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CEREC & IMPLANTS PART II

» Tarun Agarwal, DDS

CASE STUDY: CLINICAL GUIDELINES TO CREATE NATURAL DEPTH OF TRANSLUCENCY

» Robert Winter, DDS

CEREC TECHNOLOGY: THOUGHTS FROM A NEW USER

» Mike Scoles, DMD

AT THE CENTER OF CEREC

CEO IMTIAZ MANJI'S CEREC INSIGHT

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Contents

FROM THE EDITORS

No Ordinary Moments

MARK FLEMING, DDS & DARREN GREENHALGH, DDS

Author Dan Millman wrote "There are no ordinary moments." Each of our lives is a myriad of possibilities, both inside and outside the practice. We can choose at every moment how to deal with these opportunities — do we grab on to them or let them slip by?

This issue of *CERECDoctors.com The Magazine* explores some of the moments that present themselves while utilizing CEREC technology.

We bring you an interview with noted businessman and visionary Imtiaz Manji, whose workshops have helped thousands of dentists identify and achieve their own versions of success. Mr. Manji touches on what makes dentists successful, how the Scottsdale Center of Dentistry vision became a reality, and how dentists can thrive in the current economic environment.

CEREC technology is ever evolving, and we'll focus on new ways to integrate CEREC into your practice. In the second part of his implants article, Dr. Tarun Agawal continues to shed light on 3D workflow for implant placement using the CEREC and GALILEOS integration. Dr. Javier Andrade presents two different approaches to placing anterior restorations.

We know one needs to do their due diligence when considering the purchase of CEREC technology. New owner Dr. Mike Scoles shares with us his CEREC purchase process, entailing how he explored the possibilities, committed to using the technology at a high level and is now reaping the benefits of this exciting technology.

Dr. Sameer Puri explains how to use replication, a sometimes forgotten way of creating restorations. Also, in his "Happenings" column, he shares how and why, in these economic times, he and his partner decided to redo and update their office. Dr. Puri is an example of what Mr. Manji talks about; that success is a by-product of being in love with what you do, engaged at the highest level.

Yes, there are no ordinary moments, but a world of opportunity at every turn. Here at *CERECDoctors.com The Magazine*, our goal is to provide you with the latest techniques, tools and technology to help you perfect your skills and make the most of these moments, these possibilities and your CEREC experience. We hope you enjoy this issue.

» Dr. Sameer Puri uses a Zeiss operating microscope, part of the updated equipment he has purchased for his practice.

CEREC & GALILEOS – 3D WORKFLOW

CEREC & Implants: Part II

TARUN AGARWAL, DDS

In the previous issue of *CERECDoctors.com The Magazine*, we took a look at a current restorative modality for dental implants using CEREC and gave you a sneak peek into the CEREC & GALILEOS integration. At this time I would like to take a more in depth look at the 3D workflow for planning implant placement using the CEREC & GALILEOS integration.

HOW IT WORKS

In order to use the integration, it is necessary to have access to two items – CEREC and GALILEOS CBCT (Figures 1 & 2). For the integration you are provided with a special version of CEREC software that will allow export of CEREC data directly into GALILEOS Implant software.

You begin by capturing an optical impression of your patient's quadrant – including missing tooth, soft tissue information, and adjacent teeth (Figure 3). At a minimum you are required to capture one tooth on each side of the missing tooth. Additionally, you can acquire a bite registration to assist in restoration design (Figure 4), but it is not necessary.

After you capture the optical images, you green arrow forward and design your restoration as usual. Simply outline a close approximation of your margin (Figure 5) and choose the appropriate tooth morphology. Now you have your proposal and can make any adjustments you desire (Figure 6). Green

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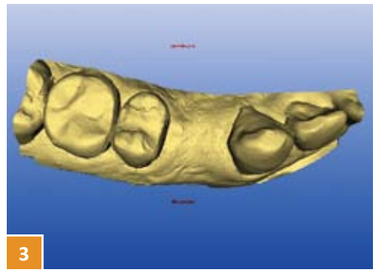
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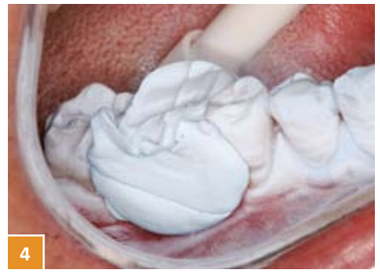
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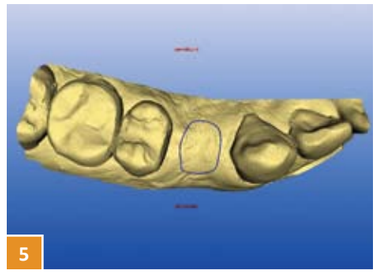
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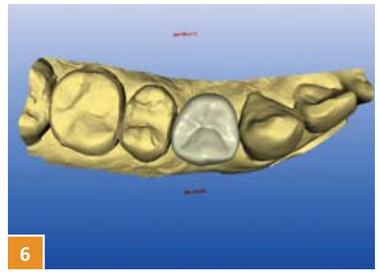
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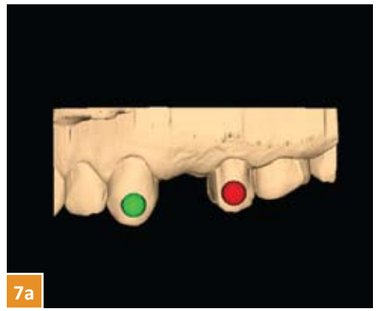
"Since investing in the GALILEOS for my practice, I have seen a dramatic increase in the number and quality of implant procedures. **The CEREC and GALILEOS integration provides the comfort and confidence needed.**"

— TARUN AGARWAL, DDS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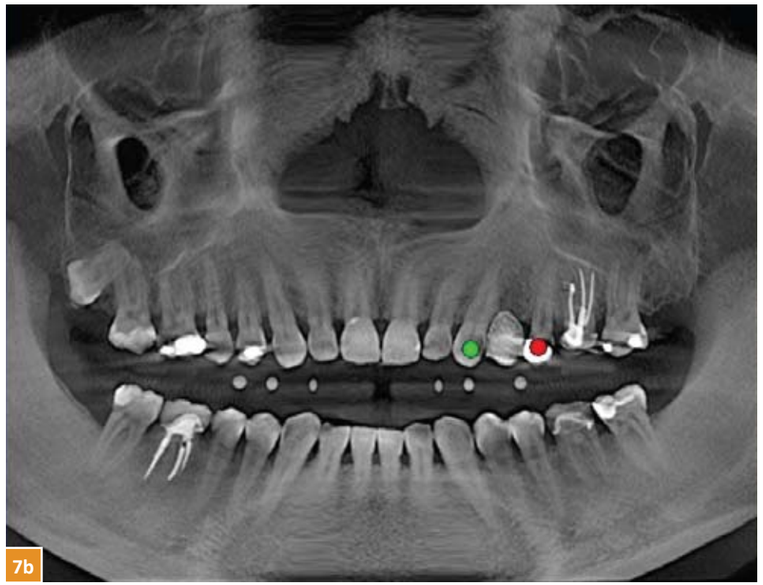
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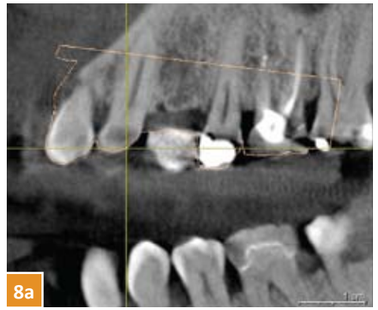
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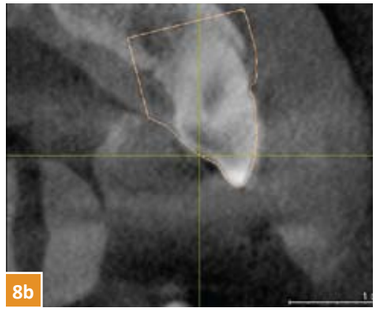
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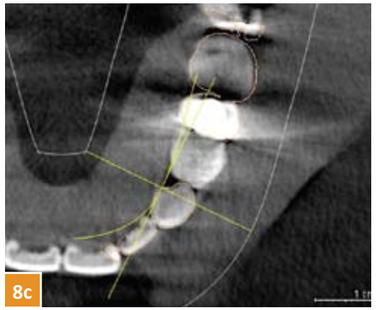
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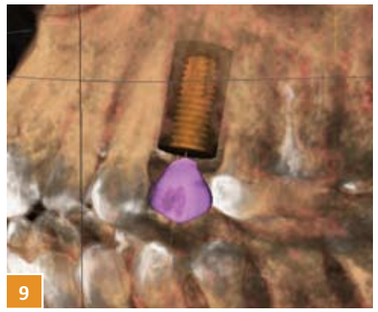
arrow forward to the mill preview, but instead of clicking the 'mill' icon, export the restoration using the .SSI extension. This .SSI is a proprietary export format that can only be read by GALILEOS Implant software.

Once you have your exported restoration design, you are ready to import the CEREC data into the GALILEOS Implant software. This is accomplished by opening a 3D image and selecting the tooth you would like to plan and the .SSI file to use. The software works by registering the CEREC data onto the 3D GALILEOS data. You assist the software by marking the teeth for registration in each software. For example, in this case we marked #11 with a green dot and #13 with red dot on both the CEREC and GALILEOS images (Figures 7a & 7b). The integration then runs through a complex, proprietary registration algorithm to align the images. It is imperative that you verify the registration by viewing the outlines through multiple slices. A proper registration will have a tight outline of the CEREC data (orange lines) over the GALILEOS image (Figures 8a, 8b & 8c).

Once you have approved the registration you can plan the implant position knowing your final restorative outcome (Figures 9 & 10)!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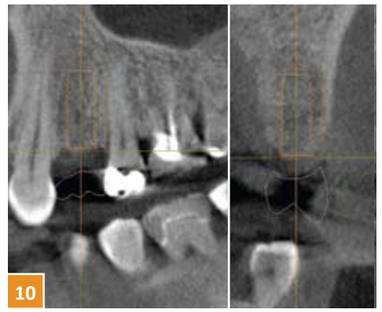
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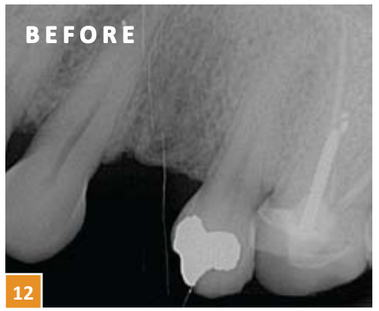

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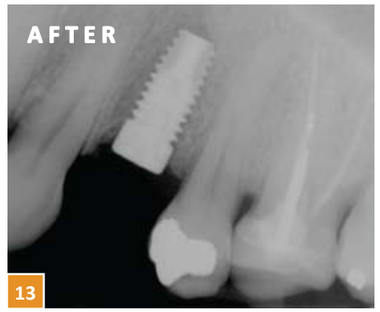

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WHAT ARE THE BENEFITS?

Having planned the restoration utilizing the integration provides numerous benefits.

The first benefit is quite obvious; knowing your final tooth position is invaluable in implant planning. Using this combination of data you can visualize the location and amount of bone for implant placement along with tooth position. Here you can decide if the bone will allow for ideal implant placement along the long axis of the restoration. If this is not possible, you can make an educated decision regarding compromising and using a custom abutment or choosing a bone graft to keep ideal implant position.

What about cost savings? Cost savings is realized from integration in a number of ways. First, by having all the knowledge of implant and restorative position, you can typically plan an implant to utilize stock abutments and often avoid the costly use of custom abutments. Additionally, you can minimize your inventory. The integration allows you to know in advance exactly what size and length of implant is necessary for each case. This allows you to order each implant specifically for the patient and not keep numerous implants in inventory.

Perhaps the most important benefit is making implant placement more predictable, comfortable, and achievable for general dentists. Dr. Gordon Christensen says that single tooth implant placement is a procedure easily accomplished by the general dentist. Yet, the vast majority of GPs don't place implants.

The integration further allows you to have a surgical placement guide to assist in placement of the dental implant (Figure 11). This guide will help control the angulation and depth of the implant and provide precise implant placement positioning (Figures 12 & 13).

I can tell you from personal experience that since investing in the GALILEOS for my practice, I have seen a dramatic increase in the number and quality of implant procedures. The CEREC & GALILEOS integration provides the comfort and confidence needed.

Technology around us is rapidly advancing and the combination of these technologies will reap many rewards for those who choose to invest and integrate these technologies at the highest level. As CEREC doctors, you are fortunate to be on the forefront of these advancements.

WHAT'S NEXT

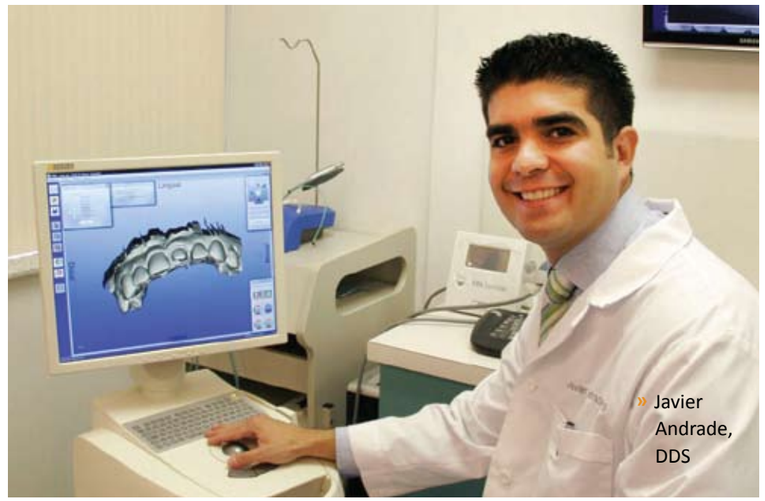
Just when you think you've seen it all, CEREC is enhanced with another patient and practice benefit! In the next issue of *CERECDoctors.com The Magazine*, I will showcase the use of CEREC to completely place and restore an implant with digital impressions. This includes surgical guided placement, implant level digital impression, custom zirconia abutment, and final restoration!

TWO DIFFERENT APPROACHES TO CAD/CAM

Direct and Indirect CEREC Restorations

JAVIER ANDRADE, DDS

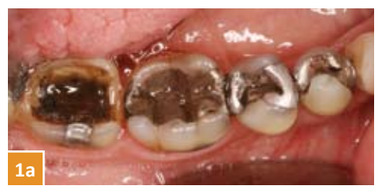
Prosthetic rehabilitation of teeth in the anterior area of the mouth is often one of the most challenging tasks dentists face. Many factors need to be considered when restoring the anterior teeth like color, shape, bone, and soft tissue levels. Decades of research, clinical experience, and trial and error have resulted in the development of many different materials with particular characteristics, advantages and disadvantages. Today, that puts us in a very exciting but demanding era of dentistry.


» Javier Andrade, DDS

At the same time, decades of developments in the CAD/CAM dentistry field, including CEREC, acquisition systems, hardware and software, have brought to us the ability to perform many different types of restorations (Inlays, Onlays, Crowns, Veneers), in-office long-term bridge temporaries, full digital impressions, and 100% digital communication with the dental laboratory.

It is no secret that for years many dentists have taken more and more interest in CAD/CAM dentistry, and millions of chairside CAD/CAM restorations have been placed successfully during the last 26 years.

With an extraordinary system like CEREC in our office, and the different materials available today to be milled and characterized chairside, the possibilities are endless. From simple inlays and onlays, to full contour crowns and veneers that can be modified to rival or even be superior to the restorations done by conventional methods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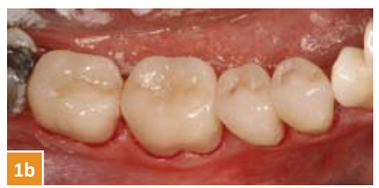
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(Figures 1a-1b), CEREC's precise and versatile technology makes these restorations possible.

Since we can do all kinds of modifications of porcelain restorations including cut back and the application of porcelains and stains of incisal characteristics, the two cases on the following pages will illustrate two of many different methods to restore anterior teeth that were characterized chairside only with the use of stains and glaze.

CASE #1

The first case is a 35-year-old female patient who presented for consultation and reported as chief concern the unpleasant appearance of the anterior teeth 8 and 9 (Figure 2). At the restorative appointment a quick intraoral composite mock up was done to improve the length and position of the incisal edges for correlation. A correlation model from premolar to premolar was obtained very easily using the CEREC AC Bluecam (Figures 3a-3c), making sure that we captured as much as we could of the facial contours of the teeth. Diode laser was used to make the soft tissue levels even. The teeth were prepared following the concepts of ceramic bonded restorations, leaving a thick layer of enamel to aid with the bonding of the restorations (Figure 4). The material of choice for this case was Empress® CAD Multi A3 (Figure 5), which gives fantastic esthetic characteristics and blends beautifully with the surrounding dental structures. Crown #8 was designed as mentioned before by correlation of the mock up, making sure that we copied with the green line all the good data from the correlation model (Figure 6), sent to mill and virtually seated (Figure 7).

Crown #9 was designed in the same manner, contacts verified and milled. Both crowns were tried in for necessary adjustments, and surface texture modification was performed with diamond burs and rubber wheels. The case was taken to a porcelain oven for final staining and glazing (no cutback was necessary). Upon final try in and patient approval, the crowns were bonded with NX3 using the protocol recommended by the manufacturer (Figure 8). One week post-op picture shows excellent healing and compatibility of the restorations with the surrounding tissues and a very pleasant esthetic result (Figure 9).

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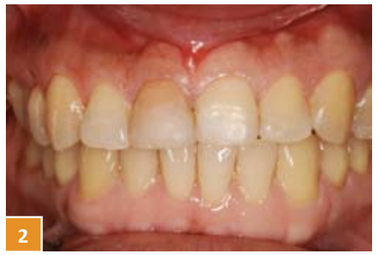
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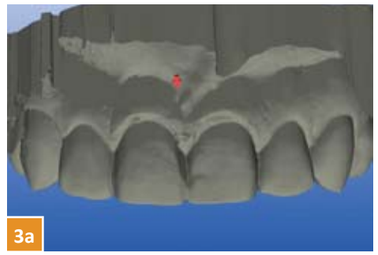
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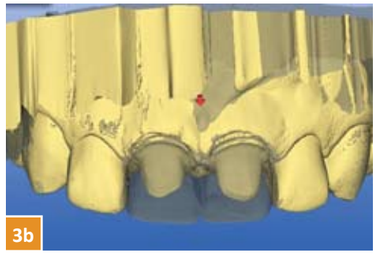
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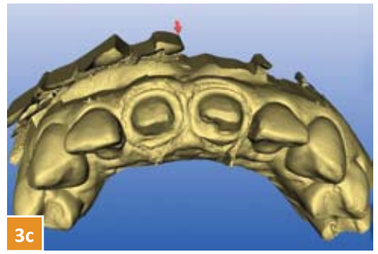
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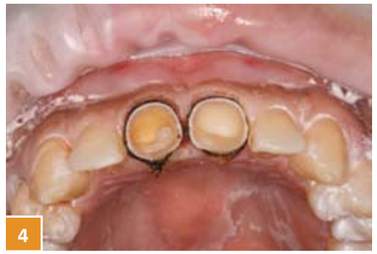
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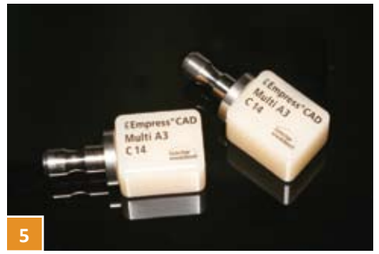

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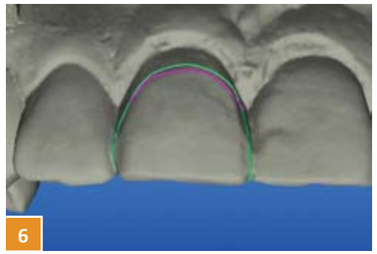
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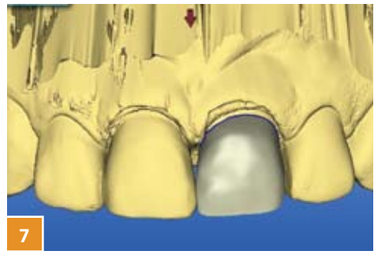
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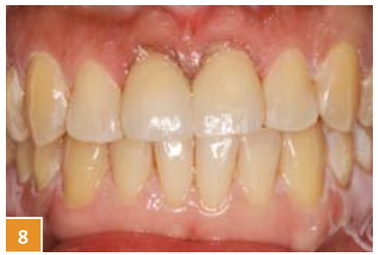
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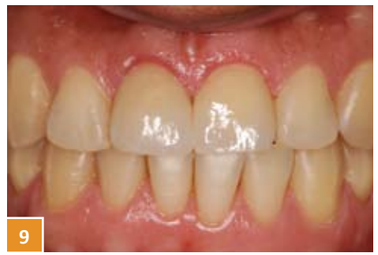
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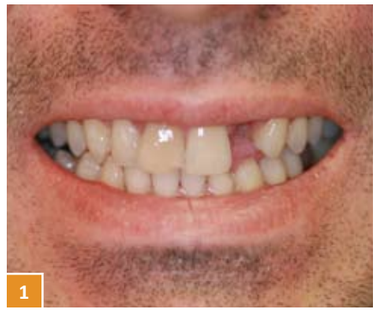
CASE #2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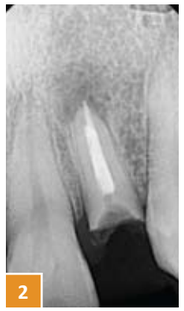
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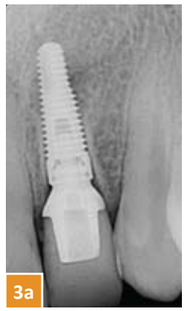
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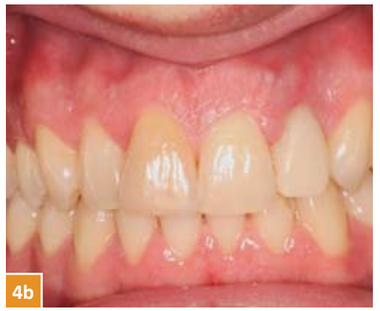
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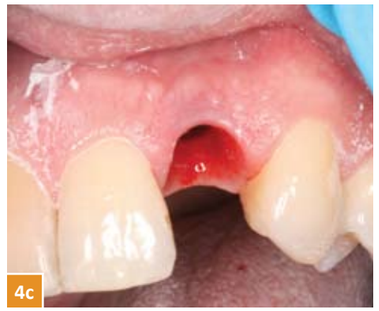
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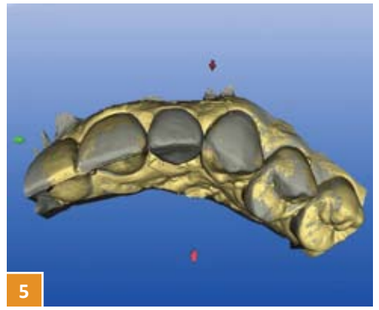
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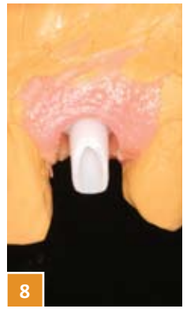
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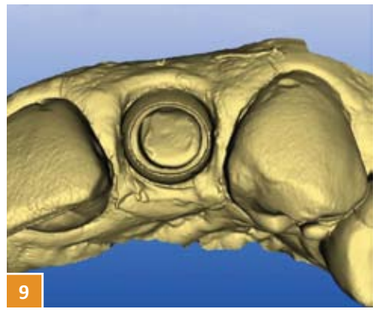
The second case is a 28-year-old male who presented with tooth #10 broken below soft tissue (Figure 1), with radiographic evidence of periapical pathosis (Figure 2). Atraumatic extraction was done and an immediate implant (Keystone Prima 4.1 x 13 mm) was placed with good primary stabilization. A screw-retained provisional restoration was fabricated from a mock up, making sure that it had the proper contours for good soft tissue healing and papilla support (Figures 3a & 3b). A six month follow up showed excellent soft tissue architecture obtained from proper provisionalization, and the implant was ready to be restored (Figures 4a, 4b & 4c).

Prior to the removal of the screw-retained temporary crown, a correlation model from the provisional crown was created to aid in the design of the final crown (Figure 5). The temporary crown was removed, and an open tray impression was made (Figure 6). An implant working model with soft tissue masking was fabricated in the office (Figure 7: Gingifast/Zhermack). Since the position of the implant was ideal and good soft tissue contours were present, we selected a Stock Zirconia abutment that was modified to improve its alignment and position, and also included antirotational features (Figure 8).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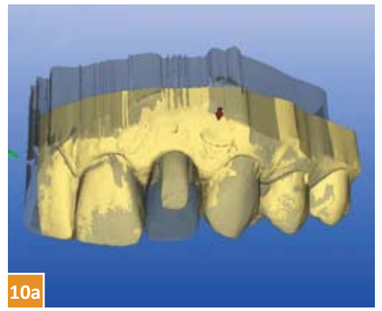
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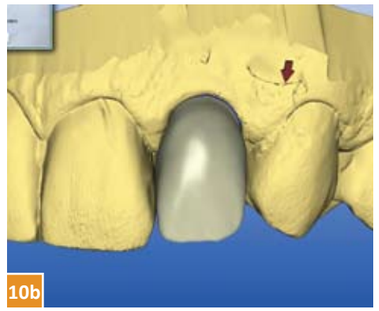
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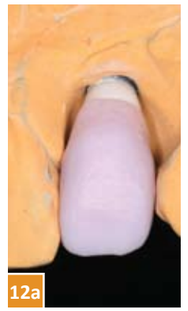
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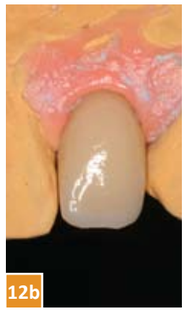
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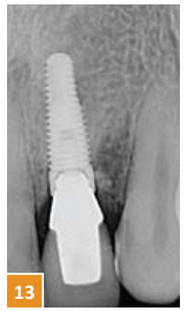
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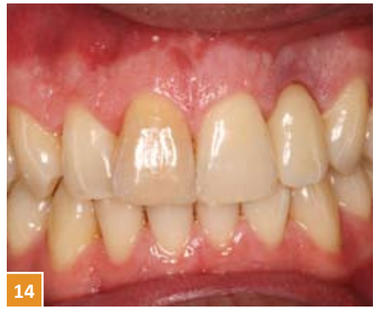
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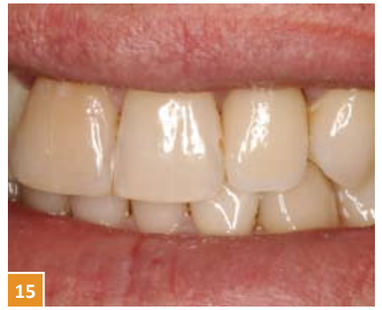
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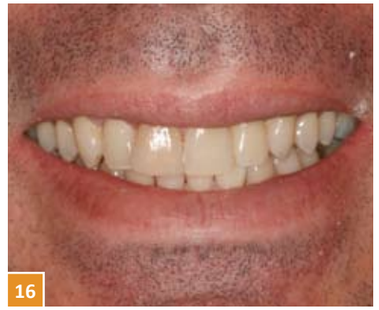
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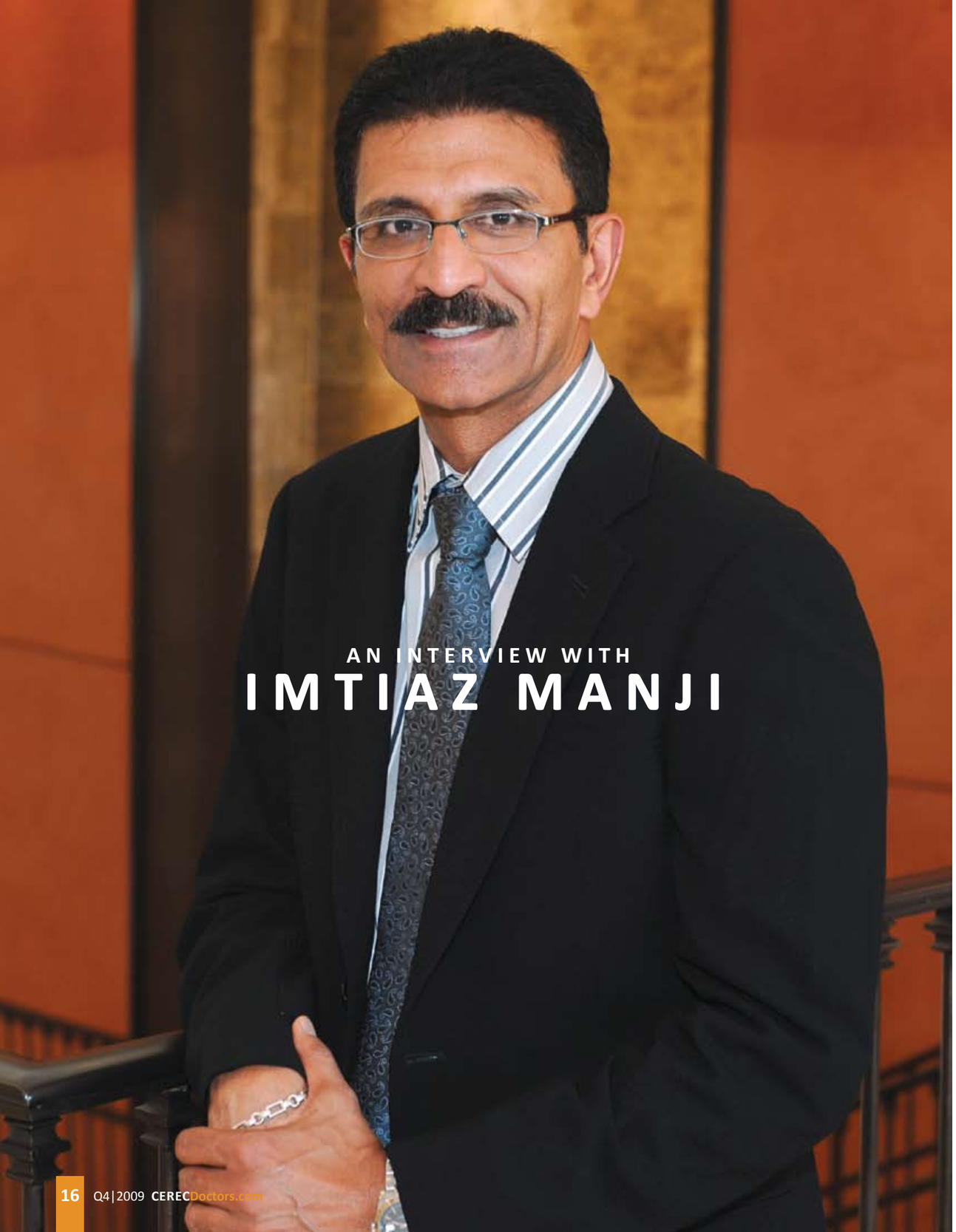
A final working model was made with the CEREC AC unit (Figure 9). The crown was designed with the correlation method using the model created from the provisional restoration (Figures 10a & 10b). For the restoration of this case, an e.max® CAD HT A3 block was selected (Figure 11). The crown was milled in endo mode and then taken to the oven for final crystallization and glazing, again only using external stains (Figures 12a & 12b).

At the delivery appointment the temporary crown was removed as well as the temporary abutment. The zirconia abutment was placed, its seating verified with a digital X-ray, and torqued down. The crown was then cemented in place and an X-ray was taken to make sure there was not excess cement below the gum line (Figure 13). A pleasant final result was obtained with this implant supported restoration (Figures 14, 15, & 16) showing another successful in-office use of the CEREC CAD/CAM system.

CAD/CAM dentistry has been here for a long time, and it continues to evolve day after day. CEREC is an exciting, challenging, rewarding, and fun way to practice dentistry, providing tremendous benefits to our patients and to our practice. The possibilities are endless and the future is bright, with more technologies allowing us to do it even better in the era of digital dentistry.



WHAT'S NEXT FOR CEREC SUCCESS

When Imtiaz Manji speaks, dentists listen.

With over 30 years in the industry, first as the leader of his own practice management consulting company, then as a CEO of Mercer Advisors, and now as founder and CEO of Scottsdale Center for Dentistry, he has made a career out of seeing where dentistry is going—and then helping dentists get there. His workshops have inspired countless dentists to realize levels of professional success and personal fulfillment they didn't know were possible

In this wide-ranging discussion, Imtiaz talks about what drives his legendary passion for continual growth, and what he sees as the defining characteristics of people who make it in dentistry and in life. He gives us his insight into how to practice in an uncertain economic environment, how the curriculum at Scottsdale Center has taken shape, and he shares with us his vision of the future of dentistry—and how CEREC fits into that vision.

Q: *You've been a passionate promoter of CEREC in the dental practice. Why?*

A: For two reasons. First of all, it's a proven technology. I mean, when the first CEREC inlays were placed in the 1980s, everything about it was new and the technology was still developing. And I admit that when I first heard about it, I took a wait-and-see attitude. But now, when there is a CEREC restoration placed somewhere in the world every 20

CEREC
LEARNING

Scottsdale Center for Dentistry offers an outstanding CEREC curriculum geared toward giving intermediate and advanced CEREC users a broader and deeper scope of knowledge. Courses are taught by cerecdoctors.com Co-Founders Drs. Sameer Puri and Armen Mirzayan, who are among CEREC's most knowledgeable doctor-educators. With twenty-five CEREC units onsite, doctors participate in a truly hands-on learning experience.

The CEREC experience at Scottsdale Center encompasses more than just clinical excellence. Imtiaz Manji delivers a course on The Business of CEREC, coaching doctors on how to fully integrate CEREC for practice optimization.

seconds, I think it's safe to say we're way past the point of debating its value and reliability. CEREC is proven. That's a given.

Second, it's a game-changer for dentists. I'm a promoter of technology in the practice in general, but CEREC is not just another technological add-on. It has the power to change everything about the way you practice; not just clinically, but in the way you can optimize your time and the staff's time, the way you manage your workflow, the way you present treatment and create value for patients, the way you position yourself in the marketplace, and ultimately the way you see yourself as a dentist.

Q: *Why CEREC in particular among the various CAD/CAM technologies?*

A: Brands that define a revolution create a remarkable power all their own. Just look at how the iPhone changed how we think about phones. I think CEREC is doing the same thing for dentistry; it's changed the context for what dentistry can do. CEREC was the first CAD/CAM breakthrough, and for my money, it's still the best. The history is important to me. It means they have the experience of having developed this technology over many years. It means they have the organization and

THE EXPERIENCE

infrastructure in place to respond to client needs efficiently and knowledgeably. It means they have the resources for ongoing research and development, which keeps it dynamic and evolving. They're just miles ahead of anyone else.

Q: *You've made CEREC and CEREC education a major component at Scottsdale Center for Dentistry. Was that always your intention?*

A: Absolutely. I knew when we were envisioning this facility that CEREC was going to play a big role. I feel very strongly that CEREC is where the future is, so we were committed to being a force in CEREC education. We brought in 25 units on-site, and we set out to provide the most comprehensive, progressive CEREC education, with the most respected faculty, in the best facility possible. We host special CEREC events, like our annual meeting where we bring together leaders in the CEREC community. And I'm proud to say, it's working. Our classes our packed, our facility is getting rave reviews, and we're becoming recognized as a home for CEREC mastery and innovation. That's very important in today's dental marketplace.

"The Experience" Dental Practice at Scottsdale Center for Dentistry is the prototypical ideal dental practice, integrating ergonomics, esthetics, equipment and technology. A digital, paperless office, The Experience is the height of high-tech, featuring CEREC and Cone Beam technologies in six operatories designed and equipped to ideal standards. A master operatory offers film and broadcast capabilities while a consult room has a touch-screen LCD and CAESY technology for enhanced patient communication.

Q: *What is it about today's dental marketplace that is so special?*

A: The speed with which it is evolving. You only have to look back 5 years or so to see how much dentistry has changed over a relatively short time. And that pace is only going to accelerate. It's a rapidly changing landscape out there—the way technology is evolving, the way patients use the internet to shop for dentistry, their expectations for dentistry. The old rules don't apply anymore, and dentists in this environment need to keep on top of their game, whether it's with CEREC or with their education in general, to stay competitive.

Q: *So what are those successful dentists doing? You have coached thousands of dentists over the years and analyzed thousands of practices. What, in your mind, is one thing the successful ones have in common?*

A: A high level of engagement. It really is as simple as that. People like to believe that there is something mysterious or special about how successful dentists reach the levels they do, but it really comes down to the fact that they engage at a higher level. They have a sense of possibility and, most importantly, a sense of urgency that makes them act on those possibilities.

Q: *Speaking of acting on possibilities, what motivated you to build Scottsdale Center for Dentistry?*

A: My greatest passion in my career has always been for teaching, and it had always been a dream of mine to build what I envisioned as the ideal educational environment for dentists.

Then, when my wife, Shahinool, was stricken with a recurrence of cancer, we ended up at The Mayo Clinic in Scottsdale. And I was just blown away by the experience there—the comprehensive, integrated way they dealt with each patient, the professionalism and the individualized approach they took. It opened my eyes to a new standard of what was possible. The Mayo Clinic gave me and my sons precious more time with Shahinool. They also gave me a new understanding of what comprehensive care was all about.

"My greatest passion has always been for teaching, and **it had always been a dream of mine to build what I envisioned as the ideal educational environment for dentists.** ... Now, as CEO of Scottsdale Center for Dentistry, my focus is entirely aligned with my greatest passion. It's a dream come true."

My partners and I at Mercer Advisors used that Mayo model to guide our vision. We completely re-organized the way we served our clients and we decided to build this inspiring facility right here in Scottsdale as a home for Mercer Advisors headquarters and as a home for the ideal comprehensive and integrated educational experience. Eventually we transitioned the ownership and leadership structure at Mercer Advisors so that now, as CEO of Scottsdale Center for Dentistry and Spear Education, my focus is entirely aligned with my greatest passion, which is simply to teach. It's a dream come true.

Q: *What makes that experience at Scottsdale Center different from other educational institutions?*

A: We didn't want to open just another place where people can come to collect CE credits. We wanted to build a home for those people who have that high level of engagement—a place where they can expect to be treated in a highly individualized way, a place that has the best technology and faculty, a place where they can learn and grow in a progressive, structured way. That's why we brought in Dr. Gordon Christensen, who was our founding Dean of Education and is now our Educational Advisor. That's why we partnered with Dr. Frank Spear. These industry leaders have always been about high-level, high-integrity education delivered in a systematic, progressive, user-friendly format, and that ties in perfectly with our philosophy.

We set ourselves a high standard and I'm happy to say that now, just two years after opening, we are one of the largest, most independent continuing education centers for dentists in North America. I'm proud of that, but I am particularly proud of the integrity we have shown in creating the right educational experience. The kind of education that changes lives and creates real sustainable success.

Q: *But how sustainable can we expect success to be in this current economic environment? In other words, what's your advice to dentists who are worried about how their practice will get through this recession?*

A: Well, the fact of the matter is that there is success and failure in any economy. The greatest limit in life is in how we see things, so if you can change the way you see things in this economy, you can still have new opportunities. It's like I've been saying: you can choose to focus on the U.S. economy and the limitations you see there, or you can choose to focus on your practice economy and on the possibilities that are there—and believe me there are great possibilities.

Those dentists who are highly engaged, who are always asking "what's next?" and always driving themselves to stay on top of their game—they thrive in any economy. That's because they're not driven by the money. They're driven by a desire to be the best, and the money just follows naturally. Economic success is a by-product of being in love with what you do and being committed to doing it at the highest level.

CEREC® AC
CAD/CAM FOR EVERYONE

INTRODUCING THE CEREC ACQUISITION CENTER (AC)
POWERED BY BLUECAM.

ACCESS TO...

- The most comprehensive array of chairside CAD/CAM solutions
- The highest level of digital impression precision and efficiency
- Current and future digital dental technologies, processes, and procedures

The CEREC® Acquisition Center (AC) powered by Bluecam gives you access to the full range of CAD/CAM restorative solutions that are every bit as reliable, proven, and trusted as the company it comes from. Bluecam's LED technology takes digital impressions to the highest level of precision and efficiency for impeccable results.

BLUECAM FEATURES

Ease of use / Bluecam easily senses the ideal moment for digital impression acquisition, capturing it automatically.

Precision / The most advanced optical technology available yields precise 3D models.

Speed / Shortest acquisition times for more detailed images, including half- and full-arch impressions:
40 seconds for a half arch,
2 minutes for a full arch.

AC UNIT FEATURES

Battery pack / The convenience of moving from operatory to operatory without powering down.

Smaller footprint /
Occupies minimal floor space, yet has a large 19" screen and a refined keyboard for optimal ergonomics and efficiency.

Future-thinking platform /
Access to CEREC® Connect, the world's largest digital dental network.

Contact your CEREC Specialist for more information:

800.328.5536

Visit us online for more information:
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CEREC DESIGN TECHNIQUE

Replication: The Lost Art of CEREC Design

SAMEER PURI, DDS

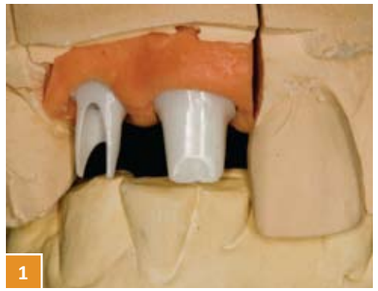
While the majority of the time Database and Correlation give the clinician robust and usable proposals, there are times that Replication can be an extremely useful tool to have in your design toolbox.

This often overlooked technique works best for anterior restorations when the adjacent teeth need to be replicated precisely to match the patient's existing dentition.

In Replication, the doctor can copy and mirror a tooth; for example, take tooth #9 and mirror image it to place on tooth #8 or take tooth number #10 and mirror image it on #7 and so on.

This clinical case study shows an implant case where the Replication design mode was used in addition to the quadrant feature to restore an anterior implant quadrant on the patient.

Having Replication in your design toolkit can be useful for certain design applications. No doubt that Database and Correlation will be your go to methods of design; however, Replication can serve as a valuable adjunct in your restorative arsenal.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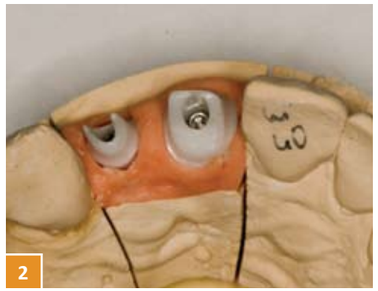
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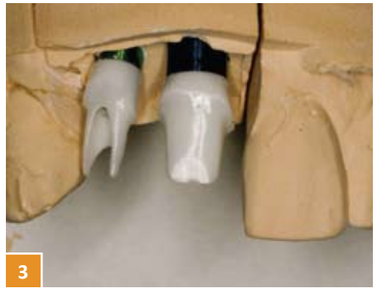
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» Fig. 1: Fixture level impressions of the implants were made and custom abutments and a soft tissue model were fabricated (Bio Horizons Implants)

» Fig. 2: An occlusal view of the soft tissue model (Zhermack Gingifast)

» Fig. 3: The soft tissue was removed to allow access to the margins of the custom abutments.

Facing page:

» Fig. 4a: The access opening was sealed with composite resin and a virtual model was fabricated from canine to canine.

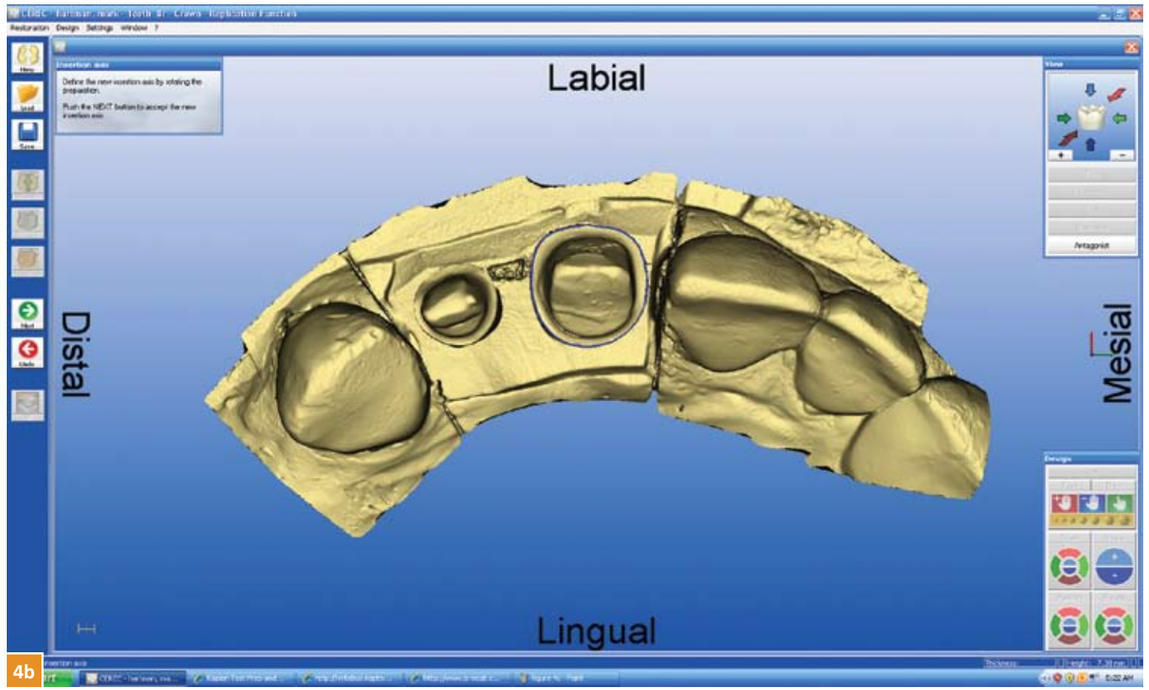
» Fig. 4b: A screen shot of the virtual model shows the model needed to replicate the adjacent teeth.

» Fig. 4c: After drawing the margin for the first tooth, the adjacent tooth is outlined to let the software know which parts of #8 should be copied.

» Fig. 4d: The final proposal of #8 is shown. The proposal is sent to the milling chamber while the next tooth is designed.

» Fig. 5: The crown is milled using the Ivoclar e.max block.

» Fig. 6: The first crown is tried on the model and verified for fit and contours.



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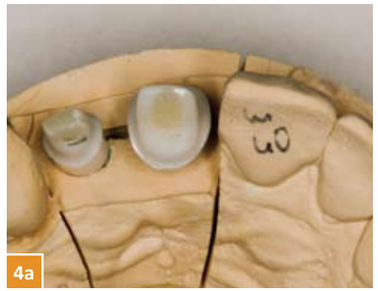
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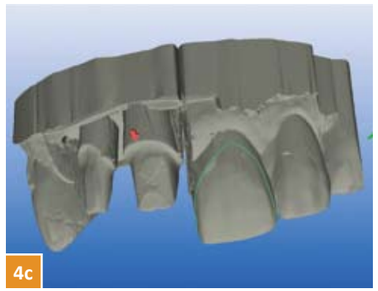
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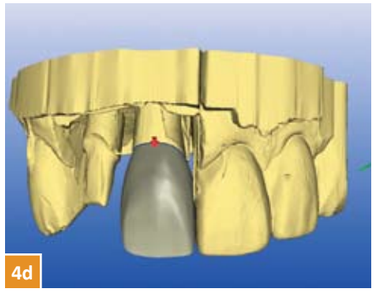
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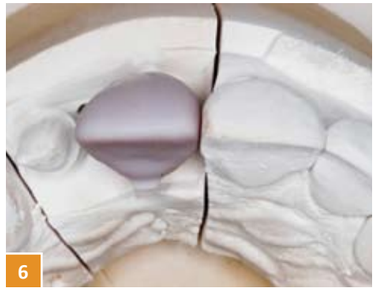
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CEREC DESIGN TECHNIQUE: REPLICATION

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- Fig. 7a: The buccal view shows the fit and the contours of the restoration.
- Fig. 7b: After virtually seating the first restoration on the model, tooth #7 is designed in a similar fashion.
- Fig. 8: Both restorations are tried on the model to verify fit and contours.
- Fig. 9: An occlusal view shows the integration of the milled restorations with the adjacent teeth.
- Fig. 10: The soft tissue is placed back on the model to determine final contours as well as the emergence profile.
- Fig. 11: The final restorations are crystallized in the oven for strength and esthetics.
- Fig. 12: The patient presents to the office where the healing caps and provisional restorations are removed from the implants.
- Fig. 13: The custom abutments are placed on the implants and torqued to the appropriate tightness.
- Fig. 14: The restorations are traditionally cemented on the abutments with a self etching resin cement (Maxcem Elite™ – Kerr). 6 month post op view shown.


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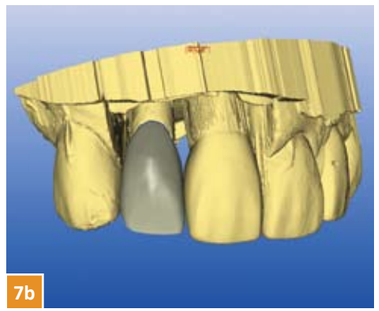
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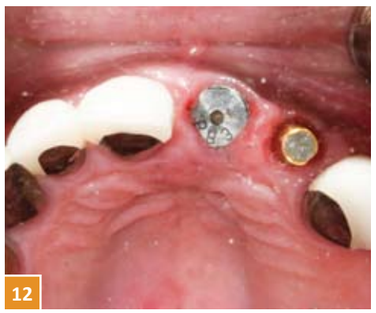
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CEREC USER EXPERIENCE

CEREC Technology: Thoughts from a New User

MIKE SCOLES, DMD

With the introduction of the new CEREC AC in early 2009, I decided to start doing some homework to see if CAD/CAM dentistry would be a good fit in my practice. I had been looking at the technology for years, but I was still very naïve about the capabilities of the CEREC.

A colleague told me about the CEREC Discovery Program at Scottsdale Center for Dentistry. I attended the event to get more information on this technology to fabricate inlays, onlays and crowns in the office. After listening to the speakers on the program such as Drs. Gordon Christensen, Lee Brady, Sameer Puri, Russell Giardano and Mr. Imtiaz Manji, I knew I had to have this technology in my practice! I was sold when I found I could fabricate e.max® in my office — the same e.max I had been successfully placing for over a year in my own practice.

I have two offices and two associates and was faced with buying two machines. There was also the challenge of convincing my associates to use the technology. So this was not a decision to be made lightly. Combined, our office averages approximately 75 crowns a month.

Doing the math, I realized that we only had to fabricate half of our restorations with the CEREC to break even on both machines. Anything more fabricated in house would be a significant savings over using a dental lab.

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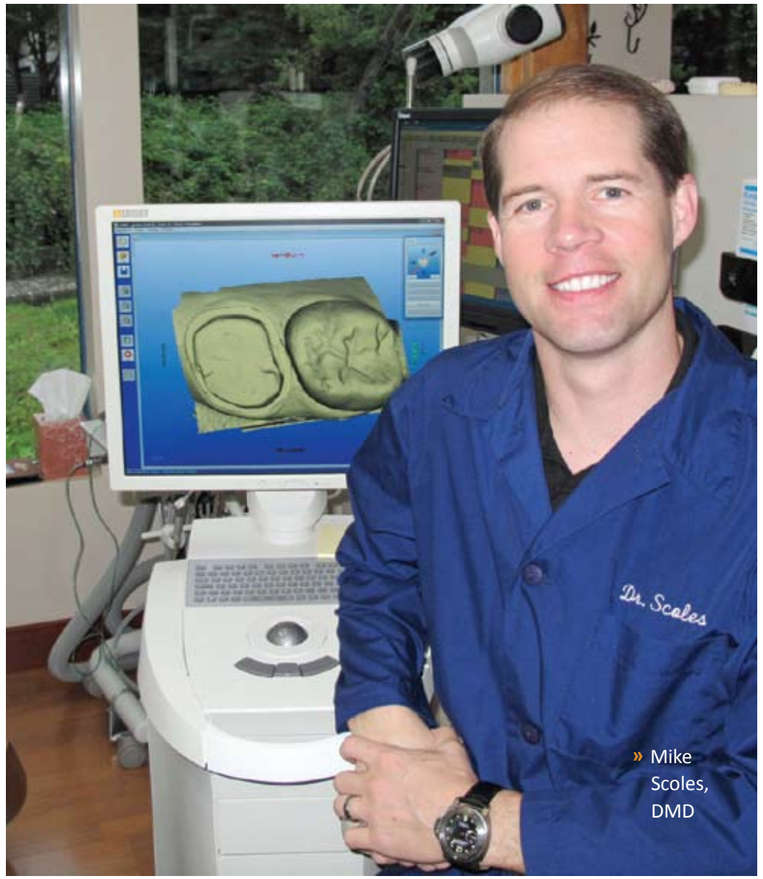
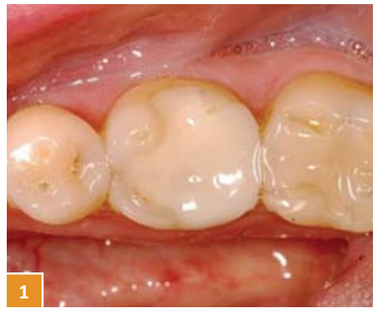


» Mike Scoles, DMD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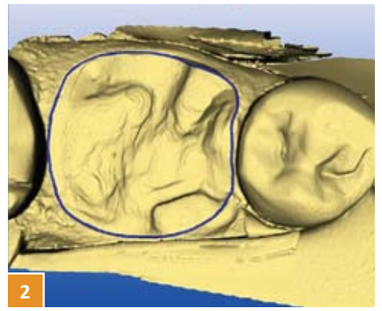
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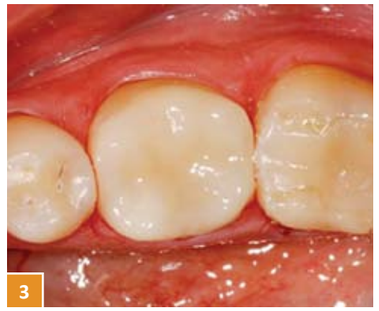
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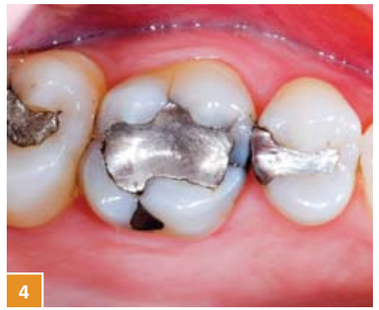
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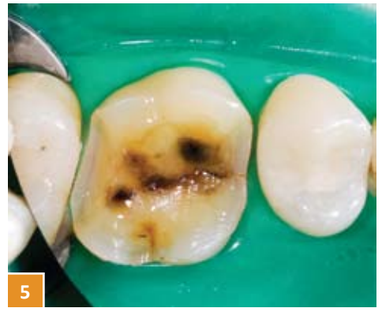
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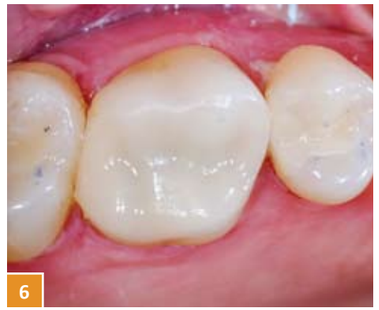
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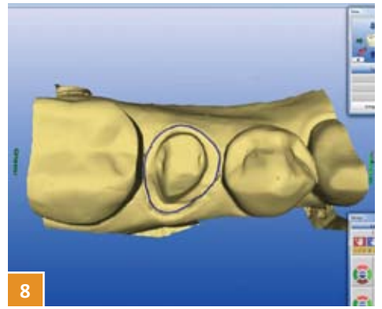
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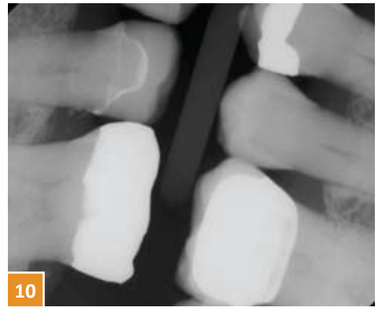
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» Fig. 1: Preoperative view of large composite restoration
» Fig. 2: CEREC screenshot of preparation
» Fig. 3: Immediate postoperative view
» Fig. 4: Pre-operative view of quadrant of defective amalgam restorations
» Fig. 5: Preparation completed under rubber dam isolation
» Fig. 6: Immediate post-operative view
» Fig. 7: Pre-op view of broken amalgam restoration
» Fig. 8: CEREC screen shot
» Fig. 9: Immediate post-operative view shows harmony and integration of the final restoration with the surrounding dentition
» Fig. 10: Final post-operative x-ray shows well sealed margins

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By myself, I covered the cost of the machines in the first month and realized a savings. This is before my associates have even had the opportunity to go to basic training and start their use of the machine. Once they get up to speed, we anticipate a significant savings to our bottom line with the integration of this technology.

Before I did my first case, I decided I would chronicle my progress by documenting cases and posting them on a CEREC forum. I knew that posting cases and getting input from experienced clinicians would shorten my learning curve. I signed up for cerecdoctors.com before I purchased the machines and started watching videos. To date, I have watched 110 videos on the website. This has been crucial in giving me a solid foundation and the confidence to get a strong start.

In the first month, eighteen working days, I personally did thirty-five restorations with the CEREC. In that time, I was getting constant guidance from the faculty on cerecdoctors.com and also attended the Advanced Posterior course at Scottsdale Center. Every case was documented, posted and critiqued by other CEREC doctors, which was invaluable in my early learning.

Although the first month went very smoothly, there were a few minor struggles. I was not comfortable with staining and glazing until I went to the Advanced Posterior course. I was using the spray glaze which made it very difficult to get a consistent finish. Brushing on the regular glaze takes a few minutes longer, but the results are much more predictable and give you a much nicer finish.

DR. SCOLES' TEN TIPS TO A STRONG START

1 | Understand prep design.
2 | Watch as many videos on www.cerecdoctors.com as you can.
3 | Take as much advanced training as you can.
4 | Educate staff and make them part of the process.
5 | Understand the software completely before your first case.
6 | Make sure you have the proper reduction burs.
7 | Have proper isolation and hemostasis for your cases.
8 | Glaze everything with the brush-on paste. Don't settle for polishing alone.
9 | Don't rush; give yourself enough time.
10 | Know when to stop designing and start milling.

Out of the 35 restorations, I had two milling errors; both of them were attributed to placing the sprue on the wrong part of the restoration, basically operator error. If I had positioned the sprue where it should have been the first time, this would have been avoided.

Initially I had to adjust my contacts. I was making them a bit tight on the software and had to adjust them in the mouth. Once I started trusting the software, my contacts were perfect. In fact, I have had zero contact adjustments on my last thirty restorations. The margins on these restorations were superior to my lab crowns. Both CEREC and lab crowns margins were sealed well, but the transition from ceramic to tooth is virtually invisible to the explorer and the eye on the CEREC crowns. I can definitely see the advantage of a digital impression over the traditional polyvinyl impressions.

While I am completely sold on CEREC technology, what I couldn't predict was the reaction from the staff and patients. I feel like I am creating a legion of patients who are cheerleaders for CAD/CAM dentistry and my practice. I received my first referral specifically for the CEREC two weeks after I started using it. Some patients liked the technology, but all of them liked not having to come back or have a temporary restoration placed. I have seventeen employees, and only two are under fifty. They are an extremely sharp group of ladies, and they are also my biggest critics. Once they started trying in these restorations, they were instant fans. My biggest fear of convincing my staff actually became a non-issue.

Integrating change in the office can be difficult, yet proper planning and great results will ease the transition. These are the intangible benefits that are a pleasant surprise.

What did I learn in the first month and what would I recommend to anyone who is considering integrating CEREC technology in their office?

Education is the key. If you buy this machine and think you can start making crowns without proper training, you may struggle. If you prepare well, and get your staff on board, it will become an essential part of your practice. I truly love practicing dentistry and CEREC has made it even more fun. I feel like I am providing a better service to my patients, and a better product. We've been doing crowns forever; this is just the next evolution of how we do it.

CEREC CASE STUDY

Clinical Guidelines to Creating Natural Depth of Translucency

ROBERT WINTER, DDS

Whether we are dealing with our CEREC chairside or with our technician through CEREC Connect or models, it is imperative to create space for restorative materials when preparing teeth for anterior crowns and veneers. The amount of space needed is dependent on the color and value changes desired as well as the materials that will be used for the case.

If the underlying tooth structure is of normal color and value, a conservative tooth preparation can be considered. If there is discoloration or low value, you must allow for adequate reduction to correct the problem. This case is especially challenging, because one central incisor preparation is a veneer in which there is normal color and value. The adjacent teeth, however, are severely discolored and very low in value.

One approach relies on cementation or bonding material to create the desired changes. This is highly variable and unpredictable, and should only be used as a last resort. When the operator, ceramist or technician is working on fabricating the restoration, whether it is milled or hand layered, opacity needs to be kept at the deepest level of the restorative material in order to allow for translucency to be created. Normal tooth reduction for an anterior full-coverage restoration is as follows:

- 2.5 mm incisal reduction from the definitive length of the final restoration.
- 1.5 mm labial reduction in the incisal one-third.
- 1.0 mm gingival reduction creating a shoulder design with a round internal line angle.
- 1.0 mm palatal reduction.
- All edges and corners should be rounded.
- The preparation finish line must be smooth and sharp for accurate impressions or digital imaging.

It is recommended that preparation for the veneer is as follows:

- 2.5 mm incisal reduction from the definitive length of the final restoration.
- 1.2 mm reduction in the incisal one-third.
- 1.0 mm mid-tooth reduction.
- 0.8 mm gingival reduction, chamfer design
- The preparation is carried through the interproximal area to increase resistance and retention form, because a significant amount of enamel has been removed.

This will allow the restorative materials for the veneer and crown to be similar except for the opacified layer of ceramic that will be used in the crown restorations to mask the underlying tooth. To create natural depth and translucency in the final restoration, whether it is a crown or veneer, 0.5 mm of enamel ceramic is recommended.

By following the guidelines as suggested, you can produce a highly predictable result. While as dentists we strive to do only minimally invasive procedures, in some cases a more aggressive approach is in the best long-term interest of the patient, especially when the goal is to create a natural looking restoration.


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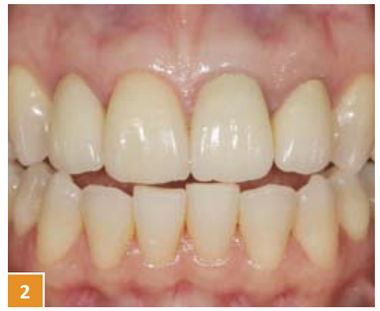
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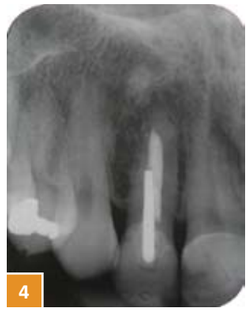
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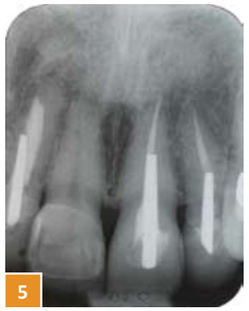
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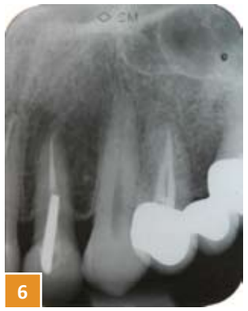
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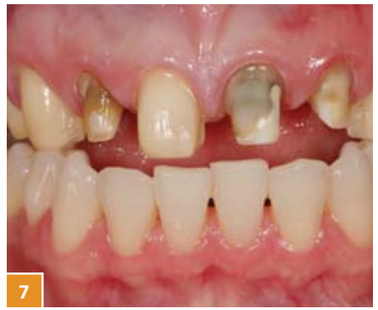
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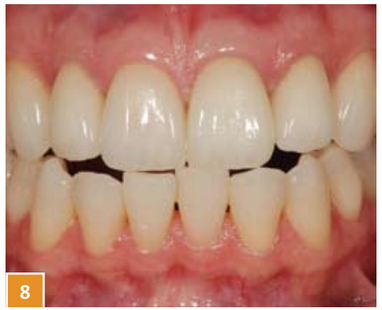
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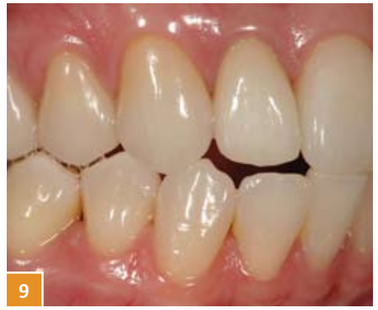
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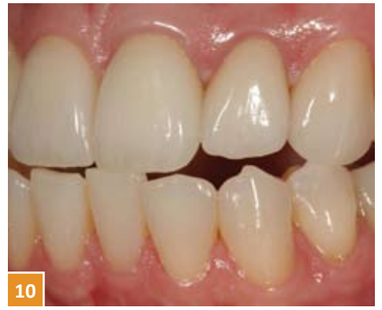
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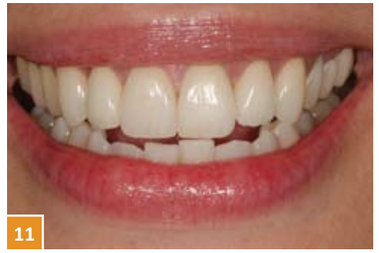
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» Fig. 1: Pre-operative smile: Patient requests changes to the restorations to improve the esthetic appearance and overall translucency of the crowns and veneers.

» Fig. 2: Intraoral pre-operative view: The maxillary four anterior tooth restorations appear slightly opacified as a result of trying to mask the underlying problem.

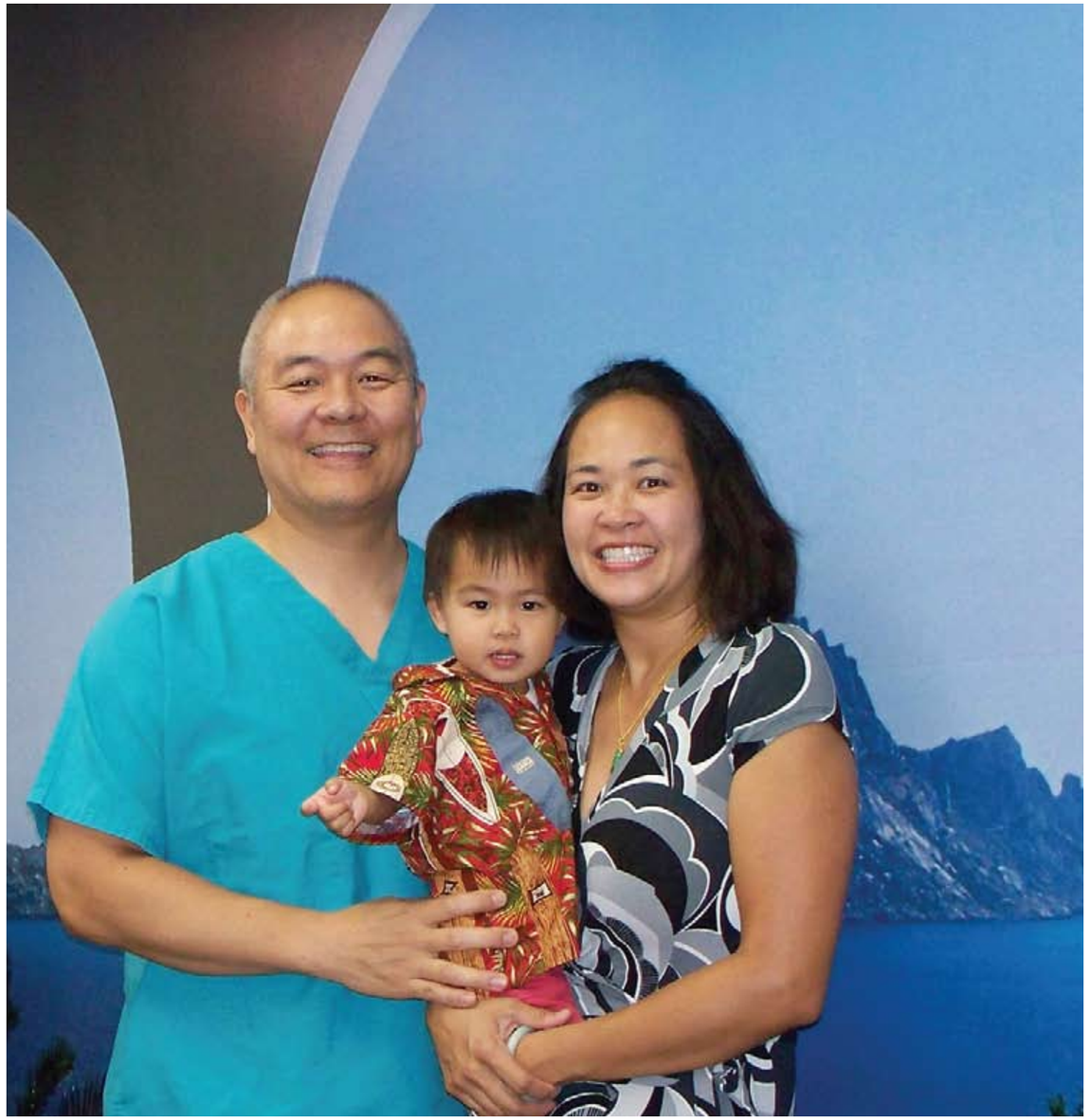
» Fig. 3: In addition, the restorations appear low in value.

» Figs. 4, 5, 6: Radiographs reveal previously endodontically treated teeth. An endodontic consult recommended proceeding with new restorations without further endodontic intervention.

» Fig. 7: The old restorations were removed and severely discolored tooth preparations were revealed. The restorative challenge is to opacify the restoration to mask the specific problems on three of the prepared teeth and create a natural depth of translucency.

» Figs. 8, 9, 10: The final restorations are full coverage crowns on the right and left lateral incisors and the left central incisor. The right central incisor, the right and left cuspids, and the right and left bicuspids, are veneers.

» Fig. 11: Post-operative smile.



"Patients love to come in and see the new technology and always comment about how their old dentist **practiced with harpoons and stone adzes**.

— DR. TIFFANY LEE

» Drs. Doug Sakurai and Tiffany Lee and son Luke.

Q&A WITH DR. DOUG SAKURAI & DR. TIFFANY LEE

Orange County Choppers: CEREC Style

Married since 2006, dentists Drs. Doug Sakurai and Tiffany Lee share many things — a love of dentistry, a passion for adventure, a commitment to patient care, an affinity for CEREC® and other technologies, and a son, Luke, born in February 2008. One thing they do not share, however, is a practice.

Though both are general dentists practicing in Orange County, California, they have opted for autonomy at the office, and have kept their practices separate. Here Doug and Tiffany share about their practices, philosophies and CEREC technology.

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

Doug: I graduated from UCLA School of Dentistry in 1988. I opened my office straight out of dental school in Torrance. Amazingly it was just down the street from where Tiffany's office now stands. I purchased my practice in Santa Ana in 1992.

Tiffany: I graduated from USC School of Dentistry in 1992. I associated and tried to learn as much management and hone my hand skills while I decided where I wanted to practice. In 1999, I found a great little practice, which the owner had to sell due to an injury. I finalized the purchase in 2000, and I moved my practice to its current location in 2002. I purchased an existing 1943 dental office, with original, vintage equipment and rebuilt it from the studs up.

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

Doug: I have 1,700 square feet. When I first bought the practice there were 3 doctors practicing in the office sharing space. I bought out one of the docs and the other decided to go off on his own. So I have enough space for more doctors, but I'm hesitant to have partners again.

» Dr. Lee's practice is small but appealing. "Several walk-ins have become patients 'just because we like the way the building looks,' " Lee says.

Tiffany: I have about 1,100 patients; it's a small practice, but it's very cozy. I have an endodontist and periodontist come into the practice once a month.

Q: *How many operatories do you have?*

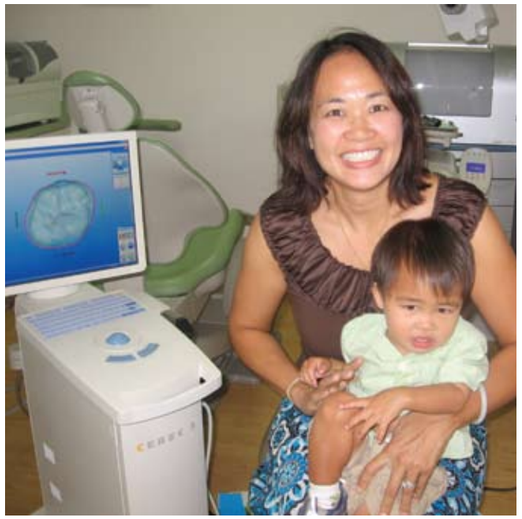
Doug: I originally had 7 ops and a large lab. I turned one of the ops into a sterilization center and one of the ops is not in use, aka storage space. Each of my ops has a theme; we have a waterfall room, veranda room, jungle room, beach room and palm room. The front office also has a mural of a Greek island.

Tiffany: My building is about 1,100 square feet, so it's a small space, but I was able to get four full sized operatories, a lab/sterilization center, waiting room, handicap accessible restroom, a digital panorex and even a large private office that could be converted to a fifth operatory all shoe-horned in. The building is in the historic center of Old Torrance, so I kept the feel of an old time dental building, but inside it's all modern. Many of my patients comment on the "Art Deco" façade, and several walk-ins have become patients "just because we like the way the building looks."

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

Doug: We have a general dentistry office. I don't view myself as doing any of those exotic procedures, but with the CEREC, the patients think so. I have digital x-rays and Pano, computers in all the ops, TLC track light and monitor systems, diode lasers and intra-oral cameras. I like to buy new technologies when there is a direct patient benefit. Or if it's REALLY cool.

» Left: Dr. Sakurai in his front office with office manager Thu Vuong.
» Below: The front office of Dr. Lee's practice.
» Bottom photos: Dr. Sakurai and Dr. Lee get some CEREC assistance from their son Luke in their CEREC operatories.



Tiffany: I am a no frills general practice. I don't do a lot of high end procedures and I don't like to do full mouth rehabs. I get too stressed out, and then it's not fun anymore. I have integrated as much technology into my practice as possible, to create a fun and efficient work environment. I use the PerioLase MVP, Odyssey Diode Laser, Planmeca ProMax Digital Panorex, Schick Digital X-Ray Sensors, Eaglesoft practice management software and paperless charting, and Schick intraoral camera. Patients love to come in and see the new technology and always comment about how their old dentist practiced with harpoons and stone adzes.

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

Doug: Tiffany had been a CEREC user for a few years, and she showed me what it could do. I was skeptical because I was at UCLA when CEREC I came out, and was not impressed with the restorations that it produced. I was impressed with the technology, but not the restorations. It was also because the material they used back then was Dicor and that was not a good restorative material.

Tiffany: A few years ago, I started upgrading my 50-year-old practice. I figured it would be a great time to update the practice management side as well. I computerized my management, then added Schick digital X-rays. Shortly thereafter, I bit the bullet and converted to paperless charting. My staff was about to kill me.

Meanwhile my Patterson rep encourged me to revisit the CEREC. I was very hesitant as I remembered the

early CEREC restorations from research I did while in dental school. I recalled how the crowns were really ugly blobs of unanatomical porcelain, swimming in composite resin.

I did a demonstration and saw how outdated my views were. I was shown the light and moved up to the new technology. Shortly thereafter, when I needed a laser, the CEREC helped pay for the Odyssey and a Vita Vacumat 40T Furnace. It has been a very generous machine, as it also got me the Planmeca and the PerioLase. I most recently upgraded to the MC XL milling unit which is great because now I can mill out e.max® restorations in about 10 minutes.

Meanwhile I was engaged to this great guy, and he saw how excited I was with my CEREC. After we got married, Doug would bring home impressions and I would make his crowns, bring them home that night and he would cement the next day. After awhile, he realized how much the technology could benefit his practice and he got his own CEREC. It's a three way CEREC love story!

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

Doug: I like to think that my office is high tech AND high touch. My patients sort of expect things to be a little different than an average office, and I appreciate the "wow" factor. I like to be on the leading edge, but not the "bleeding" edge and I shy away from using my patients as guinea pigs.

Tiffany: I love gadgets and I love getting things done, but they have to be done right. Most of all I love to have fun. CEREC is like playing video games, and staining and glazing restorations is just like Art class.

Q: *How has the CEREC technology impacted your practice?*

Doug: CEREC has shifted my restorative paradigm. I love being able to conserve as much tooth structure as I can. Not extending the prep because I'm worried that my temporary is going to fall off is a timesaver for me, and a tooth saver for the patient. I'm inspired by some of the leaders in this technology and I like to push myself to keep up. My patients now expect same day restorations and are disappointed when they don't get it.

Tiffany: Ditto! When I was in Cambodia, I kept thinking about how I had to work differently because I didn't have my CEREC with me! It set me back to thinking "inside the box."

Q: *What is your favorite procedure using CEREC?*

Doug: My favorite procedure is the everyday crown. I have a practice and we don't do a lot of full mouth rehabs or multi unit veneers. I enjoy doing the single or double crowns because the patients really appreciate the fact that they don't need an impression, they don't have to wear a temporary, and they don't have to come back for cementation. It's a disappointment when I come to the office in the morning and don't have a CEREC appointment on my schedule.

Tiffany: It's a toss-up. I love doing those single veneers, when the patient walks in with a horribly disfiguring smile, and walks out smiling from ear to ear because you've matched their new restoration to their smile perfectly. They didn't have to go to the lab for a custom shade match, nor did they have to walk around for two more weeks with a temporary or even without one.

My other favorite procedure is an RCT, BU and CEREC all in one. Your production can skyrocket, and patients

» Luke gets an up-close view of CEREC technology.

LOVE not having to come back 3-4 times. It's also fun to play "beat the clock" with the milling unit and e.max oven cycle.

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

Doug: CEREC procedures are an everyday occurrence for me, so there is nothing really unique to me. Crowns under a partial clasp, single anterior units, multiple distal units — I just watch the video on cerecdoctors.com and I feel confident enough to tackle it. There are a lot of doctors that are more brilliant than I am and I'm glad to let them pioneer the technique so that I can learn from it.

Tiffany: I just do regular run of the mill procedures. The days we have our endodontist here, I can prep, she can do the difficult RCT, and after she's finished, I can place the buildup and get the patient's permanent crown cemented. It's almost the same as when I do it myself, but I don't have to worry about doing the difficult endodontic procedures anymore.

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

Doug: It wouldn't end my career in dentistry, but it would make it a whole lot more boring and less challenging. Neither my patients nor I would want me to practice without a CEREC. It has truly invigorated my practice and literally woken me up after 17 years of practice.

Tiffany: I wouldn't be a very happy camper! I'd probably have to go Chuck Norris on them!

Q: *Anything else you would like to add?*

Doug: One of my early dental mentors told me that in order to stay fresh and to challenge myself in dentistry, I should learn a new technique every year. That mentality has kept me interested and excited about dentistry. CEREC has been one of the best decisions I've made regarding implementing a new technique and technology to my practice.

Tiffany: My hubby is so smart!

Investing in What You Know

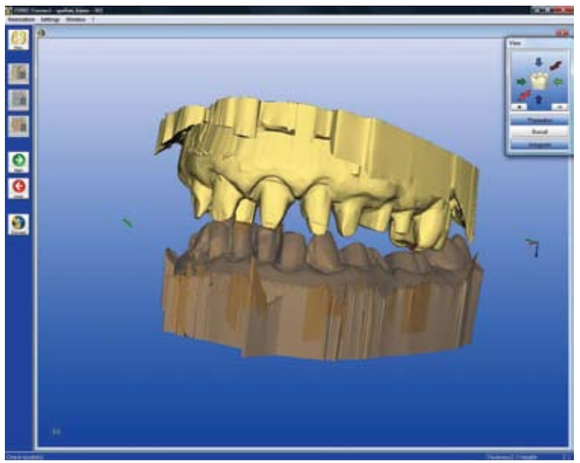
SAMEER PURI, DDS

If you ask, a lot of people will tell you the recession is coming to an end. However, ask many dental office owners the same question, and they will tell you the recession never arrived. Many offices across the country simply did not feel the slowdown in the economy. Granted, there are exceptions to every rule, but offices that stayed current with technology and invested in their practices instead of risky stocks and high priced real estate deals reaped the benefits of this downturn.

I am a firm believer in the philosophy of only investing in things that you know. Real estate speculation was the flavor of the month with regards to risky investments the past few years. Several of my friends lost their shirts trying to make a quick buck buying real estate and flipping houses. Prior to that, the shortcut to riches was day trading stocks. How many people do you know who quit their jobs in the early part of this decade and decided to trade stocks, thinking it was the fast track to riches and retirement? How many of those same people are still trading stocks today? Who knows what the next get rich quick scheme will be. These fads come and go. One thing, however, that is certain is that my dental career is something that will always be there for me.

While I invest like clockwork into my monthly savings and retirement, I leave the management of that money to the experts. No active day trading for me. My financial managers do a good job of making sure that my money gives my family a healthy return. I avoid risky investments, fly by night schemes and ways to make a quick buck. Real estate, investing in fast food restaurants, risky stocks, car washes etc., are all things I am not an expert in. These are also things that I get constantly approached by from others who try to convince me that there are greener pastures other than my dental practice.

So while others choose to risk their money in these endeavors and are invariably taken for a ride, I invest my money in what I am an expert in: my dental office. For us, this investment included the following items that our office incorporated in 2009:



» Full mouth scan with the Bluecam CEREC Connect to fabricate upper and lower provisionals for a patient.

CEREC BLUECAM

I get emails and questions on a regular basis from current CEREC owners on whether they should upgrade to the Bluecam. What the Bluecam allows you to do is faster, easier, more precise imaging. Quadrants and multiple restorations are easier to perform. Frankly, if all you do is one tooth at a time, then you won't realize the

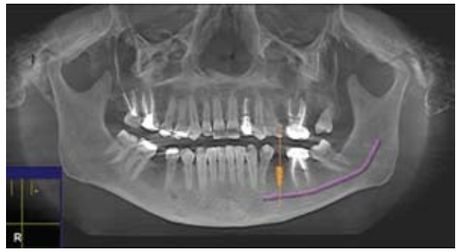
"Friends and colleagues have asked 'How can you afford to do all this in this economy?' My answer is always the same. **'How can I afford not to?'**"

— SAMEER PURI, DDS

» An office remodel can be done for a high tech and modern look.

full benefits of the Bluecam and probably should not upgrade. But if you can do one anterior case a month that otherwise would have gone to the laboratory, then those lab savings will likely make your payment. If you can do one quadrant a month that you were afraid of doing digitally before, then the upgrade is definitely worth it.

In addition, because of the ability to do CEREC Connect and have the lab fabricate your physical models from your digital scans, you no longer have the cost of impression material. At roughly $25/impression and no scan fee with the full CEREC system, the savings is significant in sending your models digitally to the laboratory.



» Dr. Sameer Puri uses a Zeiss operating microscope (left), part of the updated equipment he has integrated into his practice.
» The GALILEOS 3D conebeam (below) allows virtual implant planning and three dimensional visualization of the oral cavity.

GALILEOS

The integration of the Bluecam with the GALILEOS was enough to make me also purchase the GALILEOS this year. The GALILEOS is a cone beam 3D X-ray system that allows you to give a complete 3D tour of the mouth to your patients. The ability to integrate your CEREC 3D data with your 3D scans means that you can fabricate chairside implant stents, abutment crowns, and even abutments. Patient acceptance has been tremendous; giving them a view of their mouths they've never seen before truly heightens understanding and case acceptance.

ZEISS

The addition of the Zeiss microscope, which I wrote about in the last issue, was simply the icing on the cake. Having a highly magnified view of the operative field is not only impressive to your patients, it also gives you clinical detail that you never had before in performing dentistry.

REMODEL

We also remodeled our office. It was time for all new dental chairs, overhead patient entertainment and education systems as well as new paint for an updated and modern look. Walk through the front door of your practice not as an owner but as a patient. Do you still have that copy of *Sports Illustrated* from 1998 on the coffee table? Do your reception room chairs look as though they are remnants of World War I? Is the wallpaper peeling so bad that it would make Bob Vila cringe? If what you see makes you uncomfortable, think of what your patients see.

Friends and colleagues have asked, "How can you afford to do all this in this economy?" My answer is always the same. *How can I afford not to?* While some offices struggle to cover monthly overhead, our improved technology and modern appeal allow us to reap the benefits in the form of increased case acceptance and new patient flow.

Proper planning and execution are vital to this decision process, as is making sure that your clinical knowledge is up to date. By investing in my office and allowing my investment to grow in these troubled times, we have managed to avoid the recession and even grow in these turbulent times.

Our world will always have cycles of boom and bust. The key to success is not to panic in the low times, but to be prepared for them. By investing in what you know, you will have an ROI that far exceeds any flash in the pan get rich quick scheme that others may try to lure you into. And when you invest in your practice, you're devoting your resources to what really matters – your patients.

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