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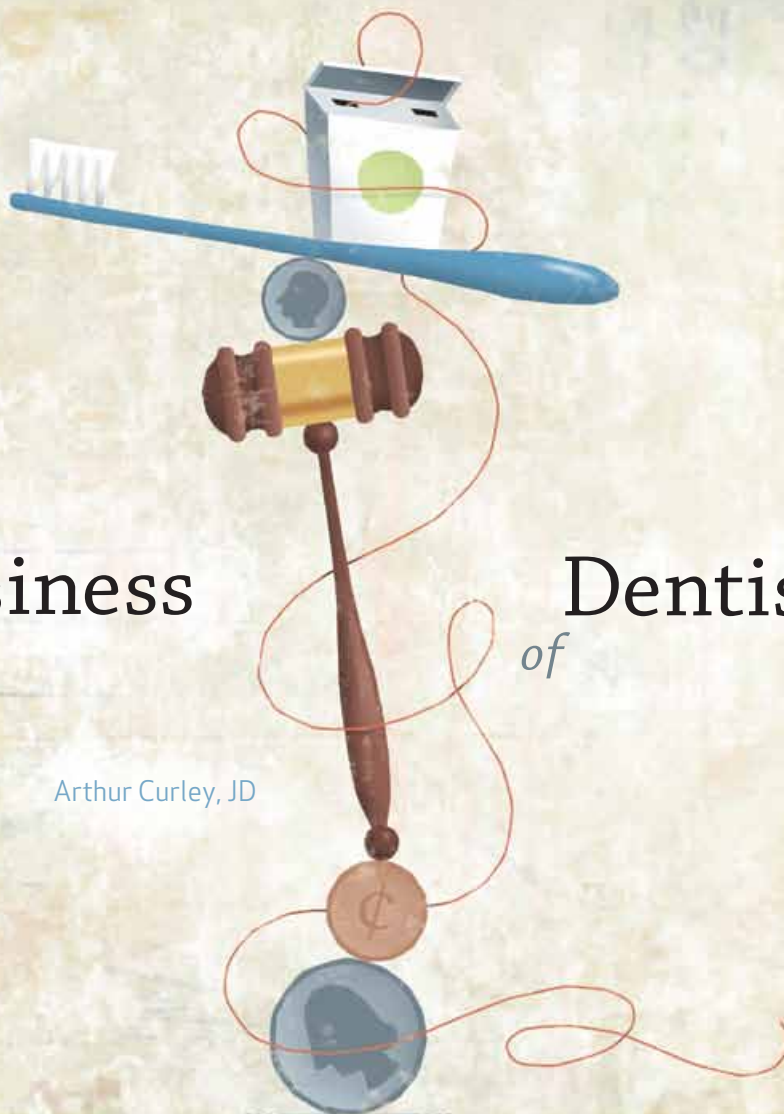
Avoiding Legal Battles

Winning Solutions

Consistent Communication

The Business of Dentistry

Arthur Curley, JD





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621 THE LEGAL BUSINESS OF DENTISTRY

Terms such as evaluation, diagnosis, testing, and treatment are part of the everyday language of dentistry. However, the profession also entails agreements, contracts, legal duties, and obligations. This article provides an introduction, issue spotting, and tips to avoid those legal battles.

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631 PRACTICAL EMPLOYMENT STRATEGIES: WIN-WIN SOLUTIONS FOR DENTISTS AND THEIR EMPLOYEES

By focusing on strategies presented in this paper, proactive California dentists can significantly reduce their employment-related risks now and in the future. In doing so, they also can increase the level of employee satisfaction and workplace harmony within their dental office.

Bernadette Bantly, JD

639 MAKING STANDARD OF CARING PART OF THE STANDARD OF CARE

Effective communication strategies, as discussed in this article, can enhance the vitality of an existing practice. Delivering a consistent message is as powerful in dentistry as compounding interest is in banking. It doesn't seem like much, but take a look at what it adds up to over time.

Clyde Schultz, DDS

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The use of dental implants has increased substantially over the past decade, as have the number of implant-related complications. This paper discusses how comprehensive training on implant surgical procedures that includes patient selection, risk management, and complications allows dentists to incorporate implant placement into their practices with less risk to patients and less risk of serious legal consequences.

Stephen Wheeler, DDS, and Cynthia M. Bollinger

653 CONE BEAM COMPUTED TOMOGRAPHY — ANATOMIC ASSESSMENT AND LEGAL ISSUES: THE NEW STANDARDS OF CARE

Cone beam computed tomography-dedicated maxillofacial imaging scanners provide broader imaging tools for anatomic assessment and have become widely available. This article discusses the uses and benefits of 3-D imaging, as well as the impact on the standard of care, such that the occurrence of complications that were once considered risks of treatment may now be considered evidence of malpractice.

Arthur Curley, JD, and David C. Hatcher, DDS, MSc, MRCD

Free Lunches and Influence

KERRY K. CARNEY, DDS

There is a bit of a dust up over at the *Journal of the American Medical Association*. It seems that in May 2008, *JAMA* published an article on the use of a certain medication in the treatment of stroke patients. The particulars of the study have been overshadowed by the controversy over transparency in conflicts of interest. The author of the study failed to disclose a conflict of interest with regard to the manufacturers of the drug in the study. What followed was a long rally of “he said,” “we said.”

The short version is: The failure to disclose a conflict of interest and a possible interpretive bias in favor of drug therapy over problem-solving therapy was pointed out to *JAMA*; and a letter reiterating the complaint was published in the *British Journal of Medicine*. *JAMA* took exception to the fact that the complaint was published in another journal and maintained it was a “serious ethical breach of confidentiality ... [and] ... potentially damages” *JAMA*’s reputation.¹ This brouhaha involves more than finger pointing and recriminations. At the core, this is about influence.

Recently, there has been a great deal of discussion around the influence that drug makers and medical device makers enjoy over physicians.² The Institute of Medicine was established in 1970 under the charter of the National Academy of Sciences. It provides independent objective, evidence-based advice to policy-makers, health professionals, the private sector, and the public. The IOM issued a report describing the most common ways these groups “endear” themselves to physicians, schools and institutions.³ The report recommended ending the practice of “free samples, free food, free medical refresher courses, and payments for marketing lectures.”²



Legislation is being formulated that would require physicians to disclose if they have received monies from representatives of the medical industry.

Legislation is being formulated that would require physicians to disclose if they have received monies from representatives of the medical industry. Industry members and their lobbyists have viewed this as an infringement on their constitutional rights of freedom of speech. They also point out that without the industry subsidized medical continuing education it would be a hardship for physicians to stay current.

The ramifications of conflict of interest on the machinery of scientific investigation and interpretation, though staggering, are not new. The *JAMA* study was well-designed, federally funded, and published in a peer-reviewed journal of national standing. However, the fact that there was no significant difference between outcomes of those patients treated with the pharmaceutical and those patients who received problem-solving therapy was not the take-home message. The study’s author and another expert were asked to comment on the conclusion. Both supported the prescribing of the pharmaceutical as a prophylactic against depression in stroke victims. (The other expert also had conflict-of-interest issues with the pharmaceutical’s manufacturer).⁴

Good scientific studies are difficult to carry out, especially when they involve human subjects. It does not make economic sense for pharmaceutical makers to

subsidize studies that might disprove the benefits of their products. Studies that find “no effect” are not often published. All of these factors sabotage the smooth running of the machinery of scientific investigation. But what does this controversy have to do with dentistry?

At a recent meeting with the deans of the dental schools in California, one of the topics for discussion was the IOM report and the issue of industry influence over dental students and faculty. Each school has established its own policy for eliminating or minimizing industry influence. Gifts are restricted or banned outright. Gone are the “Lunch and Learn” sessions sponsored by vendors. The elimination of food as a lure is significant. The ADA outreach in dental schools has shown a direct correlation between attendance and the availability of food.

Besides what’s so bad about a little food with a presentation on the benefits of a product?

The answer to that goes back to what your mother taught you. “You don’t criticize your host at a party.” (Though that social rule never seemed to constrain any of my uncles). Food, friendship, and flattery are key elements in social interaction. The blurring of the context of the meeting is what makes it an effective marketing tool. Is the meeting social or is it scientific? It is both: Facts will be presented but it would be impolite or inappropriate

to point out conflicting facts or detracting circumstances to the sponsor with whom you are breaking bread.

Sponsors are great. They underwrite many beneficial programs, but there remains the conflict between independence of thought and commercial influence. In journalism, the influence of advertising is constantly under scrutiny. Content information must remain unfettered by advertising revenue or the whole endeavor devolves into an infomercial. Science-based dentistry relies on sound principles of design, logic, reproducibility, and reasoning. Bias can render a study meaningless by insinuating into the design or coloring the conclusion. Recognizing bias is part of the critical appraisal of every study and conclusion.

The buzzword today is evidence-based dentistry. But the episode at the *JAMA*

shows that even well-designed studies may fall victim to bias. At the *Journal of the California Dental Association*, we too rely on blind, peer review to help prevent bias. For all their hard work, our reviewers are compensated only by our most grateful thanks and annual recognition. Without the review and evaluation of specialists, we would not have the award-winning publications that you read.

Influence can run the gamut from subtle and unconscious to explicit and deliberate. In its most innocuous form, we contemptuously dismiss the notion that our objective opinion could be swayed. In its most audacious form, it can take on the illegal aspect of bribery or extortion. In its most insidious form, we may not be aware of its operation. The IOM report admonishes that conflicts of interest put the public trust in jeopardy.

As caring, practicing professionals, we must insist on transparency with regard to conflicts of interest; and we must incorporate that information into our critical evaluation of clinical relevance. We cannot just read. We have to think. ■■■■

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

Polly Powell



Moral Courage

BY DAVID W. CHAMBERS, PHD

Imagine you are on trial, accused of acting morally in your capacity as a dentist. In your heart you know you are ethical, but do you believe there would be enough evidence to get a conviction?

Philosophers usually make a distinction between the academic study of ethics and the practical application of moral behavior. It is something like the difference between architects who design a house and the construction workers who build it. Some very nice plans fail for a lack of resources. Occasionally, the work is less than hoped for due to spotty attention and inadequate skills.

The gap between knowing what to do ethically and doing it is called moral courage. Here are a few examples. Over

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The Official Tooth Fairy Kit by Notion Farm

Now you can keep documentation of every tooth you lose with your local Tooth Fairy. The Official Tooth Fairy Kit will provide you with one letterpress Certificate of Record and one reusable silkscreened cloth deposit bag. All you have to do is fill out your certificate, place your tooth in the attached

envelope, and slip both inside the deposit bag. Place the bag under your pillow and the Tooth Fairy will collect your certificate and leave your compensation in the bag. Extra Certificates of Record are also available for multichildren families. The Official Tooth Fairy Kit is available for order online for \$16. Go to officeofthetoothfairy.com for more details.

New Sonic Micropulse Device Obliterates Plaque

Obi-Wan Kenobi would be proud. And probably a hard-core handyman. A plasma blowtorch that's small and busts the adhesive properties plaque has on teeth has been developed by University of Southern California scientists. What's not to like? What's more, the torch gets no hotter than room temperature.

Plasma, a somewhat runny state of ions and electrons, creates free radical oxygen ions that tear apart the plaque membrane and kill the bacteria. Even better, the torch is so fluid and adjustable, it can get to bacteria in the mouth's most hard to reach places. Since this blowtorch of sorts uses short pulses of electricity, the gas in the flame ionizes without becoming hot.

In fact, 10 minutes under the torch raised the temperature of the tooth by only five degrees, according to a press release.

Dentists, to date, have only used the torch to sterilize a tooth during a root canal, and according to the school's research and development, scientists already have other uses in mind for this nifty tool.





Pilot Evidence-Based Dentistry Training Course Offered

The American Dental Association Center for Evidence-Based Dentistry and The Forsyth Institute are offering a five-day training course in evidence-based principles and tools, including systematic reviews and applications for clinical decision making.

The collaborative "ADA/Forsyth EBD Course," which is scheduled from Oct. 19 to 23 at Forsyth headquarters in Boston, Mass., will link the evidence-based dentistry initiatives of the ADA with the breadth and depth of Forsyth's scientific research. The interactive course will include a preassignment and multiple hands-on activities throughout the week.

The curriculum can accommodate up to 30 students and includes: formu-

lating clinical questions; searching for evidence; critical reading and appraisal; and implementation. The coursework focuses on human clinical trials to include quantitative and qualitative outcomes; risk calculation; diagnosis; and systematic reviews.

Faculty members include Richard Niederman, DMD, MA, director, Center for Evidence-based Dentistry at The Forsyth Institute, and Derek Richards, BDS, director, Center for Evidence-based Dentistry at Oxford University, United Kingdom.

The course is designed for dentists, members of the dental team, educators and researchers, including practitioners involved in practice-based research networks, and other dental professionals.

For more information or to apply for the course visit www.ada.org/goto/EBDCourse.

Minimal Time for Topical Anesthesia Application Is Sufficient

For years, dentists used a topical anesthesia to take the edge off the actual needle insertion of anesthetic fluid and using smaller-gauge needles in the belief that it causes less pain. Now, research has shown that needle size has no effect on perceived pain level.

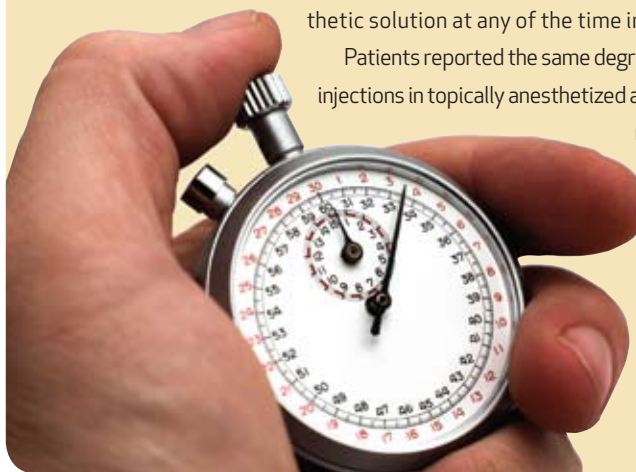
A recent study examined the effectiveness of topical anesthesia in reducing pain associated with needle insertion separately from the pain associated with injection of the anesthetic, according to an article published in *Anesthesia Progress*. After different time intervals (two, five, and 10 minutes), results were studied to ascertain the optimal efficacy time of the topical anesthetic.

Responses from 85 people in the study showed that the topical anesthetic was statistically and significantly more effective as opposed to the placebo for reducing the pain caused by needle insertion alone at all time points (two, five, and 10 minutes). However, in the double-blind, placebo-controlled study, results showed there was no effect on perceived pain intensity associated with injection of the local anesthetic solution at any of the time intervals, researchers said.

Patients reported the same degree of pain, all time lengths, from anesthetic solution injections in topically anesthetized and placebo locations. As such, the minimum two-

minute period appears to be sufficient for the topical anesthetic application, since a five- or 10-minute delay has no added benefit in reducing the pain of needle insertion. The pain intensity levels reported were not associated with differences in the subjects' age, gender, weight, or heart rate, said researchers.

To read the entire study, "Effect of Time on Clinical Efficacy of Topical Anesthesia," visit allenpress.com/pdf/anpr-56-02-03.pdf.





Treat Your Back as if Your Life and Livelihood Depend on It (Because They Do)

Being kind to your back may extend your dental career and improve your life.

Writing in the *North Carolina Dental Gazette*, Stuart McGill, PhD, presented “spine-sparing guidelines” for dentists whose protracted awkward stance and near contortionist-like positions when working with supine patients can cause recurrent skeletal issues. McGill is a professor of spine biomechanics at the University of Waterloo, Ontario, Canada.

The most important thing dentists and other dental professionals should do to spare their backs is to develop work tasks that facilitate variety, McGill wrote. This in essence spreads the load among different parts of the back. Also, it’s important to avoid fully flexing or bending the spine, and to rotate the trunk at the hips. While working, try to keep your hands close, to reduce forward leaning of the torso, according to a press release.

Other tips McGill recommended to improving back muscle endurance:

- allowing time for tissues of the discs and ligaments of the back to regain stiffness after prolonged flexion;
- not immediately performing a subsequent strenuous exertion after performing long procedures;
- avoiding prolonged sitting;
- avoiding bending or lifting shortly after getting out of bed; and
- exercising.

COURAGE, CONTINUED FROM 605

the years you see the occasional patient treated by a dentist in your community and have watched as the quality decrease: disease conditions are missed, treatment chosen seems difficult to explain, and the technical quality is not up to standard. This troubles you, but you see no clear way to confront the issue.

A family member demands narcotics for pain relief in conjunction with a work injury more than a year ago. You know it is not really right, but it is just easier not to confront the whole family who expect you to cover up. At a component society meeting, a colleague brags about a loophole in the policies of some insurance carriers that permits “perfectly legal” upcoding. You are skeptical and decide that sort of bending the rules is not for you. You mumble something to your colleague about “Well, anything

that would level the playing field” and comment later to your friends that “Some people in dentistry are getting pretty commercial, if you know what I mean.” In each of these cases, you get high marks for ethics and low marks for moral courage.

There is a phony debate over whether ethical outlook has been entirely formed in youth or at least before dental school. The literature says ethical reasoning skill keeps on developing as long as individuals continue to grow intellectually, with a practical cut off occurring in many cases in the late ‘30s. But that debate narrows our focus too much. The big challenge is not increasing knowledge of the philosophical principles of ethics or ethical reasoning fluency. What we need is training in communication and assertiveness, professional support groups,

peer-review mechanisms, and follow-up on disciplinary actions.

For some, ethics is a spectator sport and we hope our team wins. Getting into the game and actually making a difference to the outcome requires moral courage.

The nub:

- ❶ Growing an ulcer over a wrong you see or turning it into an opportunity to gloat over your own ethical superiority both are signs of a failure of moral courage.
- ❷ Confronting wrongs is a skill that can only be learned through active practice.
- ❸ When broaching moral topics make your words tender, you may have to eat them.

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.



Smile Savers System May Make a Dentist's Office Smile

With dentists and their staff spending more time marketing their practice on top of the myriad of responsibilities with the actual running of their practice, the Academy of General Dentistry has launched a new member benefit, AGD Smile Savers.

The automated tool creates e-newsletters, appointment reminders, surveys and more, allowing dentists more effective communication with patients.

"We realize that, in the present economy, dentists everywhere are looking for ways to save money and increase patient retention," said Paula S. Jones, DDS, FAGD, AGD president. "We are delighted to give our AGD members more tools that will improve the quality of their practice and the services they provide."

This tool, which helps dentists maximize staff time and increase the level of attention given to their patients, is free. AGD members who integrate Smile Savers with their current office software have the capabilities to communicate frequently and automatically, right at their fingertips. Not only is there a cost savings, there's a time savings. Staff who manually confirm the appointments can save about two hours each day.

"This new benefit provides one turn-key solution to service practices of all sizes," said Linda Edgar, DDS, MEd, MAGD, secretary of the AGD, who uses the tool in her practice. "It is now very convenient for patients to receive text messages and e-mail appointment reminders, allowing my staff to focus on other tasks around the office. They also send 'Happy Birthday' messages, which our patients love, and the system allows patients to send comments about their appointments for feedback to the office."

Highlights of the Smile Savers include:

APPOINTMENT REMINDERS automatically are sent to members' patients customized appointment reminders by text and e-mail. This feature can reduce the chance of missed and forgotten appointments.

DORMANT PATIENT REACTIVATION

reactivates patients who the office has not seen for 12 months. The aim is to reintroduce the practice and invite them back into the office. The system does an in-depth examination of the patient database to pinpoint dormant patients. Reactivation can add thousands of dollars every month to the practice. Best of all, Smile Savers does the reactivation work.

NEWSLETTERS, of which the program has more than 100 ready-to-send articles, can be edited to meet the member's needs. Members can even add their own articles. Newsletters can increase new patient referrals, inform patients of what

is happening in the practice, and educate them on the new services and technology available to them. All newsletters bear the member's name and logo.

SURVEYS allow the members to measure the level of patient satisfaction in the practice.

MICROSITE is a free, one-page Web site available to all registered users. A practice can display the details and testimonials without creating and maintaining its own Web site. The microsite can be a companion to an office's existing Web site, according to a press release. The microsite also is home to more than 50 links to different blogging and social networking sites.

UPCOMING MEETINGS

2009

Sept. 10-13	CDA Presents <i>The Art and Science of Dentistry</i> , San Francisco, 800-CDA-SMILE (232-7645), cda.org .
Sept. 30-Oct. 4	American Dental Association 150th Annual Session, Honolulu, Hawaii, ada.org .
Nov. 2-4	National Network for Oral Health Access National Primary Oral Health Conference, Nashville, Tenn., Luana Harris-Scott (619) 279-5879 or nnoha.org .
Nov. 8-14	United States Dental Tennis Association fall meeting, Scottsdale, Ariz., dentaltennis.org .

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April 11-17	United States Dental Tennis Association, Amelia Island Plantation, Fla., dentaltennis.org .
April 26-28	National Oral Health Conference, St. Louis, Mo., nationaloralhealthconference.com .
May 13-16	CDA Presents <i>The Art and Science of Dentistry</i> , Anaheim, 800-CDA-SMILE (232-7645), cda.org .
Sept. 9-11	CDA Presents <i>The Art and Science of Dentistry</i> , San Francisco, 800-CDA-SMILE (232-7645), cda.org .
Nov. 7-13	United States Dental Tennis Association, Grand Wailea, Hawaii, dentaltennis.org .

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



Protecting Your Dental Office Against Employee Theft

Employee theft, regardless of the size of the company, always is distressing. But for small companies, it can be more so because they often do not have the resources to successfully guard against it or the financial cushion to comfortably take the hit.

But all is not dismal. In an article by Kristin Heylmun of COPIC Financial in a recent issue of *Colorado Dentistry*, there are things small businesses, such as dental practices, can do in what is the country's most underreported crimes.

Chief among them: know who you are hiring.

"Some people have theft in mind from the start and you can avoid hiring these candidates by conducting thorough back-

ground checks and obtaining previous job references," Heylmun wrote.

Cultivate and encourage honesty in the office. The office manager and dentist play an important role in ensuring employees are in tune with the practice's code of conduct. It's also a good idea to nurture an office environment that's respectful and emphasizes teamwork. Instituting a checks and balances system, as well as technology to prevent theft are other ideas, Heylmun said.

Moreover, "employee dishonesty insurance" should be considered. These individual policies were created to guard businesses from the misfortunes of safe/vault burglaries, robbery, theft, and coverage also can include fraud ranging from funds transfers and credit cards, to computer and forgery.

Family Smoking Prevention and Tobacco Control Act Applauded

Following Congress' passage of the Family Smoking Prevention and Tobacco Control Act, the American Dental Association commended the effort that gives the U.S. Food and Drug Administration the authority to regulate the manufacturing, marketing, and distributing of tobacco products.

"Dentists are the first line of defense in the war against oral cancer and many other tobacco-related diseases," said John S. Findley, DDS, ADA president, in a statement. "The American Dental Association has a long-standing policy that nicotine is a drug, and that cigarettes and other tobacco products are nicotine delivery devices and, therefore, should be regulated by the FDA. The Association has devoted particular attention to the insidious marketing of tobacco products to children, especially so-called 'smokeless' or spit tobacco products.

"Many Americans believe that tobacco products already are regulated for health and safety when in fact they're

not. Over the years, the tobacco industry has used its enormous political influence to avoid even the most basic oversight of its products," said Findley. "As a result, tobacco use remains the main cause of preventable disease and death in the United States.

"About nine out of 10 people who will die from oral and throat cancers use tobacco, and their risk of developing these cancers is related to how much (and how often) they use tobacco. On average, 40 percent of those with these cancers will not survive more than five years," Findley continued. "Tobacco products are also associated with higher rates of gum disease, one of the leading causes of tooth loss in adults. Congress's action is the first step in more effectively regulating tobacco use and marketing, and we urge the president to sign this legislation as soon as possible."



"Dentists are the first line of defense in the war against oral cancer and many other tobacco-related diseases."

**JOHN S. FINDLEY, DDS,
ADA PRESIDENT**



Specialist's Failure to Follow up Leads to Litigation

CARLA CHRISTENSEN

Once a quarter, the *Journal* features a TDIC risk management case study, which provides analysis and practical advice on a variety of issues related to liability risks.

Authored by TDIC risk management analysts, each article presents a case overview and real-life outcome, and reviews learning points and tips everyone can apply to their practice.

A periodontist lost control of her case resulting in the subsequent treating dentists and physicians blaming each other when the patient filed a lawsuit.

In March 2006, Jane Honeycutt met with her general dentist, Dr. Daniel Lombardi, to discuss implants in the area of teeth Nos. 14 and 15. Dr. Lombardi referred her to Dr. Rhonda Chapman, a periodontist, to evaluate Ms. Honeycutt's upper left quadrant for treatment recommendations related to the implants. Due to the proximity of the sinus cavity, Dr. Chapman determined that a sinus lift with osseous grafting was appropriate to prepare the area. She performed the surgery on March 26 and gave postoperative instructions including Peridex to address potential infection and no smoking during the recovery phase. The procedure appeared successful; however, four days later, Ms. Honeycutt noticed that some of the packing had fallen out. She presented to Dr. Chapman's office to have the sinus repacked and to replace two loose sutures. Dr. Chapman kept detailed treatment notes and documented that the patient had no other complaints or apparent complications.

On April 2, Ms. Honeycutt reported she was experiencing pain in the area.

Dr. Chapman prescribed Vicodin and advised her to call if her symptoms did not improve. Two days later, during her regularly scheduled appointment, the sutures and packing material were removed.

Dr. Chapman noted an oral antral fistula approximately 3 mm in diameter. Based upon clinical guidelines, she determined the fistula would spontaneously heal because it had been present for less than a week and was less than 5 mm. Dr. Chapman repacked the site and prescribed 600 mg of ibuprofen for pain.

A week later, Ms. Honeycutt returned to the office complaining of continued discomfort and pain. Although now only 2 mm in diameter, the oral antral fistula communication still existed. Again, Dr. Chapman repacked the sinus with collagen membrane to strengthen the site then sutured the area. She prescribed 500 mg of Biaxin in addition to 600 mg of ibuprofen and 1 mg Vicodin. She reviewed postoperative instructions again with Ms. Honeycutt, including using her remaining Peridex and smoking cessation as previously directed.

The patient reported one week later that she was still in pain and that she was experiencing swelling and fluids draining from her sinus. Dr. Chapman

concluded Ms. Honeycutt had developed an infection due to the inflammation and delayed healing process. She reflected a flap, cleaned out the membrane and packing material and then repacked the area with a bacteriostatic sponge. Approximately one month after the initial sinus lift procedure, a communication was still present although greatly reduced to 1.5 mm in diameter. Unsure as to why the site was not healing properly, Dr. Chapman referred Ms. Honeycutt to an oral and maxillofacial surgeon, Dr. John Hernandez, for evaluation.

Dr. Chapman did not call Ms. Honeycutt nor did she hear from her again until December 2006 when Ms. Honeycutt alleged that Dr. Chapman had deviated from the standard of care in a lawsuit. She claimed Dr. Chapman caused a severe impingement of her middle superior alveolar artery thereby reducing blood flow to her maxilla resulting in necrosis. She further alleged that this necessitated removal and reconstruction of the upper left quadrant of her maxillary bone. However, Ms. Honeycutt did not file suit against Dr. Lombardi or any of the subsequent providers. Dr. Chapman contacted TDIC and was appointed a claims representative and a defense attorney who began an investigation into the allegations.

During Discovery

During her deposition, Dr. Chapman testified that she anticipated Ms. Honeycutt would return to complete the implant treatment as soon as the site had healed. She felt that Ms. Honeycutt's abnormal wound healing may have been due to her continued cigarette smoking despite postoperative instructions to discontinue this activity during recovery. Dr. Chapman acknowledged she had heard nothing further from or about the patient until approximately six months later when a

Dr. Chapman could not recall whether she had specifically discussed the patient's case with the oral surgeon prior to the patient's initial consultation with him.

prosthodontist contacted her regarding the removal and reconstruction of the necrotic maxillary bone. While a formal referral slip was completed and provided to Dr. Hernandez, Dr. Chapman could not recall whether she had specifically discussed the patient's case with the oral surgeon prior to the patient's initial consultation with him. Additionally, there was no written evaluation from Dr. Hernandez that Dr. Chapman could reference to provide further clarity.

During his deposition, Dr. Hernandez testified that Dr. Chapman did not refer many cases to him and that he rarely, if ever, referred patients to Dr. Chapman. He stated he remembered Ms. Honeycutt very well and that when he re-evaluated the site, the sinus perforation had decreased in size to 1 mm. Dr. Hernandez noted there was no sign of infection present. Upon irrigation with peroxide and warm water, Ms. Honeycutt reported the area was still tender. When the patient experienced persistent pain and delayed healing, she consulted with Dr. Hernandez regarding a possible antrostomy. Dr. Hernandez performed the antrostomy a week later. Postoperative re-examination of the site indicated the surgery was ineffective and Dr. Hernandez referred Ms. Honeycutt to an ear, nose and throat, ENT, specialist for further evaluation and treatment.

The ENT performed an endoscopic maxillary sinustomy on Ms. Honeycutt on July 5, attempting to close the oral antral fistula and assist the healing process. Unfortunately, the site remained prob-

lematic, and over the next month Ms. Honeycutt suffered from drainage and pain. She contacted her general dentist, Dr. Lombardi, who noted in the patient's chart that she called him in July claiming she wanted to "kill herself" to escape the torment and that she had "never experienced such an intense pain."

Dr. Lombardi reported that he directed Ms. Honeycutt to contact her ENT immediately and wished her a speedy recovery. Three weeks later, the ENT referred the patient to a prosthodontist to assess the viability of the patient's maxillary bone. The prosthodontist determined that Ms. Honeycutt's upper left jawbone was necrotic and referred her to a reconstructive head and neck surgeon at the University of California, Los Angeles.

During her deposition, the head and neck surgeon revealed she found, upon examination of the patient, that the entire posterior lateral quadrant of her maxilla on the left was nonviable and needed to be debrided.

On July 10, the surgeon performed a left partial maxillectomy on the patient and discovered osteomyelitis present on the left maxilla. A month later the patient returned to UCLA for palate reconstruction using a local turn-in mucosal flap and a right radial forearm free flap, skin graft, and neck exploration. Ms. Honeycutt tolerated the procedures well and was discharged one week later.

During the discovery phase, Ms. Honeycutt's attorney interviewed and implicated each doctor as being liable for the adverse outcome and ultimately challenged each treatment provider to delineate their specific role in her care. Her counsel successfully applied a divide-and-conquer strategy to the proceedings. The prosthodontist insinuated that the patient's outcome was directly related to Dr. Chapman

cutting through the middle superior alveolar artery, but admitted she had not reviewed films and radiographs and was not sure of this conclusion. When counsel asked the reconstructive surgeon if the necrotic bone resulted from the treatment Dr. Hernandez provided or if it was due to his late recognition of necrotic bone, she said “possibly.”

However Dr. Lombardi testified that when he spoke with the reconstructive surgeon, she had criticized the ENT’s surgical abilities and had remarked that the flap procedure he performed was “old school” and ineffective.

Ms. Honeycutt’s attorney used the lack of communication and teamwork by the treatment stakeholders effectively against them. Dr. Chapman’s legal counsel felt it was in her best interest to settle rather than risk a trial and potentially sympathetic jury verdict given the complexity of this case.

Learning Points

Referrals and Follow-up

Referrals are usually sought when dentists with primary clinical responsibility recognize patient treatment is beyond their level of expertise or available resources. The referring dentist should explain the referral process to the patient, supply the consulting colleague with pertinent information, and continue to monitor the patient and coordinate his or her overall care.

It is the referring dentist’s responsibility to follow up (preferably in writing) with referral practitioners and the patients on the status and progress of each referral. Consider providing the patient with a copy of the referral letter. Keep a copy of the referral in the patient’s chart.

Additionally, the specialist who is receiving the referral should always provide a written evaluation, including treatment recommendations, to the referring den-

Ms. Honeycutt’s attorney used the lack of communication and teamwork by the treatment stakeholders effectively against them.

tist. Similarly, if a patient who is referred to a specialist fails the appointment, the specialist should notify the referring dentist. Assign a reasonable time frame, based on when you think the referral evaluation should be completed, for staff to follow-up on a specialist referral.

Based on past claims experience, TDIC developed both a referral letter and a referral response letter. They are available at thedentists.com in the “Risk Management” section. The chart should also reflect the referral process, including:

- Why and to whom was the patient referred?
- Did the patient agree to the referral?
- What is the time frame for the referral?
- Did the patient follow through with the referral?
- When was the treatment completed?
- What was the treatment outcome?
- Were there complications or modifications to the requested treatment? Why?
- Has the patient been scheduled for follow-up treatment?

The American Dental Association outlines the purpose of consultation and referral in Section 2.B of the organization’s Code of Ethics. The section also asserts the underlying ethical fundamentals that govern consultation and referral, and clarifies the responsibilities of those who request and those who provide consultation. The ADA advisory opinion is directed to dentists but it should be recognized that nondental practitioners may also be involved in the referral process.

Dr. Chapman should have contacted Dr. Hernandez to discuss the evaluation’s outcome and treatment of Ms. Honeycutt. She may have discovered that he referred the patient to an ENT and together they could have worked toward a resolution. Additionally, neither contacted Dr. Lombardi, the general dentist, to discuss their diagnoses and treatment recommendations.

While Dr. Chapman was responsive to Ms. Honeycutt’s complaints, she did not initiate any follow-up with her. She waited until the patient called to report pain to act. Had she initiated the follow-up, she may have retained both her relationship with Ms. Honeycutt and control of the case.

Team Approach

Problems or unexpected outcomes may occur over differences of opinion about treating a particular clinical situation. A difference of opinion on a clinical issue does not mean a colleague is wrong or in violation of the standard of care. When a colleague chooses a different approach to treatment, discuss it with him or her to determine why he or she chose that approach. A collaborative approach ensures the patient receives the best care. When there are treatment deviations, address the issue with all practitioners involved. Discussing the situation with the other practitioners and reaching a mutual agreement, verifies the patient’s best interest is met.

In this case, Ms. Honeycutt’s attorney effectively demonstrated how all of the treating practitioners failed to communicate about her care and blamed the results and complications she experienced on the lack of communication. This created a situation where each practitioner felt vulnerable to criticism because they were not aware of the patient’s collec-

tive treatment process. The defendants were more susceptible to being criticized and this prompted them to criticize each other to avoid being the focus of attack.

Dr. Chapman should have kept Dr. Lombardi informed, as well as been actively involved in seeking a resolution, especially since she initiated the referral to Dr. Hernandez. She should have initiated a discussion between herself, Drs. Hernandez and Lombardi, and other subsequent treaters. Had all of the practitioners discussed the events, they may have agreed on the best course of treatment to remedy the situation in a timely manner. This collaborative approach would have assured the patient that her health and well-being were a mutual priority. A united presentation of options validates the team approach to treating a patient and a new treatment direction.

Documentation

If one or more dentists are involved in your patient's treatment (e.g., orthodontist, periodontist, prosthodontist, oral surgeon), then the record should document your communication with the other practitioner. Include notes on their progress with the patient and how that progress will affect your work. Similarly, if the patient is undergoing treatment with other health care providers, such as a physician or psychiatrist, the progress of that care as it relates to the patient's health should be monitored and documented in your progress notes.

If, during a procedure, you discover the need for further treatment, document that fact as well as the subsequent treatment plan, treatment options, and discussions with the patient and the den-

tal team. If applicable, also note any new referral or recommendation for referral. TDIC provides a referral letter and referral evaluation sample forms that you may access online at www.thedentists.com.

Records are your best defense. The first thing a plaintiff's attorney will do is request the records. TDIC claims experience shows time and again that a case is less likely to be pursued if the dentist keeps excellent records. The dentist should inform the patient of the need for the referral and discuss options with the individual. A collaborative relationship between the dentist, the dental team, and the patient can greatly improve the quality of care the patient receives. ■■■■

Carla Christensen is a risk management analyst with TDIC.

The BUSINESS *of* DENTISTRY

ARTHUR CURLEY, JD

There are many reasons why someone chooses to become a dentist: a family member was in the profession, they have a proclivity for the sciences of health care, or they like the autonomy of having their own practice. Mark Gonthier, assistant dean for admissions of Tufts University School of Dental Medicine, offered this description of the ideal dental school applicant, "We are looking for mature, well-rounded students capable of handling the rigor of the basic sciences curriculum and are equally adept and committed to providing quality comprehensive patient oral health care." Few dentists will report that they chose their profession because they wanted to run a small retail business.

GUEST EDITOR

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

The most common theme heard from most dentists is a passion for helping people maintain or restore their dental health and the attendant functional and esthetic successes. Dr. David Leader wrote, "dentists have a history of compassion and volunteerism. Dental schools are more likely to choose applicants who already demonstrate these qualities."¹

Dentists believe that a successful practice comes from being a good dentist and caring about their patients, and for the most part that's true. Yet, because dentistry is a profession, most dentists don't think of themselves as running a small enterprise subject to many of the same laws, rules, and regulations associated with a large business. However, such is the reality today of the business of dentistry.

Today, the owner of a dental practice wears many hats in the eyes of the law and the Dental Board of California. Dental practice owners are the chief executive officer, the chief financial officer, the head of marketing, human resources, quality control, OSHA compliance, and at the same time, the primary source of production. Every one of these roles requires an understanding of the legal duties and associated risks. Because for the most part the dental office is open to the public, the law regulates

them much the same as any small retail goods and service store. In addition, there are the regulations associated with having a health care license, such as OSHA and The Dental Practice Act.^{2,3}

These roles, duties, and regulations require that the prudent practitioner obtain a fundamental knowledge of the laws and obligations of running a small business well beyond the typical training associated with undergraduate education at many dental schools. Those rules and regulations require documentation and a vigilance for changes.

Therefore, claims avoidance is not just about striving for quality care. It is more about risk recognition and being proactive to minimize the effects of such risks. An example is driving a car. Few of us wake up in the morning planning to have an accident. We believe we are careful drivers and try to be vigilant of others. However, we still put on a safety belt and prefer to have a car with air bags because we know that we can still have an accident. This issue addresses some area of potential legal problems and offers advice for early risk recognition.

As a small business, dentists need, and therefore will be exposed to, numerous agreements and contracts, such as business entity structure (solo, partnership, corporation), hiring associates, leases of equipment and office space, sales and purchases of practices and the attendant estate planning. Mike Kowalski, DDS, JD, and Steve Barrabee, JD, review the basic legal issues of the formation and maintenance of a dental office, and offer guides in the article, "The Legal Business of Dentistry."

OSHA, intended to primarily protect employees, sets forth detailed and specific rules for infection control in

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the dental office making old practices illegal. All licensed California dentists are required to take a course on infection control every two years (CCR 1016-b-1), and therefore must know, implement, and abide by those regulations.⁴ However, employment claims outside of OSHA have increased in number and scope in recent years. Employment law has evolved and now requires protocols, policies, and documentation to prevent claims for wrongful termination, discrimination, harassment, and wage/hours violations. Bernadette Bantly, JD, offers an overview of employment law along with samples and tips for maintaining good employer/employee relationships in "Practical Employment Strategies: Win-Win Solutions for Dentists and Their Employees."

Any good business owner wants to stay current with changes in their area of goods and services. For dentists that means continuing education. However, for some, continuing education is viewed as a way to learn techniques and procedures to increase fees and thereby increase profits. But the law requires that doctors attempting new treatment modalities, or ones typically done by specialists, such as implants, still maintain the standard of care in the community. That requirement often means evaluating the

quality of a continuing education training program. Stephen Wheeler, DDS, and Cynthia Bollinger, a practice management specialist, provide a review of the pitfalls of inadequate continuing education training and provide recommendations in "Complication or Substandard Care? Risks of Inadequate Implant Training."

At the same time, the standard of care is always evolving, sometimes quite dramatically. David Hatcher DDS, and I review the arrival of new 3-D imaging and the very significant associated changes in the standard of care in "Cone Beam CT — Anatomic Assessment and Legal Issues: The New Standards of Care" that were once considered risks are now being used as evidence of substandard care and malpractice, resulting in large verdicts and settlements.

Finally, at the end of the day, a successful claims-free business is as much about customer (patient) service as it is the latest and greatest techniques or technology. Building and maintaining trust and patient loyalty is essential. Clyde Schultz, DDS, shares the lessons learned and recommendations from having developed several successful practices in "Making Standard of Caring Part of the Standard of Care."

Combining quality care with risk recognition and implementing the recommendations of the authors herein will help insure success in the business of dentistry. ■■■■

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The Legal Business of Dentistry

STEVE BARRABEE, JD, AND MICHAEL KOWALSKI, DDS, JD

ABSTRACT Upon graduation and licensure, most dentists anticipate going into the profession of providing dental health care to patients in an office or clinic setting. The profession is also the business of dentistry. Failure to appreciate documentation requirements for the business of dentistry can result in legal battles that are time-consuming and emotionally draining. This article provides an introduction, issue spotting, and tips to avoid those legal battles.

AUTHORS

Steve Barrabee, JD, is an attorney focusing on the defense of dentists throughout California in malpractice and licensure claims, as well as consulting in matters of incorporation, purchase, and sales of practices. He has lectured at the Arthur A. Dugoni School of Dentistry and to local dental societies on dental practice sales and business transition issues.

Michael Kowalski, DDS, JD, has lectured at University of California, San Francisco, School of Dentistry on dental jurisprudence and emphasizes defense of dentists in malpractice and licensure matters, as well as estate planning.

Dentists too often are so focused on the profession of dentistry that they don't appreciate the business of dentistry. Like any business, the dental practice involves a number of agreements. There are specific types of contracts that dentists will have to consider during their careers. This article reviews the more important common contracts and agreements that dentists will likely encounter from the time they are licensed to the time they retire. These contracts include associate agreements, business entity forms, practice buy-sell agreements, and estate planning.

Dentists emphasize prevention for their patients. With prevention in the form of knowledge and guidance from the right professionals, a dentist can avoid some of the common pitfalls in working with such agreements and make a smooth and profitable transition in every step from licensure to leisure.

Associate Agreements

Most new dental graduates will enter into an agreement to be employed as an associate dentist for another dentist. This arrangement is a contract and can be oral or in writing. A contract is a mutual promise or set of promises the law will enforce. For a valid agreement it is presumed that the terms of the contract were bargained for by both parties, that there was a meeting of the minds where each party understands what they must give up to get what they want, and ends with an agreement having realistic expectations.

Two prime issues come up with associate agreements. The first is whether the associate dentist should be treated as an employee or an independent contractor. The second has to do with protecting the practice from competition by the associate after separating from the practice.

In California, the presumed employment arrangement, unless altered by an

agreement between the parties, is at-will employment. At-will employment is defined in the Labor Coder as employment having no specific term and that it may be terminated at the will of either party without notice to the other party.⁴ (Tip: *Employ written at-will agreements so there can be no dispute about oral changes.*)

Practice owners will often believe it is appealing to have their associate dentist classified as an independent contractor because they will pay less in withholding taxes and they will be insulated from liability for any negligent or intentional acts of the associate dentist.

Employee or Independent Contractor

As to the first issue, employee or independent contractor status, the IRS has a 20-factor test, often termed the right of control test, to determine if an employee can truly be classified as an independent contractor. Under the IRS rules, an independent contractor controls the manner and means by which contracted services, products, or results are achieved. The more control a business exercises over the how, when, where, and by whom the work is performed, the more likely the worker is an employee and not an independent contractor. Associate dentists just are not a good fit with the IRS factors. In fact, it is estimated that as many as 80 percent to 90 percent of independent contractors in California are misclassified. This can have serious consequence for the owner of a dental practice as it may result in government audits by the Employment Development Department and other agencies where penalties and back taxes might be assessed.

Although a worker does not have to meet all 20 factors to qualify as an independent contractor and no single factor is determinative, the key issues in

determining independent contractor status is who controls the means and manner of work. Other important factors include: Who provides equipment and instruments? Is the worker integrated into the employer's business? Are taxes withheld? Are benefits paid? What is the degree of control of staff?

It might be instructive to look at the 20 factors and see how intuitively the independent contractor classification in the private dental practice setting is problematic.

THE IRS HAS A 20-factor test, often termed the right of control test, to determine if an employee can truly be classified as an independent contractor.

1. Level of instruction. If the owner directs when, where, and how work is done, such control is indicative of an employment relationship.
2. Amount of training. If the owner requests workers to undergo company-provided training, an employment relationship is suggested.
3. Business integration. Workers whose services are integrated into the business operations or significantly affect the success of the business are more likely to be considered employees.
4. Extent of personal service. Businesses that insist on a particular person perform the task, assert a degree of control whereas independent contractors are typically free to assign work to anyone.
5. Control of staff. If the owner of the

business hires, supervises, and pays a worker's staff, such control suggests an employee relationship. Typically, independent contractors have the control of hiring, supervising, and paying staff.

6. Continuity of relationship. Although an independent contractor relationship can involve an ongoing relationship for multiple and/or sequential projects, a continuous relationship between the business and worker indicates a possible employee relationship.

7. Flexibility. When the owner dictates people's hours or days of work, such workers are typically considered employees.

8. Demand for full-time work. Full-time work supports an employee relationship because it gives the business control over most of the person's time.

9. On-site services. Particularly if the work can be performed elsewhere, requiring it to be performed at the business premises indicates an employee relationship.

10. Sequence of work. An employment relationship is suggested if a business requires work be performed in a specific order.

11. Reports. If a worker must regularly provide written or oral reports on the status of a project, the suggestion is an employee relationship.

12. Method of payment. Hourly, weekly, or monthly pay schedules are characteristic of employer-employee relationships. However, if the payments are simply a convenient way of distributing a lump-sum fee, an independent contractor relationship could be supported. Independent contractor relationships are characteristically a payment or commission upon project completion.

13. Payment of business or travel expenses. Independent contractors usually pay their own business expenses and set their fees high enough to cover those expenses. An employee relationship

is suggested when the owner covers all business expenses.

14. Provision of tools and materials. Workers who perform most of their tasks with instruments provided by the owner of the business are typically considered employees.

15. Investment in facilities. Independent contractors typically invest in and maintain their own work facilities.

16. Realization of profits. Receiving predetermined earnings, with little chance of realizing significant profits or losses, is typically of an employee relationship.

17. Working for multiple companies. Working simultaneously for several unrelated companies is more likely an independent contractor relationship.

18. Availability to the public. Making the worker's services available to the general public supports an independent contractor relationship.

19. Control over discharge. A business' ability to terminate an independent contractor relationship is generally dependent on contract terms. On the other hand, if the business has the unilateral right to discharge a worker, it suggests an employment relationship (California at-will employment).

20. Right of termination. Most employees can terminate their own work for a business (again, the California default of at-will employment). Independent contractors may not be able to terminate services without liability depending on what is allowed under their contracts.

The IRS usually classifies workers as employees whenever their status is not clear-cut. Moreover, the IRS has traditionally maintained that a written independent contractor agreement between the parties is never sufficient evidence to determine independent contractor status, especially if facts indicate otherwise. For tax collection purposes, the IRS has a strong

incentive in finding employee status.

There is a real concern that classifying the associate as an independent contractor could possibly be considered fee splitting in violation of the Dental Practice Act.² A payment by a percent fee agreement means the owner will share fees with the independent contractor. The owner is referring patients to the independent contractor and receiving a fee. In a recent court case, this was found to be an exception only if there is no profit.³

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Additionally, classifying an associate dentist as an independent contractor may not provide as much protection from liability as hoped for by the practice owner. To obtain as much protection as possible to the acts of the associate dentist, the practice owner will have to, at a minimum, inform all the patients treated of the associate's independent contractor status. Otherwise, the practice owner could still be held liable for the actions of the independent contractor under the theory of "ostensible agency," which states that if the ordinary patient would assume the dentist is an employee, the owner can be liable without a written understanding signed by the patient to the contrary.

Another issue for owners is protecting their practices from competition when an associate separates and moves on to open his or her own practice. Often, a covenant not to compete is incorporated in the associate agreement. California law is unambiguously clear that a covenant not to compete is prohibited in all employment agreements. In the Business and Professions Code, Section 16600 states that "Expect as provided in this chapter, every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void." The policy consideration behind the statute is open competition, which has been the rule in California since at least 1872.⁴

The law provides an exception when the goodwill of the business is sold and the covenant not to compete is reasonable as to time, duration, and geographic distance. In other words, only a part owner can be bound by an agreement not to compete.⁵

An alternative for the practice owner and associate is incorporating trade secret provisions in the associate agreement. A trade secret is defined under the Uniform Trade Secret Act as "information, including a formula, pattern, compilation, program, device, method, technique, or process that . . . derives independent economic value actual or potential, from not being generally known to the public or other persons who can obtain economic value from its disclosure or use."^{6,7}

A trade secret does not have to be copyrighted, patented, or even novel to be kept as trade secrets by the user. As long as they are kept secret by the user and are obtained improperly then a wrong, for which there is a legal remedy, has been committed. Trade secret law, however, does not protect against discovery by fair and honest means, such as indepen-

dent invention, accidental disclosure, or reverse engineering (starting with the known product and working backward to figure out the process which aided in its development or manufacture).⁸

Thus, such things as patient records, computer data, patient ledgers, promotional material, patient lists, appointment calendars, and holiday or promotional lists are protected as trade secrets of the practice. Associates are able to make a general announcement of his or her new practice without it being a violation of trade secret law. Also, patients independently — not solicited — may seek out the former associate.

Alternative Dispute Resolution

Well-drafted and documented contracts between dentists result in a smooth relationships or transitions. However, dentists still may have disputes with each other. Then, they must either turn to the court and jury system, or some form of alternative dispute resolution, ADR, to assist them in reaching a resolution.

ADR became popular 20 or so years ago as a way to unclog a jammed court system where it was not uncommon to take five years for a case to go to trial. ADR has proved to be an effective way to resolve disputes, and, thus, provisions for ADR are often incorporated in the various contracts discussed in this article. However, ADR is not without its drawbacks, and so ADR clauses must be closely scrutinized. Two forms of ADR appear quite commonly in contracts between dentists, mediation, and binding arbitration.

Mediation is a private, informal dispute resolution process. A neutral third party, the mediator, helps the parties reach a mutually acceptable agreement. No formal evidence is presented at mediation. The mediator does not hear sworn testimony, does not make

evidentiary rulings, and has no power to impose a decision upon the parties. The process is confidential and is not admissible as evidence in a later proceeding, such as a civil action or arbitration.⁹

Mediation is particularly well-suited where the parties have an ongoing relationship, such as a partnership. In fact, many landlords are becoming more sophisticated and incorporating mediation provisions in leases. Usually the cost of mediation, which is mostly the mediator's fees, is equally split between the parties.

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Arbitration has been offered as one reform to the civil court system. An arbitration clause inserted in a contract provides for compulsory binding arbitration to resolve disputes as to rights or liabilities under the contract. The skill of the attorney drafting the arbitration clause is a critical factor as to whether the arbitration will be an effective and efficient dispute resolution method or an expensive and time-consuming quagmire. Often the arbitration clause will state what rules of arbitration will apply, such as the rules of the American Arbitration Association or the California Arbitration Act.¹⁰

The process of selection of arbitrators is another key factor. The arbitrator is typically a retired judge or attorney, or a practicing attorney. Unlike a judge in civil

court, whose salary is paid by the county, the arbitrator's fees are paid by the parties and are usually \$400 to \$500 per hour. Some arbitration clauses call for a panel of three arbitrators to hear the matter, costing as much as \$1,500 per hour, which would make the arbitrators fees alone cost prohibitive for many disputes. Another factor that will greatly influence the cost and, perhaps, the outcome of arbitration is whether or not there is a provision in the arbitration clause to allow for discovery (fact gathering) by the parties to do such things as take dispositions and subpoena records. Without a specific provision for discovery, no discovery is allowed.

While discovery will significantly increase the cost of arbitration, without adequate discovery a party may not have sufficient evidence to put on an effective case.

One clear advantage of arbitration is the expediency of the arbitration process and the resulting decrease in strain might alone make arbitration worthwhile for busy dentists. Finally, the parties waive their rights to a jury trial.

Practice Purchase

After learning the craft of dentistry as an employee or independent contractor, most dentists want to take the next big step of owning a dental practice. Many crucial decisions will need to be made that will impact the dentist for the rest of his or her working career.

Much like the decision to buy a house, the first consideration may be the location of the dental practice. While it is understandable that many dentists want to locate in popular and affluent cities or suburbs, the prospective purchaser must analyze whether that is the best business decision. Factors to consider when identifying the location of the dental practice should involve analysis of the number of competing dentists,

income level, treatment focus of your practice, likely population growth and the nature and extent of the commute.

Once a decision is made on a location or locations of the prospective dental practice, the dentist will need to decide whether to build a new practice, purchase an existing practice, or purchase a share of an existing practice. Many associates may first discuss buying a portion of the practice in which they are currently employed. The dentist may also consider relocating in the same area as they have been working or looking for a new area to practice.

When exploring a practice purchase, a dentist is well-advised to put together a team to advise him or her on the many facets of the law and decision-making process.

The first step when a dentist decides to buy a practice is to use multiple sources to identify the dental practice to purchase, such as practice sale brokers, specialized practice consultants, local dental society publications, in addition to word of mouth in the community.

Practice sale brokers are normally hired by the sellers of a dental practice to assist in valuing and marketing the dental practice, ensuring proper documentation is provided by the seller to prospective buyers, and providing initial drafts of sales documents. Practice sale brokers also facilitate the transaction by providing prospective buyers the names of knowledgeable professionals including accountants, attorneys, and lenders. A major caveat for all buyers is that despite all the assistance provided by the practice sale broker, the broker is an agent of the seller and owes fiduciary duties only to the seller and not the buyer.¹¹

The practice sale broker as an agent owes fiduciary duties including duties of loyalty, disclosure, and due care to the principal.¹² This means

that a prudent purchaser of a dental practice should assemble his or her own team to obtain independent advice throughout the sale process.

The buyer's team should include specialized financial advisors and attorneys who can assist in performing the necessary analysis of the dental practice to assess the viability of the proposed purchase and the chance for long-term financial success. This process known as due diligence precedes making an offer to purchase the dental practice. Your

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financial advisers and attorneys should direct you on your evaluation of the financial condition of the practice.

Frequently this analysis includes examination of the dental practice's current and historical collections from dental treatment, percentage of collections for treatment billed, accounts receivable, practice expenses, fee schedules, and patient payment options. A prospective buyer also needs to analyze the trends of the practice including the number of patients, new patients, percentage of patients on recall, and current appointments scheduled. Further information to analyze includes patient demographics (age, families, insurance status) the seller's practice style (procedures performed, referral patterns), age,

and condition of leasehold improvements and dental equipment, status of office lease, and marketing efforts.

A crucial issue in this due diligence analysis is the status of any dental associate in a practice. As there can be no valid covenant not to compete against an employee or independent contractor, a current or recent dental associate who may compete for the patients of the dental practice may pose a significant hurdle in obtaining the goodwill and loyalty of the existing patient base. Serious consideration of this issue should be undertaken prior to making any offer to purchase a dental practice.

There is a common practice of allowing a prospective purchaser to review patient treatment records during the due diligence process. The provisions of the Health Insurance Portability and Accountability Act, limits the disclosure of private health information to those necessary to provide treatment, facilitate payment, or health care operations.¹³ Further disclosure can be made if the doctor has obtained an authorization from the individual whose records are to be disclosed.¹⁴ This private health information includes any treatment or billing related information. California law also mandates confidentiality of patient treatment records.¹⁵

One means to address such an issue is to obtain authorizations from your patients to allow disclosure of information to prospective purchasers of your practice in your HIPAA Notice of Privacy Practice forms. Those forms can be modified to allow the patients to consent to disclosure of their private health information to prospective purchasers of your dental practice. In the alternative, a dentist can obtain a separate authorization from the patients for such a disclosure. Prior planning can avoid the need to obtain this authorization when a dentist is exploring the sale of his

or her dental practice as the selling dentist will not want to inform their patients that they may be selling their practice. The last alternative is to ensure that any disclosure of patient health information not contain the name or identifying information of the patient in the records disclosed. This would mean that the selling dentist could provide prospective buyers records with redaction of names and addresses.

After due diligence sufficient to analyze the purchase of the practice, negotiation then begins on the sales price and terms of the transaction. Everything is subject to negotiation, including the price and all essential terms of the transaction. Frequently the parties, with the assistance of financial specialists and attorneys, will enter into initial negotiations to reach preliminary understanding of the basic terms of the transaction.

Thereafter, a letter of intent to purchase may be entered into which outlines the price, general terms of the agreement, and payment of a deposit toward the purchase price. It is essential to engage an attorney experienced in dental office business issues to assist in this process as this document provides an outline for the eventual terms of the agreement. The letter of intent may be binding or nonbinding and the deposit for purchase may be refundable or nonrefundable, depending on the terms of the contract. If the letter of intent is meant to be a binding contract, it must contain the necessary contingencies or conditions, that, if not met, can allow the buyer or seller to withdraw from the transaction without incurring any damages.

Common contingencies include the right to examine financial and treatment records to complete the due diligence process, the ability to obtain a loan or seller financing to fund the purchase, the ability to obtain either a new lease for the dental office or assignment of the existing lease,

and most importantly, the drafting and execution of a sales contract agreeable to the parties. Buyers will also want a clause precluding the sellers from negotiating or selling the dental practice to a third party while the contingencies are being met.

The next step is the creation of the sales contract. The sales contract should be a comprehensive document setting out the obligations of the parties for the present transfer and to govern future events after the purchase is completed:

1. Description of the parties and precisely what is being purchased¹⁶
2. The price for the purchase and payment method
3. Allocation of the purchase price between the assets to be purchased
4. Right to use the seller's name, telephone listing referral sources and patient lists
5. Collection of the seller's accounts receivable
6. Covenants not to compete and not to solicit
7. Retreatment provisions on handling a failed dental treatment
8. Completion of current treatment plans, patient scheduling following purchase
9. Letters of announcement or introduction
10. The seller's representations and warranties¹⁷
11. The buyer's representations and warranties¹⁸
12. Liability insurance
13. Custodian of patient records
14. Indemnification and hold harmless agreements¹⁹
15. Contingencies to purchase²⁰
16. Transition obligations of the seller
17. Assumption of obligations of the seller
18. Handling of employees
19. Dispute resolution

The designation and documentation of the assets being purchased, liabilities being assumed, and excluded assets that are not being purchased is crucial. Many disagreements arise when the items to be purchased are not clearly disclosed.

A covenant not to compete while generally held to be invalid under California law may be enforceable following the sale of a dental practice in which compensation is paid for the goodwill of the seller.²¹ Any such valid covenant requires that the agreement clearly discloses the intent of the parties to sell the goodwill of the practice.²² The best way to do this is to specifically state that goodwill is being sold and place a substantial allocation of a specific value to the goodwill that is being purchased. A covenant not to compete is only valid against a seller in a specified geographical area and for a reasonable duration.²³ The specified geographical area is usually consistent with the area in which most of the patients of the practice reside.

Retreatment clauses are designed to establish a mechanism by which the buyer can identify and handle retreatment of work performed by the seller that prematurely fails and requires the buyer to reperform. A retreatment clause should not force the buyer to lose the goodwill of his patients over failed work by the seller, lose money to perform retreatment on patients he did not originally treat, and to avoid malpractice lawsuits against the seller. These provisions either allow the seller to perform retreatment at the buyer's office or allow the buyer to perform retreatment at the seller's expense for a reduced fee.

The seller has no duty to disclose all material information concerning a dental practice. The items to be disclosed by a seller of a practice vary depending upon the information voluntarily disclosed by the seller (which the seller will be required to verify as true and correct) and those items that the buyer

seeks to have the seller represent as true in the agreement. These seller's representations normally include but are not limited to the truth of financial and business records disclosed to the buyer, the absence of current and past malpractice or business lawsuits or administrative actions, the absence of any liens or encumbrances on the practice assets being sold, and the absence of material issues that affect the value of the practice. The untruthfulness of the seller's representations can form the basis of postsale litigation by the buyer for fraud or breach of contract.

Indemnification provisions may also be essential to allocate responsibility for debts of the parties, damages for injuries to others, or responsibility for taxes or other liabilities. These provisions usually require the seller to indemnify, provide a legal defense and hold harmless the buyer for all acts that occurred prior to the sale, and the buyer to do the same for the seller for all acts that occurred after the sale is completed.

The parties must be vigilant how such agreements are drafted as the duty to indemnify and defend the other party arising out of litigation filed by a third party will not be covered by insurance maintained by the indemnifying party (i.e., the buyer or the seller) unless that person is specifically named as a party to be insured under the insurance contract. The unwary party may create personal responsibility to pay for defense or indemnity costs of another.

Other documents normally required in a practice sale are a "Bill of Sale" documenting what was sold, consent of spouse demonstrating their assent to the sale of community property assets, assignment of lease, and, if applicable, an employment contract for any postsale employment.

It is crucial for each party to ensure that all significant representations, warranties and agreements pertaining to the practice sale are contained in the sales contract, exhibits, or related agreements as most sales

contracts contain an integration clause that states that the only valid representations or promises concerning the dental practice purchase are those contained in the sales contract. This means any oral representation or written representation made by the seller or the buyer not included in the contract may not be enforceable.

Prior to and following the sale, verification must be made that you have all the necessary insurance for professional liability, premises liability office contents, workers' compensation, life insurance, disability, business interruption, and health insurance.

**THE UNTRUTHFULNESS
of the seller's
representations
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the buyer for fraud or
breach of contract.**

Following the purchase, there are a myriad of actions to be taken, including notification of the Dental Board of the purchase, registering your fictitious name, notifying vendors of the change in ownership, notifying the DEA, obtaining an anesthesia permit, transferring licenses for equipment purchased, obtaining a business license, obtaining state and federal tax identification numbers, ordering prescription pads, opening bank accounts, and creating employee manuals, just to name a few.

If these actions are properly performed in the purchase of a practice, the purchasing dentist can concentrate on the other important aspects for the long-term success of the practice involving quality patient care and managing the patients' needs.

Choosing the Correct Business Entity

The owner of a dental practice has choices to own a practice as a sole proprietor (if the dentist is an individual owner), as a partnership, or as a corporation. California law prohibits dentists from owning a practice as a limited liability company or a limited liability partnership. Issues to consider concerning the correct entity include tax issues and limited liability to protect the personal assets of the owner-dentist.

The tax issues involving entity ownership are beyond the scope of this article and should be discussed thoroughly with the dentist's accountants.

Owning a dental practice as a solo practitioner or partner provides no protection for the personal assets of the owner dentist. A dentist's personal assets are subject to execution for debts or liabilities arising out of the operation of the dental office. This is particularly significant in a dental office owned as a partnership in which each partner may bind the partnership and each partner is personally liable for the acts of the other partner(s) arising out of the operation of the partnership.²⁴

The entity that allows a dentist to limit their liability in their dental practice is a dental corporation. A dental practice owned as a corporation may preclude personal liability of the dentist for the acts of other professionals, such as dentists who are co-shareholders or associates of the practice, for acts that are not covered by insurance, such as fraud, wrongful termination, or harassment. The personal assets of a dentist rendering treatment, not adequately covered by insurance, are subject to liability arising from the treating dentist's own malpractice, regardless of incorporation.²⁵

Most dentists maintain malpractice and liability insurance on the dental practice. More and more dentists recognize

the benefit of employee liability insurance to provide some limited protection related to employment acts. However, under California law, insurance cannot cover intentional acts. Therefore, if your partner or an associate commits intentional acts, such as improper touching or sexual battery, these actions cannot be insured against. Moreover, the limits of typical coverage for employee liability insurance, which may insure against wrongful termination, employment discrimination, sexual harassment or other employment claims, may be inadequate in the event of a large (in excess of low policy limits, such as \$25,000 to \$100,000) claim and may require a substantial deductible payment, leaving the risk of personal liability for the acts of others. In such cases a corporate form of ownership would be beneficial.

If two or more dentists own a practice together and do not have a contract to establish the form of ownership, by statute they will be considered a partnership, which is governed by California law.²⁶ Notwithstanding the provisions of California law, it is prudent for two or more owner-dentists to enter into a comprehensive written agreement to outline their ownership of assets, management, handling of profits and losses, and managing partner withdrawals, or practice dissolutions. The precise terms of a partnership agreement will need to be handled in another article.

Whenever a dentist decides to open their own practice or hire another dentist, it is beneficial to speak with experienced dental attorneys and accountants to evaluate the appropriate form of entity for your practice. (*Tip: A corporation is recommended if employing other dentists, owning more than one office, or employing more than 15 people. However, for a solo practitioner, one office, less than 15 employees, a corporation is not as important.*)

Estate Planning

A final consideration is having an estate plan in place. A properly drafted estate plan will manage assets now and control assets after death. Moreover, an estate will also provide management of assets, such as a dental practice, during a temporary or permanent disability. If you do not have an estate plan, the State of California has one for you in the Probate Code.²⁷

Although one size does not fit all, the basic components of a typical estate

HAVING A
living trust is
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plan should include a revocable (living) trust, pour over will, an advanced health care directive, and durable power of attorney for management of property and personal affairs. Some of the things an estate plan can do is decrease or avoid estate (inheritance) tax, avoid probate, provide for the care of minor children, and provide for the continued operation of a dental practice in the event of death or permanent disability.

Regarding estate tax, California does not have a state estate tax so the only concern is the federal estate tax. Currently, the estate tax is gradually being reduced over a 10-year period and will be completely eliminated on Jan. 1, 2010. The exemption amount will be incrementally increased from \$675,000 in 2001 to \$3.5

million in 2009. The top estate tax bracket will also be gradually reduced from 55 percent to 45 percent. The law repealing the tax, however, expires on Jan. 1, 2011. Unless the law is renewed, the estate tax will return with the 2002 exemption amount of \$1 million. Historically, the various federal inheritance and estate taxes have been repealed by Congress seven times since 1862. At the time the current law was enacted, there was a federal surplus.

Since then, we have been involved in a costly war (there seems to be a correlation between estate taxes and war). It is unlikely that Congress will renew the repeal. However, Congress might set an exemption amount higher than \$1 million. Even today, in places such as the San Francisco Bay Area, any family owning a home and a few other assets will easily exceed the \$1 million dollar exemption. Therefore, it is likely that the estate tax will come back, but with an exemption amount somewhere between \$1 million and \$3.5 million.

Having a living trust is particularly useful in bringing peace of mind if there are minor children. Again, if there is no estate plan with directions for the care of minors, the State of California has one in the Probate Code. Two issues often come up. One is that if the parents do not provide for who will be the guardian of the minors, a well-meaning relative can get into costly and traumatic court battles over who will have custody and care for the children. Second, many parents would prefer that their children do not receive their entire inheritance at the age of 18, but rather delay that time until there are a bit older and, hopefully, more responsible, such as 25 or 30 years old. Such a delay will also allow the children to complete their formal education.

Another important reason for a custom-made estate in the case of sud-

den death or incapacity of the dentist is if the dentist is not able to work, a major concern is the loss of patients and value of the practice. Properly drafted estate planning documents can help keep the dental practice running smoothly until the dentist can return to practice or the practice is sold.

Under the Dental Practice Act, only licensed dentists can own and run a dental practice or hire and manage another dentist to provide patient treatment.²⁸ As of Jan. 1, 2008, a nondentist may run a dental practice, for a limited time, upon the death or incapacity of the dentist. These new provisions of the Dental Practice Act allows the authorized representative of the dentist to employ a dentist and charge for professional services without being deemed as practicing dentistry. The time limit is one year from the date of the dentist's death or incapacity.

There are certain other requirements that must be strictly adhered to or the Dental Board can shut down the office without a hearing. First, the dentist's legal representative must give notification to the board within 30 days of the death or incapacity, the name and license number of the incapacitated or deceased dentist, the name and address of the dental practice, and the name and license number of the dentist who will run the practice. Additionally, the representative has to state to the board, under penalty of perjury, that the information provided to the board is true and correct, that he or she understands that they cannot interfere with the practice or professional judgment of the dentist running the practice, and that willfully making any false statements of any material fact the representative could be subject to a civil penalty of up to \$10,000.

Also, within 30 days of the dentist's death or incapacity, the representa-

tive must notify all patients of record and provide an explanation as to how copies of their records may be obtained, provide a form signed by the patients, or their guardians, that releases confidential dental records to the dentist running the practice, and may contain an explanation of the continuation of the dental practice.²⁹

By having an estate plan in place, there will be no delay in establishing the dentist's legal representative. If the dental practice is placed in a trust, the successor trustee will be qualified and ready to serve as the legal representative.³⁰ Simply having a power of attorney, alone, or preferably as part of a comprehensive estate plan, will allow the named agent to act as legal representative. With such relatively easy planning, there will be minimum disruption of the dental practice which will maintain the value of the practice. ■■■■

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

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2322, page 313, 2005, an agent has duties of a trustee Witkins California Law, vol 3 (Agency Section 97), pages 143-4.

13. Public Law 104-191, Health Insurance Portability and Accountability Act of 1996, 1996.

14. United States Code Services, Title 45, Code of Federal Regulations Section 164.502, pages 691-4.

15. Deering's California Codes Annotated, Civil Code Section 56 et. seq., page 438, 2005.

16. Common assets to be purchased include dental equipment, supplies, goodwill of the practice, patient records, covenant not to compete, transition assistance from the seller, telephone number, trade name, and leasehold interest.

17. Representations normally made include status of the seller, absence of defects or encumbrances on assets being sold, absence of conditions that would affect goodwill, truth of disclosed documents, absence of litigation or threatened litigation, condition of practice assets, current status of office lease, status of past billing practices, and truth of all representations being made.

18. Buyer's status, performance of due diligence, ability to review all requested documents and acknowledgment that there is no guarantee of success in future practice.

19. These agreements allocate responsibility presale and post sale.

20. Including obtaining bank loan, lease assignment, passage of state boards, analysis of records and inspection and repair of nonworking equipment.

21. Deering's California Codes Annotated, Business and Professions Code Section 16600 and 16601, vol 9, pages 319, 330-1, 2007, allow valid covenant not compete following sale of goodwill of a business.

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Practical Employment Strategies: Win-Win Solutions for Dentists and Their Employees

BERNADETTE BANTLY, JD

ABSTRACT The profession of dentistry is also the business of dentistry and subject to the same employment laws as any other small business. Wrongful termination, discrimination, and harassment claims are on the rise in large part because dental employers often do not understand their basic employment law obligations. Good intentions do not offset inadequate office policies and documentation. Implementing, communicating, and evenly enforcing employment policies will reduce claims and promote office moral and productivity.

AUTHOR

Bernadette Bantly, JD, is a senior trial attorney in Larkspur, Calif., with an emphasis in employment litigation, representing health care providers in cases of claims involving wrongful termination, discrimination, and harassment. She is adjunct faculty at the Arthur Dugoni School of Dentistry.

In this difficult economy, employment claims are on the rise. California dental practices are increasingly seeing more wage and hour, workers' compensation, wrongful termination, and other types of employment lawsuits. Thus, it is especially important for California dentists and employees to communicate and work together to ensure a harmonious, productive practice. Content employees typically work harder, are more reliable, and file fewer employment-related claims, which are distracting, time-consuming, and often very expensive to defend.

Here are some practical ideas for creating office harmony and minimizing your employment-related legal risks:

Be Honest and Upfront

Create a team atmosphere by sharing general information about the state of the practice. If there are specific areas of concern within your practice, communicate them and ask for a group commitment to improve in these areas. If the practice is healthy, reassure nonproblem employees that you have no current plan to reduce staff. Do not, however, make any specific promises of continued employment. The California Labor Code provides that, in the absence of a contract specifying otherwise, employment is presumed to be "at-will."¹

Note, your employees' at-will status should also be acknowledged and con-

TABLE 1

Implementing Your Alternative Work Schedule

- **NOTIFY THE AFFECTED EMPLOYEES.** A written disclosure of the proposed alternative work schedule is required. Only nonexempt employees should be involved as overtime rules do not apply to employees who are correctly classified as exempt.
- **HOLD AN EMPLOYEE MEETING.** The meeting must be conducted at least 14 days before the vote to discuss the effects of the proposed alternative work schedule on the terms and conditions of employment. Remember that employees usually love the alternative work schedule, so be positive and emphasize the benefits, e.g., more days off, but do not intimidate or coerce employees.
- **CONDUCT A SECRET BALLOT ELECTION.** At least two-thirds of the employees in the affected work unit must vote in favor of the alternative work schedule. The “affected work unit” can be the entire office, the front office, the back office, or any other reasonable grouping of employees. Some dentists exclude hygienists or other categories of employees from the work unit. Also, you must make a reasonable effort to accommodate current employees who cannot work the alternative work schedule.
- **REPORT THE RESULTS TO THE DIVISION OF LABOR STANDARDS ENFORCEMENT.** Within 30 days of the vote, you must report the election results to the Division of Labor Statistics Research.
- **POST THE ALTERNATIVE WORK SCHEDULE.** After the alternative work schedule is agreed upon, post the schedule in the office and reference it in your employee manual. Stick to the alternative work schedule, as the law allows very little flexibility in the schedule once an alternative work schedule is formally adopted.

For additional information, refer to the Division of Labor Standards Enforcement Web site: dir.ca.gov/dlse.

firmed by each employee in writing at the time of hire or be included as part of a written offer letter. That document should state that their at-will status cannot be changed except in a writing signed by management. With open and honest communication, you can provide comfort to nervous employees without jeopardizing their at-will status.

Make Wise Hiring Decisions

Many wrongful termination cases can be avoided by careful background/reference checks and wise hiring decisions. Many problem employees have a pattern of poor performance and often have a string of short-term jobs. Also suspicious are unexplained gaps in resumes. When in doubt, don't hire a less-than-ideal candidate. Carefully evaluate each new hire early in their employment, often referred to as an “introductory period.”²

If necessary, extend the introductory period to allow more time to consider whether a new hire should become a regular part of your dental practice. Always document serious performance problems and terminate unsatisfactory employees before they have an opportunity to adversely affect the work environment or your operations.

Update Your Employment Policies

This is an excellent time to clarify policies for your staff. Key issues that directly affect productivity, such as attendance, should be spelled out in writing. Other must-have policies should address discrimination, sexual harassment, sick or well pay, vacations, and leaves of absence. If necessary, update your employee manual. If you do not have an employee manual, create one. Many organizations, including malpractice carriers, provide such manuals via software that allows one to create and tailor a manual appro-

priate for your dental office. A well-drafted and up-to-date employee manual will provide clarity and consistency for both dental practitioners and their employees going forward. Periodic updates should be performed to account for changes in employment law and regulations.

Review Your Payroll Practices

Ensure that employees are properly classified as exempt or nonexempt.³ Pay particular attention to administrative (“front office”) personnel and hygienists, who are often misclassified. All nonexempt employees are entitled to overtime pay, generally after eight hours per day. For this reason, avoid the use of daily rates and pay all nonexempt employees on an hourly basis. In some situations, implementing an alternative work schedule, such as four 10-hour days, provides a mutually satisfactory solution to the overtime issue.

Employees are typically very happy to work longer hours, without overtime, in exchange for the extra time off that an alternative work schedule provides.

In California, there are specific requirements for implementing an alternative work schedule (**TABLE 1**). If you adhere to these requirements, your employees will enjoy more time off, while your practice minimizes its overtime liability.

In addition, require that all nonexempt staff record their hours worked (and meal periods taken) using a punch clock, computerized timekeeping software, or by filling out and signing time cards. Review these time records periodically to ensure that your nonexempt employees are not working unauthorized overtime. By law, employees cannot waive their right to overtime pay.

Also check the itemized statements that accompany your employees' paychecks; do not blindly rely on your payroll service. There have been many claims filed (and significant penalties awarded) against unsuspecting employers over this seemingly hypertechnical issue.

The California Labor Code requires that the paystubs for all nonexempt employees include: 1) gross wages earned; 2) total hours worked; 3) any piece (or daily) wage rate; 4) all deductions; 5) net wages earned; 6) the applicable payroll period; 7) the employee's name and the last four digits only of his or her Social Security number; 8) the employer's legal name; and 9) all applicable hourly rates in effect during the pay period and the corresponding number of hours worked by the employee at each rate.⁴ Ensure that your itemized pay statements are compliant with these requirements.

Schedule Meal Periods

Providing employees with regular rest periods and a daily meal period is beneficial for all. Employees need respite from their work in order to provide

proper care for patients. In doing so, dental practices not only comply with California labor laws, but increase the standard of care and professionalism provided to patients. While the law in California regarding employee breaks is currently unsettled, dentists should strive to provide a minimum of two 10-minute paid rest breaks (one in the morning and one in the afternoon) and a 30-minute unpaid lunch period to nonexempt employees by the end of the fifth hour of work.^{5,6}

IN SOME LIMITED situations, meal periods can be waived, but only in writing signed by the employee.

Because they are often difficult to monitor given the demands of a busy practice, meal periods should be built into the schedule. In addition, rest and meal period policies should be put in writing, reviewed with employees at regular intervals and enforced. In some limited situations, meal periods can be waived, but only in writing signed by the employee. A sample meal period policy is provided (**TABLE 2**).

Minimize Workers' Compensation Claims

Even though workers' compensation benefits have been significantly reduced due to recent government reforms, California dentists have seen a rise in workers' compensation claims recently. Many claims are, of course, legitimate. But there

has also been a rise in frivolous and, in some cases, even fraudulent claims. Often these bogus claims are for work-related "stress" and other amorphous injuries.

Also, claims have been instigated by a disgruntled worker as a perceived means to stave off an impending disciplinary action or termination. The lessons learned from many such recent Workers' Compensation Appeals Board filings are that dentists need to document performance problems on an ongoing basis, respond immediately to employee strife or hostility and correct workplace dysfunction before such situations trigger claims. If an employee reports a workplace illness or injury, all such claims must immediately be reported to your workers' compensation insurer for adequate response and investigation. Never terminate an employee on a workers' compensation leave without careful consideration and legal advice.⁷

Understand Unemployment Claims

Laid-off employees are generally entitled to unemployment benefits. However, employees who resign or who are terminated for "misconduct," such as theft, extremely poor attendance, or job abandonment, may not be eligible to receive unemployment benefits.⁸ This is another reason to carefully and consistently document employee performance issues.

Maintain Employment Practices Liability Insurance

Protect your practice by purchasing Employment Practices Liability Insurance, EPLI. This coverage can protect you and your practice in the event of an employment-related lawsuit. Since such lawsuits are, unfortunately, commonplace in California, EPLI coverage should be

TABLE 2

Sample Meal and Rest Period Policy

This dental office is committed to providing proper rest breaks and meal periods for all employees. Each employee is entitled to take a rest break of 10 consecutive minutes for each four-hour period worked. Rest breaks are counted as time worked and therefore are paid. Each employee shall also take a meal period of not less than 30 minutes and no more than 60 minutes for a work period of more than five hours per day. It is the employee's responsibility to follow this policy and take the breaks as described above. Employees must clock out for meal periods. If at any time an employee is unable to take the rest breaks or meal periods as described, it is the employee's responsibility to immediately notify management.

Reduced Schedule Meal Period Waiver

I understand, acknowledge and agree that this dental office may occasionally operate on a reduced schedule of six hours or less. On those reduced schedule days, I voluntarily choose to forego my meal period as a convenience to me. I understand that I may take a meal period in conformance with the above policy if I wish to do so on the reduced scheduled days, and that I must take a meal period if my work exceeds six hours.

Employee Signature:	Date:
Employer Signature:	Date:

On-Duty Meal Period Waiver

I understand and agree that the nature of my work in this dental office may occasionally prevent me from being relieved of my duties during the normal meal period. On those occasions, I voluntarily agree to forego my meal period. I understand that I will be paid my normal wages for the time that I am required to work through my meal period.

I understand that I may revoke this On-Duty Meal Period Agreement at any time by submitting my request in writing. This agreement will remain in effect unless and until revoked.

Employee Signature:	Date:
Employer Signature:	Date:

TABLE 3

Sample Harassment Policy

All employees of this practice are entitled to work in an environment that is free from harassment of any kind, including sexual harassment and harassment based on pregnancy, childbirth or related medical conditions, race, religious beliefs, gender, sexual orientation, color, national origin or ancestry, physical or mental disability, medical condition, marital status, age, political beliefs, or any other basis protected by federal, state, or local law ordinance or regulation. Harassment may be visual, verbal, or physical, and may consist of threats or demands to engage in specified behavior deemed harassing or retaliation for reporting such harassment.

It is against the law and strictly against office policy for any employee, patient, volunteer, visitor, or vendor to, in any way, discriminate or harass an employee of this office.

As an employee, you have a role in keeping this office free from harassment. If you believe you have been harassed or if you become aware of an incident of harassment, immediately report the matter to the office manager. The complaint will be promptly investigated in a discreet manner with information disclosed only on a need-to-know basis. The investigation of a complaint will normally include conferring with the parties involved and any named or apparent witnesses. The office will take all appropriate steps, including disciplinary action, to stop the offensive or inappropriate behavior. Harassment complaints are taken very seriously and the practice wants the opportunity to resolve any problems.

An employee found to have violated any portion of the employer's policy against harassment may be subject to disciplinary action, including termination. Patients violating our policy will be asked to cease the harassing behavior and may be asked to leave the practice and continue treatment elsewhere.

The office will not tolerate any retaliation against an individual for complaining about harassment or participating in the investigation of any such complaint.

considered a vital and necessary part of your insurance portfolio. EPLI coverage is typically available from malpractice carriers and comes in various coverage limits, \$100,000 is the minimum recommended for most dental practices with less than 10 employees; higher limits are usually appropriate for larger employers. EPLI coverage is typically triggered on a “claims-made” basis, although some policies may provide for coverage based on when the employment incident occurred. Always report an actual or threatened employment claim to your EPLI carrier as soon as possible to maximize coverage benefits.

Protect Against Sexual Harassment

California law requires that employers take affirmative measures to prevent sexual harassment in the workplace.⁹ At a minimum, your practice should have a sexual harassment policy in place (TABLE 3), which ideally should be included in your employee manual, posted conspicuously in the workplace and reviewed upon hire and annually thereafter with your staff. This is the first step in protecting your employees and your practice from sexual harassment risks. The next step is to take seriously and respond immediately to any harassment concern, however slight it may be, raised by an employee.

Dentists must investigate fully and respond promptly to harassment and discrimination claims, even claims that involve vendors or patients. This investigatory process is typically accomplished by reviewing your sexual harassment policy with and interviewing the complaining employee, the accused harasser and all witnesses. California law also prohibits retaliation against employees who have complained or opposed harassment in the workplace.¹⁰ Because of the sensitive nature of these claims, practitioners are well-advised to seek advice from counsel

immediately if a sexual harassment issue arises prior to beginning your interviews.

Accommodate Pregnant Employees

With the prevalence of female employees in dental offices, it is not surprising that dentists are often faced with the sometimes difficult task of accommodating pregnant workers. But even well-meaning employers can make mistakes, especially as they struggle to find qualified replacements and otherwise balance the needs of their pregnant employees with their practice.

PAID FAMILY LEAVE

does not
extend an
employee's
right to
reinstatement.

Some Rules of Thumb for Handling Employee Pregnancies in California

If you have five or more employees (but less than 50), you are required to provide up to four months of unpaid “pregnancy-related disability leave” and then reinstate the worker to the same or a substantially similar job.¹¹ You are not required to continue medical benefits during this leave, although many supportive employers do so. If you do, you must provide such benefits to all disabled employees and not discriminate.

During the period of disability, as certified by a physician, your employee may receive state disability insurance benefits. Thereafter, your employee may apply for benefits from the California Paid Family Leave Insurance Program. Paid family leave

does not extend an employee’s right to reinstatement. Both disability and paid family leave benefits are administered by the Employment Development Department. The EDD expects employers to provide notices to pregnant workers regarding their rights to disability insurance and paid family leave benefits. (These notices and additional information can be found at the EDD Web site: www.edd.ca.gov).

A pregnancy leave can be continuous or intermittent (up to a total of four months) and may be prolonged by virtually any pregnancy-related health condition, including morning sickness, edema, preeclampsia, premature labor, Cesarean section births, or other delivery complications, postpartum depression, etc. If an employee exceeds the four-month time frame, you may legally replace the employee. Some dentists will, however, provide longer leaves, especially when a key, long-term employee would be difficult to replace. It is best to treat all employees consistently in order to avoid discrimination claims.

Employers must make reasonable accommodations to protect pregnant workers and their unborn fetuses.¹² Pregnant employees should not be required (or allowed) to take X-rays, administer nitrous oxide, or work around other potentially hazardous conditions. Upon learning of an employee’s pregnancy, dentists should take action to implement any preventive measures and avoid undue risks. Depending upon her job duties, it may be advisable to request that an employee provide a physician’s release for continued employment during pregnancy.

Finally, celebrate your employee’s good news. Be encouraging and supportive and your valuable employees will be more likely to return to work.

Conclusion

In summary, by focusing on the foregoing strategies, proactive California dentists can significantly reduce their employment-related risks now and in the future. In doing so, they can not only save the time, money and considerable aggravation that almost always comes hand-in-hand with employment claims, but they can also increase the level of employee satisfaction and workplace harmony within their dental office. ■■■■

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Bernadette Bantly, JD, Bradley Curley, Asiano, Barrabee & Gale, P C, 1100 Larkspur Landing Circle, Suite 200., Larkspur, Calif., 94939.

REFERENCES

1. California Labor Code section 2922 provides that "an employment, having no specified term, may be terminated at the will of either party on notice to the other. Employment for a specified term means an employment for a period greater than one month" Deering's Annotated California Codes, Labor Code, vol. 2, §2922, 2009.
2. Do not refer to the introductory or training period as "probationary," as that may lead to confusion regarding the employees' "at-will" status. Deering's Annotated California Codes, Labor Code, vol. 2, §2922, 2009.
3. Every California employee is classified as "exempt" or "non-exempt" from daily overtime compensation and other benefits, such as rest periods, meal periods, reporting time pay, etc. The three primary exemptions are for executive, administrative, and professional workers who are paid a salary that is at least two times the state minimum wage (currently \$8 per hour) for full-time workers. In order to qualify for one of these exemptions, an employee must spend the majority of his or her working hours engaged in exempt duties. For additional details, see Industrial Welfare Commission Wage Order 4, which sets forth the applicable wages, hours and working conditions for dental practice employees. California Administrative Code title 8, §11040 or go to www.dir.ca.gov/IWC/IWCArticle4.pdf
4. Deering's Annotated California Codes, Labor Code, vol. 1, §226, 2009.
5. Two important meal period cases are currently pending before the California Supreme Court: Brinker Restaurant Group v. Superior Court of San Diego and Brinkley v. Public Storage. These cases address compliance issues under California law relating to meal periods, rest periods, and off-the-clock work, as well as procedural issues raised in class action lawsuits based on these types of claims. The most significant issue for the court to resolve is whether the California Industrial Welfare Commission Wage Orders and the California Labor Code require an employer to guarantee that its employees actually take their meal and rest periods, or must the employer merely offer the employees the opportunity to do so. Since an employer may currently be held liable for one or more hours of

penalty pay for failure to provide such breaks, and since such financial exposure can be substantial, the Court's ruling may have a significant financial impact on all California employers. Deering's Annotated California Codes, Labor Code, vol. 1, §226.7 & §512, 2009.

6. See California Industrial Welfare Commission Wage Order 4 §11 (Meal Periods) and §12 (Rest Periods), California Administrative Code title 8, §11040.

7. California Labor Code section 132a prohibits discrimination, including termination, against workers who are injured in the course and scope of their employment. For that reason, employers must proceed with caution before discharging injured workers so as to avoid 132a claims. Deering's Annotated California Codes, Labor Code, vol. 1, §132a, 2009.

8. California Unemployment Insurance Code section 1256 provides that an employee is disqualified for unemployment benefits if he or she has been discharged for "misconduct" connected with their work. Misconduct is a substantial breach of an important duty or obligation owed to the employer. Mere inefficiency, unsatisfactory conduct, poor performance, ordinary negligence, inadvertence or good-faith errors in judgment do not constitute misconduct. Deering's Annotated California Codes, Unemployment Insurance Code, §1256, 2009.

9. California Government Code section 12940(k) states that it shall be an unlawful employment practice for an employer "to fail to take all reasonable steps necessary to prevent discrimination and harassment from occurring." Deering's Annotated California Codes, Government Code, §12940(k), 2009.

10. Deering's Annotated California Codes, Government Code, §12940(h), 2009.

11. Deering's Annotated California Codes, Government Code, §12945(a), 2009.

12. Deering's Annotated California Codes, Government Code §12945(b), 2009.



Making Standard of Caring Part of the Standard of Care

CLYDE SCHULTZ, DDS

ABSTRACT Effective risk management focuses on consistent patient communication to inform patients of the benefits of dental health and the breadth of alternative treatments. When education is effective, it helps patients develop new understandings of health and disease. New understandings make appropriate treatment choices possible, and those choices reduce the chances of legal action and contribute to the health of the patient as well as the health of the practice.

AUTHOR

Clyde Schultz, DDS, has taught year-long postgraduate study groups on advanced occlusal techniques for full-mouth reconstruction as well as courses on communication at universities and dental associations throughout the United States and Canada. He has a restorative and preventive practice in Petaluma, Calif.

Dentists must employ effective risk management. Protecting ourselves from lawsuits brought by unhappy patients is an important management responsibility. However, few of us view our risk management protocol as a pathway to a more productive practice, it's more of a nuisance we accept as part of doing business. Even so, I can tell you from experience that the communication strategies that are advocated as part of a careful risk management program can profoundly impact practice profitability.

The Standard of Caring Promotes Success

For most of my 33 years in dentistry, I practiced in San Francisco. During that time, I purchased eight dental practices and incorporated each one into

my one downtown location. Eventually, I sold that practice and moved to Sonoma County where I purchased my ninth dental practice. I had never been a resident in Sonoma County prior to purchasing the practice. My wife and I did not know anyone in our small town of Petaluma. However, in just over two years, production increased by more than 200 percent over the previous dentist's levels and is still growing.

The increase in practice production is the product of consistent communication. Quality communication focuses on the same primary objective as that of good risk management: it is a consistent and caring message. Demonstrating caring values to patients recruits their trust, and trust is fundamental to effective communication.

Effective communication, in turn, is crucial to the success of patient education, which impacts the treatment choices patients make. However, I feel completely secure that most of my colleagues have a shared frustration with patient education, which more than occasionally does not result in better treatment decisions from patients.

The “why” of ineffective patient education is complex but part of the explanation is that learning does not take place unless patients are willing to listen. It is natural for us to take it for granted that our message is clearly heard by our patients because it seems so clear to us when we speak. But fearful or suspicious patients have an incentive not to hear what we tell them. Before we can reach those patients, it is necessary to facilitate their willingness to listen by establishing trust.

For the dentist who is committed to a more profitable practice, successful patient education is a requirement, and that puts us in the business of trust. It is crucial for us to understand how patients assign trust, why they choose not to, and what to do about it.

I believe that our (my team and me) success at establishing trust with patients is confirmed by the fact that we have retained more than 95 percent of the original patients in the practice. In addition, our referrals from friends and patients have more than tripled since January 2007, even though Sonoma County is one of the hardest hit in the San Francisco North Bay by both falling home prices and unemployment.

The need to establish trust with patients is a problem that faces all practitioners, but the transition of a practice that results from a change of owners amplifies the urgency of the problem. During a practice purchase transition

there is one chance to recruit the trust of each patient to remain in the practice. Without realizing it, the patient will impose the “10-second test,” the amount of time it takes them to form an opinion of the dentist and decide whether they are staying or moving on.

If it’s difficult for you to believe that a consistent message can alter the outcome of such a brief and intense encounter, you’re right, it can’t. But the dentist’s message is heard by the new staff again and again. If that message is clear and

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consistent, and if it seems to be motivated by genuine caring, it will win the staff over and, together, the dentist and staff become one team, and that’s what wins the patient over. Patients are very perceptive when it comes to judging the team’s feeling about the dentist.

I recently met a patient of record who had not been in for more than two years. When I asked her why she had finally decided to come meet me, she told me that she “kept hearing a rumor that (I) was a pretty good guy.” It’s difficult to know exactly where reputations originate, but it’s a safe bet that if my Petaluma-born and raised team hadn’t been in agreement, the rumor would not have survived.

I regularly attend risk management lectures as I’m sure you do. When the

speaker tells us what we should say before a situation arises, it’s part of sound risk management. But we dentists already understand the importance of informing patients in advance. Warning a patient in advance about possible postoperative discomfort resulting from a procedure is an explanation but telling them after they experience pain that it “sometimes happens” is often perceived as an excuse.

In any case, I don’t want to sound like an attorney when I speak to my patients. Risk management teaches us what we need to say, but we aren’t obligated to say it the way an attorney does. We should take what we need from their playbook and express it in our own words. One of the most valuable plays in that book is consistent communication.

We miss a fertile opportunity to build relationships with patients if we look at the protocols for informed consent and careful recordkeeping as a chore. Those guidelines for consistency provide a framework to structure a consistent message and they teach us to define in advance what needs to be said. Adopting that communication strategy reminds me to plan my message in advance to present what patients need to hear rather than what I want to say.

Developing a consistent message that can be used repeatedly is different than scripting. Scripting defines what we want to say, but the message is usually intended to overcome objections by justifying what we wish to defend. Often, this tactic utilizes words like “feel, felt, found.” If I were to use this approach to pass the 10-second test, it might sound something like this: “I can hear how you feel about changing dentists, Mrs. Smith. It is difficult to lose the dentist you have known for almost 30 years. Many patients once felt as you do. However, they have

found that in the end, there is a benefit from diagnosis by a fresh pair of eyes.” It is an effective way to dismiss concerns rather than demonstrating that we share them, and patients often recognize it. To them, it is obvious that the dentist or team member, who holds the power in the conversation, has shifted the agenda from addressing the concern to “winning” what has now become a debate.

Compare that language with the message I used when I first met an older patient in the practice not too long ago. She was already seated in the dental chair when I walked into the room. She had been with the previous dentist for more than 30 years and I could see from her body language that she was apprehensive about meeting me.

I shook her hand and sat down next to her. Seconds ticked. Then I spoke.

“I know it’s hard to change dentists, especially after so many years. But I have the same two responsibilities to you that Dr. Smith (different name) did. The first is to warn you about problems as soon as possible, so we can address them before they get out of hand.”

She wrinkled up her face into a skeptical frown. “And the other responsibility?” she asked.

“To make sure I never recommend something that wasn’t necessary,” I replied.

She looked at me for a moment, and then blurted out “Oh my God! You’re nice too!”

I rely on this message when a new or transitioning patient seems reluctant to communicate with me. This consistent message achieves two objectives when meeting transitioning patients: First, it demonstrates caring values which confirm I am trustworthy. Second, it establishes affiliation between my patient and me by demonstrating to them that

we share common ground since we both agree about what is in their best interest. Demonstrating affiliation is an important step in the process of establishing trust.

Developing a consistent message is not intended to be a tactic for manipulating patients or a strategy for saying what I believe they might want to hear. It tells patients that I am not conflicted by any agenda other than what is in their best interest. I have not changed this message for 20 years, and I have met few patients who doubt that I mean it.

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What risk management underscores is the necessity of a protocol, a set of guidelines for communicating a consistent message in critical situations. Whether we are talking about the information we share with patients, or how we record that information in their chart, we need to see our communication as one of the critical systems in our office.

A consistent message is as powerful in dentistry as compounding interest is in banking. It doesn’t always seem like much until we look at what it adds up to over time. I will fast-forward the careers of two practicing dentists to illustrate that point.

In the 1970s, I bought my first two San Francisco practices within two years of each other. The first practice I purchased was what we used to refer

to as a “crown and bridge” practice. The dentist who built that practice restored almost every patient using gold inlays, gold or porcelain to gold crowns and fixed bridgework. Partial dentures often had precision attachments. I was convinced that the success of that practice could largely be attributed to patients who were of above average affluence.

The patients in the other practice were almost entirely restored with silver amalgams and standard partial dentures or stayplates. I was equally confident that money was a greater obstacle to premium dentistry for these patients than it had been in the previous practice.

The patients in each practice loved their dentist, and trusted him implicitly. That trust meant that when the dentist explained treatment to the patient they listened. However, I assumed the patients in these two practices must be very different from each other. After all, the patients in the first practice paid, on average, more than twice what the other patients paid for their dentistry.

But from the moment patients from one practice met the patients from the second practice in my reception room, it was obvious that they knew each other. They lived in the same neighborhoods, attended the same churches and synagogues, and sent their children to the same schools. Many even worked for the same large corporations. The only difference between the two groups of patients was their choice of dentists.

The difference between the two practices had nothing to do with demographics or the cost of dentistry. What made the practices different was that each dentist had a consistent message that facilitated effective patient education. As patients learned what the dentist wanted them to understand, they came to believe what the dentist believed. It

was the consistent communication from each of the previous dentists that had forged the character of each practice.

One believed in using gold to restore teeth. As a result, their patients shared that belief. The other dentist preferred silver amalgam, which was a common choice at that time and their patients preferred silver amalgam as well, even though they could have easily afforded the dentistry their neighbors received. These two practices taught me a powerful lesson about how a consistent message can impact the character and profitability of a dental practice.

Of course, it was a different world in the 1970s. Dentists weren't as aware of risk management issues as they are now; they focused on their message to educate patients to adopt their beliefs about dental treatment. Now, it is necessary to present every treatment option to patients, not just the one we prefer.

If the goal of the practice model is to present patients with all of their treatment options, then the practice must focus on education in order to help patients develop the understandings that are necessary to make appropriate choices. Effective education is an essential step in providing dentistry that meets the standard of care. Simply put:

- success comes from patients' acceptance of standard of care treatment;
- to make appropriate treatment choices possible, education is necessary; and
- trust facilitates effective education.

Trust is Necessary to Facilitate Effective Education

Effective patient education is not easy or simple. To understand why patient education is so difficult to achieve, it's necessary to recognize that old beliefs patients bring with them act as barriers to listen-

ing. These preconceived notions act as obstacles to learning, obstacles we must overcome in order to help patients choose treatment that best serves their needs.

Patients rarely, if ever, suffer from a lack of information about dental health and disease. Instead, they suffer from misinformation, which contributes to confusion about the health and disease in their mouth. One such belief is that the absence of pain equals an absence of problems. In other words, "if it doesn't hurt, it ain't broke." Many

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patients take that belief one step further and argue, "And if it ain't broke, don't fix it." Using that logic, we only "fix" the teeth that hurt. Sound familiar?

The challenge of patient education then, is to overcome the long-held beliefs that confuse our patients before we attempt to present new information that will only be rejected by the patient's need to defend what they already believe.

The obstacle to the patient's attention and curiosity is the fear and suspicion that many patients bring with them to the dental office. Generally, people who feel fearful or suspicious are not very good listeners. Until fear and suspicion are resolved, patients aren't going to hear very much of what we say, no matter how clearly we say it, so it is pointless to attempt sharing

new information with them. This includes technical information that we typically regard as "patient education." I have never experienced a significant success rate from patient education until fear, suspicion, and existing beliefs have been resolved.

Surprisingly, if we borrow the communication strategies advocated for sound risk management, we find the answer to the patient education dilemma. Nine practice transitions have taught me there is an order to things and it usually works best to address "first things first." Communication is best begun by recognizing that people will only listen to a message when it comes from a trusted source.

I spent the better part of an hour explaining periodontal disease to a woman who runs a big ranch just outside of town. When I finished, I knew I was no closer to building her concern for something that "doesn't hurt" than I was when I started. I encouraged her to think about what I had said and then accompanied her to the front desk where she ran into her neighbor from the next ranch over.

The two talked for a minute and then the other woman turned to leave, but first turned back to say "He's a good guy; did a root canal for me and never did hurt me once."

After the door closed, I said "Bye Carol. See you next time." Before I could turn she interrupted by saying "Oh no you don't. We haven't finished talking yet. What were you saying about my gums?"

I had become a "trusted source" and my message was now being allowed through the filter the patient used to screen out unwanted messages.

Establish Trust

For dentists, the Catch-22 is what to say to establish trust when patients don't trust what we say. Patients who hear our caring words will not listen to

them until they are sure those words are genuine and are not intended to manipulate. The answer is: when you can't tell people you are a caring person, show them you are a caring person. The goal of convincing patients of the authenticity of our caring values begins to gather momentum as others become willing to confirm that the dentist is a "good guy" (or "person," if you prefer) as the patient did in the encounter I described.

However, even after a third party has expressed their trust, patients who are unsure if it is safe to trust what they hear will watch to determine if they trust what they see. When team members demonstrate cooperative and caring behavior, especially toward one another, their behavior is congruent with the caring words the patient hears. It is congruent behavior throughout the office that confirms the authenticity of the team. Seeing that the people in the office "walk their talk" makes it easier to believe they are genuine and to trust them as people. When patients trust us as people, they transfer that trust to us as professionals.

A Standard of Caring

When the behavior of the team establishes a "standard of caring," they are ready to send a unified message that lays the groundwork for the practice to define its standard of care. Meeting the standard of care does not occur by chance. It is the result of defining that standard and then adhering to it.

But how does the team know what the standard of care really is, and how does the practice implement one common message that reassures and educates patients? Caring is a choice, it cannot be taught by someone else at a weekend course or implemented by setting down a protocol at a staff meeting. If the office is to have a unified code of behavior and a shared

value system, it must be brought to them by a dentist who leads by example.

When I took over the reins of my current practice more than two years ago, there was no such code of behavior or shared understanding even though the individual staff members were caring people. It was my example that rallied the team behind me. Just as the staff must become a team in order to win over the trust of patients, it is the role of the dentist to win over the staff and make them a team by demonstrating what caring and integrity looks like.

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Establishing a new "standard of caring" begins with each chairside interaction with a patient. It should not be motivated solely by the communication guidelines that Art Curley and other risk management attorneys advocate, but it nonetheless adheres to those guidelines closely. The first step in establishing a standard of care for patients is to define the standard of understanding we want them to achieve before asking them to make choices about treatment.

A Standard of Understanding

If our objective is to achieve sound risk management, one part of that goal is to develop a communication protocol that satisfies our patients' right to know about all of their treatment options.

The process of sharing the breadth of the available treatment options not only demonstrates to patients we respect their ability to choose, but also that we are committed to helping them make choices that are in their best interest.

Full disclosure of treatment options may sound like it can only benefit an attorney, but it demonstrates respect and concern. That behavior helps to overcome the greatest single threat to patient trust, which is the perception we are attempting to manipulate them. Early in my career, I found myself the victim of that unfortunate perception more than once and it was almost always because I attempted to guess what the patient wanted to hear or what they would accept as treatment. Eventually, I devised an experiment to help me discover why patients made the choices they did.

In an effort to understand why some patients accepted treatment and others rejected it, I focused on standardizing my communication to help patients develop similar levels of understanding. My thinking was that if I could eliminate a lack of understanding as a cause of treatment rejection, I could then focus on other factors that influenced the choices patients made.

As it turned out, the "experiment" was short-lived, because almost all of the patients started saying "yes" to treatment. By helping them to understand the problem first, I had provided them with the understanding they needed to recognize optimum treatment choices.

Insurance and the ability to afford dental care made little difference in the treatment patients desired. Of course, those things did impact what they could afford, and so many of them had to compromise treatment from the optimum solution to another choice that was still within standard of care.

That's when the treatment plan should be compromised, after the patient has developed a standard of understanding. Of course, patients sometimes need to compromise treatment because of cost or insurance coverage, others have medical conditions that limit the stress they can experience. It is acceptable to compromise treatment within the standard of care when necessary, but it is not acceptable or necessary to compromise patients' understanding of the problem. Still, the process of helping patients to develop new understandings can be challenging. I am still puzzled sometimes at the way in which patients reach those understandings.

Not too long ago, I saw a patient who had fractured the buccal cusp from his upper first bicuspid, leaving a large MOD amalgam showing. I explained why teeth fracture, showed him the X-ray on the flat-screen and took a close-up image of the tooth using the intraoral camera. I was sure the close-up of the blackened amalgam would help him to recognize the importance of restoring the problem quickly.

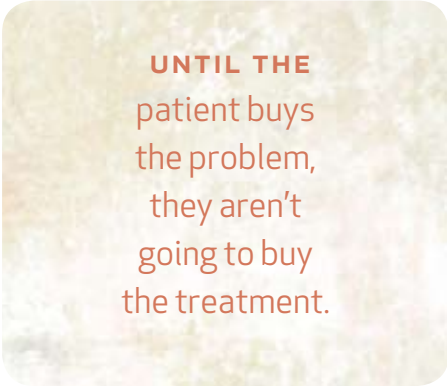
He looked at the images and then he said, "Doesn't hurt." After a bit more discussion about treatment, he left the office promising to "think about it." About two weeks later, he called the office to schedule an "urgent" appointment to restore the tooth. When I saw him for treatment, I asked if he was experiencing pain. No, he wasn't.

He had been photographed at a wedding in his tuxedo, flashing a big smile. The dark amalgam made it appear as though there was a huge hole in his smile. I had already shown him a digital image of how the tooth looked, but as Joe put it, "Yeah, but I didn't know it would look that bad in a tux."

Joe had already been given the information he needed to understand

the problem, but information alone was not enough. To recognize the benefit of treatment, he needed to accept personal ownership of the problem. Until the patient buys the problem, they aren't going to buy the treatment.

In the dental office, all of us lead lives in 10-minute time segments. We all feel the pressure to finish a task and move on to the next. Patients do not develop ownership of their disease with the same tempo. As long as we recognize that patients need to own the prob-



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lem before they can resolve the cost/benefit question, we will know when the process of education is complete.

A standard of understanding contributes to informed consent, as well as to the trust of your team members who eventually emulate the dentist's caring and empathy for the patient. It also allows us the confidence that we have helped the patient to develop the understandings necessary to make informed choices. As a result, it is possible to pick up the patient's chart, record the conversation, and capsule the presentation of treatment choices as risk managers have taught me: "Presented and explained all R, B, and As (risks, benefits, and alternatives) for replacing a missing tooth." It is acceptable to have the patient sign and date that entry.

A Consistent Message

If it is your goal to increase the production of your practice, have you considered that presenting treatment options too early in the process of educating patients may be having the opposite effect? If so, the problem may be that you are attempting to secure treatment acceptance without the benefit of a standard of understanding to prepare the patient to choose treatment with confidence.

Defining our consistent message to each patient helps to maintain the standard of care in the practice. Defining a standard of understanding allows us to know when it is appropriate to redirect our attention from explaining the problem to explaining the treatment. It means that patients are not asked to choose treatment until they understand the problem.

Acknowledging the need for patients to understand the problem before choosing a solution means that we explain the same problem to different patients using the same words. In this way, the team hears a consistent message, and everyone receives the same level of understanding before deciding what to do.

If it is not possible to define a consistent message by whom the patient is, then it is necessary to define the message by focusing on who we are. Doing that runs counter to our instinct, it seems much more logical to attempt to win the patient over. But patients are so unpredictable that customizing a different message for each one is unworkable. To demonstrate the values we want people to trust, we need to express them with a consistent message about who we are.

When I practiced in San Francisco, I once walked into the room where a new patient was seated. She was a very elegantly dressed woman with expensive

but understated jewelry, designer clothes and perfectly coiffed hair, and she was reading *Forbes* magazine. I extended my hand and introduced myself.

She did not return my gesture.

Instead, she slid the readers down her nose so she could look over the top of them, and said, "I hear you're one of the most expensive dentists in town."

I paused for a moment and then smiled. "And here you are," I replied, "which tells me that you are more concerned about personal service and thoughtful care than you are about cost." She smiled faintly. I had just passed the 10-second test.

It was a sort of a trap that patients like to set for us sometimes, just to see who we are and how we react. There was no answer to her accusation that would pass the test, it would have been pointless to rationalize or attempt to defend myself. Instead, I told her who I was, which was what she was really trying to find out in the first place. Eventually, she shook my hand, and we had a long and successful doctor-patient relationship.

While it may seem like a brilliant (or lucky) spontaneous answer, it was simply part of a philosophy that utilizes consistent communication. That philosophy accepts the importance of my role as an educator because I chose to be a dentist, and most patients need to be educated how to make appropriate treatment decisions.

I can't be effective in that role unless I have the trust of my patients, because they won't listen to me until we have established a relationship where we both feel safe. To that end, the most important goal I can initially achieve is to make sure they aren't confused about who I am or that I am committed to their best interest.

Many of us in dentistry are skeptical about the impact that communication can have on the success of our practices. We are trained perfectionists. (Some of us

are recovering perfectionists.) Nonetheless, we are doers, not talkers. We believe that if our practice is falling short, the answer lies in more perfect margins and better execution of our smile plans.

Clinical excellence is of paramount importance in dentistry. Without excellence, we are not providing the care our patients deserve. There is a point, however, when taking something we already do very well and doing it better does not address the real problem of how our practice is perceived by our patients.

THE MOST IMPORTANT goal I can initially achieve is to make sure they aren't confused about who I am or that I am committed to their best interest.

There is a story about a teamster who took his wagon to the village blacksmith for advice. He explained that he kept replacing horses that became exhausted struggling to pull it. He reviewed everything about the wagon with the blacksmith, looking for a reason his horses found pulling it so difficult. Finally, he got to the wheels. He pointed out that the wheels were certified by the manufacturer to be of perfect size, weight, and conformity to reduce resistance to rolling. They had been lubricated with the specified grease for reduced friction. The teamster had even checked their alignment to be sure they ran true. Finally he asked the blacksmith: "Do you feel the wheels could be better?" The blacksmith thought for a moment and then answered, "Nope. A fourth one would help though."

For many of us, communication is the fourth wheel in the practice. We weren't trained in communication. We don't know how to listen to the communication in our office and diagnose the problem the way we can find decay sneaking under a crown in a digital X-ray. So we focus on what we know and hope we can drag the practice along by maintaining our focus on clinical excellence.

Conclusion

What the risk managers have been trying to tell us is that patients rarely judge us by our margins or the strength of our bonded surfaces. They judge us by what they can hear and see, and by how it feels to be in our offices. Often, their decision whether to go forward with a lawsuit has more to do with the way they perceive they were treated by the team than it has to do with the treatment itself.

Communication is an essential element in an effective risk management protocol for a reason: It is the linchpin for how we are perceived. Good risk management requires clear and consistent team communication to clear the bar.

Look beyond that and you will find effective team communication to be a rich resource for generating new growth and satisfaction in the practice. Good communication generates trust, which leads to effective education and an increased openness to accepting the standard of care in treatment. Our clinical success depends on meeting the standard of care, but our relationships with patients depend on our ability to communicate a standard of caring. ■■■■

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Clyde Schultz, DDS, at clydeschultzdds.com.



Complication or Substandard Care? Risks of Inadequate Implant Training

STEPHEN WHEELER, DDS, AND CYNTHIA M. BOLLINGER

ABSTRACT The use of dental implants has increased substantially over the past decade, as have the number of implant-related complications. One of the contributing factors is inadequate training in the prevention, recognition, and treatment of complications. Comprehensive training on implant surgical procedures that includes patient selection, risk management, and complications allows dentists to incorporate implant placement into their practices with less risk to patients and less risk of serious legal consequences.

AUTHORS

Stephen Wheeler, DDS, practices oral and maxillofacial surgery in Encinitas, Calif., with an emphasis the field of implant reconstruction. He is a fellow and board member of the Academy of Osseointegration and the American Society of Osseointegration.

Cynthia M. Bollinger is founder of The Business of Implant Dentistry, specializing in consulting, seminars, training programs, and education materials designed specifically for implant dentistry. She also serves as the director of the Institute for Dental Implant Awareness, a nonprofit organization.

Dental implants have evolved significantly since their introduction in the 1970s. Initially, the term “dental implants” was used to refer to a wide variety of systems developed in the 1970s and 1980s, such as blades, frames, and subperiosteals, in addition to root forms. Also, the dental technology readily available today was in its mere infancy. Therefore, complications and failures were many, frequent, and considered risks of the procedures because they could happen even with the best of care provided by the best of clinicians.

Sage risk management protocols have recommended the use of written consent forms. With the use of these documents,

the practitioner was reasonably safe from liability claims alleging lack of informed consent. In the late 1980s and the early 1990s, long-term studies began to report significant success and reliability with root form implants as compared to other systems. The industry refined the implants to the point that by the mid-1990s most dental implant systems were abandoned except for root form systems that are now commonly referred to as “dental implants.”

As with many widely used technologies, advancements in implant dentistry have provided the profession with many new options through the development of shorter implants, angled attachments, and special surface treatments for more rapid integration and potential immediate

placement following extractions. Other advancements have allowed dentists to provide care to a wider range of patients by offering grafting and ridge-expanding techniques and technologies to provide the necessary bone volume for implants, and CT technology to evaluate compromised sites for safer implant placement.

While these advances provided more options for patients, they were also not without increased risks and more significant complications that could place patients at risk both in “site preparation,” as well as actual implant placement. Once again, the principles of informed consent have been used to develop specialized consent forms to reduce the exposure for “lack of informed consent,” but not eliminate liability based on the experience of the provider. The occurrence of complications once considered risks in the 1970s may now be used as evidence of negligent care (legally: failure to meet the standard of care) for which the practitioner may be held liable.

Today, dental implants have become a part of mainstream dentistry as a result of documented high survival rates and predictability, as well as significant benefits for patients, such as preservation of alveolar bone and conservation of tooth structure. Additionally, a review of the literature on fixed partial dentures indicated that the long-term prognosis is generally better with implant treatment.¹⁻¹⁶

Dental implants have also become a legal standard of care. Arthur W. Curley, JD, stated the following in the *Journal of the California Dental Association* in December 2001, “Discussing dental implants in the appropriate case is no longer just an option. Dentists have an obligation to recommend implants to patients because there is less trauma to other teeth, the bone is preserved, and the life expectancy is longer than traditional options.”¹⁷

Due to high success and predictability,

as well as increased patient demand, the use of implants has increased significantly over the past 10 years. However, as the number of implants placed has increased, so have the number of implant-related complications. There are a number of factors contributing to the increase in complications, including the increased number of implants placed, the increased number of dentists placing implants, more aggressive treatment protocols, and inadequate training.

The 2000 *Survey of Current Issues in Dentistry*, published by the American

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Dental Association, reported that over a four-year period (1995-1999) the average number of implants placed by all dentists increased from 37.7 to 56.2.¹⁸ An analysis of the U.S. dental implant market from iData Research in July 2007 reported that the number of implants sold went from 891,131 in 2003 to 1,402,287 in 2006, and was projected to be 1,591,596, representing an increase of 79 percent in five years.¹⁹

The same iData analysis reported that the total number of general practitioners in the United States rose from 126,163 in 2003 to 151,803 in 2007, representing a 20 percent increase. During that same period, the number of general practitioners restoring implants went from 24.1 percent to 31.3 percent, representing a 30 percent increase. The number of general practitio-

ners placing implants more than doubled, from an estimated 8,200 in 2003 to 20,949 in 2007. The percentage of general practitioners placing more than 30 implants per year was reported to be 3.4 percent in 2007, compared to only 1.7 percent in 2003.¹⁹

A similar report from Millennium Research Group in 2006 reported that an estimated 19 percent of general practitioners were placing implants.²⁰ In addition, there has been an increase in the number of endodontists and prosthodontists who are now placing implants.

As implant usage has increased, there is greater emphasis on the topic of complications at major continuing education conferences and in journals.²¹⁻²⁵ One of the most recent examples of this was the 34th annual USC Periodontal and Implant Symposium, titled “Plan B: Negative Outcomes, Complications and Failures in Periodontal and Implant Therapy.”²⁵

There are several reasons that can be attributed to the increase in complications, the most obvious of which is the increased number of implants being placed. Assuming that the rate of occurrence of complications remained constant, the significant increase in the number of implants placed in the past 10 years would result in a corresponding increase in complications.

Another contributing factor is that dentists are also using more aggressive protocols than those first outlined by P.I. Brånemark, which called for placement of implants in the anterior mandible, where there is usually sufficient, thick, cortical bone. Implants were only placed in fully healed sites six to 12 months following tooth extraction. With those more conservative protocols, the critical anatomical structures, such as the maxillary sinus and inferior alveolar nerve, were avoided.

Today, implant treatment protocols include implant placement immediately

following extraction, immediate provisionalization, or immediate loading of the implants. Patients are demanding implant replacement along with faster treatment protocols, even in compromised situations, in essence pushing the dentists into situations that carry greater risks. When a compromised site is encountered, the patient then becomes a candidate for grafting protocols, which carry their own potential risks for complication. Implants placed in grafted sites require more surgical skill and experience than what is required for routine implant placement. Combining aggressive protocols with augmentation procedures provides more opportunities for complications to occur.


When the concept of osseointegration was first introduced in the United States, the early protocol called for implants to be placed primarily by oral surgeons and later by periodontists. Both of these specialties require extensive training and experience in surgical procedures, as well as an in-depth understanding of bone morphology.

Surgical implant placement involves procedures that are similar to other surgical procedures that are performed in oral surgery and periodontal practices on a routine basis. And, many of the complications that can occur with implant surgery are similar to the complications that oral surgeons and periodontists experience and trained for during their specialty residency programs, and subsequently manage in their private practices.

While there are many nonsurgically trained dentists who have diligently pursued extensive postgraduate training in surgery to safely place implants, there have been an increasing number of dentists with limited or no surgical training performing surgical procedures related to implant placement in their practices. Many of the complications experienced by these dentists

are part of their learning curve for surgical procedures that are required for implant placement, such as incision, flap reflection, primary closure, and wound healing.

Another factor, contributing to increased complications and failures is that many of the continuing education courses on surgical implant placement are sponsored by implant companies, or providers, and are designed to sell surgical kits and implants. Many of these programs are abbreviated in length, one to three days. Promotional brochures



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for some of these courses emphasize the simplicity and profitability of implant placement.^{26,27} Many of these abbreviated surgical training courses, which typically do not cover complications, have been promoted as being sufficiently comprehensive to qualify any dentist to immediately begin surgically placing implants.²⁶⁻²⁸ Unfortunately, not having more extensive training can leave dentists ill-prepared to handle the full variety of complications and failures that can occur.

There are also claims made in marketing literature that certain technologies, such as CT scans and guided surgical implant placement, make it possible for any dentist to place implants. Promotional brochures for some courses on guided surgery emphasize the simplicity of placing im-

plants utilizing the new software programs for CT scans. One example is a recent article titled "Technology Helps an 'Amateur' Place Implants" in *Dentistry Today*.²⁹

Marketing materials from reputable companies, course brochures with esteemed colleagues as instructors, and articles written by other colleagues about the simplicity of placing implants could lead dentists to believe that it is a simple procedure that only requires unique software and relatively little training.

Even placing implants on a "virtual reality model" within a CT scan requires experience in understanding bone densities, cortical plate width, and potential pitfalls with osseous undercuts and implant angulations. While technology certainly provides additional information useful for treatment planning purposes, there is still a need for an understanding of basic biological principles, such as wound healing and vascularization, as well as fundamental surgical skills and the ability to manage potential complications. If a dentist is not experienced in laying flaps to provide augmentation procedures, he or she should not attempt "flapless" surgery as he or she may be ill-prepared to recognize or treat intraoperative complications, such as dehiscence or fenestration.

Moreover, nationwide surveys conducted to determine the extent of the training on implant dentistry provided for predoctoral students in dental schools indicate that the majority of the training is focused on the restorative aspects. In 84 percent of the dental schools that require a predoctoral student to take an implant course, the average number of lecture hours reported was only 20.4. Thirty-eight percent of the schools reported that one of the 25 lecture topics was implant surgical complications. One survey reported that 59 percent of the schools require the presence of students during surgical implant place-

ment for observation of the procedure. And another survey indicated that only three dental schools allowed predoctoral students to surgically place implants.³⁰

In other words, the formal training on surgical implant placement upon graduation from dental school for the majority of dentists is typically limited to one- to two-lecture hours on surgery and complications, and, in some cases, the observation of implant placement for the patients they restore as part of their training. Therefore, most general dentists who wish to incorporate implant placement into their practices must seek continuing education courses to provide the surgical training they need. Unfortunately, if those CE courses are abbreviated, one to three days, and do not discuss complications and failures, the dentists attending these programs without the benefit of surgical implant placement training in dental school, or a general practice residency that included surgical training, may be ill-prepared to predict, diagnose, and manage potential complications that can occur with implant surgery and related surgical procedures.

There are a number of courses offered by independent training centers and individual clinicians that provide comprehensive training. These programs range from six to 18 days in duration over periods from one week to several months, and provide substantially more surgical training than the abbreviated courses.

There are also more comprehensive CE training programs and miniresidencies available through various dental schools, such as the 18-day maxi course offered at Loma Linda University.³¹ However, a review of the outlines for these courses indicates that complications and failures are a very limited part of the curriculum.

Inadequate training on implant-related complications has several potential consequences. The authors are aware of an

increasing number of anecdotal reports from specialists being asked by recently “trained” dentists to evaluate and treat patients suffering from avoidable complications ranging from injury to adjacent teeth, to catastrophic esthetic failures involving substantial loss of hard and soft tissue, and nerve damage, often from the placement of only one to two implants.

Legally, such failures create liability for a breach of the duty to refer a patient to a specialist.³² When a general dentist performs procedures that are primarily performed by dental specialists, due to either complexity or difficulty, the law holds all such practitioners to the standard of care expected of specialists providing similar procedures on a regular basis. The test of the standard of care is not so much a dentist’s ability to begin or initiate treatment, rather it is the experience and ability of the dentist to quickly recognize and treat all of the various potential complications.

Specifically, a generalist may provide treatment most often provided by a specialist if the practitioner can: 1) reasonably predict the potential for failure or complication and have and utilize tools and techniques to eliminate or reduce those risks; 2) be able to timely recognize and diagnose the occurrence of a risk or complication that cannot be eliminated in order to 3) timely provide or refer for treatment such as to minimize or eliminate the impact, injury, or damage to the patient.

Failure to be able to perform the aforementioned is below the standard of care, and the patient should be referred to another more experienced practitioner or specialist when proceeding with treatment. Therefore, if general dentists surgically place implants and complications arise that are not quickly and skillfully handled by a general dentist, the patient injured by a mishandled complication can initiate litigation. In such cases, the general dentist will be held

to the same standards as surgical specialists who have had a three- or four-year residency program that includes exposure to and management of numerous complications.

This obvious failure to fill the void in needed education and training in the surgical placement of implants needs to be addressed both for the protection of patients and for the protection of the treatment modality that has been so successful. Thousands of practitioners around the world have worked tirelessly over several decades to perfect techniques and develop expertise in the placing of and restoring of implants to elevate this treatment modality to one of the most predictable reconstructive procedures we can accomplish in dentistry today. These techniques can provide both long-term functional and esthetic rehabilitation in ways that conventional dentistry cannot.

Ideally, standards for education and training should be developed to provide guidance for dentists wishing to pursue a continuing education program that would adequately prepare them to incorporate implants into their practices. Such standards would protect what has been accomplished in this field and provide the best care possible for our patients in a safe environment.

If minimal educational guidelines can be established and accepted by the implant industry as a whole, most of the abbreviated training courses presently being taught outside the academic environment of the dental schools would be discontinued. Those taking the more comprehensive courses would have a very different understanding of the requirements (both knowledge and expertise) for placing implants before considering attempting surgery in their offices. With adequate training, if complications were to occur, dentists would be able to mitigate the consequences of complications by early recognition, treatment, or referral.

One of the most difficult procedures in implant reconstruction is to replace a



FIGURE 1. An implant and graft were placed immediately after extraction. The graft became infected and the dentist tried unsuccessfully to treat the infected site. After multiple procedures, the patient self-referred to a specialist.



FIGURE 2. A great deal of soft and hard tissue had been lost following multiple attempts to treat the infection. There is very little bone remaining around the implant and the patient needed multiple surgeries to correct this defect.



FIGURE 3. After four surgeries to graft the hard and soft tissues, a new implant was placed and restored. While the final result is less than ideal, the grafting resulted in a reasonably good esthetic outcome considering the extent of the defect — and the patient is happy.

failed implant or implants following catastrophic loss of hard and soft tissue due to complications and infection. This becomes even more critical in the esthetic zone as can be seen from this example where a general dentist attempted to place an implant immediately after removing an anterior tooth. The area broke down around the implant and after repeated inadequate attempts by the general dentist to graft and repair the defect, the patient referred herself to a specialist. The loss of the implant and the surrounding tissues required block onlay grafting and soft tissue surgery to reconstruct the area to provide the base for a new implant (**FIGURES 1-3**).

This case, along with ever-increasing number of cases in litigation from nonsurgically trained dentists, indicates the growing necessity for a change in education and training in this field. Ideally, development and implementation of minimal training standards would cause those corporations and individuals who are advertising the simplicity of implant placement, or teaching abbreviated courses, to realize the importance of adequate training and education for the protection of patients.

If the general dental population becomes aware of the risks of placing implants without proper training, they will come to understand that abbreviated training courses are merely one component of the training and education necessary to meet the legal standard of care and provide the best treatment possible in the rehabilitation of dental patients. ■■■■

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Cone Beam CT — Anatomic Assessment and Legal Issues: The New Standards of Care

ARTHUR CURLEY, JD, AND DAVID C. HATCHER, DDS, MSC

ABSTRACT Until the recent introduction of cone beam computed tomography scanners, standard 2-D imaging provided a moderate contribution to overall treatment planning when considering the diagnostic potential, costs of study, and risks to the patient. Cone beam computed tomography-dedicated maxillofacial imaging scanners provide broader imaging tools for anatomic assessment and have become widely available. This article discusses the uses and benefits of 3-D imaging, as well as the impact on the standard of care.

AUTHORS

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

David C. Hatcher, DDS, MSC, MRCD, is a clinical professor, University of Southern Nevada, adjunct associate clinical professor, Arthur A. Dugoni School of Dentistry, and in private practice at Diagnostic Digital Imaging, in Sacramento.

Many phases of patient care involve imaging to assist with diagnosis, treatment planning, risk assessment, and treatment. Techniques employing X-rays, visible light, ultrasound, lasers, and magnetic fields have been used in medicine and dentistry to create images. All forms of imaging require a coupled system of emitters and sensors. For example, a cephalometric image is produced using an X-ray emitter and film sensor. Imaging systems can be categorized in many different ways based upon emitter or output type (examples; film-based, digital, 2-D and 3-D images).

The resultant images can be used to evaluate the anatomy of interest, including surface and subsurface. The ultimate quest of all forms of imaging is to reveal the anatomic truth; that is, to portray the anatomy as it exists in nature. Thoughtful

clinical application of image acquisition requires matching the uses and limitations of the available imaging choices to achieve the desired diagnostic information (imaging goal) while keeping the risks and costs to the patient as low as possible.

Imaging data must provide a benefit at an acceptable cost and risk. Two-dimensional representation of 3-D anatomies creates images that have poor spatial accuracy, are static in space and time, and contain information voids. These 2-D measurements have propagated legacy databases of inaccurate morphometric measurements.¹

Current development in imaging technology for dentistry includes digital imaging and improved sensor technology. Multidimensional anatomical reconstruction can be performed through software applications. The ultimate reward of technological imaging advancements is the 3-D representations (digital vol-

ume) of anatomy as it exists in nature (anatomic truth).² Analysis of the accurate digital volume can provide clinically relevant spatial information or data.

Visualization and analysis of 3-D information can benefit a dental practice by providing data that will improve diagnosis, risk assessment, treatment outcome, and treatment efficiency, and reduce treatment complications. This article discusses the uses and benefits of 3-D imaging (cone beam CT, CBCT) for diagnosis, treatment planning and the legal issues affecting the standard of care, as well as offering risk management tips and use guidance.

The Standard of Care

The term “standard of care” is generally defined as what a reasonable and prudent health care provider would do or should have done. The law requires that a dentist meet or exceed the standard of care. Failure to do so is considered professional negligence, commonly called malpractice.

Specifically, California law states that a dentist is negligent if he/she fails to use that level of skill, knowledge, and care in diagnosis and treatment that other reasonably careful dentists would use in the same or similar circumstances. This level of skill, knowledge, and care is sometimes referred to as “the standard of care.”³ “Similar circumstances” includes the requirement of staying current with improvements in, and alternatives to, traditional care where the benefits and risks vary, depending upon the treatment plan chosen.

The California Dental Practice Act mandates that a dentist, and all other licensed staff, adhere to the standard of care. Any licensee may have his/her license revoked or suspended, or be reprimanded or be placed on probation by the board for unprofessional conduct, or incompetence, or gross negli-

gence, or repeated acts of negligence in his or her profession.⁴ In a malpractice suit, the patient must prove that the defendant was negligent for failure to meet the standard of care and that such failure caused an avoidable injury, for which a judge or jury can award monetary damages. At trial, experts for each side offer testimony on the issue of the standard of care, causation, and injury.

Typically, a jury will determine, based upon the records and testimony of the parties and expert witnesses, whether

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or not the defendant failed to meet the standard of care, based primarily upon witness credibility.⁵ The jury is told “You should examine the reasons given for each opinion and the facts or other matters that each witness relied on.”⁶ Imaging, particularly 3-D, can be very persuasive to juries. While experts may use their own experience and cite authoritative texts, legally, a technology becomes admissible evidence of a standard of care when it meets a three-part test known as Frye/Daubet: 1) sound scientific basis; 2) disseminated via peer-reviewed literature; and 3) (if a product) approved by the appropriate regulatory agency, such as the FDA.^{7,8} Accordingly, as discussed herein, CBCT meets the legal definition of a standard of care for imaging.

Options and Patient Information

Practically speaking, the traditional standard of care involved delivery of reasonably accurate and up-to-date diagnosis, treatment recommendation(s), treatment performance(s), and follow-up care. As discussed herein, another standard of care involves giving the patient diagnostic and treatment options, discussing and documenting the relative risks and benefits of each.⁹ Examples would be implants versus bridges; veneers versus orthodontics; amalgam versus composites; and most importantly, CBCT versus traditional 2-D imaging.

The type of alternate diagnostic and treatment options to be discussed cannot be determined by the patient's apparent financial ability to pay. Rather, the doctor must give ideal (regardless of cost) treatment plans, as well as less-than-ideal options to treat a condition, and then allow the patient to make an informed choice. The prudent practitioner should then document the patient's decision, and, if a less-than-ideal plan is chosen, obtain and document the informed refusal.¹⁰ That is, document that the patient was given the options, risks, benefits, and alternatives to each and told the risks of the decision made. Example: A patient chooses a removable partial denture over an implant due to insurance coverage limitations.

The standard of care is dynamic, constantly evolving, and at an ever-increasing rate. Accordingly, it has become even more important for a careful practitioner to stay current of the new developments in dental care, related risk management techniques, and documentation protocols in order to understand and comply with the legal standard of care.

Evolving Standards

Dentistry is perhaps one of the most technology driven areas of health care delivery. Its roots go back to the basics of

removal of decayed teeth and attempts at replacements, such as George Washington's famous wooden dentures. (In fact made of animal and human teeth).¹¹ Treatment of dental pathology has evolved with improved mechanical systems for decay removal, extractions, restorations, tooth alignment, root canal therapy, and replacement of teeth. Before the advent of dental X-rays, treatment planning was limited to clinical observations and therefore had numerous unavoidable risks.

A risk is complication of treatment that cannot be avoided with reasonable skill, care, or technology. Therefore, the law mandates that patients have to be informed of the various treatment options and attendant risks so they could make an informed decision.¹² Sound risk management requires documenting such discussions by obtaining written informed consent. Such documentation provides a strong defense to claims of dental malpractice from patients experiencing treatment complications that were unavoidable.

The advent of dental X-rays dramatically changed dentistry and the standard of care. X-rays facilitate diagnosis, treatment planning, and improved outcomes while reducing risks. However, due to the limitations of traditional 2-D imaging, many risks, such as nerve injuries with extractions, could not be eliminated. As options for dental care expanded, so did the attendant risks, such as nerve injury from the placement of a dental implant. Such complications were considered risks that were not completely avoidable, despite meeting the standard of care.

However, with the development and ready availability of CBCT scanners, practitioners can now see and appreciate anatomy in 3-D, almost approaching *in vivo*. That additional information contributes substantially to diagnosis and treatment planning that many risks can now be avoided.

Informed Refusal

Traditionally, practitioners developed treatment plans based upon need and ability to pay. Due to the limits of dental insurance coverage, new and evolving dental technologies, such as composites, retainer orthodontics, and implants were not covered by insurance and therefore not recommended or sometimes even discussed. However, the patient's legal right to choose mandates a discussion of all reasonable options, regardless of payment. Failure to offer noncovered op-

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tions is substandard care. In other words, the doctor has an obligation to advise the patient of the ideal treatments, not just the ones the patient can afford, and to also advise of the risks and benefits of the alternatives or those plans.

Further, if a patient chooses a less-than-ideal treatment plan due to funding issues, the comparative risks must be explained and that discussion documented. Today, a doctor can be liable for problems experienced by a patient who either was not told of potential alternative treatments or was not told the risks of refusing a recommended treatment.¹³ This has become known as the doctrine of informed refusal, now formalized as a California Civil Jury instruction 534-5.¹⁴ Therefore, as will be discussed below, the potential for

risk reduction or elimination with CBCT is such that failure to offer it in many cases may be considered substandard care.¹⁵

Cone Beam CT (CBCT)

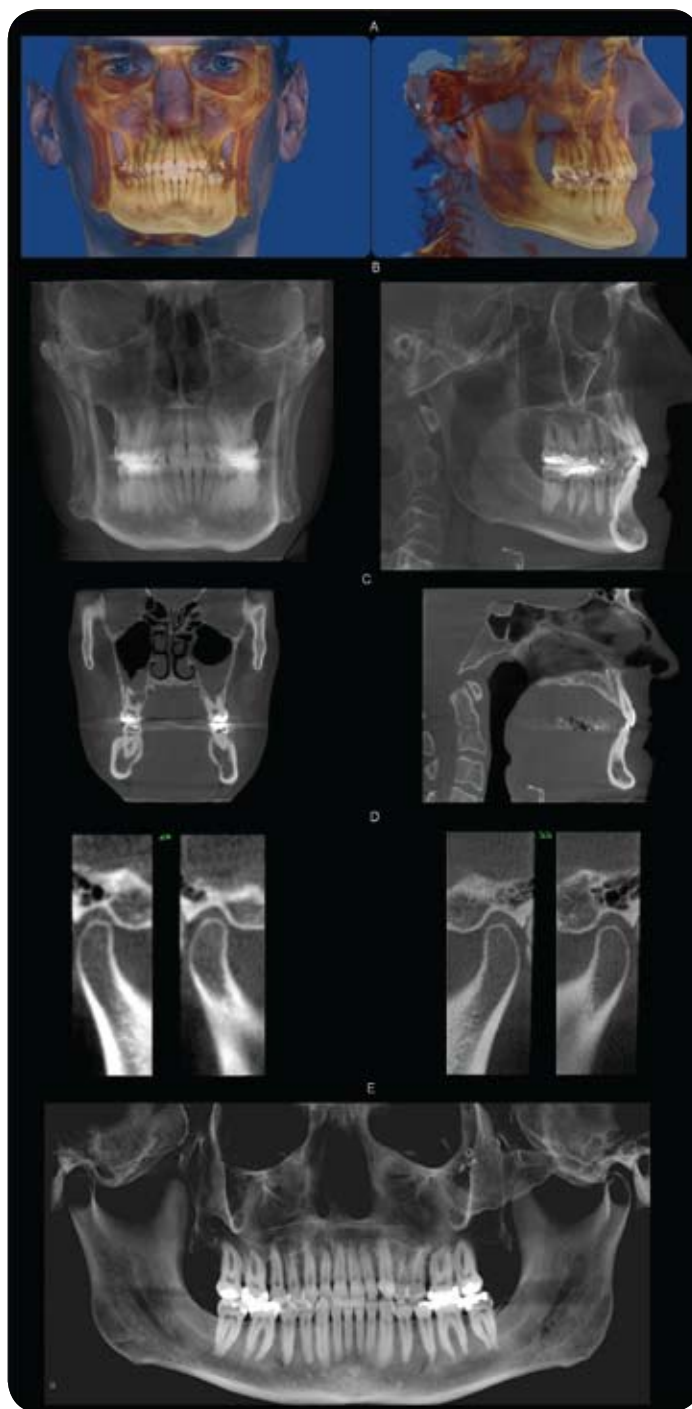
CBCT uses a low milli-Amperage cone-shaped X-ray beam that can be shaped to approximate the area of interest. The X-ray emitter and sensor rotate 360 degrees around the head creating a sequence of images (raw data) that are reconstructed into a voxel (digital) volume for visualization and analysis. Two-dimensional digital images are comprised of subunits called picture elements (pixels) while 3-D digital images are comprised of subunits called volume elements (voxels). Pixels and voxels possess attributes of size, location, and a grayscale value. The current generation of CBCT scanners produce isotropic voxels (x, y, and z dimensions are equal) that range from 0.1 to 0.4 mm with a grayscale value between 12 bits (4,096 shades of gray) and 14 bits (16,384 shades of gray). Each voxel in a 3-D digital image is assigned a grayscale value that represents the averaged attenuation value of all of the structures contained within that volume.

Visualization

A significant amount of anatomic information is contained within a voxel volume and this information can be retrieved, analyzed, and viewed at a computer workstation using visualization and analysis software. The computer monitor is a 2-D eight-bit display (256 gray levels) used to display 3-D 12- or 14-bit image data. In order to view 12- or 14-bit data on an eight-bit monitor, a software technique of "windowing" allows for the visualization of the entire 4,096 or 16,384 shades of gray, eight bits at a time.

Visualization software allows the entire volume to be rotated and viewed

FIGURES 1A-E. This figure illustrates various visualization options. **(A)** Frontal and lateral views of a composite model of the skin and skeleton. The entire 3-D volume is visualized using a volume-rendering technique. Selected tissues can be assigned various opacity levels so that the spatial relationships can be determined. **(B)** Frontal and lateral cephalometric projections are generated from the 3-D volume using parallel rays (orthogonal projection). The head orientation can be perfectly controlled. **(C)** Coronal and sagittal sections can be created and displayed. **(D)** Corrected views of the temporomandibular joints. **(E)** A reconstructed panoramic projection created from the scan volume.



from any point of view. In addition, the software allows for orthogonal (sagittal, axial, or coronal planes), oblique or curved plane slicing or paging through the voxel layers to allow visualization of internal anatomy (**FIGURES 1 AND 2**). Slice thickness can be manipulated directly and in real time. The volume of image data can be viewed using different modes of display, including multiplanar reformatting, shaded surface display, and volume rendering. The highest resolution (best quality) images allow for visualization of small anatomic features. In general, the best quality 3-D images are produced using a protocol that selects for the greatest number of gray levels, smallest voxels, and a high signal and low noise ratio. Patient motion is the greatest contributor to noise in a CBCT scan.

Imaging Sessions

Any imaging session begins with the development of imaging goals that fulfill the clinical objective. Imaging goals allow for the selection of an imaging protocol and creation of an imaging portfolio that best fulfills the clinical objective. Imaging protocol variables include field of view (FOV), voxel size, scan time and milli-Amperage (mA) settings.

Imaging goals fulfill clinical objectives. For example, a clinical goal could be to localize an impacted maxillary cuspid tooth prior to treatment (**FIGURES 2 AND 3**).^{16,17} The general imaging goals for impacted teeth include: localize the impacted tooth, localize the adjacent anatomy, and identify pathology.

Localization of Impacted Tooth

It is important to determine the precise location of the crown and the root of an impacted tooth. Accurate location information in all three axis of space may be used to determine surgical

access options, assessing movement, or removal pathways, as well as identify the location of pertinent adjacent anatomy, such as nerve canals and sinus position.

Localize Adjacent Anatomy

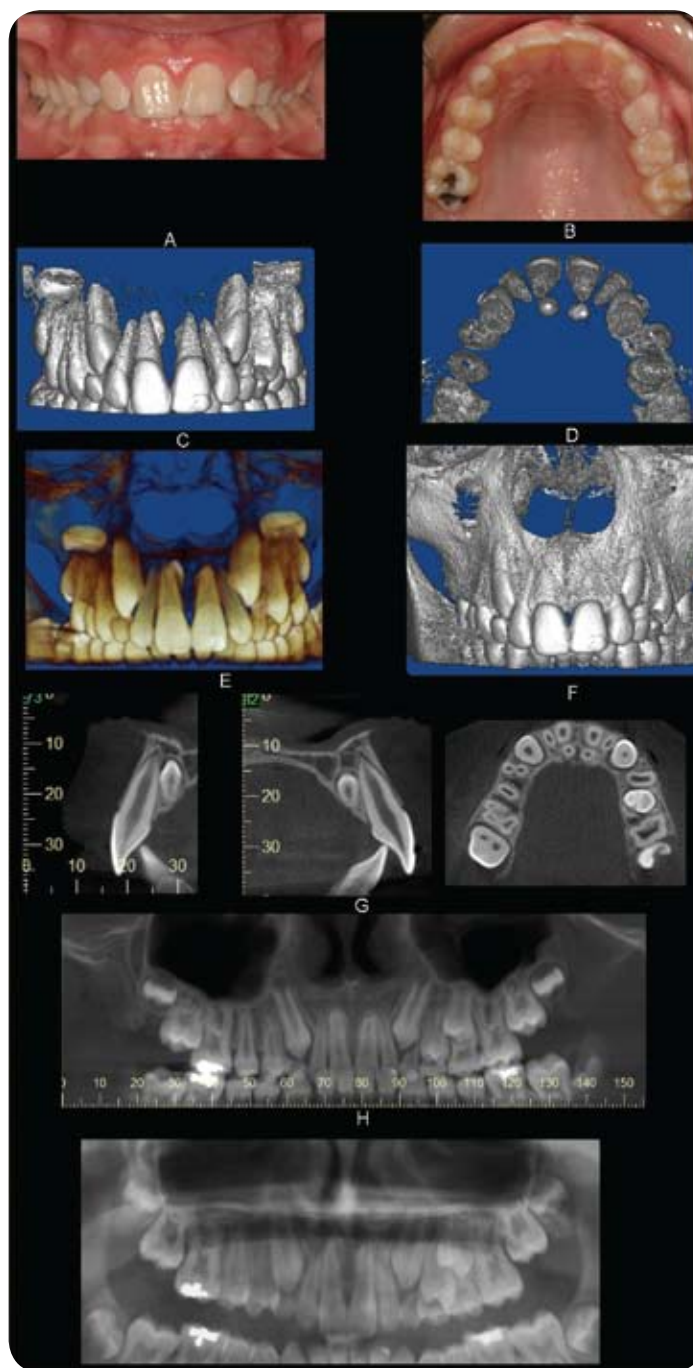
CBCT can expose the anatomy of interest around an impacted tooth including adjacent teeth, mandibular canal, fossae, sinuses, and alveolar ridge boundaries. Understanding the location of the adjacent anatomy assists in avoiding surgical trauma and collisions when moving or removing the impacted tooth (**FIGURE 4**).

Identify Pathology

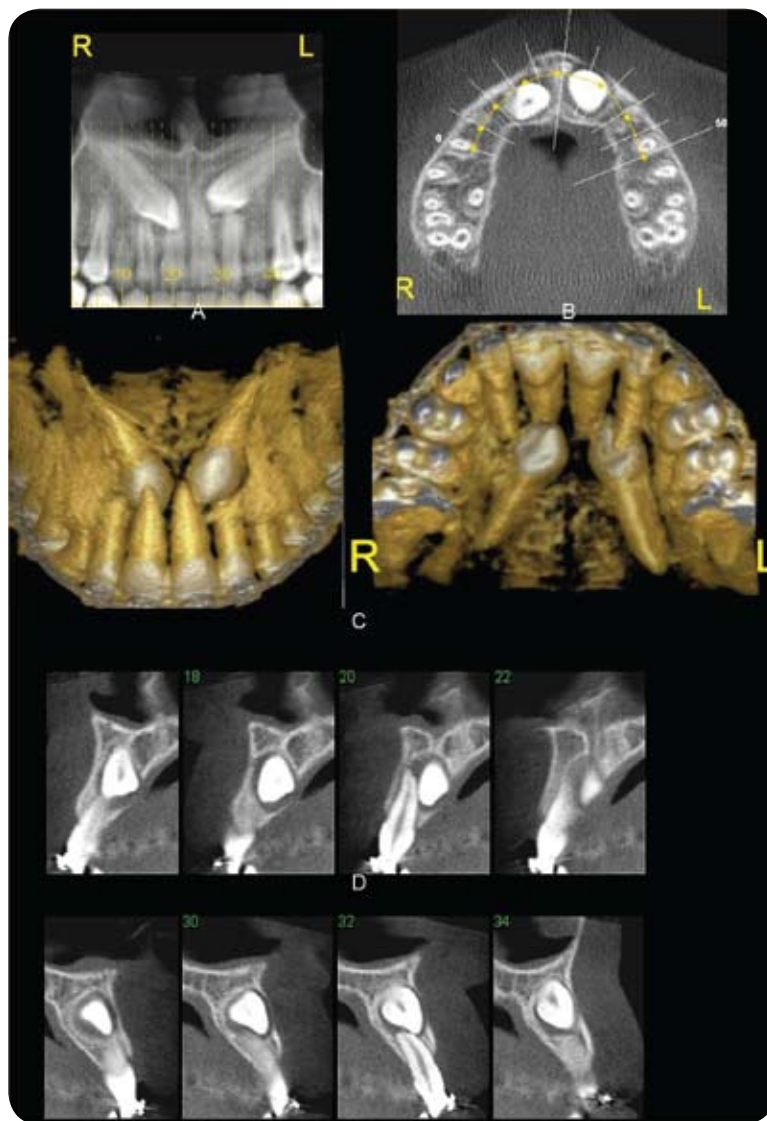
Impacted teeth may be associated with pathology. In some cases, a tooth is impacted because of adjacent pathology, such as a supernumerary tooth or neoplasm (**FIGURE 2**) that is not visible on standard 2-D imaging. In other cases, pathology can occur adjacent to or secondary to an impacted tooth, such as cysts, tumors, or inflammatory processes. Pathologic findings need to be identified, diagnosed, and managed along with the impacted tooth.

Once a scan has been completed, there are an infinite number of methods available to visualize the image data. An image portfolio, a specific and precise collection of image views and anatomic renderings, is an elegant method to visualize and communicate the imaging goals and findings.

Examples of the potential benefits for achieving the desired imaging objective for the stakeholders (surgeon, orthodontist, and patient) can be seen in the clinical scenario of an impacted maxillary cuspid. The surgeon can better inform patients of a treatment plan and treatment risks, and then plan and perform a minimally invasive surgery with precise placement of traction device because of knowing the location of a



FIGURES 2A-H. This figure illustrates various methods that can be used to visualize impacted teeth Nos. 6, 11, and adjacent supernumerary teeth. **(A)** Shaded surface display (SSD) of the anterior region of the maxilla. The SSD threshold was set to show the roots and crowns of the teeth. **(B)** SSD rendering oriented in an axial view to show the supernumerary teeth and the adjacent teeth. **(C)** Volume rendering with the opacity levels set to eliminate bone and soft tissues. **(D)** SSD frontal view with the threshold set to show bone and teeth. **(E)** Cross-sections of the maxilla showing teeth Nos. 8 and 9, along with the two lingually positioned supernumerary teeth. **(F)** Axial section of the maxilla at the level of the supernumerary teeth. **(G)** A reconstructed panoramic projection showing the impacted maxillary cuspids and the adjacent erupted teeth. **(H)** A traditional panoramic projection allowing for visualization of the same anatomy depicted on image G. Note the reduction in clarity and the amount of superimposition on the traditional panoramic projection.



FIGURES 3A-D. Impaction localization. A concise image portfolio using various rendering methods that satisfy the imaging goals for impacted teeth. This figure illustrates the 3-D location of the impacted teeth Nos. 6 and 11 and was selected because the subtle uniqueness differences between the two impacted teeth. **(A)** A reconstructed panoramic projection centering the teeth in the section plane. Images A, B, and D are cross-referenced with each other. The image cross-referencing is communicated with numbers and white lines. **(B)** An axial section of the maxilla displaying the crowns of teeth Nos. 6 and 11. **(C)** Volume rendering the maxilla viewed from anterior and posterior directions. These images show the relative location of the crowns and roots of all of the anterior teeth. **(D)** Cross-sectional views of tooth No. 6 (top panel) and No. 11 (bottom panel). The crown to tooth No. 6 was lingual to the root of tooth No. 8 and contacting the root apex of tooth No. 7. The crown of tooth No. 11 was labial to the root apex of tooth No. 10. The root apex of tooth No. 10 showed some external resorption. (Case courtesy of Amnon Leitner, Israel.) The traction mechanics to mobilize tooth No. 6 into place is likely to be different than the traction mechanics require for tooth No. 11. Understanding the spatial relationships between teeth Nos. 6 and 11, and the adjacent teeth allows for precise planning, risk assessment, and implementation of a treatment strategy that can conserve treatment time and avoid further damage to the erupted teeth.

vital structure, such as nerve, in 3-D.

The orthodontist can design and implement traction mechanics to move teeth into proper alignment without contacting or damaging adjacent teeth. Current technology provides for digital sectioning by fractions of a millimeter (0.12 – 0.50) that can reveal structures, not typically seen in 2-D imaging, such as mesiodens. Three-dimensional imaging can also assist the presentation of the case to the patient and the discussion of the risks, benefits, and alternatives necessary to obtain informed consent.

The patient can be presented with a more clear diagnosis, treatment plan, and therefore obtain a better understanding of risks, benefits, and treatment options.

While 3-D imaging can reduce risks associated with extractions, congenital anatomical associations of vital structures, such as roots and nerves, it can present unavoidable risks.

Implants

Similar clinical and imaging goals can be derived for presurgical imaging for implants, TMD, and orofacial pain investigations and orthodontics.¹⁸⁻²² The key stakeholders for implant planning and placement include a restorative dentist, a surgeon, and a patient.

Implant Site Assessment Imaging Goals

One current planning routine for the replacement of missing teeth with implants can be called a “crown down” approach where the prosthetic planning precedes implant planning and implant placement (**FIGURE 5**). A CBCT scan, in combination with software modeling, can be used as a virtual planning environment to iterate the ideal placement of the prosthetics, occlusion and associated supporting implants, in a virtual environment.²³⁻²⁵ For each implant site,

the following anatomic considerations or imaging goals may allow the clinician to determine the best site for the implant and meet the prosthetic goals:

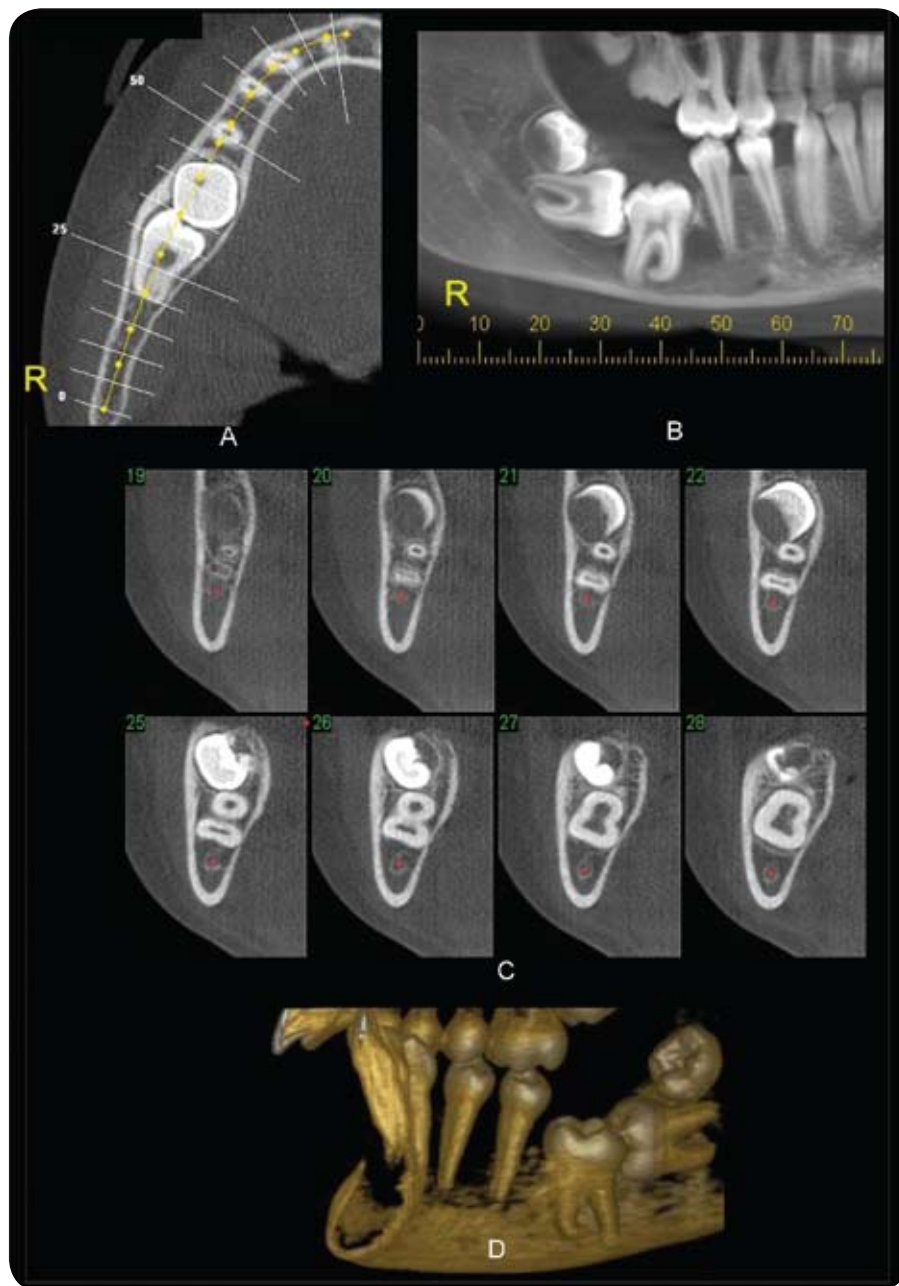
1. Determine bone height and width (bone dimensions) via 3-D CBCT
2. Determine bone quality with comparative density analysis in 3-D
3. Determine the long axis of alveolar bone
4. Identify and localize internal anatomies, such as nerves and sinus cavities
5. Determine jaw boundaries
6. Identify pathology in 3-D scale and scope
7. Transfer of radiographic planning information
8. Communicate radiographic diagnostic and planning information

Bone Dimensions

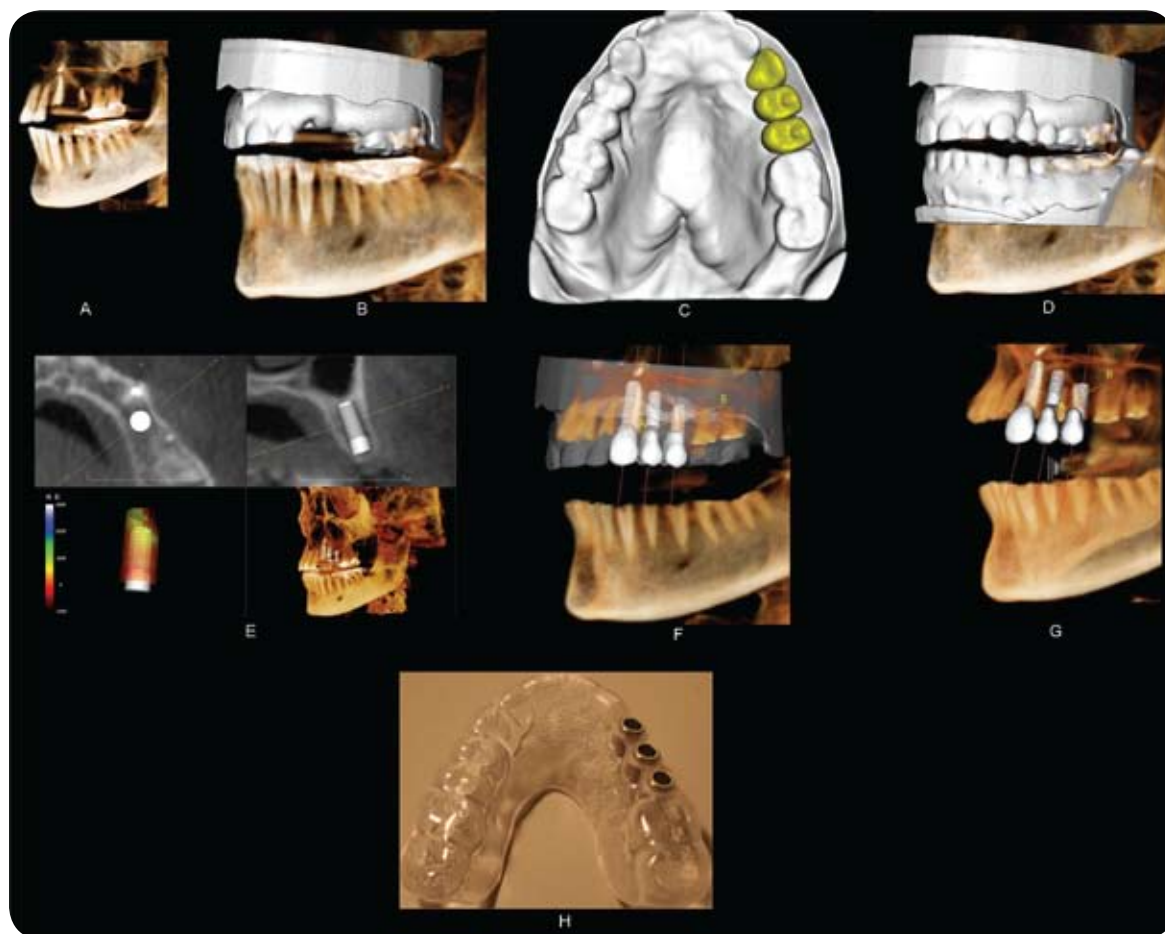
Three-dimensional CBCT presentation of bone height and width allows the clinician to determine how much bone is available in the proposed implant site without having to do enlargement estimates.

Bone Quality

Dynamic loading of an implant imparts forces to the adjacent bone. There is an assumption that bone density is directly proportional to the load-bearing capacity of the bone and that implant failure is associated with low bone density.⁸ The architecture of the supporting bone is also a factor associated with the functional capacity of these tissues. Dynamic loads received by the implants may strain the supporting bone and induce changes in that bone. Bone requires a certain amount of strain for maintenance, but excessive strain may cause fatigue failure of the trabeculae. A 3-D CBCT can determine bone quality with more accuracy than 2-D imaging.



FIGURES 4A-C. Impaction localization. This image portfolio illustrates the clinically relevant story about impacted teeth Nos. 30 and 31. Images A, B and C were cross-referenced with each other. **(A)** Axial view of teeth Nos. 30 and 31. This image is used to reconstruct the panoramic view **(B)** and cross-sectional views **(C)**. The localization of teeth Nos. 30 and 31 relative to the adjacent teeth, mandibular canal (marked using red) and the buccal and lingual cortices of the mandible can be determined. Three-D rendering and oriented in space to show the spatial relationships between the teeth **(D)**. This image portfolio can be used to determine treatment options, treatment risks, to communicate appropriate information to the patient and to guide treatment. (Case courtesy of Amnon Leitner.)



FIGURES 5A-H. Implant planning sequence. Implant placement involves multiple steps to replace the missing teeth and can be quite complicated and time intensive. This sequence of images demonstrates a workflow efficient method of virtually planning a “crown down” method of implant planning using a CBCT scan to drive the entire process to a guided surgical template. This technique does not require a scan guide. The patient is scanned using a CBCT targeting the proposed implant site (**A**). In this case, teeth Nos. 20, 21, and 22 are proposed sites for implants (note root tips for teeth Nos. 20 and 22). The upper jaw and teeth are segmented from the CBCT volume creating an interactive model of the region (**B**). The virtual wax-up is performed (**C**) to determine the size, form, and location of the clinical crowns for teeth Nos. 20-22. The model of the maxillary teeth can be virtually articulated with a model of the mandibular teeth (**D**) to iterate the correct prosthetic plan. The location of the replacement crowns is used to determine the best placement of the supporting implants. A manufacturer specific implant form can be selected from a database of implants and virtually placed into the ideal position (**E**) to best support the planned prosthesis. This method allows optimization of 1) spacing between implants; 2) spacing between implants and adjacent teeth; 3) depth placement of the coronal and apical portions of implant; 4) axial inclination of implant; and 5) buccolingual location of implant within alveolar ridge. In addition, the bone quality assessment and localization of adjacent anatomical structures, such as the maxillary sinus, can be achieved. Images (**F**) and (**G**) use a volume-rendering method to show the proposed crowns and supporting implants placed into the CBCT volume. The completed plan can be used to fabricate a surgical guide (**H**) to aid in accurate placement of the implants. The surgical guide attaches to the adjacent teeth for stability. (Courtesy of Anatomage and InVivo software, San Jose.)

Long Axis of the Alveolar Bone

Axis orientation describes the angle formed by the vertical long axis of the alveolar-basal bone complex when viewed in cross-section. Information about the axis orientation is important for successful alignment of the implant within the boundaries of

the jaws. Determining the long axis of the alveolar bone allows the clinician to optimize the trajectory of implant placement with the emergence profile and loading characteristics of the implant. Risks such as perforation, dehiscence, and fracture can therefore be avoided with CBCT 3-D imaging.

Internal Anatomy

The most common internal anatomy to be identified and localized includes the mandibular canal, maxillary sinus, nasal fossa, mental foramen, incisive canal, and adjacent teeth. Identifying these structures aids the clinician in determining the boundaries for implant placement. In con-

trast to extractions, where the anatomical associations are predetermined in nature, the placement of implants requires the practitioner to determine the proximity of vital structures to the implant.

Jaw Boundaries

Imaging can be used to identify the outer boundary of the jaws including impressions into the jaws, such as fossae.

Pathology

Jaw pathology in the proposed implant site or within the maxillofacial regions is important to identify, diagnose, and manage. Abnormalities involving the alveolar ridge include retained root tips, inflammatory processes, cyst, and tumors. In addition, anomalies involving other maxillofacial structures, such as maxillary sinuses and temporomandibular joints may complicate the successful implant process. For example, changes in stress (force/area) directed at poorly adapted TMJs may increase TMJ symptoms. Changes in TMJ stress levels may result from operative manipulations, changes in masticatory abilities, and changes in vertical dimension or maxillomandibular spatial relationships.

Transfer of Radiographic Planning Information

The diagnostic and treatment planning process generates a 3-D “blueprint” consisting of 3-D coordinates for the precise location of each of the planned implants. Surgical guides, radiographic stents, and navigation coordinates are finalized from the 3-D blueprint and can be used at the time of surgery to assist the clinician in transferring this coordinate information to the mouth.²⁶⁻²⁸ Because CBCT 3-D can use volumetric analysis to determine ideal implant location, failures of placement can be considered evidence of substandard placement.

Communication

Image data, including the image portfolio, treatment simulations, and CT volume, can be used to inform the stakeholders regarding the diagnosis, treatment plan, treatment options, and associated risks at a level of accuracy unachievable with traditional 2-D imaging.

Results

The introduction of CBCT creates the opportunity for clinicians to acquire the highest quality diagnostic images with an absorbed dose that is comparable to other dental surveys and less than a conventional CT.²⁹ The diagnostic and risk management processes featured in this article are summarized with the following procedural sequence and associated acronym: ESPIP.

The clinical exam “E” is used to develop clinical objectives and the associated imaging goals. An imaging scan “S” is completed applying a specific imaging protocol and creating an image portfolio that satisfies the imaging goals. The plan “P” refers to the treatment plan, treatment simulation, and treatment strategies that are derived following a complete diagnosis. A treatment blueprint may also be developed. Inform “I” refers to informing the patient and involved health professionals concerning the diagnosis, treatment options, treatment plan, risk assessment, and potential benefits. Perform “P” refers to treatment following a precise “blueprint” that may implement a treatment guide based upon the planning information.

In addition, software has been developed to work with 3-D imaging that can fabricate models, surgical stints, and even restorations, further improving outcomes and reducing risks.

Legal Consequences

Informed consent may not be a defense in cases where a dental implant contacts a nerve or penetrates the sinus cavity, or where orthodontic treatment is stalled due to a mesioden not visible on standard imaging, or where the roots of an impacted asymptomatic tooth can’t be visualized.

If CBCT 3-D imaging was not offered to the patient in such cases, the patient may have a claim that they would have agreed to such imaging had it been offered, and in litigation will be able to produce expert witnesses who will state that the injury at issue could have been avoided with use of such imaging. The additional data that 3-D imaging provides, allows for adjustments to the treatment plan and implementation so as to avoid many complications. Therefore, the standard of care by definition requires that, in such cases, patients be offered the option of 3-D imaging, and, if they decline after being informed of the risks, benefits, and alternatives, then informed refusal should be obtained and documented.

Tips

Orthodontics

In cases of full-mouth orthodontics, the offer of CBCT 3-D imaging has become a standard of care in order to better visualize the location of the roots in the bone, any hidden structures, and the precise position of impacted teeth to other structures, such as root proximity. There is also a better appreciation of the structure and quality of the bone in which the teeth will be moving.

Extractions

Where conventional imaging suggests that roots of teeth to be removed might be near vital structures like nerve and sinus cavities, CBCT 3-D would provide a better risk analysis of the potential complication. Accordingly, the

standard of care requires that patient be offered that option, and, if they decline, informed refusal would include a discussion of increased risks of complications.

More importantly, the CBCT imaging would provide the doctor, and, therefore the patient, with better information as to the likelihood of nerve injury or sinus communication.

Implants

One of the fastest growing areas of dentistry is the placement of dental implants. Unfortunately, there has been a concurrent raise in claims and suits involving dental implants, mostly associated with nerve damage and sinus perforation, in addition to failure associated with poor alignment.

Accordingly, if placement of an implant might approach a nerve, invade the sinus, or penetrate out of the confines of the jawbone, the patient should be offered a discussion of CBCT 3-D imaging. If the patient refuses, the doctor should obtain and document that an informed refusal discussion took place. In addition, CBCT 3-D patients should be advised of the risks, benefits, and alternatives to such treatment, based upon any additional data provided by the imaging.

It is noteworthy that in the experience of the authors in the last three years, when patients have experienced significant complications with the placement of implants — such that they sought another expert's opinion or legal counsel — the first thing that happened is that they were sent for CBCT imaging. The results of such studies are often the determining factor as to whether or not a claim is made or a suit is filed.

Summary

The evolution of CBCT 3-D imaging has dramatically changed the potential for presurgical and pretreatment planning

such that outcomes are more predictable and complications more avoidable. Treatment paths in orthodontics, proximity of vital structures in surgical extraction and implant placement, and 360-degree root morphology for endodontics are all better appreciated with 3-D imaging.

Accordingly, with the increasing availability of such systems, the standard of care has been elevated such that 3-D imaging should be part of the patient discussion of options when planning orthodontics, implant placement, surgical extractions, and difficult orthodontics. The prudent practitioner will discuss the risks, benefits, and alternatives to these options, and if the patient declines the ideal recommended treatment, the dentist will obtain and document the informed refusal. The result will be improved outcomes, increased patient satisfaction, and effective risk management of potential claims. ■ ■ ■ ■ ■

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Winners of the 2009 Table Clinic Competition

Each year, the California Dental Association invites dental, dental hygiene and dental assisting students and military residents from across the state to enter the Table Clinic Competition held during *CDA Presents* in Anaheim. Blue-ribbon winners from the May 15-17 contests were invited to write an abstract of their work to appear in the *Journal of the California Dental Association*.

CLINICAL DENTAL STUDENT WINNERS



From left, Jerhet Ask, Stuart Seheult, and Nicholas Marongiu are all smiles after winning first place in the clinical category during the annual table clinic competition. The Loma Linda University dental students are flanked by Jeffrey J. Brucia, DDS, and Carol G. Summerhays, DDS, with Dennis D. Shinbori, DDS, at top, reviewing his notes.

Gow-Gates Target Area and Maxillary Artery Anatomical Relationship

N. Marongiu, S. Seheult, J. Ask, M. Lu, DDS, MS, PhD, and B. Krall, DDS, Loma Linda University, School of Dentistry

OBJECTIVE: To evaluate the location of the maxillary artery to the target area of the Gow-Gates injection, the neck of the condyle.

METHODS: Twenty-eight adult de-identified neck cerebral computed tomography angiograms were obtained in DICOM file format. Using Keystone EasyGuide viewer, measurements were recorded in millimeters and were based on closest proximity of the maxillary artery to the neck of the condyle. Data were analyzed using t-distribution.

RESULTS: Range: 4.12-23.75 mm, average 11.24 mm, sample error: 0.80 mm, 95 percent confidence interval: 9.60-12.88 mm.

CONCLUSION: There is a significant distance in the Gow-Gates injection target area from the course of the maxillary artery. However, a misaligned needle, especially inferomedially, may result in vascular trauma that may pose a serious complication in the coagulopathic patient.

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CONTACT Stuart Seheult at srseheult@llu.edu.

SCIENTIFIC DENTAL STUDENT WINNERS (TIE)



Deema M. Saad, left, and Rana Mehr, both of University of California, Los Angeles, School of Dentistry, take a moment with Jeffrey J. Brucia, DDS, and Carol G. Summerhays, DDS.

Biomechanical Maturity Mapping of Murine Incisors

Rana Mehr and Deema M. Saad, University of California, Los Angeles, School of Dentistry; Michael L. Paine, Malcolm L. Snead, and Rodrigo S. La-cruz, University of Southern California, School of Dentistry; and Shane N. White, PhD, MS, MA, University of California, Los Angeles, School of Dentistry

INTRODUCTION: The components of murine enamel are almost entirely identical to those of human teeth, making the mouse incisor an appealing model for studying human tooth development. A key difference is that active ectodermal and ectomesenchymal stem cells at the murine incisor apex have the ongoing potential to become ameloblasts and odontoblasts thus generating the continuously erupting mouse incisor. Therefore, it is possible to study ameloblasts and odontoblasts through their entire life cycle in a single tooth at one time. Mouse ameloblasts have different histomorphometric landmarks along the rostral-caudal axis of the tooth that correspond to their state of differentiation. The incisor can be divided into enamel formation cohorts that have been previously described as Kallenbach zones. The authors sought to relate these previously described histological zones to biomechanical function.

OBJECTIVES: This study aims to map the biomechanical properties of enamel

and dentin along the length of the murine incisor in the rostral-caudal axis.

METHODS: The lower left incisors of seven 12-week old C57/B6 mice were surveyed for hardness using Vickers microhardness testing. Freshly extracted incisors were embedded in epoxy resin. The teeth were ground and sequentially polished longitudinally in the sagittal plane. Indentations were made at the center of the enamel and dentin thickness in the sagittal plane along the length of the incisor. Loads of 225 g and 100 g were used for enamel and dentin, respectively. Mechanical properties were plotted against the distance to the incisal edge. Biomechanical zones were defined by change in slope.

RESULTS: For enamel, the overall mean hardness and associated (standard deviation) were 2.5 (0.6) GPa. However, three distinct zones were discerned. The midzone of enamel, 0.5 to 8 mm from the incisal tip, had the least slope, $m=-0.01$; the highest mean hardness, 2.6 GPa; and the lowest SD, 0.4 GPa. Interestingly, enamel toughness varied much less than hardness along the length of the tooth; discrete zones were not identified within the testable area. The overall mean toughness was 1.0 (0.2) MPa·m^{1/2}, with a slope, $m=-0.004$.

For dentin, the overall mean hardness was 0.7 (0.2) GPa. Three distinct dentin hardness zones were discerned. The midzone of dentin, 1 to 6 mm from the incisal tip, had the least slope, $m=-0.001$; the highest mean hardness, 0.8 GPa; and the lowest SD, 0.2 GPa.

The most incisal zones of enamel and dentin, corresponding to the erupted functional part of the tooth, decreased in hardness. The most apical immature zones of enamel and dentin decreased in hardness. Enamel reached full maturity much earlier than the corresponding adjacent dentin.

DISCUSSION: Somewhat surprisingly, the previously defined histological zones, as measured by distance from the incisal edge in the rostral-caudal axis, did not directly overlap with the zones defined by biomechanical function. The under-

standing of the relationships between histomorphometric landmarks and biomechanical performance metrics is incomplete. Hardness measures the amount of mineralization, a functional surrogate for wear resistance. Toughness measures the 3-D organization of enamel, a functional surrogate for fracture resistance.

The apical zones displayed decreased hardness due to immaturity and incomplete mineralization. Although dentin begins to form before enamel, enamel matured or increased in hardness in a much shorter distance, or time, than corresponding dentin. The softer incisal zones in both

dentin and enamel could be attributed to dissolution in the oral environment.

For each biomaterial, a zone existed where data points could be predictably measured. To ensure testing of histologically similar tissues, biomechanical testing should take place in zones from 1-6 mm and 0.5-3 mm from the incisal edge for enamel and dentin, respectively.

Enamel toughness did not vary substantially, suggesting that enamel organization occurs early, and that cellular migratory pathways giving rise to rod interweaving, or decussation, contribute more to toughness than the amount of mineralization.

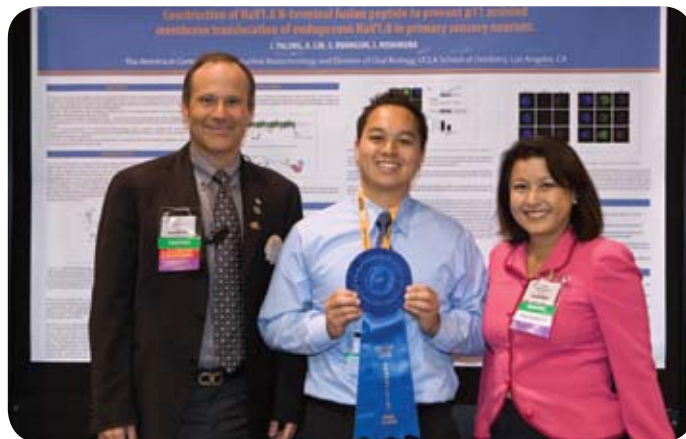
CONCLUSION: A model for tooth formation, relating previously described histological zones to biomechanical function of enamel and dentin was presented. These data enable the use of the continuously erupting mouse incisor as an experimental model to study the impact of both genetic and environmental factors on tooth formation and function, as well for the future engineering of tooth enamels.

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CONTACT Shane N. White, PhD, MS, MA, at snwhite@dentistry.ucla.edu.

SCIENTIFIC DENTAL STUDENT WINNERS (TIE)

Jelson Yalung, a student University of California, Los Angeles, School of Dentistry, is congratulated by Jeffrey J. Brucia, DDS, and Carol G. Summerhays, DDS, for the scientific table clinic category.



Construction of NaV1.8 N-Terminal Fusion Peptide to Prevent p11-Assisted Membrane Translocation of Endogenous NaV1.8 in Primary Sensory Neurons

J. Yalung; A. Lin, PhD; S. Ruangsri, DDS; I. Spigelman, PhD, and I. Nishimura, DDS, DMSc, DMD, University of California, Los Angeles, School of Dentistry

Chronic orofacial pain is a rare condition that is often caused by injury of peripheral sensory neurons. This damage can result in sensory abnormalities and can manifest in dental patients as severe symptoms that include burning sensations, exaggerated responses due to

noxious stimuli (hyperalgesia), pain sensation due to innocuous stimuli (allodynia), and spontaneous pain episodes. NaV1.8 is a voltage-gated sodium channel that predominantly contributes to Na⁺-current in nociceptive neurons and has been suggested to be involved in the pathogenesis of painful neuropathy. In order to become a functional sodium channel, the NaV1.8 channel complex must be inserted into the neuronal membrane. It has been shown that molecular association between NaV1.8 and an associated protein, p11, plays a critical role in the membrane translocation of NaV1.8. Therefore, the authors have hypothesized that disrupting binding of p11 to NaV1.8 can be a potential therapeutic treatment for peripheral neuropathy.

OBJECTIVE: The amino (N)-terminal cytoplasmic domain of NaV1.8 has been shown to bind p11. To address this hypothesis, the objective of this study was to design and synthesize a short polypeptide encoding NaV1.8 N-terminal sequence, and to test its competitive binding to p11 in cultured rat dorsal root ganglion (DRG) neurons.

METHODS: The N-terminal cytoplasmic domain of rat Nav1.8 was synthesized using reverse-transcriptase polymerase chain reaction, and cloned in a plasmid for sequence confirmation. A lentivirus-based

expression vector was constructed carrying 3xFLAG-NaV1.8 N-terminal fusion peptide. Rat DRGs were harvested and acutely dissociated to maintain neuronal cells in vitro. NaV1.8 N-terminal fusion peptide was introduced to cultured neurons through lentivirus-mediated gene transduction. The treated DRG neurons were subjected to immunoprecipitation and immunocytochemistry assays to test for the postulated interference of p11 binding to NaV1.8.

RESULTS: Immunoprecipitation using monoclonal antibody against 3xFLAG selectively isolated NaV1.8 N-terminal fusion peptide. Western blot analysis of 3xFLAG immunoprecipitates revealed the successful co-precipitation of p11. Immunocytochemistry of treated DRG neurons using monoclonal antibody against NaV1.8 showed a decrease in membrane localization of endogenous NaV1.8.

CONCLUSION: The authors' data suggest that the small peptide can interrupt the functional NaV1.8 expression on the neuronal cell surface membrane, which could potentially alleviate neuropathic pain.

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MILITARY WINNER

Jeffrey J. Brucia, DDS,
stops by the winning table
clinic of U.S. Navy Lt.
Rebecca A. Kromer, DDS.



Orthodontically Uprighting a Mesially Tipped Molar

U.S. Navy Lt. Rebecca A. Kromer, DDS, resident, Advanced Education in General Dentistry, Naval Medical Center, San Diego

Loss of a first molar without timely replacement may result in unwanted shifting of adjacent or opposing teeth. Specifically, mesial tipping of the second and third molars is often seen. These occlusal changes can impact the periodontal health, arch integrity, and the restorative treatment plan. In response to these challenges, the general dentist must have a full understanding of treatment options in order to restore the patient to optimum oral health and function.

One treatment option consists of orthodontically uprighting the mesially tipped molar using a fixed appli-

ance and a helical uprighting spring. The procedure consists of bonding brackets from the affected molar to the cuspid on the affected side of the arch. A series of archwires are used to gently level and align the teeth; 0.016 NiTi (x four weeks), 0.018 NiTi (x four weeks), and 0.020 NiTi (x eight weeks).

Next, a 0.018 stainless-steel archwire and helical uprighting spring (17 x 25 TMA) is placed into the auxiliary tube of the molar bracket and latched onto the archwire. As a common side effect, distal tipping and extrusion of the molar(s) may necessitate occlusal adjustment. Once the molar has been uprighted to the desired position and any periodontal defects have been eliminated, stabilization is necessary for retention. Once there is an absence of mobility and a return of the lamina dura, the edentulous space can be restored with a single-tooth implant or a fixed partial denture with an acceptable path of draw that directs forces along the long axes of the teeth.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Rebecca A. Kromer, DDS, at kromerra@cvn76.navy.mil.

RDH STUDENT WINNERS

Lucy Halbasch and fellow dental hygiene student Christopher Nucho, represent West Los Angeles College well by winning blue in the RDH category. They were joined by Jeffrey J. Brucia, DDS, and Carol G. Summerhays, DDS.



Ventilator-Associated Pneumonia

Christopher Nucho and Lucy Halbasch, West Los Angeles College

Background: Ventilator-associated pneumonia is a hospital-acquired respiratory infection that can occur after placement of a mechanical ventilator. VAP

is the second common iatrogenic infection with mortality rates up to 40 percent. The primary etiologic agent associated with VAP is periodontopathic bacteria.

Method: Review of current literature conducted analyzing the relationship between periodontal pathogens and VAP.

Results: Risk of VAP increases with the introduction of periodontal pathogens. VAP extends a hospital stay, increasing the overall treatment cost. Combination therapy consisting of systemic antibiotics, scaling, root planing, and chemotherapeutics reduces the risk of infection.

Conclusion: The risk of VAP is reduced with dental hygiene services in hospital settings. Further research is needed to determine how implementation of dental hygiene services will modify current protocol, length of stay, treatment cost, and mortality rate.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Christopher Nucho at chrisnuchordh@yahoo.com.

RDA STUDENT WINNERS

Citrus Community College dental assisting students, from left, Brooke Alva, Leana Seeker, Alyssa Maloney, and Jasmin Anne S. Honrado, pose postwin with Jon Roth, CAE, CDA Foundation executive director, and Lindsey A. Robinson, DDS, CDA Foundation chair.



Beyond Fresh Breath

Jasmin Anne S. Honrado, Brooke Alva, Alyssa Maloney, and Leana Seeker, Citrus Community College

Chewing gum after a meal not only refreshes one's breath, but may also prevent the formation of caries. After sugars from food and liquids are metabolized in the mouth by bacteria, an

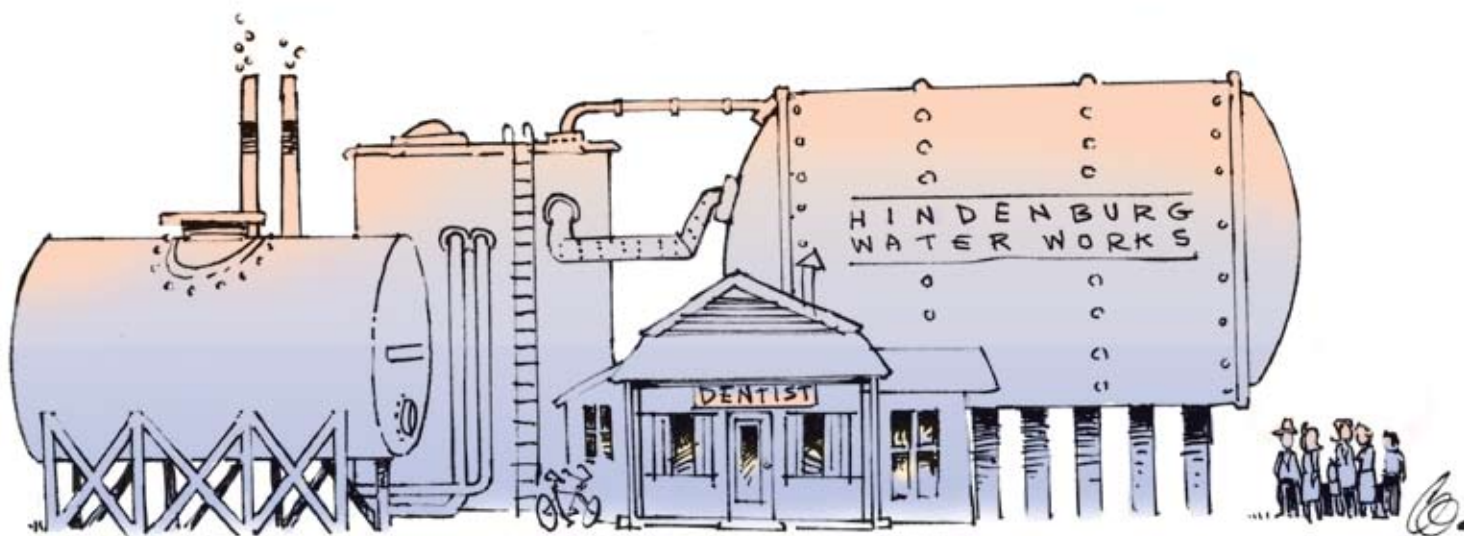
acidic environment is created that largely plays a role in tooth decay. The aim of the study was to analyze the effects of three types of chewing gum: sugar and sugar-free (sorbitol and xylitol).

A salivary diagnosis was performed as a specimen from each group was prepared and cultured at 37-degrees Celsius for 48 hours. Results revealed that xylitol-containing chewing gum showed to produce the least amount of bacteria in the oral cavity since no additional fermentable carbohydrates were introduced after a meal.

In conclusion, chewing xylitol-containing gum after meals may be a preventive method in maintaining good oral hygiene as the increased salivary flow in the mouth removes wastes, provides nutrients, remineralizes tooth enamel, and neutralizes plaque acids produced by bacteria that reduce the risk of tooth decay.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Jasmin Anne S. Honrado at jas3honrado@gmail.com.

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A press release at the conclusion of the meeting revealed to the world that the one inescapable fact on which all attendees agreed: Water is wet.

→ Robert E. Horseman, DDS

ILLUSTRATION
BY CHARLIE O.
HAYWARD

At a meeting held in Brussels in 1978, several hundred of the world's leading health authorities gathered to discuss water. Their goal was to formulate standards of purity that would be "absolute in every nation in every corner of the globe." No water was served during the week-long convocation to prevent provincial arguments, but an open bar was available where single-malt libations were served without dilution.

At the end of the week, after heated scientific discussions mixed with some old water-based drinking songs like "Knees Up, Mother Brown" and "See What the Boys in the Back Room Will Have," delegates voted (8 to 6, 213 abstaining) to strike "corner of the globe" from the records when it was pointed out that, technically, globes had no corners. In a unanimous tally, however, they agreed to gather next year in some mutually acceptable venue like St. Tropez to continue with their deliberations. A press release at the conclusion of the meeting revealed to the world that the one inescapable fact on which all attendees agreed: Water is wet.

Water covers 141,600,000 square miles, or 72 percent of the earth's surface. Without an abundant intake of healthy, chemical-free water, virtually every other wellness effort by man is in vain. There are 6.7 billion people on the planet and each of them is about 70 percent water. One would think by now we would have figured all this out and standardized some water criteria, especially since it was announced in 2006 that Americans drank more bottled water than either milk or beer.

But no! Tap water versus bottled water is an ongoing discussion rivaled only by tabloid revelations of celebrity liaisons. Because nearly every female celebrity in the nation is photographed with a cell phone in one hand and a bottle of water in the other, you might assume that only untalented poor people or males with a lofty disregard for their health drank "unpure" tap water. Actually, it's the other way around with the states largely responsible for purity standards in tap water. Bottled water frequently fails to

CONTINUES ON 681

DR. BOB, CONTINUED FROM 682

meet the same criteria, whether it comes from a 2,000 year-old glacier, or is merely tap water run through some charcoal. However, with a cost-per-unit 200 percent higher than tap water, it easily meets the “you get what you pay for” mentality of alert consumers.

In the average dental office, water is encountered in large quantities, some of it in the form of saliva, the rest coursing through yards of tubing in dental units or just sitting there stagnating waiting for something to activate it. We tried beer as a substitute rinse/lavage, but patient approval was offset by the foaming action that clogged the three-way syringe and reduced intraoral visibility.

A consultation with a friend, Dr. Sal Ammoniac, professor emeritus in chemistry at the local tech school and part-time mixologist at the Dairy Queen gave me the solution.

A quick study, Sal states, “I see your problem and there’s only one way out.”

“And that is ...?”

“Water, by its very nature,” he says, “is wet.” (I knew that from researching the Brussels meeting.) “As such,” he continues, “it’s an ideal breeding ground for bugs of all persuasions.”

“So?”

“So, you’ve got to make your own water, combining the two necessary ingredients, hydrogen and oxygen at the last possible moment before use,” Sal explains.

“I see,” I reply, feigning comprehension. “Combining two gasses to make a liquid eliminates the wetness factor until it’s too late for the bugs to figure out they’ve been had. How much of this stuff does it take to make the water we’ll need?”

Sal muses for a moment, “Well, lessee, three operatories, cuspidors, sinks, handpieces, and syringes — uh, I’d say roughly

In the average dental office, water is encountered in large quantities, some of it in the form of saliva, the rest coursing through yards of tubing in dental units or just sitting there stagnating waiting for something to activate it.

20,000 gallons a day, give or take a quart, Plus a little more for coffee.”

I can see already that our office will be a leading influence in combating water pollution in dental offices. Sal is still calculating logistics. This is the kind of training you get at Dairy Queen.

“We’ll need twice as much hydrogen as oxygen and a big container to mix the two in,” he explains, wetting the tip of his felt tip pen, forgetting it isn’t a pencil.

“Sal, could I ask a question here? Wouldn’t the container have air already in it, thereby throwing the hydrogen/oxygen ratio out of kilter?”

“No problem,” he says, “we evacuate the air from the container first. Just means you’ll have to buy a big evacuator thing, OK?”

“There’s just one other little thing,” I offer carefully, deciding not to mention the black marks on his lip. “I seem to recall the Hindenburg, which was full of hydrogen, didn’t fare too well, and, although I am not a chemistry whiz like yourself, doesn’t oxygen support and encourage combustion?”

Sal is getting miffed. “Look,” he snaps, “you came to me for help with water contamination. If you’re going to get querulous about every little thing, let’s just forget it!”

“No, no, Sal, you’re right, let us proceed.”

A few weeks later, we have installed three tanks in the parking lot. They are in the parking lot because each one is the size of a school bus. I have taken out a second mortgage on my house to pay for the tanks, plumbing and accessories, and by the end of February we are ready to do the right thing by my patients — pure, unpolluted water.

By noon, a sizeable crowd has assembled as Sal, proudly wearing his Dairy Queen cap, eagerly turns the valves to mix our virgin water.

Nothing. I mean, nothing!

People get a little restless. A few giggles. Then a guy in a very high voice says, “Where’s the water, huh?” Sal counters in a chipmunk voice of his own, “Keep yer shirt on, it’ll come!”

It didn’t. Now I’m on the phone to the Industrial Gas and Simethicone Company and the guy booms, “Hydrogen! You can’t have hydrogen without special permission from everybody from the pope to the president. I gave you helium. I thought you were going into deep space exploration in a balloon.”

“No, you idiot! We’re making our own water.”

“Wassamatta, you don’t got a faucet like everybody else?”

Thus ended this noble experiment. But we’ve been lucky, not a single fatality so far from our tap water, just a couple of syncope incidents when patients were presented with their bill.

But did you hear about a new substance with some as yet undisclosed ingredients that, when taken 30 minutes before an appointment, will allow intraoral radiographs to be taken with just an ordinary disposable Kodak Instamatic, thereby eliminating harmful radiation? We’re hot on it! ■■■■