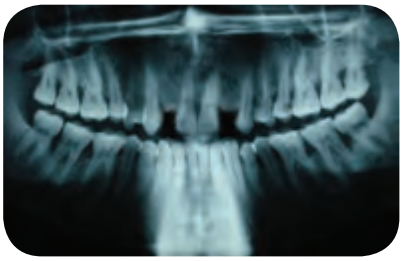


FIGURE 6. Orthopentamogram showing horizontal and vertical bone loss.

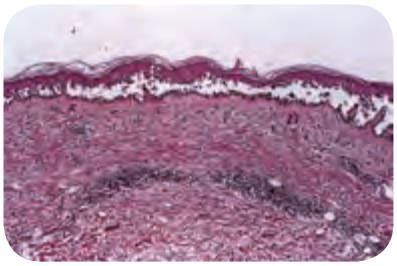


FIGURE 7. Skin biopsy: scanning electron microscope showing suprabasilar split.

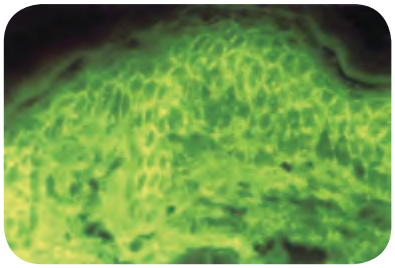


FIGURE 8. Direct immunofluorescence showing intercellular IgG and C3 deposition.

predominantly in the suprabasal region (suprabasilar split). The stratum corneum was intact and showed a basket weave pattern (**FIGURE 7**). Direct immunofluorescence showed there was cell surface (intercellular) IgG and C3 deposition (**FIGURE 8**).

Differential diagnosis of PV included erythema multiforme bullosum, bullous lichen planus, epidermolysis bullosa, and bullous pemphigoid. PV can be easily differentiated from the other entity clinically (Nikolky's sign), histologically (suprabasilar split), and by direct immunofluorescence technique (intercellular IgG and C3 deposition). Based on the above clinical features and investigations, the final diagnosis was PV.

Discussion

Periodontitis is a multifactorial disease having various etiological factors. It has been hypothesized that periodontitis-induced inflammatory mediators and acute-phase proteins may play a major role in the development of a variety of systemic diseases and conditions including diabetes mellitus, preterm birth, and cardiovascular diseases.[13-15] Pemphigus is a group of bullous diseases that affect the oral mucosa and the skin, leading to acantholysis that causes painful oral ulceration, making ineffective oral hygiene, which allows for the accumulation of more plaque, a causative factor for the periodontitis. Mignogna et al. observed that patients with PV showed generally extensive involvement of the oral mucosa and most of these were localized to gingiva at the onset.[11] A study by Tricamo et al. also showed that patients with mucous membrane pemphigoid exhibit more gingival inflammation (had higher plaque index) than controls.[16]

A recent study by Akman et al. also showed that there was impaired oral health in PV patients and higher community periodontal index and treatment needs, CPITN, score compared to a control group.[17] It was documented that long-term immunosuppressive therapy alters the host defense, which may affect the oral health negatively in these patients.[18] The authors' case also showed there were higher plaque and calculus index scores, extensive oral lesions that made it difficult for him to eat and drink. Also, OPG showed a combination of horizontal and vertical alveolar bone loss showing active periodontal tissue destruction.

Since the oral lesions are painful and it is not possible to maintain a meticulous oral hygiene for these patients, this becomes a challenge to the periodontist on how to arrest the periodontal disease.

Management of PV patients

In the absence of systemic treatment, oral lesions of PV are almost invariably followed by skin involvement or occasionally lesions in other epithelia, such as the oesophagus.[19] Systemic corticosteroids remain the mainstay of therapy for patients with oral lesions, transforming invariably fatal disease into one whose mortality is now below 10 percent.[20] Alternative treatments to corticosteroids include other drugs like azathioprine chlorambucil or cyclophosphamide. Other agents used with variable benefit include gold, dapsone, etretinate, prostaglandin E2, minocycline, mycophenolate mofetil, and tacrolimus.

Recently, new drugs being tried are cholinergic agonists, which shown to modulate the autoimmune response that requires autoreactive helper T cells that regulate immunoglobulin isotype switching and Rituximab (anti-CD20 monoclonal antibody) appears to be promising.[21,22] Plasmapheresis and extracorporeal photophoresis have also been reported to be of benefit in these patients. Intravenous immunoglobulins have proved successful and safe in steroid-resistant PV.[23,24]

Oral and Periodontal Care

Topical corticosteroids may suffice for a time, if there are only localized oral lesions, with low titre serum antibodies, but otherwise systemic immunosuppressants (e.g., prednisolone) are essential and patients should be closely monitored.[25] Oral lesions of PV may respond poorly to systemic immunosuppression and topical or intralesional corticosteroids or other immunosuppressants may help. The periodontal care consists of improving the oral hygiene by means of frequent professional oral prophylaxis, 0.2 percent chlorhexidine mouthrinse, powered toothbrushes for home care, and minimizing irritation of the oral lesions by removing local irritating factors, such as sharp cusps of the teeth.

Conclusion

PV is the commonest clinical subtype, chronic and life-threatening autoimmune blistering disease. Tissue-specific autoim-

munity could be the probable mechanism involved in the pathogenesis of the development of periodontitis as a sequel to PV. It is possible that information regarding the periodontal health status of patients with PV would lead to a more comprehensive understanding of the disease and facilitate development of a successful method of treatment. Therefore, a dermatologist should inform these patients about the risk of periodontitis and be encouraged to pursue long-term periodontal follow up by the dental professionals to prevent their periodontal disease progression. ■■■■

REFERENCES

1. Ahmed AR, Graham J, et al, Pemphigus: current concepts. *Ann Intern Med* 92: 396-405, 1980.
2. Becker BA, Gaspari AA, Pemphigus vulgaris and vegetans. *Dermatol Clin* 11:429-52, 1993.
3. Amagai M, Karpati S, et al, Autoantibodies against the amino-terminal cadherin-like binding domain of pemphigus vulgaris antigen are pathogenic. *J Clin Invest* 90:919-26, 1992.
4. Harman KE, Gratian MJ, et al, Diagnosis of pemphigus by ELISA: a critical evaluation of two ELISAs for the detection of antibodies to the major pemphigus antigens, desmoglein 1 and 3. *Clin Exp Dermatol* 25:236-40, 2000(a).
5. Anhalt GJ, Labib RS, et al, Induction of pemphigus in neonatal mice by passive transfer of IgG from patients with the disease. *N Engl J Med* 306:1189-96,1982.
6. Gazit E, Slomov Y, et al, HLA-G is associated with pemphigus vulgaris in Jewish patients. *Hum Immunol* 65:39-46, 2004.
7. Miyagawa S, Niizeki H, et al, Genotyping for HLA-A, B and C alleles in Japanese patients with pemphigus: prevalence of Asian alleles of the HLA-B15 family. *Br J Dermatol* 146:52-8, 2002.
8. Cheng SW, Kobayashi M, et al, Monitoring disease activity in pemphigus with enzyme-linked immunosorbent assay using recombinant desmogleins 1 and 3. *Br J Dermatol* 147:261-5, 2002.
9. Femiano F, Pemphigus vulgaris: recent advances in our understanding of its pathogenesis. *Minerva Stomatol* 56:215-23, 2007.
10. Sami N, Bhol KC, et al, Diagnostic features of pemphigus vulgaris in patients with bullous pemphigoid. Molecular analysis of autoantibody profile. *Dermatol* 204:108-17, 2002.
11. Mignogna MD, Lo Muzio L, Bucci E, Clinical features of gingival pemphigus vulgaris. *J Clin Periodontol* 28:489- 93, 2001.
12. Francisco MI, Pedro BV, et al, Periodontal regeneration in clinical practice. *Clin Dent* 11:E382-92, 2006.
13. Grossi SG, Genco RJ, Periodontal disease and diabetes mellitus: a two-way relationship. *Ann Periodontol* 3:51-61, 1998.
14. Desvarieux M, Demmer RT, et al, Relationship between periodontal disease, tooth loss, and carotid artery plaque. *Stroke* 34:2120-5, 2003.
15. Mitchell-Lewis D, Engebretson SP, et al, Periodontal infection and preterm birth: early findings from a color of young minority women in New York. *Eur J Oral Sci* 109:34-9, 2001.
16. Tricamo MB, Rees TD, et al, Periodontal status in patients with gingival mucous membrane pemphigoid. *J Periodontol* 77:398-405, 2006.
17. Akman A, Kacaroglu H, et al, Periodontal status in patients with pemphigus vulgaris. *Oral Diseases* 14:640-3, 2008.
18. Mumcu G, Ergun T, et al, Oral health is impaired in Behcet's disease and is associated with disease severity. *Rheumatol* 43:1028-33, 2004.
19. Mignogna MD, Lo Muzio L, et al, Oral pemphigus: clinical significance of esophageal involvement: report of eight cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 84:179-84, 1997.
20. Scully C, Paes De Almeida O, et al, Pemphigus vulgaris: the manifestations and long-term management of 55 patients with oral lesions. *Br J Dermatol* 140:84-9, 1999.
21. Nguyen VT, Arredondo J, et al, Pemphigus vulgaris acantholysis ameliorated by cholinergic agonists. *Arch Dermatol* 140:327-34, 2004.
22. Dupuy A, Viguier M, et al, Treatment of refractory pemphigus vulgaris with rituximab (anti-CD20 monoclonal antibody). *Arch Dermatol* 140:91-6, 2004.
23. Turner MS, Sutton D, Sauder DN, The use of plasmapheresis and immunosuppression in the treatment of pemphigus vulgaris. *J Am Acad Dermatol* 43:1058-64, 2000.
24. Herzog S, Schmidt E, et al, Serum levels of autoantibodies to desmoglein 3 in patients with therapy-resistant pemphigus vulgaris successfully treated with adjuvant intravenous immunoglobulins. *Acta Derm Venereol* 84:48-52, 2004.
25. Scully C, Porter SR, The clinical spectrum of desquamative gingivitis. *Semin Cutan Med Surg* 16:308-13, 1997.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT A.R. Pradeep, MDS, periodontics_gdc@yahoo.co.in.

CDA PRESENTS

Thank you to our sponsors.

These companies are 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.

3M
Booths 1360, 1460

Air Techniques
Booth 334

All County Construction
Dental Office Design
Booth 672

Bank of America
Booths 706, 803

bicon
Booth 360

Colgate
Booth 1316

Demandforce
Growth. On Demand.
Booth 709

DENTRIX
Booth 2334

DISCUS
Booths 134, 1674

Henry Schein Dental
Booths 2234, 2338

invisalign
Booth 210

Kerr
Booths 1106, 1206

Millennium Dental Technologies, Inc.
Booth 1680

PracticeWorks
Exclusive Maker of Kodak Dental Systems
Booth 502

P&G Professional Oral Health
Booth 1350

PROSITES
Website Design and Internet Marketing
Booths 1373, 610

tdic
Member Benefits Center,
Booth 1432

Ultradent Products, Inc.
Booths 450, 550, 2134

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**

Specializing in the Selling and Appraising of Dental Practices

CALIFORNIA PRACTICE SALES INC.

Serving California Since 1974

"Your local Southern California Broker"

CA DRE#00491323

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

****COME VISIT US AT THE ANAHEIM CDA CONVENTION MAY 14-16, 2010 BOOTH #317****

LOS ANGELES COUNTY

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

ORANGE COUNTY

FULLERTON GP / Bldg (New) - 4 eq. ops., 1,100 sq. ft. office located in downtown in a 1 story free standing historical bldg. ID#3111
GARDEN GROVE GP - Equipment w/charts, 2 eq. ops., 1 plmbd not eq., 1,000 sq. ft. ste., 2 story bldg in busy strip center. ID#3091
IRVINE GP/SPEC - Leasehold improv. & equip. only! 3 ops., 1 plmbd not eq., suite in 2 story Med/Dent bldg. ID#2661 **Price Reduced!**
SAN JUAN CAPISTRANO GP (New) - Well designed & modern office w/4 eq. ops., 3 plmbd not eq., in a 2 story prof. bldg. ID#3021
SAN JUAN CAPISTRANO GP (New) - Leasehold improvements & equip. only! ste located in a 2 story prof. bldg w/3 eq. ops. ID#3071
***SANTA ANA GP (New)** - 36 years of goodwill. 3 eq. ops., 2 plmbd not eq ops., 3 story Medical bldg. at busy intersection. ID#3101

RIVERSIDE / SAN BERNARDINO COUNTIES

***INDIAN WELLS GP** - Long established practice, 5 eq. ops., 1,400 sq. ft. suite, 2 stroy prof. bldg. NET $151,585. ID#2801
INDIAN WELLS GP (New) - Modern design spacious office w/2 eq. ops., 1 plmbd not eq. ops, 2 story professional building. ID#3131
LA QUINTA (New) - Leasehold & Equip. Only! 3 eq. ops., 1,000 sq. ft. ste in a strip shopping center. Established in 1995. ID#3011
***ONTARIO GP -** Excellent growth potential office w/4 eq. ops. in a single strip plaza in major intersection. ID#2791

SAN DIEGO COUNTY

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

VENTURA / SANTA BARBARA / SAN LUIS OBISPO COUNTIES / KERN

BAKERSFIELD GP (New) - 6 eq. ops., 2,000 sq. ft. ste, 1 storty strip center. Collected approx. $323K for 2009. NET $124K. ID#3081
***SANTA BARBARA COUNTY GP (New)** - Long Establised Practice 3 eq. ops.,1,010 sq.ft., 2 story strip mall. NET OF $219K. ID#2881

SPECIALTY PRACTICES

PALM SPRINGS Perio (New) - Leasehold improv.& equip. only! 2 eq. ops., 1 plmbd not eq., 1,510 sq. ft. office, 1 story bldg. ID#3151
WHITTIER Ortho - Leasehold improvements & equip. only! 6 chairs in open bay. Seller offering 2 months free rent. ID#2781

*** 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. Across the street from Bakersfield College. Major foot traffic. $1,150 a month. Please call 661-871-0780.

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

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

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

CONTINUES ON 350

CLASSIFIEDS, CONTINUED FROM 349

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

OPPORTUNITIES AVAILABLE

OPPORTUNITY AVAILABLE — DENTIST — Indio, CA. Mail: Attn: A. Arias, Dental Del Valle, 45975 Fargo St., #1, Indio, CA 92201.

OPPORTUNITY AVAILABLE — Dental Assisting Program Director wanted to develop curriculum/teach at new center in Tarzana, California. Experience required. Call Laura 818-758-3557.

OPPORTUNITY AVAILABLE — Dentist with valid dental license for established dental practice in Pomona CA. Mail: Attn: B. Changela, Pearl Dental Care, 2407 Valley Blvd, #C, Pomona, CA 91768.

CONTINUES ON 354

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 SPRING 2010
Booth #2340

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. Pano & Modi computer 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 SOLD
- **ATWATER:** *For Sale* - General Dentistry Practice. Gross receipts $177K with adjusted net income of $67,495. Practice has been in its present location for the past 30 years. 1,080 sq ft. 2-equipped operatories. Owner to retire. #14307 SOLD
- **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
- **COSTA MESA:** *For Sale*-Office Space, equipment and leaseholds only. Opportunity for low cost startup practice and or satellite. Asking $155K.
- **DIXON:** *For Sale*-General Dentistry Practice. '08 collections were $122,894. 3 op 1,100 sq. ft. office. Owner has relocated out of state and is motivated. Good opportunity to build a practice in a growing community near Davis, CA. #14265 SOLD
- **EL SOBRANTE:** *For Sale*-General Dentistry Practice: Ideal for recent grad or DDS looking for satellite practice. 3 ops. w/potential of 5. '08 rec $151,930K, 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 SOLD
- **FRESNO AREA:** *For Sale*-**Exceptional** General Dentistry Practice. This outstanding practice has annualized collections of $1,921,467, $798K adj. net income. The office has Dentrix, Laser, Intra-oral camera, digital x-ray and Pano. Bldg. may be avail. for sale. Owner is retiring. #14283
- **FRESNO:** *For Sale*-General Dentistry IV Sedation Practice. Collections $1,064,500. Seller looking for either an outright sale or a buyer to purchase 1/2 of the practice. Buyer will need IV sedation skills or have been trained to provide IV sedation. Facility 1,500 sq. ft. w/5 equipped operatories & 7 days of hygiene. #14250
- **FRESNO:** *For Sale*-General Dentistry Practice. Owner has practiced in same location 31 years. 3 TX rooms, 1,000 sq ft. Located in a Medical/Dental Bldg. Owner to retire. 2008 collections were $86K. Ideal for a new grad or satellite office. SOLD
- **GRASS VALLEY:** *For Sale*-This Periodontal Practice is located in a very desirable growing community. Practice has been in its present location for the past 28 years. Office consists of 1,500 sq ft 3 ops, Intral-oral camera. Practice has 5 days of hygiene. #14272
- **GREATER AUBURN AREA:** *For Sale*-General Dentistry Practice 7 Dental Building, Outstanding opportunity to purchase well established, very successful, 4 op Fee for Service practice. 1,800 sq. ft. dental bldg. in the Sierra Foothills. No PPO or HMO. '08 Collections $763K on 3.5 days with 5.5 days of hygiene. Owner is retiring. #14304 SOLD
- **LAGUNA BEACH:** *For Sale* - General Dentistry Practice. 2008 Gross Receipts $898K. 4 operatory (5 ops available) 2,000 sq. ft. office. There are 4 days of hygiene. Practice has been in the same location for approx. 16 years. Owner is retiring.
- **LAGUNA HILLS:** *For Sale* - General Dentistry Practice. Owner aquired practice in 1992. Office remodeled in 2004. 3 days of hygiene, 1,324 active patients, 20 new pts/month, 6 operatories, Eagle Soft software. Receipts were $868 in 2008. Wonderful location.
- **LAKE FORREST:** *For Sale* - General Dentistry Practice. This 4 operatory, 1,200 sq. ft. office had gross receipts of 1.2 million in 2007. There are 5 days of hygiene and approx. 2000 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. SALE PENDING
- **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 SOLD
- **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
- **NO. CA WINE COUNTRY:** **ENDO PRACTICE** For Sale-GR 958K adj net $673K 4 Ops, 1,500 sq ft. Overhead 29% Owner to retire #14296
- **OROVILLE:** *For Sale* - General Dentistry Practice. Owner dentist recently deceased. 3 ops. 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 SALE PENDING
- **PALM SPRINGS:** *For Immediate Sale* - General Dentistry Practice. 2008 Gross Receipts $906K with adj. net income of $346K. Highly desire able location with 4 ops. Laser, and Intra-oral camera. 5 days of hygiene. Owner recently deceased. SOLD
- **PORTERVILLE:** *For Sale*-One of two partners is retiring in this highly successful General Dentistry Practice. Receipts $2Mil. adj. net $1,257,000. 2,000 sq ft 6 ops. Intra-Oral camera, Pano, Dentrix.10 days of hygiene. #14291
- **RED BLUFF:** *For Sale*-General Dental Practice **"REDUCED PRICE"** Facility overlooks the Sacramento River, 3,500 sq ft, has 8 ops, 10 hygiene days. Appraised Value or Best Offer. Historically Gross Receipts have been over $1 Mil per year. 100% financing available. Sale of Building (optional) #14252
- **REDDING:** *For Sale*-Owner looking for Assoc. trans. into Partnership w/Buy-Out. GR $1 Million dollars income $436K. 5.5 days hygiene, 2,200 sq. ft. #14293
- **RENO: FOR IMMEDIATE SALE DECEASED DENTIST** - General Dentistry Practice. 2 ops, 17yrs. present location '07 GR $763K with adj. net $263K w/65% overhead. Bldg. also for sale. Owner deceased. SOLD
- **ROSEVILLE:** *For Sale*-General Dentistry Practice. 2008 Receipts $834K with adjusted net income of $297,218. 64.4% overhead. Practice has been in this present location for the past 7 years. 13-15 New Patients a month. 6-treatment rooms in 2,100 sq ft. Laser, Intra-oral camera, and digital radiography. Owner relocating out of office. SOLD
- **SAN FRANCISCO:** Financial District 4 ops, 1,500 sq. ft. MERGER - Buyer needed to bring in Pt. base #14288 SOLD
- **SAN FRANCISCO:** *For Sale-Patient Base for Sale*-Owner passed away last June and the practice has continued on 4 days a week with an associate. Lease can't be renewed. There are approx. 1,000 acive patients in the practice. The patient base can be purchased at no risk to buyer since the purchase price is paid according to the receipts collected on the patients that transfer. #14312
- **SAN DIEGO:** *For Sale*-General Dentistry Practice. This office is plumbed for 4 ops. 3 ops. are equipped with Promo Equipment. Lease is $2,200 per month. 2009 receipts were $185,645. PPO and Fee for service practice.
- **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
- **YUBA CITY/ MARYSVILLE:** *For Sale*-General Dentistry Practice w/Bldg avail. Practice located in present (great) location over 30 years. 3,800 sq ft 5 ops 4 hygiene days. Owner to retire.#14273 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

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

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

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

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

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

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

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

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

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

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

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

Pending

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

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

Meet our team at "CDA Presents" in Anaheim, May 14-16, booth #260

Additional practices available in: Arizona, Nevada, Washington, Colorado and Hawaii

888.789.1085

www.practicetransitions.com

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

D&M

PRACTICE SALES AND LEASING

Paul Maimone Broker/Owner

VISIT US @ THE CDA IN ANAHEIM MAY 14-16, 2010 BOOTH # 654

ALHAMBRA – (2) op G.P. Mostly cash pts. w some Ins/PPO. 2009 Collect $140K on a very limited schedule. Seller quotes 1,200 active pts. Seller retiring, but will assist w transition. **NEW**
ANAHEIM – (3) op computerized G.P. Low overhead office. Cash/Ins/PPO/Denti-Cal patient base. Annual Gross Collect. $260K+ p.t. Will do more f.t. Seller motivated.
ARCADIA – (4) op computerized G.P. Cash/Ins/PPO only. Gross Collect $315K+/yr on a (4) day week. In a well known, easily accessible medical/dental bldg on a main blvd. **SOLD**
BAKERSFIELD #22 – (5) op G.P. (4) eqt'd. Strip Ctr. Gross Collect ~ $200K/yr p.t. **NEW**
BAKERSFIELD #23 – **Partner Wanted! 50% Ownership!** (12) op comp. G.P. in a retail ctr. Cash/Ins/PPO. Digital x-rays & Pano. Paperless office. Annual Gross Collect. $2M+. **NEW**
CALABASAS – "Build to Suit" Dental space avail for long term lease. 1,200 – 3,600 sq ft **NEW**
FRESNO – (3) op G.P. (4) yr old eqt. Mixed patients. 2009 Collections $220K+ p.t. **NEW**
FRESNO SUBURB – (3) op G.P. Gross Collect. $375K/yr. No competition. **REDUCED!**
GLENDALE – Extremely motivated Seller wishes to sell their (4) op (2 eqt'd/2 plumbed) G.P. located in a free stand. bldg. Gross Collect. ~ $120K/yr p.t. Excellent starter or buy & combine.
HIGHLAND #2 – (3) op compt. G.P. in a shop ctr. Mixed Pt. Base. '09 Collect. $447K. **NEW**
LOS ANGELES (KOREA TOWN) – 7 op computerized State of the Art G.P. with an Annual Gross Collection of $1.4M+ and an Annual Net Income of ~ $450K. Cash/Ins/PPO only. Cerec 3, digital x-rays, Dentrix s/w, ICAT Imaging System, (2) lasers, & a PRP System.
SAN JACINTO (HEMET AREA) – (4) op Computerized G.P. Absentee owned HMO pract. w $6K/mos Cap Checks. No Denti-Cal. 2009. Gross Collect. ~ $400K on a (3) day wk. **PENDING**
SANTA CLARITA VALLEY – (11) op comput. G.P. (10) ops eqt'd 11th op plmb. Cap Cks. $14K-$16K/mos. Cash/Ins/PPO/HMO/min Denti-Cal. Annual Gross ~ $1.6M. **Back on Market**
WESTLAKE VILLAGE – (4) op compt. G.P. in a highly desirable area. (3) ops eqt'd. Digital x-rays. Drop Dead Gorgeous! Cash/Ins/PPO only! '09 Gross Collections ~ $629K. **NEW**
VALLEY VILLAGE (SHERMAN OAKS) – (4) op computerized G.P. 2009 Collect. $477K. Cash/Ins/PPO pts. Seller is a 1-800-DENTIST. In a free stand. bldg. w visibility. **REDUCED**
VENTURA Multi-Specialty – 5 op comput paperless office, digital x-rays/Pano. Newer Eqt. '09 Gross $623K+. 2 days/wk Pedo, 3 days/mos O.S., 2 days/wk Endo, 1 day/mos Perio. **REDUCED**
VENTURA – (3) op computerized G.P. and a free standing bldg. located in a highly desirable area. Cash/Ins/PPO and small amount of HMO. Seller is a 1-800 DENTIST provider. Dentrix s/w and Pano eqt'd. 20-25 new pts. per mos. Annual Gross Collections $400K+ **NEW**
WOODLAND HILLS – (3) op comput. G.P. Dentrix s/w. Located in a strip ctr. Cash/Ins/PPO only. 2009 Gross Collect. ~ $570K. Newer eqt., digital x-rays/intra oral camera. **SOLD**

UPCOMING PRACTICES: Covina, L.A., Orange Cty., Oxnard, SFV, Simi Valley & Torrance
DENTAL CONDOS FOR SALE: L.A. Cty, San Diego Cty, Orange Cty & Riverside Cty.

D & M SERVICES:

- **Practice Sales & Appraisals**
- **Practice & Equipment Financing**
- **Expert Witness Court Testimony**
- **Pre - Death and Disability Planning**
- **Practice Search & Matching Services**
- **Locate & Negotiate Dental Lease Space**
- **Medical/Dental Bldg. Sales & Leasing**
- **Pre - Sale Planning**

P.O. Box #6681, WOODLAND HILLS, CA. 91365
Toll Free 866.425.1877 Outside So. CA or 818.591.1401 Fax: 818.591.1998
www.dmpractice.com CA DRE Broker License # 01172430

CLASSIFIEDS, CONTINUED FROM 350

OPPORTUNITY AVAILABLE — NORTHWESTERN WASHINGTON — Seeking experienced dentist for busy, established, rapidly growing, fee-for-service group dental practice. Excellent immediate income opportunity ($180,000 to $375,000 + 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, fax resume to Otto J. Hanssen at 425-484-2110.

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. Call 617-869-1442 or e-mail bayareaperio@gmail.com.

OPPORTUNITY WANTED — Periodontist with decades of experience in periodontal regenerative surgery, implant surgery and mucogingival surgery seeks a position in high quality clinical setting in Southern California. Contact at perio55@aol.com.

CONTINUES ON 358

CARROLL & COMPANY

"MATCHING THE RIGHT DENTIST TO THE RIGHT PRACTICE"

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

Serving you: Mike Carroll & Pamela Gardiner

3017 SOUTH BAY

Est. Cosmetic and Restorative Practice in desirable area. Seller retiring and able to help for a smooth transition. 1,530 sq. ft. office with 4 fully equipped ops. 2009 GR $829K+. Asking Price $658K

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. ~880 active pts. all fee-for-service. Avg. GR $438K+ Avg. overhead 64% w/ 3.5 doctor days/wk. Great upside potential. Asking $273K.

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. GR for 2008 were $340K+. Annualized GR as of Oct 2009 are $335K+. Owner retiring and willing to help for a smooth transition. Asking 227K.

2986 SAN JOSE FACILITY & EQUIP

A 1 1/2 year-old stunning facility with small pt. base that has all the bells and whistles. 2,000 sq. ft., state-of-the-art dream office. Located in desirable comm./residential neighborhood close to O'Connor Hospital & 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.

3022 MODESTO GP

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

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 -equipped ops., & excellent 5 year lease w/5 year opt willing to help in the transition of the practice. 2008 GR $441K+, 2009 GR projected to $460K+ as of Oct. Terrific upside potential. Asking $275K.

PENDING

3011 MID-PENINSULA GP

Located in a sing retail shopping centre. 2,00 with 7 fully-equip. ops. Sel area. 2008 GR 1.1M+ Asking $7 0K.

PENDING

3013 SOUTH VALLEY, GP

Clean air, quiet living and a small town atmosphere are found in this bedroom community to Northern California's San Jose/ Silicon Valley. Quality, well-est. practice offering 31 years of goodwill in a state-of-the-art, fully equipped, attractive 6 op practice in 2,246 sq. ft. Seller is the originator of A.L.F or "Alternative Lightwire Functional" appliances but the practice includes every aspect of whole person dentistry at the cutting edge from Cerec to PRGF augmented surgery. Seller is willing to train/mentor the Buyer in these procedures. Seller is looking to do a transition with a Buyer in order to assure the practice's continued success. If dentistry and how it relates to proper facial function intrigues you as a health care professional, then this practice is an incredible opportunity for you!! Approx. 2,500 active pts. with a waiting list for new patients to join the practice!!! 2008 GR $870K+. Asking $563K.

UPCOMING:
Mid-Peninsula
Santa Clara Valley

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

BAY AREA

A-6781 SAN FRANCISCO - New equipment-hardly used. VIRTUALLY NEW practice! 1,000 sf/3 ops. **$65k**

A-7751 SAN FRANCISCO- ***Space Sharing.*** GP seeks DDS to share office in renowned 450 Sutter St bldg. ***Call Now!***

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

A-817 BELMONT- Surrounded by dental specialties in a 2-story Prof. Bldg w/easy access to public transportation. 860sf w/ 2 ops & plumbed for 1 add'l. **$210k**

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

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

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

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

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

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

BAY AREA CONTINUED

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

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

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

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

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

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

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

D-8541 SANTA CRUZ-Relaxed atmosphere. Well-established, modern practice. Free standing single story building. Affluent, desirable location. 1,650sf & 4 ops. Plumbed for 1 add'l. **$430k**

D-8601 PALO ALTO—FACILITY-Ideally Suited for a Specialist. Highly desirable upscale community. Significant leasehold improvements! 1100sf w/3 fully equipped ops **$390k**

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

BAY AREA CONTINUED

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

NEW! **D-857 MOUNTAIN VIEW-** Quality practice. Busy traffic flow. Significant walk-in patients-continuous growth. Free-standing bldg w/ ample exclusive patient parking. 3,400sf - 11 ops **$620k**

NORTHERN CALIFORNIA

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

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

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

NEW! **E-865 FOLSOM–**Newly equipped Assoc Driven practice. Generate higher revenue w/owner dentist! Collections in 09 over $600k! 1650sf, 5 ops office. **$525k**

NEW! **E-872 ROCKLIN–** Remarkable opportunity! On pace to do $800k in rev in 2010! 2450sf w/ 6 fully equipped ops. **$495k**

NEW! **E-873 ROSEVILLE-**This remarkable practice Doctor averages 10 patients w/ 8 Hygiene patients per day and generates ~ 12-15 new patients per month. ~ 1,000 sf , 2 . Plumbed for 1 add'l op **$380K**.

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

800.641.4179

WESTERNPRACTICESALES.COM

NO. CALIFORNIA CONTINUED

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

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

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

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

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

H-668 NORTHEASTERN CA – GP with over 30 yrs goodwill. 4 ops 1600sf office. 2007 gr rcpts exceed $650k **$395k**

H-831 SUTTER CREEK -"Buy-in" opportunity during Seller's eventual retirement plans. Dental Prof Bldg w/ ample parking on a busy scenic highway in desirable neighborhood. 4 ops. **$160k**

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

CENTRAL VALLEY

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

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

I-802 MODESTO - Facility. ~ 1500sf w/4 ops & room for 1 more. State of the art facility directly in front of Vintage Faire Mall **$445k**

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

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

NEW! **I-866 TRACY -** This amazing opportunity can be yours! ~ 6-8 patients, 25-40 + new patient per month, 4 ops, ~ 1,300sf. **$430k**

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

SOUTHERN CALIFORNIA

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

K-762 INDIAN WELLS– Well Respected practice w/loyal patient base. Newly remodeled, 1400+ sf, 5 ops **REDUCED! NOW ONLY $475k**

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

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

NEVADA

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

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

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

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

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

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

SPECIALTY PRACTICES

C-6821 SOLANO CO. PROSTHO- Personalized treatment in warm caring environment. 1040 sf with 3 fully equipped ops. **$325k**

I-7861 CTRL VLY ORTHO- 2,000sf, open bay w/8 chairs. Garden View. Antique Exam Room. 45 years of goodwill. FFS practice sees 60-70 patients daily. 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. **$175k**

NEW! **I-8481 TWO Perio Practices CENTRAL VALLEY -Office[1]**: 1,100sf & 2 ops. **Office[2]:** 1,660sf & 2 ops **REDUCED TO ONLY $90k**

Timothy G. Giroux, DDS

Jon B. Noble, MBA

Mona Chang, DDS

John M. Cahill, MBA

Edmond P. Cahill, JD

CLASSIFIEDS, CONTINUED FROM 354

PRACTICES FOR SALE

COASTAL EUREKA PRACTICE FOR SALE OR LEASE — Family practice in beautiful semi-rural area with fantastic outdoor recreation. Production/collection historically near one million per year with high net, a FFS practice with no capitation and doctor only working 14 days per month. Large loyal patient base would support 2 dentists. Great growth potential by adding endo, perio, oral surgery and increasing work schedule. Priced at $625K. Building available for favorable lease or purchase. Call after 6 p.m. pacific time 707-499-9799.

MODERN PRACTICE — NEW MEXICO — Live, work, play in family friendly small town with convenience of city nearby. Outdoor activities galore. Near nationally recognized university. New Mexico offers licensure by credentials. Visit www.DentalPracticeForSaleInNM.com.

PRACTICE FOR SALE — Land, building and dental practice for sale in Woodburn, Oregon. Call 503-720-1714.

PRACTICE FOR SALE...

. . . and have the right buyer?

Lee Skarin and Associates will "Package" your sale efficiently and at low cost.

It's easy when you know how! Knowing how, means doing all of the following—with precision!

1. Valid practice appraisal;
2. Contract preparation and negotiations, including critical tax allocation consideration;
3. Bank financing or Seller financing, with proper agreements to adequately protect the Seller and make the deal close – realistically and expeditiously;
4. Performance of "due diligence" requirements, to prevent later problems;
5. Preparation of all documentation for stock sale, when applicable;
6. Lease negotiations;
7. With Lee Skarin & Associates, all of the above occurs on your behalf—WORRY-FREE—from beginning to end.

ALL SEVEN OF THESE SERVICES COSTS NO MORE. MAYBE EVEN LESS!

Lee Skarin & Associates, is California's leading Dental Practice Brokers. Their in-house attorney, Kurt Skarin, Ph.D., J.D., specializes in these matters. He does all of the above, and more. He is the catalytic agent that makes the sale happen, quickly, and smoothly.

Any Questions? Call Kurt Skarin, now at (818) 991-6552

Lee Skarin & Associates has scores of Buyers in their computer. The Buyers' profiles in practice interest and financial ability, have been categorized to expertly select the right Buyer for your practice. Expert Buyer selection solidifies a deal, eliminating that overzealousness to sell that can cause lasting harm. Lee Skarin & Associates services all of Southern California from three strategically located offices — one is near you.

LS LEE SKARIN AND ASSOCIATES

DENTAL PRACTICE BROKERS
CA DRE #00863149

Your calls are invited. Put our thirty years experience to work for you!

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

ADVERTISER INDEX

California Practice Sales	calpracticesales.net	348
Carroll & Company Practice Sales	carrollandco.net	355
CDA Endorsed Programs	cdaendorsedprograms.com	310
D&M Practice Sales and Leasing	dmpractice.com	354
Golden State Practice Sales	925-743-9682	350
Implant Direct	implantdirect.com	342
John M. Cahill Associates/Western Practice Sales	westernpracticesales.com	357
Kool Smiles	koolsmilespc.com	336
Lee Skarin and Associates, Inc.	leeskarinandassociates.com	359
Medical Protective	medpro.com	331
Midwest Dental	midwest-dental.com	308
Misch Implant Institute	misch.com	332
Practice Transition Partners	practicetransitions.com	353
Professional Practice Sales	ppsdental.com	351
Professional Practice Transitions	pptsales.com	352
Select Practice Services, Inc.	betterobin.com	363
The Dentists Insurance Company	thedentists.com	302, 306–307
TOLD Partners, Inc.	told.com	349
Ultradent Products	ultradent.com	364
Western Practice Sales/John M. Cahill Associates	westernpracticesales.com	356
Wood and Delgado	dentalattorneys.com	350

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

CDA JOURNAL, VOL 38, Nº5

DR. BOB, CONTINUED FROM 362

abilities begin to significantly decline from the age of 27 after reaching a peak at 22.

I can relate to that. At the time of my graduation, I assumed I represented the sum total of all dental knowledge accumulated since Pierre Fauchard packed his first amalgam. At the time of my marriage at 27, my bride was just peaking at 21 according to Salthouse, thus more cognitive in the aging game than I, the declining groom. Over the ensuing years, I have never reconciled that difference in spite of my honorary title of Head of the House.

Salthouse and associates have suggested that "Therapies designed to prevent or reverse age-related conditions may need to start earlier, long before people become pensioners." They are apparently not referring to therapies in the sense of orthopedic shoes, Bengay, or Metamucil.

To make matters worse, the only remnant of my dental education that remains valid today is the application of the patient's bib to avoid ponytail or beard entanglements, and I don't even get to do that myself. The upside is that although I've completely forgotten how to make vulcanite dentures, place impeccable gold foils and startling life-like silicates, it doesn't matter. The focus of dentistry is much narrower nowadays. The goal, according to authoritative *Yellow Pages*, is whatever works to consistently obtain replicable teeth alignment in the whitest shade of white. Pierre would be proud!

What I would like to refute is the conclusion that learning ability is greatly reduced in old age in concert with reliable locomotion, deciphering small print, and the desire to stay up past 10:30 p.m.

That's a load of codswallop! The learning process is simply a matter of progressing from cocksure ignorance to thoughtful uncertainty. I am living proof that a man who can learn from his own mistakes, will always be learning something. At my age I learn something new every day. Granted, it may be the thing I forgot the day before, but to me, it's all new and I greet it with the same enthusiasm.

That's why seniors with this refreshing learning ability can sail through their twilight years with a single DVD and only one book for entertainment without being bored. Syndicated TV sitcoms, documentaries and even the worst of repetitious advertisements are given the same attention as the original offerings. Do you realize how great it is to see *Willy Wonka and the Chocolate Factory* for the first time every day?

Other than having a companion under 27 with you when watching reruns of major disasters such as Indonesian tsunamis, *Pearl Harbor*, and the *Howie Mandel Show* that might subject us oldsters to unnecessary tumult, syndication is the next best thing to Social Security. I suggest Dr. Salthouse's people call my people in 20 years and we'll discuss this further. ■■■■

CDA JOURNAL, VOL 38, Nº5

The Rusty Iron Years

The learning process is simply a matter of progressing from cocksure ignorance to thoughtful uncertainty.

Robert E. Horseman, DDS

ILLUSTRATION BY DAN HUBIG

I was 23 years old when I graduated from dental school; 27 when I married. Somewhere between those two stellar events there was World War II and a practice started. It turns out these were the real "Golden Years" the elderly folks in my diminishing peer group are mistakenly yammering about. Our latter years, as defined by when our descendants outnumber our friends, are now labeled the Oxidized Ferrous Years or, more commonly, the Rusty Iron Years.

Pity I didn't realize this sooner. Researchers at the University of Virginia in Charlottesville have recently reported on their seven-year study of 2,000 men and women aged 18 to 60 in the academic journal *Neurobiology of Aging*. They call this the study of cognitive aging, which, neurologically speaking, sounds more erudite than the pathetic premature deteriorating of the human mind.

Immured in his laboratory at the University of Virginia is Brown-Forman Professor of Psychology Dr. Timothy Salthouse. Avuncular, balding, bespectacled, and of serious demeanor befitting the writer of upward of 64 papers in the field of psychology, Dr. Salthouse's publication of "The processing speed theory of adult age differences in cognition" brought him worldwide recognition in 1996.

With the meringue sluiced off of the highly technical treatise, what the good doctor is trying to tell us is our mental

CONTINUES ON 361

Select Practice Services, Inc.

Dental Practice Sales and Transitions

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

Ruth Kalpins, DMD, MMSc


West Hills, Asking $1,000,000

Victorville Endo, Asking $700,000

Bette Robin, DDS, JD

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