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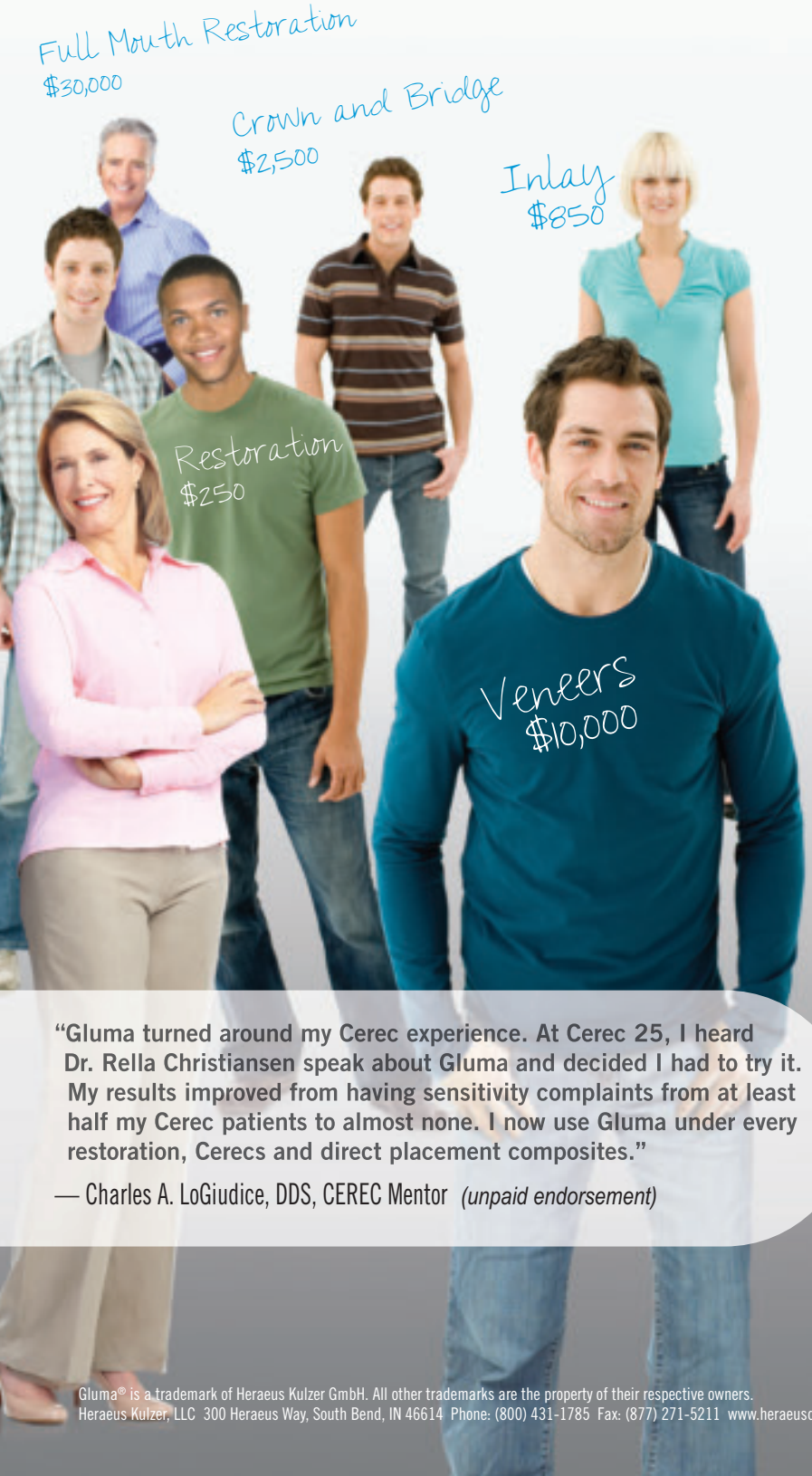

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Contents

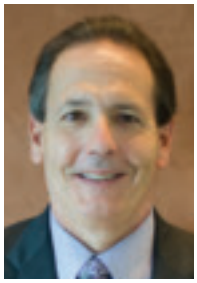
CEREC SW 4.0

FROM THE EDITOR

Who Would Have Thought? A Look at the Possibilities SW 4.0 Creates

BY MARK FLEMING, D.D.S.

I am writing this prior to attending the 34th International Dental Show, a huge meeting held every other year in Cologne, Germany. My wife, Lori, and I have taken a couple of days to visit the city of Cologne and also travel down the Rhine River. We visited small river towns, slept in a castle, and visited the Loreley Rock (Lori's given name is Lorelei). Why am I reporting this to you? Because 10 years ago, I never would have thought I would be taking such an interesting trip. It just wasn't on my radar. My practice and the people with whom I have come into contact these past 10 years have made a trip like this possible.



Some of you might not have had CEREC technology for 10 years. The software was 2-D then. In 2003, when it went 3-D, the series number on the software was 980. I can remember the "official" release was when I was on vacation. I read about it on an Internet forum. The software that is being previewed at the IDS meeting is 4.0, which is really version 4000. Who would have thought 10 years ago that the software would have gone through so many versions and made so many advances?

In this issue dedicated to SW 4.0, we are bringing you a glimpse of what will be possible with the new software. We believe you will see exciting possibilities that this CEREC technology will allow the user to treat patients more efficiently and effectively.

What are you thinking about your involvement in using this constantly evolving CEREC technology? We can help you in this process. On July 15-16, at Scottsdale Center, the 3rd Annual CEREC Owners Symposium will be held. It will showcase the latest news, products and advancements in CEREC technology. If you are able to attend this event, you will be on the cutting edge of what is happening in the CEREC world.

Ten years ago, I had no idea how important a role this technology would play in the success of my practice. What about you? How are you integrating CEREC into your practice? In August, Imtiaz Manji and Dr. Sameer Puri will present a new, exciting workshop called *Optimizing the CEREC Practice*. It will give you proven strategies for driving your practice growth through effective CEREC integration for you and your team.

Who would have thought? How will you take advantage of the opportunities that this question raises? We hope we are continually giving you resources to enhance your CEREC experience. We are glad to help during these exciting times. ❖

> Ten years ago, I had no idea how important a role this technology would play in the success of my practice.

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CEREC SW 4.0

SIRONA DENTAL SYSTEMS' NEWEST SOFTWARE RELEASE REDEFINES CAD/CAM

BY SAMEER PURI, D.D.S.

BY THE TIME YOU READ THIS, the largest dental meeting in the world will already have happened in Cologne, Germany. It is at this event that Sirona revealed their brand new software platform. Designed from the ground up by rewriting every single piece of code, this software platform is three years in the making.

CEREC SW 4.0 features brand new workflow, and tools that are both efficient and useful. Among other things, this software also features the ability to design multiple teeth in any design mode and in any arch. This platform will be the standard going forward; its redesign allows the engineers at Sirona to use it for all future updates. It takes full advantage of the capabilities of the BlueCam by fabricating large multi-unit cases with ease.

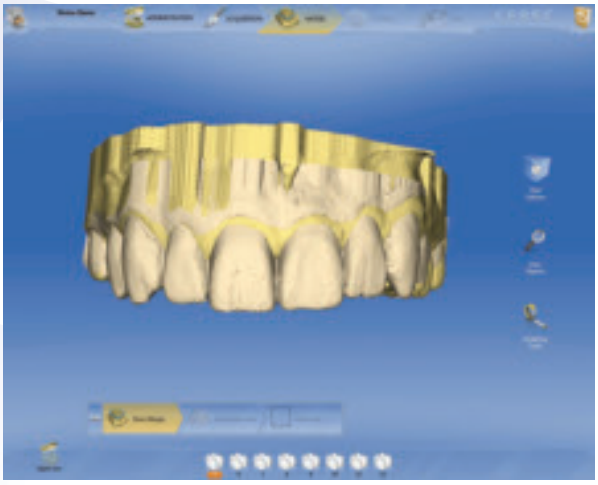
We are proud to be able to show you a sneak preview of this software. While this is a pre-release version and there are many more features that are yet to be implemented, hopefully the screen shots will give you a good idea of what to expect when the software is released later this summer.

We hope that you enjoy this sneak preview. The 4.0 software will be featured at the 3rd Annual CEREC Owners Symposium in July at Scottsdale Center for Dentistry. Once the software is officially released, complete tutorials, including videos and step-by-step design techniques, will be found on www.cerecdoctors.com.

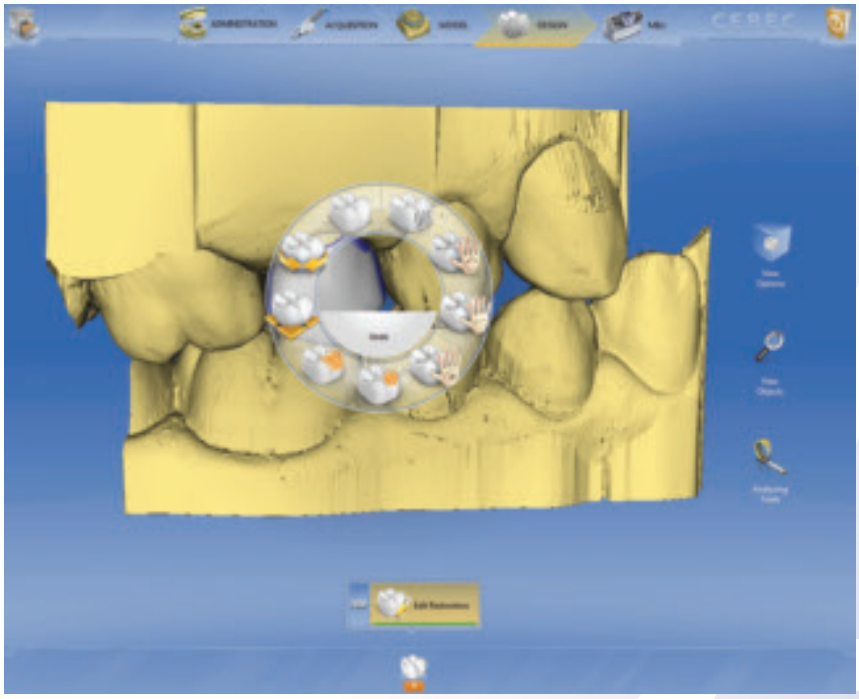
The future of CEREC is exciting, and kudos to the engineers who have spent so many hours programming this upcoming release. It is sure to set the standard for all dental CAD/CAM software in the market.

1 The look and feel of the software is completely redesigned with a whole new interface, photo-realistic icons, and a more streamlined look. The patient input screen allows the clinician to select as many restorations as necessary while performing in a single case. The software has the ability to design 32 teeth at once, if necessary.

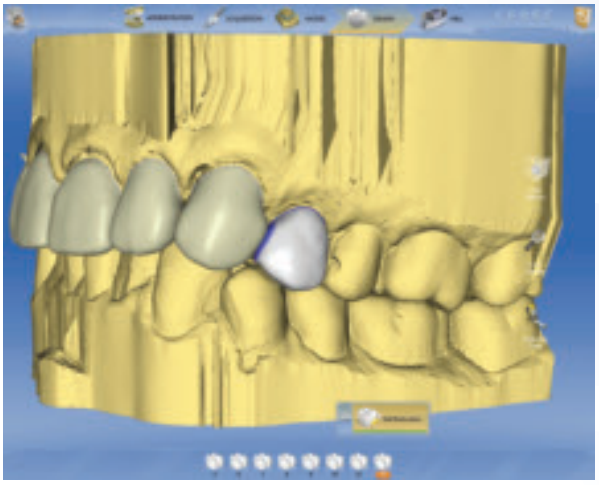
2 Not only is the workflow more streamlined, the software renders unbelievably clean-looking models. Clinicians can mix and match design modes, including Biogeneric and Correlation, as well as single- and multiple-unit restorations.



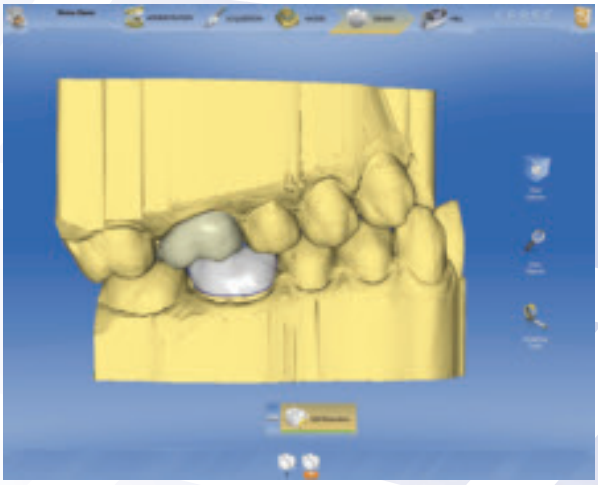
3 For large multiple-unit anterior cases, the ability to use Biogeneric Copy (the new name for Correlation) gives the clinician maximum flexibility for optimum results. Being able to copy the entire smile and then recreate it one tooth at a time opens up many design options. In this case, we are using a pre-operative wax-up as a guide to fabricate this smile design. ►



4 An entirely new concept in Tools allows the user to quickly and efficiently design any restoration with ease. Brand new tools give more freedom and flexibility to make any necessary design changes. The tools are streamlined for maximum efficiency and will work in any design mode.

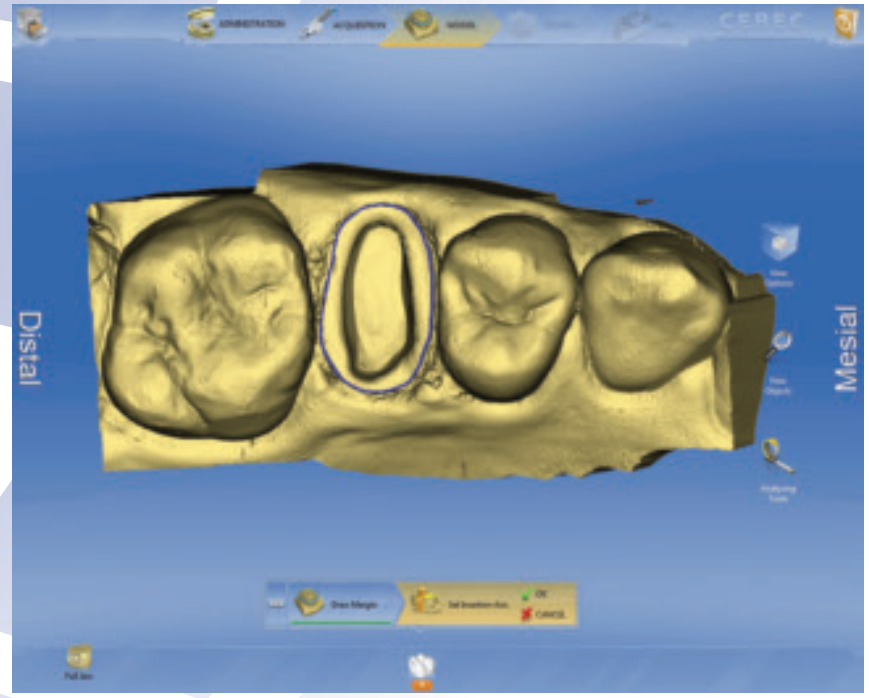


5 The ability to articulate full-arch models and design cases that previously would have been difficult allows use of the CEREC in more instances than before. No longer are you limited to single-tooth restorations. By integrating full-arch models and the buccal bite, clinicians can use the CEREC in large, multi-disciplinary cases that otherwise would have been better served by the laboratory.



6 One exciting feature is the ability to design maxillary and mandibular arches at the same time. The clinician is no longer limited to working on one arch at a time. Whether it's one tooth or multiple teeth, it doesn't matter where in the arch the restorations need to be completed. Simultaneous design allows for speed and accuracy when working on the arches at the same time.

7,8 While the ability to fabricate multiple restorations is nice, what about the ability to mix and match design techniques? For example, what if you wanted to do Biogeneric Copy on #3, Biogeneric on #4 and Biogeneric Reference on #9? This is entirely possible with the new 4.0 software. Clinicians can mix and match as needed, and are not limited by traditional design techniques. This provides maximum flexibility to quickly design multiple restorations with the technique best suited for that particular situation.



9 Of all the new advances, I think the most exciting is how clean the models are rendered by the software. This case was imaged in the mouth and is part of a one-visit root canal, build-up and crown procedure. The leaps and bounds of the software make the most routine work that we do even easier. Crisp, clean virtual models, simple designs and advanced tools are all things that the new user can look forward to. ❖

CEREC SW 4.0

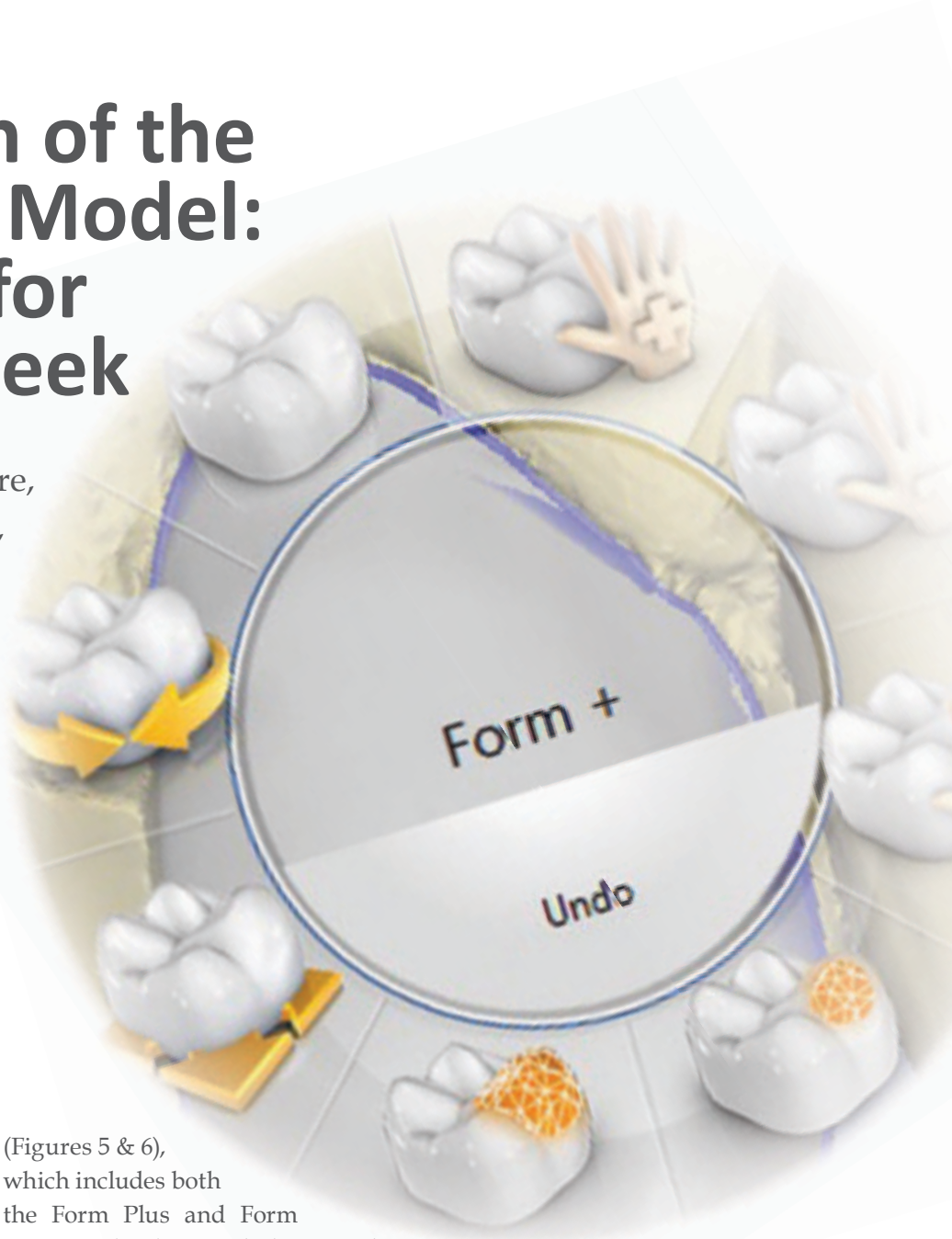
Modification of the Preparation Model: A Cool Tool for the CEREC Geek

BY ARMEN MIRZAYAN, M.A., D.D.S.

As documented before, during beta testing, we come across many hurdles during the CEREC fabrication process. Sometimes the machine does not boot, other times it just does not mill, and once in a while we get a funky proposal that needs to be addressed. The exciting part for us testers is to collectively figure out work-arounds, and to report back to the research and development department of Sirona.

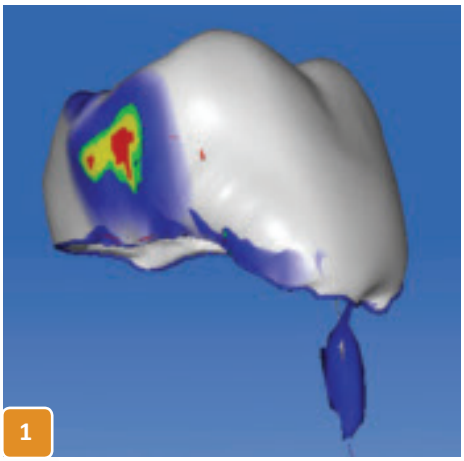
In this particular clinical case, the restoration was proposed with a flash of ceramic permeating apically from the crown (Figure 1). Upon analysis, a void was found in the model during optical impression (Figure 2). The area that was deficient is circumscribed in red (Figure 3), but it is most notable at the insertion axis step, when the software itself hints at trouble with the yellow spoke noted around the margin (Figure 4).

There are some new tools that actually allow you to correct the preparation models in the "Edit Models" step of the design process. Right-clicking activates the wheel of options available (Figures 5 & 6), which includes both the Form Plus and Form Minus tools, along with the Smooth tool. These are applied no differently than in prior versions of the software. A new feature, called "Replace," allows the user to circumscribe the defective area (Figure 7) and to apply the correction to erase the void in the model (Figure 8).



Once the correction has been applied, the model is marginated again, and the restoration is rendered without the initial flaw (Figure 9).

It will be interesting to see how this tool affects the average user in the long run, but it certainly can come in handy for those who have Type O negative CEREC blood in their veins. ❖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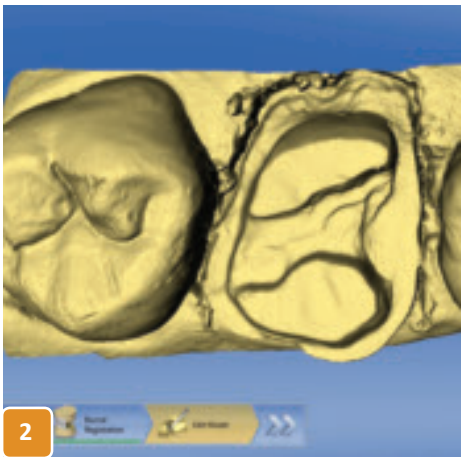
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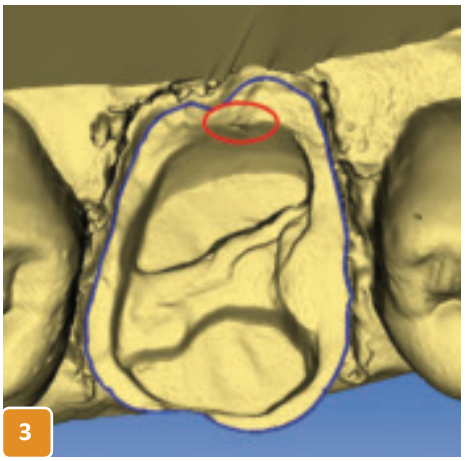
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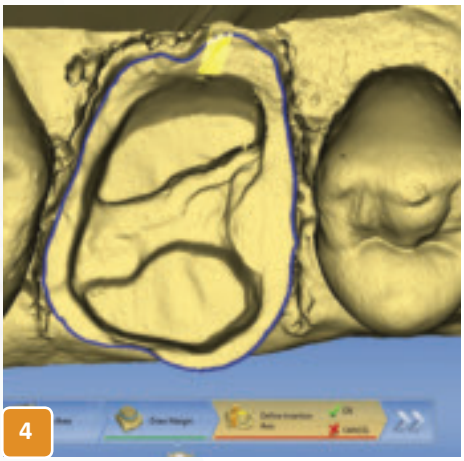
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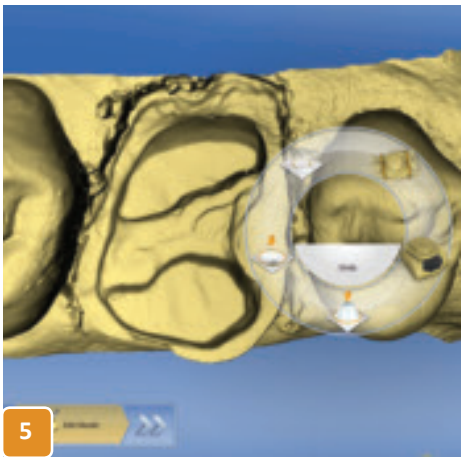
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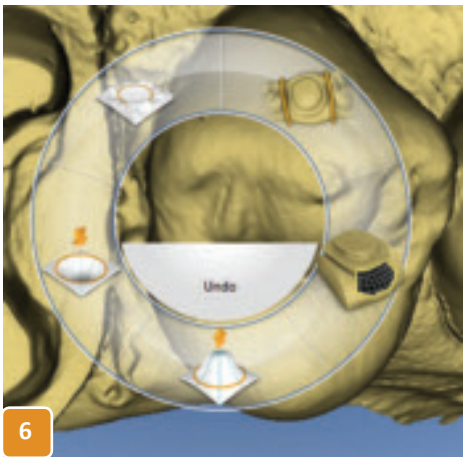
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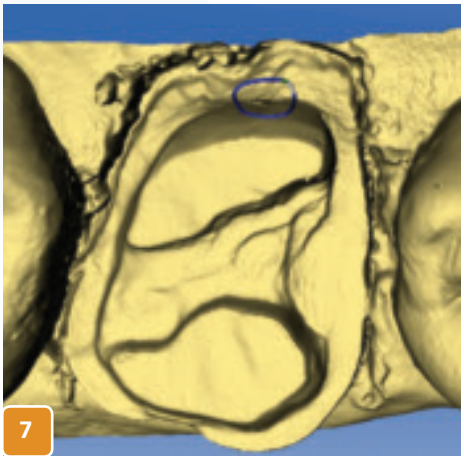
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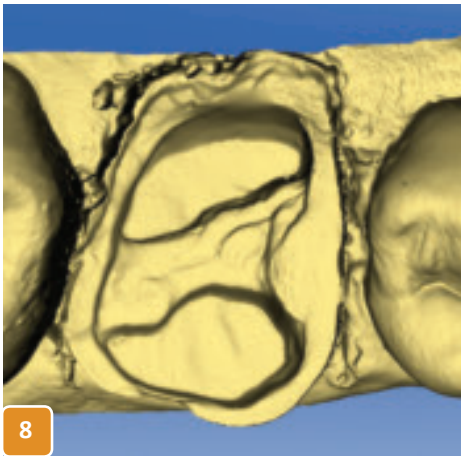
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CEREC SW 4.0
Posterior Quadrants: A Look Toward the Future

BY MICHAEL SKRAMSTAD, D.D.S.

At some point during the course of the year, we as CEREC owners start to anticipate a new software update. We let our minds run wild with all the possibilities that can make our experience even better and more efficient. Finally, the day comes. … Our DVD arrives and we grab any sharp tool within arm's reach to break the cellophane barrier to our CEREC greatness.

Sirona's innovation over the years has brought us many wonderful software and hardware upgrades and solutions. Just in the last year, we have seen the introduction of biogeneric crowns, buccal bite, millable abutments, and many other cutting-edge improvements.

The question is, where do we go from here? What can we expect to find on the next DVD that arrives at our office?

The answer lies in a completely new graphical user interface, an innovative redesign of CEREC as you know it today. There are new tools, new functions, and new possibilities. In this article, I will outline some of these new features as they relate to posterior quadrant dentistry. Specifically, I will show how you can now design multiple restorations at the same time … whether it's the same quadrant or not.

1 In the new opening screen, you can choose as many restorations as you would like. If you wished to choose 32 teeth at once, that is a possibility. In this particular example, I chose teeth #12 and #13.

2 After selecting the teeth you would like to restore, the next step is to choose the Restoration Type and Design Mode. In this example, we are going to do both crown restorations and Biogeneric Individual. In this step, you also have the ability to choose your Milling Device and select the material you would like to use for the case.

3 If we know the material that we are going to use in the case, we can preselect the manufacturer and material to be used right away. If we change our minds later, we can always go back and edit this selection. One of the great things about the new software interface is that you can use the top navigation to return to any step in the process with a simple click. No longer will you have to hit the red arrow multiple times to back up to a previous step.

4 After acquiring the images for #12 and #13, the model is constructed. You have both the top navigation to tell you what major step you are on, and the lower toolbar to guide you through that particular step. It's very intuitive for new and advanced users alike. The teeth you are working on are listed at the bottom of the screen. You can switch between the teeth whenever you want. If you want to draw both margins at once or separately, it's up to you.

5 Both margins were drawn at the same time for this case prior to starting the Biogeneric design process. You also have the ability to set different insertion axes for each particular restoration.

6 The Biogeneric proposal for #13. The initial proposal was excellent and showed characteristic occlusal patterns to the other teeth in the quadrant. Biogeneric provides custom restorations that require little manipulation or adjustment. ►

7 Without moving forward, virtually seating and milling #13, we are able to immediately render the Biogeneric proposal for #12. This will allow us the option of designing both restorations at the same time. Conversely, you could mill one of the restorations immediately while you are working on your second design. The choice is yours.

8 This illustrates some of the tools we have at our disposal to help with our design. There are no more construction lines, and most of the traditional CEREC tools are a thing of the past. Using these new intuitive features, we have the ability to manipulate the virtual teeth in any dimension, shape or form. ▶

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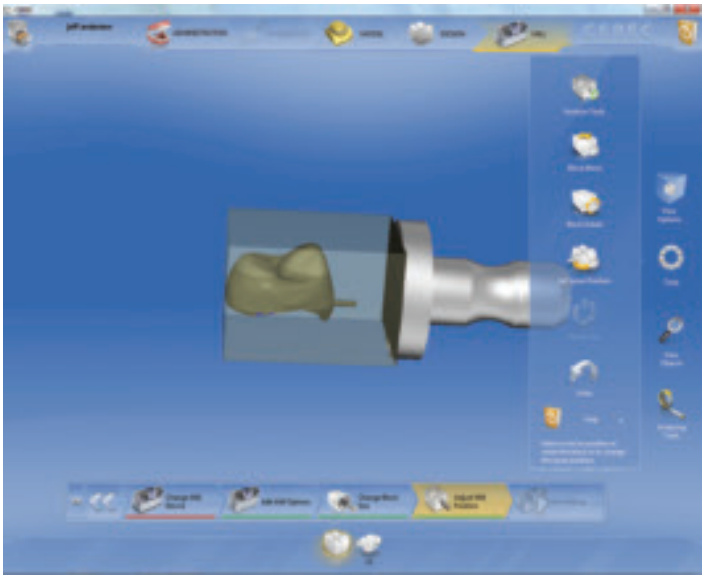
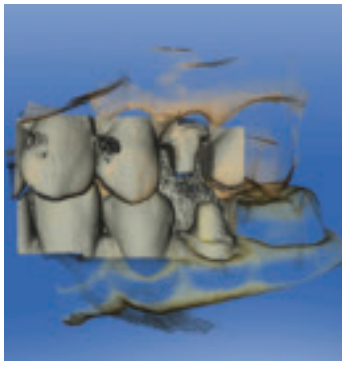
9 (Below) When you are ready to mill, the new preview screen has new features to help you customize the milling. You have the ability to move the sprue, rotate or move the block, and position the restoration within the block.



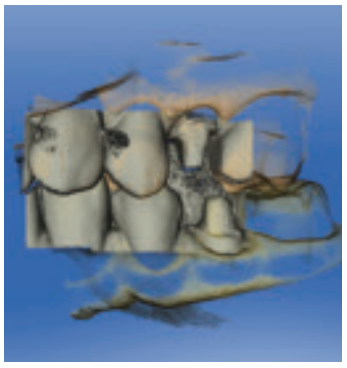
10 In this case, we will take a look at the possibilities of designing restorations in opposing quadrants at the same time. This is the image catalog for teeth #13 and #20. This first image shows the capture of the lower jaw quadrant (tooth #20).

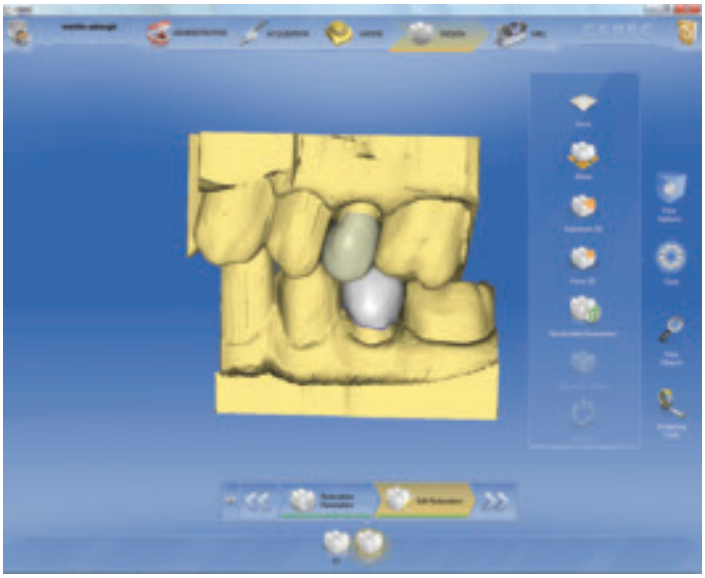
11 Simply by clicking on "Upper Jaw," we can now begin recording the upper quadrant and tooth #13. One of the nice features of this new interface is that by clicking the jaw or catalog you want to record, the BlueCam will automatically activate.

12 (Right) This illustration shows the buccal bite being recorded and the software articulating opposing preps in the 3-D preview.



13 (Below right) One of the features that many users have been asking for is the option for more catalogs. In V3.8, you did not have the ability to record opposing dentition and buccal bite when doing Biogeneric Reference. You still had to use bite registration to record occlusion. In the new software, we will not be limited by just three catalogs. We will have the ability to add as many catalogs as we would like to open up many different design options. If you want to record a pre-op and do buccal bite, this is no problem. The possibilities are endless.





14 Teeth #13 and #20 are both active in opposing quadrants in Design mode. This not only will make our designs more efficient, but we will also have the ability to fine-tune the occlusion of both restorations at the same time with high precision.

With any software upgrade, we as users experience change that will allow us to be more effective, efficient CEREC users. This software update involves the first new graphical user interface in more than eight years. This will change the way we do CEREC dentistry, both in the short term and in the future. More options, more possibilities, and more innovation. ❖

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CEREC SW 4.0

Taking Biogeneric Reference for a Test Drive with V4.0

BY ARMEN MIRZAYAN, M.A., D.D.S.

For beta testers, late winter and early spring generally mark the onset of testing software updates. The time is filled with excitement, but also with an awareness of the pitfalls of uncertainty. This year the anticipation for the major overhaul of the software had the team eager to tackle more comprehensive cases.

Biogeneric Design was the advent of producing restorations that actually took neighboring teeth and information into consideration during the proposal process. When CEREC first went to three dimensions, we were just excited to get any proposal, and would spend an enormous amount of time correcting form and function. Now all that design work has been removed, and the software can give predictable results, deriving its information from pertinent data.

I decided to take the new software on a test run by designing two peg laterals, deriving their contours from an intact central incisor. With the new software, it is possible to fabricate multiple restorations at the same time, even if they are in opposing arches. The software is now even more intuitive, and essentially guides you through the process.

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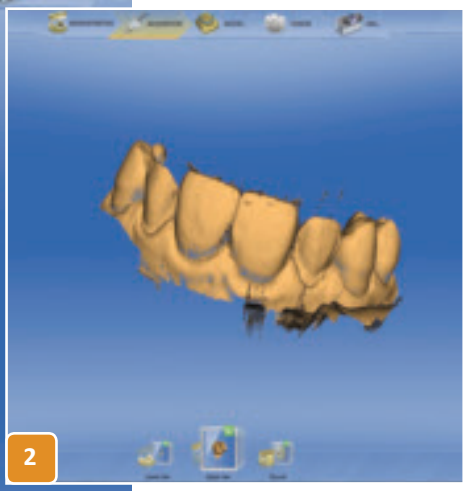
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Initially, you launch the Administration tab, where you designate which teeth you will be working on (Figure 1). At this step, you can even choose the material you will fabricate and the type of design you will be rendering.

After this initial dialog box is addressed, the software leads you to the image acquisition step (Figure 2). You have the opportunity to capture the Buccal Bite, and the lower and upper arches. You can even introduce another set of optical

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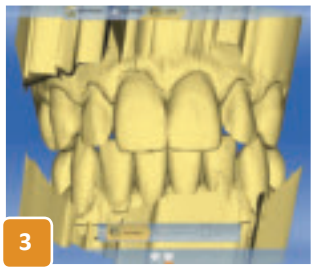

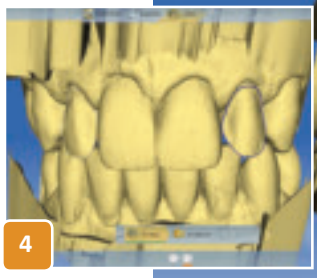

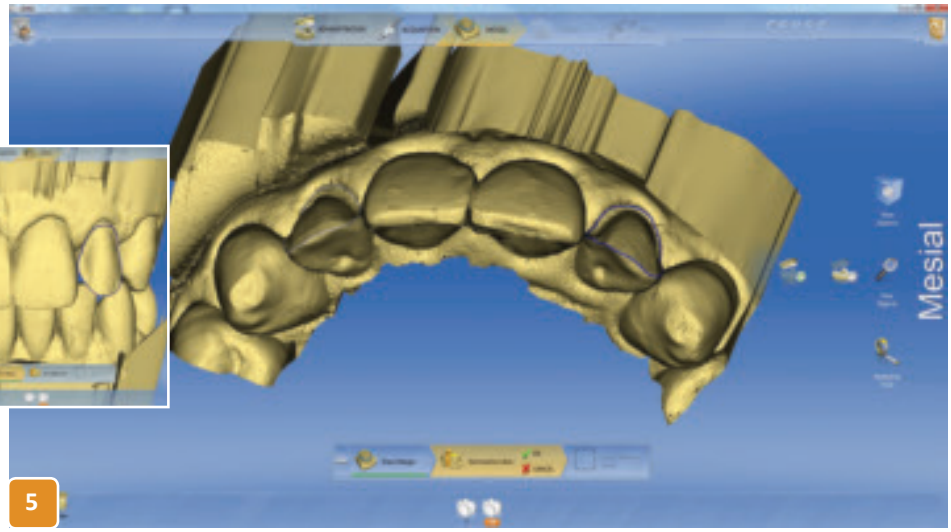

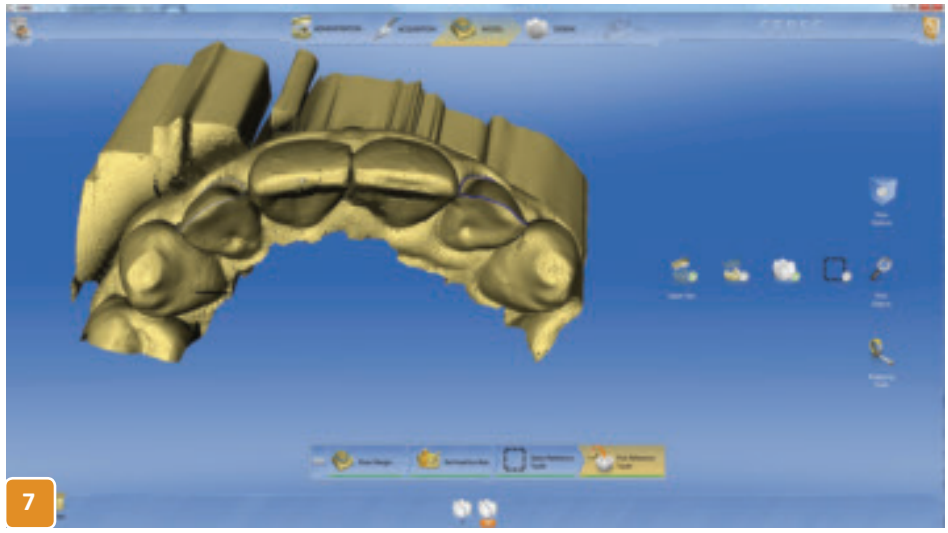

impressions, if you so desire.

After the image acquisition step, you will generate models (Figure 3) and begin the margination of both preparations (Figure 4). You also set their respective insertion axes (Figure 5) before proceeding to the design phase. Note that both the upper and lower arch models are colored yellow — a stark contrast to previous software versions, where you could only design on one arch at a time.

Next is the selection of the Biogeneric reference image (Figure 6), which is followed by indicating the morphology of the tooth you want the software to develop the restorations around. After double-clicking on said image (Figure 7), the initial proposals are rendered (Figure 8).

If any modifications are needed in the design phase (Figure 9), you can activate the tool design wheel (Figure 10, inset), and appropriately contour the restorations. The design tool is a powerful feature in our armamentarium allowing for control of restorations, unlike what we have experienced in the last two decades. The construction lines are removed and you bodily affect the restorations.

This was an opportunity to look at the software at first glance, before the full version of the software is released. The faculty at cerecdoctors.com is eager to see how far we can push the program when it has reached its full potential. At this time, we are simply in awe with what this current beta version can do. Keep checking with us regularly to see the progress it is making. ❖

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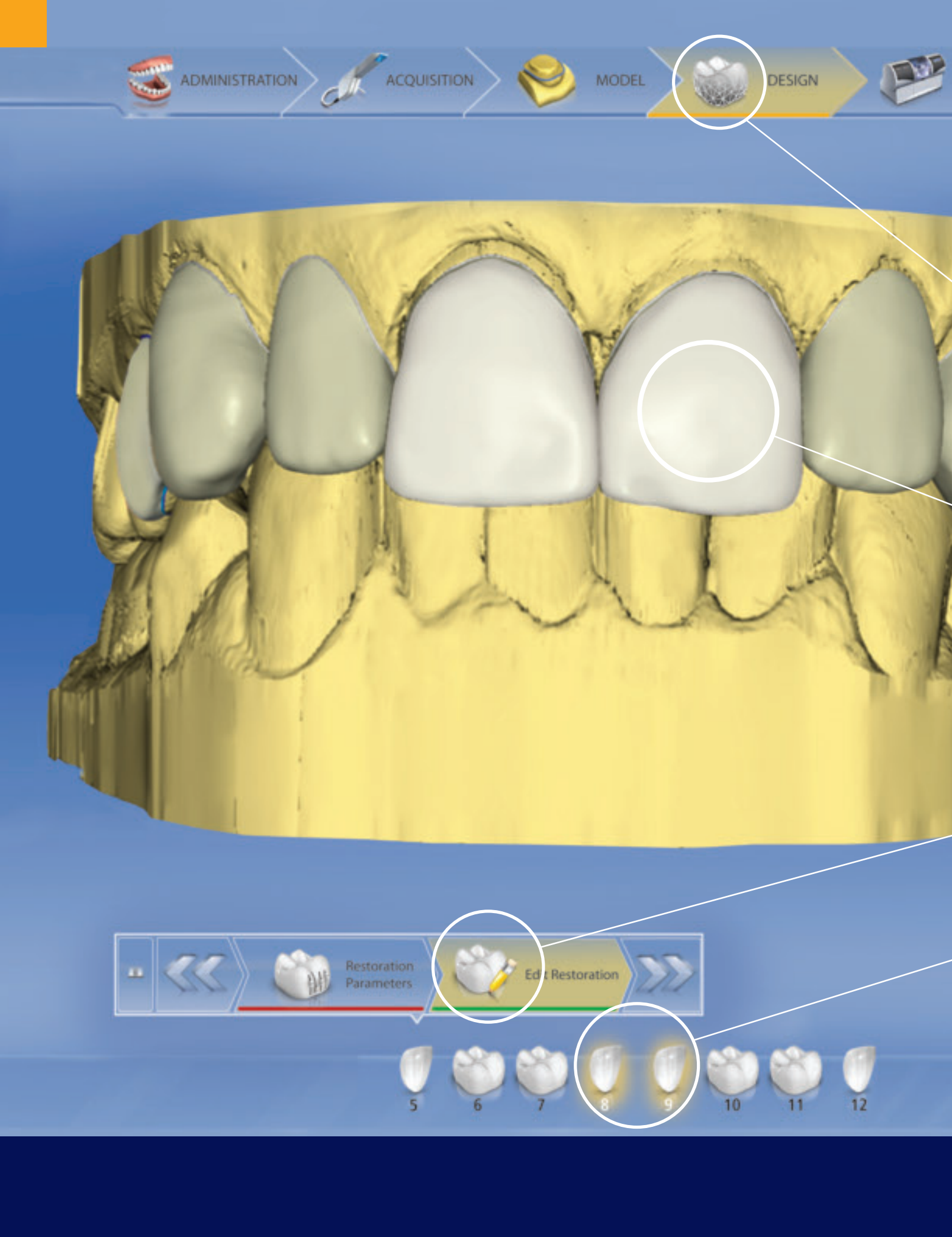
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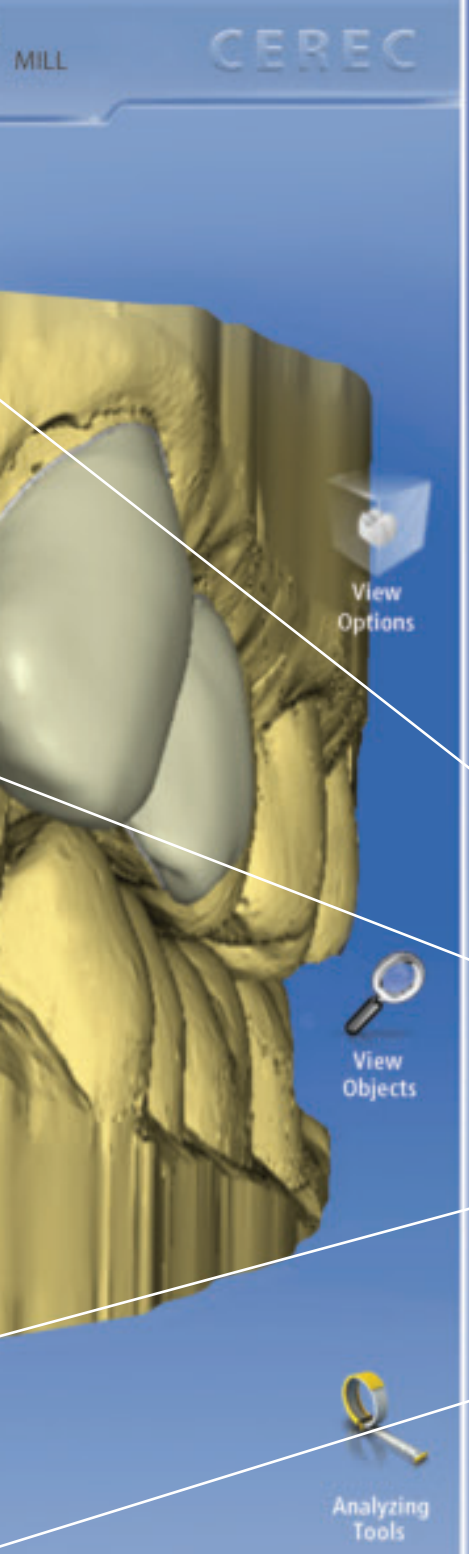

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CEREC INLAB

Chairside Model Milling: A Natural Evolution of Digital Dentistry

BY SAMEER PURI, D.D.S.

If you look at the direction that digital dentistry is heading, the need for laboratories to have physical models to fabricate their restorations is on the decline. With the ability of the software to design full-contour restorations where the occlusion can be designed virtually, physical models are becoming more and more a thing of the past.

Materials such as e.max allow the user to fabricate full-contour restorations without the need for physical models (Figures 1a, 1b). Single-unit restorations are relatively simple to design and mill full contours but bridges have been more of a challenge.

Until now, there had not been a material available that was strong enough for full-contour bridges. Zirconia is one option, but the esthetics of full-contour zirconia make it difficult to use in visible areas, although materials such as the inCoris blocks from Sirona will soon allow the milling of full-contour bridges.

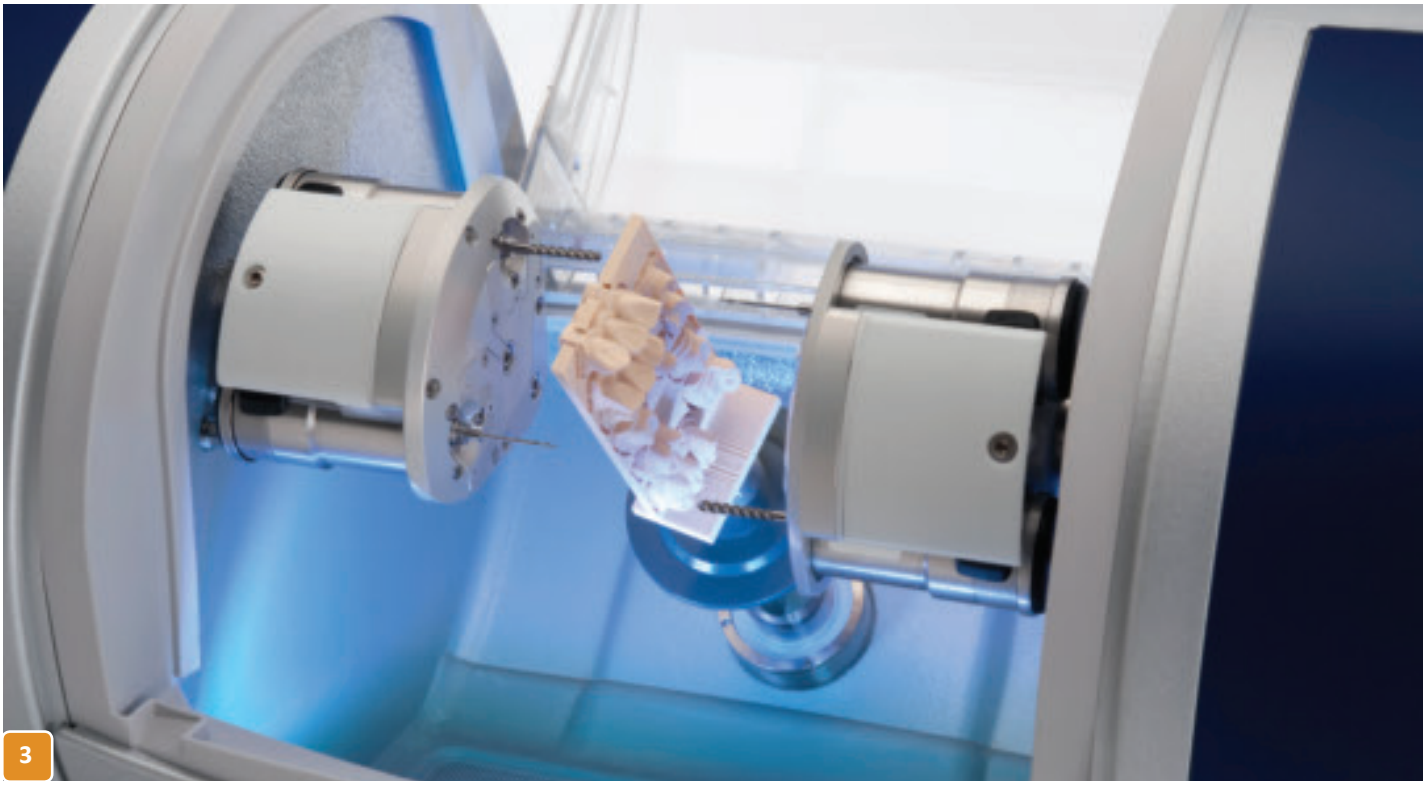
With bridges, a framework (which can be designed virtually), is typically fabricated mounted on a physical model, and the layering porcelain is hand-stacked into the proper occlusal scheme. In this situation, a physical model is a complete necessity.

Advances in software, however, are making models for this clinical situation a thing of the past. Bridges can now be designed with the CEREC inLab software using the layered technique. The technique involves designing a full-contour bridge and virtually separating the framework and the layering porcelain using the software. The technician can then mill each of these entities separately from large monolithic blocks, a zirconia block for the framework and either e.max or Vita porcelain for the occlusal layer (Figures 2a, 2b). Once milled, the two pieces are fused together, resulting in a bridge with idealized occlusion without the need for physical models.

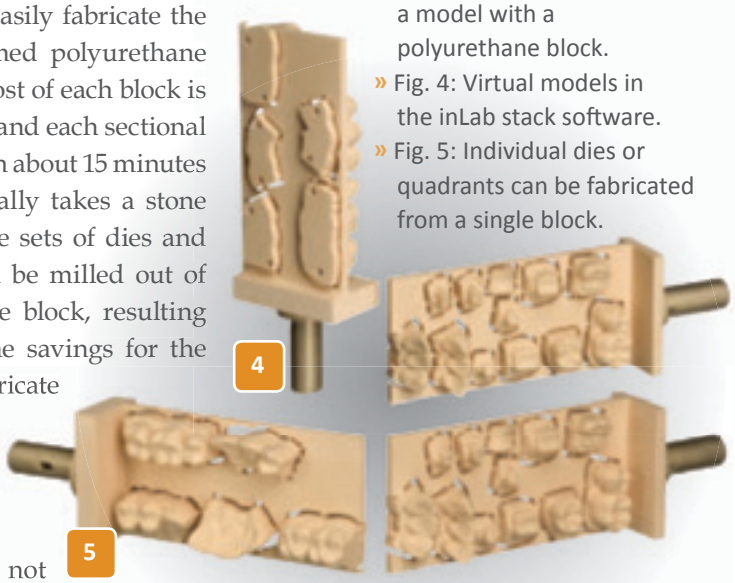
As advanced as the software is becoming, and while the future need for physical models will be virtually eliminated, the need for laboratories does still occasionally exist. Perhaps technicians may need a quick die to

» Figs. 1a, 1b: Full-contour restoration designed virtually with proper occlusion and contours.

» Figs. 2a, 2b: Bridges can be designed and milled in segments – the framework and the layering porcelain.



» Fig. 3: MCXL fabricating a model with a polyurethane block.
» Fig. 4: Virtual models in the inLab stack software.
» Fig. 5: Individual dies or quadrants can be fabricated from a single block.



check their margins, or a model to stack porcelain on if they are doing extensive layered cutbacks. Whatever the reasons, one can see the occasion where a model may be helpful.

One of the new features recently introduced by Sirona is the ability of CEREC users who have the inLab software as well as the inLab milling unit with four motors to mill models with their MCXL milling units (Figure 3). This feature was recently introduced at the Chicago Midwinter meeting this past February.

The models are fabricated from the digital impressions that are taken with the CEREC BlueCam or InEos cameras, and then converted to a format that can be milled by the milling unit. The 3.85 inLab software allows the user to trim models, make saw-cuts, prepare chamfers and set pinholes. Once adjusted, the individual models can then be positioned virtually in a polyurethane block using the inLab Stack software (Figure 4).

New grinding burs allow for fine detail on the models and allow the user to quickly and easily fabricate the models from preformed polyurethane blocks. The average cost of each block is approximately $7.50, and each sectional model can be milled in about 15 minutes – faster than it typically takes a stone model to set. Multiple sets of dies and quadrant models can be milled out of a single polyurethane block, resulting in efficiency and time savings for the lab, as they can fabricate multiple patient cases out of one block (Figure 5).

While these early milled models are not quite the resolution and quality of a high-end, well-crafted stone model, they do possess more than enough detail and anatomy for most applications. Considering these are the first-generation chairside models from any CAD/CAM system, the advancement is quite significant.

There is no doubt that in the near future models will become unnecessary as the software is able to do all the articulation and occlusion virtually - not only for single units but also multi-unit bridges and large reconstructive cases. Until we reach that goal, the model milling will provide laboratories with another option to create a physical model in addition to their already available options. ❖

THE INDUSTRY

IDS 2011: Bigger and Better Than Ever

BY CHRISTOPHER GOODSON, GLOBAL PRODUCT MANAGER, CEREC SOFTWARE

Wow, what a ride!

As I write these lines, I'm physically and mentally recovering from the largest trade fair for dental medicine and dental technology the world has ever seen. The International Dental Show 2011, March 22-26 in Cologne, Germany featured a whopping 1,956 exhibitors on 1.56 million square feet of show floor, as well as 115,000 visitors from all over the world. For my employer, Sirona Dental Systems, the IDS was a huge success, a great payoff for the massive investments made.

For me and my colleagues personally, Sirona's success at IDS was an even more satisfying payoff – for the months of preparation (blood, sweat and tears!) leading up to the show. Whether from manufacturing, sales, marketing, show setup or management – everyone really pulled together to put up a good show for our visitors. For many of us, that meant spending Sunday and Monday finalizing booth construction and readying the demo stations. The show opened for dealers only on Tuesday morning, and was already packed. The crowds only got bigger as the show progressed every day until Saturday evening. At the Sirona booth, it was standing room only, and we had a blast. That's one of the things that make this company so special. In the midst of all the stress and hard work, we all get along and have fun doing what we do.

So what was my part in all the hustle and bustle? As global product manager for CEREC Software and CEREC Guide (based at Sirona headquarters in Bensheim), I had two very exciting products to present, both of which will hit the market in autumn of this year. Of course, the time gap between the IDS presentation and the fall release

» (Left to right) Mr. Ingo Zimmer of Sirona, Dr. Doug Schulz, Mr. Adam Busch of Sirona and Dr. Mark Fleming.

means we can't just grab the products from storage. We've been developing, testing, revising, and testing again for a while now; it is my job to manage and support these tests while deciding on changes and plans for the products. At the same time, there were press releases to write, presentations to create, lectures to prepare, booth personnel and sales specialists to brief. Hands-on training, multimedia planning, team coordination… As the human interface between the market and R&D, a huge amount of information and work crossed my desk in the past months. IDS preparation began last fall, and the intensity constantly increased along the way.

When the show finally started, pleasure mingled with business. Sure, attending the CEREC stations, demonstrating the system, answering questions and selling units keeps us busy. But IDS is also a great opportunity to catch up with friends and business partners from around the world.

The evenings are never boring and the nightlife alone is worth the trip. And major sales success topped the whole show off.

IDS 2011 was all we had hoped for and more. Now it's time to finish developing the products we displayed there: not only the aforementioned CAD/CAM innovations, but also the new SINIUS chair, the GALILEOS face scanner and the SIRO Boost instrument line, among others. Once all these products have been successfully introduced to the market, new innovations are waiting for our attention, and it's almost time to start preparing for the IDS 2013. Which brings me to a very important tip for *cerecdoctors.com* readers out there: If it is possible in any way for you to spend a few days away from your practice or lab in 2013, do so. Come to IDS, see the new products, network with colleagues and manufacturers, do some sightseeing. You won't regret it!

On that note, I will close my first-ever column for *cerecdoctors.com* magazine. I hope you enjoyed my look at IDS. I hope to make this an irregularly appearing feature here, giving you insight into products, events and work in Bensheim in general. So until next time, take care and Happy Milling! ❖

PROFILE

Gene Messenger, D.D.S.

BY MARK FLEMING, D.D.S.

This self-confessed "high-tech" dentist shares how his practice, mindset, staff and patients have been transformed by the addition of CEREC.

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

A: I am a graduate of University of Tennessee, Class of 1991. I practiced in New Jersey for a large group practice for approximately two years. After gaining the experience, I decided to purchase my own dental practice and found a small private practice in the city of North Adams, Mass. My family and I fell in love with the building and the location, so we decided to purchase the property and make the Berkshires our new place to call home.

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

A: With the purchase of my first practice, I started with a client base of 1,800 patients and a staff of three. Over the past 16 years, my practice has expanded and my client base has reached 6,000 active patients with an office staff of 10. My staff currently consists of three assistants, three hygienists, two receptionists, one office manager and one business manager. The growth resulted in the relocation of my practice to the current 12,000-square-foot building located privately on 11 acres, only three miles south of our original practice. My new practice opened in June of 2010. I am looking to expand even further by bringing in a periodontist and an endodontist a couple of days a week. My daughter, AnnaMarie is currently a third-year dental student in Buffalo, N.Y. We anticipate her joining our practice in 2012.

Q: *How many operatories does it have?*

A: My practice has nine operatories. I have designed them so that each has a specific function.

Three of the nine operatories are designated to hygiene. Of my six operatories, three are used for basic dentistry and CAD/CAM dentistry. I have one set up specifically for endodontics. I have another set up for orthodontics and bleaching. The last is set up for oral surgery, extractions and the placement of implants. All of the operatories have centrally located televisions, which helps with patient comfort.

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

A: I am a "high-tech" general dentist. I have integrated as much technology into my practice as possible and continue to do so, as new technology is introduced. I like anything high tech. All hygiene operatories are equipped with Florida Probe and DIAGNOdent. In all of my operatories I have Biolase MDs for removal of small cavities and soft tissue applications. I have CEREC units in three of my operatories for inlay/onlays, crowns and smile makeovers. I use GALILEOS for panoramic and 3-D imaging, Schick Digital X-Ray Sensors, Isolite, Zoom Advanced, Eaglesoft practice management software and paperless charting. I also do Six Month Smiles and Snap-On Smile.

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

A: I started looking at CEREC back in dental school. There was an article in the *JADA* in 1988 about it and I remember thinking, "I'm going to do

» Dr. Messenger's high-tech general practice in North Adams, Mass., includes (clockwise from top) a sterilization center, GALILEOS, and patient consultation suite.

that when I get out of school." After practicing for about seven years, I opened my own dental lab and closed it five years later. I figured if I wasted $100,000 on a lab and I was still OK, I could invest in myself. It was then that I started my journey with the CEREC 2. CEREC has come a long way since then, and I have enjoyed the journey. I have made a lot of great friends in the CEREC community and in Dentaltown. I went to E4D's headquarters in Texas and I saw their system. I liked CEREC; it was a much better fit for my practice.

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

A: CEREC has changed my whole mindset. My view on restoring teeth has changed immensely. I can be very conservative and save more natural tooth structure. In one visit, I have the ability to fabricate, try-in, make any needed

» Dr. Messenger with his office team and three CEREC machines.

adjustments, custom stain and glaze the crowns and insert. No temps and no impressions. I like one-visit and done.

Q: *How does CEREC impact your practice?*

A: CEREC has made me a better dentist. My preps are better, and my crowns look better. It has helped me grow as a dentist and has kept it exciting. I am amazed at the precise fit and how natural they look. After 12 years, I still get excited by how good they fit, and with the new block I custom stain crowns a lot less. With the integration of GALILEOS and CEREC, I am placing implants with surgical guides. That is something I never would have thought about doing years ago. So, has CEREC impacted my practice? ABSOLUTELY! It has given me the confidence to do things I would not have done without it.

Q: *What is your favorite CEREC procedure?*

A: I really like doing smile makeovers of the six anterior teeth in one visit. It is exciting for me and the patient to watch their new smile develop in a matter of a couple hours. I also like treatment planning implants with the GALILEOS integration with the CEREC. All the procedures with the CEREC are fun. I feel like a kid with a new toy every day, and it's contagious with my staff and the patients.

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

A: I had a patient want me to put a flower on the facial of a crown. She really wanted it, so I did it, but told her not to tell any other dentist that I did it. She LOVES it … go figure. I also did an inlay bridge with the CEREC 2 years ago, and it's still there.

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

A: My assistant said I would "throw a temper tantrum, stomp my feet and take a personal day"! On a serious note, my career in dentistry would not end, but it would definitely not be the same for me, my staff or my patients.

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

A: Yes. I would like to thank my wife for letting me buy all my toys … uh … er … I mean office equipment. ❖

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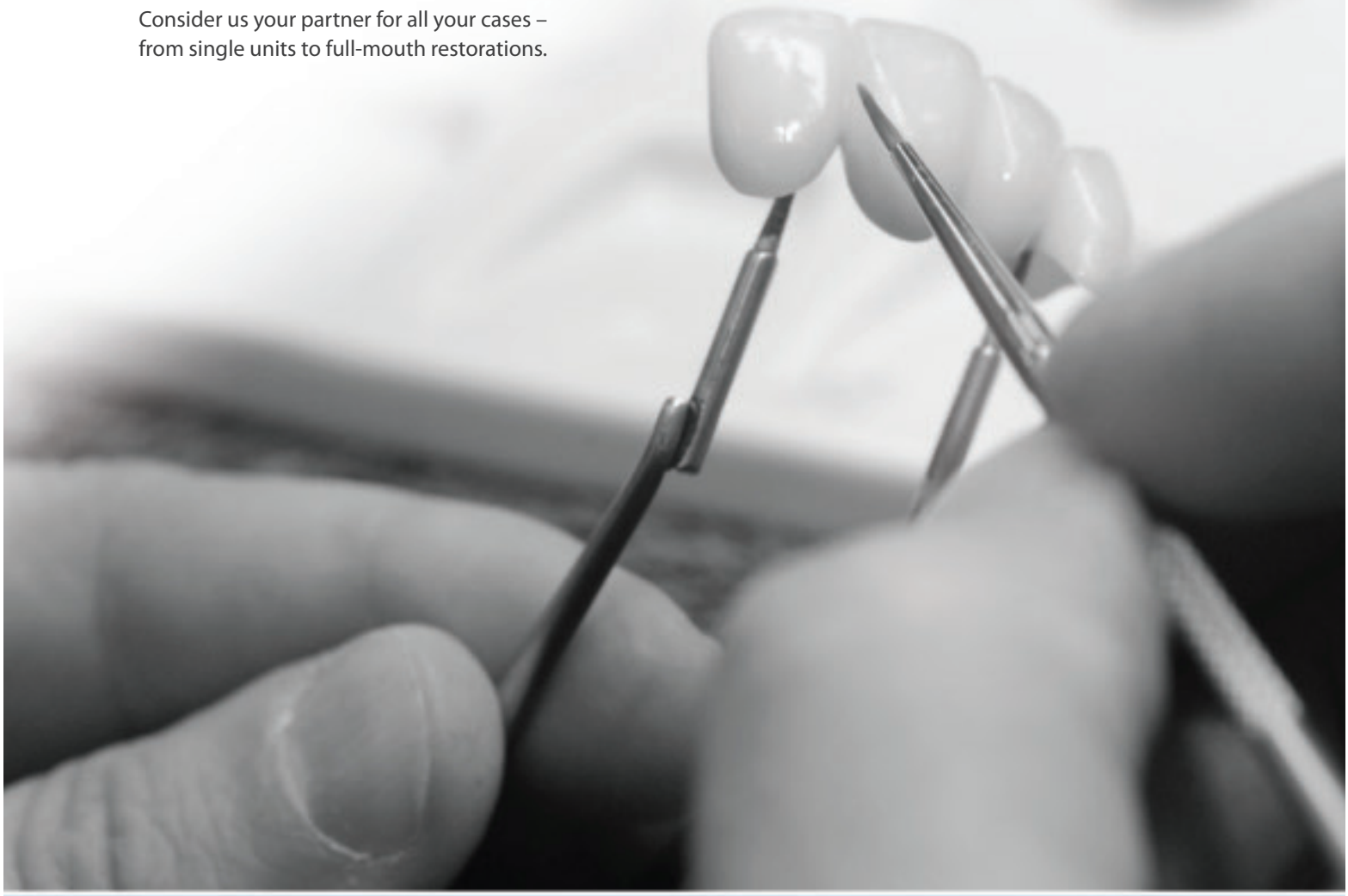

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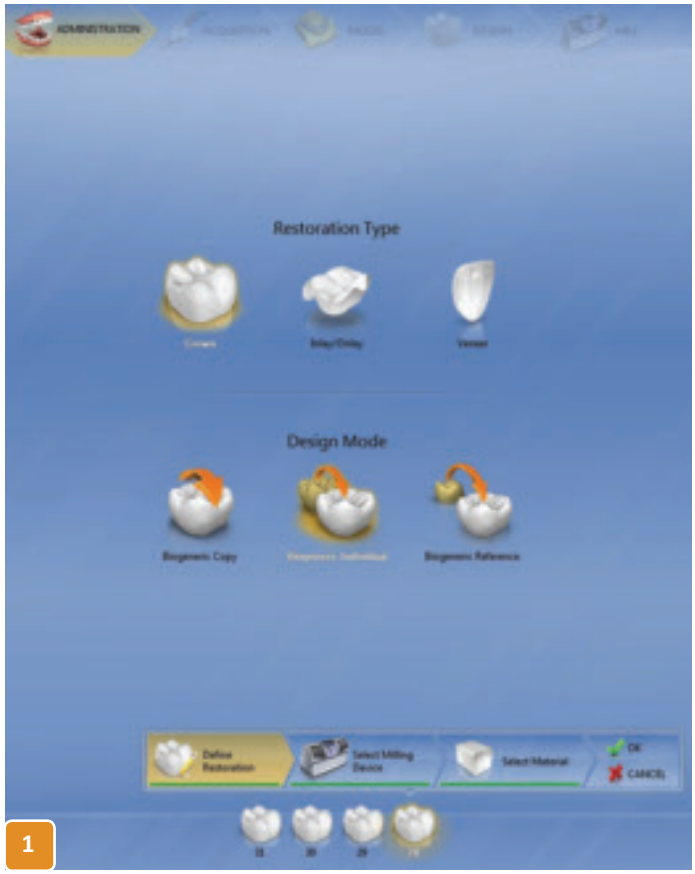
CEREC SW 4.0 Case Study: CEREC 4.0 and Implants

BY PETE GARDELL, D.D.S.

The newest evolution of the CEREC chairside software features some great advancements that make the restoring of complicated cases simpler and easier.

The updated design starts off with a clean and uncluttered workspace. Gone are the static blocks and bars that contained operations, tools and functions, which occupied valuable real estate on our CEREC monitors. They are replaced with dynamic tabs, menus and disks that house our needed tasks and tools. Only the necessary items for the particular step are there, which frees up the display to show us the virtual model as large as possible. This is helpful as we go through our design steps.



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> Complex restorative solutions can be designed and fabricated in a simple and straightforward manner. The digital solution is no longer complicated.

If we go forward to another step but realize that a prior step needs adjustment, a simple click of the action tab on the top of the screen brings us to the exact point where we want to make the change. Clicking the action tab again brings us back to where we were before. This workflow is quick, efficient and simple.

When the new tools are utilized, it reminds one of a phrase from years ago when Lotus improved its word processing software: WYSIWYG (What You See Is What You Get). No more trying to figure out how many clicks and which direction tab the user has to utilize to have the proposal where they want it. You simply grab the tooth with the appropriate tool and drag it to where you want it. This simple and intuitive workflow is a major advancement in CAD/CAM dentistry.

CASE STUDY ONE

A 70-year-old female presented with swelling and discomfort in her lower jaw. A radiographic exam revealed that she had a fractured distal abutment on a fixed bridge

28-31. Upon removal of the fixed bridge, it was deemed both teeth were non-restorable.

The first step was to decide in what manner to restore the area, meaning how many implants would go in the now edentulous area. This allowed the surgeon to properly prepare the area for implant placement and would allow the final restoration to be fabricated efficiently and look lifelike when placed.

After the teeth were extracted, a study model was scanned and the CEREC software was used to propose the restorations. The flexibility of the CEREC software provided a great design where proper proportions, angulations and locations of the teeth could be worked out quickly and easily.

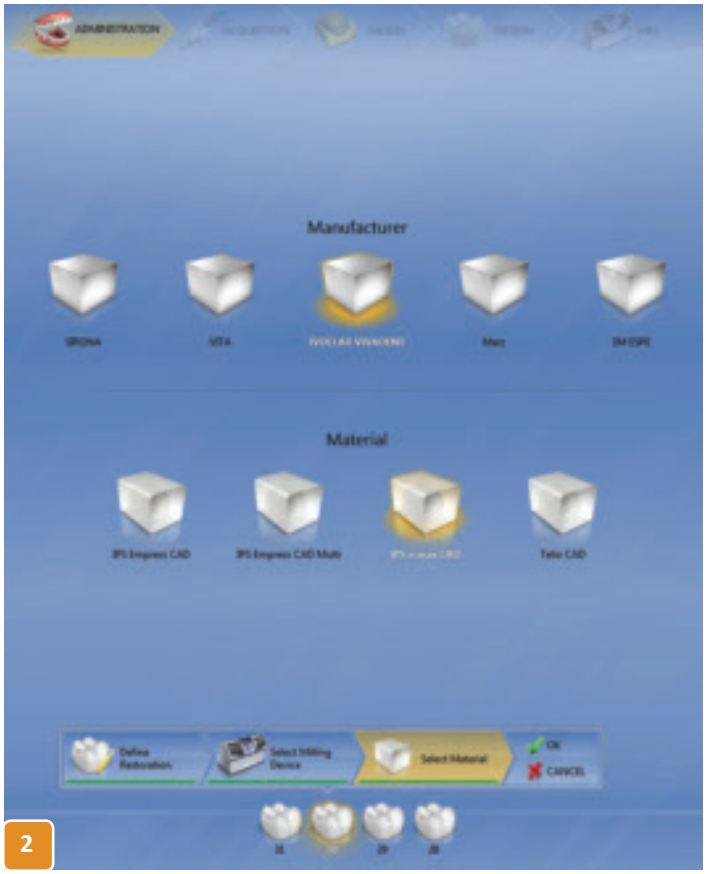
Since it was for planning purposes, minimal adjustments of the proposal had to be made due to the accuracy accomplished with the Bio-generic software. The quadrant was designed as a bridge since a Vita CadTemp bridge could be milled and converted into the surgical guide. The surgical guide was furnished to the surgeon for the surgical appointment.

CEREC 4.0 gives us new flexibility; we are no longer limited to Biogeneric proposals for bridge design. It's a huge step forward when we are dealing with complicated restorative cases (Figure 1).

CASE STUDY TWO

The patient was referred to an oral surgeon for placement of an onlay graft and implant placement due to a defective ridge inadequate for implant placement in its current form. After appropriate healing, the surgeon gave the okay to restore the area.

After placement, the patient presented with four Biomet 3i Certain implants with an internal hex. An implant level impression was performed and a soft tissue model fabricated. Stock abutments were selected and prepared.



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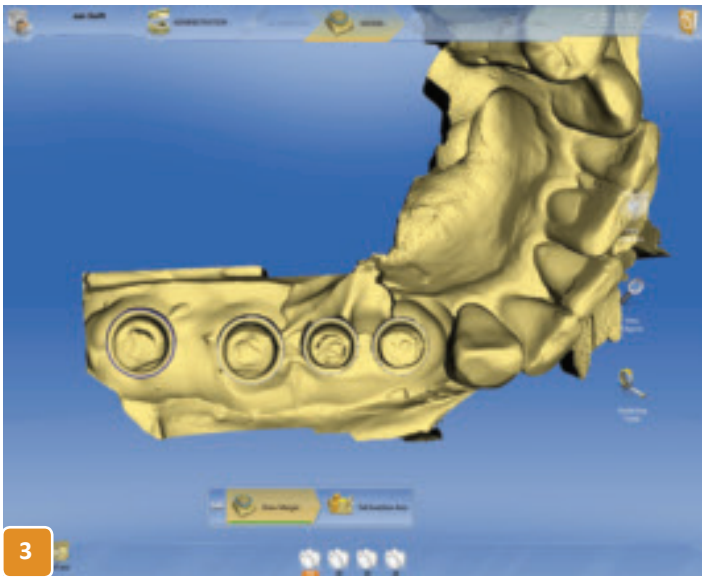
The patient's existing file was opened in the software and a new case was selected for the new CEREC workflow. The restoration type and material were chosen for each of the implant crowns.

The new CEREC software is user-friendly as the parameter selection screen is easily accessed in this window. These choices may be modified in later steps if needed.

The models that were imaged after the removal of the soft tissue and application of liquid reference were: maxillary arch, buccal bite images, and then the mandibular arch, which contained the area to be restored.

After the buccal bite had been stitched and the virtual model rendered, we could then marginate all four of the abutments and select the insertion angle. The placement of the implants was such that only a slight adjustment of the insertion angle was required. These restorations were to be fabricated as individual units.

The Design tab was activated and the proposal for the tooth selected was generated. By clicking the tooth icon at the bottom of the screen, we could then activate the Design tab for all teeth in the quadrant. Double click the tooth you want to manipulate, select the tool desired, and you are



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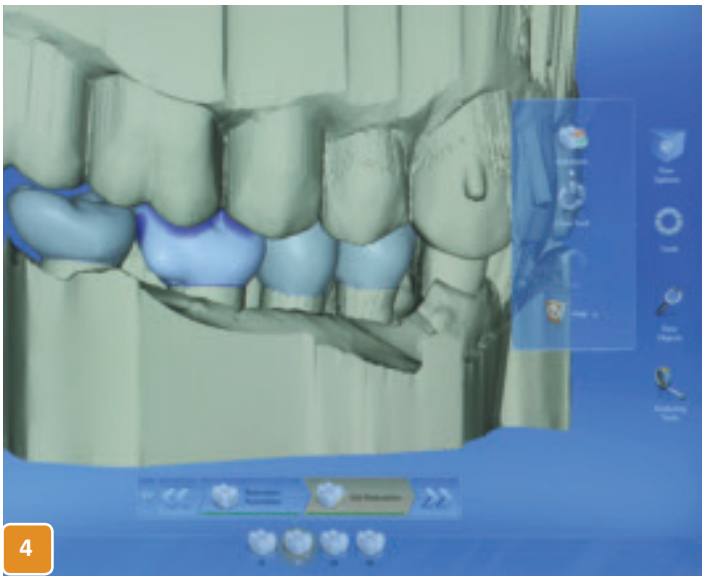

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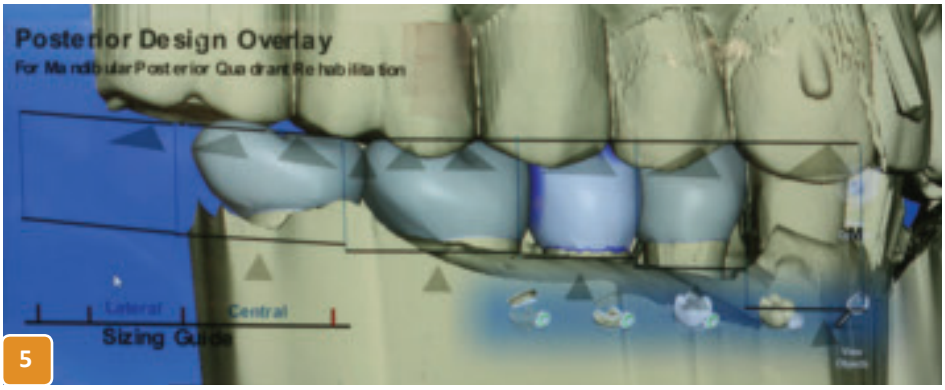
finished. Real time manipulation using the WYSIWYG concept.

After a quick evaluation of the anatomy, if the proposal is not what you want, use the Biogeneric Shape Tool for a quick modification. Just slide the bar for more or less proposal detail. No more time wasted reselecting a database or having an involved process of modifying the proposal with previous tools (Figure 2).



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Check contacts by deselecting Mandibular arch model; Form (+, -, or Smooth), Move tool, Form 3-D and AutoForm 3-D tool can be used for a quick adjustment. If you click on the maxillary arch model, you can see that as you change your proposal with the Move or Rotate tools to improve your occlusion, your contacts are affected. Click the mandibular arch model to view the adjacent teeth, evaluate proportions and angulations, and adjust them to be harmonious. Posterior Overlay allows for a quick evaluation, and lays down the reference marks to guide adjustments (Figure 3).

As you evaluate both the exterior and interior of the restoration, you will notice that the proposal has been calculated in its entirety. You no longer have to wait until the mill preview to check the intaglio. Evaluation can be done early, preventing wasted time (Figures 4, 5).

Changes to the parameters are real-time adjustments. Open the Parameter dialog box, adjust the slider, and you can see your adjustments affect the proposal right before your eyes.

Individual e.max crowns were fabricated on the abutments. Both screw-retained and cement-retained restorations were completed and delivered.

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Cementation Choices for CEREC Restorations

COMPILED BY DARREN GREENHALGH, D.D.S.

Discussion Board QR Code

Many of us use different bonding systems within many generations of bonding agents. This conversation, titled "Total Etch Versus Self-etching Primers" discusses the use of different bonding techniques in restoring CEREC restorations. To view this particular thread online, scan the QR code above, or visit www.cerecdoctors.com and type "etch" in the search box.

Steve Nielsen
Shelley, Idaho

» *Welcome to Dental Material Class.*

Both total etch and self-etching primers for bonding work very well, but the total etch technique has a critical step with moisture control that, if not considered, will increase sensitivity and reduce bond strength by 50 percent.

The intent of the total etch technique is to completely remove the smear layer and have bonding agents penetrate not only into the tubules, but into the surrounding dentin (which is the hybrid layer).

The trick is to get the resin into those tubules and surrounding etched dentin.

If you DRY the dentin, the collagen layer will collapse and make it more difficult for resin to penetrate, creating less bond strength. I compare it to someone who has long hair underwater. Their hair floats apart but when they come out of the water, it flattens down. The trick is, how much moisture do you want to maintain?

The answer is DAMP, and the air syringe is not the best instrument to achieve it. After rinsing the etch off, suction off the excess water, then absorb the rest with a cotton pellet. If there is too much moisture, just touch the cotton pellet to the patient napkin and excess water will be drawn out. Then use the moist pellet to absorb more excess water from the prep. It may take a couple of times, but will leave the dentin slightly glossy and able to accept the resin into the matrix.

If you dry out the dentin, it not only causes the dentin to collapse, but the hydrostatic pressure in the tubules change, causing stress to the odontoblasts down in the pulp chamber, and thus more sensitivity.

Continued on page 40

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With the self-etching primer technique, the question of moisture is never an issue because you never dry it out – from the time you put on the etch/prime layer to the time you cure the resin. This technique intends to remove the smear layer from the dentin, but not out of the tubules.

In this technique, the hybrid layer is not as thick as with the total etch technique. Also, the resin is intended to penetrate through the dentinal tubule plug. That plug helps to close off the tubule and protect the odontoblasts from stress, thus less sensitivity.

Using regular etch before the SEP opens the tubules and according to: Walker, et al, Influence of Additional Acid Etch Treatment on Resin Cement Dentin Infiltration, *J Prosth* 2000:0:77-81, "combining conventional acid etching treatment with self etching primer/resin cement system resulted in incomplete resin cement penetration." That study is already 10 years old, and I don't have any more references right off, but at least it gives you food for thought.

Class Dismissed!

Doug Sakurai
Santa Ana, Calif.

» The question I have is about the enamel. I know that the dentin needs to be moist for the optimal bond, but doesn't the enamel have to be bone-dry? How do you get one surface dry and the other damp?

Charles LoGiudice
Genesco, Ill.

» Both your posts have helped me to make up my mind to stick with Multilink, because I am not good enough to get the ring of enamel dry and keep the dentin damp. I am getting better at etching only the enamel ring and not slopping too much onto the dentin. Then I apply Gluma, and after a minute, dry the whole thing and apply the mixed A&B primer. Thanks for sharing your thoughts.

Steve Nielsen
Shelley, Idaho

» Good point, Doug. Maybe that is why a lot of movement is toward SEP because it is more predictable and controllable. However, if the enamel is slightly moist like the dentin, I believe you will still have a better bond than the dentin bond. Enamel always bonds better.

Greg Heideman
Las Vegas, Nev.

» Can I stir the pot a little? Again, not to offend, but rather to continue the discussion so that all who view this can continue learning. If you have access to Dental XP, there is a video there called *Common Myths in Dentistry*.

Summary: Author of *Dental Updates*, Dr. Richard Erickson shares some common myths in the dental industry.

Description: Dr. Erickson discusses many different myths in dentistry, examining whether or not there is data to support them. Dr. Erickson received his B.S. and M.S. degrees in organic chemistry, and he agrees with many researchers that wet bonding is a myth we all got on board with. The hair in the swimming pool seems to make sense conceptually and it has been proven on the bench top with extracted teeth (which is where most of these studies are done). However, in the mouth, the research (of which there is very little) does not support this common belief.

In 2002, Jorge Perdiago did the study that ran counter to this common held belief. Worth looking into.

Continued on page 42

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I am impartial – I have learned that once you become unteachable, that is when you get into trouble. So I like to discuss the outliers, but I usually practice with the mainstream.

Just wanted to throw this out and get your thoughts.

Sameer Puri
(cerec doctors.com co-founder)
Tarzana, Calif.

» When Clearfil SE came on the market, it was one of the first self-etching bonding agents. At one point it had, like, 70 percent market share because of exactly what Chuck said. It's more predictable. Docs don't know what wet is, what dry is, what damp is.

Self-etching bonding agents take out the guess work, and that is why they have been so popular. The only drawback is that most don't etch enamel well. That is why it's recommended to etch the ring of enamel with phosphoric acid.

Great discussion guys, and thank you, Professor Steve!

Greg Heideman
Las Vegas, Nev.

» Here is the article you referenced earlier:

Influence of additional acid etch treatment on resin cement dentin infiltration

Mary P. Walker MS, DDS, Yong Wang PhD, James Swafford MS, Adrian Evans, Paulette Spencer DDS, MS, PhD

Purpose: The purpose of this study was to compare the penetration of a resin cement into dentin surfaces pretreated with self-etching primer with or without conventional acid etch.

Materials and Methods: Dentin surfaces of eight unerupted human third molars were treated with self-etch primer (Panavia 21; Kuraray Co, Ltd, Osaka, Japan) with or without conventional acid etch treatment. A resin cement (Panavia 21) was applied according to manufacturer's instructions. Dentin/resin cement interface sections from each tooth were examined with light microscopy and scanning electron microscopy. In the light microscopy sections, exposed protein at the dentin/cement interface was stained a distinct red with Goldner's trichrome.

Results: The resin cement did not penetrate the depth of the zone of demineralized dentin when the self-etch primer was used in combination with conventional acid etch treatment. Inadequate resin cement penetration leaves a substantial area of exposed protein at the dentin/cement interface. In contrast, there was complete resin cement diffusion throughout the demineralized dentin when the self-etch primer was used without acid etching.

Conclusions: Combining conventional acid etch treatment with a self-etching primer/resin cement system resulted in incomplete resin cement penetration and exposed protein at the dentin/cement interface.

NOTE: EXTRACTED TEETH BENCH TOP

NOTE: WHAT WAS THE DEPTH? WHAT IF A DENTIN PRIMER WERE ADDED FIRST?

Greg Heideman
Las Vegas, Nev.

» Just when we as clinicians wanted to make it simple – it really is complex ...

Dentin bonding-variables related to the clinical situation and the substrate treatment.

Perdigão J., Department of Restorative Sciences, Division of Operative Dentistry, University of Minnesota School of Dentistry, 515 SE Delaware St., 8-450 Moos Tower,

Minneapolis, MN 55455, USA. perdi001@umn.edu

Abstract: The wetness of dentin surfaces, the presence of pulpal pressure, and the thickness of dentin are extremely important variables during bonding procedures, especially when testing bond strength of adhesive materials in vitro with the intention of simulating in vivo conditions. The ultimate goal of a bonded restoration is to attain an intimate adaptation of the restorative material with the dental substrate. This task is difficult to achieve as the bonding process is different for enamel and for dentin – dentin is more humid and more organic than enamel. While enamel is predominantly mineral, dentin contains a significant amount of water and organic material, mainly type I collagen. This humid and organic nature of dentin makes this hard tissue very challenging to bond to. Several other substrate-related variables may affect the clinical outcome of bonded restorations. Bonding to caries-affected dentin is hampered by its lower hardness and presence of mineral deposits in the tubules. Non-carious cervical areas contain hypermineralized dentin and denatured collagen, which is not the ideal combination for a bonding substrate. Physiological transparent root dentin forms without trauma or caries lesion as a natural part of aging. Similar to the transparent dentin observed underneath caries lesions, the tubule lumina become filled with mineral from passive chemical precipitation, making resin hybridization difficult. An increase in number of tubules with depth and, consequently, increase in dentin wetness, make bonding to deeper dentin more difficult than to superficial dentin. While the application of acidic agents opens the pathway for the diffusion of monomers into the collagen network, it also facilitates the outward seepage of tubular fluid from the pulp to the dentin surface, deteriorating the bonding for some of the current adhesives. Some dentin desensitizers have shown some promise as they can block dentinal tubules to treat and prevent sensitivity and simultaneously block the tubular fluid from flowing to the surface. A new approach to stop the degradation of dentin-resin interfaces is the use of MMP inhibitors. Although still in an early phase of in vitro and clinical research, this method is promising.

Greg Heideman
Las Vegas, Nev.

» Here is an interesting one – however, it is about enamel, which we already know.

Effect of Prior Acid Etching on Bonding Durability of Single-Step Adhesives

T. Watanabe, K. Tsubota, T. Takamizawa, H. Kurokawa, A. Rikuta, S. Ando, and M. Miyazaki*

Clinical Relevance: The ability of acid etching to increase enamel bond strengths varies among single-step self-etch adhesive systems.

Summary: This study investigated the effect of prior phosphoric acid etching on the enamel bond strength of five single-step self-etch adhesive systems: Absolute, Clearfil tri-S Bond, Fluoro Bond Shake One, G-Bond and One-Up Bond F Plus. Bovine mandibular incisors were mounted in self-curing resin, and the facial surfaces were wet ground with #600 silicon carbide paper. Adhesives were applied to the enamel surfaces with or without prior phosphoric-acid etching and light irradiated. The resin composites were condensed into a mold and light irradiated. In total, 40 specimens were tested per adhesive system with and without prior acid etching and were further divided into two groups: those stored in water at 37°C for 24 hours without cycling and those stored in water at 37°C for 24 hours followed by thermal cycling between 5°C and 55°C with 10,000 repeats. After storage under each set of conditions, the specimens were tested in shear mode at a

crosshead speed of 1.0 mm/minute. Two-way analysis of variance, the Student's t-test and the Tukey HSD test were used to analyze the data at a significance level of 0.05. For the specimens without prior acid etching, the mean bond strengths to enamel ranged from 11.0 to 14.6 MPa after 24-hour storage in water, while the corresponding values for specimens with prior acid etching ranged from 15.2 to 19.3 MPa. When these specimens were subjected to thermal cycling, the mean bond strengths ranged from 11.3 to 17.0 MPa without prior acid etching and from 12.3 to 23.2 MPa with prior acid etching. The changes in enamel bond strengths differed among the adhesive systems tested. After 24-hour storage in water, the most common failure modes were adhesive failure and mixed failure for specimens with and without prior acid etching, respectively. Thus, through a careful choice of adhesive system, prior acid etching can increase the bond strengths of single-step self-etch adhesive systems.

Greg Heideman
Las Vegas, Nev.

» *Oper Dent.* 2004 Mar-Apr;29(2):176-81.

Bond strength of self-etching adhesive system to caries-affected dentin

Yazici AR, Akca T, Ozgünaltay G, Dayangaç B., Hacettepe University, Faculty of Dentistry, Department of Conservative Dentistry, Ankara, Turkey. ruyay@hacettepe.edu.tr

Abstract: This in vitro study evaluated the microtensile bond strengths of sound versus caries-affected dentin using a self-etching adhesive system, Clearfil SE Bond, with or without additional acid pre-conditioning. Extracted human mandibular molars with occlusal caries extending halfway through the dentin were used. In the first group, the teeth were bonded with the self-etching adhesive Clearfil SE Bond according to the manufacturer's instructions. In the second group, prepared dentin surfaces were etched with 37 percent phosphoric acid prior to applying the same self-etching adhesive. After the bonding procedure, all specimens were built up with composite resin and stored in water for 24 hours. The teeth were serially sectioned vertically into 0.7-mm slabs and trimmed into an hourglass shape for measuring microtensile bond strength. Each specimen was attached to a Bencor device and stressed in tension at a crosshead speed of 1 mm/minute. Statistical analysis was performed using two-way ANOVA and the Tukey HSD test ($p<0.05$). The microtensile bond strengths of Clearfil SE Bond to sound dentin (32.9) were significantly higher than to caries-affected dentin (15.9). ***In the second group where acid etching was performed prior to applying Clearfil SE Bond, there were no statistically significant differences between the microtensile bond strengths of sound (19.2) and caries-affected dentin (16.3).*** While bond strengths to sound dentin were decreased by using additional acid etching prior to applying Clearfil SE Bond, this procedure revealed no statistically significant differences in bond strengths for the caries-affected dentin.

PMID: 15088729 (PubMed - indexed for MEDLINE)

Greg Heideman
Las Vegas, Nev.

» Are you guys tired of reading yet?
J Am Dent Assoc, Vol 137, No 6, 817-820. © 2006 American Dental Association

Observations: Has the 'total-etch' concept disappeared?
Gordon J. Christensen, D.D.S., M.S.D., Ph.D.

For nearly 50 years, the procedure of etching tooth enamel and dentin with phosphoric acid to gain retention of resin by the tooth surface has been researched, recommended and practiced by the dental profession. In recent years, numerous techniques have evolved in support of "self-etching" of tooth structure, which uses weaker acids and does not require washing of the tooth surface after acid application. Self-etching systems leave the smear layer on the dentin and, in most cases, produce a significantly less aggressive etching of the enamel.

In my opinion, the dental literature holds conflicting suggestions relative to phosphoric acid etching or etching with weaker acids. It is apparent to me that practitioners are confused about when to etch with phosphoric acid, when to use self-etching agents and when to not etch at all.

Summary: Etching teeth with phosphoric acid has been a major technique in the profession for many years. Total etching of both enamel and dentin, popular for several decades, is slowly being replaced by selective enamel acid etching of tooth preparation margins and/or use of self-etching products only. I have described the various possible acid-etching techniques and suggested appropriate techniques for each specific clinical situation, as observed in successful clinical practice.

Gary Templeman
Corvallis, Ore.

» You only need the enamel bone dry if you are bonding ONLY to enamel, and are using a pure liquid resin as a wetting agent. Those resins are hydrophobic and you will get zero bond if there is moisture contamination.

If you are applying a total-etch-type dentin bond, those all have solvents (water, acetone, etc.) designed to make the resin molecules miscible with the residual water. All of those materials have you air dry after application to evaporate the solvent, then apply any resin bond or composite (depending on the brand). When the solvent is evaporated, any remaining water goes with it.

Steve Nielsen
Shelley, Idaho

» Greg,

I read your list of articles, and I appreciated seeing those references. I think it's great to have discussions like these, so nothing but smiles on this end. However, the article you showed from Dr. Perdigao only addressed dentin moistness, and increasing tubules as you approach the pulp. I would be interested in his statements you referred to regarding the total etch/ bonding and maintaining moisture. You will notice my picture of the dentin/tubule was one of his. I have a great deal of respect for him – he has had much more schooling and research experience in the dental field than any of us "wet gloved" dentists, for sure. More than I would have wanted to endure. Here is the bio I have on him:

Dr. Jorge Perdigao received his D.M.D. degree from the University of Lisbon, Portugal, in 1985. In 1992 he finished his master's degree in operative dentistry from the University of Iowa, and in 1993 he received a certificate degree in operative dentistry also from the University of Iowa. In 1995, Dr. Perdigao defended

his Ph,D. dissertation in dental materials at the Catholic University of Leuven, in Belgium.

Clinically, I can say that when I first started doing posterior composites, I was totally frustrated with the sensitivity my patients were experiencing. Without extending into everything I tried, I did find if I kept the dentin moist with total etch technique, I had far fewer complaints, and when I went to SE Bond, they basically vanished. But that is the extent of my research in that area. No statistics available to quote.

Incidentally, I did undergrad research in organic chemistry (B.S.), having published on synthesis of macrocyclic polyether-esters (a different type of "crown" compound), but that doesn't necessarily qualify me to declare that total-etch technique, and moisture control is a myth. Dr. Erikson's research in pesticides doesn't either, but he may have other research that I don't know about that would support your claim. He certainly has been involved in education during his career.

Thanks again for the posts. Maybe our next discussion should be about the use of calcium hydroxide in dentistry. That should bring up some heated discussion.

Greg Heideman
Las Vegas, Nev.

» Steve,

You rock, man! Great to have a materials guy and a great dentist in this discussion! I love CEREC doctors – they tend to be the cream of the crop; it is obvious you fit that mold.

So after all this discussion, what will we do?

Etch enamel only (as best we can) and let the self-etch do its work on the dentin?

Clinically, I have done both techniques for long periods of time. I haven't noticed any difference in sensitivity from one method to the other; I haven't had more or fewer problems with fracture or de-bond (in fact, I can count my failures on one hand). Nevertheless, I am looking through the filter of six years – that is my oldest all-porcelain restoration. My biggest concern is the long-term stability of my dentin and enamel bond. In my mind, I picture all these enzymes and forces working to destroy what I created.

Let me know your thoughts.

Mike Skramstad
(Faculty)
Orono, Minn.

» Good stuff here. Thanks for posting it.

We've had numerous discussions on bonding over the past several years, and I have listened to countless bonding gurus and read numerous studies.

My conclusion: If done correctly, nothing beats removing the smear layer with total etch. I do etch the enamel longer than the dentin and my method of drying is via suction, and maybe very light air to get that "moist" surface. I really have minimal sensitivity with this method.

Another hint for maintaining the marginal integrity of the porcelain/enamel interface: Don't "polish" with burs. I've known and listened to Pascal Magne for many years (since he was doing work at University of Minnesota 12 years ago). He always maintained that you should never touch this interface with a bur... just use scalers (and he likes Bard-Parker blades).

I try and do this as much as possible. Sometimes, you cannot avoid the bur, but when you can, always better.

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Greg Heideman
Las Vegas, Nev.

» Mike,

If you are doing total etch, are you also using it with a self-etching prime/bond, or are you using a bonding agent that requires a total etch?

Have you read Pascal Magne's book, *Bonded Porcelain Restorations in the Anterior Dentition: A Biomimetic Approach*?

Mike Skramstad
(Faculty)
Orono, Minn.

» I use a bonding agent that requires total etch. Either Optibond Solo Plus or Optibond FL. I don't use too much of the self-etching stuff anymore. I'll never say never, though. Things will continually evolve.

Greg Heideman
Las Vegas, Nev.

» Are you using Gluma or MicroPrime? What is the difference between Solo Plus and FL?

Doug Sakurai
Santa Ana, Calif.

» If I recall correctly, FL has filler and is thicker. You really have to blow it down to thin it under an indirect restoration. Solo Plus doesn't have the filler and is thinner. But you still have to blow it down.

Mike Skramstad
(Faculty)
Orono, Minn.

» Correct.

Greg Heideman
Las Vegas, Nev.

» So what is the dichotomy from your decision-making process on when you would use each one?

Doug Sakurai
Santa Ana, Calif.

» I use Solo Plus on all indirects. You can use either FL or OSP for direct composites.

Greg Heideman
Las Vegas, Nev.

» Doug, is it because of the thinner film thickness? And if so, then I assume you use the FL with directs because the film thickness is not an issue, but you like the higher filler content and the "gold standard" status?

Let me know, thanks.

Doug Sakurai
Santa Ana, Calif.

» Actually, I use OSP for everything now. But most definitely I use it for indirects because of the thinner film thickness. When I tried to blow FL thin, it always seems to pool somewhere, and if the crown doesn't go down all the way, I have to think it may have been because of the FL. ❖

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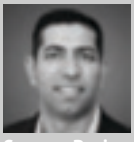
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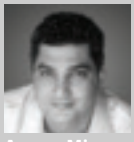
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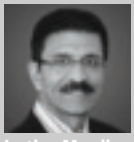
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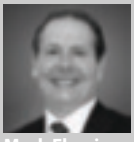
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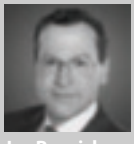
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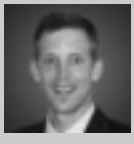
D.M.D., M.D.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Welcoming Change

BY SAMEER PURI, D.D.S.

As you can see from the cover of this issue of *cerecdoctors.com* magazine, change is upon us. Sirona has spent the better part of the past three years working on a brand new platform for the CEREC software. Gone is the look and feel that we are so familiar with. Gone are the icons, the tools and the green arrows that gave us a sense of security. A whole new experience greets anyone who opens the 4.0 software.

This software was written from scratch, line by line, with the goal being a more robust, more streamlined software that allows for a more efficient user experience.

Why start from scratch, you might ask? Why not just improve on what was already in the software and add only the features that users wanted? The analogy I give is similar to buying a small ranch-style home. As your family grows and your financial condition improves, you realize you need more space and you add a room. Another child comes, and you add another room. Pretty soon, you have a big house with absolutely no form or function. It's one of those homes where you have to go through the kitchen to get to the spare bedroom after climbing up two flights of stairs and down through the upstairs bathroom. You realize that as much as you love your home, as much use and function as it has given you, it's time to tear the entire thing down and rebuild from scratch so that it flows better.

That's exactly what happened with the software. After adding feature after feature, it was time to use more current programming language and modern software architecture for a better user experience. The entire software was rewritten from scratch.

New software means change in your workflow; it means learning new tools; it means learning all new protocols for things that used to be tried and true. While this change may frighten some people, I welcome it. I welcome the fact that this change means opportunity. Opportunity to grow, to not do the same ole same ole, and maybe an opportunity to grow the practice as you and your staff now have the chance to become reinvigorated with your system. Perhaps this is the opportunity to visit that training course that you have been meaning to attend, or maybe it's the time to renew your membership to cerecdoctors.com.

What's most exciting to me about this change is what the future holds. While I have been one of the ones most looking forward to this new platform, I want to take a moment to reflect on how far advanced the CEREC software actually has been.

- New users don't appreciate this, but old-timers can certainly remember the days when only simple restorations were possible.
- What about CEREC Connect? Take a digital impression and send it to the lab. You get a discount from many labs, as they don't have to pour a model. You save on shipping.
- CEREC and GALILEOS integration – the ability to design your restorations prior to the placement of the implants.
- Abutment design and milling was approved by the FDA late in 2010.
- Multilayer bridges where the framework and layering porcelain could be designed at the same time without the need for models were developed.
- Temporary bridges – long-span bridges that can be done either as temps for a few weeks, or for more long-term restorative solutions.

So, while the future is exciting and change is coming, don't underestimate how far CEREC has come.

What you see with 4.0 is the first step. Now with a new platform and newer code, I can only imagine what we will see with 4.1, 4.2 and beyond. These are exciting times, and I welcome the change. ❖

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