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## MESSAGEBOARDS

### ▶ NiTi Hand Files

Have you considered adding NiTi hand files to your armamentarium?

### ▶ Being Bought Out by a Small Chain – What is Fair to Me and to Them?

Sometimes you just get tired of being the boss. What do you think of this offer?

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Have you fired any employees in the last six months?

A. Yes B. No



### Media Center

#### Webcast: "Leap" Into Digital Dentistry

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### Online CE

#### Laser Dentistry Basics: What Laser Should I Buy? – David Kimmel, DMD

A general introduction of what lasers can do, and how lasers work on hard and soft tissues. Dr. Kimmel will explore the benefits for your patients and your office when you integrate lasers into your practice.

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▼ LSK121 Implant Restorations



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Case courtesy of Anthony LaVacca, DMD  
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12

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If you have questions about the site, call me at **480-445-9696** or e-mail me at **kerrie@farranmedia.com**.



See you on the message boards,  
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## HELPCENTER

### Feature of the Month

The new online CE at Dentaltown.com can now be viewed on your iPad! Check out the Help Center's Feature of the Month for more information!

## VIDEOTUTORIAL

### How to Upload an Avatar

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# What's New in Continuing Education?

by Howard M. Goldstein, DMD, Director of Continuing Education

Everybody's home from another great Townie Meeting in Vegas. Once again this meeting was the perfect blend of CE and fun, and nobody should miss it next year!

There have been new additions to Dentaltown's CE courses in the last couple of weeks.


Todd Ehrlich's second of a series of CAD/CAM courses – "Characterization of CAD/CAM Restorations: Posterior" – has been a great help to CAD/CAM users who want to bring a little "life" with perfect stain and glazing to their restorations. Our imaging and milling capabilities have come so far over the years, but one thing remains certain: characterization of the ceramic is necessary for a higher level of aesthetics. This video is for doctors currently characterizing their restorations, as well as for doctors and assistants that are starting to explore the opportunities with custom characterization and achieve great results. Learn from the master!

Dr. Leonard Tau is a wet-fingered dentist just like the rest of us and he has mastered the use of social media marketing to take his practice to new levels! Social media involves creating a buzz about your practice, building word of mouth, showing you care and encouraging conversation. In his course, "21st Century Marketing: Why Social Media for Your Dental Office" he will share his ideas and strategies that have helped him grow his practice over the years. Whether it is Facebook, Twitter, YouTube, etc., he gives simple instructions on how to use them all to bring new patients to your practice.

How about a "golden oldie" from the Dentaltown CE archives? And this time I really do mean a golden one.

"Excellence in Cast Gold" by Dr. Michael Hrankowski is a great overview of the techniques for conservative cast gold restorations as originally developed by Dr. Richard V. Tucker. Included in this course is discussion on preparation designs including 7/8 and 3/4 crowns, onlays, and inlays in standard configurations, seating, finishing and polishing procedures. This is for you gold lovers out there. You know who you are.

Enjoy learning from the comfort of your home! ■



## Characterization of CAD/CAM Restorations: Posterior

by Dr. Todd Ehrlich

keyword search

Characterization of CAD/CAM ▶



## 21st Century Marketing: Why Social Media for Your Dental Office

by Dr. Leonard Tau

keyword search

21st Century Marketing ▶



## Excellence in Cast Gold

by Dr. Michael Hrankowski

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Excellence in Cast Gold ▶



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## The SEO Connection

by Howard Farran, DDS, MAGD, MBA, DICOI, Publisher, *Dentaltown Magazine*

It's amazing what you can find in old closets. I was cleaning out one of mine the other day when I ran across an old, dusty, beaten up Yellow Pages. The fact that it made its way into my closet where it lived for years and not immediately into the nearest trash-can is astounding! I even thought back to 1987 for a couple seconds as I shoved that sallow beast into the Hefty bag. How many of you recall placing expensive ads in the Yellow Pages?

When I graduated from University of Missouri-Kansas City dental school in 1987 the Yellow Pages was a total cash cow. Back then all the "older guys" wouldn't place an ad in it because they thought it would harm their reputation. So, of course, in Howard Farran fashion, I did it in a huge way and it worked like a winning slot machine for more than a decade! But then every dentist caught on and it eventually started to break even and then lose money. Ten years ago my practice, Today's Dental, had three full-page ads in three different phone directories. Today we have one small ad in our small local phonebook that covers my neighborhood of Ahwatukee in Phoenix, Arizona.

The slow and steady decline of the Yellow Pages was simply caused by the slow and steady rise of the Internet. And because Mom switched from the stale, static scarcity of limited paper ads in the Yellow Pages to endless Internet search engine results which link to an endless number of Web sites containing information ranging from meet the dentists to blogs on every subject, I now spend \$500 a month just on pay-per-click Google ads!

We get so much bang for our buck with online marketing! On the other hand, there are a lot of moving parts with online marketing; things start to add up and it requires a lot of upkeep. You're not just tweaking the content or the usability of your own Web site anymore – you also have to be mindful of social media, search engine optimization (SEO) and ads on Google; and then throw in all of the tracking that

needs to happen to ensure you're getting a decent return on investment (aka, inquisitive phone calls and new-patient appointments), you're talking about a full-time job! Unless there's a member of your staff completely devoted to your online marketing efforts, you're probably not going to achieve the results you're hoping for (read: "paying for"). I don't know about you, gang, but I can't afford to have one of my assistants or hygienists or even my practice manager spending time updating the practice's Facebook status – times are tough, we're a lean crew and we've got patients to tend to!

There are a lot of components to juggle and they all channel into the one most important part of online marketing – SEO. Becoming the top practice in a search on Google and Yahoo is the gold medal for every practice's marketing plan. When someone types in "Ahwatukee dentist" we want our practice to be the first thing potential patients see. It's what earns you the most new patients – the lifeblood of any dental practice.

The recent recession hit Arizona pretty hard; it was second in state home foreclosures after Nevada, and thousands of Arizonans lost their jobs. The dental industry in Phoenix was hit hard and more than 150 dental practices closed their doors. Some were my very good friends who opened their doors more than 25 years ago like me! But like I've written time and time again, when the going gets tough you cut your costs; lower your prices; join a few dental PPOs; add more services to your now smaller patient base like placing implants, using CAD/CAM, treating sleep apnea, incorporating Invisalign; and last but not least, you double or triple your marketing efforts.

The Yellow Pages died in my area, maybe your area is different but I doubt it. You will only know if you track it all meticulously! I went from creating my own dental office Web site in 1999 with my own full-time programmers to now outsourcing it to Sesame Communications because its team did it better than our team could do it internally. Building our B2B (Business to Business) *Dentaltown.com* Web site was an entirely different set of skills than building a B2C (Business To Consumer) *Today'sDental.com* Web site. The biggest reason was search engine optimization



*continued on page 18*

**> 10 min.** **92%**  
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**77%**  
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experienced migraines

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(SEO). Dentaltown.com does not show up on a Google search because it is a private dental Web site community (which, by the way, recently passed its 150,000th member). We do not want patients doing a search for dental-related questions and answers by trying to become a member of Dentaltown.com. That is not our focus and it's not why Dentaltown.com exists.

I want patients who live in Phoenix, Arizona, "Googling" dental-related searches to land on my Today's Dental.com Web site, and that is what Sesame did for me in spades! I usually show up first, third and fifth on Google and Yahoo searches. Now my Web site and Google ads are cash cows!

It simply doesn't make any sense to hire someone to handle our dental office marketing internally. The skill set to understand SEO is far beyond the scope of handling it as a part-time job to any one of my current staff members! People who understand SEO have to do it full time, just to stay on top of it, and all of the good ones earn six figures. I knew this was an outsource play and I needed to find an SEO *expert*. We needed someone who could be a master of this new, lucrative online marketing tsunami.

You are all likely familiar with my **5 D's**: **1. Design Your Plan**; **2. Drop Everything You Don't Need to Do**; **3. Delay Everything You Can't Drop**; **4. Delegate**; and **5. Do**. This decision, obviously, falls heavily on number four – Delegate.

*"I thought I knew what we needed to do to increase our SEO. I was wrong."*

Since 2008 we've been working with Sesame Communications, which has overseen and worked on many of our marketing efforts from Web site development to tracking phone calls. I seriously thought I knew of what we needed to do to increase our SEO and be front and center in Google searches in my area. I was so wrong.

From the get-go my eyes were opened to the myriad components that work together to increase SEO. Did you know you have to have a presence on YouTube? Did you know you need to focus on creating a special mobile Web site for iPhone and Android users? Did you know the fresher your content, the better your SEO? Did you know you really needed your Web site to go live years ago instead of last week (yes, even that impacts SEO)? Did you know posting on

Facebook and linking directly back to your Web site impacts SEO as well?

*(Speaking of Facebook, I want you to "Like" my three Facebook pages so you can always see what we are posting on...)*

**Today's Dental:** [www.facebook.com/todaysdental](http://www.facebook.com/todaysdental)

**Dentaltown:** [www.facebook.com/dentaltown](http://www.facebook.com/dentaltown)

*And please follow me at [www.facebook.com/drhowardfarran](http://www.facebook.com/drhowardfarran) to see my daily tips and where I will be lecturing again near you or some place fun in the sun!*

Because of our decision to outsource to a marketing company, we have coherence between our Web site and mobile site, search engine optimization, pay-per-click advertising and a social media strategy, as well as our patient portals and patient engagement tools. On average, we get 148 calls each month from our online presence alone – 41 of those calls can be specifically identified as new patients.

Because 30.43 percent of our prospective patients visit our Today's Dental Web site before they make their first appointment (as shown by our Sesame analytics dashboard), we decided it was in need of a redesign. Our original Web site had become outdated – and it was merely three years old. With the goal of our site being to get patients to pick up the phone and call our practice, we worked with Sesame, who came to the table with solid research and helped us understand what content needed to be present, and what design elements would keep prospective patients on the site longer. Since we launched the new site in 2011, our bounce rate (the percentage of visitors who enter our site and immediately leave) has decreased from 47.79 percent to 40.52 percent.

And while mobile sites might currently make up a smaller percentage of online activity, it has been suggested that they will exceed desktop browsing in the next three to five years. Think about it, guys! How many of your friends own an iPhone or an Android? Probably everyone! It's pretty rare to find anyone using a candy bar phone that only makes calls anymore. It's for this reason we had to develop a mobile site. The mobile site gives patients an optimal view of our site. It reduces image sizes and contains only the information prospective patients need to make a decision, including links to appointment requests and click-to-call functionality. On average, our practice gets 17 calls per month from our mobile site with three of those calls specifically identified as new patients.

One of the key agreements we have with Sesame is improving SEO on popular search engines like Google

continued on page 20

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*"Whenever I bring up Sesame, I hear positive comments. It's great to be associated with a winner and that makes me feel good about my return on investment."*

—Dr. Steve Carstensen, DDS



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Over 6 million people use Sesame to communicate with their dental providers.



and Bing. You can't get to the top of a Google search and just forget about it. It's a continuous method and it needs to be constantly updated – and every couple of years, the pesky powers that be at Google change up how their engine pulls up information. I've learned a good SEO strategy doesn't just focus on the term "Phoenix dentist," but also what are called "long tail terms" and terms that aren't as popular. In September 2011, we decided to focus our efforts on improving our SEO for sleep apnea in Phoenix – and in three months we moved up 66 places.

We're fairly new at integrating Google AdWords into our marketing plan, but basically when someone types in key words, like "Ahwatukee dentist," our ad should come up first next to his or her search. Then you set a limit as to what your monthly budget is. The more you spend, the higher up your ad will appear. We spend about \$500 a month, but a lot of the effectiveness has to do with how those ads are written. My practice would have a hard time doing it alone, because it is extremely time consuming to come up with new ad ideas and also to track the performance of each ad. You have to keep coming up with fresh content and you have to make sure your staff gets involved.

I was shocked to find out social media has a major impact on SEO as well. Facebook, YouTube

and practice blogs all contribute to higher rankings on search engines. We designed our Facebook, YouTube and blog pages to match the look and feel of our Web site. Basically we feed Sesame bits of information about our practice from time to time, which they turn into Facebook posts. We also take 30- to 90-second videos and post them on YouTube, which Sesame optimizes within YouTube.com. Everything connects as well – so when we put a new video up on YouTube, we use Facebook to link to it, and also back to our Web site. Or maybe my associate, Dr. Michael Glass, will post a new blog about sleep apnea, and we will link to it via Facebook and our Web site. In the last five months, we've increased our likes on Facebook by 39 percent and we now have 233 percent more patients using Facebook to "check in" at our practice (aka, let all their friends know they're at Today's Dental).

(Before you write your next blog you should read our blogs for ideas! I actually think the best dental blogger in America is Alan Mead, DDS, and you should check out his site: [MeadFamilyDental.com](http://MeadFamilyDental.com).)

If that's not enough mind-blowing integration for one practice to worry about – all of our SEO strategies work well into our patient reminder system. Through our practice dashboard, we know 13.3 percent of our patients prefer phone reminders, 4.35 percent prefer SMS text and 86.86 percent prefer e-mail (in which we've recently integrated a "refer a friend" button – which, so far, has been used by 13 of our patients). We give all of our patients the option to choose which reminder method they prefer. And all of this automation puts downward pressures on your number-one largest cost, *labor!*

And when all those calls start coming in, you need to make sure your staff is trained how to close each and every call by getting each one to schedule an appointment. One of the best guys out there to help you with this is Jay Geier and his Scheduling Institute. Jay and his crew just about doubled our close rate of new-patient phone calls. I know this because we can track everything with Sesame's help.

You know why this sounds like a lot of work? Because it is! If you can manage all of these things yourself, do it! If not, I strongly suggest you work with a company like Sesame that can help you out. These are merely my suggestions to you, and I hope you consider them, that is unless you'd prefer your practice to end up old, dusty and unused in years like the Yellow Pages. ■

## Howard Live

**Howard Farran, DDS, MAGD, MBA, DICOI**, is an international speaker who has written dozens of published articles. To schedule Howard to speak to your next national, state or local dental meeting, e-mail [colleen@farranmedia.com](mailto:colleen@farranmedia.com).

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# Project Paperless: What is Your Score?

by Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

## Are you Paperless?

When a dentist describes his or her office as paperless, you cannot take the term too literally because this is a term with a continuum of definitions. You might use a computer to do scheduling and billing, but paper charts for treatment plans and progress notes. You might have progress notes in the computer but still process paper checks from insurance companies or have patients complete a paper form when they come to your office for their initial visit. No matter where you are on the spectrum of paperless, this month I have devised a quiz to test your progress and generate your "to-do" list.

In my practice we use Dentrax version G4 (G5 is shipping now), so some of the terms I use will be specific to Dentrax. However, no matter what your practice management software platform, you should have the tools available to make this transition.

## The Test

The items in this list are presented in the positive. Simply check the boxes if the item is true in your practice. Each item checked is worth two points. Check your score at the end of the article. Unchecked items become your "to-do" list.

**My practice utilizes a digital camera or intra-oral camera for patient photographs.**

If you have not embraced digital technology, this is your first baby step. On the other hand, if you are using this technology, you already appreciate the benefits of digital vs. analog, which is at the core of going paperless.

**My practice utilizes a dental practice management software.**

At a minimum, we use it for scheduling patient appointments and billing/insurance. So many items on our list rely on this piece of the puzzle, so choose carefully if you don't yet have a software program. For most of you, this is a reminder that it is time to get some additional training on your software so you can discover features you are not currently using.

**My practice has a computer in every operatory.**

This is a major step, as the majority of efficiencies cannot

be realized until you have access to a computer in every treatment area.

**My practice has an Internet connection.**

This is important for checking patient benefits, managing your social media pages and practice Web site and surfing Dentaltown.

**My practice has a digital X-ray system.**

This includes intra-oral, as well as panorex images. If you are looking for suggestions, check out Dentaltown.com. You will find great suggestions in the Townie Choice Awards as well as on our message boards. I also suggest that you speak to your practice management software representatives and give strong consideration to their preferred system, as it will often integrate best. No matter what equipment you select, find another dentist using the same practice management software and hardware you are considering. Find out what issues your colleague is having with the system, and compare it to at least one other contender.

**My patient clinical charting and progress notes are completed in my practice management software.**

This is one area where you will derive a tremendous advantage with a bit of effort. You should have an option to create standard templates for your notes based on the procedure completed. Not only will this save you a tremendous amount of time, you will always be able to read the notes of every provider in the practice. Additionally, charting patient restorations and periodontal probing allows for automated tracking of patient conditions and treatment history. No more colored pencils, wrinkled chart pages and illegible notes.

**My practice files more than 90 percent of our claims electronically.**

When you have many of the items mentioned, you will have the ability to generate the claim form, attach images, X-rays and periodontal charting and send the claim, all electronically. Many systems will check your claims for errors when they are submitted and alert you to missing items. This results in significantly faster claims processing. The cost is in line with postage and processing of paper claims.

**My practice captures patient demographic information, as well as medical and dental history electronically.**

Last year we implemented the questionnaire module in Dentrax, which allows us to generate an electronic form for



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our new patients to complete at their first visit or for our existing patients to complete when they are due to update their medical history. The information collected in this form is automatically imported into the appropriate modules within Dentrix. This eliminates some of the double work that is done when an office has the patient complete a paper form and then a staff member must type all the information into the computer.

**My practice utilizes an electronic signature capture pad so patients can sign treatment plans, consent forms, HIPAA forms and their patient registration form.**

We have a basic model in our office with a stylus and signature box (Interlink ePad). The frustration with this model is the fact that patients cannot see their signature unless they can see the computer screen at the same time. I would recommend that you consider the more expensive model with a display that allows you to see your signature. Two vendors that sell this type of device: Interlink and Topaz.

**My practice has a system to digitize incoming letters from specialists, as well as dental records from other practices.**

This step requires two different kinds of scanners. Paper can be handled by just about any scanner on the market. I strongly recommend you invest in a sheet-fed scanner where a stack of paper can be processed at one time. Two good examples: Fujitsu ScanSnap S1500, Xerox DocuMate 150. Occasionally, you will have new patients from an analog practice and they will send film-based X-rays. These can be scanned on a flatbed scanner with a transparency adapter. One example: Epson Perfection V700. There are also scanners designed specifically for digitizing dental X-rays. If you have a large collection of X-rays in your practice, you may consider one of these: Microtek Medi-1200, Microtek Medi-2200 plus, VIDAR Dental X-ray Film Digitizer.

**My practice is generating referrals “on demand” rather than filling out forms from a pad by hand.**

In my office, we use the Quick Letters in Dentrix, which allow us to generate a letter to any one of our specialists in the computer. I have customized the letter with check boxes for the various specific requests of a specialist. The letter already contains all the contact information and address of the specialist as well as patient information the specialist might need.

**My practice utilizes an automated system for confirming appointments and communicating with patients.**

There are many of these services available as this is a category that has exploded in the last three years. The list of players is a mile long. Talk to your software provider first and then spend some time on Dentaltown.com. Similar to X-ray hardware, I like to find someone who uses

the same combination of software in his or her practice especially if you are going to use a third-party vendor.

**In my practice, we print patient prescriptions from the computer.**

The days of handwriting prescriptions are long gone. Similar to clinical notes, once you have entered your most frequent prescribed medications, you can generate a prescription with a few clicks of your mouse.

### Where Should You Start?

You must draw a line in the sand and stop generating more analog information. Pick a date and make a commitment to implement the items on this list that you did not check. Don't try to do everything at once; implement items in stages. Start with some of the easier tasks and build accordingly. Next, you should consider how you want to convert your patients' old records. For example, you might only want to scan the most recent copy of X-rays and store the others. The chances of needing the older ones again are slim. With a good sheet-fed scanner, as described above, you can scan all the paper documents in an old chart fairly quickly. When we eliminated paper charts four years ago, we simply scanned the charts of the patients coming in each day. In our case, we had used the computer for everything except the patient welcome form and signed treatment plans, so scanning was minimal. After six to eight months of scanning, the remaining charts were inactive patients. We placed those charts in separate storage boxes and scanned them when patients were reactivated.

If your team is frightened by the prospect of this daunting project, fear not, summer is coming and there are always teenagers looking for a summer job. Your comments, questions and compliments are always welcome: tom@dentaltown.com. ■

### How did you score?

(two points for every item checked)



**22-26:**

Excellent, Mr. Spock must be one of your patients!

**18-20:**

Very good, you should get a smartphone.

**10-16:**

Fair, but I would still avoid any open flames.

**0-8:**

Poor, you probably need new carpet too!

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# Why You Can't Treat the Poor

by Nareg Apelian, DMD

## *Or rather, strategies so you can*

It was during a dental public health class, the instructor asked the students:

"How do you define poverty?"

There was no answer.

"OK... let me rephrase, who is poor?"

Someone in the front said, "We are poor."

"Do the rest of you agree with him? Are you poor?"

An emphatic "yes!" by everyone.

The third-year dental students at McGill University thought they were poor. And why not? They were up to their ears in debt, had no income and lived on Kraft dinner. What better definition of poverty? Even recent discussions on the Townie threads showcased a similar misunderstanding of poverty by dental professionals.

Dentists, and most other dental professionals come from a middle- to upper-class culture. The society they're exposed to is very different from those in the lower classes. Therefore, their understanding of poverty is strongly influenced by their upper-middle class culture.<sup>1</sup>

## What is Poverty?

One definition pins poverty as the lack of financial, cultural and social resources.<sup>2</sup> It is not enough not to have money to be poor, you also have to lack education and a social support system (friends/contacts).

Once one falls to this level,<sup>3</sup> it becomes very difficult for generations to come, to leave the cycle of poverty. Once in poverty, health-care needs increase,

and access to care decreases. In fact, the more one needs health care, the more difficult the access; the less one needs health care, the easier.<sup>4</sup>

Moreover, the quality of the health care the poor receives goes down as well. Not because we (health-care professionals) don't like the poor, or are heartless, but simply because we do not understand poverty. We do not understand the culture of poverty, so it becomes frustrating, challenging and financially unrewarding.<sup>5</sup> This seems to be true not only at the dental level, but also at the medical level. There is a lack of informational resources available to the health-care professional when it comes to treating underprivileged patients.<sup>6</sup>

In this article, I will be talking about the truly poor, not just the broke or those who can't manage their money, not those who prefer buying an iPhone instead of spending money on their teeth, but rather those who can't afford to predictably feed their kids, those who live in a one-bedroom apartment with multiple families, or those who come into a new country as refugees and don't know anyone or understand how the system works.

## How Do We Treat the Poor?

A recent study in Montreal<sup>7</sup> tried to capture the perceptions and expectations patients on social assistance had about their oral health. The main recurring themes were: Those surveyed (a) define oral health in a social manner, placing tremendous value on dental appearance; (b) complain about the decline of their dental appearance and its devastating impact on self-esteem, social interaction and employability; and (c) feel powerless to improve their oral health and therefore contemplate extractions and complete dentures.

Another study showed dentists in Montreal<sup>8</sup> working in underprivileged areas and willing to treat poor patients had five social traits in common:

*The dentist should avoid blaming the patients for their oral problems. Rather, he or she should accept the situation and find ways to reach a solution, compromised or not.*

1. Ruby Payne, "A Framework for Understanding Poverty"
2. <http://www.cdonline.ca/en/socialpolicy/poverty-citizenship/income-security-reform/quebec-law-poverty-exclusion>
3. [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10390891](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10390891)
4. Hari JT. The Inverse Care Law. *Lancet*. 1971; i:405-12. <http://www.sochealth.co.uk/history/inversecare.htm>
5. Dentists' experience with low-income patients benefiting from a public insurance program. Pegon-Machat E, Tubert-Jeannin S, Loignon C, Landry A, Bedos C.
6. The GP's perception of poverty: a qualitative study. Willems SJ, Swinnen W, De Maeseneer JM
7. How people on social assistance perceive, experience, and improve oral health. Bedos C, Levine A, Brodeur JM. *J Dent Res*. 2009 Jul;88(7):653-7.
8. Providing humanistic care: dentists' experiences in deprived areas. Loignon C, Allison P, Landry A, Richard L, Brodeur JM, Bedos C. *J Dent Res*. 2010 Sep; 89(9):991-5.

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### 1. Understating the Patient's Social Context

The dentist needs to understand poverty. He needs to understand how poor is poor. He needs to understand the patient has a value system. Practically, this means treatment planning will have to accommodate the patient's wallet. A lower prognostic procedure might need to be done, since the alternative is extraction with no replacement. Other times, extractions need to be done, even if the alternative (costlier) treatments have predictable success rates. The dentist has to be comfortable with those decisions. Moreover, the dentist will have to understand, accept and respect the patient's choices. Record keeping will have to be very thorough.

### 2. Taking Time and Showing Empathy

For any type of healing to occur, a bond needs to form between the dentist and patients. This takes time to forge, and the dentist will have to understand, feel and validate the patients' concerns. The underprivileged patient is more difficult to communicate with and more difficult to connect to. The dentist will have to take the time and listen to the expressed concerns, understand them and respect them.

### 3. Avoiding Moralistic Attitudes

The dentist should avoid blaming the patients for their oral problems. Rather, he or she should accept the situation and find ways to reach a solution, compromised or not. There's a widespread bias that the poor are poor because they are lazy, and the rich are rich because they work hard. Given that bias, some dentists might be more judgmental. However, poverty, or rather the cycle of poverty, might be more related to luck or something into which someone is born. Nobody wants to be poor. Moreover, these patients have enough other issues to worry about, and if they don't value their oral health the way the dentist does, it's understandable. The best the dentist can do is educate them, accept the fact that little might change, and treatment plan accordingly, encouraging planned out

treatments where the behavior can be observed, and the plan modified.

### 4. Overcoming Social Distances

The dentist has to adopt a humanistic attitude when dealing with underprivileged patients. The perception of a social gap between the two should diminish. The patient should feel the dentist is close enough to his socioeconomic group that he can connect with him. Sometimes, under the impression of wanting to be professional, the dentist could create a social gap. The language used has to adapt to the listener. The tone has to be unpretentious.

### 5. Favoring Direct Contact with Patients

The dentist has to establish a warm rapport with patients, instead of having the patients go through multiple "middle men." The patients should be made to feel comfortable enough to ask questions directly to the dentist, with no inhibition or fear of being judged. In essence, the dentist has to spend more time actively listening and talking to the patients. All concerns need to be validated.

The underprivileged patient requires more time, more understanding, better communication and more flexibility from the dentist. All that, at a lower fee!

### A Proposed Model

Since there is a lack of literature on how to treat people who are poor, all I can do is describe a model that has worked for me over the years, a model that has been refined with a lot of trial and error.

I strongly believe the solution to improving health care for the underprivileged needs to have good incentives. We cannot rely on dental professionals' goodwill, generosity and social consciousness to resolve the problem. It's not up to a few dentists to carry the entire social burden. That model would not last very long.

The biggest hurdle is remuneration. Whether paid by the government or directly by patients, dentistry needs to be done at a lower price than in other neighborhoods. This means profit needs to be made at lower prices, which means a low overhead is crucial.

Low overhead means either less expenses or more hourly income. There are a lot of resources on how to increase hourly production. My model focuses more on how to lower expenses. There are probably many ways to do this effectively, but I can only talk about the way I approach the access to care issue, while keeping in line with my values.

*"Practicing dentistry for people who are poor is not for everyone. We all have different values, different ambitions, different motivators, which change throughout our career."*

*continued on page 30*

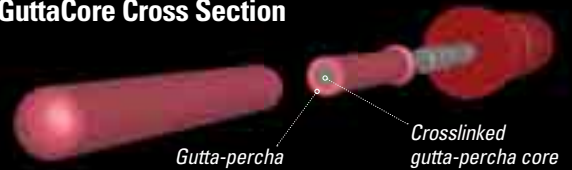
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## My Small Office

Located in one of Montreal's poor neighborhoods, Park-ex,<sup>9</sup> my 800-square-foot office caters to a mostly refugee or recently immigrated south Asians (India, Pakistan, Bangladesh, Sri Lanka), most of whom have never been to a dental office, at least not in Canada. Culturally, dentistry for them is more of an emergency procedure and less of a preventive measure, even though most of their basic dentistry is covered by the government (the dentist gets paid 50 to 70 percent of the provincial fee guide directly by the government).

I work out of a two-op practice with no receptionist and one assistant. Having no receptionist means I greet the patients as they come in and accompany them to the op. Once the work is completed, I accompany them back out, do the paperwork (payment, insurance or welfare processing) and book their next appointment, while my assistant cleans the room and preps for the next patient. Throughout the day either the assistant or I answer the phone, whoever is less busy. At the end of the day, we both clean up the office and prepare the front desk for the next day. There are no tasks "too low for the dentist."

Being a small office means I can run it like a small business. Fewer patients mean scheduling is not complicated. Payroll is done with a simple Excel sheet. Accounts receivable are only a handful and easy to track and stay on top of. Rent is low (small office size and inexpensive neighborhood). Hours are flexible (only one staff to manage). Time off is flexible: we work more during busy periods and take it easy when it's slower.

This model enables me to have more contact time with the patients, which helps us understand each other better. Their dental visit is more of a "visit with the dentist" as opposed to a "visit to the dental office." Since many of my patients have a limited control of the English language, they appreciate dealing with the same person each time they visit. Moreover, the lax structure makes it easier to spend the extra time with those who need it, whether in the op or at the front desk.

This "feature" is used as a marketing angle, emphasizing the "mom and pop" style practice philosophy and the unpretentious image. Internal reinforcements are made explaining the non-essential services have been cut in order to keep the dentistry quality high and fees

low. Financially, the low overhead keeps the profit margin within the provincial average. Sure, the maximum potential income is more limited (there's a limit to how many patients one can treat with this set up), however, the advantage of keeping things small and flexible might be attractive for some. Also, the fulfilling feeling of having a direct social impact needs to be taken into account as well.

## A Social Solution

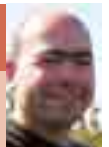
Practicing dentistry for people who are poor is not for everyone. We all have different values, different ambitions, different motivators, which change throughout our career. Once part of an established clinic, the likelihood of leaving the stable job and jumping into the wild world of poverty dentistry is very low. From a social perspective, it would make more sense to identify those who are interested in this type of practice at the university level, and show them the different options they have. Those university students are often afraid they will graduate and go bankrupt; they are not exposed to the different business models. All they know is what they've seen at their own dentist's office, and since most dental students come from mid- to upper-mid socioeconomic classes, they're typically exposed only to that specific model. Others graduate and end up in fast-paced mills, and that's the impression they get of treating the poor. The fast pace is not something to which the new graduate can easily accustom.

I think a program could be implemented that lets interested dental students spend a day (or two) in a variety of offices in poor neighborhoods with different practice styles. This way they can experience different dentists' perspective, and let those who are naturally attracted to a more socio-humanistic practice know there are different ways to practice dentistry, each with their advantages and disadvantages.

Treating the poor can be very rewarding on a personal level. It's more of a lifestyle than a means to an end. ■

## Author's Bio

**Dr. Nareg Apelian** earned his DMD in 1996 from Université de Montréal. He then worked as an associate at multiple places and eventually bought his own office in 2001 in one of Montreal's poorest sectors. When he's not working, he enjoys his family and playing ping pong.



9. [http://en.wikipedia.org/wiki/Park\\_Extension](http://en.wikipedia.org/wiki/Park_Extension)

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## Internet TV Launches Key Marketing Solutions For Dental Practices

My Smile TV, Inc., (MSTV) announces the launch of its worldwide Internet Television (ITV) network, a multipurpose distribution technology giving dentists access to key internal marketing services. MSTV, a health-care channel for waiting patients, is accessible with an Internet connection and provides dentists with an easy-to-use content management system where they can browse from a large selection of videos and images for patients to watch. There is a one-time activation fee of \$50 and a low monthly rate of \$29.95. To get started, register at [www.mysmile.tv](http://www.mysmile.tv), acquire a Google TV device (set-top-box or an all-in-one Sony screen with Google TV), get set up and call MSTV. MSTV assists in accessing the MSTV app and How To My Smile TV. To learn more or for an online demonstration, visit [www.mysmile.tv](http://www.mysmile.tv), call 855-4MY-MSTV or e-mail [info@mysmile.tv](mailto:info@mysmile.tv).



## The World's First Android-based Control Screen in the Dental Laser Industry

Millennium Dental Technologies announces the first laser in the dental industry to incorporate an Android-based digital display and control system. The PerioLase MVP-7 for the LANAP protocol combines its advanced laser components with the latest LCD display technology. The streamlined user interface increases usable display space to allow the doctor to focus on the clinical procedure, with intuitive operating controls and engaging graphics. The 360-degree mounting system increases clinician comfort during the procedure, with a wide range viewing angle and increased flexibility of laser placement in the operator. For more information, visit [www.mdatlanap.com](http://www.mdatlanap.com).

# Industry News

The Industry News section helps keep you informed and up-to-date about what's happening in the dental profession. If there is information you would like to share in this section, please e-mail your news releases to [ben@dentaltown.com](mailto:ben@dentaltown.com). All material is subject to editing and space availability.

[www.dentaltown.com](http://www.dentaltown.com) | ▶

## The ADA Gives Statement on Radiation Risk

The American Dental Association states dental X-rays should be used sparingly to reduce radiation risk. Frequent dental X-rays are linked to an increased risk of developing meningioma, the most commonly diagnosed brain tumor. This statement by the ADA is based on studies that rely on the individual's memories of having dental X-rays taken years earlier. Another study acknowledges that some of the subjects received dental X-rays decades ago when radiation exposure was greater. The ADA's Council on Scientific Affairs will publish clinical guidance on the use of cone-beam computed tomography in an upcoming issue of *The Journal of the American Dental Association* (JADA).

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### **The Most Successful Dental Office Does?**

There are a bunch of great ideas out there. This is a fantastic collection of advice from successful practices.

36

### **11-year-old Emergency... Did I Do the Right Thing?**

Kids find new ways to fracture their teeth all the time. Review the opinions on this case.

44

### **Intracoronal Bleaching of Endodontically Treated Teeth**

There are many situations to perform intracoronal bleaching. You will find great tips here.

52

## **Not sure where to start**

We totally understand – with nearly 172,000 threads to choose from, involvement can be daunting. This is why each month we select a few message boards based on our issue's key topics. We edit them down to the most poignant posts and serve them to you à la carte. Use them as a starting point and jump into the discussion online at [Dentaltown.com](http://Dentaltown.com).

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## **Message Boards**



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# The Most Successful Dental Office Does?



There are a bunch of great ideas out there. This is a fantastic collection.

Dentaltown Message Board > Marketing > Marketing > Successful Dental Office | ▶

## dds4life

Member Since: 03/08/05

Post: 1 of 93

1. Treats its patients like family.  
Let's keep the list going and see how many we can add. ■

AUG 31 2011

## GulfDDS

Member Since: 10/24/03

Post: 2 of 93

I hear they have seamless systems and policies and people-oriented staff with great operational manuals... oh and clean bathrooms. ■

SEP 1 2011

## Sandy Pardue

Member Since: 08/21/02

Post: 9 of 93

In other words you have appointed someone to be in charge of it to make sure everything is scheduled where it should be, someone is working to make sure doctor and hygienist are not standing around temporarily unemployed and the practice goals are being met.



“Not” is very important in this sentence.

The most successful dental offices do the following:

- They have a good, solid, ethical team with a great attitude. There is a strong leader, they are organized and have real-world systems that give more predictability to their schedule. They run like a well-oiled machine. There are few hiccups because they have a plan. Duties are divided, and staff do not share a lot of duties, which is very inefficient.
- They are good communicators, which with good systems will grow the practice, retain patients and help control patient upsets. They run to upset patients instead of away from them. The doctor is not afraid to talk to patients when they have a problem, instead he or she helps them understand their treatment plans and they are really engaged in the experience. The doctor enjoys being a dentist and every aspect of it including running a business. The successful dental office doesn't have pack leaders.
- There is positive energy in successful practices. Negative energy works against success.
- The practice has production goals for each provider. The practice has a vision and goals that the team created together.
- The person answering the phone is one of the most skilled in communicating. Many times practices put the least skilled “new girl” as receptionist, big mistake.
- No matter how many people work at the front desk, one should be most senior over the schedule. In other words, you have appointed someone to be in charge of it to make sure everything is scheduled where it should be, someone is working to make sure doctor and hygienist are not standing around temporarily unemployed and the practice goals are being met. This one action can boost your numbers.
- The office is updated, and clean (yes, clean bathrooms are important), outdoor sign looks sharp, the building looks fresh (no mildew and missing shutters). The phones are answered by real people during regular business hours. They file insurance for their patients and yes, they do send statements. They personally call to confirm patients because they know the tone of voice the patient has when confirming is key. They keep score; each team member tracks their work and reports at staff meetings which are held every single month without fail.

continued on page 38

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Check out these other message boards on Dentaltown.com for additional advice on running a successful practice.

**I Need to Run a Dental Practice, Not Just Do Dentistry, and I Need Help**

Search: *I Need to Run a Dental Practice*

**Are You Average or Above Average or Below Average?**

Search: *Are You Average*

- They don't have a lot of rules for the prospective patient when they call in and have never even met them. (That tells me the practice is out of control and has had to make rules in an effort to try to gain control, which keeps them small.) When someone calls the practice, they don't try to change the person's viewpoint about what they he or she wants, instead they get the person in fast. They are service-oriented. The team is aware of the importance of internal marketing and they have a plan. They are getting the majority of new patients by referral. That is the true measurement of how well you are doing with service.
- They send a quarterly newsletter, birthday cards, Christmas cards and they have a strong recall system. They are retaining 80 percent of their patients. They are good at presenting treatment plans; this is part of a key internal system. Their outstanding insurance and practice collections are under control.
- The doctor is aware of the overhead and how much money he is making. Expenses are monitored and under control. Doctor is the boss and is not letting staff tell him or her what to buy and when to take off, etc.
- The practice has safeguards in place to prevent embezzlement. The team takes CE on a regular basis, staying away from "Flavor of the Month" practice management. In other words, they don't keep changing the way they do things once they find systems that produce stellar results.

Remember, no energy vampires! ■

SEP 1 2011

*continued on page 40*

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- Jun. 22-23 New Orleans, LA
- Jun. 22-23 Philadelphia, PA (AGD Meeting)
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**Building Patient Trust with Technology That Cares**

**Kevin Tighe**

Member Since: 12/27/10

Post: 14 of 93

Off the top of my head in no particular order:

1. The doctor and all staff members really care about their patients. They are not “money motivated.”
2. The doctor has been trained on the basics of being a good executive.
3. The doctor continues to educate himself as a dentist.
4. The doctor ensures that his staff is well-trained.
5. The doctor only retains staff with a high level of responsibility.
6. The doctor monitors the office using statistics. All staff have some sort of production statistic.
7. The doctor creates an environment that is business-like but friendly and is a fun place to work at.
8. As conditions in the practice allow, the doctor sets up a bonus system or some kind of profit sharing.
9. All policies are in writing. Each employee has a training manual both as an employee and for their specific function.
10. When the staff make errors, there is a standard system in place for correcting the employee mistake.
11. All staff are excellent at educating the patients so that the patients place value on their treatment.
12. All functions of the office are assigned to a specific employee. No function is allowed to simply be handled randomly or by whomever happens to “grab the ball.” ■



SEP 1 2011

**skr RDH**

Member Since: 07/21/07

Post: 16 of 93

A great location and effective internal/external marketing.

Lots and lots of “Kaizen!” In business, this was a major revolution from Japan in the '70s and '80s. It means “constant improvement,” constantly evaluating your systems, people and marketing looking for smarter ways of working, then using leadership to bring in change in a way that the whole team can engage in. In my experience, the most kaizen you can find is by surfing Dentaltown as the main “brain trust” every other day or so.

The greatest kaizen improvement we've had in recent months is moving away from phoning patients for recalls, and using an automated e-mail service. For us, it turns out to be far more effective than calling'. ■



SEP 1 2011

**baseball/soccer dad**

Member Since: 12/13/04

Post: 36 of 93

1. Hire a hygiene coordinator. Her job is to make sure the RDH schedule is full. We believe in recare.
2. Office facelift. Cover all white walls, please. Hire an interior decorator. I can't tell you how many women come in for their appointment and praise the looks of our office. Choose soothing colors.
3. Go digital as soon as possible.
4. Do not do any more amalgam fillings. Works for me...
5. Goals for each providers, doctor and hygienists.
6. Bonus system on production or collection – whatever is your liking.
7. You have to like what you do. Refer out procedures that you do not like to do. Expect referrals from your specialists. If no, ask why.
8. Love your staff. They are the strength of your practice.
9. Love your patients. They pay your bills. Fire the disruptive ones.
10. Take vacation. ■

SEP 2 2011

continued on page 42

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Anthony Needham, DDS  
 University Dental, Albany, CA



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John Flucke, DDS  
 Lee's Summit, MO  
 Technology Editor, Lecturer



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Irina Ganzha, DDS  
 North Capitol Dental,  
 San Jose, CA

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saldoc

Member Since: 02/08/03

Post: 63 of 93

Here's a little tale that might shed some light on the logic of production goals. When I purchased our practice in 1995, I had a goal in the back of my mind that I'd like to get to \$1 million in production and collection. At the time of the purchase, the office had three ops, three staff (front, back, hygiene) and produced about \$300K per year.

With that goal in mind, over time we increased to five ops and six staff members (two of everything). After 10 years, we finally hit the \$1 million mark for the first time in 2004. The production goal was never in the forefront of my mind, but it was a goal that was set, and certain things needed to be done to reach that goal. The goal provided the "infrastructure" within which we built the practice.

At the time, I knew there would be a bit of a letdown after hitting that mark. The goal was \$1.1 million the following year, and we hit it. The goal was \$1.2 million for 2006, we didn't hit it, and truth be told, we've never hit it. We've been hovering between \$1.1 and \$1.2 million ever since 2005. ■



SEP 4 2011



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# 11-year-old Emergency... Did I Do the Right Thing?



Kids find new ways to fracture their teeth all the time. Review the opinions on this case.

Dentaltown Message Board > Endodontics > Endodontics - The ENDO Files > 11-year-old Emergency | ▶

## WillSchaef

Member Since: 11/05/07  
Post: 1 of 54

Our local grade school called yesterday afternoon and said it had a student get hit in the mouth, and ask if we could take a look.

Patient is 11 years old and in severe pain. Ran into another student's head. Tooth #8 is displaced lingually and #9 is somewhat in the correct position, well at least from what I can tell through all the blood.

The mom came with the patient. I took her out of the room and explained the prognosis of tooth #8 was hopeless and #9 wasn't much better. Explained to her my plans for today.

Teeth #8 and #9 did not respond to cold testing, teeth #7 and #10 responded normally.

Anesthetized and attempted to reposition the teeth back to their normal position. Was actually able to get them fairly straight. Bonded teeth #7-10 with a flexible braided wire.

Patient is returning in two days for post-op and X-rays.

My questions:

What would you have done differently?

How would you proceed from here? ■ Will



FEB 4 2010

## gnovotny

Member Since: 11/18/05  
Post: 2 of 54

I'm not surprised they didn't respond to ice, the nerves were stunned. It is best to check after a few days, even a week, to get an accurate reading. Tooth #8 is probably toast, #9 might work if all the stars are aligned perfectly. I've seen some cases on here where there was a large horizontal fracture and it ended up working out. I would have done what you did exactly. Expect extractions, but wait and see. ■

FEB 4 2010

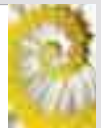
## Dr Daisy

Member Since: 03/24/04  
Post: 3 of 54

I definitely think you did the right thing. For the emergency visit, you just need to treat the pain and assess the situation. Poor kid! Poor mom! I hate seeing these circumstances.

I think both teeth are toast. I would reassess in a week or so and then start talking to them about the future options. ■

FEB 4 2010



## WillSchaef

Member Since: 11/05/07  
Post: 4 of 54

Thanks for your replies!

I have the kid scheduled to come back tomorrow for another PA with the teeth back in their proper position and to test again for vitality. I am also thinking that they are both toast.

I really wish I would have taken photos yesterday, but it was traumatic enough that I didn't want to add any more to the situation.

I will post the new PA from tomorrow and keep you all updated. ■ Will

FEB 4 2010

continued on page 46

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**windmill**

Member Since: 05/01/03  
Post: 12 of 54

Interesting case. This is one of those that the outcome is so unpredictable. You did SOC for this emergency.

Follow-ups are three to four weeks after injury, six to eight weeks, six months and one-year, then annual follow-ups for five years. Pulp test with cold (or EPT, if not responsive to cold) at the follow-ups. Note: you can get false negatives on pulp testing up to four weeks out, so don't give up based solely on this. Failure is when you have signs of periodontitis, a radiolucency at the fracture line, or continued non-response to pulp testing after four weeks. If so, and the parents want to try to save the tooth, start endo to the level of the fracture (or refer to endo – that's what I'd do). If they are not interested in saving the tooth, and they are interested in ortho, maybe the orthodontist can add teeth to the wires. If that's still some time off, then a flipper would work until they get to ortho. Otherwise, wear the flipper until implants – the ultimate goal. When are they ready for implants? – When their shoe size stops changing (usually 18-20). I'd do a zirconium abutment so that if the patient has some recession over time, it won't expose metal collars of implants.

That's what I'd do. Please, anyone, chop up my advice into pieces and school me. I'm not infallible!

Thanks for posting! ■



FEB 4 2010

**almunk**

Member Since: 12/17/05  
Post: 13 of 54

This kid needs teeth so you need to do whatever you can to keep something in there as long as possible, maybe with these two teeth into adulthood. Check the kid maybe once per

*continued on page 48*

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month for the next few months. #9 might be OK if you are lucky. If vitality doesn't return, and/or sinus tracts appear, then I would bring out the calcium hydroxide (CaOH). Instrument and fill with CaOH and see if you can get the teeth quiet and relatively firm. You might need to repeat the CaOH several times in hopes of getting some sort of healing around these teeth. You hate to have a teenager in a flipper so keep after it and you might be able to preserve the teeth for years. ■

FEB 4 2010

**adrsmile**

Member Since: 01/11/04

Posts: 14 & 15 of 54

Here is a fracture very similar to what you are looking at on tooth #9.

Boyfriend punched her and fractured tooth back in 2004 and I did the exact thing you did... anesthetize, reposition and splint. Informed that a referral to endodontist was coming.

Waited two weeks for trauma/swelling to subside and patient was pretty much asymptomatic after that time and off she went for RCT.



Second radiograph is approximately three years later and tooth is stable and asymptomatic. Have not seen patient, but her mom says everything is still doing great.

Good luck with your case. You did everything correct in my opinion! ■

FEB 4 2010

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**Ken Heritage**

Member Since: 03/28/04

Post: 16 of 54

First off, whenever I get trauma cases I double-check the AAE guidelines and also Andreasens latest textbook.

It's late here so I haven't done either, but my thinking is observe, observe, observe. It can take a minimum of six weeks before cold responses tend to be accurate – some say up to 12 months. Only treat if you see evidence of pathology – radiolucency at fracture line – sinus tract. There seems to be more and more evidence that these are better off the less we do. ■ **Ken**

FEB 4 2010

**WillSchaeff**

Member Since: 11/05/07

Post: 21 of 54

Follow-up:

Patient was seen today for follow-up after his accident on Wednesday. Still no response to cold testing with teeth #8 and #9, but I expected that.

*continued on page 50*

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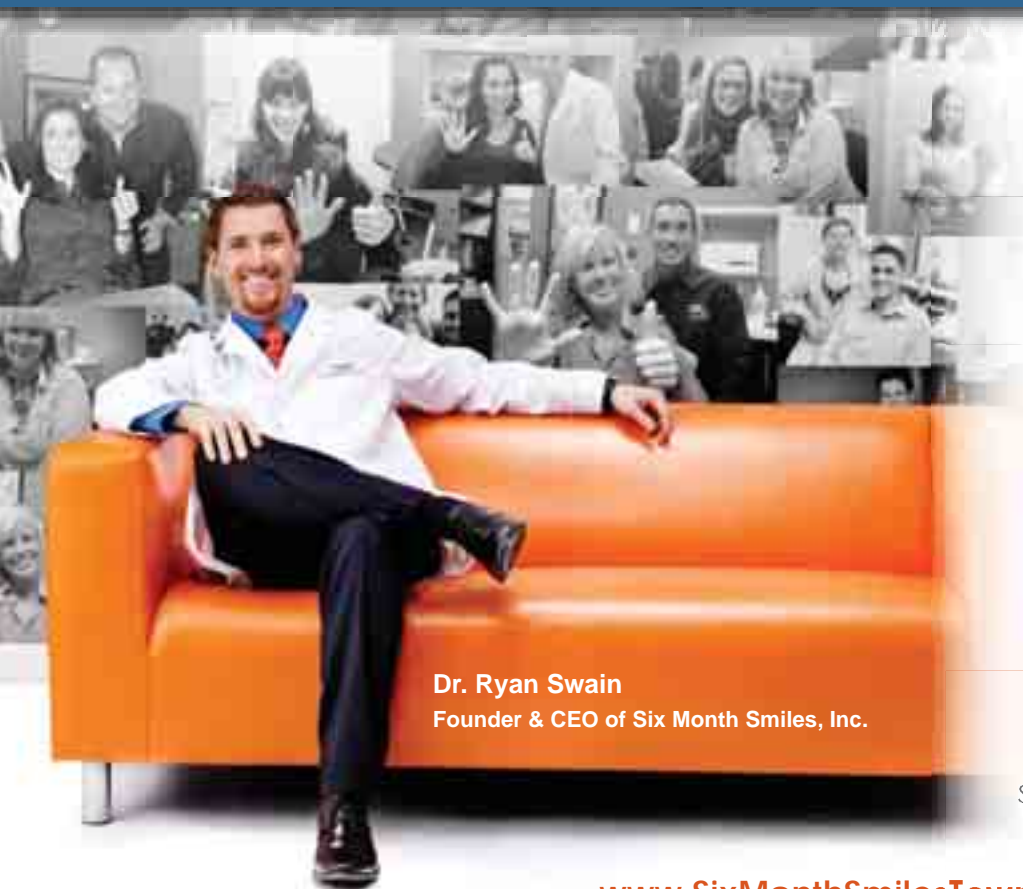
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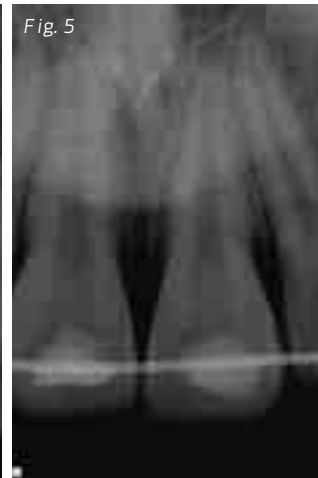
5 p.m. Emergency!  
Search: 5 p.m. Emergency!

I didn't really know what to expect with the radiograph, but I am rather pleased with what I see so far.

Time will tell!

**Fig. 4:** Before (aka Wednesday)

**Fig. 5:** After (aka Friday)  
Thanks. ■ Will



FEB 4 2010



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# Intracoronary Bleaching of Endodontically Treated Teeth



There are many situations to perform intracoronary bleaching. You will find great tips here.

Dentaltown Message Board > Cosmetic Dentistry > Bleaching / Whitening > Intracoronary Bleaching | ▶

## LModugno

Member Since: 08/19/06  
Post: 1 of 23

Does anyone have a favorite technique for this? Two patients of mine have a central incisor that has had endo done. These centrals are in perfect condition except for discoloration (darkened) due to endo. The patients do not want crowns or veneers. ■

AUG 19 2006

## drbean

Member Since: 03/01/04  
Post: 2 of 23

I've found that the only predictable approach is a layer of porcelain on the facial aspect of the tooth.

Maybe check into the no-prep style of laminates. I'm not sure how predictable or long-lasting they are but their opacity would be a question. ■ Jackson



AUG 19 2006

## charlie22

Member Since: 06/20/05  
Post: 3 of 23

I've done fine on this by just putting some Superoxol in the access and warming the tooth with a thing made for the purpose by, I think, Brasseler. It's a sort of beavertail soldering iron; you put it on the facial surface. About five minutes and it was done. Years ago I did walking bleach a few times, and that worked too. Takes a few days. Of course you have to get all the composite off of the internal surfaces of the access, the H2O2 can't work through a plastic coating. Since you probably don't have one of those tooth-heating gizmos, something like a 7A wax spatula should work.

In all, I think I've done this two dozen times, and I don't remember it ever not working. ■



AUG 21 2006

## flyfishdr

Member Since: 02/26/04  
Post: 4 of 23

I would do as Charlie says. Make sure you seal the root canal and root dentin with a bonded composite before you bleach. If you don't, you can get resorption and then you will sure wish you did as Dr. Bean said. Incidentally, you don't have to heat the Superoxol. It just takes a bit longer. ■



AUG 21 2006

## Mike Hatcher

Member Since: 01/09/06  
Post: 6 of 23

In my opinion, I do not think that we should still use Superoxol. I've seen too many cases with external root resorption. I was told by my mentors in my one-year AEGD that sodium perborate seems to cause less external resorption. Also, I would use a glass ionomer to seal the canals and not composite. The sodium perborate will take longer to bleach, but I think that it's worth it in the long run. Typically, after sealing the orifices, we place the sodium perborate (mixed with sterile saline) and have a follow-up in two weeks. Continue until the desired value is reached. Actually, I try to talk my patients into bleaching them a little more, because these teeth will get a little darker over the next few months. Hope this helps. ■ Mike Hatcher

AUG 21 2006

## flyfishdr

Member Since: 02/26/04  
Post: 4 of 23

Mike, the Superoxol is fine – if you seal it. If it is not sealed, you shouldn't use it. You will get resorption as you say. The root dentin must be sealed, as with the root canal, then you're OK the way Charlie recommends, in my opinion. ■



continued on page 54

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**Nigel Tufnel**

Member Since: 07/21/04

Post: 10 of 23

It really doesn't matter what you use to seal the gutta percha. You are in fact, sealing off access of your Superoxol to everything apical to the CEJ, so you want to contour your seal to mimic the CEJ. Glass ionomer is very predictable because of its chemical adhesion to the inorganic dentin components. I regularly use Vitrebond because I can tease its shape and manipulate it easily. And I use a combination of Superoxol and sodium perborate in a "walking bleach" technique. Rarely do I get satisfactory results on the first "walk." Usually after the second or third try I get a dramatic result.

A few of my personal tips on non-vital bleaching:

1. Be sure to remove all of any composite in the chamber. Go ahead and take out some of the really dark dentin too, but be smart about it. Trust the bleach to penetrate.
2. Make a paste of Superoxol and sodium perborate. Load it into the chamber and tamp it in with a cotton pellet. At this point you can add a spot of the juice (Superoxol) to "rehydrate" it.
3. Temporization is difficult in bucco-lingually narrow incisors. It is easy for the temp to either fall out or in. And the juicier your bleach, the messier the temporization will be. I just use composite in layers. Once you have the first layer down, the rest is easier and more predictably bonded.
4. Don't get fooled into thinking that a B1 in the chamber as a final restoration will compensate for a poor bleaching result. It will look unnatural and gray. You really need a dentin shade and opacity to "vitalize" the tooth.
5. Results are not guaranteed. It is probably more predictable to mow off those labial 1-2mm of tooth and glue some glass over it, but you really can't substitute for a natural enamel surface – especially if the neighbors are unrestored. At least it is an option for those patients who barely swallow the fee for the RCT and can't chase it down with an equally priced veneer.

Final note – studies have reported favorable results with carbamide peroxide (noted in earlier post), heated Superoxol (ditto) and combination internal/external techniques (using acid etch or air abrasion of enamel). It isn't a procedure that will give you an earlier retirement – just another tool in the bag. ■

AUG 25 2006

**burntorange**

Member Since: 12/21/05

Post: 12 of 23

Just finished Barghi's course on veneers but he went over his technique for this and showed

continued on page 56

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great results. I have done one (#9) since and the patient was very pleased. Barghi removes the gutta percha above the CEJ, seals it with composite or a glass ionomer and then places Opalescence Xtra Boost into the chamber and on the buccal surface for 15-minute sessions as if it were chairside bleaching. Hope this helps. ■

AUG 31 2006

**LDModugno**

Member Since: 08/19/06

Posts: 15 & 21 of 23

Wow this Dentaltown message board is amazing. This is the first post I have done. I have really enjoyed hearing from so many dentists all over the USA and even the world! As dentist we get isolated practicing alone in our offices but now we have this family community of dentistry where we can all share information, ideas and our experiences. Thank you, Dentaltown.

*[Posted: 1/20/2009]*

I started this board in 2006 and since then I have treated at least 10 non-vital teeth (all anteriors) with the technique that Dr. Weed outlined earlier in this thread. The only exception to the technique is I only use sodium perborate with water. I feel this is safer than Superoxol. I have had great success. ■ **Lenny**

SEP 3 2006



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The Supersmile Ultimate Whitening System whitens teeth several shades while simultaneously strengthening teeth and killing the germs that cause bad breath. It's even great for people with sensitive teeth since Supersmile products are formulated without harsh abrasives that can cause tooth sensitivity. The kit contains the small professional whitening system which is comprised of the Supersmile Professional Whitening fluoride toothpaste and Supersmile Professional Whitening Accelerator and eight individually wrapped activating rods, which clean and prepare the tooth enamel's surface. To learn more, visit [www.supersmile.com](http://www.supersmile.com).



## Opera Pager

Opera Pager is a complete clinic communication system that seamlessly sends messages to any PC, Mac or Apple IOS device. Opera Pager is cloud-based and not hard-wired. There's no need for additional servers or computers. Opera Pager works with your existing PCs and will seamlessly communicate with iPhones, iPads and iPod Touches. With Opera Pager you can send custom messages. Create pre-filled messages for common procedures and add optional notes to customize the message and all information and communication is stored in a password-protected administration Web site. Opera Pager is a pay-as-you-go service. Use it for as long as you like and cancel anytime. For additional information, visit [www.operapager.com](http://www.operapager.com).



## RelyX Ultimate Adhesive Resin Cement

3M ESPE RelyX Ultimate Adhesive Resin Cement delivers high bond strength, ease of use and world-class aesthetics. Used in combination with Scotchbond Universal adhesive, the two provide exceptional strength and simplicity. Approved for a wide range of indications, RelyX Ultimate cement is ideally suited for CAD/CAM and glass ceramic restorations. RelyX Ultimate cement's unique formulation includes an integrated component that activates the dark cure function of the adhesive and eliminates the need for an additional activator. For more information, visit [www.3mespe.com/relyxultimate](http://www.3mespe.com/relyxultimate).

## Straumann Standard Plus Narrow Neck CrossFit

The Straumann Standard Plus Narrow Neck CrossFit (NNC) small-diameter, soft-tissue-level implant is now available to customers in the U.S., Europe and Australia. It combines the strength of Straumann's Roxolid material, the fast osseointegration of the SLActive surface and the reliability and improved handling advantages of Straumann's CrossFit connection. The NNC is indicated for a variety of uses, including: single-tooth replacement and multiple-tooth replacement with bridges and fixed or removable overdentures. Visit [www.straumann.com](http://www.straumann.com) for more information.



Scheduling Institute's Training Center



# Solve Your

by Benjamin Lund, Editor, *Dentaltown Magazine*

Quality new patients are the lifeblood of any dental practice. And unless you're fortunate to own the only dental chair in a town of 10,000, you surely know how difficult it can be to get them in your door. Yes, it takes precise marketing, but how many inquisitive potential patients actually schedule (or stick to their appointment) after they've made the initial call? What's your conversion rate? Do you even know? You could have the best marketing plan in the world, but if you're losing them when they call you, you might be wasting your resources. That's where the Scheduling Institute (SI) comes in. For years SI has helped practices reach out to potential new patients and considerably increase their monthly and annual new-patient percentages. *Dentaltown Magazine* spoke with SI President and Founder Jay Geier to learn more about his company's offerings and how SI can add new patients to any dental practice. SI's program has many components, ranging from telephone training, establishing systems, providing incentives for growth and keeping

accountability strong, to coaching and consulting. If you're not convinced about SI's success rates, read the three adjoining case studies from practices that have benefitted from training provided by SI, then judge for yourself.

**Jay, can you tell our readers what's new at the Scheduling Institute since it was featured in *Dentaltown Magazine* in September 2009?**

**Geier:** The Scheduling Institute continues to expand its reach with an average of 100 new dentists coming on board each month to participate in our Telephone Training/New Patient Focus program. This program is setting new patient records in practices both nationwide and abroad. On average, our clients are seeing a 40 percent increase in new patients. Fifteen percent is the minimum and we're seeing as high as 100-150 percent.

We've continued to grow and expand our offerings to meet the needs of our clients. We've added seven new in-office trainings in addition to our original Telephone Training/New Patient

## Case Study #1 Dr. Kelvin Choi San Francisco, California



Dr. Kelvin Choi began working with the Scheduling Institute a little more than seven years ago when he purchased the Telephone Training/New Patient Focus Self-Study kit. For years he'd been getting about 15 new patients a month. He got his two front desk staff certified with the Scheduling Institute and immediately his new patient numbers skyrocketed – doubling to more than 30.

Looking back, Choi says, "With more new patients everything seemed so much easier; you feel more valid, you don't 'sell' as hard, you don't 'stalk' the patients who have pending treatment to come back, and you utilize your staff, space and equipment more fully." He added, "In my case, though, the most important thing was it gave me the confidence to move to a bigger space that was long overdue."

Three years later, Choi stepped up to a higher level of membership with the Scheduling Institute and ended that year \$400,000 above the year before. He renewed his membership another year and that year went up an additional \$600,000.

Since starting with the Scheduling Institute, Choi has quadrupled his monthly new patients, doubled the size of his office and his staff and doubled production. Choi says, "Jay was able to change my belief system and keep me engaged and accountable." But most importantly he adds, "And I know I have reached this position without sacrificing any of my values."

Choi credits Jay, saying, "I want to thank Jay and the SI for helping me to achieve the most explosive growth, professionally and personally, in the last four years than I have ever experienced in the last 30-plus years in practice."

*Disclaimer: This doctor was given no financial consideration for this case study. This is just one of thousands of stories SI had to share. For more like this, visit [www.moreaboutscheduling.com](http://www.moreaboutscheduling.com).*

# New Patient



Scheduling Institute President and Founder Jay Geier, center front, with one of the Platinum groups at a workshop at SI's Training Center in March

Focus Program. We've expanded our coaching programs to include a track designed to increase a dentist's practice five times and we've built a state-of-the-art 20,000-square-foot training facility that is the home to all of our coaching workshops and our new staff training university.

As we've expanded our offerings, we've also grown our team to ensure we are always creating value for our clients and exceeding their expectations. We have 21 trainers, a team of six coaches and nearly 100 other employees. In January we moved into a new corporate office, which tripled our space and allowed us to substantially improve our level of service. We've also become more intentional about giving back. Ten percent of all SI profit is given to charity.

## How have your programs changed to help dentists?

**Geier:** For years I knew that we were creating friction by increasing new patients and concentrating on the front desk, but leaving out the other areas. So during the last few years we've created additional solutions for all other areas of the dental practice, which have been extremely effective and very well received.



Scheduling Institute's world headquarters

*interview continued on page 62*

CHALLENGE

We used to only offer the Telephone Training/New Patient Focus program. A practice would plug into it, get its front desk staff trained and certified and see a big spike in new patients, but none of the other areas in the practice could keep pace.

Now we offer six additional trainings designed to improve every other area of the practice. We target a few key statistics in each area, teach the team tested and proven strategies to make the statistic go up and then we track progress. Before we were only increasing new patients in practices. Now we're also increasing referrals, average revenue per patient, number of new patient calls through marketing and hygiene production, just to name a few.

In addition to us going into our client's offices, our clients can now come to us at our training center. We've found that our most successful clients were seeing great results when we trained them in their office and significantly better results when they coupled that with training at our training center. There's just magic in getting out of your everyday environment and the day-to-day routine you're used to and surrounding yourself with other people who are thinking big and setting goals with you.

We currently have more than 2,000 staff enrolled in our staff university, which accommodates the entire team – front desk,

assistants, hygienists and the team leaders. All courses are held at our new training facility in Atlanta, Georgia.

**You claim that your training facility in Atlanta is the most convenient dental training facility in the country. Why is that?**



**Geier:** Our training facility is located just a stone's throw from Atlanta's international airport. When you step off the plane you simply hop on a sky train and take a 4-minute ride that drops you off less than 100 yards from our building. There's no car rental or taxicab and there

are two brand new, affordable hotel choices literally next door and across the street. Everything you need is within walking distance.

**How do your services differ from those offered by other consultants?**

**Geier:** We're not in the business of producing incremental growth. We're bold and aggressive and really push our clients to produce significant growth. Most of our clients are successfully setting and achieving bigger goals than they've ever gone after on their own or with other consultants. We don't tell dentists what they want to hear, but what they need to hear. Sometimes it's

*interview continued on page 64*

## Case Study #2 **Dr. Fadi Farhat** Sterling Heights, Michigan



Dr. Fadi Farhat first heard of the Scheduling Institute in November 2009 when he received a free mystery call of his office. He says, "I honestly didn't think any changes needed to be made at the time, but when I heard the recording and how the receptionist handled the call, I was mad, angry and scared. I had to admit that I needed help training and building the appropriate team."

He admits uncertainty about the program at first, saying, "As with any new program I had my doubts, but I knew I needed to try something new to get me and the practice on the right track." He was running a start-up practice that had no real direction, no real plan and no team. There was growth, but it seemed very slow.

He says, "The results have been nothing short of phenomenal. Within 90 days of working with SI, I collected an additional \$50,000 as a direct result." When he started, the practice was averaging 33 new patients a month. That number jumped to 47 by February 2010 and now they average 59 new patients a month, with their record month being just more than 100. His staff has remained excited to see patients coming in and accepting treatment recommendations.

He says he likes to think his life is separate from the practice, but the practice is allowing him to enjoy a better life. As far as how the Scheduling Institute has impacted that he adds, "The program was and is still eye-opening for me. Every workshop or seminar I attend I learn something that I have to work on or improve which helps to give me clarity about my future." His final thoughts on working with the Scheduling Institute were, "It is a relief to know there is actually a resource that can help improve my practice and improve my lifestyle."

*Disclaimer: This doctor was given no financial consideration for this case study. This is just one of thousands of stories SI had to share. For more like this, visit [www.moreaboutscheduling.com](http://www.moreaboutscheduling.com).*



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painful, but it's what they need. Some people think we're pushy and in your face, but the reality is, a lot of dentists are stuck in a rut and their practice has either plateaued or is declining. Having dealt with this for 25 years, we know that this approach is sometimes the only way to get through to them. We have to take drastic measures to get some people's attention, but for the ones who really want things to get better it's usually the first step to a brighter future.

**I understand there is only one way to begin working with the Scheduling Institute. You make every new member begin with the New Patient Focus Program. Why is that?**

**Geier:** At least 95 percent of new patients call your office before coming in for an appointment. So you can work really hard to improve and grow other areas of your practice first, but if the phone is not being handled properly and you're losing potential new patients, you'll never get the other areas to produce at maximum potential. You can spend money on marketing, but will the patients make it through the phone barrier? You can improve your service to your patients and increase patient referrals, but will those patients make it through the phone barrier? New patients are the beginning of your practice pipeline. If there is a hole in the beginning of that pipeline, nothing you try to improve after that will be as effective as it is once the phones are answered properly. To learn more about the Telephone Training/New Patient Focus Program, visit [www.moreabouts.com](http://www.moreabouts.com).

**What can we expect to see from The Scheduling Institute in the future?**

**Geier:** The Scheduling Institute's intention is to grow 10 times larger over the next five to seven years. We will continue to add services and products based upon what we're learning from clients and what solutions will meet their needs.

We'll be adding a West Coast training facility in the next 18 to 24 months in order to cut down on some of the travel for our West Coast clients.

We will continue to be very aggressive in growing practices and spreading the word about the ability for dental practices to prosper regardless of the economy.

**How can a doctor learn more about SI and the programs you offer?**

**Geier:** Every dentist should take the 5-Star Challenge to find out how focused its staff is on new patients and how well its staff is handling new patient phone calls. This will reveal how many new patients a doctor is losing as well as how many the practice stands to gain. There is no cost or obligation to take the Challenge.

Go to [www.moreabouts.com](http://www.moreabouts.com) and click on "Take the 5-Star Challenge" at the top. We'll send you an informative CD that will walk you through our process and how it will work in your practice. To find out if you have a hole in your new patient pipeline, go to [www.moreabouts.com](http://www.moreabouts.com) and click on "Take the 5 Star Challenge." ■

**Case Study #3**  
**Dr. Angel Lopez**  
**Oviedo, Florida**



It was January 2010 when Dr. Angel Lopez's office administrator and wife, Sahira Cintron, responded to a Scheduling Institute offer to get a recorded mystery call of their office. She says of requesting the call, "I have always had a perfection complex and immediately thought that they would find absolutely nothing wrong with our office." To her surprise, it was a reality check. Consequently they joined the Scheduling Institute and started with the Telephone Training/New Patient Focus program. They started out averaging 75 new patients each month. After just 30 days of training, their new patient numbers were up to 100 and they now average 103 a month. They increased collections by \$400,000 in the first year.

After experiencing the results of the initial Telephone Training/New Patient Focus program, Cintron says it was a no brainer to move into Geier's coaching program. Since taking that step they have experienced significant improvements both personally and professionally – greater wealth, reduced debt, reduced stress, more vacation time, more generous mindset, better relationships with family and friends, happier patients, happier, more committed team, better communication among the team and with patients, and they are excited to be building a new office.

Cintron admits that working with the Scheduling Institute has been an eye-opening and enlightening experience because it has revealed their weaknesses and given them the tools, strategies and knowledge to overcome them and produce success in spite of them. They also have a much clearer vision and purpose for their practice.

*Disclaimer: This doctor was given no financial consideration for this case study. This is just one of thousands of stories SI had to share. For more like this, visit [www.moreabouts.com](http://www.moreabouts.com).*

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# You Should Know: David

David Harris is known in dental circles as the “Dental Fraud Guru.” In the business of uncovering fraud for more than two decades, Harris is dentistry’s go-to guy for detecting and investigating embezzlement in dental practices.

## Tell me about Prosperident and providing fraud detection services to dentists.

**Harris:** I’ve been investigating embezzlement against dentists for more than 20 years. Initially, I was doing it on my own, as part of a larger bundle of services I offered to dentists. Over time, it began to become a progressively bigger part of my practice, until eventually it was my entire practice. In 2004, I brought my now business partner, Bill Hiltz, on board, and we began to develop the tools and specialized software that we use to detect and investigate fraud.

Several investigators on our team specialize in a certain type of software or practice specialty; for example we have one investigator who only investigates embezzlement in orthodontic practices; another deals exclusively with Dentrix and Easy Dental, and so on.



# Harris

by Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

## What is your background prior to starting this business? How did you get started in dentistry?

**Harris:** I'd like to tell you that I had some master plan. However, the truth is that I got into dental embezzlement investigation completely by accident.

Before starting Prosperident in 1989, I was an Army officer, taught university and did investigations for a multinational bank. I had left my job at the bank and was contemplating my future when a friend, who happened to be a dentist, called me. He thought his receptionist was stealing and couldn't think of anyone else to approach. I went to his office one night and quickly found a duplicate ledger that the receptionist maintained. The dentist thanked me and I went away without giving the matter further thought.

A couple of weeks later, I had an appointment with my own dentist for a checkup. I was about to enter his office when, through the glass door, I saw the woman whom I'd caught stealing earlier. She was now working for my dentist. I quickly found a payphone, and, on a pretext, got through to the dentist. I told him about the time bomb that was at his front desk. In a panicked voice, he asked me what he should do. I started offering some advice, and about halfway through my second sentence, he told me I was hired. I've been catching dental embezzlers ever since.

## What is the most important bit of advice you have for an office that thinks fraud or theft is happening?

**Harris:** The biggest mistake that I see dentists make is that they frequently telegraph their suspicions to their staff. Conveying suspicions can happen in many ways. The dentist might start to conduct his or her own (normally clumsy) investigation, he or she might be spending unusual amounts of time in their private office with the door closed, he or she might ask for extra reports from the practice management software, make a comment to an employee or just act unusually.

The danger with alerting a suspected employee is twofold; if the dentist's suspicions are groundless, he or she will irreparably destroy the working relationship (and probably relationships with other employees also). Alternatively, if an employee is stealing and realizes that he or she is about to be uncovered, the strong urge is to destroy evidence. Sometimes this takes the form of wiping the computer's hard drive and destroying all back-up media; we have also seen this desire take more sinister forms like arson. At the risk of making a very self-serving statement, dental fraud investigation is a job for experts.

## You have a company "in the cloud." How does that work?

**Harris:** Our work needs to be conducted in secret in order to maintain stealth. For this reason, we use cloud-based technology to access and investigate a dentist's computer data. This means it is a very rare situation if we put an investigator on-site. This also helps to control costs to the dentist, and speeds our response time. It also extends our geographic reach – we are currently conducting fraud investigations in the U.S., Canada and Australia.

## How likely is a dentist to be a victim of fraud? What statistics are available?

**Harris:** The true probability of embezzlement will never be known, because the statistical process requires two active steps that don't always happen. First, the fraud must be detected, and I am certain many embezzlement cases in dental offices never come to light. If detection does take place, the dentist must decide to report the fraud, and again this is far from universal.

The few credible published statistics on the probability of a dentist being a fraud victim in his or her career offer a range of between 52 and 59 percent.

I'll add a few more of our internally generated statistics to this:

- The average theft from our 2009 case files was \$157,000.
- The minimum seniority for major embezzlers (fraud <\$100,000) was eight years in the practice.
- The average length of time the fraud went on without being discovered was three years
- The percentage of fraud that was uncovered by some accidental event was 81 percent. Only 19 percent of all fraud was uncovered by some planned operation of the dentist control system.
- The total cost of fraud to U.S. dentists annually is about \$1.1 billion.

Embezzlement against dentists really is an epidemic. It is both pervasive and damaging.

## How does someone contact you if they have concerns?

**Harris:** Our toll-free number is 888-398-2327, which is staffed from 8 a.m. to 4 p.m. Eastern Time. We also have a priority e-mail address – fraud@prosperident.com – that we check seven days a week. There is also some good information available on our Web site, [www.prosperident.com](http://www.prosperident.com). ■

# Face to Face with Dr. Edward Zuckerberg

by Thomas Giacobbi, DDS, FAGD  
Editorial Director, *Dentaltown Magazine*



Dr. Edward Zuckerberg, a New York practicing dentist is romanced by technology. Herein, we visit his practice and learn that social media runs in the family (yes, he's the father of the father of Facebook, Mark Zuckerberg).

## Tell me about your office.

**Zuckerberg:** The office is about 1,400 square feet. The office is attached to my home in the New York City northern suburb of Dobbs Ferry. The patients enter through a separate wing of the house into an open reception area, sharing a common room with the reception desk where we have two front desk personnel with computers.

There are two business areas just off the reception area. One has a desk for our insurance and data entry employee and the other belongs to our office manager but also has a digital panoramic X-ray and the milling machine for our E4D CAD/CAM. We actually added this room to the office about five years ago.

We have three treatment operatories and a lab/sterilization center (used to be our darkroom but we've been darkroom-free for 13-plus years now). Adjacent to the office is the media room, used primarily for family TV watching, but I have hosted professional presentations here for Henry Schein and Imageworks.

We purchased the house from a retiring dentist in 1981, more than 30 years ago, but the practice was housed in a one-chair setup. We renovated the house and added a 1,200-square-foot, two-story addition in 1987 that brought it to the current state. The window bay from the old house is now the wall between the two new operatories and contains a custom built-in 200-gallon saltwater aquarium that is viewable from both operatories and is see-through.

I have a full-time associate, so the office is covered on days I'm not there.

## What is the hardest part about living in the same house as your dental practice?

**Zuckerberg:** This has been overwhelmingly positive for me to have my office in the house. It has allowed me and my wife, Karen, to be both professionals and dedicated parents to our four children.

Dr. Edward Zuckerberg in one of his operatories at his practice in Dobbs Ferry, New York.



Photography by Margaret Fox Photography

**Name:** Edward Zuckerberg, DDS, FAGD

**Graduate From:** New York University College of Dentistry, 1978

**Practice Location:** Dobbs Ferry, New York

**Practice Size:** Three operatories

**Staff:** Seven

**Web site:** [www.painlessdrz.com](http://www.painlessdrz.com)



## Office Highlights

### Technology

- Caesy patient education
- Canon Rebel intra-oral digital camera setup
- Canon sheet-fed scanners and microtek flat bed scanner
- Dentech and Marus units with Belmont touchless lights
- Diagnodent
- Diamond Dental Systems practice management software
- E4D CAD/CAM
- EFT payment transfers from Metlife, Guardian, Delta and Aetna.
- Einstein Medical Systems Web site/social media management
- Emdeon/Renaissance and Claim Connect
- Evasoft from Imageworks Corp.
- Intra-oral cameras
- Microprep air abrasion
- NEA Fast Attach
- Pentamix mixing units
- Picasso Lite laser
- Smile Reminder/Solution Reach Patient communication system
- Trojan Systems insurance software

### Other Products

- Dentsply Therafill – RCT obturation
- Invisalign – Orthodontics
- Multi-link – Cement
- Nite White and Opalescence – Tray-based bleaching
- Ultradents' rotary file system – Canal preparation
- Ultradent's Vitl-escence – Composite
- Zoom – One-hour bleaching

continued on page 70

I got used to being the only Dad present at events like open class day and second grade school plays because it was easy for me to block out an hour to run to our local school and quickly return. People warned me I'd have patients knocking on my door on Sundays and all hours with emergencies but that never happened. When true emergencies presented themselves, being able to just go downstairs to handle them couldn't have made dealing with them any easier.

The hardest part about it is that you need to have a decent memory and recall of patients' names because you repeatedly run into them in the supermarket, church/synagogue, restaurants, etc. You need to be on your toes to reinforce that you care about them as people, not just clients/patients.

### Did your children ever work in your practice during the summer?

**Zuckerberg:** I had them do some filing back in the days when we had paper charts, answer the phones and do simple deeds like make sure that lab cases got picked up and delivered. My son, Mark, actually made our office a computer-based communication system called Zucknet that removed the need for a Comlite type system of inter-operatory and front desk communication.

### Your office has a distinct fish theme with a large aquarium as a focal point. What advice do you have for other dentists contemplating a similar feature?

**Zuckerberg:** Choose a reputable firm that has been in business for a while and get recommendations from satisfied customers. Have the tank serviced regularly by a professional to keep it attractive and running smoothly. I put mine in the operatory since I spend most of my time there and want to enjoy it too. That's also where the patients need it because the operatory is where they are most stressed. Putting it in the waiting room sends the message to patients that they are going to spend a lot of time there and I want my patients waiting as little as possible.

### Your Web site says you "cater to cowards." What inspired this focus?

**Zuckerberg:** I don't think there is anything in dentistry that I find more rewarding than taking people who haven't been to the dentist for 10 or more years, who have finally forced themselves into the office practically in tears because of the pain and then being able to convert them into patients who come back for regular care. It is very professionally rewarding



(Top left photo) Dr. Zuckerberg (right) with his chairside assistant Kim Schiavone. (Top right photo) Hygienist Lori Bretts trims a bleaching tray. (Bottom photo) Office Manager Rosa Cavalluzzi in her office equipped with an E4D milling machine and digital pano.



to be able to help people that way. This became the focus early on in my practice.

### Your practice is full of the latest technology. What are some of the greatest technologies in dentistry right now?

**Zuckerberg:** Everything feeds off computers. I am known as Inspector Gadget by my patients. When I saw the availability of digital X-rays in the late '90s, I pounced on that technology. Don't take intra-oral photography or digital X-rays away from me! I am really learning to love the CAD/CAM. The technology I love and use the most is that which allows us to be a paperless office. I can access my data from every operatory, or even while traveling. Being paperless is probably the technology that I'm most proud of.

### You use E4D. How long have you been using it in your practice and what materials do you like to mill with it?

**Zuckerberg:** I have been using E4D since 2009. We have done some veneers but mostly I find it has really enabled me to do much higher quality dentistry. Also it's an option for patients with large composites. Primarily I have been using the lithium-disilicate, the e.max for real bruxers and my bread and butter go-

to is the Empress CAD. It is very easy to work with and doesn't require glazing. We have been doing fewer crowns and many more onlays. That is the newest in a long line of technologies.

### Let's talk about social media. You are very involved with that. How so?

**Zuckerberg:** I lecture several times a year to dentists about technology and social media marketing. Many are afraid to incorporate it into their offices. They are afraid to use a vehicle like Facebook to market their practices. I am trying to educate them. I use all kinds of social media outlets in my practice.

### With something like Facebook, is it a mechanism for a practice to communicate with its existing patient base or to expect new patients?

**Zuckerberg:** When a practice first starts out, Facebook must be used solely as a vehicle to enhance communication in the office itself. Just by virtue of having a simple sign up in the

waiting room, a lot of patients will become fans of your Facebook page.

There are a variety of tools to get people to "like" your page. The first tool is a sign in the office where you display your logo and web address. I have my office Web site and my Facebook address on everything.

Another thing we do is encourage visitors to check in on their smart phones. If someone walks through the door, he will see a big yellow decal that says check in on Facebook and get a special deal. If he checks in three times at the location, which publicizes to all his network friends that he just checked into Edward J. Zuckerberg, DDS's dental office, he will walk away with a free take-home bleaching kit. Then I try to get worthwhile messages to Facebook fans. I don't bombard them. I shoot for two or three updates a week.

The key advertising demographic feature on Facebook allows you to market to friends of your fans. This puts a thumbs-up "Like" logo with the name of their friend who

## Dr. Zuckerberg's Top Five

### Digital X-rays

"I've used digital X-rays since 1999; I can't dream of doing a case presentation without having the FMX or pano up on the monitor during the presentation to explain treatment. Also essential for case presentations are photos, usually done with my intra-oral camera, but often done with the big Canon Rebel for full-arch images and facial images."

### Paperless System

"Everything is so much easier without hard-copy charts and having to leaf through them to find things. We have been paperless now for more than five years and the ability to access the charts from anywhere (including my home in California where I now spend half my time) is invaluable. I sleep better knowing my data is protected from a disaster like flooding, fire or theft. We have multiple levels of backup including Raid server, Time Machine and cloud storage."

### Staff

"I have several long-term staff members. My office manager, Rosa, has been with me for 23 years. My main hygienist, Lori, has been with me for 16 years. My data entry and insurance person, Cliff, has been with me for seven years, and my main chairside assistant, Kim, has been with me for more than five years. Since I'm out of the office about half the time and the treatment is overseen by my associate, the patients are comforted by the stability of the surrounding staff and I can relax knowing that the office is in great hands when I am gone."

*The staff of Dr. Zuckerberg's practice (from left, back row) Rosa Cavalluzzi, office manager; Michelle Casarella, chairside assistant; Lori Bretts, hygienist; Vanessa Rodriguez, front desk manager; Dr. Lance Gordon, associate; (front row) Dr. Zuckerberg; and Kim Schiavone, chairside assistant.*

### Fish

"I specialize in treating phobic patients and find the fish theme and the big aquarium are both distracting and soothing to patients. The combination of the residential setting and aquarium theme allows them to forget they are in a clinical dental environment."

### CAD/CAM

"We have been using the E4D since December 2009 and are finding more and more cases to do with it every day. The high-tech design also reinforces my reputation of being the "Inspector Gadget" dentist. I find my patients rely on my being cutting edge to provide them with the latest technology to deliver the highest quality care. I have now treated several generations of families and they have seen me be among the first dentists to offer air abrasion cavity preps, digital X-rays, laser cavity detection, fully computerized office featuring paperless technology and now, same-day lab-quality ceramic restorations."



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already likes your page. If a prospective recipient gets this ad and sees that a friend of his or hers already likes your office, this is a powerful message. We all know word-of-mouth referrals are the best kind of referrals because the new patient comes with implicit trust.

**Your son Mark's accomplishments have been well documented. What has been your greatest moment celebrating his accomplishments?**

**Zuckerberg:** Firstly, I'd like to say that I am extremely proud of all four of my children and each one of them have not only accomplished great things in my eyes, but I look forward to more wonderful things from them in the future.

Almost every year Facebook hosts a conference called f8 that usually features a rollout of a new feature or service it is offering. The conferences are well attended by more than a thousand people. The people in the auditorium listen to every word Mark says and they applaud like Congress does during the President's State of the Union Address. That's always a huge thrill for me, but also whenever I hear personal stories from people who met and are now together as a couple because of Facebook or stories of citizens of a country using Facebook to affect meaningful change, those are the times I really feel the full impact of his accomplishments.

**I noticed on your site you have a link to join Tumblr. Tell me a little bit about Tumblr.**

**Zuckerberg:** My youngest daughter, Arielle, created my practice Tumblr using a lot of the same content I already had on my site. Most people use Tumblr as a blogging page but it is a reasonable way for people to create a Web site, which is very easy to post updates to. And the updates I do automatically go to Facebook and Twitter also. It kind of simplifies my job of updating all my electronic presences.

**Every dentist has patients who make comments about how much money the dentist makes. What is your favorite response to this comment?**

**Zuckerberg:** I live in the same community as my patients and drive the same kind of cars that they do, so when patients say I charge a lot (they will do that no matter how much I charge) or say something like, "I'm paying for your next vacation," I tell them what they are paying for is all my insurance, overhead and salaries for my great staff that takes wonderful care of them. I don't live a flamboyant life, although in the past 10 months since my first grandchild was born, I travel a lot to California to see him and my patients know I'm gone a lot, but when I tell them it's to see my grandchild, it's something they can relate to. Many are concerned that because of Mark's success I don't need money and will retire soon. I tell them I still

*"Whenever I hear stories of people who met and are now together as a couple because of Facebook, or stories of citizens of a country using Facebook to affect meaningful change, those are the times I really feel the impact of (Mark's) accomplishments."*

love dentistry and now in addition to practicing I am enjoying passing on my knowledge via lectures to my colleagues on how best to evaluate and integrate technology into their practices and why and how they should be using social media to market their practices.

**Do you consider yourself a person who loves to work, and will do so into semi-retirement, or will you pick a day, and just stop working?**

**Zuckerberg:** I'd like to keep working as long as I'm physically able. I'd love to continue serving the patients in the practice where I have worked for the last 31 years, but realistically the challenges of managing a practice from 3,000 miles away, even with a great staff are at times overwhelming. I'm searching now for the right person who can step in as my successor to the practice, handle most of the management duties in addition to serving the patients as a provider and allow me to serve the patient base part time without the management headaches. I think I'd also like to work with select offices on a one-to-one basis to bring them up to snuff in this great technological environment we live in.

**What are your thoughts on dentists using Groupon?**

**Zuckerberg:** A lot of people only buy products or services they already use. That said, it would be the worst-case scenario if someone who would likely be a full price buyer of your service was to have the ability to purchase the service – which he or she would purchase anyway – at a discount. This is not the kind of marketing that works in the dental office setting.

The New York State Dental Association is looking at this from a legal point of view. There is some potential violation of the dental practice act since we are not paying up front for the advertising, but the payment is based strictly on the referral. To pay for this type of referral service essentially amounts to fee splitting with a third party, which is illegal under the current N.Y. State Dental Practice Act.

**How can other dentists find you online?**

**Zuckerberg:** The office Web site is [www.painlessdrz.com](http://www.painlessdrz.com), our Facebook site is [www.facebook.com/painlessdrz](http://www.facebook.com/painlessdrz) and our Twitter handle is @painlessdrz. ■

# Officite Mobile Web sites: Reach Patients Anywhere, Anytime

Just as the Internet has grown and evolved in the last decade, so have the devices people use to access online information. Where a desktop computer was once the preferred method for accessing the Web, nowadays people are going mobile – using smartphones and tablet computers to stay connected on the go. Whether you're in the comfort of your home, at the office or sitting in the local sandwich shop, you can connect to the Web from virtually any place and at anytime. In fact, mobile Internet searches have grown by four times since 2010. And by 2013 more people will use their mobile devices than PCs to get online. For these reasons, a mobile Web site is an important component in reaching and communicating with your existing patients, as well as generating new patients.

Due to a mobile device's small size and slower speeds, many images, videos and Flash content that would normally appear and perform properly on a PC need to be modified for clear viewing on a smartphone or tablet computer. This is a complex process that involves decreasing image size, improving performance speed and recreating the look and feel of your Web site to a mobile format that reflects the branding of your full site.

Officite offers a true mobile Web site solution for dentists, re-creating a practice's traditional site to a mobile format that not only performs on a desktop computer, but works seamlessly on the small dimensions of a patient's smartphone or tablet.

## Complete Usability on All Mobile Devices

Officite's mobile Web sites work with all of the major smartphones and tablets, including iPhone, Blackberry, iPad and Android. Similar mobile Web site products offer patients a one- or two-page version of their traditional site, minimal content and limited usability. These products function more like a landing page for contact information, not an interactive Web site, and certainly don't provide a good user experience. Officite's mobile Web sites mirror the display and messaging on your traditional site, giving your patients the same meaningful experience on their phones that they would get on their desktops.

## Ease of Use

In the majority of cases, when a patient visits your Web site from their smartphone, they are ready to take action, whether it be calling for an appointment or finding directions to your office. Officite's Web sites are built precisely for mobile devices, meaning they are easier to navigate using touch, and help patients get to the information they're looking for faster. Once your site is mobile-ready, visitors – both existing and potential patients – will be able to easily and instantly navigate the content of your site on a cell phone, including mobile-specific features such as instant click-to-call, door-to-door office directions, appointment requests and access to social media sites and patient reviews.



## Content Adaptability

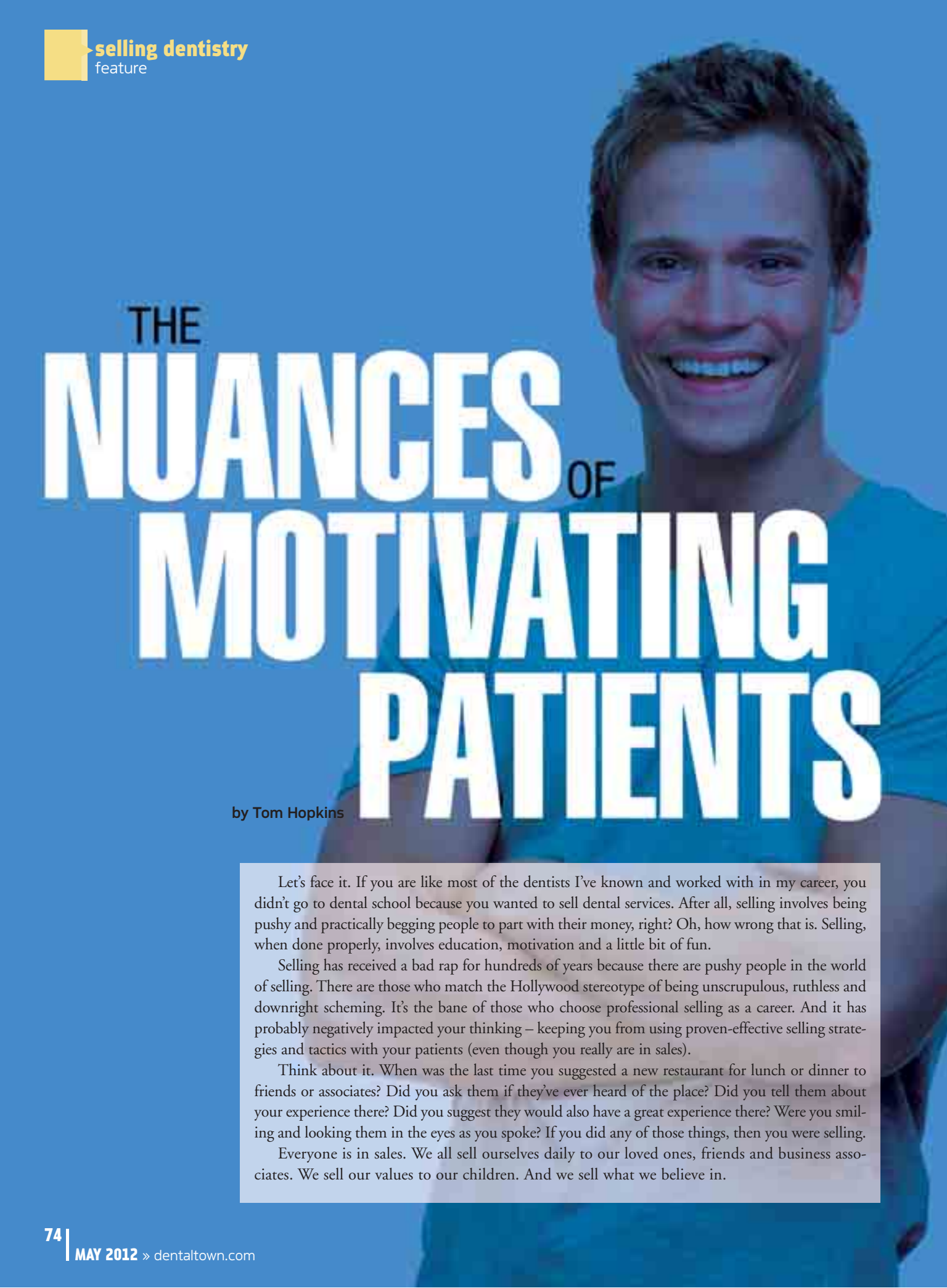
Updating your Web site is an important part of keeping your site relevant. Officite's mobile solution allows for easy content changes for both your traditional Web site and your mobile site. Any edits and changes made to your full-sized Web site will automatically be reflected on your mobile site, allowing for single-source editing that translates to Web site updates across every device.

## Conclusion

Officite's mobile Web site solution offers complete functionality and an engaging, easy-to-use interface that allows for more effective and efficient marketing than ever before. Patients who visit your site from a mobile device will enjoy the same great features and content that is available on your traditional site, and your practice will receive an increased flow of phone calls and appointment requests as a result of your high-performing mobile Web site. ■

## Company Contact

For more information about Officite mobile Web sites, visit [www.officite.com](http://www.officite.com) or call 800-908-2483.



# THE NUANCES OF MOTIVATING PATIENTS

by Tom Hopkins

Let's face it. If you are like most of the dentists I've known and worked with in my career, you didn't go to dental school because you wanted to sell dental services. After all, selling involves being pushy and practically begging people to part with their money, right? Oh, how wrong that is. Selling, when done properly, involves education, motivation and a little bit of fun.

Selling has received a bad rap for hundreds of years because there are pushy people in the world of selling. There are those who match the Hollywood stereotype of being unscrupulous, ruthless and downright scheming. It's the bane of those who choose professional selling as a career. And it has probably negatively impacted your thinking – keeping you from using proven-effective selling strategies and tactics with your patients (even though you really are in sales).

Think about it. When was the last time you suggested a new restaurant for lunch or dinner to friends or associates? Did you ask them if they've ever heard of the place? Did you tell them about your experience there? Did you suggest they would also have a great experience there? Were you smiling and looking them in the eyes as you spoke? If you did any of those things, then you were selling.

Everyone is in sales. We all sell ourselves daily to our loved ones, friends and business associates. We sell our values to our children. And we sell what we believe in.

You believe in the value and benefits of professional dental services. And, when you know of something that can make a powerful, positive difference in the lives of others it's your obligation to share it with them, to educate them and to sell them.

Your ability to educate others about how much better their lives will be with proper dental care will make a huge difference in your job satisfaction, the size of your practice and the income you generate each year. If it will make that much of a difference in your life and the lives of the patients you profess to care about, why not learn how to do it better?

You don't need to become a loud, pushy extrovert to sell dental services. In fact, introverts tend to make higher incomes in selling in general. That's because rather than shouting about their services from the rooftops, they ask questions to get the potential patients talking about their concerns, their lifestyles and their expectations. Then, with that information, expert dental advisors (salespeople) present the benefits of their services in such a way as to address all of the concerns the patients have expressed; making the "purchase" of additional dental services just a natural result of the process.

Done properly, it's not awkward. It's not demanding. It doesn't demean the patients if they choose not to go ahead at this time. It's just you and your staff being proactively helpful, but relying on a proven selling process to get results.

Yes, selling is a process. As with any process, it has multiple measurable steps that should be followed in a particular order if you want to have the best outcome. The process goes like this:

### 1. Prospecting

These are the methods you use to find new patients. They primarily include your marketing efforts and the system you use for getting referrals. And, yes, there is a system for getting referrals, too (see 7).

### 2. Initial Contact

This is all about the first impression your practice, staff and you make with the patients. This includes everything: your location, the cleanliness of the parking lot, the ease of entrance to your lobby, the colors, posters and paintings on the wall, the comfort of the chairs, what (if anything) is showing on the television, whether there is a partition between your front desk staff and the patients, the font size on the forms you use, the length of time in the waiting area, and how patients are greeted and spoken to while being escorted to the operatory. Then, the whole atmosphere of the operatory makes another impression – everything from the colors and the curtains on the window to the lighting.

### 3. Qualification

This is where you get to know the patients. What health issues do they have? Are there specific dental issues that brought them in? What would they like to have changed about their current dental state? Are they the final decision-maker? Or is there a parent or spouse to consult with? This is also the step in which you make your analysis by reviewing X-rays and doing a physical examination of their mouth.

A very important part of this step that is overlooked by most is to assure the patients that you have the ability to find just the right solution for their needs. They've poured their hearts out by answering all of your questions. They need reassurance that they've come to the right place for answers.

### 4. Presentation

Now, you are presenting the services you feel would provide them with the greatest benefit. Always remember the presentation of services must be based on the information the patients provided during qualification. It must be customized for them. When they feel you're talking specifically about their needs, not general dental practice, they start to envision themselves enjoying the benefits you offer. They begin taking ownership of the process required to achieve those results. In other words,

*Everyone is in selling. We all sell ourselves daily to our loved ones, friends and business associates. We sell our values to our children. And we sell what we believe in.*

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their level of sales acceptance is inching upward, toward making the “buying” decision, the commitment to the services.

## 5. Addressing Concerns

Few patients will ever say, “Sure, doc, whatever you say. Let me run up front and schedule all that work now.” Objecting to something is a natural defense mechanism we all employ when we experience fear. Usually, the patients’ fear is just that they feel compelled to commit to the services and just want to slow down the process.

Don’t fear objections or concerns that are raised. In most cases, they are nothing more than requests for additional information. When you view them that way, you will be better prepared for objections and be able to come across as a professional consultant, not a pushy salesperson.

The most important thing to remember in this stage of selling is not to jump right in with a quick answer. That reeks of “pushy-ness.” Even if you’ve heard the concern a thousand times, take a thoughtful pause before answering. Even better, ask a question about the concern before answering it. Try something like this: “Is that the only thing holding you back from committing to the procedure?” As you well know, some people have a whole string of concerns and objections when they learn that they need more than their regularly scheduled cleanings. You want to get them all out in the open before answering anything. Some patients will start with an objection about how soon you feel they should have the procedure done, but end up with the real concern of not being able to rationalize spending the money for it. By asking that one simple question, you give them the opportunity to voice everything they’re feeling about your recommendation, opening up the opportunity for further discussion or explanation. When all of their answers are confirmed, they will feel more comfortable about making a decision that is good for them.

## 6. Closing the Sale

This is the most important step of all, but the most feared by dentists and their staff members. That’s because they’re asking people to hand over their money. Did you notice how that phrase felt? “Hand over their money”? It makes the person asking sound a little like a bank robber or a mugger doesn’t it? It’s no wonder people have a negative image of selling!

What’s really happening is that the patient has agreed that the benefit of professional dental services outweighs the value of using their money for other goods and services. Now, it’s just a matter of how they want to handle that transaction. The simplest, least-fearful way of asking is to say these words: “How would you like to handle your fees today? Cash, check or credit card?” It can be treated matter-of-factly like that and no one will take offense to it.

Of course, there are situations where the cliché of the patients’ “eyeballs are bigger than their stomachs” apply, meaning they want all the services, but simply don’t have the budget for them. That’s when you would apply sales strategies that help them rationalize investing money in their mouths and figuring out where that money can come from. Once you know the strategies, it’s just a matter of using the one that’s best for each patient’s situation – just like you would provide a specific recommended treatment for each patient’s needs.

## 7. Getting Referrals

Most dental practices have this step of the sales process in place in some way or another. The true skill is in helping patients come up with the names and contact information for those potential new patients. There are simple steps within this step of the selling process that, when properly applied, will get you at least five referrals from every patient. And for most patients you already have the information you need to use this strategy effectively just from the conversations you’ve had with them.

There you have an outline of the seven steps of the selling process. It might seem like a lot of information but that’s because effective selling involves a myriad of nuances. You don’t want to go overboard and stress over this. However, every nuance that works to the positive with your patients will move them one step closer to becoming a lifetime patient, having all the recommended services done and helping you grow your practice with referrals.

As you well know, people have thousands of reasons to avoid coming to you. Some will make any excuse to stop visiting the dentist at all or to switching dentists many times over their lifetimes for what seems to you to be petty matters. The important thing to remember is that those matters aren't petty to them.

The most basic key to having a successful dental practice is to learn how to help people like you, trust you and want to listen to you. This happens when they have a positive experience from the moment they pull into your parking lot to the moment they walk back out to their cars. During this entire process, assume they are daring you to make them feel better about themselves because of knowing you. And through the use of simple, yet effective, selling strategies you can make that happen more times than not.

You invest hundreds of hours in educating yourself and developing your treatment skills. Why not include a bit of sales process training in the mix so you can use those skills to help more patients? ■

### Author's Bio



**Tom Hopkins** is a world-renowned expert and authority on selling and salesmanship. His simple, yet powerful strategies have been proven effective in many industries including the dental industry and during all types of economic cycles. The foundation of his training includes both the "people skills" of proper communication and the nuances that impact every situation where you are trying to persuade others. Tom's style of delivery is practical and entertaining – making the strategies easy to remember and implement. Learn more about how Tom Hopkins can help you increase revenues in your practice at [www.tomhopkins.com/blog](http://www.tomhopkins.com/blog).

Tom's Three-day Boot Camp Sales Mastery will be held August 23, 24 & 25 in Scottsdale. Information can be found at: [www.tomhopkins.com/boot\\_camp.shtml](http://www.tomhopkins.com/boot_camp.shtml). Details about Tom's speaking schedule can be found at [www.tomhopkins.com/live\\_events.shtml](http://www.tomhopkins.com/live_events.shtml).



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# Do Good [International]

In terms of gross national income, the United States is in the top three nations. This means there are 189 countries in the world making less per household than the average U.S. family does. Although there are many needs here in America (as evidenced in last May's Do Good issue of *Dentaltown Magazine*), this time around we've decided to focus on international charitable dentistry.

Being a dentist isn't easy, but as a dentist you have an incredible opportunity to use your skills and talents for good, which is why most of us joined the dental profession in the first place.

Maybe volunteering in the U.S. or abroad isn't something you've thought about before or maybe it's been something on your to-do list. Either way, *Dentaltown* has you covered. For this section, we've talked to charitable dentists ranging from the dental student who wanted to spend his spring break doing something more purposeful than sitting on a beach (see page 94), to the man who dedicated the last 30 years to building a health-care infrastructure in Haiti (see page 98). Whether you have just a few days to give or an entire lifetime, there are countless opportunities to do good.

We know the process can be overwhelming to some, so we've compiled resources you might need. Not sure where to go? Check out "Find a Volunteer Opportunity" on page 86. Not sure how to plan or what to bring? We've got your back with "You Should Know: Before You Go" on pages 80 and "Dr. Gordon Christensen on Preparing for a Humanitarian Service Trip" on page 82. Need inspiration? ...Well, we think the whole section might do the trick. Keep us updated on your adventures with charitable dentistry by posting your discussions on the Dentaltown.com message boards.

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# You Should Know: **Before**

## Passport

Borders are tight, so chances are you already have a passport. But on the off chance that you don't, you'll need to apply at least six weeks before your trip abroad. Make sure to check the expiration date of your passport to ensure it is still valid for your trip. Whether applying for a passport for the first time or renewing an expired document, visit [travel.state.gov/passport/passport\\_1738.html](http://travel.state.gov/passport/passport_1738.html) for step-by-step instructions.

## Visa

Countries vary one to the next when it comes to visa requirements. Some countries require you to apply for a visa months prior to your departure. Some will require you to purchase a visa at customs upon arrival, and others will stamp your passport and give you a warm hello with little question. It's important to know exactly what your destination's visa requirements specify well in advance of the trip. Visit [travel.state.gov/visa/](http://travel.state.gov/visa/) for up-to-date visa information for every country in the world.

## Vaccinations

Developing countries often deal with diseases uncommon to the U.S. These include typhoid, yellow fever, malaria and hepatitis. Luckily, you have the opportunity (and often requirement) to prevent them before you ever get on the airplane.

Research which vaccinations you'll need by visiting the Centers for Disease Control and Prevention Web site at [wwwnc.cdc.gov/travel/destinations/list.htm](http://wwwnc.cdc.gov/travel/destinations/list.htm). Select the country you are bound for and then click the sidebar tab that says, "Preparing for your trip to X." This link will tell you all the immunizations you need. Print it and bring it with you to the doctor for easy reference.

You can get most common vaccinations just by making an appointment with your primary care provider. For a select few, like yellow fever, for example, you will need to go to a county health clinic or pharmacy that is certified to

Wading through the preparations for a trip can be daunting. Packing half the clothes and twice the money isn't the only trick we've got up our sleeve.

by Chelsea Knorr,  
Associate Editor,  
*Dentaltown Magazine*

# You Go

administer the vaccine. To find the nearest yellow fever vaccination clinic, visit: [wwwnc.cdc.gov/travel/yellow-fever-vaccination-clinics/search.htm](http://wwwnc.cdc.gov/travel/yellow-fever-vaccination-clinics/search.htm)

## Insurance

Does your insurance cover you when you leave the country? Find out before you leave. If you need emergency coverage or want to supplement the coverage you already have, there are any number of credible travel insurance companies that exist for that sole purpose.

## Clothing

It's important to know both the climate and culture of your destination. If it will be humid, you will want to bring lightweight, moisture-wicking clothes. If it will be cold, you'll want to make sure you pack layers and have sufficient bedding. Even more pressing than preparing for the weather is being respectful of cultural boundaries. Many countries' dress is much more conservative than the U.S. You may find it is disrespectful for men and women to wear shorts, or for women to show their shoulders. Research your destination before shopping or packing to find out what attire is acceptable.

## Last Minute To-Dos

- Make copies of important documents.
- Give a copy of your itinerary and copies of important documents to a close friend or family member.
- Confirm your flight times and print boarding passes.
- Pack passport and immunization records in an accessible location for retrieval at customs upon arrival.
- Keep liquids in your checked baggage or in 3oz containers in a small plastic bag in your carry-on.
- Pack cash and any valuables in several different places in your luggage to assuage theft.
- Depending on which organization your trip is organized by, you may need to bring your own equipment and supplies. Check beforehand! ■

# Dr. Gordon Christensen on Preparing for a Humanitarian Service Trip

By Douglas Carlsen, DDS

*Many dentists have the impulse for volunteering in foreign countries yet can't seem to fit in into their busy lives of hard work and constant distraction. Gordon Christensen, probably the busiest dentist on the planet, provides insight and talks about the financial preparations, which must be made to save for a trip, the tax deductions involved and how to go about taking time off work.*

Along with his vast dental research and international lecturing, Dr. Gordon Christensen has been involved with dentistry in third-world countries for years. He has worked extensively with the Academy of LDS Dentists, frequently in South America, India and many other countries.

I recently had the pleasure to ask Dr. Christensen about his international dental work for those in need.

**Carlsen:** You have spent a significant amount of time away from your practice for research, lecturing and providing guidance to the profession over the years. In other words, you are the ultimate dentist volunteer. How can the normal, busy private practitioner with high overhead finance a couple weeks volunteering internationally?

**Christensen:** Donating the time to do humanitarian service is a challenge, but it can be done on a routine basis. You plan the time away in your annual schedule, as you would plan a vacation, and just do it. Yes, it costs some money, but the reward is literally tears of thankfulness from those who receive your services or education.

There are many ways to assist needy patients in developing countries. The most common one that you hear routinely is providing hands-on treatment. This type of service is extremely helpful for the few patients you treat, but the scope of the impact is limited to just those people.

On the other hand, teaching dentists, dental hygienists, assistants and dental technicians in developing countries can be more influential than hands-on treatment. Every year for many years, I have volunteered free seminars in numerous developing countries. I take a few selected dentists from the Academy of LDS Dentists and go to developing countries to provide CE courses. You may go to [www.academyofldsdentists.com](http://www.academyofldsdentists.com) to learn more about the Academy and the service/education that we offer.

As an example, we did such an endeavor in five large cities in Mexico in which we taught about 1,000 dentists in each city, or 5,000 dentists total. Each practice has about 2,000 patients, so we influenced up to 10 million patients in one week's time.

Of course, either way works: hands-on or education.

**Carlsen: Are there business deductions or CE credits available for international dental work?**

**Christensen:** Tax deductions are a controversial subject for donated time. Most do not try. I suggest talking to your tax consultant on this subject. If you donate money to a legal charity providing service (501(c)3 corporation), certainly you could use it as a tax write-off. I have never taken any CE credit for such work, but I assume it is possible.

**Carlsen: How have you found the experience affects dentists upon returning: emotionally, spiritually and financially?**

**Christensen:** There is no question that such projects are life changing for the dentist and staff. They come home from a humanitarian project literally different people. It is hard to go back to something like bleaching teeth after seeing the influence of treating people in genuine need.

Any such project changes opinions and attitudes about life in general and dental practice. It often reduces a money orientation that, unfortunately, some dentists and other health practitioners have. These kinds of projects are especially valuable for pre-dental and dental students.

**Carlsen: I have found that dentists who have donated either significant time or money to organizations have increased savings and overall wealth. Do you agree? And if so, elaborate.**

**Christensen:** Any good deed comes back around to bless the giver. Humanitarian service pays the giver in many ways, even in additional revenue.

**Carlsen: Do you have specific recommendations for dentists who wish to inquire about participation in international programs? The ADA list can be found at [internationalvolunteer.ada.org](http://internationalvolunteer.ada.org) (see page 86 in this issue) yet the readers will be interested in your specific recommendations.**

**Christensen:** I mentioned the Academy of LDS Dentists' Web site. There are many projects going on at all times for dentists of all faiths. Additionally, the Trudi Birger clinic in Jerusalem ([americanfriendsofdvi.org/trudi\\_birger.php](http://americanfriendsofdvi.org/trudi_birger.php)) provides treatment for children of all religions. This clinic is administered by the Dental Volunteers of Israel (DVI). It has been one of my favorite charities. Many dentists from around the world go there for a short period of time and combine the humanitarian experience with a tour of the Holy Land. There are many other opportunities that interested dentists can find on the net.

**Dr. Christensen shared that if he spent his time only treating patients, his service would help 50 to 100 patients. However, by teaching dentists current, state-of-the-art techniques, he ultimately serves more patients. Therefore, he personally focuses his time abroad lecturing dental professionals.**

**Please take note of this option. Foreign dentists are in dire need of the newest and most cost-effective procedures and materials for their people.**

**Finally, Practical Clinical Courses has provided many educational DVDs to U.S. dentists who are volunteering service in countries abroad. Contact at 800-223-6569 or [www.pccdental.com](http://www.pccdental.com). ■**

**Contributors**

**Douglas Carlsen, DDS**, has delivered independent financial education to dentists since retiring from his practice in 2004 at age 53. For Dentists' Financial Newsletter, visit [www.golichcarlsen.com](http://www.golichcarlsen.com) and find "newsletter" button at the bottom of the home page. Additional Carlsen *Dentaltown* articles are at [www.towniecentral.com](http://www.towniecentral.com). Search "Carlsen." Videos available at [www.youtube.com/user/DrDougCarlsen](http://www.youtube.com/user/DrDougCarlsen). Contact Dr. Carlsen at [drcarlsen@gmail.com](mailto:drcarlsen@gmail.com) or 760-535-1621.

**Dr. Gordon Christensen** is the founder of Practical Clinical Courses, a continuing dental education organization. He has helped initiate two new dental schools, delivered more than 40,000 hours of continuing education, is co-founder and CEO of *Clinicians Report* a non-profit research organization, and has written hundreds of articles and several books.



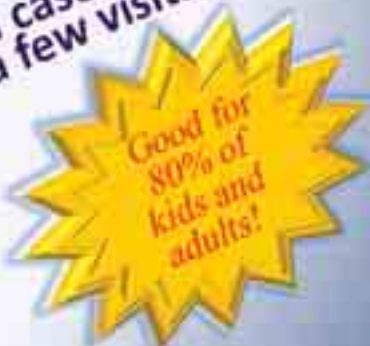


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# Find a Volunteer OPPORTUNITY

You can find the trip that's right for you  
by using the ADA's free online database.

Dental professionals interested in volunteering internationally can find current oral health volunteer opportunities, as well as a database of volunteer organizations working to improve oral health, on the American Dental Association's (ADA) International Volunteer Web page – <http://internationalvolunteer.ada.org>. Visitors to the site can browse or search for volunteer organizations by country or region served, program type, and/or religious affiliation to find an opportunity tailored according to individual preference. The Web site also provides a guide to international volunteering including how to select an opportunity, preparing for a trip, organizing your dental office before leaving, safety precautions and what to expect upon return-

ing home. A special section of the Web page called *The Volunteer Connection* lists organizations seeking dentists and dental professionals for volunteer trips in the current year.

In 2009, the ADA Division of Global Affairs launched the International Volunteer Web page, a comprehensive, user-friendly resource for interested oral health professionals to learn about volunteerism and to easily identify a suitable volunteer opportunity with a database of more than 100 volunteer organizations. The quality of the site was recognized with an Association Media & Publishing Silver Excel award.

Visit <http://internationalvolunteer.ada.org> to find the trip that's right for you. ■



UNITY!

## Tribute to Dr. Thomas Grams

Dr. Thomas Grams, of Durango, Colorado, was passionate for mission work abroad. And in our International Do-Good Issue, we couldn't possibly let the opportunity slip to recognize his valiant heroism and compassion. Grams went on more than 30 trips with Global Dental Exhibitions and treated upward of 20,000 children in need of oral care.

In 2007, Dr. Grams retired from his practice in Colorado in order to work in the remote villages of the third-world countries that needed his services the most, particularly the remote villages of Afghanistan.

In 2010, while on a trip, Dr. Grams was killed, by what the Taliban later claimed as its heinous act.

The ADA News reported:

*According to press reports and a press release from International Assistance Mission, the bodies of 10 volunteers from its Nuristan Eye Camp team were found in Badakhshan on Aug. 6. Dr. Grams was one of six Americans killed after a two-week health care mission to provide free care to children in remote villages in the Nuristan province, about 160 miles north of Kabul. The health care team had trekked 100 miles in the mountains to set up the clinic.*

Encountering death on a volunteer trip is extremely rare, but then again, Dr. Grams lived far from a typical existence. It is here we wish to pause and once again remember and honor Dr. Grams for exemplifying true heroism and charity.—Chelsea Knorr

Reference: <http://www.ada.org/news/4568.aspx>



Photo Credit: Global Dental Relief

# Dental Volunteers in NEPAL

*Global Dental Relief trip leader discusses how a nonprofit organization plans a volunteer trip, in this case, to Nepal, and what it's like from the leader's point of view.* by Laurie Mathews

The clouds parted to show the gleaming gold spire of the Boudha stupa as we circled to land in Kathmandu, Nepal. This is my first trip to the valley in 2011, and I am arriving to lead two, weeklong dental camps to provide care for children. Driving from the airport, the swirl of pedestrians in bright colored saris, the din of motorcycles carrying whole families, and the intensity of light and color bring back memories of this incredible place.

Since 2001, Global Dental Relief/Expeditions (GDR) has brought teams of volunteer dentists, hygienists, dental assistants and non-dental volunteers to Nepal. Volunteers provide first-time dental care and oral health education to children in local

schools, orphanages and remote village locations. As co-director of this Denver-based charity, my work is highly varied – including recruiting volunteers, organizing camp supplies and equipment and, finally, hosting groups for weeklong dental camps. Global Dental Relief began its work in Nepal but over the past 10 years has expanded to reach kids in northern India, Vietnam and the Mayan highlands of Guatemala.

## Getting Started

Advance work for a dental camp is always chock-full of tasks. Each GDR camp is led by two trip leaders, usually volunteers who return year after year to host projects. Today I meet up



with Geoff Hoffman, a recently retired dentist from Denver, Colorado. Geoff and his wife Maryanne have volunteered on countless trips with GDR, and he recently joined our trip leader staff. Together, Geoff and I have a full day ahead that starts with meeting the principal at the clinic location to coordinate schedules and duties.

GDR works at the Shree Mangal Dvip school in Boudha, Kathmandu, where we spend the first day transforming a large set of classrooms into a fully functioning six-chair dental clinic. Excitement mounts as word spreads that the dental clinic is back. Students gather at the door to discuss the proceedings – some enthusiastically call out *Namaste*, the local greeting, while others hang back shyly awaiting notice. The cooks with strong backs arrive to unload our 9x5 storage closet which is full to the brim with all the makings of a dental clinic – chairs, compressors, dental units, instruments and supplies.

Within the hour, the bones of the clinic emerge. Portable dental chairs are set in place to define operatory locations. Bookshelves are loaded with gauze, gloves and all the varied supplies that must be on hand. Senior students at the school, well-versed in the clinic protocol, sterilize the instruments and set up tables loaded with restorative and extraction instruments. The hum of activity rises as we proceed to final touches, setting up cavitrons at each hygiene station, laying out supply tables and finding just the right spot for the jointly shared amalgamator. After five hours of intense activity, the clinic seems ready for action. The students, Geoff and I kick back to share some time catching up after six months apart.

Day two is always a favorite day as volunteers begin to arrive full of enthusiasm and a bit bleary from too many time zones crossed. Each dental camp hosts four dentists, two to three hygienists and up to eight non-dental volunteers. This group, along with the two trip leaders, will meld over the coming week to form a cohesive dental machine serving between 800 and 1,000 children with first-time or follow-up dental care. During evening hours and days off the group enjoys high-spirited time seeing local sights and spending social time together.

Our new arrivals include four dentists and three hygienists from Massachusetts, California, New York, Colorado and Canada. Seven non-dental folks round out the group, including two spouses, with backgrounds in computer science and real estate, a journalist, a CEO of a large office supply firm and two retirees. Close to half the group are repeat volunteers either returning to Nepal or veterans of GDR projects in other countries.

Group activities start the next day with a tour to see highlights of the Kathmandu valley before the hard work of the clinic begins. Today, we visit the sacred river temples of Pashupati, the historic city square of nearby Patan and the bustling trekking center full of mountain-bound travelers in Thamel. After lunch, the group gathers at the clinic as Geoff and I brief participants about a typical clinic day and acquaint dentists and hygienists with their equipment and supplies. We also lead a quick course in dental clinics and charting for the non-dental volunteers to learn their duties in supporting the clinic.

### The Clinic Begins

On day four the clinic begins in earnest. Each day the clinic treats children from a local school or charity home – up to 180 kids a day will pass through the clinic. The public health model GDR has adapted involves seeing all the children in a school – giving each child an exam, a cleaning when possible and then completing the restorative and extractive work needed. Completing this work might take up to three visits, so children are carefully charted to ensure they return. Each child also receives a fluoride varnish treatment, a toothbrush and small group instruction on brushing and general oral health education.

Most importantly, we see these same groups of children every two years. This approach pays off – after 10 years of work in Nepal, the children we have seen for six to eight years in a row

*Volunteers provide first-time dental care and oral health education to children in local schools, orphanages and remote village locations.*



continued on page 90

arrive with well-brushed teeth and significantly reduced treatment needs. Overall, the numbers of extractions are dramatically reduced and restorations are much smaller in size and number. The health of the group seems markedly improved, as patients are relieved of the chronic pain and infection often present in untreated populations of kids.

We love these returning kids who excitedly call out “two times a day,” and “two minutes,” and other correct answers during the tooth brushing sessions. Their bright and healthy smiles light up the whole day. For each clinic, about half the children are returning to receive long-term care and half are new children just joining the project.

The first day of clinic is full of excitement, a bit of chaos and a lot of hard work as volunteers settle into their roles. For the dentists, it means adapting their skills to match field conditions and equipment. GDR provides portable dental units, which run off a large air compressor, along with sturdy portable dental chairs and doctor’s stools. Hygienists each have the same set up along with a cavitron.

Each dental professional is assisted by either a volunteer or a senior student at the school. These students are a highlight of the clinic – they speak excellent English, have a magic touch in calming a child, and are well-versed in many basic dental assisting skills. Getting assigned to the dental camp is highly sought after and only the top students achieve this coveted job. Students provide a window for volunteers into this different culture, making many new and lasting friendships.

Non-dental volunteers are the real heroes of the clinic as they learn completely new tasks that keep the clinic efficient and functioning. Typically, one volunteer manages the long lines of kids, making sure they have their dental charts, receive toothbrushes and education, and remain happy and involved until their name is called. Other volunteers escort children to dental chairs, manage clinic records, work chairside as assistants or help with instrument sterilization. Together, we try to make each child feel special. Volunteers work hard to ensure children get the care and comfort they need throughout the clinic experience.

As trip leaders, Geoff and I work hard to get the clinic underway. My job is to ensure we have a supply of kids to treat. I also work with the non-dental volunteers to ease them into their jobs. Geoff focuses on the dentists and hygienists, consulting on treatment planning and directing patient

flow. Together we cope with machine malfunctions and all the unexpected demands of the day. All the while, we wait for that magic moment in each clinic when everything suddenly settles, when the volunteers are confident and hard at work. This magic moment typically comes around noon the first day. With luck, this is the way the clinic proceeds over the six days to follow.

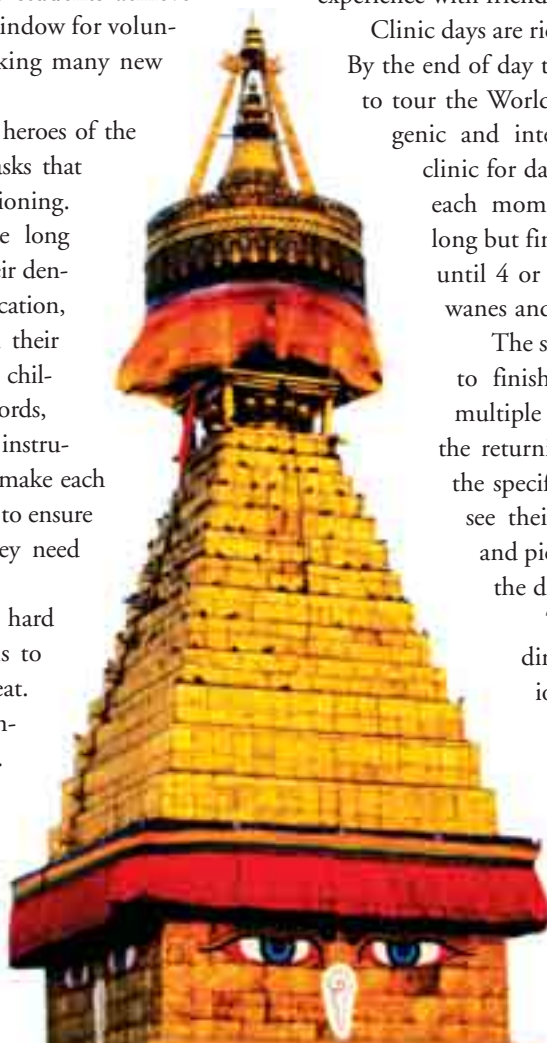
As this clinic settles into a routine, smiles appear and grow on volunteers’ faces as they master the details of their task and relax into the rhythm of the clinic. Now our focus can transfer to the best part of the clinic experience – the children we treat. We love these kids who smile bravely as they wait for their turn in the dental chair. Some children are so excited that they walk the entire distance to the dental chair with their mouths wide open – a sight we never tire of watching!

Clinic days are full of these unforgettable moments. Volunteers point and nod to share the look of a small girl with huge eyes solemnly greeting her first dentist. We enjoy the kids in line, especially those watching so closely that they know the route through all the stations without being told. Each of us is touched by the trust of a small child who grabs your hand tightly during dental care, or who peers intently for several minutes to select just the right sticker as she leaves the clinic. During breaks we watch a child leave the clinic, mouth wide open, gesturing and pointing to his teeth as he avidly shares the clinic experience with friends and those still in line.

Clinic days are rich and rewarding, but also demanding. By the end of day three the group is grateful for a day off to tour the World Heritage site in Bhaktapur, a photogenic and interesting Newari village. Back in the clinic for days four and five, time seems to fly and each moment becomes more special. Days are long but finite – work starts around 8:30 and goes until 4 or 5 or when the line of children finally wanes and disappears.

The sixth and last day of the clinic is devoted to finishing treatment on children requiring multiple days of care. Volunteers enjoy greeting the returning children, some of whom point to the specific dental chair they prefer so they can see their same dentist again. Group pictures and pictures with new friends are a big part of the day.

That evening is capped with a special dinner shared by volunteers and the senior students who worked so hard in the clinic. At dinner, one dentist reads a spontaneous poem that relates something about each person in the clinic – to misty eyes and big smiles. Clinic stats are announced – in



six days the group completed 1,248 patient visits, mostly children with a sprinkling of teachers as well. Donated care includes 753 restorations, 99 primary extractions, 43 adult extractions, 233 cleanings and 600 fluoride treatments. Total care is calculated to be \$207,420 in U.S. equivalents. These remarkable numbers are celebrated to long applause. The night ends with heartfelt goodbyes, e-mail address exchanges and a sense of teamwork.

The next morning the group disperses with many leaving at dawn to catch a flight to Lukla to begin a five-day trek on the Everest trail topping off at 14,000 feet. The remainder head to the airport and home, except for a few volunteers who plan to stay for our second camp just days away. It is a bittersweet time filled with knowledge of a job well done and hope that new friends will remain so for years to come.

### About GDR

*Global Dental Relief is a Denver-based charity dedicated to providing dental care to children in need. Treatment and care is provided by volunteer dentists, hygienists, dental assistants and non-dental volunteers. Logistics for volunteers are coordinated by Global Dental Expeditions dedicated to humanitarian journeys to serve children in need. At present, GDR/E works in Nepal, northern India, Vietnam and Guatemala.*

*Volunteers are needed to join 10 to 12 clinics a year. Clinics are typically six days, followed by optional sightseeing adventures. In total, trips generally last between 10 and 21 days. Trip descriptions, daily itineraries and costs can be found on the Web site [www.globaldentalrelief.org](http://www.globaldentalrelief.org). To contact GDR/E directly, call 800-543-1171 or 303-858-8857 or e-mail Kim Troggio at [kimt@globaldentalrelief.org](mailto:kimt@globaldentalrelief.org). ■*

### Author's Bio

**Laurie Mathews** is a founder and co-director of Global Dental Relief/Expeditions, which started in 2001. From 1991 to 2001 she served as the director of Colorado State Parks. Prior to that she worked for the Department of Natural Resources and the U.S. Senate in energy and environmental policy. She is based in Denver, Colorado.



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In the 1990s, “Clinica Betel” was founded. Now, owned and operated by Latin World Ministries, the clinic is dedicated to assuaging access to care in the state of Guerro, Mexico. Dr. Jerome Smith, missionary dentist, tells us more about this practice south of the border, and why he chooses to volunteer his time.

**How did this clinic come about? Can you give us some background?**

**Smith:** A missionary by the name of Reverend Larry Myers of Dennison, Texas, ventured down to Southern Mexico long before the clinic was conceptualized. He built a small church to minister to the people of the area. He could see early on that many of them had medical and dental needs beyond anything he’d ever seen back at home. He happened to become a patient of mine and I mentioned an interest in going to Atoyac de Alvarez, Mexico with him along with a dental colleague, Dr. Carl Breaux. We returned year after year doing nothing but extractions. Eventually, after bringing a young boy to the States who needed bilateral cleft palate surgery, a number of physicians became involved along with

many members of our local health-care community. And as they say, “the rest is history.”

The concept of building a medical-dental clinic along with a hospital became a vision of the core group that began going down to Atoyac in the early days. I’d say that it was after our fourth or fifth trip that the idea of offering more extensive medical and dental care began to sink in. Fr. Tom Shafer, a former radiology technician and his wife, Deanna, volunteered to move to Atoyac to run the clinic and have devoted their lives to seeing this come to fruition.

The clinic is owned by Latin World Ministries, which basically consists of Fr. Tom Shaffer and a small advisory board. The clinic employs a Mexican physician, nurse and dentist on a part-time basis to serve the needs of the people each and every week of the year.

**What is the local population? How big of an area does the clinic serve?**

**Smith:** 100,000 people

**What services are available in addition to dentistry?**

**Smith:** Cleft palate surgery, plastic surgery, general surgery (e.g. cholecystectomies, hernia surgery, etc.),



**MISSION**  
**in MEXICO**

by Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

OB-GYN surgery, orthopedic surgery, eye surgeries (e.g. cataract surgery) and orthognathic surgery.

### Does the clinic operate year-round?

**Smith:** We have a number of campaigns that occur year round. Our medical, dental and optometry campaign is usually in January of each year and consists of around 45-50 health-care volunteers. During our most recent campaign, we had the following:

- 400 eye exams and most of these patients were fitted for prescription glasses
- 60 medical surgical procedures in the operating room with general anesthesia. These included cleft palate surgeries, gall bladder surgery, hernia surgeries, etc. Also a number of small children including developmentally disabled children requiring extractions were treated in the O.R. as well.
- 350 dental patients were seen with procedures mostly done by senior dental students from A.T. Still School of Dentistry (Mesa, Arizona). These included extractions, endodontics, fillings, and some limited fixed and removable prosthodontics.

In August of each year, a dental campaign is organized for dental students from LSU School of Dentistry and A.T. Still dental school.

During those campaigns, we bring our equipment, skills and services up into the mountains to treat villagers who cannot come to Atoyac for dental care in January. This has been a wonderful teaching opportunity and learning experience, which has gone on for the past 10 years.

In November of each year, a team of ophthalmologists has a campaign and performs various eye surgeries for those who do not have access to that type of care in Mexico.

Also, there are Water Well Teams that come to Atoyac month after month each year to drill water wells in many of the surrounding villages that have no access to fresh water! Check out [www.latinworldministries.com/Agua-Ministries](http://www.latinworldministries.com/Agua-Ministries) if you want to learn more about it.

**How often are mission trips scheduled, and how many volunteers can you accommodate at one time?**

**Smith:** We schedule four to five trips per year, two of which are dental. We can accommodate 45 to 50 volunteers at a time.

### Do you also need dental assistants and hygienists?

**Smith:** Yes!

### Where do supplies come from?

**Smith:** The clinic is a non profit organization and operates on a true “shoestring budget.” Our volunteer dentists, physicians and optometrists purchase most supplies. We also do receive some supplies from medical and dental reps from various companies. Many local hospitals, rotary clubs and private individuals have also donated funds for the acquisition of supplies and equipment.

### What would you tell a dentist who has never done volunteer dental treatment? How is it different from what he or she does at the office every day?

**Smith:** It requires some resourcefulness and the ability to “think outside of the box.” Managing a line of patients, some of which have spent the night in front of the clinic, and keeping treatment flow steady is a challenge. Also, an anterior tooth that could really use an e.max crown – consider making a composite crown on site using Mylar crown forms and VLC composite.

### Any advice?

**Smith:** For those going on mission trips: plan carefully. It’s really a drag to spend an entire day in and out of airports along with highway travel only to discover you didn’t bring enough local anesthetic or the wrong size gloves. Careful planning is key.

For those wanting to establish a clinic abroad: don’t try and reinvent the wheel. Make a trip to a mission such as ours and take good notes. After 20 years of doing this, we can tell you what to do and what not to do.

**Thanks, Jerome! ■**

To learn more about the clinic, visit [www.latinworldministries.com](http://www.latinworldministries.com). If you’d like to donate time, money or supplies, you can also contact Dr. Jerome Smith directly at [jerome@jeromesmithdds.com](mailto:jerome@jeromesmithdds.com).

# More Than One Reason to Go

by Taylor Wilkens, DDS

I jumped at the opportunity to join a trip to Roatan, Honduras. Throughout my life I've always been enrolled in schools that have incorporated service outreach into their curriculum, which is why a year ago I had the chance to join a few of my classmates and instructors for a trip to Central America. You might think I'm crazy for giving up my spring break and also working for free, but I found this trip to be fulfilling in so many ways – both for traveling to a new place and for helping others.

I have been on several volunteer trips, but Roatan was different than any of the other places I had traveled. The island as a whole is absolutely beautiful – crystal blue water, tall palm trees,

white sandy beaches. While the western half of the island serves as a tourist destination full of shops, scuba diving opportunities, hotels and food, the eastern side is a different story. The east end of the island suffers from lack of clean water, food, shelter, health care, education and much more. Their lack of basic needs clashes from the excess of the other half of the island. This east side is where we stayed and worked for one week.

Our volunteer team was comprised of a medical group, a dental group and a children's care group. There were also a number of volunteers who came to work on non-medical-related projects like installing biosand water filters. I worked on the

dental team as a third-year dental student with two of my classmates and five instructors – a pediatric dentist, an orthodontist, an endodontist, a general dentist and a hygienist. (You, of course, do not need this spectrum of specialists to have a successful trip.)

We were fortunate enough to have brought five portable dental units with us. These each folded up to fit into a briefcase. We also brought dental chairs made of PVC pipe and strapping. We connected a shop vac to the five units for suction and a few air compressors were used for the high- and slow-speed handpieces. We also had a handheld X-ray unit, which was used to aid in diagnosis.

Word spread fast that medical and dental teams were in town and people started trickling in. We soon had a very long line of people in need of dental treatment and worked every day from eight in the morning to six at night to treat as many people as possible. My classmates and I each saw around 10 to 12 people per day.

Unfortunately the dental care in third-world countries is so scarce that most individuals needed too much help for just the one week we were there. Because of this, we had to limit their treatment to deal with their most pressing needs. The majority of procedures were extractions and amalgam fillings. A local church in Southern California sponsors this particular location in Honduras, and returns with new volunteers (and some returnees) each year. The goal in returning is so treatment can be continued on the same patients and conditions can be monitored as best possible.

Although the trip was planned around volunteerism, Friday was designated a “play day” where we headed to the other side of the island for some beach time. It is fairly common for volunteer trips to designate a day or more to sightsee or relax. Depending

on the length of the trip, it might be planned to prevent burnout or keep up morale.

The trip was rewarding for me on a number of levels. One benefit for me was being able to travel to a new country I had never been to before. I was able to gain more clinical experience and had one-on-one help from any of the five instructors on the trip with us. Any trip out of your comfort zone and out of the country increases your flexibility and cultural awareness. I think it’s easy to sit at home and just assume that other, more important people are handling all the tough problems in the world. But take one trip like this and you realize that the world is not how you imagine it, or how you want it to be.

One benefit of the trip, which I didn’t really understand until I was there, was the connections I made with people from my community. Working with other people toward a common goal certainly strengthens the bond between staff members and colleagues – I’d argue, its one of the best ways.

Traveling, seeing new sights and experiencing new cultures are some of my favorite things to do. When I can help make a difference in the communities I’m visiting at the same time, the trip becomes so much more meaningful.

If you are interested in getting involved in a mission trip such as this one, there are a number of places you can search out. Often high schools and colleges organize these types trips during their spring and summer vacations. Try contacting their service learning departments and asking if there is a way you can help. You can also check local churches. Another option is to gather a group of your friends and plan a trip of your own. It doesn’t need to be medically or dentally driven – there is just as much need for education [Editor’s note: see page 86 for additional resources]. I encourage you to ask around and see what is available. Perhaps you will find an opportunity that you just can’t pass up. ■



## Author’s Bio

**Dr. Taylor Wilkens**, originally from Spokane, Washington, is a recent graduate of Loma Linda University’s School of Dentistry. He wishes to return to the Northwest and give back to the community that gave so much to him. He plans on continuing to play a part in service outreach not only locally, but also abroad.



# Want a Bucket-List Vacation?

Try This!

by Douglas Carlsen, DDS

Dr. Akbarali Thobhani's humble comments provide insight, especially to medical professionals, that happiness is not all about income and possessions.

My 2011 summer vacation was spent in Ethiopia. Nobody goes there except for anthropologists looking for more Lucys. Right? *Wrong!*

I was with a delegation, headed by Dr. Akbarali Thobhani, that is establishing mutual working relationships between Metro State College of Denver and the University of Axum in northern Ethiopia.

Metro State is Colorado's largest urban educational institution, serving 24,000 undergraduates.

Dr. Thobhani has served on the faculty of Metro State for more than 30 years, developing and teaching numerous courses involving study and collaboration in Africa and the Middle East. Most dentists think of doing clinical work when going on a volunteer trip abroad, but Dr. Thobhani focuses on education. He has authored numerous academic articles and three books while fostering synergism involving third-world cultural, economic, environmental, political, medical and educational issues.

Thobhani is the recipient of six Fulbright grants and numerous awards including the Golden Key Excellence in Teaching, the Dr. Martin Luther King Jr. Peace Award, and the United Nations Peace Medal.

Ethiopia is recently best known for Emperor Haile Selassie and the Rastafarians, yet there is much more. Ethiopia traces its roots to the second century BC and has never been a "colony." Ethiopian Orthodox Christianity has long been its spiritual core.

In spite of fast growth in recent years, GDP per capita is one of the lowest in the world, with the economy facing a number of serious structural problems. Ethiopia's GDP per capita income for 2011 was \$351, even less than Afghanistan's \$575!<sup>1</sup> For comparison, U.S. per capita GDP income is \$58,000.<sup>1</sup>

Ethiopia has an average life expectancy of only 53 years, one of the world's lowest.<sup>2</sup> As for vehicles – there is one for every 333

people. Ethiopia is the epitome of "dirt poor," yet is bestowed with riches Westerners often refuse to understand.

I recently had the pleasure to interview Dr. Thobhani regarding his views on international service.

**Carlsen: If you were trying to convince a colleague to take a trip abroad to volunteer, what would you say to him or her?**

**Thobhani:** I think I would begin by saying that this world is such a fascinating and amazing place – so many natural wonders and so many diverse cultures. If we were all alike and belonged to the same culture, the world would be a fairly dull and boring place. In order to appreciate this diversity of great planet earth, there is no better way to do it than to immerse oneself in a culture in a different country. And the most effective way to immerse oneself is to share one's knowledge and expertise by volunteering.

The most rewarding part of volunteering in another country is that it helps you understand your inner-self better. You learn so much about yourself by being in a different country. Volunteering in a global context is a most rewarding experience. Volunteers not only help improve the human condition, but also make valuable and, sometimes, lifelong friends. Lessons learned as a volunteer often translate into the volunteer becoming a more valued citizen, parent, employee/employer or mentor.

**Carlsen: What emotional value do you find in working with those in need in third-world countries?**

**Thobhani:** Having been born and lived in a third-world country, I grew up as one of those individuals in need during a good portion of my early life. My family was poor and in need of even some basic items such as food from time to time. It was

1. Downloaded on 3/3/2012 at [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_GDP\\_%28nominal%29\\_per\\_capita](http://en.wikipedia.org/wiki/List_of_countries_by_GDP_%28nominal%29_per_capita)

2. Downloaded on 3/3/2012 at [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_life\\_expectancy](http://en.wikipedia.org/wiki/List_of_countries_by_life_expectancy)

the good-heartedness of some of our relatives, neighbors and friends whose generosity and helping hands got us through. I have never forgotten that. Thus, whenever I travel to a third-world country, I feel a sense of sadness when I see so many people living such a difficult life and in need of so much. When I am able to assist someone who is in need, I feel that I am doing a small thing to help an individual or a family.

### Carlsen: What are the biggest needs in third-world countries?

**Thobhani:** Among the saddest sights I have witnessed are when I see a four- or five-year-old child holding the hand of a blind parent and going around the streets every day to beg for food or money.

The needs list can be quite long and disheartening. Some of these are hunger and malnutrition related; lack of adequate health services; extremely poor sanitation; inadequate or no housing; lack of jobs; tremendous amount of pollution; so many people with various disabilities and diseases. It is hard not to be affected by such sights and at the same time feel bad to see so much suffering.

The immense wealth gap between the “haves” and the “have-nots” is quite noticeable in third-world countries. Challenges are immense and situations appear daunting and irresolvable, yet every bit of assistance helps.

### Carlsen: How has this service changed how you interface with colleagues and staff back home?

**Thobhani:** This service has intensified my interface with colleagues, staff and the local community.

During the past three years, I have focused heavily on projects in Ethiopia. One of these projects involved building an elementary school in a rural area in northern Ethiopia.

Three years ago, a colleague of mine – Dr. Carrie Besnette – and I chanced upon a one-room school built with nothing more than tree branches, crammed with 60 students sitting on a dirt floor or on rocks, being taught by a dedicated woman teacher.

As we were leaving the site, the teacher asked if we could help improve the situation for the children. My colleague and I decided that we would make an effort to raise funds to construct a school building to replace the makeshift structure. Upon returning to our campus, we shared the story and pictures with co-workers, the campus community and the community-at-large. Soon we engaged a major fundraising drive.

Thanks to a local and a national foundation and scores of individual donors, we succeeded in raising the money to build a four-classroom school building. I proudly witnessed its dedication ceremony with the presidents of Metro State College and the University of Axum in 2011. This was a case of a dream come true. About 200 students are now being served at the school.

Another major project that we undertook was to collect nine tons of books for the Axum University library. Again, scores of

individuals on and off-campus made this project a success.

These activities help build new friendships and strengthen the spirit of collegiality while simultaneously making a difference in many peoples’ lives.

### Carlsen: Are your values different than typical Americans because of your service?

**Thobhani:** I don’t think so. Many Americans share the values of understanding the world: building relationships, helping wherever and whenever possible, showing generosity, making this world a little better place, appreciating people of different cultures, and showing tolerance to differences.

Of course, there are many who don’t share these characteristics, but that is true of many other places around the world.

I am an immigrant to this country and have been living in the U.S. for about 50 years. When I first arrived in the U.S. as a student, I was amazed at how friendly and hospitable the people were. They opened their homes to total strangers and offered warm hospitality. This was somewhat like culture back home, except that back home religious, racial and linguistic differences played significant influences.

Later on, of course, I discovered that people in the U.S. are also influenced by these differences in social interactions. Another difference between cultures is the level of formality – the U.S. is a lot more formal than other countries. No appointments or advance notices are required when people want to visit their friends or families. In the U.S., because of the busy lifestyle, prior arrangements are necessary before visiting.

### If happiness is not all about income and possessions, maybe it has something to do with service to others. ■

#### Bios

**Dr. Akbarali Thobhani** is the Interim Chair of the Department of African and African American Studies and Executive Director of the Office of International Studies at Metro State University. He is the author or numerous articles and three books.

**Douglas Carlsen, DDS**, has delivered independent financial education to dentists since retiring from his practice in 2004 at age 53. For Dentists’ Financial Newsletter, visit [www.golichcarlsen.com](http://www.golichcarlsen.com) and find “newsletter” button at the bottom of the home page.



Additional Dentaltown articles by Douglas Carlsen, DDS, are at [www.towniecentral.com](http://www.towniecentral.com). Search “Carlsen.”

Videos available at [www.youtube.com/user/DrDougCarlsen](http://www.youtube.com/user/DrDougCarlsen). Contact Dr. Carlsen at [drcarlsen@gmail.com](mailto:drcarlsen@gmail.com) or 760-535-1621.

# Taken With the Need

by Chelsea Knorr,  
Associate Editor, *Dentaltown Magazine*

In 1985, Mother Teresa herself asked Dr. Jeremiah Lowney to go help in the town of Jérémie, Haiti. “You don’t say no to Mother Teresa,” he said, “so I went.” Lowney, awarded with this year’s Humanitarian of the Year Award from the ADA, reflects back on what is now 30 years of humanitarian work in Jérémie, Haiti. Jérémie is home to 40,000 people and an additional 200,000 in the surrounding villages. Before Lowney, health care in the area was minimal.

Prior to Mother Teresa’s request, Pope John Paul II appealed to bishops in the first world to consider using some of their resources to help the poor in the third world. Bishop Daniel P. Reilly, the Roman Catholic Bishop of Norwich, Connecticut, asked Lowney and a group of nine others to go to Haiti, just to survey. “I’d never been to a third-world country before,” Lowney says. That week, Dr. Lowney set up a clinic in the courtyard at a home for the dying run by sisters of Mother Teresa, hundreds of patients came to visit him.

“After the week was up I was very taken with the need. I saw some of the most infected and diseased teeth I had ever seen. I asked if I could come back in three months. I went back to Haiti three months later and have gone back to Haiti every three months for 30 years.” Infected teeth may have been what initially attracted Lowney to Haiti, but the progress he sees is what keeps him coming back. “Jérémie is a small enough area that we can really see the fruits of our labor. We see progress,” Lowney says. Dr. Lowney established the Haitian Health Foundation (HHF) in 1982 to help alleviate the dental need, and has since expanded into many areas of health care.

Lowney had no shortage of schooling. He earned a liberal arts degree at Tufts College in Boston, Massachusetts, then went on to dental school at Temple University, graduating in 1961.

Serving three years in the Navy led him to orthodontics at the State University of New York at Buffalo. In the 1990s, after more than a decade of work in Haiti, he returned to school part time to get his master’s in public health.

Lowney founded the HHF with a different philosophy than many charitable organizations. “We’re not looking to change the world,” Lowney says. “And I’ve never had a plan. If you look at the spectrum of problems, you might as well just pack up and go home. They’re overwhelming. So we just take one person at a time and pretty soon you’ve helped a family, then a village, then five villages...”

Lowney’s now-established medical teams rotate through the many villages of Jérémie. HHF has an outpatient medical clinic that sees about 400 patients a day, and a dental clinic that treats around 20 per day.

In the dental sector, the most common dental problems are caries and periodontal disease. “We usually treat adult perio with a pair of forceps because if we take the tooth out, the

perio goes away,” says Lowney. He adds that many patients have just stubs or roots and many of them come in with severe infections because they don’t know not to put heat on the outside of their face when they have a toothache. Luckily, the clinic is able to treat patients who come in with very serious life-threatening infections by inserting drains and prescribing antibiotics.

The clinic hired Haitian doctor, Marie Ramlyne Cherilus – better known to patients as Dr. Ramlyne – three years ago. Lowney comments on her eagerness to learn from other volunteer dentists who come to Jérémie. “She and I try to limit her practice to children between three and 16 because if you start getting into adults, you could spend a week on one patient,” Lowney says. Ramlyne spends much of her time performing fluoride and hygiene treatments on children. She gives them toothbrushes and teaches them prevention techniques.

The clinic is able to perform a range of procedures, but can’t offer prosthetics. He notes, there is a young dentist in town who does offer prosthetics and who is trying to make a living. Lowney says it is very hard for a dentist to make a living in private practice in Haiti, so the clinic doesn’t take any patients who look like they could afford to go see a private dentist. “In every society there are the ‘freeloaders,’” he says. “And when we see them we refer them to the doctor in town.”

Extractions are by far the most widely practiced procedure by the clinic. Lowney calls charitable dentistry “crude dentistry” because it often results in extractions, one of the differences between practicing in a third-world country and practicing in the first world. For a long time, Jérémie didn’t have access to X-rays or other diagnostic tools, so they would just take teeth out. This is how most dentistry problems in third-world counties are dealt with. “It upset me terribly when a pretty 14-year-old girl would come up to me with caries in her two central incisors and the only thing I could offer her was the extraction of her front teeth,” he says. Now, with Dr. Ramlyne on staff, Lowney can write a referral and Dr. Ramlyne can perform a root canal. “Now we don’t have to remove the teeth!”

*“After the week was up I was very taken with the need. I saw some of the most infected and diseased teeth I had ever seen.”*

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In noting other differences between charitable and non-charitable dentistry, he adds, “and, of course, with non-charitable dentistry I guess you get paid.” But this seems only an afterthought for Lowney.

Lowney doesn't take a salary, and he and his wife have personally given around a half a million dollars over the lifetime of the foundation. But money for the foundation is a struggle to come by. “I have to raise \$4 million this year,” he says. HHF operates on only eight percent overhead and has been rated on CharityNavigator.org with a four-star (the best) rating for five years in a row – a feat that only four percent of charities that it evaluates can claim. Lowney says 70 percent of donations come from individuals, 30 percent from foundations, civic clubs and church groups.

It didn't take Lowney long to realize Haiti's lack of health care beyond just dental needs. “It was a terrible situation. It was obvious that these people needed more than just dental care, so I branched out,” he says. HHF opened the first outpatient medical clinic in the area in 1987, now they can perform everything from optical exams to sonograms, and is the only facility in the area that can do so. Now, the Haitian Health Foundation runs the Center of Hope and has developed a public health network that practices the “Chinese Barefoot Doctor” model, where residents from villages are trained and act as health agents for their village. HHF's work extends into house building projects and animal distribution.

The two most vulnerable types of people in any population are perinatal women and children at risk. To meet the need for these two groups, HHF built an inpatient facility called the Center for Hope.

Many of the villages are an 18- to 20-hour walk from Jérémie's health facilities, so when these pregnant women would come to term or have an emergency, they would start to walk in to seek help or medical care and many would die on the road, or lose the child on the way. With the Center for Hope, HHF can identify these women and bring them to the clinic before they come to term. The center has 50 beds designated for this purpose.

The other 25 beds in the clinic are designated for children at risk. Children at risk usually have one of two issues – poor hygiene or poor nutrition, and in some cases, have both. Protein disorders like kwashiorkor and marasmus are common for children in Haiti since their diets consist of high-starch foods, or, in some cases, no food at all. “Too often we see children who eat mud out of the rivers because their hunger pangs are so bad, so they fill their bellies with mud to get temporary relief,” Lowney says.

Brendon, a Haitian baby, came into the Center of Hope severely malnourished. Lowney says he looked like F. Scott Fitzgerald's Benjamin Button, the baby who was born looking old and wrinkled. The nurses didn't think he was going to live the night, but he did, and then he lived the next night. At the end of the week, he was still there. “I went back three months later and Brendon was being discharged and he looked like a million bucks,” says Lowney.

HHF has established a whole public health network based on the Chinese Barefoot Doctor model. When you have a billion people – like in China – in order to get health care out to rural areas, you take a capable person out of a village, who has the ability to work and you train him or her for a year to become a health agent. HHF practices this and sends the trained patrons back into their villages. “We pay them and they become the medical care for that village,” Lowney explains. Health agents trained by HHF have immunized about 200,000 children against all the “usual” childhood diseases. In fact, they have a higher rate of immunization for children ages one to five than most U.S. states do. Health agents are taught how to deal with most of the ailments for that area and each agent is responsible for 4,000 to 5,000 people. They call the ambulances when needed and also let villagers know when a clinic rotation will be in town.

Not only does the Haitian Health Foundation depend on money to stay afloat, they also depend on donations. Every year Lowney sends four 40-foot containers to Jérémie. It costs \$10,000 to ship a container from Connecticut (the location of the HHF headquarters) to Jérémie, so they put only the most useful supplies aboard. These specifically include tuna in oil and Spam,

for the animal fat content. “Spam is the world’s worst food,” Lowney says, laughing. “It’s full of fat and salt. But these people need fat and salt because they’re eating mostly starches like corn and rice and bread.” The tuna in oil also helps children’s development due to the Lysine.

The HHF is feeding 1,100 kids a hot meal at school each day and feeding hundreds in the villages every day. In order to keep costs down, HHF buys products at wholesale and does a lot of negotiating. They also accept donations from church groups or civic club drives.

Aside from building all of the clinics, HHF has built a residence for the volunteers who come to help. HHF gets volunteers from Temple University and University of Connecticut, among others. There are two types of volunteers – short-term volunteers who stay between one and two weeks, and long-term volunteers who commit two years. Ninety percent of volunteers are short-term.

Animal distribution has become a large part of HHF’s outreach. Lowney and his team replaced all of the pigs in their part of Haiti that were lost to the peasants by the swine flu that struck in the early ’70s. They replaced 8,000 sows, and have been giving out goats and chickens for years.

Lowney believes in people reaching beyond themselves. “I believe we are all stewards of the gifts that we’ve been given, stewards of our professional gifts, talents and financial gifts. As a steward, we are responsible to share these. I’m not talking about everyone going to Haiti or going to Africa, but there are certain things people can do in their own areas. There is a joy that you experience when you reach out and help others. Those who can’t work with the poor, broken or the disabled, should support those who are.”

Right now, Dr. Lowney does mostly administrative work. He makes trips back to Haiti every three months for a week or two at a time, and works with the administrator and the director of finance to ensure they stay as close to their budget as possible and everything is running smoothly. Before Lowney retired, he worked at a practice in Connecticut, which his daughter now runs. When he takes the occasional break, he enjoys traveling with his wife and children. He also enjoys spending time with his 10 grandchildren. “I don’t play golf,” Lowney comments, contradicting the stereotype often held about dentists’ out-of-office activities. But then again, Lowney isn’t your average dentist.

“When I was in college we used to have to take the Kudor aptitude test. Everybody had to take it,” Lowney says. “I got called into the counseling office. The counselor said my aptitude was for animal husbandry and ministry.” Lowney laughed. He was working toward his pre-dent requirements adding, “I wasn’t going to church and I don’t even like cats!” But as he reflects back, he says there was something deep

in his psyche even then that led him toward Haiti, since, it seems, animal husbandry and ministry are exactly how he has spent his life’s work. ■



## ClearCorrect's Next Phase.

The clear aligner company begins its charitable program, focusing on making a positive impact on the world

by Benjamin Lund, Editor, *Dentaltown Magazine*

*Photo courtesy of charity: water*



ClearCorrect President and CEO  
Jarrett Pumphrey

ing the charge for ClearCorrect's next phase – aptly called “Phase Out,” which looks to eradicate unsafe drinking water supplies around the world, amongst other efforts. *Dentaltown Magazine* sat down with Pumphrey to learn more about the company's intriguing charitable venture.

**ClearCorrect is riding one amazing wave of change these days. Five years ago, you came out with the goal to change the clear aligner industry, and it seems you've made an impact since *Inc.* magazine named**

Since 2007, ClearCorrect President and CEO Jarrett Pumphrey has lead the development of the company's product line – standardizing and automating its manufacturing processes and improving service to its providers, making it the second largest clear aligner provider in the world. Now Pumphrey is lead-

ing the charge for ClearCorrect's next phase – aptly called “Phase Out,” which looks to eradicate unsafe drinking water supplies around the world, amongst other efforts. *Dentaltown Magazine* sat down with Pumphrey to learn more about the company's intriguing charitable venture.

**ClearCorrect as America's fastest-growing health company for 2011. And now it seems ClearCorrect is out to change the world! You've started a new project called Phase Out, which initially focuses on phasing out unsafe drinking water. Tell us more. What was the reason for starting this project?**

**Pumphrey:** When we started ClearCorrect, it was out of a passion to help. Doctors didn't have a choice in clear aligners, and we wanted to help change that. Now five years later, we've started Phase Out, which stems from that same passion to help. Phase Out is our way of expanding how we help and who we help while remaining anchored to the core of our business – and even driving us in some ways – to create a great clear aligner product for our doctors.

**What is the purpose of Phase Out?**

**Pumphrey:** We want to help eliminate life-impacting issues for people in need. We plan on taking on a range of issues from malaria to hunger, illiteracy to human rights injustices. We want to help people in all parts of the world from our own backyard to those in developing nations.

## Can you explain how this Phase Out project works?

**Pumphrey:** The project is driven by our phase-based approach to clear aligners. Unlike other systems that manufacture and ship all the aligners for a case upfront, we make and ship our aligners in batches or what we call “phases” of four sets at a time. We do this so doctors have the flexibility to make changes or corrections mid-treatment, if needed, without added costs.

When doctors prescribe ClearCorrect to their patients, they can choose either a full treatment, which includes up to eight phases, or a limited treatment, which includes up to three phases. When all goes smoothly, as it often does, dentists end up with a phase or two left over at the end of treatment. Those leftover phases used to mean nothing. Now, with Phase Out, for every leftover phase, we’re putting \$20 toward phasing out life-impacting issues for people in need.

## What do doctors or their patients need to do to participate in this project?

**Pumphrey:** That’s the best part – our doctors and their patients are *already* a part of the process. Both doctors and patients play a key role in making leftover phases more likely at the end of treatment. Our doctors can help by using the features we include with our products to make the most of the phases they get (i.e. dental models for making in-house replacements, compliance checkpoints for ensuring good patient compliance, etc.), and their patients help by simply wearing their aligners as instructed, which typically means at least 22 hours a day.

## Of all the causes you could undertake, why is ClearCorrect first aiming to “phase out” unsafe drinking water?

**Pumphrey:** We decided we’d tackle water first because it’s one of life’s most basic essentials. It’s something so basic, no one should have to go without it, yet nearly one billion people on the planet – that’s one in every seven of us – don’t have access to clean, safe drinking water. They can’t just turn on the tap. They have to walk miles for water, and even then it’s likely to make them sick. Unsafe water and a lack of basic sanitation kill more people every year than all forms of violence, including war. The worst part is that 90 percent of the 30,000 deaths that occur every week from unsafe water and unhygienic living conditions are of children under five years of age.

## This sounds like a pretty big undertaking. Are you working with anyone to phase out unsafe drinking water?

**Pumphrey:** It is a huge undertaking but we’re not tackling it alone. We’ve teamed up with a very talented and passionate group called charity: water ([www.charitywater.org](http://www.charitywater.org)). They’ve already made amazing progress in eliminating the water crisis for millions of people. They’re the experts in this. We’ve learned a lot from them about the scope of the problem, and we just want to help them do what they do best. For every leftover phase we have, for every \$20 we can give charity: water, they can give one person access to clean, safe drinking water. They’re a perfect fit for our Phase Out program.

## I realize you just started this project in January of this year, but can you give us some idea of what has been achieved so far?

**Pumphrey:** So far we’ve raised about \$22,000, which will help about 1,100 people gain access to clean and safe drinking water. We hope to help tens of thousands more by the end of the year.



*Pumphrey (front) and his team at ClearCorrect.*

## How can doctors know if patients they treat with ClearCorrect helped toward this cause?

**Pumphrey:** Doctors and their staff can see the direct impact they’re making through our online case management system, ClearComm. They can log on and see exactly how many people they’ve helped through Phase Out.

## Where can dentists go to learn more about this Phase Out project?

**Pumphrey:** They can visit [www.clearcorrect.com/phaseout/](http://www.clearcorrect.com/phaseout/) for more details.

## Thanks for your time, Jarrett, and we wish you the best with Phase Out.

**Pumphrey:** Thank you! ■

## About ClearCorrect

ClearCorrect works with more than 11,000 dentists making it the second largest clear aligner company in the world. The company offers a doctor-friendly approach including a phase-based delivery system to enhance flexibility and control for dentists. For more information, visit [www.clearcorrect.com](http://www.clearcorrect.com) or call 888-331-3323.

# You Can CARE

## About We Care

by Chelsea Knorr,  
Associate Editor,  
*Dentaltown Magazine*

*We Care Dental Center in Rancho Mirage,  
California, performs much-needed procedures  
for disabled patients*

Have you ever performed a root canal on a child with autism or Down syndrome? How about made a crown for an adult with cerebral palsy? Fact is, if you have, you are in the vast minority. Most dentists have not.

Dental schools rarely have a curriculum centered on the disabled population. Since seeing disabled patients requires a certain confidence, as well as longer appointment times, many clinicians choose not to treat this segment of the population, leaving many disabled children and adults with unmet dental needs.

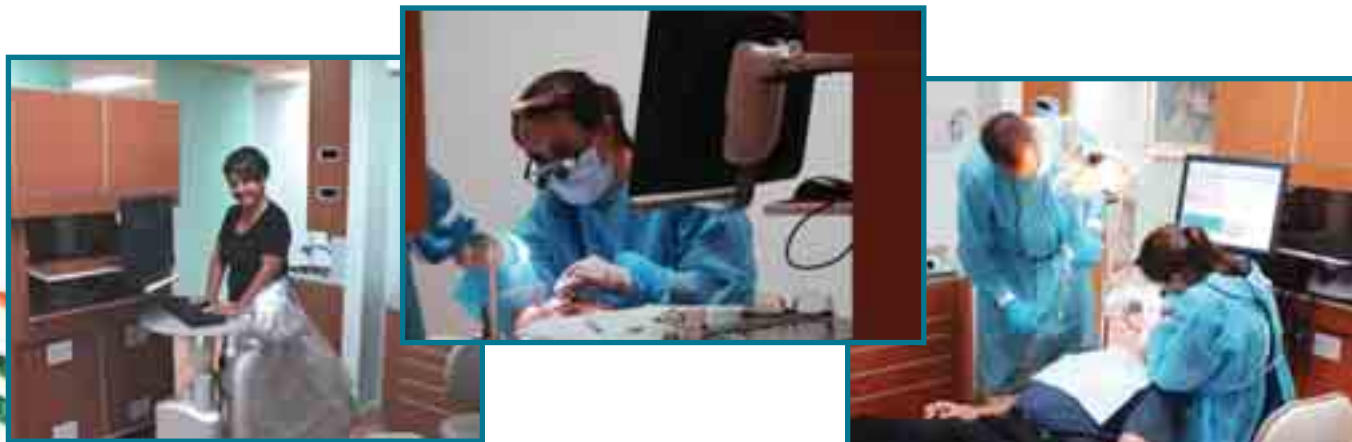
Desert Friends of the Developmentally Disabled (DFDD), a nonprofit charity founded by Russell and Marianne Benson, is dedicated to serving and supporting the special needs of the developmentally disabled. The organization realized the problem of unmet dental needs and did something about it. The We Care Dental Center started small in December of 2009. They borrowed space two to three days a week and operated off donated supplies, but the clinic didn't stay small for long. In September 2011, a permanent 1,210-square-foot, four-chair clinic was opened in Rancho Mirage, California.

The clinic runs successfully via its numerous volunteers – five dentists, as well as several dental and hygiene stu-

dents from Western University. The students are able to provide dental cleanings, examinations and fillings. Under the supervision of a dentist, the students can perform root canals and tooth extractions as well. It's a win-win situation. The patients receive needed care and the students gain experience they can't receive in the classroom.

The patients also provide the volunteers with a sense of compassion and humanism. Dr. Timothy Martinez, Western University's dean of community outreach, hopes that by treating disabled patients now, the students will learn how to treat these types of patients and not exclude them once they start their own practices.

Those dentists who choose to treat disabled patients often choose to do so with general anesthesia. We Care prides itself on not using anesthesia. In fact, the clinic is not even set up to administer it. Majorie Lumbley, a disabled patient's mother, said she often postponed teeth cleanings for her daughter, Tina, because she didn't want to subject Tina to anesthesia. Tina commented on We Care saying, "It's like going to a real dentist's office. You go and you are treated like everyone else."



Another reason We Care chooses not to administer anesthesia is because many of the patients whom the clinic treats have extensive medical histories. Many are on large amounts of medication, and Dr. Mel Glick, a member of the board of directors, notes, “We don’t want to over-medicate.” Glick acknowledges that although many handicapped patients can be successfully treated without anesthesia, there are still rare cases that will require it. Since We Care does not have an anesthesiologist on staff, it cannot provide these services.

Glick argues that treating a disabled patient isn’t much different than treating any other patient. Many dentists approach the idea of treating a disabled individual with some trepidation, but it usually stems from the fact that they haven’t ever done so. He says it really just involves “earning their trust and confidence.” His advice: speak softly and help them to understand you have their best interest at heart. He adds, “It takes patience, love and tenderness,” but says, the process and procedures are the same.

Disabled patients generally have extensive caries and periodontal disease. As a group, they tend not to brush well and might need to be seen by a dentist more frequently than others. They usually have a lot of missing teeth, as well as abscessed and mobile teeth, Glick says. We Care performs procedures similar to any dental office – X-rays, dental exams, periodontal probing, cleaning, debriding, root planing, root canal treatment and build up of dentition. The clinic also provides some restorative and prosthodontic options.

Serving the Coachella Valley, the clinic treats children, adults and the elderly with Down syndrome, autism, cerebral palsy, epilepsy, mental retardation, muscular sclerosis, bi-polar and brain damage.

“We don’t have to find patients.” Glick says. “They seem to find us.” Since such a practice model is fairly rare,

word of We Care got out to the disabled community very quickly via referrals and the local dental societies. “We find that our demographic population will drive hours to receive dental treatment for family and loved ones,” Glick notes.

Unfortunately, many of these patients cannot afford to pay for the care they receive. The money they earn goes toward covering their immediate living expenses, and dental insurance is rare. For this reason, most services provided by the clinic are provided at no charge to the patient. Since all nonprofit organizations are competing for the same dollar in this economic time, it is difficult for the center to attain the needed funds. Glick says most of its funds are obtained through fundraisers as well as grants from various private and governmental agencies.

We Care is looking for volunteer dentists, hygienists, dental assistants, and any other people or organizations willing to help. All you have to do is call and sign up. If you are interested in helping, call 760-565-6055 or e-mail [dfddnow@me.com](mailto:dfddnow@me.com). The We Care Dental Center is located at 42-900 Bob Hope Drive, Suite 111 in Rancho Mirage, California. ■

## Remembering Russell Benson

During the writing of this article, **Russell Benson (1940-2012)**, co-founder of DFDD and We Care Dental, passed away. Benson was 71 and had dedicated his career to developing various charities and health-care infrastructures. He held the CFO position for the National Childhood Cancer Foundation in Arcadia, California. He went on to help develop the Nevada Cancer Institute in Las Vegas, Nevada, where he was the executive vice president/CFO. He co-founded DFDD with his wife after he retired. His dream was to open We Care Dental Center, a legacy he has left to the world. He died March 17, 2012 and services were held March 31.





# Smile GRENADA

New York University College of Dentistry (NYUCD) conducted a national oral health survey in Grenada in 2010, and found that more than eight out of 10 Grenadian children suffered from untreated dental caries, signifying one of the highest known prevalence of dental caries in the world. As a result of these findings, the Ministry of Health of Grenada challenged NYUCD to develop a nationwide program to combat dental caries in children

and to reduce the amount of new decay that would form over the next two and a half years. The tri-island nation includes Grenada, Carriacou and Petit Martinique, and has a population of approximately 110,000 of which more than 26,000 are children.

“Smile Grenada” is the island’s first national school-based oral health program, launched by NYUCD in February 2011, in conjunction with the Ministries of Health

and Education of Grenada, and with financial and product support from Colgate, GC America and Henry Schein Cares. This program aims to address current knowledge of the importance of oral health in Grenada and, more importantly, to develop a sustainable preventive dentistry program rooted in collaboration between the nation's school system and its public health system.

Although there are dental clinics in some public health centers across the country, this new approach signals a radical departure from the average Grenadian child's concept of dental care as synonymous with "pulling teeth." Smile Grenada aims to retool this limited perspective of oral health and promote a more pro-active, preventative oral health culture, where parents, children, teachers and public nurses are educated and equipped to produce measurable improvements to their overall dental health.

The program is also a radical reworking of the model of outreach as public service. According to Dr. Charles Bertolami, Dean of the NYU College of Dentistry, Smile Grenada is a ground-breaking public health initiative, and an incredibly exciting opportunity to make a profound impact on an entire nation. It has proven to be a transformative experience, not only for the population being served, but also for the outreach team, who gain invaluable, firsthand experience of the measurable effects of such targeted efforts. It is anticipated that this model could serve as a platform for introducing public health and outreach components into the core dental curriculum, thereby educating the next generation of dentists to recognize the scope and influence of their profession beyond the dental chair and office setting. It is, in every way, a meaningful redefinition of the role of the dentist.

During a typical two-week outreach visit by NYUCD, a team of 30 dental and hygiene students, faculty and pediatric residents apply about 20,000 fluoride varnish applications (Colgate Prevident) in 100 schools, and place about 17,000 sealants (GC Fuji Triage) in the mouths of 5,000 children. The NYUCD team works closely with the local public health team, providing hands-on training and educa-

tion in the scientific basis for these preventive techniques. The program has also introduced daily classroom tooth brushing and oral hygiene instruction in schools. Over the last year and a half, more than 60,000 Colgate toothbrushes, fluoridated toothpaste and educational materials have been distributed. Teachers in every classroom across the country are being trained to lead their class in the fight against tooth decay. NYUCD providers team up with Grenadian providers to attend parent-teacher meetings at the schools in order to reach parents directly and educate them to reinforce healthy oral hygiene and nutritional habits at home. Nurses in public clinics around the country attend educational sessions and gain hands-on training to reach expecting mothers and infants/toddlers who may not be in the school system yet. The Grenadian partners have worked hard to change the dental culture in the country and to make the program sustainable.

The program is designed to build capacity of the existing infrastructure, empowering public health dentists, dental auxiliaries and nurses, who serve as the first line of defense in disease prevention; and to educate parents, whose decisions influence the prioritization of oral health care within the family. It is anticipated that the implementation of such preventive measures could lead to a 50 percent decrease in new decay over three years. Such an improvement would be something to smile about! ■

# Using Bulk-Fill Composite

## for a Core Build-up — Under a Lithium-Disilicate Crown Restoration

by Amanda Seay, DDS

### Learning Objectives

- Discuss the selection of a core build-up material for crown placement therapy.
- Explain the step-by-step procedure for completing a core buildup, crown preparation and a direct composite restoration in the same visit.
- Learn the pros and cons of available core build-up materials.

### Abstract

Historically, materials available for a core buildup prior to crown placement have possessed both advantages and disadvantages. In some cases, as with glass ionomer, the number of disadvantages is equivalent to its benefits, and although amalgam has been relied upon for years as a core build-up material, research indicates that its drawbacks are outweighed by its assets.<sup>5-8</sup> As a solution, composite resins are becoming a popular choice as a core build-up material for endodontically treated teeth. This article demonstrates the use of a bulk-fill composite resin and how its many advantages allow the clinician to complete two different types of procedures in one visit.

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## Introduction

When patients present with severely compromised teeth due to decay, large damaged or failing restorations, or fracture, extensive treatment might be required particularly if the problem has been further complicated by pulpal necrosis. In such cases it is necessary to rebuild missing tooth structure resulting from decay and root canal therapy. Such treatment can include endodontic therapy followed by a core buildup, and finalized with the placement of an all-ceramic crown. However, clinicians must first evaluate whether there is enough tooth structure remaining to support a crown by core buildup or whether an endodontically retained post and core procedure is required to anchor the core structure to the root.<sup>1</sup> In the past, the cast post and core was standard procedure when endodontic therapy was required. Studies have indicated, however, that excessive removal of sound tooth structure and root fracture caused by the procedure unnecessarily weakens the tooth.<sup>2-4</sup> Today, least invasive treatments are the procedures of choice. Conservative removal of healthy tooth structure results in remaining structural support requiring only a composite resin to rebuild the core.<sup>2</sup> Proper core buildup is essential to provide a foundation to create appropriate retention and resistance form in the crown preparation, as well as to recreate the shape of the original tooth from which to design the final full-coverage crown. When facing a restorative procedure of this type, a combination of different materials and techniques are often required to meet functional and aesthetic requirements.

## Core Build-up Materials

Material choices for core buildups have included glass ionomer, amalgam and composite materials.<sup>1</sup> For core preparation following endodontic treatment, glass ionomer materials have demonstrated advantages such as low post-operative sensitivity, bonding ability and fluoride release, contributing to their wide use. However, when compared to modern composite materials, their advantages are minimized due to inferior physical properties, prolonged chemical curing reaction and poor manipulation.<sup>5</sup>

Over the years, amalgam has been a strong and heavily relied upon restorative material. However, it too comes with drawbacks. Concerns have been raised regarding its high modulus of elasticity. Amalgam has proven three-times more rigid than composites<sup>6</sup> and therefore might be a contraindication as build-up material under all-ceramic crowns.<sup>2,3</sup> When used with

metal or metal-based crowns, invasive preparations such as grooves, slots or undercuts are necessary to ensure a successful restoration. Sometimes pins are needed to anchor the amalgam, which can cause cracks and iatrogenic infiltration into pulpal areas.<sup>7</sup> Also, when used under translucent ceramic materials, the silver color of amalgam might show through, negatively affecting the overall aesthetics of the permanent crown restoration.<sup>1</sup> Finally, depending on its composition, amalgam can take up to 24 hours to set, eliminating it as a viable material choice for same-day restorations.<sup>1</sup>

The treatment becomes twice as challenging when it involves a core buildup and the placement of a crown beside a tooth requiring a direct composite restoration. In such cases, the clinician is faced with several different viscosities, shades and materials from which to choose to achieve a natural looking and durable restoration. As a resolution to such challenges, composite resins have become popular as a core build-up material for endodontically treated teeth.

## Composite Core Materials

Composite resin provides many advantages over glass ionomer and amalgam as a core material.<sup>1</sup> Eliminating the need for cuts, grooves or pins, composite resin allows for less invasive and more conservative tooth preparation when utilized with a self-etch or total-etch adhesive due to its ability to bond to enamel and dentin with greater strength than glass ionomer.<sup>1,8</sup> Due to its color properties and wide range of available shades, composite can be used under translucent ceramics with no adverse affects on aesthetics, contrary to amalgam.<sup>1</sup> While amalgam fills the space in the tooth, that is essentially all it does. Composite, on the other hand, restores the tooth structure, providing a stronger foundation for crowns.

### Advantages of Composite as a Core Material

- Eliminates the need for cuts, grooves or pins
- Less invasive, more conservative tooth preparation
- Bonds to enamel and dentin with greater strength
- Available in a wide range of shades
- Provides no adverse affects on aesthetics
- Restores the tooth structure
- Provides a stronger foundation for crowns

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continued on page 110

Formulated for light curing in up to 2mm increments, conventional composites are not applicable for larger restorations for which a bulk placement would be ideal, for instance, the type of preparation resulting from root canal therapy. The material also contains a patented “polymerization booster.” This newly developed photo initiator is added to the material in conjunction with today’s traditional photo initiators. The “booster” is much more reactive to curing light than the standard initiators. This allows the composite to achieve a 4mm depth of cure without compromising aesthetics or working time, like some bulk fill composites. The following case requires a material for a core buildup following endodontic therapy, as well as a material for a direct posterior restoration. The ideal material for both indications is a bulk-fill that demonstrates efficient dispensing and curing, durability, sculptability and excellent aesthetics. In this particular case, Ivoclar Vivadent’s Tetric EvoCeram Bulk Fill composite in shade IVA was selected to complete both the crown buildup and the direct composite restoration. Specifically designed for efficient and effective direct posterior restorations, Tetric EvoCeram Bulk Fill can be placed and cured in bulk increments of up to 4mm

without compromising marginal adaptation.<sup>9</sup> Its unique consistency allows the material to intimately adapt to preparation walls and remains sculptable and moldable until cured. Its availability in three universal shades ensures natural blending with surrounding dentition and is ideal for use as a core build-up material under ceramic crowns. Chosen for its strength, aesthetics and ease of use, this bulk-fill composite demonstrates a high compressive strength and fracture resistance, along with low polymerization shrinkage stress.<sup>9</sup> Due to its unique initiator system and ability to cure in up to 4mm increments in only 10 seconds,<sup>9</sup> the technique sensitivity associated with conventional composites is eliminated along with the need for multiple materials. Therefore, the time required to complete a restoration is significantly reduced making it more efficient for the patient and the clinician.

### Case Presentation

A 38-year-old male presented with a carious lesion requiring endodontic therapy, core buildup and placement of a crown on

9. *Tetric EvoCeram Bulk Fill: Efficient restoration of posterior teeth. Schaun, Liechtenstein: Ivoclar Vivadent; 21 March 2011.*



Fig. 1: Pre-operative view of patient's teeth showing tooth #19 IRM placed following root canal therapy and tooth #18 occlusal amalgam with mesial decay.



Fig. 2: A non-latex rubber dam was placed and teeth #17-20 were isolated.

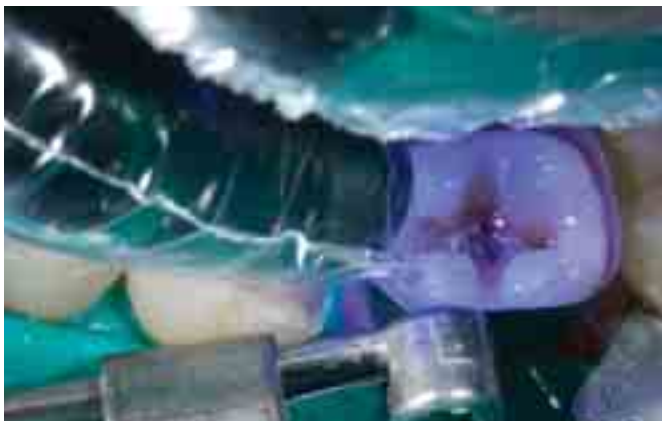


Fig. 5: A bonding agent was applied, air thinned, and LED light cured for 10 seconds.



Fig. 6: Tooth #18 was filled using Tetric EvoCeram Bulk Fill shade IVA and shaped to proper anatomical contour.

tooth #19 (Fig. 1). In addition, the patient requested the replacement of an existing amalgam restoration on tooth #18. The patient agreed to treatment in two phases. During the first phase, root canal therapy was performed on tooth #19 by an endodontist. The patient returned for phase two, which consisted of restorative treatment for tooth #18 and #19.

The patient was anesthetized with a 2% lidocaine block and a non-latex rubber dam was placed, leaving teeth #17–#20 exposed (Fig. 2). The existing amalgam and temporary material placed by the endodontist after root canal therapy was removed using a #330 bur (SS White Burs, Inc., Lakewood, New Jersey). A round #4 bur (SS White Burs, Inc.) was then used to remove any sharp angles around the cavosurface margin (Fig. 3).

A tofflemire band was placed on tooth #18 prior to the application of a 35% phosphoric acid etch (Total Etch, Ivoclar Vivadent, Amherst, New York), which was agitated for 15 seconds, thoroughly rinsed, then blot dried (Fig. 4). Using a fourth-generation, two-step bonding system, the primer was agitated into the dentin for 10 seconds, then dried to evaporate the remaining alcohol solvent. The adhesive was then

applied onto the enamel and dentin, air thinned, then cured for 10 seconds using an LED curing light (bluephase, Ivoclar Vivadent) (Fig. 5).

Before dispensing the composite into the tooth preparation, the depth of the preparation was assessed to determine the appropriate amount of composite material required. This can be done using a perio-probe or with the length of the bur during tooth preparation. In this case, the preparation on tooth #18 measured approximately 2mm in depth on the occlusal surface and 4mm in depth on the interproximal box using perio-probe. Since the bulk-fill composite (Tetric EvoCeram Bulk Fill) chosen for this case will cure in up to 4mm increments, only a single layer was required. Bulk-fill composite in shade IVA was injected directly into the tooth preparation and condensed to ensure intimate adaptation. Once the material was placed, a gold posterior occlusal sculpting instrument (Cosmedent, Chicago, Illinois) was used to perform anatomical detailing and to smooth the composite into the margins to eliminate the possibility of voids. After light curing for 10 seconds, the tofflemire band was removed and the restoration was



Fig. 3: The amalgams were initially removed and the decay excavated using a #330 bur.



Fig. 4: A tofflemire band was placed on #18 and etched with 35% phosphoric acid for 15 seconds.



Fig. 7: A tofflemire was placed on #19 and the tooth was etched with a 35% phosphoric acid for 15 seconds.



Fig. 8: Tooth #19 was filled with Tetric EvoCeram Bulk Fill and LED light cured for 10 seconds.

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light cured again to ensure a complete cure in the interproximal region (Fig. 6). (In general, it is not required as material will be cured fully in 10 seconds.)

Tooth #19 was restored using the same technique and the initial crown preparation was completed with the rubber dam in place for ease of lip and tongue retraction (Figs. 7-9). Due to the adaptability of cured composite, predictable, smooth and even crown preparations are easily achieved. Next, the rubber dam was removed and the patient's occlusion was checked and adjusted (Fig. 10). The crown preparation was then refined, a final impression taken, and the provisional placed. The patient returned several weeks later for the final placement of an IPS e.max lithium-disilicate crown restoration, chosen for its strength and aesthetics, onto tooth #19 (Fig. 11).

Fig. 9: Image of tooth #18 and #19 filled and cured to completion.

Fig. 10: The crown preparation for tooth #19 is finalized without a rubber dam and ready for the final impression.

Fig. 11: Post-operative image of tooth #18 composite and tooth #19 IPS e.max crown.



## Conclusion

In dentistry today, the ability to complete two different types of procedures during one appointment is a viable option in many cases. In this case the advantages were significant. The utilization of a bulk-fill composite for a core buildup and a direct posterior restoration ensured durability and predictability. The elimination of the need for cuts, grooves or posts allowed for a more conservative preparation. The convenience of placing

and curing a bulk-fill in one increment eliminated the technique-sensitive and time-consuming layering process, which saved time. By following this technique, it is possible to provide your patients with a long-lasting, durable and aesthetic restoration in a single visit. ■

## Author's Bio

**Amanda Seay, DDS**, is the owner and solo practitioner of Park West Dentistry, a private practice in Mount Pleasant, South Carolina. Her expertise ranges from complex restorative treatment planning to comprehensive preventive and restorative dentistry, as well as from dental implant and reconstructive dentistry to dental photography. A mentor at the Kois Center, Dr. Seay also has published articles covering the art and techniques of aesthetic dentistry, practice management, dental materials and oral health. In addition, she serves on the editorial boards of several peer-reviewed journals. A graduate of New York University College of Dentistry, she commits herself to hundreds of hours of continuing education each year and is currently in the accreditation process with the American Academy of Cosmetic Dentistry (AACD). She can be contacted at: [frontdesk@amandaseay.net](mailto:frontdesk@amandaseay.net).

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1. When determining the proper procedure for a crown placement for a large restoration, what important factor must a clinician consider?
  - a. Where in the mouth the restoration is placed
  - b. The age of the patient
  - c. The amount of tooth structure remaining
  - d. If the patient has allergies
2. When preparing a severely damaged or decayed posterior tooth for a crown, a necessary first step is to:
  - a. Extract the tooth
  - b. Fabricate a bridge
  - c. Rebuild the tooth structure
  - d. Etch the tooth
3. Based on the goal for conservative endodontic preparation therapy, which would be the appropriate choice as a core build-up material?
  - a. Amalgam
  - b. Glass ionomer
  - c. Composite resin bulk-fill
  - d. Conventional composite resin
4. To ensure an aesthetically pleasing crown restoration, which core build-up material should be avoided?
  - a. Glass ionomer
  - b. Composite resin
  - c. Zirconia
  - d. Amalgam
5. When used as a core build-up material, what might be required to anchor amalgam?
  - a. Adhesive
  - b. Grooves
  - c. Slots
  - d. Pins
6. The following material might take up to 24 hours to set, depending upon its composition:
  - a. Composite resin
  - b. Glass ionomer
  - c. Zirconia
  - d. Amalgam
7. Historically, standard procedure for crown preparation was:
  - a. A bridge
  - b. Composite resin
  - c. Cast post and core
  - d. Composite layering
8. Conventional composites are designed for light curing in:
  - a. 1 to 2mm increments
  - b. 2 to 3mm increments
  - c. 3mm increments only
  - d. 4mm increments only
9. The use of a bulk-fill composite as a core build-up material eliminates the need for:
  - a. Layering
  - b. Grooves, posts or cuts
  - c. Both a and b
  - d. None of the above
10. Proper crown buildup is essential to:
  - a. Create appropriate retention and resistance form
  - b. Recreate the shape of the original tooth
  - c. Provide a foundation for the final crown
  - d. All of the above

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## Using Bulk-Fill Composite for a Core Build-up Under a Lithium-Disilicate Crown Restoration by Amanda Seay, DDS

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## Tradition vs. Research

by Trisha E. O'Hehir, RDH, MS  
Editorial Director, Hygienetown

Toothbrushing is the most common oral hygiene practice in the world today. People have been brushing their teeth for centuries. Reports go as far back as the ancient Egyptians who constructed crude implements with twigs and leaves. Many cultures used twigs over the years and in Africa there is a "toothbrush tree" providing the best branches for chew sticks. Regular toothbrushing with modern day toothbrushes began in Europe at the end of the 17th century. 1780 was the beginning of mass-produced toothbrushes in England, followed by the United States.

Much of toothbrushing is habit or tradition. Most people wet their toothbrush before brushing, a habit from the days when hard bristles were the only kind used in toothbrushes. Hard bristles had to be softened with water before brushing. Today most toothbrushes are made with soft bristles that don't need to be softened with water before brushing although most everyone still does wet the brush first, purely a habit.

Despite being science-based professionals, dentists and hygienists are taught traditions with no research base. Toothbrushing is one of those traditions. There are many studies comparing one toothbrush to another, a manual toothbrush to a power toothbrush and studies comparing a variety of power toothbrushes. Toothbrushing is assumed to be the most important oral hygiene activity and is therefore essential for oral health. Granted, when compared, toothbrushing removes more plaque than not brushing. That is a scientific fact. However, toothbrushing is such an ingrained habit that consumers and clinicians tend to ignore the scientific fact that toothbrushing doesn't reach the areas in the mouth at greatest risk of dental disease.

Your basic oral health philosophy changes as new scientific research is presented, new products or ingredients are introduced and as consumer awareness changes. The goal remains the same – optimal oral health. How you believe optimal oral health can be achieved is based on three key elements: scientific research, your personal experience and the preferences of your patients. ■

### Inside This Section

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How Much of What We Do is Science-based?



### Interproximal First

Mechanical plaque control is still the most effective means of preventing gingivitis and periodontitis. The initial gingival lesion begins within four days of undisturbed plaque growth. Thorough mechanical plaque removal on all tooth surfaces every other day effectively prevents clinical signs of gingivitis. The every-other day, all tooth surfaces approach is more effective than the current practice of daily brushing of facial and lingual surfaces, since these surfaces are at lower risk of developing gingivitis than interproximal surfaces.

Plaque accumulates first on the proximal surfaces of mandibular molars and premolars, followed

by the proximal surfaces of the maxillary molars. The maxillary lingual surfaces accumulate very little plaque in comparison.

Rather than repeating tedious, detailed oral hygiene instructions to patients, we should engage them in self-diagnosis to identify areas at risk and a plan to focus oral hygiene on those areas.

Linking is a means of connecting an established habit with a desired new habit. An example is linking interdental cleaning to brushing, by having patients clean between their teeth before brushing. If the new habit is done first, before the established habit, it is less likely to be forgotten, and the established habit will be retained.

**Clinical Implications: Both daily oral hygiene and professional dental hygiene visits need to focus on effectively removing interproximal bacterial plaque rather than simply cleaning facial and lingual surfaces. ■**

*Axelsson, P, Albandar, J, Rams, T: Prevention and Control of Periodontal Diseases in Developing and Industrialized Nations. Perio 2000 29: 235-246, 2002.*

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### Lower Right – Difficult Area to Clean

What effect does patient plaque control performance have on plaque score changes? Fifty percent seems to be the recurring number for buccal, lingual and interproximal surfaces. Twenty-four patients with moderate to severe periodontitis took part in the study. A plaque score was done prior to any treatment. The average score for buccal surfaces with plaque was 30 percent, lingual surfaces 40 percent and interproximal surfaces 80 percent. Oral hygiene instruction included a soft bristle brush, dental floss and interproximal brushes, where space allowed. Scaling and root planing was

done by quadrant or sextant and usually involved at least four to six appointments.

Following this initial therapy, plaque scores were again measured. Buccal surfaces scored 15 percent, lingual 20 percent and the interproximal 40 percent, a reduction of 50 percent for each area. Plaque scores remained the same following the surgical phase of therapy for the buccal surfaces. The lingual and interproximal surfaces showed a slight increase in plaque scores. In particular, the lower right posterior lingual area was the most difficult area to clean.

**Clinical Implications: Toothbrushing only removes 50 percent of plaque and the lower right lingual is the most difficult area to reach. ■**

*DeVore, C., Beck, E., Horton, J.: Plaque Score Changes Based Primarily on Patient Performance at Specific Time Intervals. J of Periodontology 61: 343, 1990.*

## Video Used to Record Brushing Patterns

Researchers in England used a videotape to document toothbrushing patterns for 85 11- to 13-year-olds and 30 18- to 22-year-olds. The videotaping was done without the subjects knowledge, a technique no longer possible due to strict rules regarding informed consent of study participants. The patients had agreed to participate in a dental study, but were not told their brushing would be observed. They were simply told to go to the sink and brush their teeth as usual, before beginning the study. The sink and mirror were set up in a doorway, completely shielding from view the room behind which held the video equipment.

The videotapes were reviewed several times to determine toothbrushing sequence, hand preference and time spent in each of 16 sections of the mouth. Maxillary and mandibular sextants were divided between facial and lingual, accounting for 14 areas, plus occlusal surfaces in each quadrant for a total of 16 sections.

Toothbrushing began most often on the maxillary facial surfaces, with a cross-arch start for most brushers, that is, right-handed brushers started on the left side and left-handed brushers started on the right side. Only two people brushed with both hands and nine people were left-handed.

The pattern observed most often was erratic, with the brusher returning several times to the first area brushed, which was a maxillary facial surface. Forty-five percent of the study subjects neglected the lingual surfaces entirely, while those who did brush the lingual surfaces spent only 10 percent of their brushing time in that area, usually leaving it until last.

The average time spent brushing by the 11-13-year-olds was 60 seconds in sharp contrast to only 38 seconds for the 18-20-year-olds.

The authors concluded that individualized, as well as group instructions, and printed information on tooth brushing should stress lingual and palatal brushing, since these areas are so frequently missed. The importance of toothbrushing patterns was established by this study.

**Clinical Implications: Videotapes revealed erratic brushing patterns with little or no time spent on lingual surfaces. ■**

*MacGregor, I., Rugg-Gunn, A.: A Survey of Toothbrushing Sequence in Children and Young Adults. J of Perio Res 14: 225-230, 1979.*

## Dry Brush Inside First

Toothbrushing instructions focus primarily on brush placement and brushing stroke without focusing on where to start or what order the teeth should be brushed.

Twenty-nine private practice RDHs across the United States tested the “dry brushing inside first” approach on a total of 126 recall patients. Baseline data included bleeding on probing and calculus scores measured on the lingual surfaces of the mandibular teeth.

Patients were simply instructed to brush the inside of their bottom teeth first with a dry toothbrush, no water and no toothpaste. They were instructed to brush their entire mouth without toothpaste until teeth felt clean and tasted clean. Then they rinsed their brushes with water and brushed again with toothpaste. Bleeding and calculus scores were recorded again at their next recall visit, an average of six months later.

Bleeding scores were reduced 55 percent overall. Calculus scores were reduced 58 percent for all mandibular lingual surfaces and 63 percent for the anterior section alone. Notes from the examiners indicated that patients reported brushing longer than usual as a result of this approach. Some of the patients were so excited with the results that they made unscheduled visits to the dental office to point out their lack of calculus and improved gingival health.

**Clinical Implications: Instructing patients to dry brush first until the teeth feel clean and taste clean and then add toothpaste will lead to longer brushing times and more effective plaque removal. ■**

*O’Hehir, T., Suvan, J. Dry Brushing Lingual Surfaces First. JADA 129: 614, 1998.*

## How Xylitol Research Began

The first caries studies using xylitol began at the University of Turku in Finland in late 1969. The first study compared 100 percent xylitol consumption to sucrose, glucose or fructose consumption. These sweeteners were consumed as sweeteners in coffee, tea, rolls and candies. Subjects also swished with a mixture of their assigned sugar and water five times each day. Dental students were the test subjects and they refrained from oral hygiene during the four-day study. Those consuming xylitol demonstrated the greatest reduction in plaque accumulation, a reduction of 50 percent. Plaque was removed from all surfaces of the teeth and weighed. Those consuming sucrose had an average plaque weight of just more than 40mg compared to less than 20mg for the xylitol group. Plaque weight in the fructose group was

just less than 30mg and in the glucose group it was just more than 30mg. A second study of five days was repeated a year later with similar results.

Based on the findings from these first two studies the “xylitol concept” for caries prevention was presented to the world dental health community in 1975 for the purposes of expansion of this research and verification of the findings by other researchers. Over the next 30 years, many independent researchers in a variety of long-term clinical trials and hundreds of short-term laboratory studies confirmed the original findings. Many of the clinical studies used chewing gum as the delivery system for xylitol.

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**Clinical Implications: Xylitol consumed several times each day will reduce plaque levels approximately 50 percent when compared to plaque levels in a sucrose diet. ■**

*Mäkinen, K.K.: Sugar Alcohols, Caries Incidence, and Remineralization of Caries Lesions: A Literature Review. Inter J of Dent 1-23, 2010.*

## The Hawthorne Effect

From 1924 to 1927, research was conducted at the Western Electric Company, Hawthorne Works, in Chicago, to evaluate the effect of illumination on worker efficiency. Rather than demonstrating a correlation between room light and productivity, they showed worker efficiency increased simply by participating in the research. This has become known as the Hawthorne Effect.

The first experiment compared three departments exposed to room illumination increased at different rates. One department showed fluctuating production, and the other two departments showed production increases seemingly independent of the increase in illumination.

To control for differences in work and workers, the second experiment was conducted in a single department with workers of similar age and experience. A control group was established that worked under standard illumination while the test group worked under variable illumination intensity. Results for both groups showed a steady and nearly identical increase in production.

Thinking that the combination of natural and artificial light might have influenced the first two experiments, the third experiment tested only artificial light. The control group worked under constant light of 10 foot-candles, while the test group started at 10 foot-candles and decreased in one foot increments to three foot-candles, at which time workers protested the darkness and production decreased. However, production had steadily increased for both groups until a level of three foot-candles had been reached in the test group.

The phenomenon of improvement simply because of participation in a research study has become known as the Hawthorne Effect. This effect is often apparent in oral hygiene studies. Improvements of up to 35 percent for plaque and gingivitis scores are reported for study subjects when their actions will be evaluated but no changes are made to their oral hygiene routine.

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**Clinical Implications: To improve oral hygiene, simply tell all your patients they are part of a research study! ■**

*Roethlisberger, F., Dickson, W: Management and the Worker, Harvard University Press, 1939.*

*Graves, R., Disney, J., Stamm, J.: Comparative Effectiveness of Flossing and Brushing in Reducing Interproximal Bleeding. J of Periodontology 60: 243, 1989.*

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# RESEARCH

by Trisha E. O'Hehir, RDH, MS, Hygienetown Editorial Director

It's hard to miss all the buzz about evidence-based oral health care and evidence-based decision making these days. Examples of using evidenced-based decision making in oral hygiene usually refer to deciding a preference for one product over another based on the findings reported in systematic reviews – specifically meta analysis combining the data from several studies on a topic. Comparing research between products is a good idea, but let's back up a step, taking a look at the scientific foundation for oral hygiene instructions in general. When establishing your oral health and prevention philosophy, it's a good idea to have a handful of classic research studies to support basic oral health before narrowing down the choice of specific products to recommend.

Over the years, many classic research papers have been published dealing with basic oral health facts that create a foundation for your prevention philosophy. Identifying areas in the mouth at greatest risk of dental disease provides the basis for developing an effective oral hygiene program. Rather than giving every area in the mouth the same degree of attention and time, targeted oral hygiene will focus the limited time now spent on oral hygiene on the areas in the mouth at greatest risk and will provide greater value in return for the time spent.

Next are the studies identifying the most effective approaches to disrupting bacterial biofilm. This also includes an evaluation of which traditional approaches work and which don't, plus a look at innovative approaches that work as well, if not better than, traditional means. Before embarking on "evidenced-based decision making" between various toothbrushes or floss products, look to the research to determine if today's traditional approach is actually on target. Tradition suggests toothbrushing and flossing to be the foundation of any successful oral hygiene program offered to patients. However, a case can be made that toothbrushing shouldn't be our primary approach to controlling bacterial biofilm and that flossing isn't actually very effective.

Despite scientific research questioning these oral hygiene traditions, brushing and flossing still remain the foundation of today's oral hygiene approach. But should they be, based on current scientific findings? Should we be teaching toothbrushing first and nagging patients to floss? This is definitely the tradition and has been part of dental and dental hygiene education for decades. This works well for dental hygienists and dentists, but what about the general public with varying levels of dexterity and attention to oral health? Finding evidence to support brushing and flossing for the average patient is difficult. Our traditional approach to oral hygiene is not supported by scientific research. Understanding the research about where and how plaque forms and where gingivitis and caries begin will provide a basis for developing an effective oral health philosophy.

Research can be used to develop your preventive philosophy and can also be brought into discussions with patients about the most effective oral hygiene approaches to follow. It's time to break away from traditions that do not provide the best outcomes possible and look to the research for answers and guidance. Scientific research together with the experience of the clinician and the preferences of the patient are more likely to achieve

greater oral health than continuing with the brushing and flossing tradition.

## What is the Research Base for Daily Oral Hygiene?

The primary reason oral hygiene instructions are given to patients is to prevent both caries and periodontal disease. Toothbrushing is the most commonly taught approach, despite the fact that caries and periodontal disease affect proximal surfaces more often than surfaces reached by a toothbrush. The smooth surfaces at greatest risk for caries and periodontal disease are the surfaces between the teeth, not facial and lingual where the toothbrush reaches. For that reason, Axelsson et al. recommends that daily oral hygiene begin between the teeth on interproximal surfaces first, before toothbrushing.

Since the proximal surfaces are at greatest risk, toothbrushing should not be taught first. Toothbrushing is taught first based on tradition, not a clear focus on preventing or controlling disease. Toothbrushing is taught first because it's considered easier to do than flossing. Others teach toothbrushing first because that's the one basic oral hygiene task performed daily by nearly all adults. Just because that's a fact doesn't make it a sound scientific decision. Since disease begins between the teeth, daily oral hygiene between the teeth should be mastered before toothbrushing.

## Toothbrushing

After the bacterial biofilm has been disrupted on all the proximal surfaces, only then should the focus be turned to brushing. Interestingly, toothbrushing isn't very effective. Toothbrushes, either manual or powered, are simply a stick with bristles. Effective toothbrushing depends completely on proper placement of the brush head, proper motion of the manual brush or powered brush and adequate time to effectively disrupt the bacterial biofilm. Not everyone has the dexterity or the attention to focus on proper brush placement and brushing. Children, those

*continued on page 122*

# CHI and PERIO



with arthritis, the elderly and those in the hospital often fail to effectively brush their teeth. In many research studies evaluating either professional toothbrushing or at home brushing the effectiveness of plaque removal is about 50 percent at best.

Toothbrushing instructions suggest following a systematic pattern that does not reflect a needs-based approach. It makes sense to begin brushing the areas at greatest risk of bacterial plaque biofilm formation and gingivitis. According to research published by DeVore, et al., the area at greatest risk is the lower lingual, specifically the right side for right-handed brushers and left for left-handed brushers. However, toothbrushing brochures and packages suggest brushing front teeth first, the area at least risk of biofilm accumulation and gingivitis. This anterior-first approach is based on tradition and perhaps the idea that showing brushing on the facial surfaces of the anterior teeth is easier than focusing on the areas at greatest risk of disease. Proper brush placement to reach posterior mandibular lingual areas is more difficult and requires more patience and instruction for patients to successfully achieve.

Despite the efforts of dentists and hygienists to convince people to follow a systematic approach to brushing that covers all surfaces equally, research published by MacGregor and Rugg-Gunn demonstrated that toothbrushing patterns are erratic and not methodical. When observed and recorded with a hidden video camera, these children and young adults began brushing on maxillary facial surfaces corresponding to the hand they use to hold the toothbrush and returned to those areas several times during brushing. Rarely were the lingual surfaces ever brushed. Only 10 percent of their brushing time was spent on lingual surfaces. Total brushing times for these subjects varied from 38 to 60 seconds. Ten percent or 3.8 to six seconds isn't much time to brush the area at greatest risk for plaque accumulation and gingivitis. This study was done before rules were in place to inform study subjects they were being videotaped. For that reason, this study is now a classic that can't be repeated. Telling patients they will be videotaped while toothbrushing will result in brushing times much longer than normal.

In an effort to reduce calculus formation on the lingual of the lower anterior teeth, hygienists and dentists have told patients for years to brush the inside of the lower front teeth first. A study published in *JADA* in 1998 by O'Hehir and Suvan confirmed what clinicians already knew. Instructing patients to dry brush inside first, brushing all the teeth in the mouth until the teeth felt clean and tasted clean resulted in a reduction in lingual calculus of 63 percent and a reduction in bleeding of 55 percent. It makes sense to instruct patients to begin toothbrushing in the area at greatest risk of plaque and calculus accumulation and gingival bleeding. Simply changing the toothbrushing pattern will impact effectiveness.

### Most Effective Biofilm Removal

Xylitol is a natural sugar that bacteria can't metabolize. Xylitol also interferes with acid production by the bacteria and breaks

down biofilm integrity. Early studies with xylitol showed an amazing reduction in plaque levels when consumed several times each day. When consumed three to five times daily, xylitol reduced plaque accumulation by 50 percent. Interestingly, toothbrushing also reduces plaque by 50 percent. Toothbrushing depends on the dexterity of the person holding the toothbrush. Xylitol works no matter what the dexterity. By using xylitol daily the first 50 percent is removed no matter what the toothbrushing skill level. There is no skill needed, simply chew gum, suck on candy or use toothpaste, mouthrinse, gel or dry mouth spray sweetened with 100 percent xylitol. Perhaps focusing the toothbrushing on areas at greatest risk will then reach a higher percentage of plaque reduction. This is especially true for those who are unable to even remove 50 percent of plaque with a toothbrush. It makes sense to encourage people to use xylitol daily to control plaque biofilm. Based on these findings, xylitol consumption should be the method of choice for disruption and prevention of plaque biofilm forming on facial and lingual surfaces.

The research supporting daily xylitol use has accumulated for the past 40 years, long enough to confirm original findings and determine dosage suggestions. Xylitol research studies don't directly compare toothbrushing with daily xylitol use, but clinicians determined to help patients achieve the best oral hygiene possible will see xylitol as an option to reduce plaque biofilm with something easier to use than a toothbrush. This shifts the emphasis from toothbrushing instructions to discussions about plaque biofilm formation and disruption using xylitol.

### The Hawthorne Effect

The participation in a research study motivates people to do better than average work. This is called the Hawthorne Effect. In oral hygiene studies, the Hawthorne Effect is responsible for more plaque removal and reductions in bleeding when subjects are told to continue doing their regular oral hygiene. This research phenomenon can be used to achieve better oral health in your patients. If ever you find yourself rushed and with no time to discuss oral hygiene, simply tell patients they are in a research study and they should continue doing their regular oral hygiene. Let them know at the next visit bleeding and plaque scores will be measured. Of course, some will completely forget what you've told them by their next visit, but for those who take it seriously, you should expect to see a 35 percent reduction in plaque and bleeding, due to the Hawthorne Effect. Simply participating in a research study motivates people to do their best. Why not put all your patients into a research study?

Check out this month's Perio Reports for summaries of the classic research studies mentioned in this article. These studies provide a basis for discussion and debate among your team members as you define and refine your prevention philosophy as it relates to toothbrushing. Have fun with this topic and push the edges of your traditional philosophy. You might even become comfortable telling patients to skip toothbrushing and start cleaning in between. ■

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by Trisha O'Hehir, RDH, MS,  
Hygienetown Editorial Director

# BASIC Needs Abroad

Research is part of any volunteer trip providing oral health care. Asking questions and seeking answers. That's how I looked at my AD World Health trip to the Manjushree orphanage in Tawang, India a few years ago. It was primarily a medical trip to assess medical needs based on reports of eye and skin problems. My task was to collect information on basic oral health needs of the children in order to plan future dental visits providing the necessary restorative care. Of course I also provided oral hygiene instructions and brought several copies of my cartoon book, *The Toothpaste Secret*.

Things are not always as they seem. The eye and skin problems were directly related to the location of the orphanage, at 10,000 feet. Children often had school classes outside in the sun and in winter, the sun reflected off the snow creating both eye strain and sunburn. Sunglasses and hats quickly remedied those problems.

Other problems encountered during our visit were due to poor general hygiene and shared toothbrushes. The children all had lice, which was treated primarily by short haircuts and secondarily by shampooing with anti-lice soap. They all seemed to have a runny nose and cold. This was attributed to the lack of basic hand washing and the shared toothbrushes. Teaching how to correctly wash their hands and making sure hands were washed after going to the toilet and before meals was new for them.

Toothbrushing was done with communal toothbrushes. A basket of brushes was available in the boys and the girls bathroom. Children simply took a brush when it was time to brush and tossed it back when they were done. To ensure that each child had their own toothbrush, a toothbrush holder with places for 60 brushes was devised from a long plank of wood. Each child was assigned a numbered slot. Now kids can keep from sharing

toothbrushes. For the first time, the children were able to have their own toothbrush.

Oral health data gathering was done by creating a dental chart for each child to identify the general dental needs of the group. This information was then available when a dentist next visited the orphanage. All the children seen the first day were dentally healthy. This was a pleasant surprise. When I mentioned this to the monk in charge he asked if I was now ready for the "bad" ones. Those were the children I saw the next day with a lot of caries.

Anticipating the need for some extractions of deciduous teeth, forceps and anesthesia were packed for the trip. Eight children with abscessed deciduous teeth were anesthetized and the teeth extracted. Later that night I visited the children as they were being put to bed, to be sure all the gauze was removed from their mouths and that they were all doing fine. The next morning, a long line of children was waiting for the dental clinic to open. Surprised at this, I asked the teacher why the children were there before we were ready for them. The teacher replied that the children came themselves and after questioning them it became clear and very surprising to me that each child wanted a tooth extracted! Upon further questioning it seemed they all wanted a tooth extracted because the day before, the children who had teeth extracted were given special attention when I visited their dorm, gave them a hug and tucked them into bed. They all wanted the same. I reassured them I would hug and tuck them in without extracting a tooth! ■



# Evidence-based DH – How Much of What We Do is Science-based?

Sometimes tradition rather than research dictates how we treat patients.

Hygienetown Message Board > Evidence Based Dentistry > Evidence Based Dentistry > Evidence Based DH | ▶



Sadly, much of what we do routinely as RDHs is not supported by research. So far, no one has called us on it, but big insurance companies and large, multi-center practices will soon have the data to either support or negate our traditions. One in particular – recall intervals. What DH research do we have to support our recommended intervals?

As you go through the treatment you provide your patients each day, what research can you point to for each thing you do? If patients haven't asked you for the evidence before, they might soon begin. ■

NOV 28 2010

**Trisha O'Hehir**

Member Since: 05/22/03

Post: 1 of 12



Most of my adult patients are on three to four month recalls. I give them the scientific rationale for this interval by explaining the nature of the biofilm. Some time ago we shared some great literature on this very thing, on another thread. Because some new patients were previously accustomed to the traditional six-month recall (which has no evidence to support it), I have developed my explanation pretty well. Also, thanks to Trisha and others, I can produce the evidence if asked to by a patient.

I guess in due course, the condition of their mouths will provide some evidence also. ■

NOV 28 2010

**lindadouglas**

Member Since: 06/09/06

Post: 2 of 12



Let's look at each aspect of the DH visit and tie the research to it.

I'll start with toothbrushing – dry toothbrushing in particular. I'm still amazed that DH schools don't teach this and so many hygienists have never heard of it and many who know about it don't teach it. It's so simple and makes such a huge difference. Here are surprising results from the January 2011 poll.

Do you teach dry toothbrushing followed by toothpaste?

39% Yes

47% No

14% I am unaware of that approach

506 votes ■

DEC 3 2010

**Trisha O'Hehir**

Member Since: 05/22/03

Post: 4 of 12



Dry toothbrushing has been evidenced-based for me and my patients. Most doctors aren't sold on it, some don't even like when I suggest it. They often say it's too damaging. But I have only seen great results and not damaging results. It is demonstrated in the patients' mouth so they can feel how little pressure is used.

It probably has been the most appealing, easy and effective thing I can teach my patients. ■

DEC 3 2010

**JERSEY DEVIL**

Member Since: 11/04/05

Post: 5 of 12



Really interesting. It goes to show how results of research are seldom what we would expect.

How about fluoride treatment every six months? How effective is it really? Which

**lindadouglas**

Member Since: 06/09/06

Post: 7 of 12

continued on page 126

form of fluoride is most effective for adults, is varnish really the best option? Would a weekly self-applied fluoride rinse be better for primary prevention of caries?

My boss is implementing daily fluoride rinses for high-risk patients: fluoride daily for three weeks and chlorhexidine rinses for one week per month. ■

DEC 15 2011

**timothyvives**

Member Since: 12/13/08

Post: 8 of 12

Hi Linda, I'm presuming your referring to high-risk caries? A couple of points that your boss might want to consider: I would suggest the fluoride rinse as an adjunct and use in the middle of the day based on no research whatsoever, except that I don't personally see the point in using a fluoride rinse after brushing with a high-fluoride toothpaste. I'm presuming your high-risk patients are using 2800ppm F or 5000ppm F?

I'm anti chlorhexidine for high-risk caries as it does nothing for the pH accept makes it worse and the evidence against *strep mutans* is suspect.

I would get them to use a xylitol rinse instead as it's effective against *strep mutans*, works synergistically with fluoride and helps the pH. Managing the pH is key to caries (as you know). ■

DEC 15 2011



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THREE LITTLE PIGS

Three little pigs go out to dinner one night. The waiter comes and takes their drink order.

"I would like a Sprite," says the first little piggy. "I would like a Coke," says the second little piggy. "I want water, lots and lots of water," says the third little piggy.

The waiter brings the drinks out and takes their dinner order.

"I want a nice big steak," says the first piggy. "I would like the salad plate," says the second piggy. "I want water, lots and lots of water," says the third little piggy.

The waiter brings the meals, and later returns to ask if the pigs would like any dessert.

"I want a banana split," says the first piggy. "I want a root beer float," says the second piggy. "I want water, lots and lots of water," exclaims the third little piggy.

"Pardon me for asking, but why have you only ordered water?" the waiter questions.

The third piggy says, "Well, somebody has to go wee, wee, wee, all the way home!" ■



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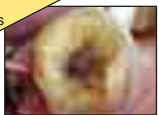


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Before



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Special Supplement to Dentaltown Magazine

1.5

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BruxZir Solid Zirconia crowns were placed on tooth #8 and #9. As you can see in the non-retracted “before” photo, the patient had two pre-existing high-value PFMs over what appeared to be base metal copings. The condition of the gingiva in the “before” photo suggested a possible base metal allergy, which contributed to the decision to go with BruxZir all-ceramic (monolithic zirconia) crowns.



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Walker Dental Laboratory, Inc.	Decatur	AL	800-727-0705
Green Dental Laboratories, Inc.	Heber Springs	AR	800-247-1365
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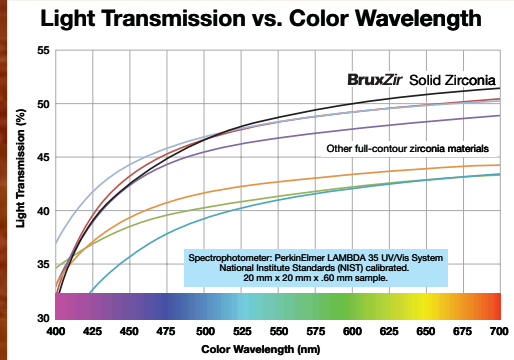
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AOC Dental	Hayden	ID	800-729-1593
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Dental Arts Laboratories, Inc.	Peoria	IL	800-322-2213
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Prosthotech	Sugar Grove	IL	630-466-8333
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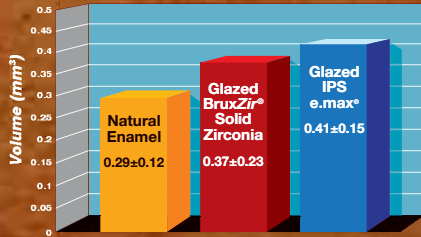


The 50% smaller average grain size of BruxZir Solid Zirconia improves its physical properties.



BruxZir Solid Zirconia exhibits higher translucency in the warm color spectral wavelength (>550 nanometers), allowing for more natural-looking restorations.

## Wear Compatibility



In a recent study<sup>1</sup> to measure the volumetric loss of enamel, glazed BruxZir Solid Zirconia was found to wear compatible with enamel and virtually identical to glazed IPS e.max.

1. Wear of Enamel on Polished and Glazed Zirconia: Shah S, Michelson C, Beck P, et al. 2010; Washington, DC: AADR. Abstract #129815.

## Antagonist Wear



The antagonistic (Stealite balls) wear shows BruxZir Solid Zirconia only with 72±21 micron, which is significantly lower than Ceramco3 (110±48 micron). The University of Tübingen study was run using an eight-chamber Willytec Chewing Simulator at 1.2 million cycles.



For more information, visit [www.bruxzir.com](http://www.bruxzir.com).

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Las Vegas Dental Studio	Las Vegas	NV	800-455-1598
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Creo Dental	New York	NY	212-302-3860
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Dental Prosthetics Lab	Clarksville	TN	931-647-2917
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Rogers' Dental Laboratories	Athens	TN	800-278-6046
S & H Crown & Bridge Inc.	Knoxville	TN	888-506-1263
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Stern Reed Assoc. Dental Laboratory	Addison	TX	800-888-8341
Stern Tyler Dental Laboratory	Tyler	TX	800-926-1318
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Crown Laboratories Inc.	Sandy	UT	800-574-1911
Crystarr Dental Design	Salt Lake City	UT	800-343-2488
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Precision Milling Center	West Valley City	UT	877-810-6210
Treasure Dental Studio	Salt Lake City	UT	800-358-6444
Via Digital Solutions	Sandy	UT	888-484-6842
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Art Dental Lab	Chantilly	VA	888-645-7541
Dominion Milling Center	Richmond	VA	877-285-5285
NexTek Dental Studios	Manassas	VA	800-678-7354
P & R Dental Lab Inc.	Alexandria	VA	703-916-8866
The Point Dental Studio, LLC	West Point	VA	804-337-5477
McElvain Dental Laboratory	Colville	WA	509-684-8620
Pacific Dental Arts Inc.	Olympia	WA	877-438-1882
Ziemek Aesthetic Dental Lab	Olympia	WA	360-943-6071
Haag Dental Laboratory	Kenosha	WI	262-694-4732
Saber Dental Studio	Waukesha	WI	800-365-3210
Midtown Dental Laboratory	Charleston	WV	800-992-3368
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\*\*Also a PrismaKlinik Zirconia™ Milling Center.

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## Welcome to *Dentaltown Magazine's* Prosthodontics Perfected: A Special Laboratory Supplement!

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We hope you enjoy this exclusive supplement and we encourage you to discuss it with your colleagues on [Dentaltown.com](http://Dentaltown.com)!

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# The Shortened Dental Arch Concept – Toward a Dentaltown Consensus Statement



The shortened dental arch is an issue you frequently face in your practice whether you realize it or not. Read this literature-based discussion and then follow up online.

[Dentaltown Message Board](#) > [Prosthodontics](#) > [Fixed Prosthodontics](#) > [The Shortened Dental Arch Concept](#) | ▶

## Howard M Chasolen

Member Since: 11/15/02

Post: 1 of 100

I would like to start this thread to discuss the shortened dental arch (SDA) concept. The outcome will be a consensus paper with statements addressing specific issues with the SDA concept.

1. How do we define the SDA?
2. Is there a change in masticatory efficiency with the SDA?
3. Does the SDA lead to TMD-associated issues?
4. What are patients' perceptions of the SDA?
5. How does the classic implant hybrid prosthesis factor into the SDA concept?
6. What are the neurobiological and neuromuscular principles that govern the physiology of the SDA?
7. How do we manage the SDA for successful long-term outcome?
8. What are the indications and contraindications for the SDA? Anyone in? ■



OCT 10 2008

## mandm\_sudz

Member Since: 04/04/05

Post: 2 of 100

Great question. I have been asking myself this question mainly for implant full-arch rehabs. I have a few cases on the go where either the patient flat out refuses sinus lift surgery to allow posterior implants or doesn't have enough posterior mandibular bone height for posterior implants, but want fixed restorations.

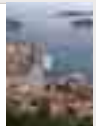
I will not place cantilevered teeth in the maxilla, nor will I place a full length (meaning two premolars and at least one molar) bilateral cantilever on a mandibular fixed prosthesis when the crown height is very tall (i.e. many hybrids). I have agreed with some of these patients to have a shortened dental arch. For me, this means either one premolar and one molar or two premolars.

In my opinion, this will still give very good function, but not ideal. I have many patients with no natural molars in their mouth, but still have all of their teeth from second premolar forward. Sometimes I will ask some of them if they have any problems functioning, and honestly, not many of them complain. My father is one of these.

What exactly is the masticatory efficiency of a SDA? Not sure, but I saw somewhere (either dental school or at a lecture – Charles English maybe?) that a removable partial denture is not recommended or indicated for someone who has all teeth except for molars in an arch as it will not increase chewing efficiency. Therefore the function of a SDA must be good. Not excellent, but good? Howard, you are a prosthodontist, what is your take on this?

I see no reason why not to provide a shortened dental arch as a compromised (function) but acceptable treatment plan. For me, it is the better of the two compromises: biomechanics versus function. However there must be something I don't know. I have never read anything on the SDA. I briefly saw it discussed on Osseonews and some felt strongly that it causes TMD. How does it cause TMD? I don't see it in dentate patients. Is there a reason it would be worse in implant patients? Would it be worse with both arches implant-rehabilitated?

So many questions. Anyone have answers? ■



OCT 10 2008

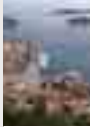


I have no papers to point to.  
Others will, and I look forward to reading them.  
I just have 28 years of being a dentist to make an observation or two.  
I have not seen anyone develop TMJ “problems,” muscular pain or complain of chewing insufficiency with first molar only occlusion in all those years. Not once.  
I do not recommend implants to replace second molars unless the patient specifically asks for them.  
First molars are a whole other story of course. ■

OCT 10 2008

**Howard Goldstein**

Member Since: 09/16/03  
Post: 4 of 100



This one is all that I need:  
J Dent Res 82(7): 532-536, 2003  
Occlusal and TMJ Loads in Subjects with Experimentally Shortened Dental Arches  
Y. Hattori, C. Satoh, S. Seki, Y. Watanabe, Y. Ogino, and M. Watanabe ■

OCT 10 2008

**mandm\_sudz**

Member Since: 04/04/05  
Post: 7 of 100



Howard, I didn't see this thread posted when it originated. I read some of the articles in the past and found it ironic that I start my full-mouth rehabs 10 over 10. According to the literature this cannot and will not cause any problems function-wise, masticatory-wise or joint-wise. It also shows that loads decrease when the patient is only in second premolar occlusion.

I was taught this technique because you can then use the unprepared molars for control bites. You never lose your distal contact and always have an ability to tri-pod the bite. For me it works well.

*[Posted 3/25/2009]*

Hey guys, in that study that tried suggesting that missing five or more posterior teeth had higher incidence in TMD... I feel this is the chicken or the egg scenario. We all have seen patients with SDA with and without an internal derangement.

I do feel that patients with TMD have a higher incidence of ending up with SDA if they have large restorations on their back teeth, and are bruxers. I think everyone would agree these patients start out with fillings that crack or teeth that crack, get bigger fillings, maybe crowns, the crown doesn't feel right, endo is done through the crown, never feels right and finally extraction. Thus they end up with SDA.

I feel TMD is more likely to cause SDA than the SDA causing TMD. When the disk displaces, it will change the occlusion – often causing posterior interferences. If they are a bruxer... they beat up those teeth in interference both during the day and at night.

Teeth in interference can move out of the way (mobility, bone loss), break or wear. That's it.

I recently equilibrated a dental assistant from another office who reported that she doesn't clench during the day anymore. I think she still does but without having her bite jacked up like it was and with the high forces on her molars... she doesn't have the constant reminder of sore teeth.

Just my thoughts. ■

MAR 23 2009

**John Nosti**

Member Since: 02/23/04  
Posts: 23 & 48 of 100



When I started this thread in 2009, I had some specific points and positions I wanted to bring out. Today, they are even more relevant and important. The decision algorithm we use to decide about the treatment path for posterior teeth is critical when it comes to patients' long-term outcome. From a financial as well as prognosis outcome.

**Howard M Chasolen**

Member Since: 11/15/02  
Post: 55 of 100

To me, this goes to the core of many treatment decisions about how to and when (if at all) to treat the posterior regions of the mouth. ■

JUL 3 2011

**John Nosti**

Member Since: 02/23/04

Post: 57 of 100

I have more than several patients who have been restored 10 over 10 and have taken years to restore their molars. There are others where I thought that even though they have excessive wear in the anterior segment, the posteriors were virgin and had little wear. Those patients had only a slight increase in VDO and I never restored their molars.

Eventually they come into contact. ■



JUL 3 2011

**Wade Pilling**

Member Since: 03/26/03

Post: 58 of 100

John, honestly I've done that a few times. Called the poor man's FMR. I think there are differences in SDA for implants and natural dentition. Very rarely do I do second molars with implants. On a full arch of implants I always go to first molar. With an implant or cantilever, I find the first molar can be an aesthetic tooth in big smiles. To me, a shortened arch is to the first molars and I routinely do it. Even with FMR, I often leave out seconds unless they need restoring. I've also found bis forward to work well in both teeth and implants. This is all me just experimenting and using logic with my patients. It would be nice to see what people are seeing long term. But I always try for first molars. ■

JUL 3 2011

**Howard M Chasolen**

Member Since: 11/15/02

Post: 60 & 69 of 100

Nosti, those patients do well right? So why do we recommend complicated posterior treatment plans with sinus grafts and posterior replacements?

Wade, I would define SDA as second premolar occlusion. Poor man's FMR... had me smiling. But maybe this treatment is physiologically justified. That is why I wanted to start this thread.

So, let's review the Witter and Kanno paper again and discuss it, because many of these papers come from the perspective of TMD and pain. But, what about the patient who insists on posterior occlusion because they can't chew? We know it isn't necessarily so, but I have had at least a few patients believe that their chewing ability was severely hindered without the second molars on an implant reconstruction. "Why did I bother doing this?" was the question after I took them from complete dentures to full-mouth implant-supported PFM fixed.

Also, let's discuss the conventional thought of posterior support for joint support versus the possible contemporary thinking of decreased muscle activity with anterior contact and the fallacy (or possible fallacy) that posterior support is needed for favorable joint support when there is altered joint mechanics and physiology. Also, what about Nyman and Lindhe and their findings on perio-involved arches with cross-arch splinting and no molars? A lot to discuss here.

So, what about Witter (2007) and Kanno paper? I attached PDFs of those in earlier posts. [Editor's note: Visit post #20 and #21 of this message board online to view the attachments.]

[Posted: 7/4/2011]

I think this is the crux of the issue – is there a biologic cost to not having molars? Is there a psychological cost to the patient and is there a financial motive? If we select the option of replacing posterior teeth, is it worth the risk of implant placement and grafting or is it better to save posterior natural teeth? ■

JUL 4 2011

continued on page 10

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**Michael Melkers**

Member Since: 09/09/00  
Post: 77 of 100

Love to jump in if I can and join the fun...

1. How do we define the SDA?  
I am hearing and thinking pre-molars forward.
2. Is there a change in masticatory efficiency with the SDA?  
I guess that is going to be on a case-to-case basis based on the patient. I know loads that say no but there are some who want their molars back for efficiency.
3. Does the SDA lead to TMD-associated issues?  
I cannot say that I have experienced that in my patient base.
4. What are the patient perceptions of the SDA?  
One thing that I have seen is the “loss of measure of health” – patients have expressed that they feel they “should” have more teeth back – that they’re old or less vibrant. There is not going to be literature or papers to back this up. A patients’ perception can be their reality.
5. How does the classic implant hybrid prosthesis factor into the SDA concept?  
Pass.
6. What are the neurobiological and neuromuscular principles that govern the physiology of the SDA?  
Pass.
7. How do we manage the SDA for successful long-term outcome?  
What would define that success?
8. What are the indications and contraindications for the SDA?  
Well, if it was uni-arch and there were teeth without opposing support, supra-eruption could lead to issues. ■



JUL 4 2011

**John Nosti**

Member Since: 02/23/04  
Posts: 95 & 96 of 100

I think maybe I didn’t communicate my post well. When I stated “Those patients had only a slight increase in VDO and I never restored their molars” – I was referring to the fact that I restored their anterior 20 by increasing their VDO and thus taking their virgin molars slightly out of contact. Eventually their molars did come back into contact because my vertical increase was less than 2mm in the anterior region (around 0.6mm-0.7mm at the second molar).

Does that explain it better?  
*[Posted: 7/10/2011]*

I am going to say it has to take into consideration cost and benefit. If the patient requires a full-mouth rehab, what is the cost to treat beyond the second premolar versus the added benefit?

Surely with edentulous patients with implants going to fixed, the cost to benefit ratio to go back to the second premolar doesn’t justify treatment.

Someone who has a complete healthy dental arch and loses a first molar – by all means replace that bad boy. The resulting mesial drift of the second molar and supraeruption of the opposing tooth is worth preventing, in my book. ■



JUL 10 2011



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things are not enough, unless they're also backed by a commitment to customer service, support and training. In practical terms, this means its service and customer support people have extensive, real-world experience in the lab and in real dental practices like yours. It also means it doesn't believe in nameless voices and impersonal call centers. Whenever you need help, you can always speak with your dedicated technical support representative – someone who knows your name, works regularly with your practice and understands your unique circumstances. Arrowhead also provides you with a doctor relations representative whose only job is making sure you receive the exceptional service, personalized attention and outstanding results you deserve. It's like having a member of your staff working full time at the lab.

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Arrowhead was founded and built by Dr. Dick Barnes, a recognized cosmetic dentistry leader and practitioner in the United States. His belief in the power of comprehensive dentistry is the driving force behind the quality and artistry of everything Arrowhead does, and it places Arrowhead in a position to deliver the products and training you need.

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# Continental Dental Laboratory Proven. Reliable. Results.

With the advent of new technology and materials, picking the right restoration for your patients can be challenging. As a full-service laboratory for more than 42 years, Continental Dental Laboratory (CDL) of California helps doctors eliminate the guesswork and offers a complete line of the latest CAD/CAM restorations, along with traditional fixed and removable prosthetics.

Jerry W. Doviack, CDT, president and owner of Continental Dental Ceramics, says, "I started this lab in 1970. I never imagined the changes in dentistry, especially within the last five to seven years that have dramatically revolutionized the way we work and practice dentistry today. We've been around long enough to see products come and go. We've done the research to help you and your patients identify proven market performers that give you confidence when prescribing restorations for your patients. We need to offer our customers a full line of products and services that are relevant and proven performers in today's market.

"We like to offer our doctors a choice. Every patient has different needs, whether it's an issue of strength, aesthetics, price or a combination of these factors, we like to discuss all of the options with our doctors and let them make the right choice for their patients. We find that patients are much happier and so are our doctors," says Doviack. With dental products like 3M ESPE Lava, IPS e.max, PFMs, and a host of full-contour and layered-zirconia restorations, the choice is yours.

Whether you have a question about preparation, cementation or even material choices, CDL's staff is there to advise, consult and partner with you throughout the treatment process. Oftentimes doctors call with a patient in the chair. CDL can walk you through the treatment and case planning process every step of the way.

For doctors who prefer cutting-edge digital accuracy, CDL has the latest CAD/CAM milling machines and

scanners. From 3M ESPE Lava and Lava C.O.S. (Chairside Oral Scanning) to 3Shape and Cerec Connect by Sirona – the laboratory is set up to receive traditional impressions and digital intra-oral scans to produce accurate restorations. This virtually eliminates remakes and reduces the chair-time necessary to seat these restorations. With digital accuracy, the prep is scanned along with the bite, opposing and adjacent teeth to create a virtual representation of the patient's mouth. The technician will design your restoration using biometric data to match the anatomy of the patient's adjacent teeth. CDL can custom design any restoration with digital accuracy and precise results.

CDL is differentiated by the service and value brought to customers. It offers a full line of aesthetic restorations along with implants, orthodontics and removable prosthetics. Whether you are in need of a Valplast thermoplastic partial or a full-contour zirconia crown, it offers consistent value and results to clients. With convenient flat-rate pricing on all products and a convenient seven- to 10-day turnaround, CDL caters to practices both big and small that want to increase their revenue stream with brand name products that are both beautiful and affordable for patients. Every patient has the option to choose a high quality dental restoration that will increase not only his or her satisfaction, but also improve customer retention and referral rates for any dental practice. ■

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# Bayflex Partial

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Have you ever made a RPD for a patient only to find out he or she wears it only when he or she sees you? "It's not comfortable," "it looks bad"... we've all heard the complaints. When a patient's treatment plan calls for a conventional metal partial, why not consider a flexible partial?

Introduced in the 1950s, flexible partials grew in popularity until it was discovered that they stain easily and cannot be relined or repaired. This caused patient dissatisfaction and frustration among dental professionals. Due to advancements in aesthetic materials and techniques, flexible partials are now more stain-resistant, they don't warp and they won't become brittle.

The most notable advancement is that Bayflex flexible partials can be repaired. To be able to reline or add teeth to these appliances is a major factor in a patient's decision-making process. It is even possible to add flexible clasps to an existing acrylic denture.

Aesthetically, your patients will benefit from the natural tissue design and high degree of translucency present in flexible partials. They blend well with the surrounding periodontal structures and dentition.

Most patients will quickly adjust to a flexible partial. Its thinness provides a greater level of confidence and comfort when speaking, chewing and smiling. The material allows for more feeling and taste sensation, and its flexibility absorbs a portion of the shock from occlusal and masticatory forces. It is the perfect option for patients who might be sensitive to acrylic, as it is monomer-free, biocompatible and hypoallergenic.

A flexible partial is as durable as a conventional metal partial. Nylon-based RPDs actually withstand compressive forces better than their acrylic counterparts. They will not deteriorate chemically when in contact with fluids, bacteria or the physical environment of the mouth.

The cost of a flexible partial is comparable to that of a conventional partial. However, with a flexible partial there is no tooth preparation or metal frame try-in, thus less chairtime. Most importantly, your patients will love you for recommending these RPDs, and are likely to refer their friends!

Your design options can be unilateral or bilateral, and these appliances are perfect for single tooth RPDs (Nesbit). Flexible RPDs can also be made with a metal frame or metal mesh (i.e. hybrids) giving you the option of a firm vertical stop without unattractive metal clasps.



Patients with the following classifications make strong candidates, will likely not require a try-in and have high case acceptance rates:

- Kennedy Class III (unilateral bounded partially edentulous)
- Kennedy Class IV (bilateral bounded anterior partially edentulous)
- Interim prostheses (popular for healing stages of implant cases)

A hybrid flexible partial (metal framework combined with Bayflex) is appropriate for the following:

- Kennedy Class I (bilateral free ended partially edentulous)
- Kennedy Class II (unilateral free ended partially edentulous)

Tips to ensure a successful case:

- Use alginate impression material.
- Send your lab a poured model showing the vestibular borders, retromolar pad (for cases with distal extensions), a bite registration, opposing model, gingival shade desired and tooth shade.
- Just before delivery, submerge the appliance in hot water for approximately one minute. This will increase the flexibility and allow for excellent adaptation upon insertion. ■

## Company Contact

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**BAYSHORE**  
DENTAL STUDIO

# Why Dentists Love BruxZir Solid Zirconia

by Michael C. DiTolla, DDS, FAGD

I graduated from dental school at the University of the Pacific Arthur A. Dugoni School of Dentistry in 1988, and every crown I placed during my time there was a PFM. I had done some cast gold crowns on typodonts, but literally every crown I placed on a patient was a PFM. So you can see why I thought the PFM was the workhorse that would take me through my dental career. I would do an all-ceramic crown in the anterior when aesthetics trumped strength, but I was otherwise living in a PFM world. Most of the doctors I talked to back then felt the same way. Even when I started practicing in a laboratory 11 years ago, it was clear the majority of American dentists felt that way. This held true until 2007.

2007 was the year IPS e.max (Ivoclar Vivadent; Amherst, New York) was introduced to the dental market, and I like to refer to that time as the beginning of the “Monolithic Revolution.” Of the crowns we were fabricating at Glidewell Laboratories in 2007, PFMs made up 65 percent and 22 percent were all-ceramic crowns. Fast-forward to 2011, after the introduction of BruxZir in 2009, and the percentages have flipped. In 2011, 65 percent of the crowns we fabricated were all-ceramic and 22 percent were PFMs. Seeing this type of change in a short, five-year period is nothing short of amazing. The PFM we all came to know and trust is disappearing more quickly than anyone could have imagined.

While IPS e.max ignited this monolithic revolution, BruxZir Solid Zirconia (Glidewell Laboratories; Newport Beach, California) is now carrying the torch as well. We realized that dentists were yearning for a high-strength, cementable all-ceramic crown, even if it wasn't the most aesthetic crown available.

We assumed dentists were attracted to the strength of BruxZir crowns, as demonstrated by our hammer test. (To view the “Hammer Test: BruxZir vs. PFM” video, visit [www.bruxzir.com](http://www.bruxzir.com).) However, most of the comments we were getting from dentists didn't have anything to do with the strength of the material. The majority of the comments we received were about how well BruxZir

crowns and bridges fit compared to the PFMs they were receiving from us. Now we consistently hear from dentists that the margins on their BruxZir crowns and bridges feel better to their explorer than those on the PFMs they used to prescribe. A closer look at the tooth-restoration interface and emergence profile shows why.

Figure 1 shows an ideal PFM prep with 2mm of occlusal reduction, 1.5mm of axial reduction and 1mm of gingival reduction. This ideal reduction provides enough room for the technician to build a natural-looking PFM. This amount of reduction is necessary in order to have enough room for the metal coping, the opaque layer and the porcelain, which have a minimal thickness of about 1mm. If a dentist gives us the ideal 1mm of reduction in the gingival third, the crown can have an acceptable emergence profile, as seen in figure 1. When an explorer is run over the margin, it will feel closed, and there will not be any bulk of material to catch on the explorer. It will have a smooth flow from the contour of the tooth to the contour of the crown.

Figure 2 represents the typical PFM prep we receive with a feather-edge margin. While this type of conservative margin is fine for cast gold or a PFM with a metal margin, it does not work well for a PFM with a disappearing margin. When a PFM is fabricated for this prep, there is a bulky 1mm margin on the PFM that catches on the explorer. Even if the margin is sealed, the emergence profile is unacceptable. In fact, it is often difficult to tell whether the margin is closed because of the way the explorer hangs up on the marginal overhang.

Figure 3 represents the typical PFM prep we receive with a BruxZir crown in place. Because it is a monolithic crown and does not have multiple layers, it can be milled to a feather edge; there is no bulk of material, or “speed bump,” at the margin. Many dentists even tell us their explorer can't detect where the tooth ends and the BruxZir restoration begins. Rather than being another all-ceramic material that forces you to do a different type of preparation,



Ideal prep with PFM crown



Typical prep with PFM crown



Typical prep with BruxZir crown

BruxZir adapts to the type of prep you prefer to do. If you prefer doing a feather-edge or light chamfer margin, BruxZir handles it with minimal thickness, ensuring the best emergence profile that is attainable with a tooth-colored material.

To dive a little deeper into the production numbers at our laboratory, we took a look at our 30 largest BruxZir accounts, which also happened to be our larger accounts prior to the launch of BruxZir in 2009. We excluded group practices because we wanted to compare the same doctors' work, before and after the introduction of BruxZir. We compared the total remake rate of these dentists in 2008 (prior to the launch of BruxZir) to their total remake rate in 2011 (after they had become our largest BruxZir accounts). The numbers were staggering. On average, there was a 34.3 percent reduction in their remake rate. This decrease was undoubtedly due to the improvement in fit, as it could be argued that these BruxZir restorations were likely the aesthetic equivalent of the PFMs they were replacing.

The other part of the fit equation stems from the fact that BruxZir is a CAD/CAM-processed material. Unlike restorations built by hand, there is no variability in restorations that are digitally designed and milled. For example, we can set a parameter of 25 microns of die spacer under the crown, and it will always be exactly 25 microns. In the past, we could try to paint one thin layer of die spacer on a die to achieve that same 25-micron layer, but it would certainly vary in thickness from technician to technician. Furthermore, if a technician left the cap off the bottle, the acetone would evaporate and a thin coat of this die spacer might now be 75 microns thick.

Consistency has traditionally been the greatest challenge in our laboratory because it takes constant effort to standardize procedures from one technician to the next. CAD/CAM technology has been the consistency equalizer for us. With BruxZir, we are able to measure that change in the form of reduced remakes. BruxZir was designed for very specific situations – when the dentist wanted to use cast gold or metal and the patient said no to these materials. Even though BruxZir originated as a material intended for a very narrow set of clinical indications, today it makes up nearly 50 percent of the crowns we fabricate. If you haven't yet prescribed a BruxZir crown, consider trying one the next time you want a high-strength, cementable all-ceramic crown to see the fit difference for yourself. ■

## BruxZir Case Example:

The decision was made to place a full-coverage crown on tooth #30, which had been endodontically treated 10 years prior. Due to the wear facet on the mesiobuccal surface and the mesial marginal ridge fracture, a monolithic BruxZir Solid Zirconia crown was chosen. As tooth #30 showed signs of occlusal trauma, the doctor wanted to go with a monolithic crown because far fewer remakes due to chipping occur with monolithic materials than with traditional bilayered restorations, such as porcelain-fused-to-metal and porcelain-fused-to-zirconia crowns. With an occlusal thickness of 1mm, this BruxZir crown is a great restorative option.



Before



After

### Author's Bio

**Michael DiTolla, DDS, FAGD**, joined Glidewell Laboratories in 2001, after 13 years in private practice. Working in a laboratory setting has given Dr. DiTolla an intimate knowledge of dentists' crown and bridge habits, and he uses this unique perspective to compile case studies, preparation techniques and clinical videos for dentists. A nationwide lecturer, he serves as editor-in-chief and clinical editor of *Chairside* magazine, published by Glidewell Laboratories. A 1988 graduate of University of the Pacific Arthur A. Dugoni School of Dentistry, he was awarded Fellowship in the AGD in 1995 and the DrBicuspid Dental Excellence Award for "Most Effective Dentist Educator" in 2011.



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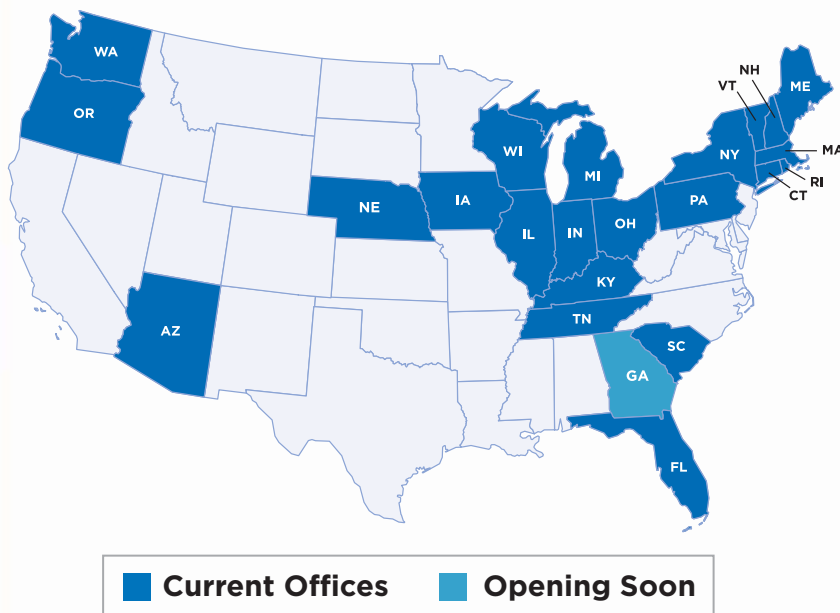
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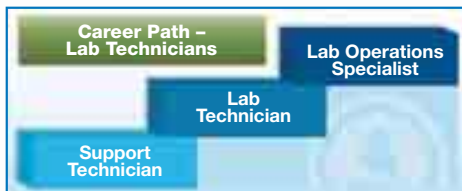
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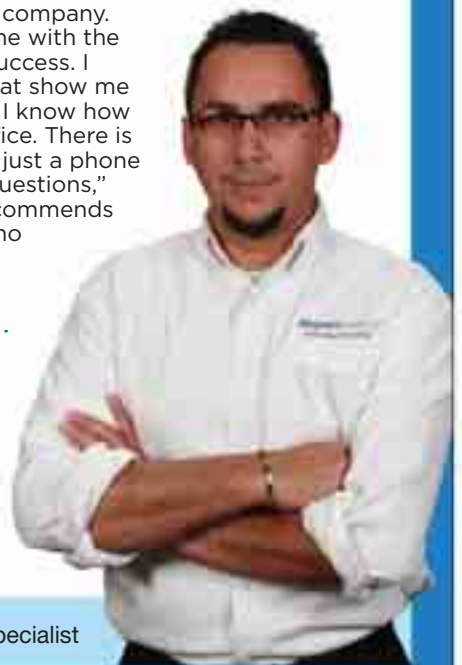
## Jorge's Success Story

When Jorge Medina set out from Puerto Rico looking for a new opportunity as a Dental Lab Technician, he never imagined that he would return to his home island just a few years later with the responsibility to help hire new lab staff for Aspen Dental.

Jorge was a quick study. After starting as a floating Lab Technician and receiving a promotion to Lab Operations Specialist after only three months, Jorge began supporting the Northern Ohio region. He now visits labs and administers programs that improve lab efficiency at Aspen Dental. Part of his job also entails hiring new staff across the nation. That responsibility is what brought him back to Puerto Rico on one occasion to assist Aspen Dental in their hiring efforts. "It was really a great experience. When I returned home, I got a chance to meet with my uncle. He was so proud when I told him what I was doing," said Jorge.

Jorge describes covering ten labs in the Ohio region as challenging, but more than manageable with the backup from his company. "Aspen Dental provides me with the resources to ensure my success. I have access to metrics that show me how an office is doing so I know how to better support that office. There is always somebody who is just a phone call away to answer my questions," said Jorge. Jorge also recommends Aspen Dental to peers who want to work for a solid, stable company.

**"I was looking for a company that could provide the resources to ensure my success."**



Jorge Medina, Lab Operations Specialist

# Makeover of a Retired Police Officer

by Luke S. Kahng, CDT

Most dentists who prescribe a hybrid bar for their oral prosthetics will order a denture teeth setting. And for a while, the teeth attached to the denture will look fine – clean and without stains. But as time goes on, as we all know, the teeth begin to look flawed and begin to need special cleaning by the clinician. The material is just not designed to withstand discoloration. And when the teeth break, the denture must be removed and repaired – a big inconvenience to the patient. These are two issues with dentures that both the clinician and patient might find to be annoying, worrisome and time-consuming.

Technicians have recently been updating their products by offering titanium bars with crown and bridge work attached. Especially considering the high cost of gold, titanium has become a viable option for dental work. With an assigned insurance code, the clinician has a proper choice to offer the patients' insurance companies.

A titanium bar does not follow past tradition in that it is not cast. Instead it is scanned and milled with pure titanium. There is no torch work involved and there are really no problems with porcelain breakage. In fact, porcelain bonding is excellent when compared to the opposing dentition. If the technician understands the correct methods for working with this material and has good calibration of his oven at 810 degrees Celsius, the prosthesis has a good chance for excellent development. The cost is about 20 percent higher to the patient, but when considering the overall benefits, it is often worth it to spend that extra money and be worry-free. Porcelain ceramic layering is always going to look more natural than acrylic and will hold up better in the long run, too! This article will go over how to finish an All-on-6 porcelain-fused-to-titanium hybrid bar case.

## Case Study

In this initial view (Fig. 1), healing caps were placed over the six implants in the maxillary. The technician and clinician alike had to look at the position of the implants and compare them to the old denture, knowing that they might have to use a multi-unit abutment. Using an open-tray impression technique, the doctor was able to verify implant placement. In (Fig. 2), the upper lip can be seen since the denture is not in place. Notice the wear that has occurred to the PFM on the right-hand side. It is much lower than the other lower anterior teeth. It was determined that in order to construct a well-fitting prosthesis, the lower teeth could not be followed since the maxillary teeth would end up being too lengthy and there would be interference from the uppers. From this image, there is a lot that can be determined about this patient's case.

In an edentulous case, we should always look at the tissue color (Fig. 3) as a factor. There are many colors that have a pink tone to them. We can decrease tooth size by creating a larger gum area within

the tissue design. Our strategy should take into consideration the smile line. The shade tabs in the picture represent the various gum colors from which we can choose in order to get an accurate match.

From the old denture, a clear acrylic duplicate was fabricated (Fig. 4) as a guideline for the new appliance. From the gum line all the way to the smile zone, the shape was changed slightly, and putty was placed within the bite in order to define the incisal edge position. The size of the teeth can be increased or decreased as need be during this stage in the lab.

Custom shade tabs, created by the laboratory (Fig. 5) provided a lot of translucency and opacity from which the technician could choose the patient's exact color match. During the CAD/CAM scanning stage, an index was created using the GC Milling Center (Fig. 6).

From the scan, a pure titanium bar was fabricated (Fig. 7). After the appliance was ground with a carbide bur, and subsequently steam cleaned, its appearance was smooth. It was then sandblasted. The degassing process can be skipped when working with titanium because the product has a lot of oxide.

After steaming, titanium bonder was next applied in a very thin layer to avoid bubbling (Fig. 8). Once the bar had been fired, titanium opaque was layered (Fig. 9) over the top. A porcelain build-up application followed after the second bake (Fig. 10) and then an application of pink porcelain (Fig. 11) with different layering techniques. After this process was finished, glaze was layered over the top of the appliance, with multiple characteristics having been applied in the embrasure, incisal edge, gingival and body one-third (Fig. 12) in order to give the teeth a more natural appearance. During a fit check on the model, it was verified that the implants lined up and would lock into place when in the patient's mouth (Fig. 13). In a mirrored image, the screw-retained hybrid porcelain bridge was carefully inspected for any flaws or imperfections that might have escaped previous notice (Fig. 14).

The bridge was tried in the mouth (Fig. 15) with fit and comfort verified by the patient. During a smile view the midline, horizontal line, size of teeth, shape and warm color tone were all checked (Fig. 16). The patient was very pleased and left the building smiling!

## Conclusion

This particular patient was not the normal retiree. She was a strong woman, having been a Chicago police officer for 30 years. In the line of duty, she was shot twice and had also survived several stabbings. Her partner died at the age of 43, during a dangerous encounter. Her work life had been difficult with long hours and many tough situations. Because of this,

she had not taken the best of care of her teeth and ended up edentulous in the maxillary arch.

Now was the time to correct that situation with a hybrid bar, ceramic teeth and the aesthetics and beauty she sought in

her retired life. The combination of all of the above gave her immense happiness, reflected in her final smile. ■

*Case courtesy of: Anthony LaVacca, DMD, Private practice Naperville, Illinois.*



Fig. 1: Healing caps were placed over the six implants  
 Fig. 2: Patient was totally edentulous in the maxillary  
 Fig. 3: Tissue color check  
 Fig. 4: Clear acrylic duplicate  
 Fig. 5: Laboratory-fabricated custom shade tabs  
 Fig. 6: Index created during scanning  
 Fig. 7: Pure titanium hybrid bar  
 Fig. 8: Titanium bonder application

Fig. 9: Titanium opaque application  
 Fig. 10: Porcelain build-up  
 Fig. 11: GC Initial pink porcelain application  
 Fig. 12: Glazing  
 Fig. 13: Fit to model  
 Fig. 14: Mirror image  
 Fig. 15: Immediate try-in in the mouth  
 Fig. 16: Final restoration

## Author's Bio

**Luke S. Kahng, CDT**, is the owner of LSK121 Oral Prosthetics, a dental laboratory in Naperville, Illinois. In addition to being a board member for several dental publications, he has published more than 80 articles with major dental journals. He also lectures internationally, offering hands-on seminars to dental technicians and clinicians alike. The first edition of his highly successful *Chairside Shade Selection Guide* was launched in 2009, with international sales worldwide. Changes were incorporated into the second edition of the *Chairside Shade Guide*, launched in November 2010, with updates to include three components: posterior, anterior and rehabilitation design, specific for in-office custom shade matching techniques. The third edition, produced in 2012, encompasses the same concept but as a ceramic shade tab. Hand-made, the shade tabs are grouped according to natural dentition as dictated by the aging process, and sold in sets of twenty as 3.0 (Young, Cosmetic), 4.0 (Middle Years) and 5.0 (Later Years).

In 2011, he created the *Kaleidoscope Wax-up™*, and began selling the hardback book *Smile Selection + CS<sup>3</sup> Clinical Cases*. Also included in his book publications are *Anatomy from Nature* and *The Esthetic Guide Book*.



# 2015 Dentists and Dental Laboratories Update

by Bennett Napier, CAE, and Warren Rogers



According to the most recent data from the U.S. Department of Labor, Bureau of Labor Statistics, there are 7,042 dental laboratories in the United States with a payroll and less than 3,000 “one man” dental laboratories. The data also reflects that there are 33,600 domestic dental technicians.

These numbers represent a 20 percent consolidation of both categories in the last two years. The market changes are a result of a number of factors: the economic downturn, competition from off-shore dental laboratories, increased capital costs to operate a dental laboratory and natural attrition due to an aging technician workforce. Over the next 10 years, it's predicted that the total number of U.S. dental laboratories could plateau at 7,000.

This shift in the domestic dental laboratory market is happening at a time when according to the U.S. Centers for Medicare and Medicaid, the demand for dental services is predicted to increase in the United States to \$167 billion by 2015. The ability of dentists to work with qualified dental laboratories domestically is paramount to good patient care.

The rapid change taking place in the dental laboratory industry has facilitated the need for different skills for a dental technician. Recruitment of individuals into the dental technology profession now includes graduates of computer imaging schools, CAD/CAM light manufacturing vocational schools and medical device technicians. There still remains a need to recruit professionals with a strong artistic flair. However, overall, the new skill sets for dental technicians are vastly different even from just 10 years ago.

With the increasing demand for dental services, the U.S. Department of Labor predicts the domestic technician workforce will begin to go up from current levels at five to seven percent per year through 2015. The reality is that it's likely the domestic dental technician workforce will not materially increase at that rate. The ability for the dental laboratory industry to meet increasing client demands rests largely on developing efficiencies through lean manufacturing principles and utilizing automation and technology to keep the pace of production with a smaller workforce.

The key internal and external issues that are impacting the dentist/dental laboratory relationship includes:

- The U.S. Food and Drug Administration import trade data for the dental laboratory industry classification code indicates that more than \$1.6 billion in dental laboratory-related sales is currently being fulfilled by foreign dental laboratories. That represents nearly 40 percent of actual units prescribed. This work is not all outsourced work by dental laboratories. There is a significant portion of prescribed dental laboratory work where no domestic dental laboratory is involved in the supply chain. In this case, the work is being shipped directly by large group dental practices and some U.S. dental schools.
- Due to technology costs, to open a dental laboratory that will be competitive in today's market environment requires a minimum capital investment of \$200,000. In the early 1990s, an individual could open a dental laboratory for less than \$20,000.



- The number of ADA-accredited dental laboratory technology programs at community colleges and universities has declined 62 percent since 1992. Today, there are 18 accredited programs in the country. There are now more non-accredited programs offering one year certificates in dental laboratory technology than there are associate of science or bachelors programs.
- Digital impressions as they relate to dental implants, although a small piece of the restorative market, are growing at 15-17 percent annually. The complexity of implants and the communication bridge that digital impressions provide requires an enhanced service level interface between dentists and dental technicians. Due to the FDA classification of implants as Class II medical devices, dental laboratories that manufacture implants and implant abutments are likely to face increased regulatory compliance with the U.S. FDA later in 2012. This new level of compliance will require that dentists use their due diligence to work with dental laboratories that can attest that they have quality system/good manufacturing practices in place to produce such restorations.

### Technical Training and Competency

Since the 1970s, more than 27,000 dental technicians have graduated from formal dental laboratory technology schools. The number of ADA-accredited programs in the U.S. can now only produce a graduating class of around 300 students annually.

Reversing the trend of school closures is extremely important in order to be successful in the dental relationship, a comprehensive foundation of knowledge is necessary, now more than ever. This is especially true, when one considers that dental schools teach almost no clock hours in dental laboratory technology. This divide is exacerbated by the fact that in many states more laboratory-related duties in the clinical setting are delegated to dental assistants or hygienists who also rarely have training in laboratory technology.

The proliferation of technology, both in terms of dental materials and equipment in dentistry and even more on the laboratory side, makes it crucial that there is open and consistent communication between the dentist and dental technician. Dental technicians by and large work closely with dental manufacturers on the development of new restorative materials as well as the capital equipment that allows manufacturing of the substructure or the full restoration to meet the dentist's need for the patient. Due to this dynamic, technicians are poised to offer dentists expert guidance on material selection and help filter through the sales pitch on which brand is best to meet the patient need.

The advent of digital impression systems has markedly improved the restorative outcome. In study after study, the detail of the digital file has facilitated both a better restoration and turnaround time. Remake percentages typically go down significantly both for the dentist and dental technician. This saves chairtime and improves patient satisfaction. As this technology becomes commonplace, the working relationship

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between dentists and dental technicians will allow for increased production capacity.

### Regulation of Laboratories/Technicians

In a July 2008 American Dental Association survey of its members on dental laboratory issues, more than one-third of dentists indicated that they believe dental technicians and laboratories are regulated or licensed. In fact, there are no states in the U.S. where technicians are required to be licensed.

Only four states mandate any baseline technical competency for technicians, another five require the dental laboratory to register with the state. Florida, Kentucky, South Carolina, and Texas, set the baseline competency and continuing education requirements for dental technicians based on the certified dental technician (CDT) designation administered by the National Board for Certification in Dental Laboratory Technology. This is the only recognized certifying body for dental technicians by the ADA.

Starting with the 2008 “lead in dental work” issue coming out of Ohio, state dental societies and state dental laboratory associations have begun to take a new look at the need for minimum state standards for operating a dental laboratory. Not since the 1970s has there been such momentum relative to “regulatory” compliance by dental laboratories.

There is a move afoot in five additional states including California to seek similar regulations in state dental practice acts. California is significant as one in seven U.S. dentists is licensed in that state. If California passes new laws, other states will likely follow their lead.

It is believed that a baseline requirement for registration of laboratories and a tie to certification or competency standards for technicians is imperative for dentists. This will preserve a consistent foundation of technical training regardless of what laboratory you choose to work with.

Dentists can and should seek to work with dental laboratories and technicians who have voluntarily chosen to verify their skills and knowledge against a national standard such as a certified dental technician, or have verified their facility operating standards as a certified dental laboratory (CDL) or FDA compliant, Dental Appliance Manufacturers Audit System (DAMAS) or ISO laboratory.

### Technology Advances

The advent and development of CAD/CAM products from companies like Sirona, 3M ESPE, Cadent, KaVo, Nobel Biocare, D4D and others that support digital technologies for both the doctor’s office and dental laboratory will help dentistry meet increasing consumer demands. These advances will also change how doctors and dental technicians communicate with each other.

With any technology, there is a length of time before the masses fully utilize what is available. With that in mind, it will likely be another five to seven years before this new technology realizes its full potential in relation to the number of possible users. Once that happens, the general dentist and the everyday dental technician will be in a new era of dental care. Much like the medical field, dentistry, and those within it, will be fully transformed into a high-tech health-care profession.

The National Association of Dental Laboratories believes that to preserve the ability of dentists to work with a qualified domestic laboratory industry that several public policy recommendations should be considered:

1. Support a minimum level of competency for practicing dental technicians. This can be achieved through state dental practice acts that would require each dental laboratory in the United States to employ at least one certified dental technician or require comparable continuing education.

2. Require U.S. dentists and dental schools that outsource their dental laboratory work directly to foreign dental laboratories to comply with the same Food and Drug Administration quality system/good manufacturing practice requirements with which a U.S. dental laboratory must comply. This not only ensures transparency but more importantly provides that all links in the supply chain are covered in case of a raw material product recall.

3. Support state dental practice act provisions that the dental patient has the right to know where his or her restoration was manufactured and also have access to a list of patient contact materials used in their restoration. Such information would become a part of a patient’s record. Georgia is the first state in the country that has pending legislation that would require the dentist to meet with the patient prior to writing the prescription and the patient must sign off on having the restoration made domestically or by a foreign dental laboratory.

For more information on the laboratory industry and seeking out a qualified partner, visit the following Web sites:

[www.nadl.org](http://www.nadl.org)

[www.nbccert.org](http://www.nbccert.org)

[www.dentallabfoundation.org](http://www.dentallabfoundation.org) ■

### Author Bios

**Bennett Napier, CAE**, is the executive director of the National Association of Dental Laboratories and the National Board for Certification in Dental Laboratory Technology.

**Warren Rogers** is the NADL President, and CEO of the Knight Dental Group, CDL, DAMAS, in Oldsmar, Florida.

# The IMPRESSION

## That I

by Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*;  
and Benjamin Lund, Editor, *Dentaltown Magazine*

Rarely can the relationship between dentist and dental lab become as strained as when both parties debate the quality of an impression. For something so mired in science and precision, it is amusing how subjective it can be. The situation can unravel quickly, feelings can get hurt, longtime partners in dental health can part ways, and patients end up waiting longer. We've all seen it and perhaps experienced it firsthand. *Dentaltown Magazine* asked four questions to leading dentists and dental laboratories about the current state of dental impressions, what they recommend, what the trends are and what corrections can be made to ensure doctor, lab and patient are all pleased in the end (at least until the next impression needs to be taken...).

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*If I felt like I needed to trim my own dies, I would think that I must have one of two problems – either I am using a lab that does not have the quality control it needs to meet my expectations, or my preparations or impressions are too difficult to read.*

**1. Put the following items in order from most important to least important for an excellent impression and explain your reasons: impression material type, impression tray selection, retraction method and prep design.**

**Birchenough:** I think prep design is first. If you don't have proper clean, smooth margins it's hard to get an accurate die; also, careful preparation with the least damage to the gingival tissues as possible. Next is proper retraction to give a full, clean 360-degree view of the margin. Next would be material selection, although there are several good products on the market that probably work equally well. Tray selection is important for tongue retraction to keep it out of the way.

**Malcmacher:** Each of these is important. Impression material type is very important as some materials are more accurate than others. For particular cases such as complicated crown and bridge, partial dentures or implant cases, I would want to use polyether (Impregum) or a vinylpolyethersiloxane (EXA'lance, GC America) as these are highly accurate. For all other standard cases, the use of any polyvinylsiloxane will do a good job.

For impression tray selection, trays that are adequate in size and are stable in the removal process are essential. Triple Trays are excellent for one restoration impressions, otherwise a custom tray is the impression tray of choice and these are easily made in office.

For retraction method, whether it is through the use of a diode laser (Ezlase, Biolase Technology) or through the use of retraction cords or pastes, a retraction method with hemostasis is truly essential for a great impression.

Prep design is the most overlooked reason why so many impressions fail. Some prep designs that include shoulders and chamfers are easier to impress than non-standard prep designs, it is as simple as that.

**Neilsen:** Both retraction method and prep design are most important. No retraction means no impression. Prep design is also important because a poor design (i.e., undercuts, sharp edges, thin margins) stresses the capability for the impression material.

**Olitzky:**

1. Prep design
2. Retraction
3. Impression material type
4. Tray selection

I think that all are very important and it's tough to rank these four important aspects of getting excellent impressions, but here is an explanation to their importance in my office.

When at all possible, I place supra-gingival or equal-gingival margins over sub-gingival margins. Utilizing materials like e.max enables me to design more partial coverage restorations that have the majority of margin supra-gingival. Having good preparation design means the tooth is finished smooth with no sharp angles and the preparation has a definitive easy to read margin.

In areas where the preparation needs to be sub-gingival, retraction becomes the most important aspect of a good impression. I don't expect the impression material to do the work for me. I have a laser (Odyssey 2.4 G diode laser, Ivoclar Vivadent) read-

ily available for tissue contouring in sub-gingival areas to help the impression material easily capture margins that would be normally obscured by tissue. In areas around the teeth where the margin is slightly sub-gingival and I would prefer not to use a laser, I use Expasyl (Kerr) to get gentle retraction and achieve hemostasis. I rarely need to use retraction cord in my practice.

Some impression materials seem to work in some people's hands, but not in others. There is a lot of user preference. I have been using the same impression material in my office for six years (Virtual, Ivoclar Vivadent) and I can rely on it to capture great impressions for me. I used to stress about the perfect light body injection technique around crown preparations that would yield an impression without a void at the margin, but since I switched to Virtual, I can take a fast-set impression of a whole prepared arch in one try with no loss of marginal detail.

I prefer a custom tray when taking an impression of an entire prepared arch, but I use rigid stock plastic trays for the majority of my quadrant dentistry. For single units I am using good old Triple Trays (Premier). Remakes are very rare, but the majority would be on indirect restorations fabricated from impressions taken with quadrant trays like Triple Trays. We just started switching to metal quadrant trays which are much more rigid.

**Pigliacelli:**

1. Prep design
2. Retraction method
3. Impression material type
4. Impression tray selection (not really a question, only use half- to full-mouth impression trays, never use Triple Trays)

**2. Is it worthwhile to routinely trim your own dies? Why?**

**Olitzky:** I don't think it is worthwhile to trim my own dies. I feel the lab I have chosen to trust for my patients' mouths (Gold Dust Dental Lab) is qualified to handle the laboratory work. If I felt like I needed to trim my own dies, I would think that I must have one of two problems – either I am using a lab that does not have the quality control it needs to meet my expectations, or my preparations or impressions are too difficult to read. I would bet it would most likely be the latter. I would rather find the fix for one of the problems.

**Neilsen:** It's worth it if the prep and impression will be difficult or the design is such that only the operator will understand the margin design. Otherwise if the impression is good, I would prefer to leave the trimming in the hands of someone who has seen and done thousands!

**Pigliacelli:** Depends on the lab. You should not have to trim your own dies. If the lab is unable to see the margins, how good is it to do the work?

**Birchough:** I think a doctor's time is better spent chairside with patients rather than ditching dies. If all the proper steps are done in the prep and impression stages then it is easy for a technician to read and properly ditch dies.

**Malcmacher:** If you have a great impression, a great prep design and a great relationship with a dental laboratory that you know and trust, then this is not worthwhile

*"Our approach toward our relationships with our customers is to develop a strong understanding of their preferences, and more specifically, their preparation and impression styles."*

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as it is not necessary. Trimming your own dies means to me that there is something wrong with your crown and bridge process as I have observed too many dentists usually trimming their dies when something is wrong rather than trying to improve quality. Improve your process and you will eliminate trimming your own dies.

### 3. If someone is having problems getting a great impression, what advice would you offer?

**Pigliacelli:** Start from scratch. Ask other dentists you respect what material they use. Ask your lab what the dentist with the least amount of remakes and best impressions use. Then research the suggested material and decide what works best for your practice.

**Birchenough:** Impression techniques could be improved by:

- Smooth, clean preps by finishing the margins with fine diamonds and white stones.
- Lasering any gingival tissue overhangs that cover the margin after the prep is completed.
- Using a dual-cord technique with a small diameter cord first (size 000 or 00) that is trimmed to fit exactly in the sulcus circumferentially followed by a larger diameter cord on top of the first cord (size 1 or 2). The larger cord is removed just before the impression material is expressed into the sulcus created by the cord, leaving the small cord in place.
- I like to use an impression material that has two viscosities, a low viscosity to use in a syringe that goes into the sulcus created by the removed cord and a thicker tray material that goes over the top of the syringed material.
- Control of bleeding is important, so I use hemostatic agents to create a relatively dry field before impressing (although not as critical with polyethers because they are somewhat hydrophilic).

**Malcmacher:** Go back to basics, the basics you have been taught work quite well. Stop blaming the tray, the impression material or the patient – let's look in the mirror and evaluate our own impressions honestly.

**Neilsen:** Lessons on fluid control, tissue manipulation, retraction cord size, armamentarium (materials), assistant training and patient control.

**Olitzky:** It would depend on the type of problems he or she is encountering. Generally speaking, I would take a look at the details of the preparation design. Make sure the preparation is finished smoothed and has definitive margins. Utilize restorative materials like e.max, which enable supra-gingival and equal-gingival margins with aesthetic results. Don't expect the impression material to do all the work for you. Utilize a diode or Er:Yag laser to contour the gingiva where it will prevent reproduction of accurate marginal detail in the impression.

### 4. What percent of crown and bridge impressions that pass through your lab is difficult to read or need to be retaken? What is the trend – up or down?

**Smith:** The act of taking an impression is by no means a perfect science. There are so many variables involved in the oral field where the dentist is operating. We certainly come across those that are difficult to read, and those that should be re-impressed. And while digital impression systems take some variables out of the equation, they present other challenges. Our approach toward our relationships with our customers is to develop a strong understanding of their preferences, and more specifically, their preparation and impression styles. The same technician is working on each customer's cases, consistently. Therefore, when they're trimming the dies they can intuitively fill in the blanks when necessary and still deliver consistent, accurate results.

**Pigliacelli:** We deal with high-end dentists and prosthodontists who are very particular with impressions and quality. We have a very low remake rate. We have a few questions in a day but overall the need to take a new impression is pretty rare. In most cases when we have a questionable die the dentist will just take a new impression. Very rarely are we told to fudge the die.

**Violante:** According to our Ceramco C&B lab technicians: Ten percent of the impressions need to be retaken and 30 percent are difficult to read. The trend is flat – it has always been a problem. ■

## Contributor Bios

**Steven Pigliacelli, CDT**, vice president and director of education at Marotta Dental Studio, Inc., has more than 27 years experience with Marotta Dental Studio as a dental implant specialist.



He is a certified dental technician with the National Board for Certification. He manages Marotta Dental Studio and is the technical liaison between the dentist and the laboratory for case planning, telephone support and quality control. Steven writes all of Marotta's educational and promotional materials, newsletters and presentations, as well as maintaining the Marotta Web site, [www.marottadental.com](http://www.marottadental.com).

Steven is certified in the following systems: Branemark System (1984), 3-I/Implant Innovations (1987), Integral Implant (1987), Steri-oss (1988), Core-Vent Implant Prosthodontics (1988), Interpore IMZ (1989), Astra Implant (1989), Implamed Implants (1989), and Strauman ITI Implant System Scientific Training (1991). He lectures and performs hands-on demonstrations at study clubs and seminars.

**Dr. Bruce Birchenough** was born and raised in Copenhagen, New York. After graduating from SUNY Albany he attended the University of Pennsylvania School of Dental Medicine. He has been in Seneca Falls since 1993. He actively attends several study clubs each month and is a board member of the Seventh District (Rochester region) Dental Society. He averages more than 100 hours of continuing education every year with an emphasis on implants, aesthetic dentistry (veneers, bleaching, crowns) and TMJ-related problems.



**Louis Malcmacher, DDS, MAGD**, is a practicing general dentist and an internationally known lecturer and author, known for his comprehensive and entertaining style. Dr. Malcmacher is president of the American Academy of Facial Esthetics [www.facialesthetics.org](http://www.facialesthetics.org). You can contact him at 440-892-1810 or e-mail [dlouis@facialesthetics.com](mailto:dlouis@facialesthetics.com). His Web site is [www.common-sensedentistry.com](http://www.common-sensedentistry.com) where you can find information about his hottest topics hands-on lecture schedule and live-patient Botox and dermal fillers training, download his resource list, and sign up for a free monthly e-newsletter.



**William M. Neilsen, DDS**, graduated from Creighton University Dental School in 1979. He has served in the Army as enlisted and after dental school, in the Air Force as a Dental Captain.



He has had the pleasure and privilege of serving his community since 1982. Dentistry is always changing and improving materials and technologies, therefore continuing education has always been a priority. Dr. Neilsen lives in Clifton Springs, New York and has two grown daughters. He enjoys golf, travel and spending time with family and friends.

**Dr. Jason Olitsky**, The Smile Stylist, is an accredited member of the AACD, as well as president for the Florida Academy of Cosmetic Dentistry. He was a clinical mentor with the Hornbrook Group and is currently faculty with the Gold Dust Clinical Mastery Series. Jason currently works three days a week with his wife and partner, where 80 percent of their production is based off large cosmetic cases. They started Wallsmiles.com, a site that sells wall art for the dental office and teaches dentists how to get their own patients' pictures on their walls. They created Smile Stylist, a brand committed to promoting, providing and maintaining beautiful smiles for the fashion-forward customer. He is also co-author of *The Naked Tooth: What Cosmetic Dentists Don't Want to Know*. Check out Olitsky's technique via his OnDemand Webinar on [Dentaltown.com](http://Dentaltown.com).



**Scott Smith** began his career in the dental industry with Bona-Dent and has been with the company for more than 22 years. With his in-depth training at the Pankey Dawson Institute and alongside industry leaders such as Dr. Tom Trinkner, Dr. Gerard Chiche and Willie Geller, Scott has acquired extensive knowledge in both the Fixed and Removable departments. Scott provides particular expertise to customers regarding their implant-supported restorations, having undertaken such skills enhancement opportunities as the 3i Synergy Training Program, Nobelguide Laboratory Training, APM Sterngold Training, Nobel Biocare Training, and Precision Attachment Training with Jim Edelson. As a PTC certified trainer, Scott has extensive knowledge and experience in the steps necessary for producing high quality restorations, consistently. As operations manager, Scott is passionate about helping dentists succeed and prides himself on the close relationships he forms with his customers.



**Kimberly Violante** is the Sr. Marketing Communications Manager at Dentsply Prosthetics.



# A Prosthodontist's Anecdotal Approach

## to Choosing a Material for Crown Construction

by Dr. Izchak Barzilay, DDS, Cert. Prostho., MS, FRCD(C)

### Description

In this CE article, a prosthodontist gives his criteria as to what material to use for crowns in specific situations. Understanding the inherent strengths and weaknesses of the different materials and what clinical situations are best for each are thoroughly discussed. The various types of ceramic materials are highlighted in terms of how and when to use them.

### Objectives

1. Learn the various types of materials used for crowns.
2. Learn the uses and contraindications of each type of material.
3. Learn the proper way of cementation or bonding of each type of material.
4. Learn the keys in preparation design for successful ceramic-type crowns.

You know, it is hard to decide which material to use when we plan any form of crown and bridge treatment. There are so many materials on the market that it can be very confusing. You need to understand the inherent strengths and weaknesses of the different materials and the clinical situation that you are looking to treat. Sometimes it is best to break down the materials into their characteristics (aesthetic and mechanical) in order to help categorize them and therefore allow us to make better treatment choices.

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Crown and bridge materials have gone through a rapid evolution over the past century. There was a time when metals were king and you placed an aesthetic material on metal only in the most aesthetic-conscious patients. This was the time of the gold crown, the partial crowns (3/4, 7/8, pin ledge retainers, etc.) and the gold acrylic crowns. These restorations were conservative for their time yet left much to be desired from the aesthetic perspective. The restorations did well over time and there are still many of these restorations that can be seen surviving in some of our older patients. During this time, situations needing highly aesthetic restorations made use of the porcelain jacket crown. This restoration was highly aesthetic however lacked in strength. It was limited to the anterior part of the mouth and often fractured due to its inherent weakness and the inability to bond the restoration to increase strength (nor did we have the knowledge of bonding and its benefits). It was under this environment that the combined restoration (the all metal and the ceramic) came about. The porcelain-fused-to-metal (PFM) restoration was developed. It used the strength of the metal core with laminated porcelain over top. Much work went into the connection of the materials and new metals were developed that allowed for this to happen. The aesthetics were improved upon by development of new methods to color the metal before porcelain application. As the prices of noble metals increased, newer less expensive metals were developed that could also be used for this application (non-precious or base-metal alloys). This level of dentistry was the mainstay for many years.

The need for aesthetic restorations pushed the industry to develop new all-ceramic materials. The concept of all-ceramic materials meant that no obvious metal- or metallic-like material was used in the restoration. Early versions of this were not very successful clinically (Dicor, Cerestore) which led many to avoid its use. But more recent advances in the technologies of design and manufacturing made manufacturing of all-ceramic restorations easier, more precise and clinically, the newer materials were stronger. This type of restoration has become very popular and

it currently takes on the form of two designs – the laminated design and the monolithic design.

The laminated design uses some type of high-strength ceramic core and then laminates this ceramic core with an overlay of porcelain. The monolithic design makes use of one material that makes up the complete restoration.

Laminated ceramic (non-metal) designs are an extension of the gold acrylic crown and the porcelain-fused-to-metal restoration. They use the concept that the underlying material can be made to fit well to the preparation and then the overlaying material gives the aesthetics that is needed. Sometimes the underlying structure is brought out to support the occlusion or if this is not needed, then the overlaying material is used to support function and aesthetics by being the functional surface (occlusal surface). It is important to remember that when dealing with laminated designs, the two materials must be able to work together and stick to each other so they don't separate. They must be compatible with each other both functionally and aesthetically. Over the years there have been many recorded mismatched materials from functional and aesthetic perspectives. When this occurs, failure of the restoration often occurs. The most commonly used laminated all-ceramic designs used today are based on zirconia substructures that are laminated with either feldspathic porcelains or other higher strength ceramics (Figs. 1a and 1b). These restorations are highly aesthetic and are quite functional in most situations. The issues that arise from these materials are the fact that the weak link (clinically) is the strength of the overlying porcelain. It is subject to chipping and fracture when it does fail. This does not happen very often but is a nuisance when it happens and needs to be dealt with. The aesthetic quality of these materials is very high since the experienced dental technician can layer porcelains of different aesthetic quality over the core and create very beautiful restorations. These material combinations can also be used in the implant application for both the cemented as well as the screw-retained restoration (Figs. 2a, 2b, 2c). One must remember



Fig. 1a: Pre-treatment photograph of patient with amelogenesis imperfecta.

Fig. 1b: Post-treatment photograph of patient with all-ceramic zirconia-based laminated crowns anteriorly and full gold crowns posteriorly. The gold restorations support occlusion without risk of fracture. The anterior crowns are both aesthetic and functional.

Fig. 2a: All-ceramic restorations fabricated for the anterior maxillary teeth. Note the implant in the upper right lateral incisor site.

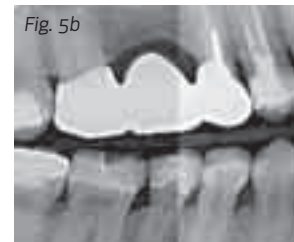
Fig. 2b: An access hole has been created in the ceramic restoration so that it can be bonded to the metal abutment which then provides for a screw-retained restoration yet the same ceramic is used for all restorations in the area.

Fig. 2c: Final restorations in place.

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however that in the implant scenario, occlusion on the restoration becomes very important since the ligament is absent and there is little shock absorption present in the system. One would guess that the implant situation might present itself with more ceramic fractures for this reason. Of course, a fracture of ceramic material in the implant situation alerts the clinician that there might be a need for occlusal adjustment (Fig. 3).

Monolithic ceramic designs began with the porcelain jacket crowns. Today monolithic restorations are commonly being manufactured using CAD/CAM concepts and most commonly take the form of lithium-disilicate-based materials or full zirconia-based materials. Several materials can also be pressed to contour and there are many that use these methods to create their crowns. The monolithic material has the inherent quality of not involving lamination so there is one less interface to deal with. This makes the crown stronger and more resistant to some of the surface fractures that occur with laminated crowns. The perceived downside of this type of restoration is its aesthetic quality. The zirconia-based restoration started off as a stark white color with no translucency and a highly opaque quality (Fig. 4). Over time, methods were developed where this material can be stained and colored so its aesthetic value has improved. It, by no means, matches the aesthetics of the laminated restoration since no overlying porcelain is used to enhance the aesthetic quality of the restoration (Figs. 5a and 5b). The all-ceramic lithium-disilicate material was originally manufactured for a pressed method, which made its shade limited since once again there was no overlying porcelain. It can be stained but this is just a surface stain. Now, with the use of the milling process, the material can be milled in its pre-crystallized state. This mills out the material in a hardness that is close to the hardness of standard ceramics. This can then be adjusted for shape and contour and can also be infused with stains before it is crystallized. This gives a much deeper and richer color to the restoration. Once the material is crystallized, it can then be further stained if needed. The final outcome is an aesthetic material that is hard and resistant to fracture. These CAD/CAM restorations can be used in the anterior as well as the posterior parts of the mouth (Fig. 6). The lithium-disilicate material can be bonded using conventional bonding methods that relate to porcelain. Zirconia cannot be bonded to with predictability so it is more limited in its applications (no veneers or short crown preparations). Clinically, these materials also have very different radiographic appearances. The lithium-disilicate material is radiolucent and easily evaluated while zirconia takes on the appearance of a metal on radiographs (radio opaque) (Figs. 7a and 7b).



*Fig. 3: A maxillary arch showing many different types of restorations. A fracture is noted in the right first molar disto-lingual area suggesting a weak ceramic that is also possibly unsupported. Note that other restorations include a full contour zirconia crown (upper right second molar), PFM-based restorations in all other areas and a repair veneer in the upper left lateral incisor site.*

*Fig. 4: A highly opaque full contour zirconia-based crown (same as in Fig. 3)*

*Fig. 5a: A full contour three-unit zirconia-based bridge is stained to enhance its appearance but leaves much to be desired.*

*Fig. 5b: Radiograph of the zirconia restoration giving a look much like metal.*

*Fig. 6: Full upper reconstruction done with monolithic lithium-disilicate with added stain in the anterior area.*

*Fig. 7a: Radiograph showing a full contour zirconia-based restoration on the upper right second molar. This shows the radiopacity of the restoration blocking out any underlying tooth structure.*

*Fig. 7b: Radiograph showing the translucent effect in radiography of the lithium-disilicate crowns. All underlying tooth structure can be visualized.*

With the knowledge of how these materials work, how do you decide which material to choose and when? This is the issue that we are all faced with on a regular basis.

As a prosthodontist, I need to choose specific materials for all my patients based on the patients' functional needs as well as their aesthetic demands.

**1. Need for a full-coverage crown in the posterior part of the mouth (non-aesthetic zone – second molar).** My first choice here is the gold crown due to its strength, kindness to the opposing dentition and minimal requirements for tooth reduc-

tion. Oftentimes a crown in the second molar region is short occluso-gingivally and as such might require additional retention from grooves or pin preparations. Gold lends itself well to this need. Gold can also be bonded if one needs the added "cementation comfort" of bonding the restoration as part of cementation. In this case the metal crowns internal surface is air abraded and then a metal bonding cement (Metabond) is used. Gold works well in all situations of occlusal forces; from light to heavy load. It is the best universal functional material. Its drawbacks are only its color and its cost (Fig. 8).

**Table 1 – Cement Choices and Methods for All-ceramic Materials**

Crown Material	Crown Treatment	Prep Treatment	Cement	Alternate Cements
PFM/Gold where bonding is required due to limited preparation design	Air abrasion (Al2O3 blasting) to help with bonding	Pumice (lab), dentinal etching with citric acid and ferric chloride	Metabond	Panavia (follow manufacturer's instructions)
PFM/Gold where bonding is not required due to adequate preparation design	Air abrasion to clean surface	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used
Lithium-disilicate where bonding is required due to limited preparation design	Air abrasion, HF etching, silanation	Pumice (lab), etching of dentin and enamel, priming and bonding as indicated	Maxcem Elite RelyX Unicem2	
Lithium-disilicate where bonding is not required due to adequate preparation design	Clean surface with ethyl alcohol and dry	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used
Zirconia where bonding is required due to limited preparation design	Air abrasion	Pumice, etching of dentin and enamel, bonding resin as per manufacturer	Panavia	Metabond
Zirconia where there is adequate tooth preparation height	Air abrasion	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used
All-ceramic crown cemented to an all-ceramic implant abutment	Clean surface with ethyl alcohol and dry	Clean surface as preferred	Maxcem Elite RelyX Unicem2	Any cement can be used as long as aesthetics are maintained
All-ceramic crown cemented to a titanium abutment	Air abrasion	Surface treatment based on surface configuration	Metabond Opaque	Opaque cement is needed
PFM-based crown cemented to a titanium abutment	Air abrasion	Surface treatment based on surface configuration	Improv Maxcem Elite RelyX Unicem2	Any cement can be used as per clinical requirements

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**2. Need for full coverage crown in the posterior part of the mouth (patient does not want any show of metal in the mouth) where the patient exhibits a high occlusal load.** This is the patient who has broken down their posterior teeth over the years and exhibits the ability to produce high occlusal forces. This patient is the one who breaks restorations and/or teeth on a regular basis and might not be very compliant with your constant requests for nightguard use. In this type of case, use of a ceramic monolithic material is called for. For reasons of strength,

a full-contour zirconia-based crown is needed. One must remember that the crown will look opaque but will be quite strong as long as the preparation design allows for adequate occlusal reduction. The material cannot be etched and as such cannot be truly bonded to tooth structure. According to published reports, cementation is best achieved with Panavia. In the opinion of this author, Metabond is also wonderful cement for this crown's material. Tooth preparation needs to be idealized for retention and resistance form since posterior teeth are generally lacking in height and the zirconia-based material cannot be adequately and predictably bonded to.

**3. Need for full-coverage crown in the posterior part of the mouth (second molar) where the patient exhibits a lighter occlusal load.** This is the patient who does not seem to exhibit that much force posteriorly but wants an aesthetic restoration. In this situation, use of monolithic lithium-disilicate is ideal since it can be bonded during cementation and is very strong. It is also much more aesthetic in its appearance (when compared to monolithic zirconia) and can be stained more readily than zirconia.

**4. Full coverage crowns on all other posterior teeth (first molars and both premolars) where aesthetics are crucial.** This case needs lithium-disilicate for its strength and aesthetic quality. The material is quite lustrous and strong. When possible I prescribe the milled version of this material so that colors can be more deeply embedded into the surface.

**5. Full coverage for the anterior teeth.** Due to lower stress levels in this part of the mouth in most patients, a layered ceramic could be considered for its aesthetic quality. Either a zirconia core or a lithium-disilicate core can be used and porcelain can be laminated to it. If it is felt that forces are heavy in anterior guidance or in lateral excursion, then one might consider making the crown out of the core material and extending the core material to the occlusal surface and the laminating porcelain to the non-functional regions of the crown for aesthetic enhancement. If the preparation is short, then bonding during the cementation protocol is a good idea and would direct one toward the use of lithium-disilicate to assure adequate bonding cementation.



*Fig. 8: The classic full gold crown still serves as one of the best restorations available. From a functional point of view it may still be considered the "gold standard."*

Based on the breakdown listed here it is quite evident that I do not use PFM restorations very often anymore for single crown restorations. If I need to match an existing PFM crown in an area of lower force, a new PFM is acceptable; otherwise an all-ceramic crown has become the work-horse in our practice.

For an all-ceramic crown to work well and fit properly, one must prepare the crown to ideal preparation design. There must be adequate occlusal reduction (this is the key) and the margins of the preparations must be

clear and easily read. Whether you choose to use a chamfer-like preparation margin or a shoulder-like margin, it must be clean and smooth so the material can be made to fit the margin. Metals are much more forgiving when they are cast to fit a margin that is less than ideal. A milled crown needs a clean smooth margin of adequate depth so that the mill can produce the crown with proper shape and fit. A zirconia-based crown margin is more forgiving in its manufacturing when compared to the milled lithium-disilicate. One must remember these issues when preparing teeth. If I find that I am not able to adequately prepare a tooth margin for milled in-house CAD/CAM, then I choose either pressed ceramic (monolithic lithium-disilicate in non-aesthetic areas or monolithic zirconia if preparation height allows for it) or a laminated all-ceramic where the core is pressed and additional porcelain is added to it.

What choice do I make in my production of an implant-based crown? Where aesthetics is important, and low to medium occlusal load is present, a zirconia-based abutment is made and a cemented crown (zirconia or lithium-disilicate core with laminated porcelain over top) is placed using conventional implant cementation protocol. If a screw-retained crown is chosen, either porcelain can be added directly to the zirconia abutment or a separate crown can be manufactured with a screw access hole and it is cemented to the abutment extra-orally once complete (Figs. 9a-c). The full restoration can then be secured to the implant using the conventional screw-in approach. In cases of high stress, a monolithic crown is needed rather than the layered crown. This can be manufactured from either zirconia or lithium-disilicate based on the aesthetic need. This can then be cemented or connected to either a zirconia abutment or to a titanium abutment. In the highest stress situations, a monolithic abutment and crown can be made from either zirconia or from metal and screwed in on top of the implant. This approach makes use of the fewest number of materials, has the least number of interfaces and stands the best chance of survival (Fig. 10).

How do I treat the different materials when it comes to cementation?

One must remember that there are many materials that can be used to cement a crown to either a tooth or to an implant. Once must consider what we are trying to do. Is this an interim cementation? What is the crown preparation like? Is there enough retention and resistance form in the preparation? Is the crown preparation in tooth structure or is there build-up material (composite resin, amalgam, cast post and core metal, etc.) present? What is the crown made of and do I need to bond to it? How difficult is clean up?

It is difficult to characterize and give strict guidelines since clinical experience plays a big role in how one decides which cement to use and under what conditions one chooses and uses particular cement. In a busy practice, one wants to minimize the number on materials that one uses so that simplicity rules. Table

1 (on page 37) suggests several choices in cement materials and methods when it comes to all-ceramic materials. It, by no means, is the only option. If preparation is adequate, and there is retention and resistance form, one can cement any strong material with virtually any cement. Metal, zirconia and lithium-disilicate can all stand on their own and as such they can be cemented with luting cements. In these cases any cement can be used. It has been our practice to use self-etch self-bond cement that simplifies the process by not requiring added steps. For this we use either Maxcem Elite (Kerr) or RelyX Unicem2 (3M). If bonding is needed due to lack of preparation, then one must look closely at the crown material as well as the preparation substrate and use cement that bonds to both materials.

All-ceramic materials are here to stay and it becomes up to us to choose the proper material and the clinical application presented to us. This field will continue to evolve and will give us much to think about. ■



Fig. 9a: A radiograph showing a zirconia-based abutment for an implant with a lithium-disilicate crown that has been bonded to it.

Fig. 9b: Occlusal view of the restoration on the master cast showing the aesthetic quality of the stained monolithic lithium-disilicate.

Fig. 9c: Lateral view showing the restoration and part of the underlying abutment.

Fig. 10: A recently made full contour zirconia-based screw-retained implant restoration without any laminating porcelain.

## Author's Bio



**Dr. Izchak Barzilay** received his DDS from the University of Toronto in 1983, a Certificate in Prosthodontics from the Eastman Dental Center in Rochester, New York, in 1986, and a MS from the University of Rochester in 1991. He is currently Head of the Division of Prosthodontics and Restorative Dentistry at Mt. Sinai Hospital, Toronto, Ontario; assistant professor, University of Toronto, Toronto, Ontario; adjunct assistant professor, Division of Prosthodontics of the Eastman Department of Dentistry, University of Rochester, Rochester, New York; Prosthodontic Examiner – Royal College of Dentists of Canada; past president of the Association of Prosthodontists of Canada; past president - Ontario Study Club for Osseointegration.; advisory board - Toronto Implant Study Club; Editorial Council – Spectrum, and is in private practice limited to prosthodontics and implant dentistry in Toronto, Ontario. He has published on various topics including immediate implants, bonding plastics to various metals and other material and implant-related topics. He has been awarded the Tylman Award (American Academy of Crown and Bridge Prosthodontics), Prosthodontics Research Award (International Association for Dental Research), Buonocore Award (American Association for Dental Research Rochester Chapter), the Essay Award (American College of Prosthodontics), the International Journal of Oral and Maxillofacial Implants-Best Paper-1996 and the A.B. Hord Master Teacher Award (University of Toronto). Dr. Barzilay holds fellowships in the Academy of Prosthodontics, Academy of Osseointegration, Royal College of Dental Surgeons of Canada, Pierre Fauchard Academy and the Academy of Dentistry International. He can be reached at 461-322-6862 or [ibarzilay@buildyoursmile.com](mailto:ibarzilay@buildyoursmile.com).

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- Which of the following are problems associated with gold crowns?
  - Cost of metal
  - Not aesthetic in the anterior region
  - All of the above
- Recent advances in the technologies of design and manufacturing of all-ceramic restorations make them...
  - easier to construct.
  - more precise in fit.
  - clinically stronger.
  - All of the above
- Laminated ceramic crowns...
  - use the concept that the underlying material can be made to fit well to the preparation and then the overlaying material gives the aesthetics that is needed.
  - are an outdated concept.
  - rely on acrylic facings.
  - are better cemented than bonded.
- In laminated ceramic crowns...
  - the underlying structure may be brought out to support the occlusion.
  - the overlaying material may be used to support function and aesthetics by being the functional surface (occlusal surface).
  - the two materials must be compatible with each other to prevent delamination and fracture.
  - All of the above
- Currently monolithic ceramic crowns are made of...
  - lithium-disilicate.
  - zirconia.
  - acrylic.
  - a and b
- Since monolithic materials have the inherent quality of not involving lamination...
  - there is one less interface to deal with.
  - this makes the crown stronger and more resistant to some of the surface fractures that occurs with laminated crowns.
  - generally does not match the aesthetics of the laminated restorations since there is no overlying porcelain.
  - All of the above
- Lithium-disilicate...
  - can be pressed.
  - can be milled.
  - can be bonded by conventional means.
  - All of the above.
- Which of the following is false?
  - Zirconia can be used in the posterior region in patients that can produce high occlusal force.
  - Zirconia bonds as well as lithium-disilicate.
  - Zirconia tends to look opaque.
  - Retentive preps are needed with zirconia.
- Which of the following is false?
  - Bonding makes lithium-disilicate less likely to break in the mouth over cementation.
  - Lithium-disilicate tends to be quite lustrous and strong.
  - Lithium-disilicate works almost as well (and looks nice) when not crystallized.
  - A layered ceramic could be considered for its aesthetic quality in the anterior region of the mouth.
- True or False: Monolithic materials are to be avoided in bruxers.
  - True
  - False

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## A Prosthodontist's Anecdotal Approach to Choosing a Material for Crown Construction by Dr. Izchak Barzilay, DDS, Cert. Prostho., MS FRCD(C)

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| 1.  | a | b | c |   |
| 2.  | a | b | c | d |
| 3.  | a | b | c | d |
| 4.  | a | b | c | d |
| 5.  | a | b | c | d |
| 6.  | a | b | c | d |
| 7.  | a | b | c | d |
| 8.  | a | b | c | d |
| 9.  | a | b | c | d |
| 10. | a | b |   |   |

### Field of practice (optional)

- |   |   |
|---|---|
| <input type="checkbox"/> General Dentist              | <input type="checkbox"/> OMS Resident         |
| <input type="checkbox"/> Anesthesiology               | <input type="checkbox"/> Oral Pathology       |
| <input type="checkbox"/> Consultant                   | <input type="checkbox"/> Orthodontics         |
| <input type="checkbox"/> Cosmetic Dentistry           | <input type="checkbox"/> Orthodontic Resident |
| <input type="checkbox"/> Dental Assistant             | <input type="checkbox"/> Pediatric Dentistry  |
| <input type="checkbox"/> Dental Company Rep.          | <input type="checkbox"/> Pediatric Resident   |
| <input type="checkbox"/> Dental Education             | <input type="checkbox"/> Periodontics         |
| <input type="checkbox"/> Dental Lab Tech              | <input type="checkbox"/> Periodontic Resident |
| <input type="checkbox"/> Dental Student               | <input type="checkbox"/> Prosthodontics       |
| <input type="checkbox"/> Dental Hygiene Student       | <input type="checkbox"/> Public Health        |
| <input type="checkbox"/> Endodontics                  | <input type="checkbox"/> Radiology            |
| <input type="checkbox"/> Endodontic Resident          | <input type="checkbox"/> Speaker              |
| <input type="checkbox"/> Front Office                 | <input type="checkbox"/> TMD Specialist       |
| <input type="checkbox"/> Hygienist                    | <input type="checkbox"/> Other                |
| <input type="checkbox"/> Implantology                 |   |
| <input type="checkbox"/> Oral & Maxillofacial Surgeon |   |



# Imagine the esthetics of a layered restoration from all-zirconia.

The unique formula of Lava™ Plus High Translucency Zirconia provides significantly higher translucency<sup>1</sup> and unprecedented beauty—without compromising strength.

- **The patented shading system** enables highly esthetic all-zirconia or traditionally layered restorations.
- **Excellent color match** to the VITA® Classical Shade Guide and VITA SYSTEM 3D-MASTER® Shades.
- **High strength** allows tooth-preserving  $\leq 0.5$  mm minimum wall thickness—requiring 3X less occlusal preparation than lithium disilicate glass ceramic because of its 3X greater strength.<sup>2</sup>

Lava Plus zirconia is the beautifully durable material of choice.

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Lava™ Plus  
High Translucency Zirconia

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