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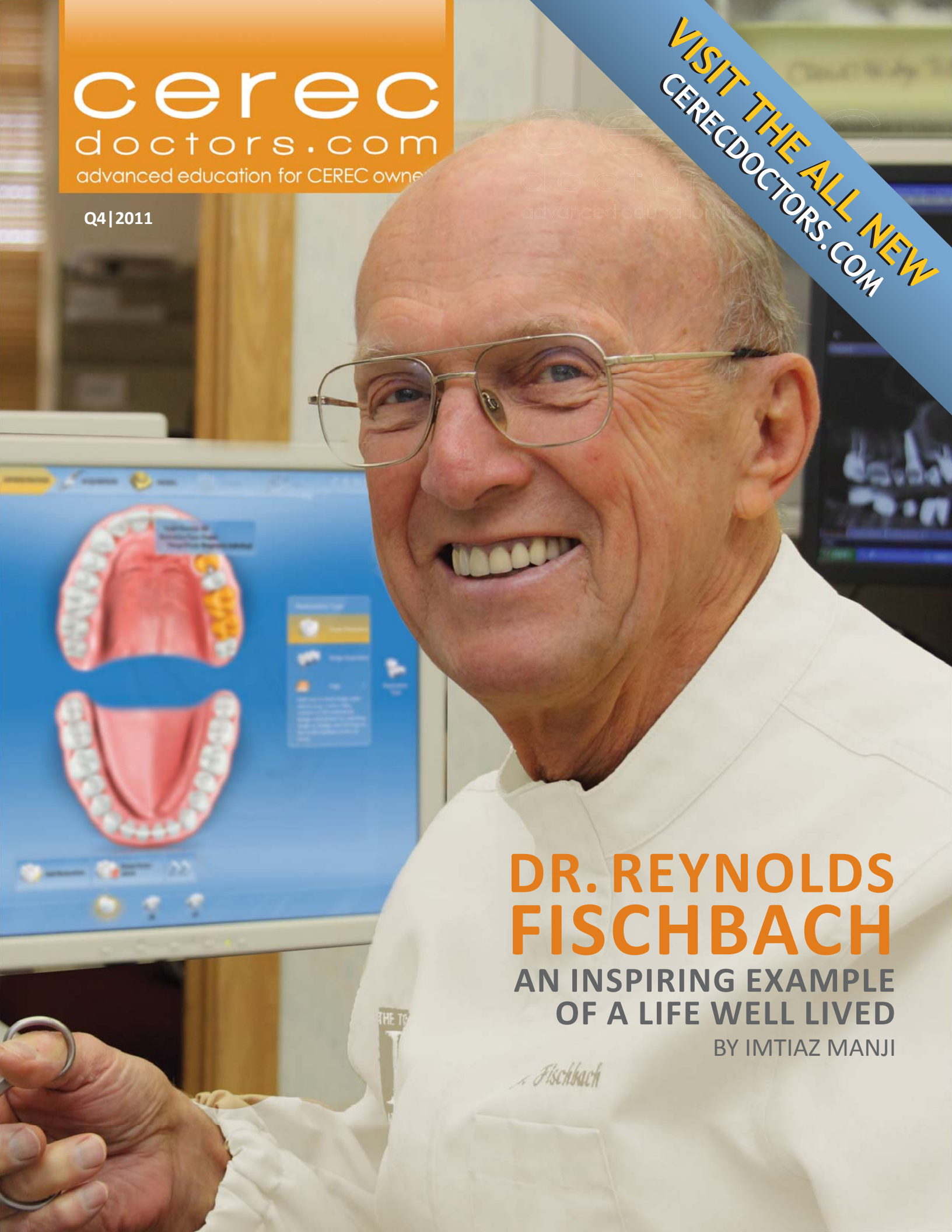

DR. REYNOLDS FISCHBACH

AN INSPIRING EXAMPLE OF A LIFE WELL LIVED

BY IMTIAZ MANJI

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FROM THE EDITOR

Beginnings, Endings and Transitions

BY MARK FLEMING, D.D.S.

As I sat down to write this column, I was struck by how incredible this year has been and how many new beginnings have occurred.

In January, the cerecdoctors.com Mentor Group began. 2010 also marked the launch of the Annual Mentor Meeting and my inaugural speaking at the CEREC Owners Symposium. In March, I traveled to the IDS meeting in Cologne, Germany, and was wowed by the initial showing of the new 4.0 CEREC software. And September brought the long-awaited official release of the SW 4.0 in the United States.

I look back on all of this and reflect on the beginnings, endings and transitions in the CEREC world.

In his "Happenings in CAD/CAM" article, Dr. Sameer Puri provides a history of our website, cerecdoctors.com. It is interesting to think back to the beginning and marvel at the transitions of the largest online CEREC resource in the world. This article is especially illuminating if you are a newcomer to our website.

As usual, this issue of *cerecdoctors.com* magazine features interesting cases that utilize the CEREC technology. It is always our intent to help CEREC users get the most from their CEREC experience. Recently, I was involved in an online discussion concerning the long-term clinical efficacy of CEREC restorations. It is my belief that restorations fabricated with CEREC technology can produce excellent clinical results. As with many things in dentistry, these results are heavily dependent on the skills of the operator. We hope those who use this technology are challenged to produce the same excellent clinical results you have seen, and will continue to see, featured in this magazine.

One of my favorite articles of this issue begins on page 12. How many times have we been told, or have told someone else, "You're too young …" or "You're too old …"? Ms. Michelle Drappi demonstrates that you are never too young to be interested in cutting-edge dental technology. In my next favorite article, Dr. Reynolds Fischbach exemplifies that one is never too "chronologically gifted" to see the value of investing in technology. Both of these talented individuals – although separated by many years and much experience – exemplify the same drive to act on opportunities that produce the best quality that technology can afford in dentistry.

> "Remember, it is never too late to take advantage of a new opportunity."

Personally, I will be embarking on a brand-new beginning … and transition. I have sold my practice in Florida, and my wife, Lori, and I are moving to the Scottsdale, Ariz., area. I am looking forward to the challenges and opportunities this transition affords. Remember, it is never too late to take advantage of a new opportunity.

Whether you are at the beginning of your CEREC experience or transitioning to a different phase (or state, in my case!) cerecdoctors.com is here to help. As we have said before, our intent is that this magazine will enhance the reader's CEREC experience and allow users the opportunity of producing clinical excellence. ❖

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CASE STUDY

Single Appointment Posterior CAD/CAM Implant Crown for Bone-Level Implant

BY KEVIN D. HUFF, D.D.S., M.A.G.D.; JAIME L. DARR, D.D.S., M.P.H.; CONSTANTIN FARAH, D.D.S., M.S.

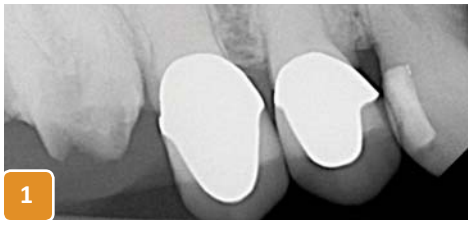
Dental-implant-supported single-unit restorations have long-term and predictable clinical success. Traditional restorative protocols involve either implant-level or abutment-level impressions that are sent to dental laboratories for fabrication of the restorations on either manufacturer-specific standard abutments or custom-milled or cast abutments. Bone-level implants have been designed specifically for emergence profile management and gingival esthetics. However, abutment designs for one-level implants can limit restoration esthetics when post-operative healing of tissues does not yield a minimal tissue cuff of 2 mm. This case study describes a technique for circumventing this challenge by modifying a standard anatomic abutment to utilize the implant platform on a bone-level implant as the restoration margin for a chair-side CAD/CAM restoration.

CASE REPORT

A 74-year-old female patient with an unremarkable medical history and a history of complex restorative dentistry with successful dental implant restoration of the mandibular left first molar presented to the dental office with a fractured, non-restorable, maxillary right first molar with a periapical radiolucency (Figure 1). The occlusion on all remaining teeth was stable with smooth anterior crossover and posterior disclusion in eccentric movements.

The non-restorable maxillary right first molar was extracted and allowed to heal for three months (Figure 2). A CBCT scan was taken for consideration of anatomic factors and density of bone (Figure 3). The images revealed an adequate width and depth for implant placement. Bone height was 7.8 mm, a dimension short of an 8 mm implant. An internal sinus elevation to provide additional millimeters was planned simultaneously with the implant placement. A tissue punch was created to access the underlying bone crest. A series of osteotomies were performed making sure to stay 0.5-1.0 mm below the sinus floor. Gentle tapping to the sinus floor allowed the elevation of the Schneiderian membrane while still attached to the sinus cortical plate. The site received bone particulate xenograft (Bio-Oss, Osteohealth) to help elevate and augment the sinus. A Straumann Bone Level 4.8x8 mm implant (Straumann USA) was inserted in the site. The implant primary stability was achieved and confirmed by tightening a cover screw. Healing was followed for four months until the implant reached osseointegration. After healing, the implant cover screw was completely exposed, but the implant was apparently well integrated, as determined by percussion and palpation (Figure 4).

A closed-tray polyvinyl siloxane (EXAMIX, GC America) impression was made of the implant using conventional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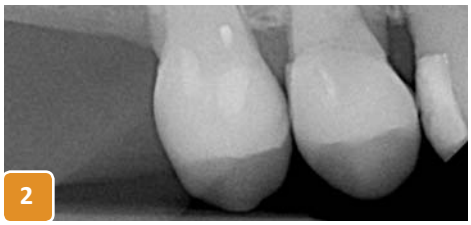
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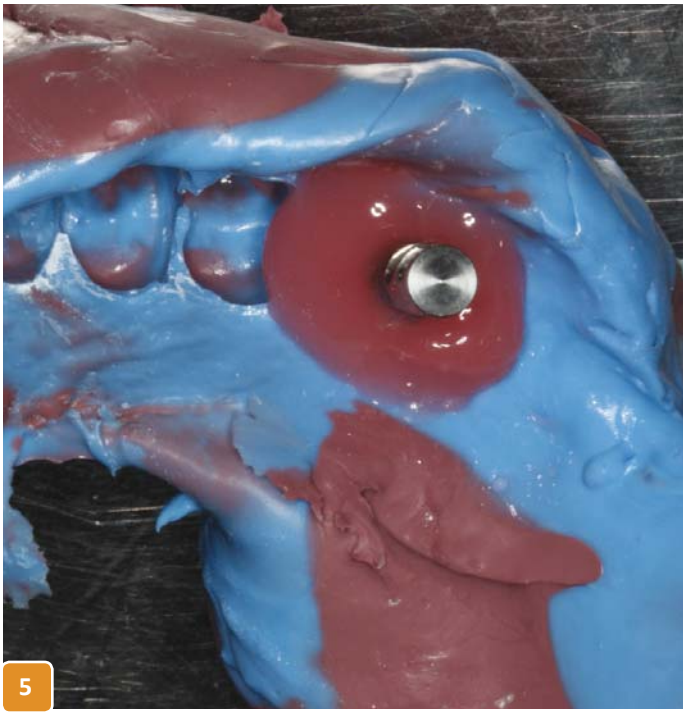

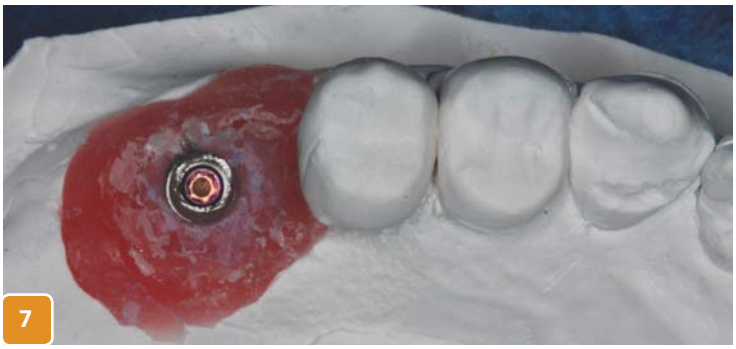

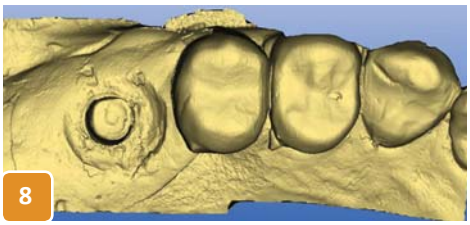

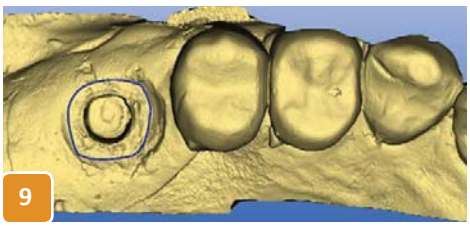

» Fig. 1: Radiograph showing non-restorable tooth #3
» Fig. 2: Radiograph showing adequate bone healing for implant placement
» Fig. 3: CBCT image of implant site
» Fig. 4: Implant at healing cap removal showing healthy gingival cuff
» Fig. 5: PVS impression with soft tissue moulage
» Fig. 6: Working model with soft-tissue moulage for emergence profile contouring of restoration
» Fig. 7: Modified abutment on the working model
» Fig. 8: Digital model of working model with customized abutment in place
» Fig. 9: "Overdesigned" margin design to allow for sculpting of the emergence profile on the restoration after milling

techniques, and a model was poured in die stone (WhipMix) (Figure 5). A soft-tissue moulage with denture reline material (GC Soft Reline, GC America) was completed to allow for sculpting of the emergence profile. After the impression, GC Reline Soft was injected as soft-tissue moulage around the impression analog. The intaglio surface of the impression material must be lightly coated with glycerin to prevent adhesion of the moulage material (Figure 6). A digital impression of the opposing occlusal surface (antagonist) was made intraorally with a polyvinyl bite registration material (Patterson Bite, Patterson Supply).

A standard anatomic titanium abutment was seated into the analog on the model, and the screw hole filled with wax. The emergence profile was sculpted with a scalpel. The abutment was milled with a carbide bur in a high-speed dental handpiece with water spray, during which time the factory-designed chamfer was removed (Figure 7).

A digital impression of the seated abutment was made in the "preparation" window of a CEREC 3 unit (Sirona), using a light coating of reflective powder (Figure 8). A crown was designed for milling with usual techniques, except the margin line was overdrawn to enable chairside contouring of the emergence profile (Figure 9). The proposal was adjusted to properly position occlusal contours and contacts within the parameters of the antagonist. A lithium disilicate block (e.max, Ivoclar) was milled. A transfer jig was fabricated with thermoplastic acrylic on the laboratory model. (Figures 10 and 11, page 10). The abutment was then transferred to the mouth and torqued to 35 N/cm. The adjusted green-stage crown was stained and glazed, and then fired in a vacuum oven (Ivoclar) according to manufacturer instructions.

A polyvinyl siloxane plug (EXAMIX, GC America) was used to fill the access opening (Figure 12). Then the intaglio surface of the crown was steamed, conditioned with hydrofluoric acid, cleaned with 37 percent phosphoric acid, and then silanated. A resin-modified glass ionomer cement (Rely-X Luting Cement, 3M ESPE) was used to lute the crown to place. Appropriate centric occlusion without lateral loading was verified (Figures 13 and 14).

DISCUSSION

Anatomical variations, financial

considerations, and complications with post-operative soft-tissue healing may limit the ideal position of bone-level implants, despite all efforts to place the implant optimally. Customization of standard abutments can be performed to alter the position of restoration margins, limited apically by the abutment taper. If the implant platform is entirely exposed, esthetic restoration requires elimination of the margin on the implant abutment itself. In this case, the platform of the bone-level abutment needed to serve as the restoration margin.

There are multiple approaches to the restoration of this case that could have been considered. A chair-side CAD/CAM system was used to complete the restorative procedures in a single visit for patient convenience. Lithium disilicate has a solid anecdotal history as a viable restorative material for implant restorations, although this use is off-label from the manufacturer's recommendations. Alternatively, the impression taken could have been sent to a commercial dental laboratory for fabrication of a porcelain-fused-to-metal, full cast metal, zirconium, pressed and veneered lithium disilicate, or milled and veneered lithium disilicate crown by conventional techniques. However, at least two restorative appointments would have been needed.

The abutment choices for this case included a modified standard anatomic abutment manufactured by the implant company (either zirconium or titanium), a custom-designed and milled titanium abutment, or a custom-cast abutment. The patient's desire for a single-appointment restoration limited the abutment choice to a modified standard abutment. Strength and necessary milling adjustment required titanium over zirconium. (The minimal abutment wall thickness is 0.5 mm per Straumann Technical Support.) It was necessary for the implant collar to serve as the margin in this case because the implant collar was situated flush with the keratinized mucosa. Since the shortest collar for a bone level standard abutment is 2 mm, a large gap cervical to the restoration would have been created in vivo without substantial modification. Risks of this modification procedure are damage to the implant collar during preparation, fracture of the implant abutment, or fracture of the lithium disilicate crown. If a metal-based laboratory-fabricated crown would have been fabricated, the option of a screw-retained restoration could have been considered, as well as a single-unit abutment/crown complex restoration. However, this would have potentially increased the cost of the restoration and would have required at least two restorative visits. It is generally accepted and well-published that cemented single-unit implant crowns are a reasonable treatment option. ❖

» Fig. 10: Transfer jig fabricated on the working model
» Fig. 11: The implant positioned intraorally with the transfer jig
» Fig. 12: PVS plug placed in screw access opening
» Fig. 13: Final lithium disilicate restoration #3
» Fig. 14: Radiograph showing complete seating of final restoration on a well-integrated bone-level implant

Dr. Kevin Huff is a general dentist in Dover, Ohio. He is a Clinical Instructor at Case School of Dental Medicine in Cleveland, is Visiting Faculty at Spear Education in Scottsdale, Ariz., and is an instructor for the Mercy Medical Center General Dentistry Residency program in Canton, Ohio. Dr. Huff can be reached at dr@doctorhuff.net.

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Dr. Constantin Farah is a periodontist in private practice, in Canton, Ohio. He is Clinical Associate Professor in Periodontics at Case School of Dental Medicine in Cleveland, and an instructor for the Mercy Medical Center General Dentistry Residency program in Canton. Dr. Farah can be reached at cfarahdds3@gmail.com.

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The Next Generation of CEREC Doctors

As this young dentist-to-be shows, you are never too young to appreciate CEREC technology.

BY MICHELLE DRAPPI

At my high school, The Ranney School, the Capstone Project is a research project intended to expand a student's intellectual curiosity and highlight their academic accomplishments.

For seniors, capstones offer students the opportunity to demonstrate the knowledge and research skills that they have acquired in previous years and to prepare for the type of research expected in college. Students independently research a topic of their own choosing and then produce a final paper and presentation given to the entire student body.

When it came time for me to choose a topic in eighth grade, I didn't even have to think about it. My Capstone was on the field of dentistry, and I researched all different types of careers within the field. I have known since the age of seven that I want to become a dentist. Ever since I can remember I have spent so much time in my mother's office, watching her work, and I have always liked being there. Thus, for me this project was an opportunity to explore my desired profession. I zeroed in on a topic that all dentists need to know but is not offered at the undergraduate level: Basic Dental Anatomy and Physiology.

Although I knew that dental anatomy alone would be a sufficiently demanding topic, I wanted to expand my project to include something in dentistry that would allow me to apply my knowledge of dental anatomy. When it was time to choose my topic, I first discussed the newest innovations in dentistry with my mom, who is always updating her office with the latest technologies. We were discussing how much she appreciated her new restoration unit, the CEREC

known since the age of seven that I WANT TO BECOME A DENTIST.

CAD/CAM. I learned that the CEREC is currently the most advanced technology in dental restorations. Having done a little bit of research on the CEREC myself, I decided to expand my topic to include types of restorations and the CEREC technology. I spent a year focusing on how to use the unit, what the unit does and its effects on dentistry as a profession.

I used my prior knowledge of the CEREC and the resources available to me to understand how CEREC works and how it's changing the field of dentistry. Because my mother is a member of cerecdoctors.com, I had available to me the journals that were sent to her, and through other research I found online articles and websites where dentists explained their experiences with CEREC. I watched the videos from the CEREC Encyclopedia to learn how to operate the CEREC. Once I had learned how to use the machine through the demonstrational videos, I spent afternoons and Saturday mornings in my mother's office. I shadowed her through her CEREC cases, and I even watched the entire process from the minute the patient sat in the chair to the time they left.

For my presentation, I made several of my own restorations using model teeth. The CEREC was quite user-friendly for someone lacking the experience of an established dentist. After learning the different types of design methods the CEREC offers and which method is right for the restoration, the hardest part of making the actual restoration is taking the perfect picture with the Bluecam. Otherwise, it's a few simple clicks and then a preview of the restoration is displayed for you on the CEREC monitor. All that's left is to make adjustments to the 3-D restoration before milling according to personal preference.

I have to say, I successfully wowed my audience — especially the faculty members present, who I guess have been to the dentist more often and have therefore had more dental procedures than the student population. They were really excited to see the actual CEREC machine operate and design a perfect fit! They had lots of questions and were very curious. Many were wondering why they had to learn this technology from a high school student, and not from their own dentists!

As an added bonus, while I attended a Young & Motivated workshop in Scottsdale, Ariz., this past summer, I had the great opportunity to meet all of the doctors whose articles I studied all year long, including Dr. Puri, Dr. Mirzayan, Dr. Fleming and Dr. Spear. For my hard work of study this year, my mom let me take the CEREC anterior course with her and I had a great time, and learned even more interesting things!

After researching and actually practicing some aspects of the field of dentistry, I really feel great about the profession that I have chosen! It is so exciting, and filled with so much wonderful and exciting technology.

Computer-aided design (CAD) is the future of dentistry. It is a technology that is constantly evolving and improving, and is used in many fields of study including art, engineering and anything that requires photo-realistic rendering. As technology improves, these technology-dependent fields benefit. Even the standard drill has come a long way since the start of dentistry. The dentists of tomorrow are born into this new age of technology; therefore it will be naturally much easier for them to grasp these new concepts. ❖

FOR DR. REYNOLDS FISCHBACH ...

IT'S NEVER TOO LATE

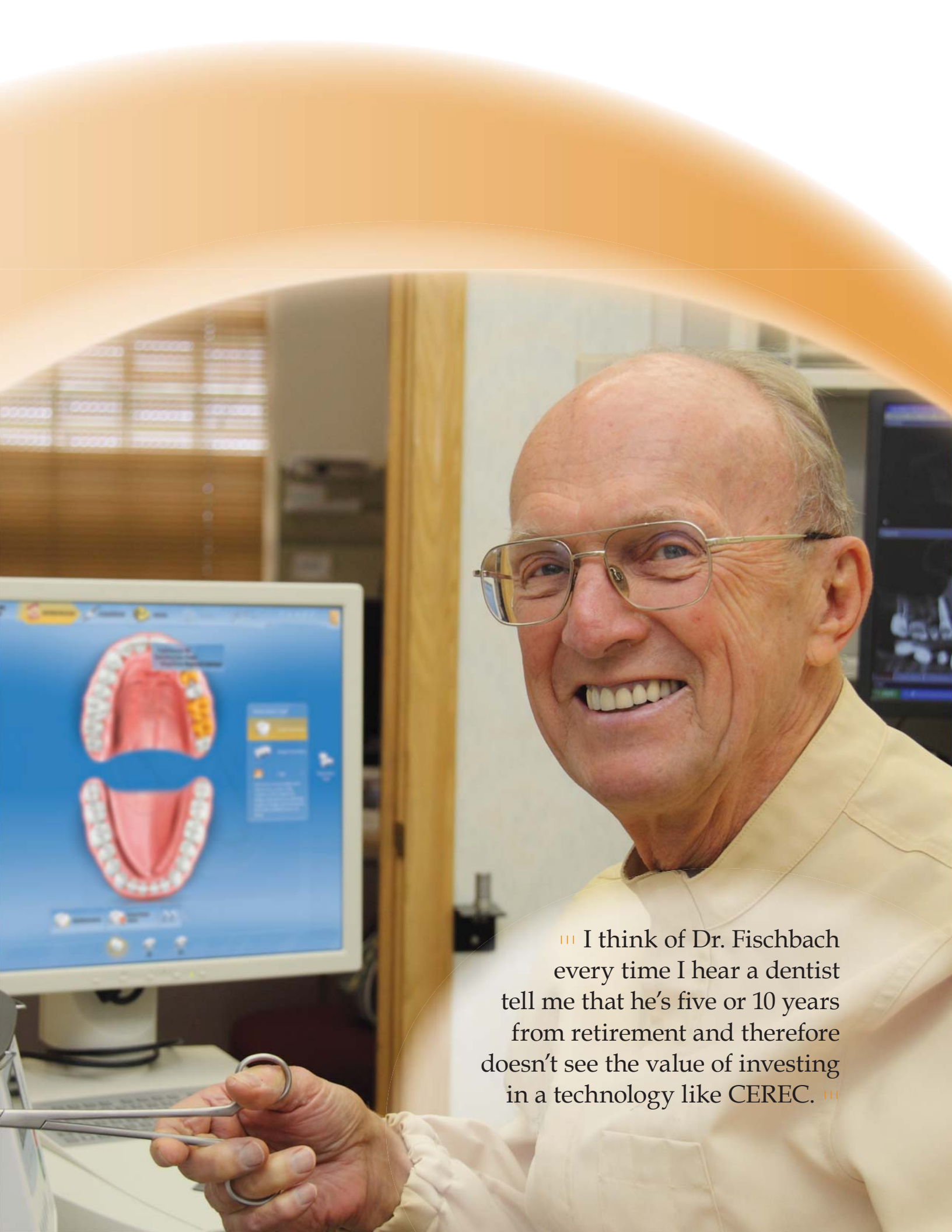
ONE DENTIST'S INSPIRING EXAMPLE OF A LIFE WELL LIVED | BY IMTIAZ MANJI

A WHILE BACK I RAN INTO A DENTIST WHO INSPIRES ME. I first met him a couple of years ago at Scottsdale Center for Dentistry and was instantly impressed with his energy and his level of engagement with the profession. At that time, he had already been an enthusiastic CEREC user for several years and told me he was looking into adding Cone Beam technology to his practice. He later did, and in fact, when I saw him again a few weeks ago, it was at a Cone Beam event where he had come to keep up with the latest technology and be around others who shared his passions. He told me about his latest clinical advances with bone grafting and implant placement, and as I listened I was struck once again by his drive and commitment. This is a man who is in love with what he does.

But that's not what makes his story extraordinary. What makes this forward-thinking dentist so different is that he is 81 years old.

A LIFE ON THE LEADING EDGE

Dr. Reynolds Fischbach has been practicing dentistry since 1955, which is longer than many people reading this have been alive — including me (I didn't make my appearance until the next year). His practice in St. Paul, Minn., is just a few blocks from where he grew up. When he opened the doors after a stint in the Navy, he says he knew nine out of 10 people who walked by. Usually, when



“I think of Dr. Fischbach every time I hear a dentist tell me that he’s five or 10 years from retirement and therefore doesn’t see the value of investing in a technology like CEREC.”

you hear about a hometown dentist who's been in practice that long, you think of someone who is comfortably set in his ways—an old-timer providing old-fashioned dentistry.

But Dr. Fischbach is not your usual dentist, and never has been. He was only the second dentist in St. Paul to get an air turbine—a machine capable of delivering 200,000 RPM in a time when 32,000 was the standard in most offices. That was in 1958. He was among the first in his area to introduce a contour chair, and to perform dentistry while sitting. He introduced computers into his office long before they were common in business offices, let alone in dentistry. Today, he's doing e.max lithium disilicate crowns, so he recently brought in two automatic ovens so he could do the final baking on site himself.

I think of Dr. Fischbach every time I hear a dentist tell me that he's five or 10 years from retirement and therefore doesn't see the value of investing in a technology like CEREC. I think of him when I see a dentist talk about having "30 years of experience" when really it's more like one year of experience repeated 30 times. I think of him when I hear a dentist say she is too old to re-think her clinical approach or learn radically new techniques, or whenever I hear anyone use the economy, cost concerns, or team issues as reasons to avoid taking the next step. These are stories we tell ourselves, and too often they are self-limiting stories. Every day, Dr. Fischbach continues to prove that there are other stories you can tell yourself—empowering stories that knock barriers down rather than build them up.

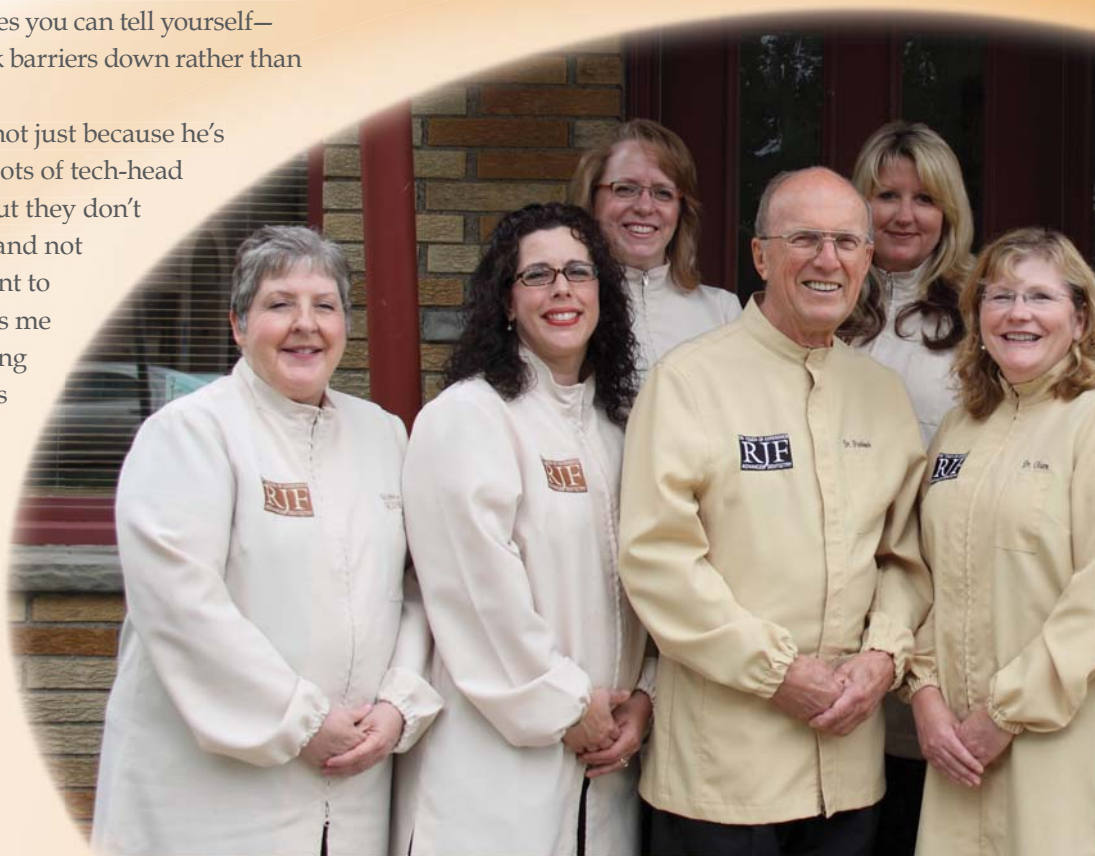
Dr. Fischbach inspires me, not just because he's an early adopter — there are lots of tech-head dentists who love new toys, but they don't have his sense of purpose — and not just because of his commitment to clinical excellence. He inspires me because his innovative thinking goes beyond the practice. Let's face it — you don't just want a great career, you want to have the most fulfilling life possible. Dr. Fischbach figured that out a long time ago. He realized it's not about the destination, it's about the journey, and he did what every person who emerges from dental school hopes to do. He crafted the ideal life in dentistry.

FORGET THE BALANCING ACT — INTEGRATE AND HAVE THE TIME OF YOUR LIFE

For years, we've been conditioned to look at our working lives as a part of a tried-and-true formula: you get into a profession with good earning potential; you work hard in your peak earning years; and then you cash out and claim your reward, retirement.

But what if you really love the work you do and can't imagine walking away from it completely? And what if you want to enjoy some other things in life now, while you still have the energy and economic power to make the most of them? Why defer some of the better parts of your life until some arbitrarily selected date in the future? Why not live life on your terms now, and forever? Dentists are especially lucky to be in an entrepreneurial profession that provides them the opportunity to make many choices about how to live and work. It's a shame more of them don't explore those choices more fully.

Dr. Fischbach realized early on that he wanted a career and a life, and he wasn't looking forward to the end of either one,



so he started planning accordingly. Twenty years ago, he brought in an associate, Dr. Susan Olson, and he focused on developing the practice to a point were it became an almost self-sustaining economic enterprise. Now, he keeps a second home in Florida, and he moves freely between there and St. Paul, depending on the seasons, his plans and his desires. He also has a motor home, and he takes his granddaughters on road trips, where he stays for free at military bases (one of the perks of spending 34 years in the Naval Reserves). When he's in the office, he's there full time, four days a week. When he's not, he's enjoying the retirement lifestyle without being retired. As he puts it, "Why should I retire when I can go away any time I want?"

I often talk about freeing yourself from the no-win, zero-sum game of pitting life against work and instead embracing the idea of 365 days of equal value each year. Loving whatever it is you're doing at whatever moment you're doing it is what real success is all about. Dr. Fischbach is the living embodiment of that philosophy. He loves his work, he loves his life and, like all people who are fully alive, he loves the idea of ongoing growth. He has lived 81 years of equal value—and he still looks forward to several more.

I don't know about you, but I want to be like him when I grow up. ❖

Dr. Fischbach can be reached at r.ddsfischbach@comcast.net.

SECRETS OF AN IDEAL LIFE IN DENTISTRY

DR. REYNOLDS FISCHBACH IN HIS OWN WORDS

On the economics of CEREC: I saw right away that when I told patients they could get it all done in one visit, it was an easy sell. That meant I was doing a minimum of three more procedures a month, and that more than pays for the unit. It's a no-brainer.

On the momentum of clinical growth: Getting the Cone Beam unit, which converged nicely with the CEREC, led me to doing implants. Doing implants led me to learn more about the surgical procedures for preserving bone, and that led me to explore more about bone-grafting and membranes and so on. All that, in turn, has led me to my latest interest: mini-implants for holding dentures in place. I'm heading off to a course on that soon. I think the more you learn, the more you want to learn.

On the importance of team participation: The people who are most successful with CEREC are the ones who get their team involved. At this point, I can pretty much walk away and trust that my staff knows what to do. And it's great for them. Nobody wants to be in a dead-end job where nothing changes. I try to keep things evolving so there is always something new, something for them to learn and get excited about. For instance, I remember going to the "CEREC 25" event with my office manager and another long-time team member, and it just blew their minds. We all came back so invigorated and enthused. And we see the response in patients, too. Patients see that we are always moving forward, and they equate current technology with quality. ➤

On the price of being a pioneer: When I got my first computer in the practice — it was just for doing billing — I was mentioned by name in speeches by the local dental society. They were pointing out how unprofessional it was to be using a computer in a dental practice. Yeah, things have changed.

On making the most of downtime: There will always be slow periods, and I use that time to work on training the staff. When you're busy, it's easy for things to start to slide (you realize that patients are walking out without a future appointment, for instance). So, during slow times, we work on things like how we're communicating with patients—whether it's greeting them, or explaining treatment or making financial arrangements. And the other thing is, I think when you've had a slowdown like we've had these last couple of years in this economy, instead of complaining about not having enough patients, you use the time to go out and learn new techniques so you can diagnose better and provide better dentistry. It may sound contradictory, but it's in the slow times where you can really make some big gains.

On how growth equals freedom: I don't think about retirement, but I've always wanted to be able to take off whenever I wanted to. To do that, you have to have a dentist you trust to work the practice while you're gone. And in order to have that, you have to work with that dentist and bring them along to that point where there is enough to keep everyone going. And that means more treatment rooms, more equipment, more patients. So I've always focused on growth as a way to get me to the lifestyle I wanted. Now when I go away, I don't see any decrease in production — in fact, sometimes they make more than when I'm not there.

On loving the journey: I enjoy what I do, and I enjoy the people. I've often said that if I were unable to do dentistry, I'd still want to come to the office just to visit with the patients. I just love going to work. ❖

interface

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GALILEOS AND CEREC

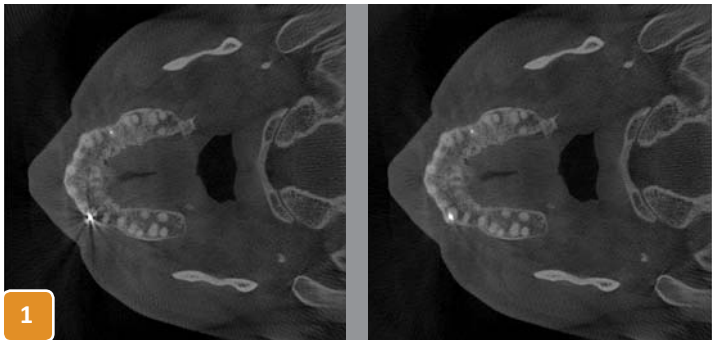
A Panacea for Providing Optimal Patient Care

BY NEAL PATEL, D.D.S.

We are fortunate to practice dentistry in a period of enormous development and growth of both CBCT and CAD/CAM. We are even more fortunate to have access to the integration of such technologies for comprehensive care. The rise of digital dentistry is led by computer-aided design and computer-aided manufacturing (CAD/CAM), allowing clinicians to image, design and mill restorations chair-side and in one visit. I have come to appreciate and rely heavily on CEREC as a restorative tool. With the introduction of Cone Beam Computed Tomography (CBCT) to dentistry, we have observed amplification in our diagnostic ability.

The advent of CBCT provides an opportunity to provide an objective assessment based solely upon results of the 3-D image. With the rise of technology within society, today's patients demand the most advanced dental care. 3-D diagnostic images help us guide our patients through diagnosis while increasing treatment plan acceptance, and provide increased precision in dental therapy. The integration of CBCT diagnostics with CEREC CAD/CAM and other objective data from biometric instrumentation from BioResearch Assoc. Inc. gives us an opportunity to formulate a definitive treatment plan with a common goal: optimal oral health. The Biometric instrumentation provides clinicians the opportunity to evaluate

» Dr. Neal Patel and the GALILEOS



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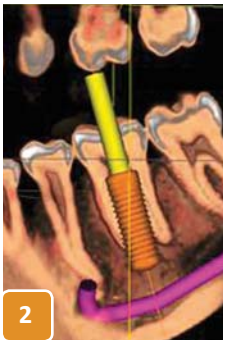

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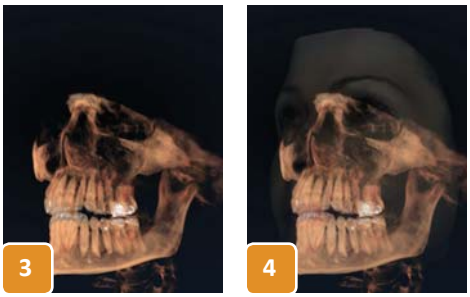
dysfunction in the temporomandibular joint, the craniofacial musculature and the overall stomatognathic system. Use of Joint Vibration Analysis (BioJVA) and Electromyography (BioEMG III), linked with Tekscan's T-Scan III computerized occlusal analysis system all provide unparalleled ability in evaluating patients with TMD and comprehensive diagnosis of the stomatognathic system. The combination of Sirona's 3-D GALILEOS CBCT imaging, CEREC CAD/CAM, and BioResearch Biometric Instrumentation provides the ultimate opportunity for optimal oral diagnostics and treatment.

I have been practicing for three years, and was fortunate to have GALILEOS CBCT by Sirona on day one. My perspective may be skewed and my preference for GALILEOS obvious, but my excitement for 3-D Imaging by Sirona grows with each day. My experience with GALILEOS has been an evolutionary process. Three years ago, it provided a 3-D image for diagnostics. Since, the images have improved in clarity and resolution thanks to constant improvements in reconstructive algorithms and continuous updates in software (Galaxis). This software has evolved from providing the essential diagnostic tools to providing integration with CEREC (GCI) for simultaneous prosthetic and surgical planning. New additions include a vast Implant Library with abutments, volumetric clipping, a metal artifact reduction (MAR) algorithm for improved imaging quality for our heavily restored patients, and finally the Integrated Face Scanner (IFS) for GALILEOS Comfort (Figs. 1, 2). The combination of GCI and the IFS provide us a complete Virtually Integrated Patient (VIP) (Figs. 3-6).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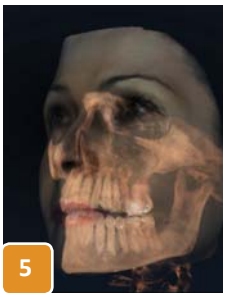
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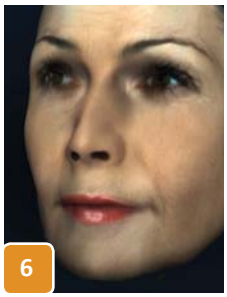
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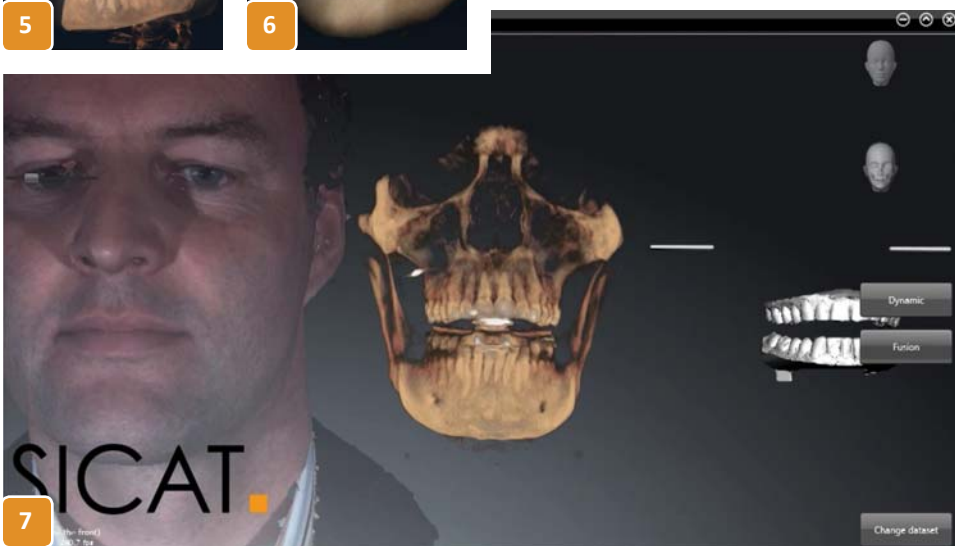

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The VIP is a Sirona concept that allows patients to identify themselves and their condition using a rendering of their own face, rather than a two-dimensional X-ray (Fig. 7). The combination of 3-D X-ray with an image of the patients' own faces helps them to understand their dentist's suggestion more quickly, and potentially leads to higher acceptance of proposed therapy. The treatment modalities have evolved to include traditional surgical guides, GALILEOS/CEREC Integration surgical guides, and now centrally milled guides, Optiguide by siCAT.

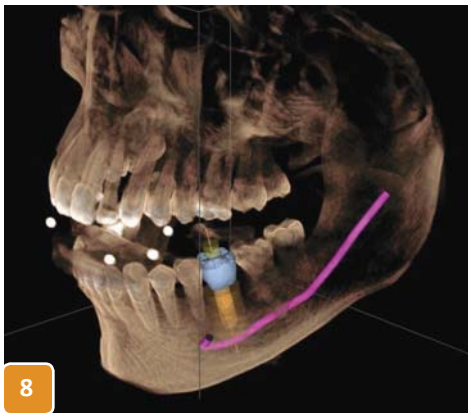
In my practice, a routine new-patient exam may include a GALILEOS CBCT scan. This is the foundation of my examination process. The Galaxis imaging software by Sirona is specifically tailored to enhance dental workflow. There is a significant reduction in our new-patient exam process time due to the comprehensive nature of the data within the CBCT scan. The combination of bitewing X-rays and CBCT allows diagnostics for all facets of dentistry: Restorative, periodontics, orthodontics, oral surgery, endodontics and implantology are all defined by one scan with Sirona's GALILEOS CBCT.

To help us understand the implication of having such technology at our disposal, let us consider a virtual patient who presents for routine dental care. Our patient Jane Doe presents with the history of routine preventative and restorative visits to a previous dentist. Her treatment history includes a bridge with endodontic treatment on the distal abutment tooth #31 and an edentulous

site at tooth #19. She presents with the anticipation of a routine cleaning, but does have a chief complaint of a sore jaw and occasional pain on the lower left. She mentions morning headaches, daytime fatigue and knows she snores at night.

For many of us, Jane is a routine Monday-morning new patient. We customarily provide a comprehensive exam using conventional 2-D diagnostic images, periodontal and restorative charting, and a review of clinical findings. Despite the fact that we may share common conclusions during our examination, the variation in treatment plans available to our patient Jane are more dependent on the experience and treatment philosophy of the dentist. We act on mostly subjective data during the evaluation and provide the best care each of us, individually, is capable of. Think about how Jane's treatment would be managed in your practice today. With advanced instrumentation, would you see an improvement in workflow or diagnostic capability? Or would you even perhaps change your treatment plan altogether? Let us see:

Initially, we evaluate our CBCT scan to give us an understanding of Jane's initial presentation (Fig. 8). Similar to panoramic imaging, this "bird's-eye" view is critical during the new-patient exam to help us prioritize Jane's treatment needs. Often, clinicians get hung up on "filling the hole." Sirona 3-D imaging provides a roadmap to comprehensive diagnostics. Jane's bridge, despite being asymptomatic, presents with a large periapical radiolucency. We suspect a root fracture from the endodontic post and note that #31 has a poor long-term prognosis, even with retreatment (Figs. 9, 10). Our discussion with Jane includes extraction of #31 and treatment planning for two implants at #30, #31 and the edentulous site #19 (Fig. 11). GALILEOS and CEREC Integration allows perfect case presentation and treatment planning on the first appointment. This creates a heuristic approach and facilitates proactive treatment in extracting #31 with grafting in preparation for implants. Remember, Jane is asymptomatic at #31, but with 3-D imaging for diagnostics and treatment presentation purposes,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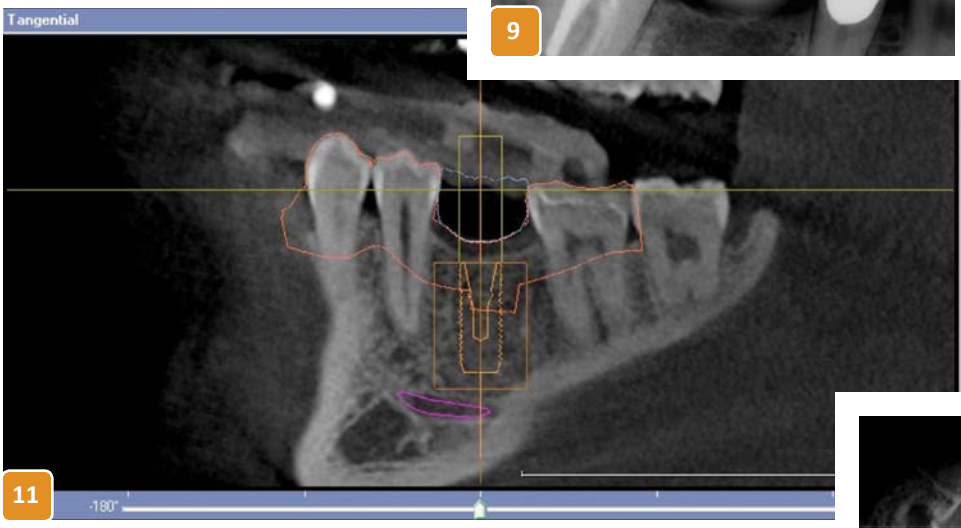

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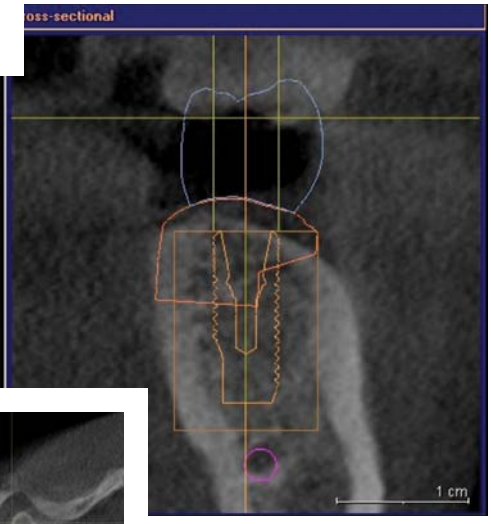


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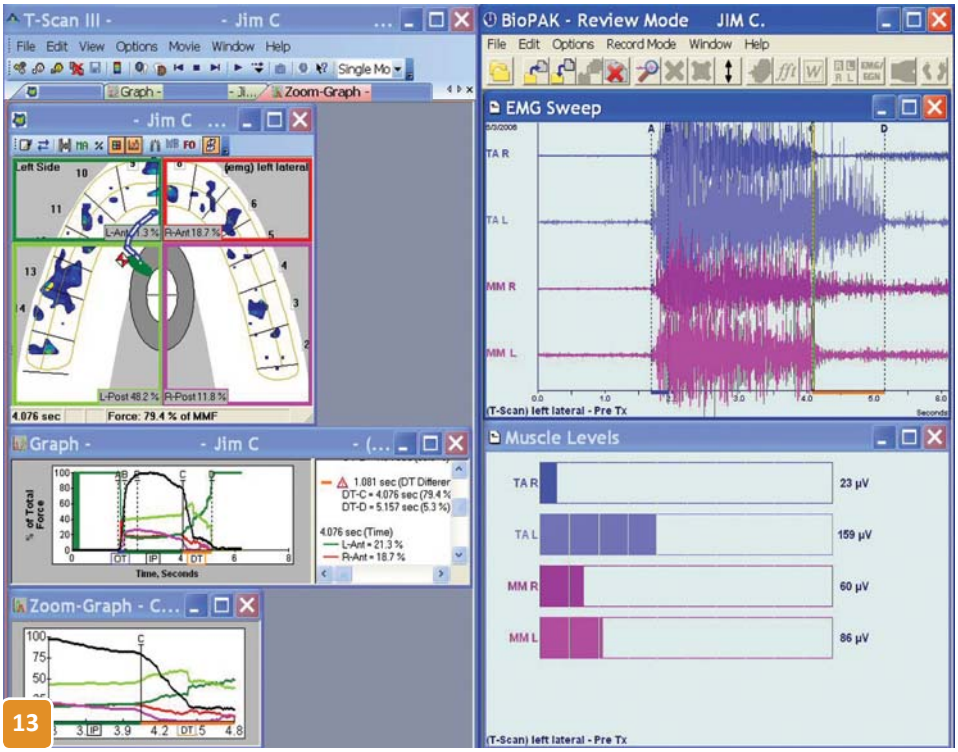

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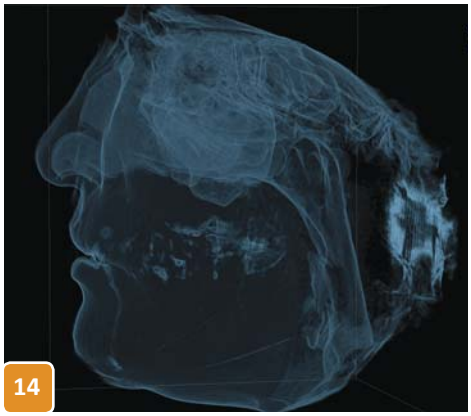
such treatment is readily accepted. After proper management of site #31, a new CBCT scan is obtained for evaluation of bone fill and after consideration of IA nerve we recommend guided surgery for precision and enhanced safety. For guided surgery, we simply obtain a full arch CEREC optical impression. With this data, we can prosthetically plan our implant treatment using CEREC software. In addition, we have the ability to transfer this data through CEREC-Connect and rapid-prototype, an SLA model through Sirona Infinident. With siCAT Optiguide, there is no need for impressions. The digital data allows Sirona and siCAT to fabricate a surgical guide using a pure digital pathway for guided implant dentistry. Once surgical therapy has been provided, the use of CEREC allows for complete control from inLab abutment fabrication to chair-side restoration.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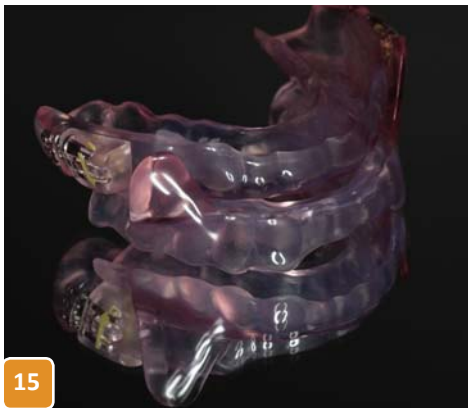
Evaluation of CBCT data allows us to evaluate the TMJ and relative position of the condyle (Fig. 12). From this hard tissue imaging, we can assess condylar remodeling and degeneration. In combination with Joint Vibration Analysis (BioJVA) we rule out joint pathology. With CBCT we are able to confidently rule out overall maxillofacial pathology and confirm health. Her chief complaint of soreness and pain on the lower left is further evaluated and we determine that her symptoms do not stem from infection or pulpitis. Using BioEMG and T-Scan linked, we note objective data within BioResearch BioPAK software that indicates elevated masseter muscle activity related to excursive interferences. Jane's initial 1.081-second left-lateral disclusion time was reduced to 0.266 seconds by removing specific known occlusal interferences in lateral movement as identified by T-Scan. After adjustment, both masseter muscles show large reductions in their levels of activity at the start of disclusion. BioEMG and T-Scan allow us to objectively confirm the results of equilibration. Such reduction in muscle activity promotes relief of Jane's non-specific pain on the lower left (Fig. 13).

Finally, using CBCT data, we can evaluate the anatomy of Jane's airway to help us understand if she could benefit from a mandibular advancement splint (MAS) (Fig. 14).. Her symptoms of morning headaches, daytime fatigue and snoring may be obvious signs of obstructive sleep apnea (OSA), but they are subjective findings. The evaluation and study of Jane's airway show a narrowing near the base of the tongue and opens the opportunity to discuss Jane's options. Defining the anatomical limitation does not allow us to diagnose OSA, but can certainly be used to screen patients for further evaluation. Recommendations are made for either an ambulatory sleep test device or full in-lab polysomnography to evaluate OSA objectively and confirm diagnosis with a physician. Jane is informed regarding her treatment options (MAS, CPAP or surgery) if positively diagnosed

with OSA. She is also informed that should she select the MAS, her dental treatment needs to be completed prior to fabricating her oral appliance. If Jane proceeds with an oral appliance, such as a SomnoDent (SomnoMed) (Fig. 15), we are able to titrate the appliance using CBCT imaging to objectively quantify the increase in airway volume by scanning Jane with the appliance in place. Effective management of OSA improves both the quantity and quality of life as proven in multiple studies.

Consider the treatment that we have proposed for Jane in my practice. How would it compare if Jane presented



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in your practice? Regardless of your treatment plan for Jane, the journey of getting from point A to point Z would certainly be different and most definitely more enjoyable using Sirona's GALILEOS CBCT and CEREC CAD/CAM with BioResearch's Biometric Instrumentation.

We define our practice by the experience our patients receive. The heuristic approach to dental care is most effective when we present our clinical and diagnostic findings objectively, and this is readily provided when using GALILEOS CBCT imaging. 3-D digital dentistry gives us an opportunity to elevate our therapeutic and treatment modalities, and often results in the best dentistry. ❖

For questions and more information, Dr. Patel can be reached at nealpateldds@yahoo.com.

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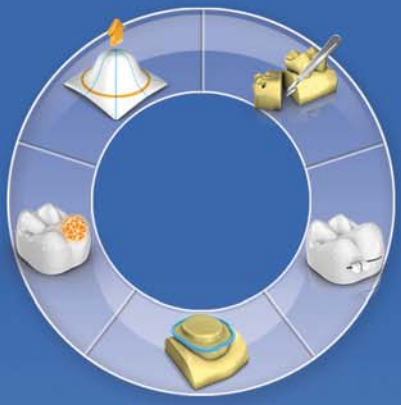

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Streamlined Restoration Design

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CASE STUDY

A Minimally Invasive Approach to Sinus Lift Surgery Using the Crestal Approach

BY JOHN D. STOCKDALE, D.D.S.

Maxillary first molars endure a multitude of physical insults over the course of their lifespan.

With their eruption at the age of six or seven, they are vulnerable to early caries which frequently lead to multiple restorations — each of which removes additional tooth structure. The complicated pulp chamber, with multiple canals in the MB root, makes successful long-term root canal therapy less than routine. These factors can lead to loss of a maxillary first molar in midlife years. But the combination of two recently introduced products puts sinus lift surgery within reach of typical implant dentists.

Preeminent implant surgeon Carl Misch, D.D.S., M.S.D., Ph.d. recommends an implant with a minimum length of 12 mm to replace teeth in the posterior maxilla. While socket-preservation procedures can preserve generous amounts of bone bucco-lingually, and there is usually more than adequate space mesio-distally, most patients do not have sufficient vertical bone for routine placement of an implant of 12 mm. Traditional solutions include using shorter implants — which can have a lower degree of success — and then adding bone in the sinus to increase the bone volume vertically.

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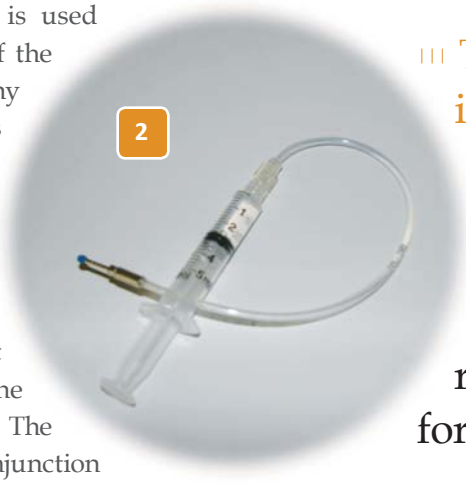
The traditional sinus lift via the crestal approach entails drilling to the floor of the sinus, inserting an osteotome and "tapping" on the osteotome to upfracture the floor of the sinus. The Schneiderian membrane, which lines the floor of the sinus, is then elevated and particulate bone is placed between the underside of the membrane and the bony floor. Numerous articles have been written detailing this procedure, which can lead to side effects such as dizziness and headaches. After four to six months, the patient's bone infiltrates the particulate graft, and an implant can be placed. If sufficient vertical bone is present (usually around 7 mm

to 8 mm), the implant can be placed concurrent with the sinus lift.

The first innovative product is the Sinus Crestal Approach (SCA) Kit, distributed by Zimmer Dental (Figure 1). This kit uses a minimally invasive approach to gain access to the sinus. A 2-mm-diameter bur is used to approach the floor of the sinus, then the osteotomy is widened by a series of four S-reamer burs (Figure 1, top middle). These burs range from 2.2 mm to 3.6 mm in diameter, and are specially designed to cut bone, but not cut the Schneiderian membrane. The burs are used in conjunction with a set of stoppers, which control the depth of the preparation (Figure 1, upper left). After the 3.6 mm S-reamer is used, a shorter stopper is fitted so the bur can drill 1 mm deeper. Shorter stoppers are used progressively until the sinus is penetrated. The final stopper prevents the S-reamer from extending up into the sinus more than a fraction of a millimeter. At this point, a depth gauge is used to verify that sinus access has been achieved.

The second innovative product is the Zimmer Micro-Mini balloon. Traditionally, various metal instruments are used to lift the Schneiderian membrane. These instruments can cause tearing, which can then result in graft particles leaking into the sinus, rather than providing a matrix for the native bone. Alternately, the Micro-Mini balloon is attached to a graded 5 ml syringe via a clear plastic tubing, which creates a closed system (Figure 2). The first step is to fill the syringe with sterile saline. The air is then cleared from the tubing, so the balloon fills with the saline. This is one of the most challenging aspects of the entire procedure. Saline is used instead of air because a liquid allows for more precise inflation of the balloon. After the air has been cleared from the line, the balloon is inserted up through the osteotomy to the base of the sinus. Slow and gentle inflation of the balloon evenly lifts the membrane from the bony floor. This technique minimizes the risk of tearing, and lifts the membrane as atraumatically as possible. The membrane is not tightly attached to the sinus floor, thus minimal force is necessary for its elevation. The process is one of slowly expanding the balloon, waiting, deflating a little and expanding again. This is repeated for two to three minutes, monitoring the syringe to see how much saline is being injected into the balloon. The membrane should be slowly and gently lifted, developing a space into which the particulate bone can be placed. One ml of saline lifts the balloon 6 mm. The maximum capacity of the balloon is 1.5 ml; thus up to 9 mm of vertical displacement of the membrane can be achieved.

Once the space has been developed, the balloon is deflated and removed. The particulate bone is mixed with sterile saline and placed into the osteotomy using the bone carrier. A bone condenser is used to move the particulate up into the space created by the balloon. This is very similar to placing a large Class I amalgam, and is just about as easy. After approximately 0.25 to 0.5 cc of bone has been placed, an X-ray is taken to verify that the bone is contained under the membrane, and not leaking through it. For larger volume cases, a bone spreader is used to disperse the bone laterally. When adequate particulate bone has been placed, a final X-ray is taken for verification. Closure of the osteotomy is similar to socket preservation. The area is allowed to heal for four to six months, depending on the volume of bone placed. The larger the amount placed, the longer time needed for the body to infiltrate the graft with native bone.



"Traditionally, various metal instruments are used to lift the Schneiderian membrane. These instruments can cause tearing, which can then result in graft particles leaking into the sinus, rather than providing a matrix for the native bone."

CASE STUDY #1

A 57-year-old female presented with a minor swelling in the upper right. Tooth #3 had root canal therapy that was failing, leading to bone loss and a buccal abcess (Figure 3). After discussing the implant versus retreatment risks and benefits, the patient decided to have the tooth extracted and an implant placed. Tooth #3 was sectioned and extracted as atraumatically as possible (Figure 4). The socket was curetted and Puros was placed to preserve as much of the alveolar bone architecture as possible (Figure 5).

The patient returned to my office 10 months later, ready to continue treatment. A 3-D scan was acquired using a GALILEOS Comfort Cone Beam machine. This scan revealed a normal sinus with no septa and 6 mm of vertical bone available. A Nobel Biocare 6 mm-by-8 mm Replace Tapered implant was virtually placed, and the data sent to Sicat, which fabricated a surgical guide.

My initial intent was to elevate the sinus and place a Nobel Biocare 6 mm-by-8 mm Replace Tapered implant concurrently. However, in reviewing the procedure in my mind, the thought of creating a 6-mm-diameter hole into the sinus and risk particulate bone falling back out — not to mention the large problem if the implant did not osseointegrate — led me to rethink the procedure. I decided to separate the sinus lift from the implant placement. This way, a much smaller hole into the sinus would be created, and the implant would then be placed entirely in bone several months later. I was much more comfortable with this scenario.

Since I already had the surgical guide and the height of bone from the GALILEOS scan, I made the initial 2 mm pilot osteotomy using the surgical guide. This centered the sinus lift where the implant would eventually be. I used a Nobel Biocare flapless kit and removed a 5-mm-disk of gingiva around the pilot osteotomy. This allowed me to see the crestal bone, and allowed the stoppers on the S-Reamers access to the crestal bone. Since the surgical guide controls the bucco-lingual and mesio-distal dimensions, and the SCA kit controls the vertical dimension, I was essentially doing a "guided sinus lift." I stepped through the burs as described above to gain access to the sinus, used the Micro-Mini balloon to elevate the Schneiderian membrane, and placed slightly more than 1 cc of a mixture of Puros Cancellous and Cortical bone particles (1.0 cc Cancellous, 0.25 mm to 1.0 mm particle size, mixed with 0.5 cc Cortical, 0.25 mm to 1.0 mm in sterile saline.) The cortical bone is more radio-opaque and provides greater density in the graft (Figure 6).

The bone spreader was used at 35 rpm without irrigation to displace the bone particles laterally (Figure 7).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The vertical dimension of bone/graft is now more than 14 mm. It will be interesting to see how much net bone we have in a few months. Since the surgical guide has no vertical reference, I am free to choose whatever length implant I deem appropriate. Although my initial plan was to place an implant 8 mm in length, I am now planning to place a 6.0 mm-by-11.5 mm Nobel Biocare Replace Tapered implant using the surgical guide, then ultimately restore with a CEREC crown using an e.max CAD block.

The patient was placed on cephalexin 500 mg for one week to prevent infection. She experienced headaches and soreness for about nine days post-operatively, for which she took ibuprofen and a few Tylenol #3s. In retrospect, I probably could have been less exuberant when inflating the Micro-Mini balloon. The surgical site healed without incident, and the patient is doing fine and awaiting her implant in a few months.

CASE STUDY #2

A 61-year-old female presented with tooth #3 missing. I extracted this tooth 16 months prior, with the patient declining socket preservation. The

horizontal bone was sufficient for placement of a 5 mm-diameter implant, but there was only 8 mm of bone vertically (Figure 8). A sinus lift was agreed upon, with the goal of developing enough bone so that an 11.5 mm implant could be placed. No surgical guide was used in this case. As above, the series of drills was used until the 3.6 mm-diameter S-Reamer was at the inferior aspect of the sinus floor (Figure 9). Progressively shorter stoppers were used, allowing the bur to drill deeper, until the sinus was penetrated. The Micro-Mini balloon was (very slowly and gently) used to lift the Schneiderian membrane, and Puros particulate was placed up into the sinus (0.75 cc Cortical, 0.25 mm to 1.0 mm, in sterile saline). Approximately 6 mm of vertical bone were gained, as measured on the pre- and post-op GALILEOS scans (Figures 10, 11). Again, it will be interesting to see how much we net in four to six months. I could have then widened the osteotomy to 5 mm and placed an 11.5 mm implant at this appointment, but patient finances dictated that treatment be spread out over a longer period of time. The patient reported mild discomfort limited to the initial 24 hours after the surgery, for which she took ibuprofen. I think the smaller graft size, thus less manipulation of the membrane, and a more delicate technique on the part of the surgeon resulted in less post-op discomfort for this patient.


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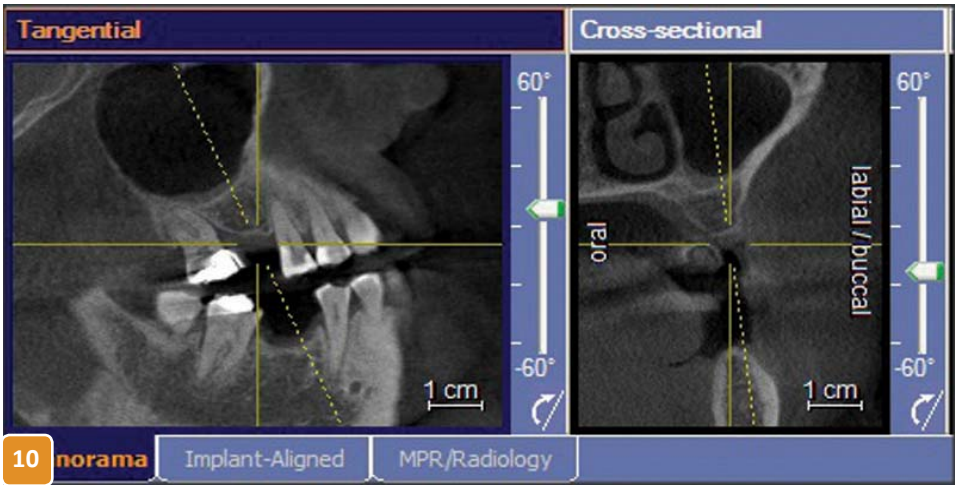

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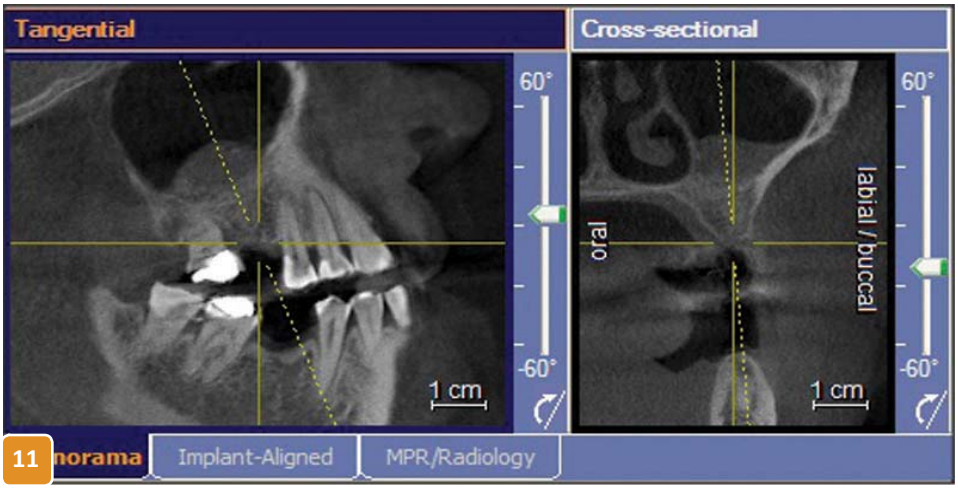

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The advantage of this technique is the control the technology gives us as surgeons. The GALILEOS scan and a surgical guide allows us to place implants safely and confidently. Using the combination of a GALILEOS scan, surgical guide, SCA kit and a Micro-Mini balloon allows implant surgeons to do crestal sinus lifts safely and confidently in many situations. The difficulty level of this procedure is similar to doing a routine root canal on tooth #7. With large numbers of our patients in their middle-age years, there are many situations involving upper first molars and second bicuspids where this technique can augment their natural bone. This allows us to comfortably place implants of appropriate length, which will give our patients many years of service. ❖

For questions or more information, Dr. Stockdale can be reached at drstockdale@renaissancesmile.com.

THE BUSINESS SIDE

Want Better Marketing Results? Start with Team, Patient Education

BY DANIELLE WALTON

As a marketing professional, I receive inquires from all kinds of businesses, including dental practices, asking how we can improve their marketing and help them grow. In the case of dental practices, when we probe further, we learn what is at the root of their marketing request — and it usually involves more than just attracting more patients. Often, the underlying issues sound something like the following: a recent loss of patients; overall patient retention isn't where it should be; materials are outdated; marketing hasn't been a priority; a nearby practice is suddenly marketing like crazy.

None of these comes as a surprise to marketing professionals, and we have many strategies that can rectify these issues and reverse undesirable trends. But a critically important strategy is one that too often is overlooked, and its costs are negligible in comparison to most attempts to connect with prospective patients. That strategy is simple:

Education.

To be honest, it's not the answer that most dental practices expect or want to hear when they're focused on marketing. But with a little awareness about the benefits of education — among their staff as well as their patients — dental professionals can make important headway in their marketing initiatives in a meaningful and practical way.

EDUCATING YOUR BEST MARKETERS – THE DENTAL TEAM

➤ KNOWING THE TOOLS BEYOND JUST HOW THEY WORK

Today's dental practice is increasingly high-tech, and many have made significant investments in equipment like CEREC products to enhance and accelerate the speed of dental care while also improving the overall patient experience. But ultimately those investments need to pay off — and the only way that occurs is by seeking to grow and maintain your patient base.

Dental practices can spend upwards of six figures on having the right tools in place, but does the staff know that? Do they know how to articulate the benefits of this highly specialized equipment to patients? When dental team members understand the decisions and investments that are made to benefit the practice and the patient, they can appreciate and, in turn, market that value to patients. This requires more than simply training dental assistants and hygienists on how to use new equipment, but educating them on the benefits of that equipment and how it impacts the patient experience. For example, in-house milling that takes minutes and streamlines the amount of time from diagnosis to solution is one example of a value proposition that should be communicated to existing patients. In doing so, patient expectations are pleasantly redefined.

➤ CURRENT PATIENTS BUILD PRACTICES

Dental professionals are encouraged to remember the three Rs. Not the folksy schoolhouse version, but rather an important equation that every dental professional should keep top of mind when thinking about the strategic growth of their practice:

recurrence + referral = revenue

Market research as well as common sense suggests that the cost to acquire new patients is significantly more than the cost of retaining and growing within your current base. This isn't news, but tendencies are strong to chase what we don't have instead of having the discipline to work with what already exists. Patient loyalty leads to recurring visits as well as referrals, and it behooves dental practices to apply focus here.

ENGAGING PATIENTS IN MEANINGFUL DIALOGUE

Engaging patients on a conversational, nontechnical level is a cornerstone to helping them understand the benefits of their basic and advanced dental care. While technical acumen is how a dentist will measure their own performance, dental service by itself is not the basis on which to measure success from a patient point of view. This is why conversations with patients about the practice and its commitment to patient care is critical. Also remember that initial impressions in the front office, how hygienists and dentists interact with patients and how the procedures are performed all influence any patient's decision to become an ongoing patient.

➤ KNOWLEDGE PUTS PATIENTS AT EASE

Because many patients, including long-time, loyal patients, may still experience some form of dental anxiety, one-on-one engagement and education becomes critical once the patient is in the chair. Discussing procedures as well as questions and concerns puts even the most reluctant dental patients at ease and provides the practice an opportunity to redefine the dental experience. By sharing significant advancements in dental care, including CAD/CAM technology that now allows dentists to provide same-day crowns, minimize pain and overall time in the chair, professionals once again have the opportunity to redefine patient expectations. Less discomfort and anxiety, coupled with increased awareness of procedures and outcomes, breeds greater confidence in their oral care. That confidence leads to trust and ultimately greater patient loyalty.

A patient's **full attention** can be best accessed while they are **in the dental chair,** both with and without the dental staff present. This is when patients are most likely **to think about and be receptive to** dental messages.

➤ MAKE THE INVESTMENT

While chair-side education requires marginally more time with each patient, it is a small investment in patient retention. It can reinforce satisfaction that can lead to positive referrals, which is critical to any practice.

Dental practitioners can improve patient engagement and education by:

- Asking questions, listening to patient concerns and understanding their perspective. Avoid assumptions — get to know what works best for each patient and customize care accordingly. Ensure patients fully understand their oral care issues and the recommended procedures. Help them internalize it, own it and trust in their dental care.
- Simplifying conversations with patients by avoiding jargon and technical speak, and bringing it down to their level. Refer to teeth as teeth, not numbers.
- Showing and telling the benefits of the chair-side technology that is now available. Illustrate their current situation on screen, and explain what the proper care will do to remedy or preserve their oral health.
- Demystifying any long-held beliefs about dental exams and the pain and discomfort associated with them. Educate patients on the technological advancements that streamline the experience, and minimize the perceived pain.
- Empathizing with the reluctant patient while underscoring the long-term, healthy outcomes of dental care.
- Encouraging preventative behaviors

and practices that will keep patients coming back for regular check-ups with the goal of avoiding unnecessary restorative services. Simply have their best interest and mindset in mind.

- Acknowledging what works in regard to the patient's oral hygiene behaviors. Debunk any cynicism that might exist about routine cleaning visits being automatic precursors to other recommended procedures.

While the best patient is an existing patient, engagement begins the moment they walk into the practice. Dental practices should consider a variety of tools that "speak" to their patient base and present information in a way that actually piques interest and curiosity, and eventually leads to engagement with the staff.

THE OFFICE AS MARKETING TOOL

Think about the significant investment made into the physical space and practice tools — the high-tech equipment, the flat screens for projecting images and information, attention to all of the small details. Ultimately, the environment says a lot about the practice and shapes the patient experience. Knowing what the practice values is equally important for the patient to know. Consider what the office is currently saying and how it might be better articulated, verbally as well as contextually.

➤ SPEAK YOUR CLIENTELE'S LANGUAGE

Today's busy patients are more likely to take in tablet or smartphone-based content instead of static messages posted around the office. That fact alone renders dental-themed posters and Norman Rockwell-era prints as relics of a different generation. Dental practices would be wise to ensure a consistent dental experience from the waiting area to the dental chair. Patients shouldn't experience a 1970s waiting area before entering a modern-era operatory.

While a high-tech office space has the potential to come across as sterile and cold, a practice's personality needs to be thoughtfully considered and integrated. Further, each practice also should carefully understand and market to its target audience, and understand what's relevant to that specific demographic. For example, if the target audience is young professionals who are tech savvy, consideration should be given to in-office Wi-Fi, replacing magazines with iPads that are programmed with default presentations of dental services, and QR codes that can transport patients directly to the practice's Web-based information. However, if the clientele is more likely to be senior citizens, then easy-to-read, large-print brochures, oversized flat-screen TVs with looped information about the practice and its offerings, and an assortment of magazines would be more appropriate.

➤ MAKE MARKETING FROM YOU AND ABOUT YOU

Fast, cheap and generic is the antithesis of the modern dental practice. Yet when it comes to in-office and direct marketing and education, these traits continually rear their head — often with only a pre-stamped name and address to show that the content is related to the practice. Customizing in-office marketing is critical to further establishing credibility and setting expectations. If it's something the dental practice does, it shouldn't be marketed with generic content from a third-party source. However, providing third-party attribution to facts about dental care (e.g., ADA) can help bolster credibility. The professional perspective and viewpoint the practice provides to common procedures and cosmetic consideration is what differentiates a practice from its competitors.

➤ EDUCATING INSTEAD OF SELLING

Nobody likes to be "sold" and patients are no different. Providing patients with information — and affording them the opportunity to weigh the pros against any drawbacks — means they can make an educated decision on what's best for them before making an investment, especially when it comes to cosmetic-related services. Effective in-office marketing strategies will take this into consideration. By providing patients with the knowledge they need, they become equipped to make decisions that favor the expert source providing that information.

➤ LEVERAGING THE IN-CHAIR OPPORTUNITY

A patient's full attention can be best accessed while they are in the dental chair, both with and without the dental staff present. This is when patients are most likely to think about and be receptive to dental messages. Providing highly visual, easy-to-absorb information, such as before-and-after images of procedures on a flat-screen monitor, will better speak to

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patients when they're more focused on their oral health. This can occur via a mounted monitor or tablet device that the practice makes available. It's also an opportunity to personally connect with the patient and reinforce those chair-side strategies. Acknowledging that a patient's time in the chair means full patient attention, it's also an opportunity to show patients that they have the dental team's full attention.

➤ RETAIN THEN RECRUIT

When the emphasis is focused on retaining every current patient in the practice, significant gains are made. Imagine, hypothetically, that 25-30 new patients are seen each month, and assume that one-third of those won't become repeat patients. While there will always be transient patients and those shopping for the right fit, imagine what a concentrated in-office education strategy could do to reduce that loss ratio to 10 percent or 15 percent instead of one-third. A strategy to retain quickly becomes an effective gain of 15 percent to 20 percent more patients each month who are committed to the practice – just by being more deliberately focused on those who walk through the door.

EXTERNAL MARKETING – WHAT'S BEST VS. WHAT'S NEXT

There are many marketing tools available to today's dental practice, many of which can reap results. Too often however, I see dental practices abandoning programs that haven't had time to work or chasing opportunities because they are new, different or discounted. My approach is simply this: if you can't measure it, don't do it. This belief is more than a marketing slogan. Small businesses cannot afford to spend time and money on marketing without fully understanding how it performs and can be adjusted to ensure a return on investment. The single-most important marketing tool a practice has at its disposal is its website. The challenge is getting people to visit it, and that's where two acronyms become tremendous marketing allies: SEO (search engine optimization) and PPC (pay-per-click). Together, these two elements comprise another acronym, SEM (search engine marketing), and it can pay big dividends in terms of finding new patients as they find you.

➤ SEARCH ENGINE OPTIMIZATION

Search engine optimizing simply means aligning website content and page tags with the terms patients consistently type into search engines to find products and services. Optimization also requires monitoring key search terms and making the necessary adjustments if a practice is to rise steadily in search engine rankings and get noticed by prospective patients. SEO increases visibility and puts the practice's key messages in front of the prospective patient.

➤ PAY-PER-CLICK MARKETING

Pay-per-click marketing complements SEO by presenting targeted ads to individuals who are conducting online searches. These "pay-per-click" ads are cost-effective, geographically targeted ads that appear on search engines such as Google. They help drive traffic to your website by aligning the ad content with key search terms. Individuals who click on the ads are those most likely searching for those specific services being advertised — and that's the only time the practice is charged for the ad.

The good news for dental practices is that these initiatives are 100 percent measurable and adjustable based on consumer behavior, and practices can determine the exact cost of acquiring new patients. It also means no more carpet-bombing campaigns to blanket the community in hopes that new patients get the message.

MARKETING MATTERS INSIDE AND OUTSIDE

There will always be a need to market the practice outside its walls. Strategically staying in front of patients in meaningful ways outside the office, including Internet marketing and other targeted outreach initiatives, helps keep them informed of evolving capabilities and services, as well as relevant news regarding oral health and the practice in general.

When dental practices embrace in-office education as a critical first initiative in their overall marketing effort, it becomes a powerful marketing tool that can ease the cost of outreach and improve the practice's bottom line with solid gains in retention. ❖

Danielle Walton is co-founder of Adept Marketing, a central Ohio-based Internet marketing firm that specializes in delivering performance-driven metrics for small- to mid-size businesses. In addition to working with promising start-ups, Adept has developed a practice with dental expertise and serves multiple dental clients across the country. Connect with Danielle at dwalton@marketingadept.com or visit www.marketingadept.com.

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CASE STUDY

Exploring the CEREC-GALILEOS Integration

BY JOHN YU, D.D.S.

One of history's greatest marriages (after my wife and I) would definitely be the union between the CEREC and the GALILEOS. The treatment planning for implants is so easy, and the surgeries can be VERY predictable, depending on your skill and case selection. Since embarking on this new CEREC-GALILEOS journey in November 2010, I've placed 20 guided implants and am now beginning to restore some of those cases. With the integration of these two technologies, our office is able to provide simplified treatment for single-unit cases, as well as large multi-unit cases. Let's look at a case study.

A 70-year-old female patient who had existing #12-14 individual PFMs with RCTs (Figure 1) presented to the office with a chief complaint of mild pain in the upper-left quadrant. Radiographic and clinical examination showed failing root canals, which were non-restorable due to the extensive decay. Different treatment plans were discussed, and the patient decided to proceed with implants.

The teeth were extracted, and the area grafted with approximately six months planned for healing time. When it was time to start the planning, we took a 3-D-scan with the GALILEOS and started the CEREC/GALILEOS integration process. While you can virtually wax-up the case using the CEREC, in this particular case, the laboratory waxed-up #12-14, which was then scanned using the CEREC, and the digital model was transferred to the GALILEOS, where the information was used to plan the placement of the implants through the long axis of the teeth (Figure 2; Figure 3, on facing page).

The information and data from the scan and integration was sent to SICAT for fabrication of the surgical guide. It typically takes about five to seven days for the surgical guide to return to the office (Figure 4).

On the day of surgery, clinical examination revealed a healthy, wide ridge with adequate attached tissue (Figure 5). Therefore, the plan was to complete the surgery flapless. The surgical guide was placed, and a tissue punch was used in the area of the osteotomy (Figure 6).


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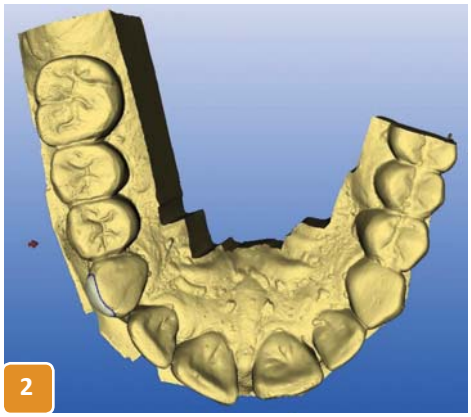
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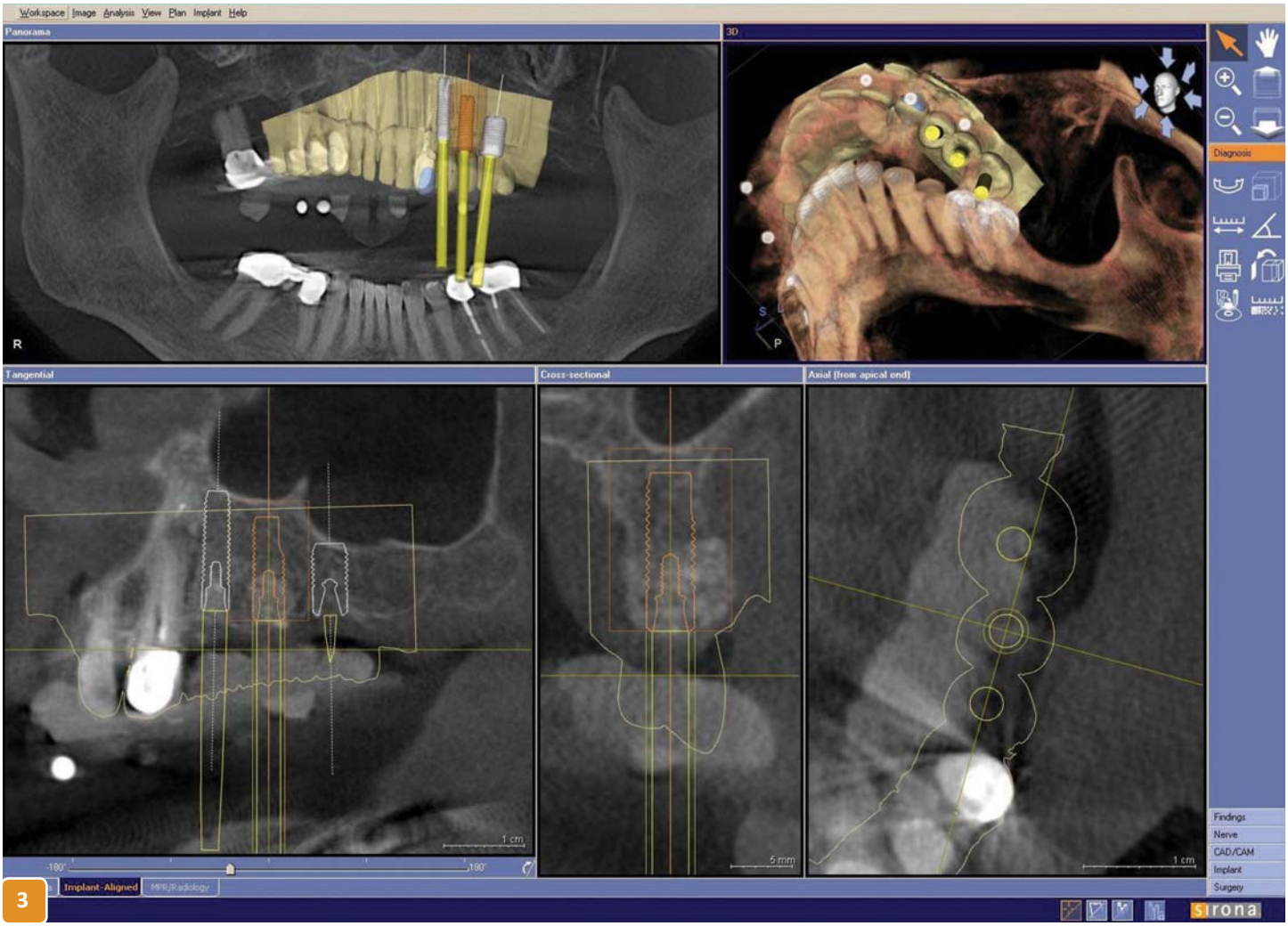

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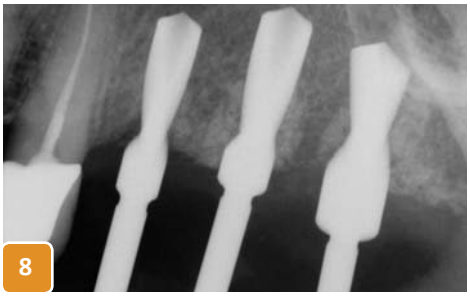

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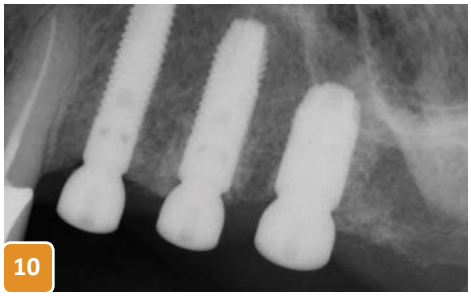

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Using sequentially larger drills, the surgery was completed in less than 30 minutes (Figures 7, 8). The implants were placed atraumatically, and the following Astra implants were used: #12 = 3.5x15; #13 = 4.0x13; #14 = 5.0x9 (Figure 9). Although the periapical X-ray shows that #14 is perforating the sinus, the CEREC/GALILEOS planning allowed us to actually keep the implant approximately 1 mm away from the sinus (Figure 10).

We allowed approximately four months to pass before taking final impressions. The patient returned to


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18

the office, and clinical examination showed healthy tissue and well-placed implants (Figures 11, 12). The healing caps were removed, and the impression copings were placed (Figure 13). An open-ray PVS impression of the copings was made, and the implant analogs were placed into the impression (Figure 14).

The impression was sent to Atlantis for fabrication of custom abutments to allow for proper emergence profile (Figure 15). While you can easily scan the case with the CEREC and fabricate the final restorations from e.max, in this particular case I elected to use PFM restorations to better block out the custom metal abutments. The abutments and final PFM restorations were returned to the office for final delivery (Figure 16).

The abutments were torqued in place using the appropriate drivers (Figures 17, 18). The PFM restorations were cemented in place, and the patient was dismissed after appropriate occlusal adjustment.

Utilizing the CEREC/GALILEOS integration allowed our office to restore this patient in an ideal manner, with excellent results and great benefits (i.e., shortened surgery time, maximizing the length/width of implants without the need for a sinus lift, non-invasive approach, ideal position/placement, etc.). Both the patient and office benefited from the marriage between the CEREC and GALILEOS technologies. ❖

For questions and more information, Dr. Yu can be reached at johnsyudds@gmail.com.

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CEREC – e.max Over Implant

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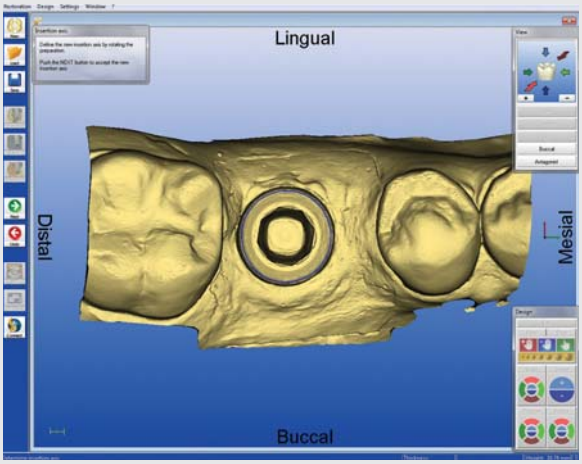
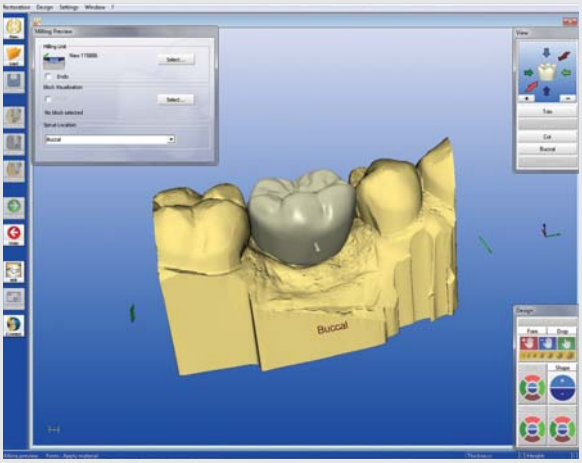
» In this recurring section of *cerecdoctors.com* magazine, we like to share a sample of the different conversations that are occurring online.

A self-proclaimed "CEREC Geek" from Murrieta, Calif., shares photos and tips from his latest e.max case with fellow CEREC enthusiasts, firing up a conversation on the benefits of impressions/tissue mock-ups versus intraoral scanning.

Frankie Acosta
Murrieta, Calif.

» I just wanted to share a case that I had a lot of fun doing … since I am a CEREC Geek! LOL. A quick little e. max:





I hope Doc sends me a final pic! Let me know what you think!

Michael Mingle
Aurora, Colo.

» Very nice.

Jeffrey Caso
(Faculty)
Merrick, N.Y.

» That looks gorgeous. Nice, neat work.

Peter Gardell
(Faculty)
Stamford, Conn.

» Interesting. You have the CDT?

Frankie Acosta
Murrieta, Calif.

» Thank you! This case was a lot of fun to do! Peter, why interesting? I do have the file, I'm just not at the lab right now.

Mike Skramstad
(Faculty)
Orono, Minn.

» I'd like to see that too, Frankie. I can't quite make out what you did just by the pics.

Sean Prange
Parksville, B.C.

» I just did one of those yesterday with a stock abutment (impression-less). I normally send them off to my lab, but timing was a huge issue. The final result was nice, but not as aesthetic as the case posted. Her mouth is filled with worn PFMs of every shade and opacity. The entire appointment took less than 90 minutes, and I gave her a decent discount (I managed to squeeze in three extractions during her appointment). Anyway, for molars and second premolars, is there any real benefit to impressions/tissue mock-ups versus intraoral scanning?

On a different note, one of the oral surgeons I refer to has an in-house lab. The patients usually return with a custom abutment and a very nice temporary porcelain crown. They're so nice that the last few cases I simply did a correlation of the temporary crown and called it a day.

Jeffrey Caso
(Faculty)
Merrick, N.Y.

» Sean, I tend to do more screw-retained restorations in the posterior, so they are two visits for me. The overriding criteria for impressions and models versus directly imaging in the mouth is the implant placement itself. If it's really good and the abutment only needs minor modification, then I will go direct. If the placement is poor, then I like to do it off of a model. They all can be done direct but it becomes a time issue.

Frankie Acosta
Murrieta, Calif.

» Mike, are you trying to tell me I have to give up my ANCIENT CUBAN SECRETS?! LOL. Not really much to it. I worked on getting a real good scan and trimmed it as close as I could so I would be able to pick my margins. Finally used some of the design tools and a little Control B!

Jim Woltmann
Massapequa, N.Y.

» Are there videos that demonstrate how to do a case like this as a screw-retained restoration?

Sean Prange
Parksville, B.C.

» Hi Jeff,

Since I've seen several types of "screw-retained" implant crowns, I'm assuming that you are referring to an abutment/crown combination that has the hole closed by either a porcelain plug or composite. I can see the benefits of this (no worry about cement sepsis). Maybe I'm lucky or possibly I haven't restored enough … but I have yet to image an implant that wasn't nearly perfectly located. I guess the only thing that has been holding me back from screw-retained crowns is the horribly high lab fees that I've been quoted from a few local labs.

Mike Skramstad
(Faculty)
Orono, Minn.

» Frankie -

What did you use for an abutment?

Mike Skramstad
(Faculty)
Orono, Minn.

» I used to do a lot more screw-retained restorations (especially on upper molars). I feel like you almost have to do screw-retained to get a great emergence profile using a stock abutment.

Alas, the only time I use stock abutments anymore is on maxillary anterior teeth that the implant placement is slightly rotated. Other than that, all custom abutments for me. With a good custom abutment, you can predictably control emergence, margin height/placement and avoid cement sepsis.

Another great thing is that you can mill a custom abutment for the price (roughly) of a stock abutment. I know some people have a concern about "bonding" the zirconia abutment to the titanium base (tibase), but trust me, this is a more predictable connection than having the zirconia itself go into the fixture. I've spoken to Astra and they have had many problems with this connection fracturing.

If you would have spoken to me last year, I would have been the opposite and told you all to screw-retain all the way. Now, I've changed my mind. Custom abutments and cementable restorations are the way for me.

BTW, all are done indirect. Very little chair time involved.

Frankie Acosta
Murrieta, Calif.

Mike Skramstad (Faculty): Frankie - What did you use for an abutment?

» It's a screw-retained abutment. I covered the hole with a little bit of wax before I scanned it!

Jeffrey Caso
(Faculty)
Merrick, N.Y.

» Sean, when I say screw-retained I mean an e.max crown cemented to a custom or preferably prefab abutment out of the mouth, and then the usual screw hole through the occlusal to place it. This is done by me without a lab fee. Let me know if you need more info.

— Jeff

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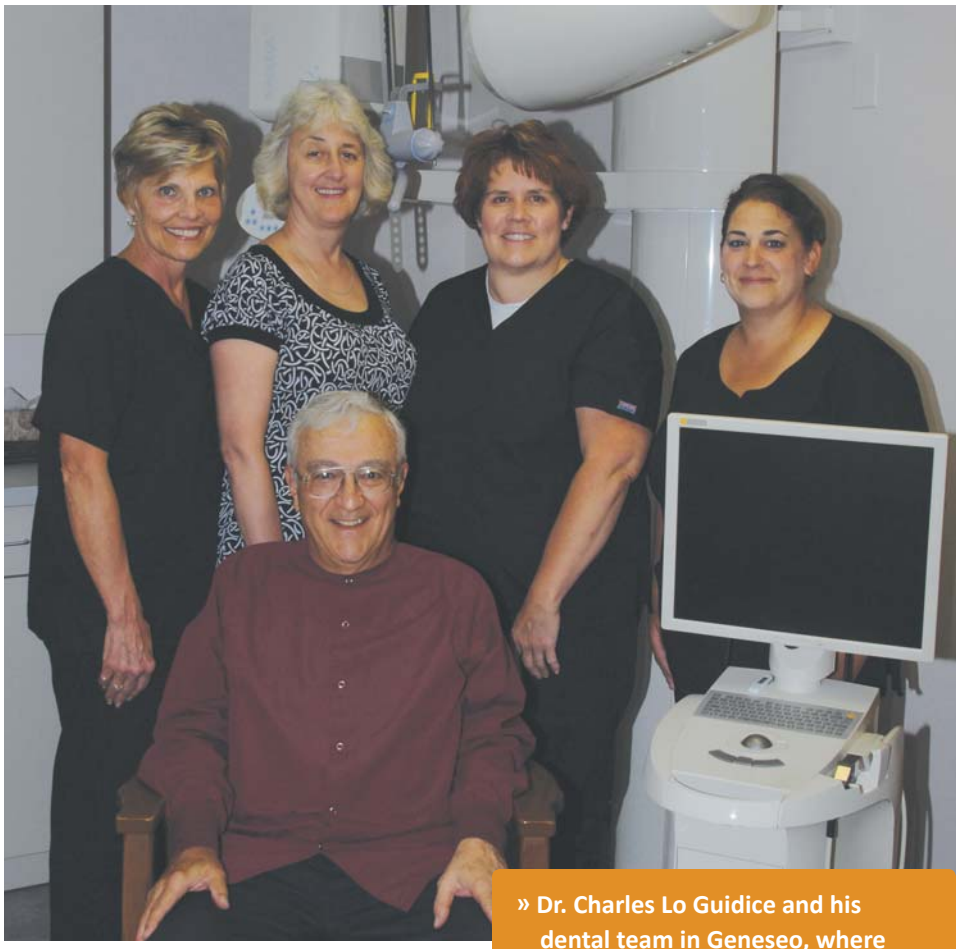
PROFILE

Meet Dr. Chuck

BY MARK FLEMING, D.D.S.

With four decades in dentistry, Dr. Charles Lo Guidice owns a one-doctor operation not far from where he graduated dental school in Illinois. In addition to running a busy practice, he finds time to give back to his community by seeing public aid patients. Here, he discusses his passion for CEREC, and how the technology allows him to produce high-quality work.



» Dr. Charles Lo Guidice and his dental team in Geneseo, where he's been practicing for 37 years.

Q: *How long have you been in practice?*

A: Forty years. I graduated from dental school at the University of Illinois at Chicago in 1971. I served a one-year rotating dental internship at Fort Sill, Okla., followed by 14 months at Fort Wolters, Texas, and served my final 10 months at Fort Hood, Texas. I've been practicing in Geneseo, Ill., since July 1974.

Q: *What is the size of your practice?*

A: I am a solo practitioner with one hygienist, one receptionist, one full-time dental assistant and one part-time dental assistant. I have somewhere between 1,800 and 2,000 active patients.

Q: *How many operatories does it have?*

A: We have three operatories, two that I work out of and one hygiene room. I built my office in 1975, and the size is only 1,000 sq. ft. With 20/20 hindsight, I wish I had built larger. I have no consultation room or break room for my employees, my waiting room is small, and my operatories are only 10' x 10'. But at this point in my career I have no appetite for starting a building project.

Q: *What type of dentistry do you do?*

A: I am a general practitioner. I treat adults and children. I do the usual operative procedures and crown and bridge. I do most of my own extractions, including impacted third molars if the patient doesn't want IV sedation, and endo. I have a Lares PowerLase, and I use that for perio, endo and operative dentistry. The laser allows me to do most of my simple operative procedures without local anesthesia, which is really great for children. I also have Schick digital radiography as well as a GALILEOS, so I feel that I am up-to-date with technology. I don't currently do any ortho. I am looking at 6 Month Smiles to remedy that. I try to "give back" by treating as many public aid patients as I can afford.

Q: *Why did you choose CEREC as your CAD/CAM choice?*

A: I chose CEREC because it has the longest successful track record of all

the CAD/CAM systems out there and it has the most research behind it. Also, the service from my local Patterson branch is superior, and I knew that they would keep me up and running. I have not been disappointed.

Q: *How does this technology fit into your office philosophy?*

A: I tend to be obsessive about the quality of my work. I think that the overall quality of my dentistry has improved with CEREC. Margins are great, and I love the interproximal contours I get with my CEREC. I especially love the disappearance of the occasional overhang I used to get with amalgam. CEREC allows me to produce the kind of quality I want easier than how I was doing it before.

Q: *How does CEREC impact your practice?*

A: The most important factor that motivated me to get into CEREC dentistry was the disappointing results I was getting from my lab. I felt that I had an unacceptably high percentage of porcelain debonds with the PFM crowns I was getting from my local laboratory. I was frustrated. It seemed logical to me that the porcelain in a monolithic ceramic crown would be more durable and reliable than porcelain bonded to a metal coping by Van De Wale's forces. My lab bills with CEREC have been reduced from $5,000-$6,000 per month to just a few hundred dollars per month. I had to develop a different scheduling strategy, but I didn't find that to be difficult. The work flow was the biggest challenge, but the training I received at Scottsdale Center for Dentistry really helped with that.

Q: *What is your favorite CEREC procedure?*

A: My favorite CEREC procedure is the single anterior crown, which I design in Correlation from a study model I have waxed myself. I enjoy the challenge of that, and the Empress and Vita materials so closely mimic tooth enamel that these crowns are a vast esthetic improvement over PFMs or PFZs.

Q: *What is your most unique CEREC procedure?*

A: I would have to say it is a single visit combining a laser crown lengthening using my hard-tissue laser and a crown made with my CEREC, with or without a post and core. I can't boast of anything exotic.

Q: *If someone was to take your CEREC away today, you would …?*

A: Retire if I couldn't hunt them down and get it back.

I have been asked about the decision-making process that led to my purchasing a GALILEOS CBCT scanner. The process was uncomplicated. I bought my CEREC system at a good time. The local economy was good and I was experiencing a nice little spike in crown and bridge demand in my practice. My CEREC system had more than paid for itself in less than two years. So not only was I sitting on a paid-up CEREC 3-D system, but my little rainy-day reserve was looking pretty healthy thanks to the CEREC. Then, lo and behold, I received an invitation to attend a 3-D Summit in Scottsdale, Ariz. I was blown away seeing what Neal Patel, Jay Reznick and Tarun Agarwal were showing. I wanted my patients and myself to have the advantages of this technology.

The price was daunting, but having already acquired a hard-tissue laser and CEREC system, I had been softened up considerably. The 3-D Summit discount offered at that time, Patterson finding a buyer for my digital pan and the Section 179 Investment tax credit reduced my actual cash outlay for the GALILEOS to a little less than half the listed purchase price. What also helped was that my wife attended the 3-D Summit with me and went to most of the lectures. She was as enthusiastic about the GALILEOS as I was. So I decided to go for it before she changed her mind.

I committed to purchase my GALILEOS Compact at the November, 2009 3-D Summit in Scottsdale. I have not placed any implants myself, but the periodontist I work with only needed one guided implant placement to become enthusiastic about the process. He refers many of his patients to me for scans and surgical guides. Two orthodontists also refer patients for scans when they have impacted maxillary canines to deal with. I have not made any life-saving discoveries with my GALILEOS, but I have found a few failing endos. I would not want to go back to 2-D imaging having experienced the increase in useful information I receive from a 3-D Cone Beam scan. ❖

For questions and more information, Dr. Chuck can be reached at logiudic@geneseo.net.

CASE STUDY

Plan Your Reality: Custom Millable Abutments

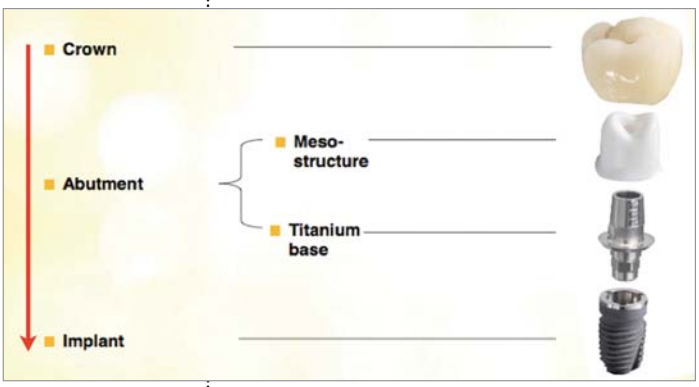
BY MIKE SKRAMSTAD, D.D.S.

We all know planning is key; how many times, as dentists, have we had that thought when developing a plan for treatment? If you are like me, a lot. Because if you don't know what your goals are before you start, you are often doomed to fail. However, even with the best planning, a case can often go astray. We have all been there, some of us multiple times.

Let's visualize a typical implant case. We impression for diagnostic models and do a wax-up for a surgical guide. Perhaps the surgeon even decides to use this guide for the surgery. Everything seems to be going as planned — until you get the abutment seated on the fixture and realize it's going to be a tremendous struggle to restore. We've all been there all too many times.

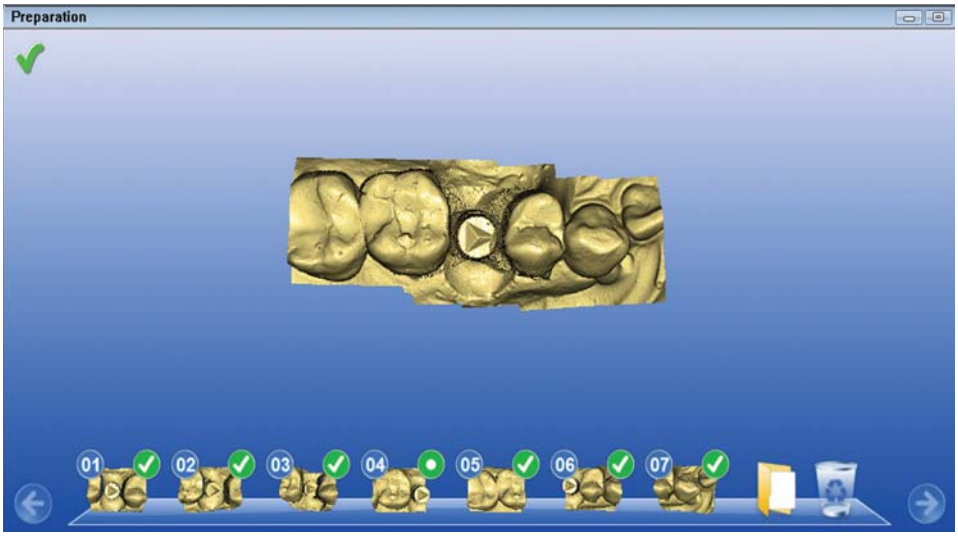
With the advent of Cone Beam technology and the Sirona GALILEOS/CEREC integration, the implant placement has become less of an issue. In fact, it's extremely predictable. Prosthetic-driven treatment planning is the new standard of care with implant dentistry. However, how are we restoring the tooth once the implant has been placed? In this case study, I'll show how the Sirona inLab software allows you to take the idea of prosthetic-driven treatment to a new level. Creating custom millable abutments based on your final desired result makes restoring implants easy. Better yet, you can do it all yourself.

True prosthetic-driven treatment planning requires a software that allows your plan to become reality. Sirona has done just that with the inLab millable custom abutments. No longer do I have to be concerned with a plan going astray. Predictability and control; isn't that what dentistry should be all about?

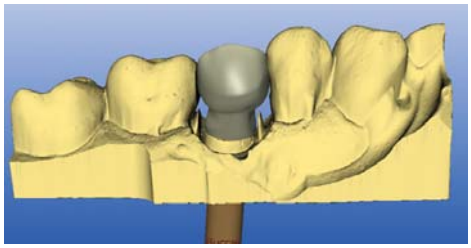


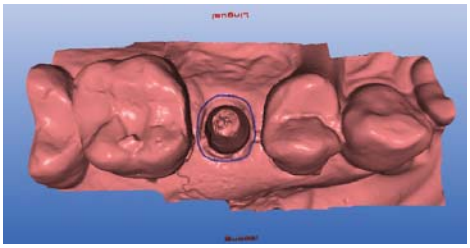
1 The idea of prosthetic-based abutment design is illustrated here. We go from restoration to abutment. The process will be designing the biogeneric crown first and, based on the design, the software will reduce the crown to an anatomical abutment. The zirconia abutment is milled from a Sirona Meso block and bonded to a titanium base. The Meso block has a premilled attachment, so the fit to the tibase is perfect every time. We also have the advantage of having a titanium attachment to the fixture, giving us strength and predictability.

2 Implant level impression post (closed tray) taken for an Astra 4.5 implant to replace tooth #13. Working off a model when restoring implants has tremendous advantages because it minimizes the amount of tissue manipulation needed intraorally.

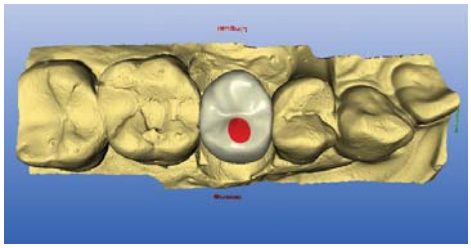


3 Once we have a working model, we place the tibase on the analog and use a scan body to identify both implant position and implant type for the abutment.

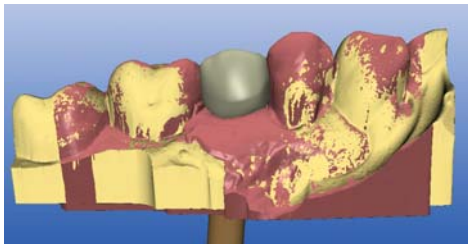




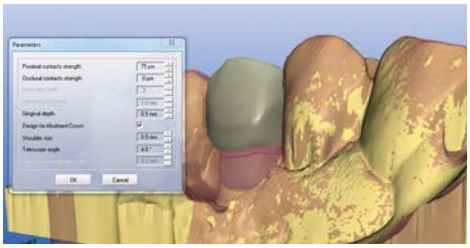
4 We also scan a gingivamask model. That is, we scan the zenith of the tissue around the fixture. As you can see in this illustration, we draw the margin directly on the tissue. This will allow us to manipulate the abutment margin in exact relation to the tissue height.



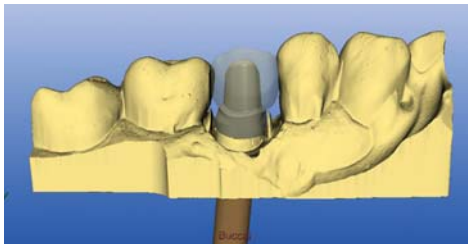
5 Using the tools and features of the CEREC software, we design a full contour biogeneric crown. There is no consideration at this point to the implant abutment. We are just setting up exactly what we want our final restoration to look like, planning our final restoration before the abutment. Prosthetic-driven planning at its fullest.



6,7 If we rotate the model to the buccal view, you can see the design of the crown and the beginnings of the emergence profile of the abutment. By activating the gingivamask, you can see the restoration in relation to the tissue. This allows you to design the crown avoiding any open gingival embrasures and food traps. You have total control.

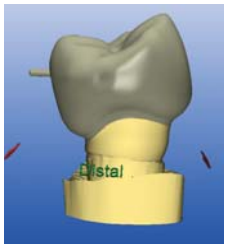


8 At this stage we begin the reduction of the biogeneric crown into the final anatomical abutment. The pink line designates exactly where the abutment margin will be. You can use the very intuitive parameters of the abutment software to control the reduction. In this case I set the gingival depth at .5 mm. Meaning, I want the abutment margin to be exactly .5 mm subgingival. You also can control the shoulder size, gingival pressure and telescope angle of the abutment.



9 Reduction of the biogeneric crown proposal to the anatomical abutment. You can see that I was able control the emergence profile and tissue profile of the abutment with the software. You also can see the transparent crown overlaying the abutment. The software will remember exactly what it has reduced. I will illustrate the importance of this later.

10 The milling preview of the zirconia abutment. You can see how the margins are flowing and follow the profile of the tissue. In fact, the margins are a uniform .5 mm subgingival. You also have the option of custom drawing the margins of the abutment if you choose to have some areas more subgingival or supragingival than others. You always have complete control. This will be milled out of a Sirona Meso block and sintered accordingly.



➤11 Figure 9 illustrated how the reduced crown is transparent over the abutment. The software remembers this exactly and it can be opened up in the software. You can mill this crown out of the appropriate material. Both the crown and anatomical abutment form a single design. The fit is pristine because there is no prepping involved. The software takes care of everything.

▲12 Milled and sintered abutment bonded to the tibase and seated on the analog. Creating a custom abutment in this way allows you to place the margins in a position that creates optimum success based on the case.

▲13 Milled, crystallized, and stained/glazed e.max LT block seated on the custom abutment. Crown will always have a pristine fit to the abutment since the software "split" the full contour crown into the abutment. No prepping ever means ultimate predictability.

◂14,15 Abutment torqued into place intraorally. You can see that the software is exact. The margins are exactly .5 mm sub-gingival and in an optimal position to cement/bond your restoration. As with all custom abutments, the diameter of the abutment is designed in a way to maximize restorative success.

◂16,17 Final e.max crown bonded to the abutment. ❖

For questions or more information, Dr. Skramstad can be reached at Skramy@hotmail.com.

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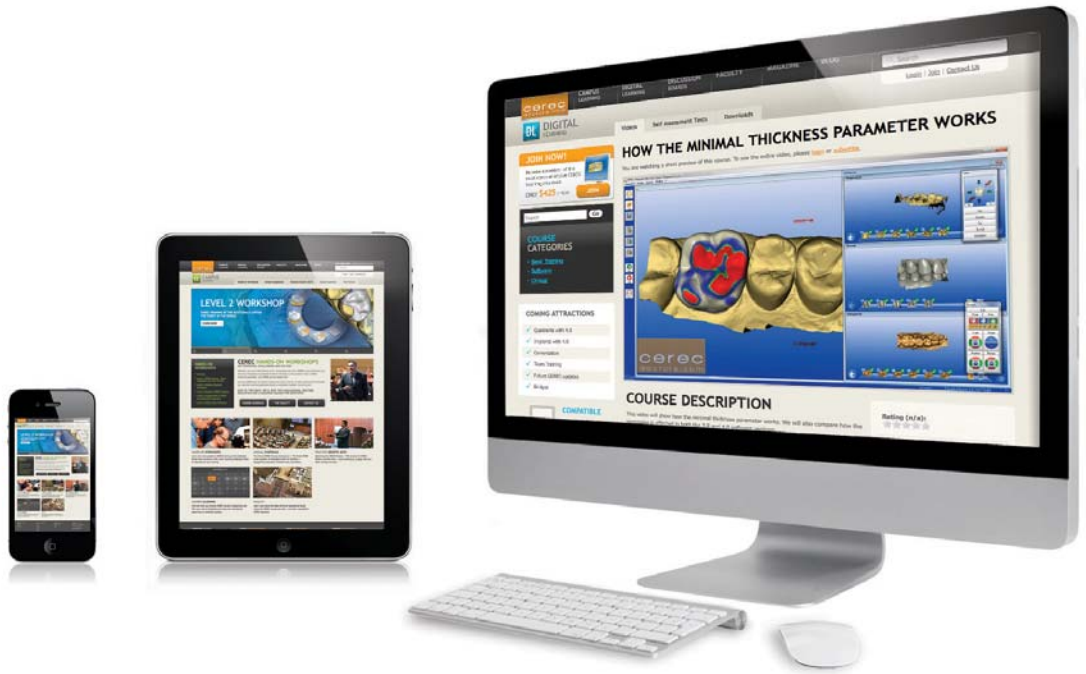

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How It Started

BY SAMEER PURI, D.D.S.

Recently, Dr. Gregory Mark started a thread on cerecdoctors.com titled "How it Started." He shares his story of practicing dentistry in his home country of the former Soviet Union where he was only given 30 minutes per procedure – no matter what the procedure. He performed this work with a slow-speed handpiece and without gloves. This was back in 1988, so for him it is quite different now than 20+ years ago.

This story inspired me to look back on how cerecdoctors.com started. Armen and I met while he was doing a CEREC demo for me at the Sirona booth at the California Dental Association meeting back in 2002. I wasn't a CEREC owner at the time, but having seen the machine and experienced it in my residency, I knew that it would fit well in my style of practice. Armen's validation helped me to make the leap and incorporate the system into my patient care.

We began teaching basic training together, which led to starting our advanced training from the local Los Angeles Patterson branch. We immediately experienced success – the courses were full and we were both able to share our CEREC knowledge with other like-minded clinicians. After one course, Armen made a video on some basic CEREC concepts from the version 1.8 software. He uploaded it, and the next thing we knew, that particular video had been downloaded and watched some 400 times in just one week; 400 times for an amateur attempt at a teaching video!

The light bulb definitely went on at that point, and we realized that there was a market for our services of teaching the CEREC software online in addition to teaching it in person. So we hired a Web design company to create the website, sent out a one-page marketing letter announcement and, just like that, cerecdoctors.com was born. The proceeds from the first marketing letter paid for the programming, and the rest, as they say, is history.

From those humble beginnings, cerecdoctors.com has grown into the largest online CEREC resource in the world. After five years, eight servers, four programming teams and hundreds of videos, and with the help of countless members from all corners of the world who have utilized the website, cerecdoctors.com has become the world's preeminent CEREC destination.

As a testament to our site's relevance, one must only look to the website stats. The average user spends close to 18 minutes on cerecdoctors.com with each visit. Consider that there are very few websites out there that have a higher per-visit number. Recent YouTube stats show that their average users spend about 24 minutes per visit. I'd like to think that cerecdoctors.com is in pretty good company.

> For starters, CEREC users can join for free, giving them access to our discussion board. Users who want to take advantage of the full site benefits can pay an annual fee.

As we look to the future, I'm happy to reveal some exciting new features. For starters, CEREC users can join for free, giving them access to our discussion board. Users who want to take advantage of the full site benefits can pay an annual fee. Non-members can get a 30-second preview of every video to make sure the content is relevant to them.

No doubt cerecdoctors.com will stay on the forefront of CEREC education. Any time something new and exciting is released, you will find it on cerecdoctors.com first. And as the CEREC community grows, so will our little website. I want to personally thank you for the success we have had during the past five years. It's been an amazing ride – and I look for forward to the next five. ❖

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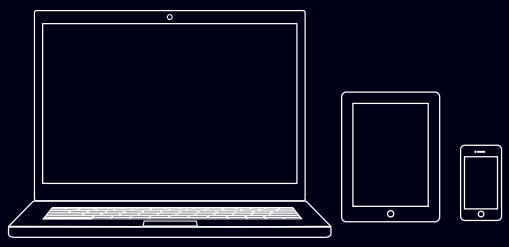

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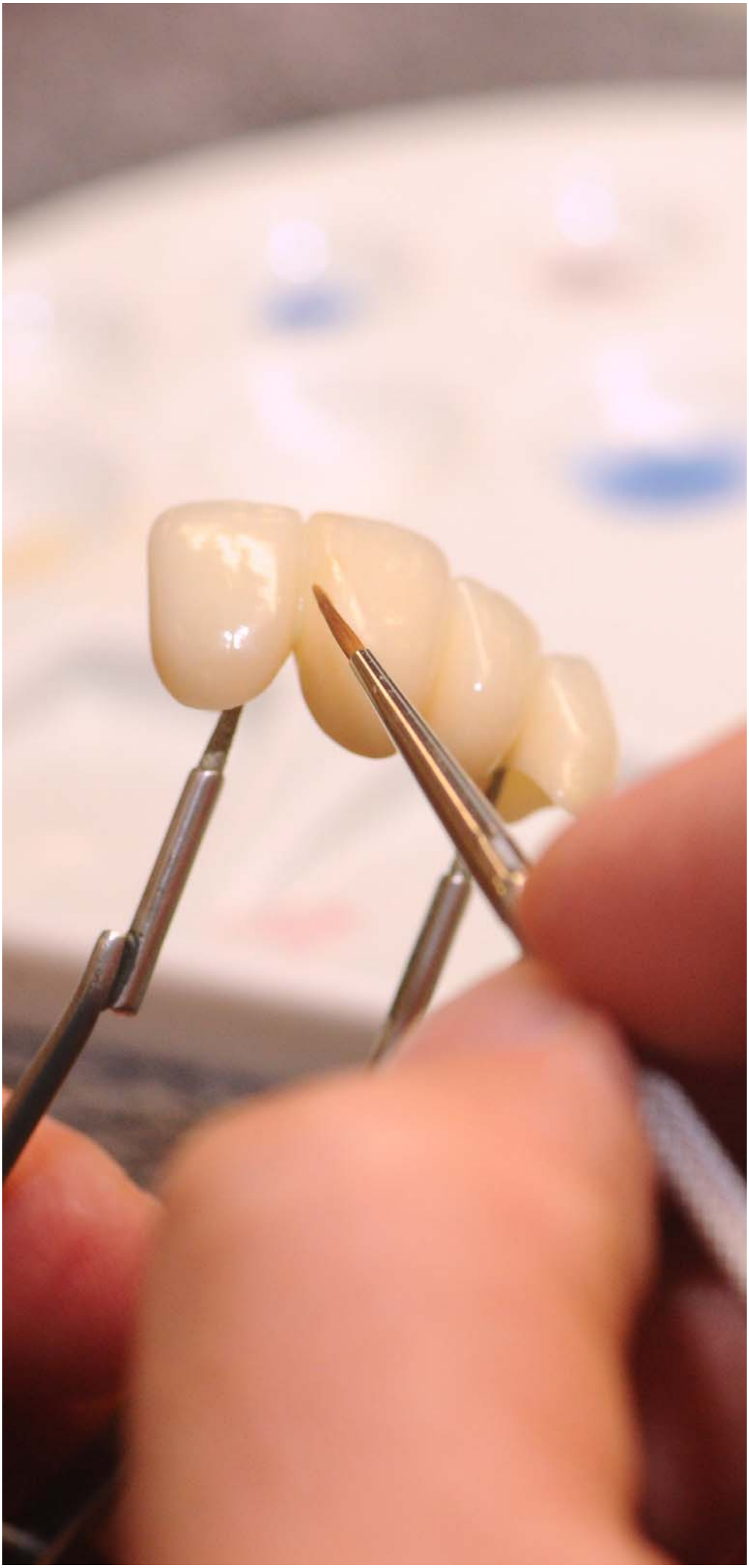

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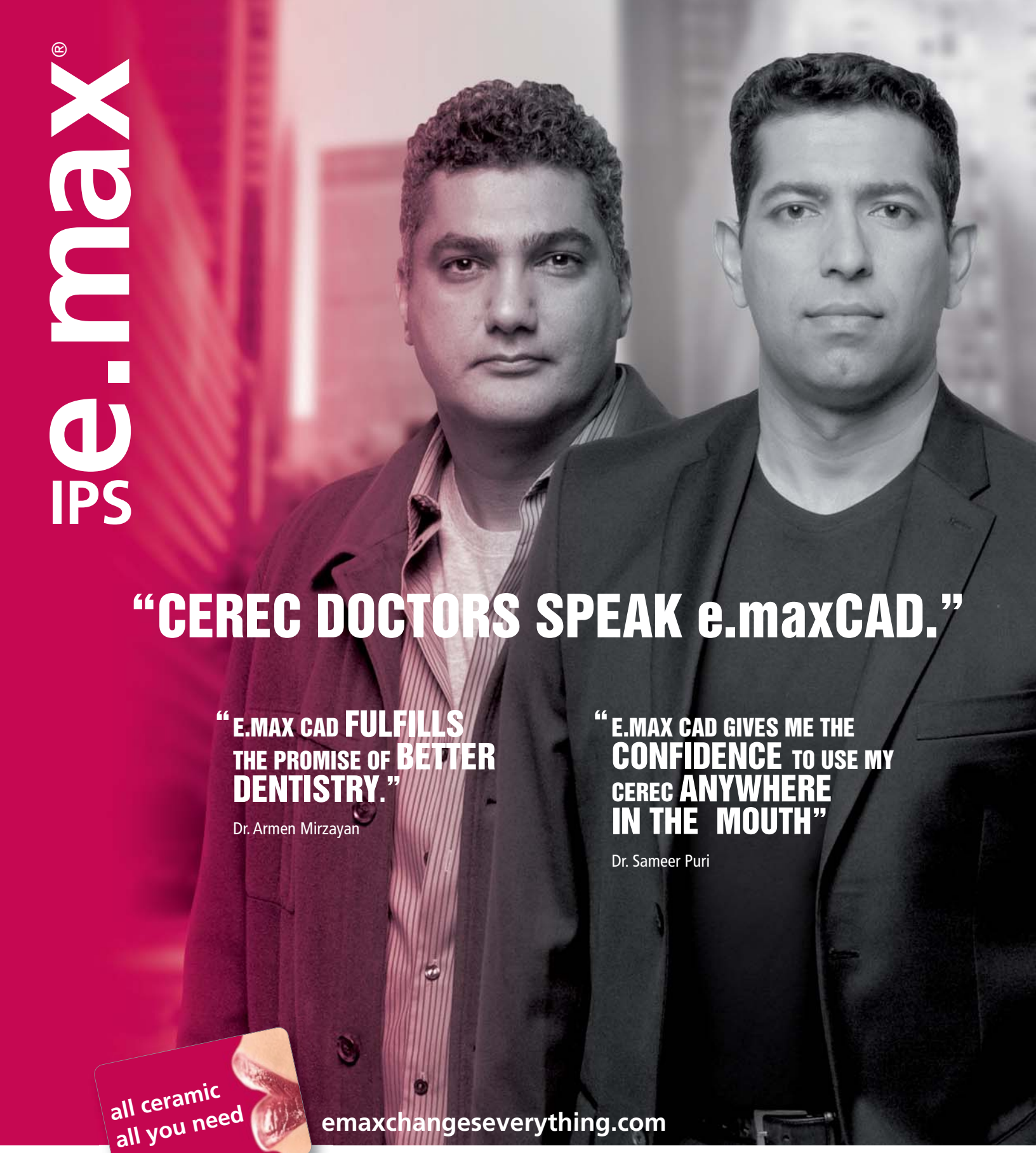

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