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THE DIGITAL DENTISTRY REVOLUTION

» Mark Fleming, DDS &
Darren Greenhalgh, DDS

CEREC & IMPLANTS: PART I

» Tarun Agarwal, DDS

GALILEOS, THE QUINTESSENCE OF MODERN DENTISTRY

» Neal Patel, DDS

MAKING WAVES IN SO-CAL

UCLA's Dr. Edward McLaren:
Reshaping the clinician-
technician relationship

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FROM THE EDITORS

Ahh, Technology

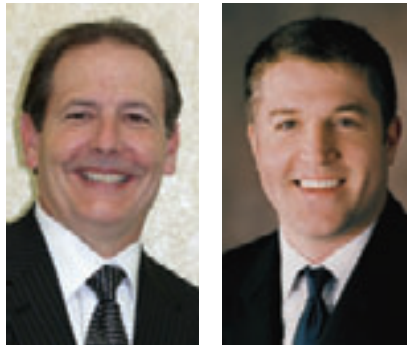
MARK FLEMING, DDS, & DARREN GREENHALGH, DDS

Innovations in technology are happening all around us. Incredible progress is evident in nearly all areas of our lives. A handheld device can act as a phone, a GPS, a place to retrieve e-mail, surf the Web, download and listen to music, watch videos, etc. This is but one example of countless exciting technological advances.

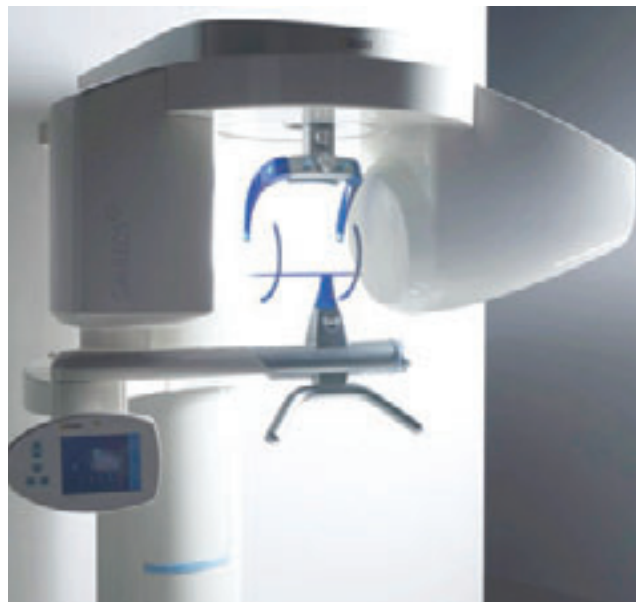
What about technology and the dental practice? Once again, there are many new technologies that impact one's practice. When a practice is considering a new technology, there should be a clear idea on how it will impact the practice, enhancing efficiency and effectiveness.

In our interview this issue, Dr. Edward McLaren elaborates on how digital technology can positively change a dental practice, focusing on the value of the CEREC® Bluecam in achieving greater practice efficiency. He shares his viewpoint on how CAD/CAM technology can be the savior, not the demise, of the U.S. lab industry. Be sure to read his thoughts on the mix of man, machines and materials.

Another exciting area in dentistry today is the synergistic interaction between the two technologies: Sirona's CEREC Bluecam and GALILEOS 3D X-ray imaging Cone Beam Computed Tomography (CBCT). Drs. Neal Patel and Tarun Agarwal discuss in their articles how the placement and restorations of implants can be performed predictably and efficiently through the marriage of these two technologies.



Mark your calendars for the second annual **CEREC Owners Symposium** on October 29-30 in Scottsdale, Arizona.



Because of our mission to help CEREC users get the most from their experience with this technology, we have included articles showing anterior restorations and a bridge done using digital impressions and CEREC Connect. Dr. Sameer Puri shows how to think outside the box and restore class two preparations using CEREC. Dr. Michael Skramstad addresses the "mysterious" area of parameters.

As always, visit the CERECDoctors.com website to stay abreast of what is happening in the CEREC world. Be sure to mark your calendars for the second annual CEREC Owners Symposium on October 29-30 in Scottsdale, Arizona. There is an all-star lineup of expert speakers who will be present. Do not miss this great CEREC event.

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 your CEREC experience. We hope you enjoy this issue.

IMAGINE THE POSSIBILITIES

GALILEOS: The Quintessence of Modern Dentistry

NEAL S. PATEL, DDS

The new CEREC® Bluecam and the CERECdoctors.com faculty members continue to push the envelope with unrivaled digital precision within restorative dentistry.

We all dream of having the same precision when it comes to our diagnostic skills. At times we find ourselves scratching our heads when trying to formulate

the “ideal” treatment plan for a given clinical finding such as a questionable tooth (due to bone loss or failing RCT) and are unable to do so simply because we do not have enough information. We should all agree that any given clinical circumstance will have several different solutions depending on the skill, mindset, and capability of the clinician.

But what if clinicians had access to a crystal ball, giving us a glimpse into the most “ideal” treatment choice for *any* given clinical presentation? What if I told you that the crystal ball that we all dream of is finally here?

DENTISTRY IN 3D

Allow me to introduce modern dentistry’s prophet, the Sirona GALILEOS (Figure 1). The inspiration behind Sirona’s new X-ray technology was Galileo Galilei, the scientist whose studies on medicine, mathematics, and astronomy brought the world into the third dimension. Like Galileo, the Sirona GALILEOS gives dental diagnostics a third dimension, bringing us closer to reaching the true pinnacle of diagnostic and therapeutic potential.



» The Sirona GALILEOS.

1

There are few things that have truly revolutionized dentistry. One such technology is 3D X-ray imaging called Cone Beam Computed Tomography. Of the practitioners who have embraced such technology, only a few have mastered CBCT and continue to promote

its vast benefits, while the majority have plundered in its raw complexity. The majority, by no fault of their own, simply do not use the technology to its full potential because they are not supplied with all the tools, training, and software necessary to maximize its

potential. Fortunately, they don't realize this since they have not experienced the GALILEOS platform.

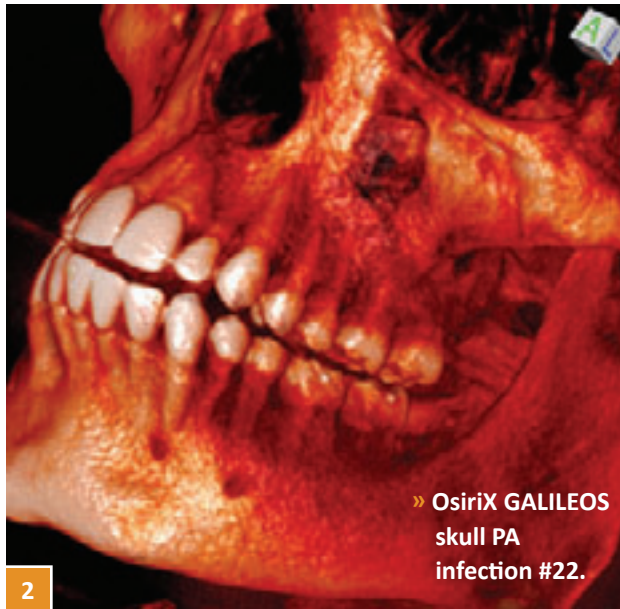
Sirona's unveiling of the GALILEOS has opened a new chapter in the lives of many clinicians, both novice and experienced users, including myself. My decision to introduce CBCT imaging into my practice in early 2008 was to satisfy my inherent desire to push the envelope and to indulge my innate flaw (like many other dentists) of needing to know everything. The GALILEOS truly allows me to visualize the most accurate anatomic information to treatment plan procedures and achieve optimal oral health, wellness and rejuvenation for all my patients.

The GALILEOS is the primary diagnostic tool and is the cornerstone of my practice since it is useful in all facets of dentistry: Implantology, Endo, TMJ, Pedo/Ortho, Perio, Oral Surgery, Pathology, and Restorative Dentistry. Regardless of the treatment modality, the GALILEOS helps to identify, diagnose, treatment plan, and fulfill therapy and prevention. It has opened my eyes to a different level of dentistry.

Prior to opening my private practice, I was fortunate to serve as a CBCT consultant and have experience with the majority of the other CBCT available in the market. Shopping for CBCT is like shopping for a digital camera at your local electronic store. All digital cameras (in our case CBCT) take a picture. Some take better pictures than others, while others come packaged

Sirona GALILEOS gives dental diagnostics a third dimension, bringing us closer to reaching the true pinnacle of diagnostic and therapeutic potential.

with all the bells and whistles, and only a few do both. The GALILEOS is taking over the market with good reason. In my experience, the GALILEOS is on a completely different playing field,



set apart from the rest. While other corporations struggle to position their CBCT unit ahead of their competition, fighting for market position by offering trivial solutions to even more trivial problems, Sirona has introduced the GALILEOS as a platform that will carry clinicians into the future. In less than one year, I have witnessed the GALILEOS Revolution as it has become the leader in CBCT imaging. It is much more than just another diagnostic tool; the

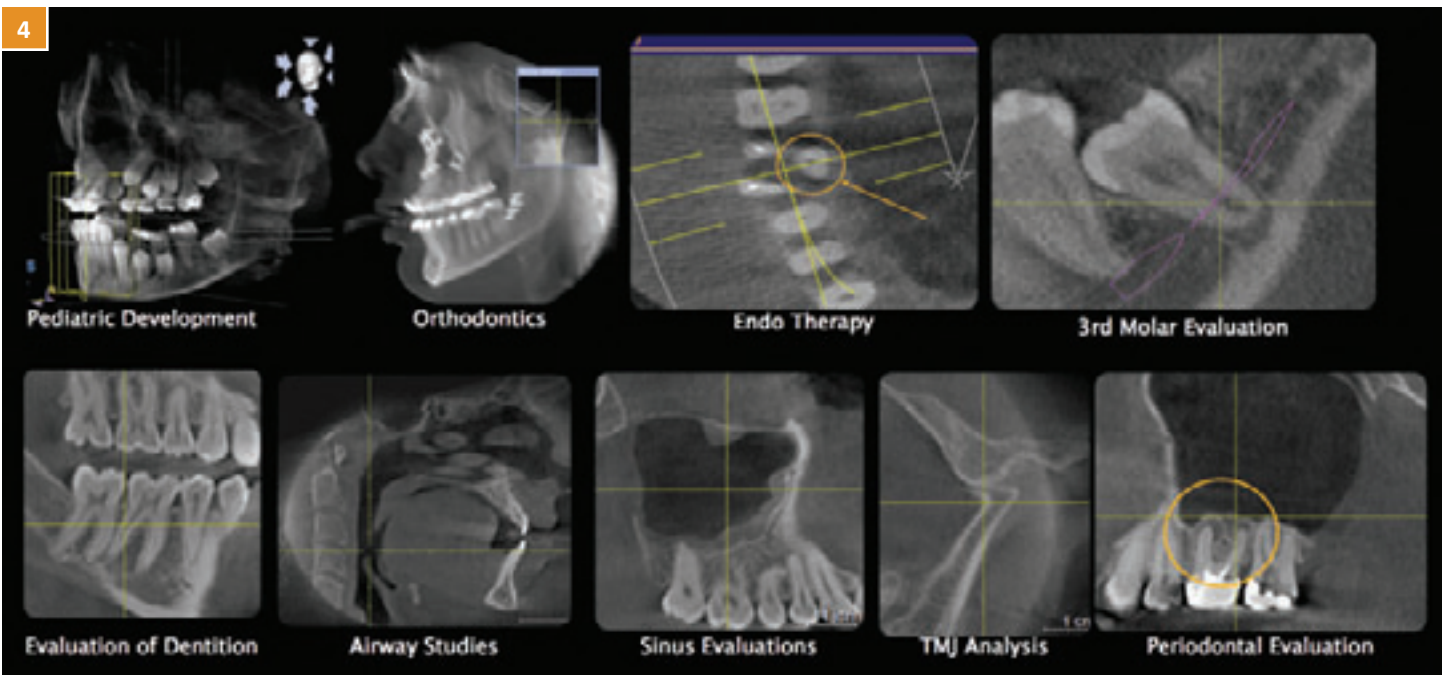
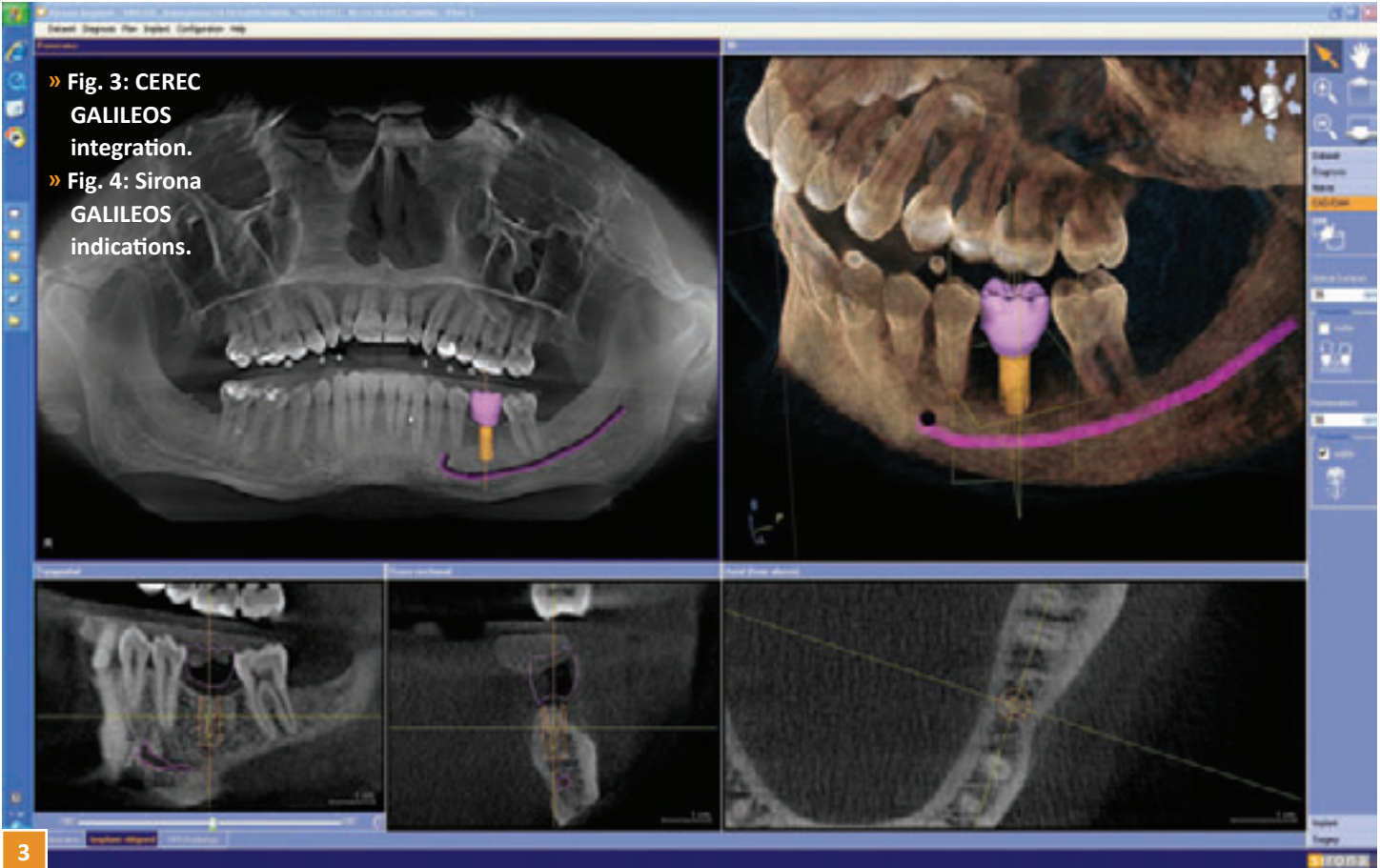
sophisticated design of the hardware and dynamic software have allowed me to instantly reach my primary goal – high case acceptance rate and satisfied patients.

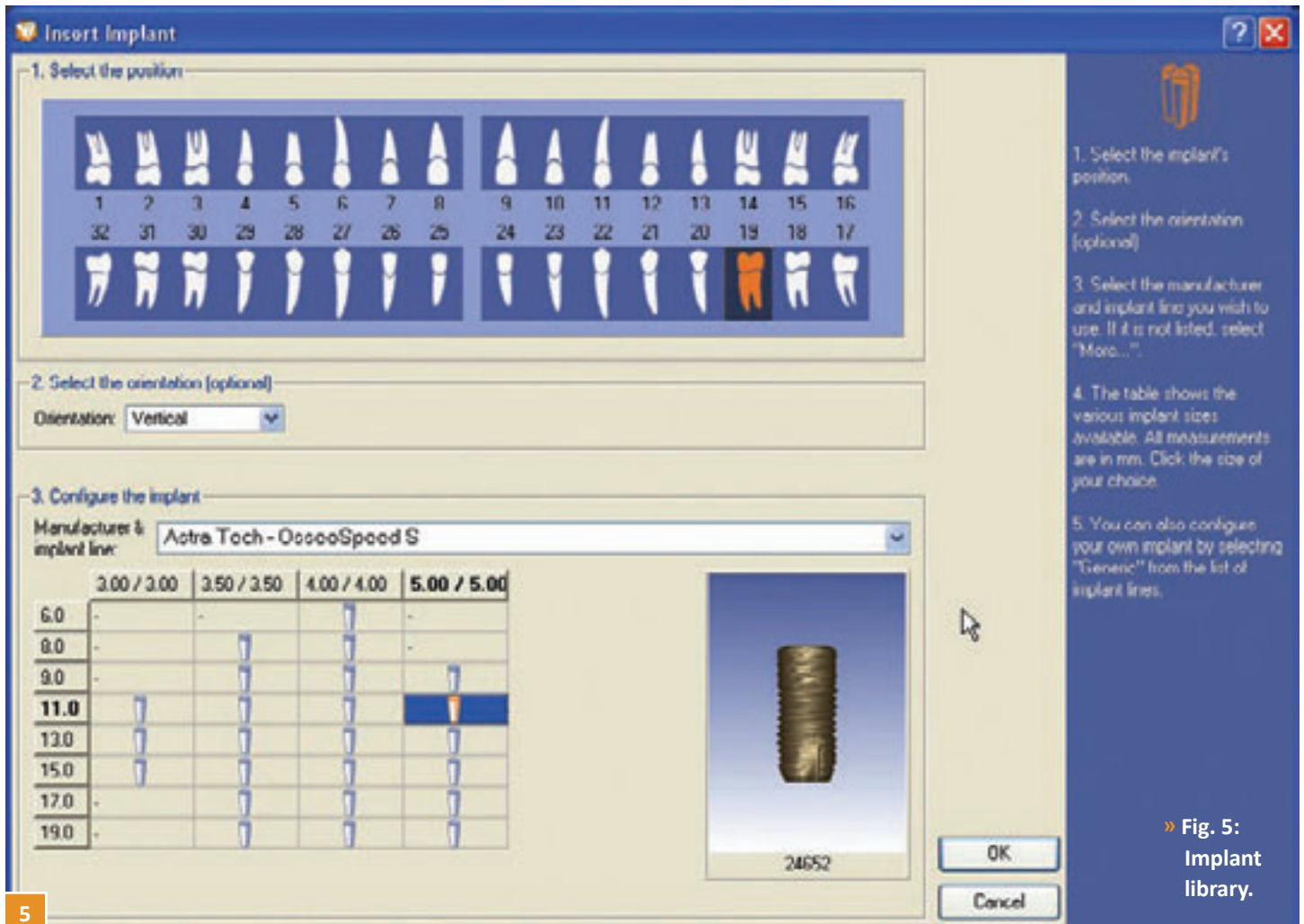
With the GALILEOS as my primary diagnostic tool, patients are more inclined to pursue recommended therapy and treatment simply because they understand 3D. As clinicians, we need to remember that the 2D X-ray images that we are trained on are completely foreign to many of our patients. Why should we expect patients to see and understand diagnostic information in the very image it took us the greater portion of four years of dental school to learn how to read? Perhaps this is why many of us struggle to surpass 70 percent case acceptance rate. If I told you that the GALILEOS has allowed me to achieve a case acceptance rate beyond 90 percent, would I have your attention?

If your patients are impressed with CEREC CAD/CAM, wait until you see the expression on their faces when they see their skull revolving in all its three-dimensional glory (Figure 2).

Being a CEREC dentist, Laser Dentist, iTero Dentist, etc., I can comfortably say that **no other technology captures the patient's attention like GALILEOS.**

As the doctor dives into the three-dimensional journey using Sirona siCAT's patented examination software (Figure 3, next page), so too does the patient. I have yet





» Fig. 5: Implant library.

to witness a patient interested in understanding absolutely everything within their 2D X-rays, whereas the GALILEOS captures the attention and interest of all my patients, each and every time. All of a sudden I have patients showing up to my practice who are actually interested in obtaining optimal dentistry and achieving complete oral health. Is the GALILEOS a marketing magnet for amazing patients, or did the GALILEOS trigger something special in the minds of my existing patients? Regardless, I am enjoying every moment!

My interest in integrating CBCT was to satisfy the need to build implantology within my practice. By now, we are all aware that CBCT imaging is implant driven. Little did I know that the GALILEOS was indicated in all facets of dentistry (Figure 4). The GALILEOS is marked by superior image clarity and dynamic software that allows users to quickly and efficiently study images.

Most CBCT units have cumbersome software that limits clinicians in their ability to diagnose comprehensively, in part because of lack of functionality and efficiency. Unfortunately, in the

United States, clinicians do not have the luxury of spending hours on end with each patient. We have seconds, minutes if we are lucky, to evaluate our patients, diagnose, treatment plan, and hopefully gain case acceptance. Many have failed to integrate CBCT imaging successfully into practice simply because the software and hardware of their respective CBCT unit do not allow them to. Sirona and siCAT, on the other hand, have identified the need to develop software that is as effective as it is efficient from a clinical standpoint.

The unique features are endless, so

I'll elaborate on those I feel are the most revolutionary.

First, Sirona is not just about excellent image quality – Sirona is about providing a solution that offers practitioners an arsenal of tools. The user-friendly software tailored for dental problem-solving will win you over through its intuitive integration of diagnostic, computer-aided therapy planning, and precise intraoperative implementation tools.

Excellent image quality permits diagnosis of the finest details in three dimensions, with the lowest possible radiation dose among the CBCT units available. When using the GALILEOS, its superior image processing and display capabilities leave no doubt about the diagnosis.

The software's implant planning functionality – such as marking the nerve canal in the mandible and selecting realistically displayed implants from the clinician's manufacturer of choice



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(an entire library of implants – Figure 5, preceding page – is included with the GALILEOS) – enable

- » Fig. 6: siCAT surgical guides.
- » Fig. 7: Preop site #19 occlusal.
- » Fig. 8: CEREC crown #19 pontic design.
- » Fig. 9: CEREC crown #19 pontic buccal.
- » Fig. 10: Merge data sets.
- » Fig. 11: CEREC GALILEOS integration.

precise positioning within minutes after obtaining the scan. Patients are

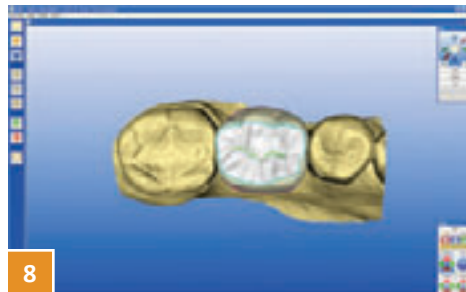
presented with their treatment plan in the same appointment and do not need to come for secondary treatment conferences as is the case when using the other CBCT units.

Furthermore, with GALILEOS surgical guide technology (Figure 6), all virtual plans can be precisely implemented for the patient, using tools that are already on-hand. These surgical guides allow for advanced prosthetics that can even be fabricated prior to surgical placement of implants.

Finally, as a beta tester for GALILEOS, the biggest buzz revolves around Sirona's release of their new GALILEOS Software Update, Sirona Implant, allowing integration between prosthetic and surgical planning. The new software tool combines CAD/CAM CEREC and CBCT GALILEOS data (Figures 7-11). The integration allows for surgical and prosthetic planning to be performed



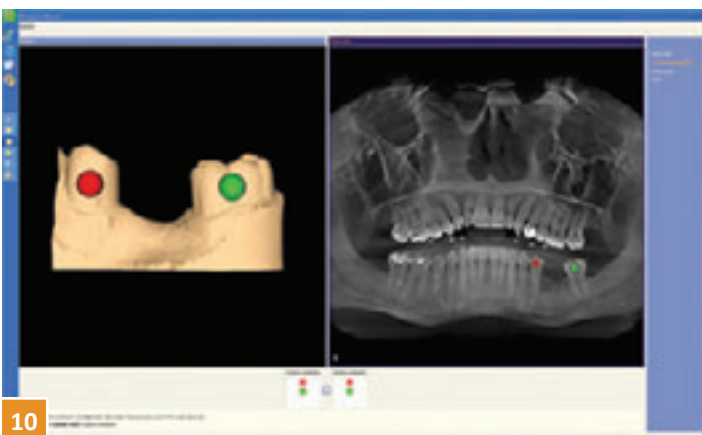
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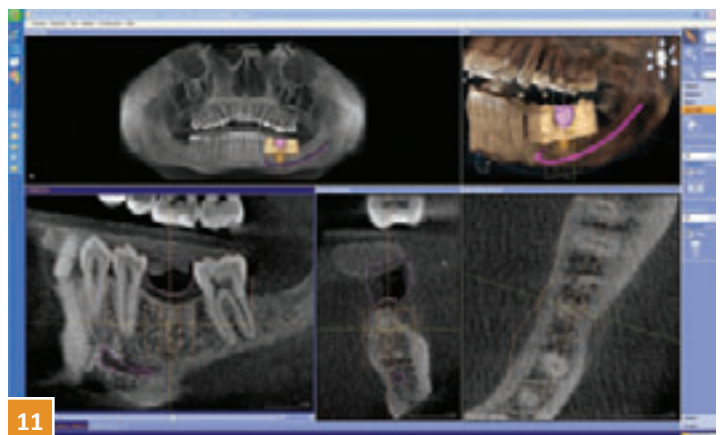
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in a single visit. This seamless process results in higher quality and increased efficacy for clinical workflow.

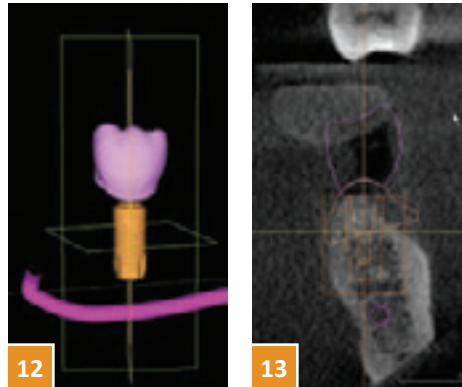
The use of GALILEOS CBCT imaging for precise surgical planning and placement is tested and proven. Unfortunately, even with the help of this latest X-ray technology, careful surgical planning does not always translate to ideal prosthetic restorations. Far too often, ideal surgical placement leads to restorative compromises and higher costs for the restorative clinician and for the patient.

The new Sirona Implant software tool allows surgical and prosthetic planning to be performed simultaneously, thereby increasing optimal results (Figures 12-13). The user is able to view the CEREC design proposal directly within the context of the GALILEOS image. Essentially, the new integration software allows one to design an ideal crown on an exact virtual bony model of the patient (Figure 12). This has become possible due to the integration of the surface data (CEREC) with the x-ray data (GALILEOS) (Figure 10).

INTEGRATION IMPLICATIONS

The combination of two cutting-edge technologies – CBCT and CAD/CAM – is trailblazing the way to comprehensive implantology. In other words, the user can focus on the desired prosthetic outcome and at the same time make allowance for specific surgical factors.

The revolutionary integration feature also has immense periodontal implications. Until now, CBCT was limited to hard tissue images and lacked ability to capture periodontal tissue. For the first time in CBCT imaging, the



periodontal tissues can be evaluated for location and thickness in 3D as it relates to hard tissue (thanks to CEREC surface

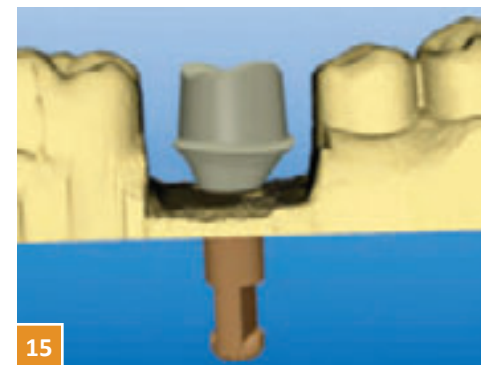
- » Fig. 12: CEREC GALILEOS integration slice shot.
- » Fig. 13: CEREC GALILEOS integration components.
- » Figs. 14-15: inLab design screen shot.
- » Fig. 16: inLab custom abutment #19.
- » Fig. 17: inLab custom crown.

data). Imagine being able to visualize ideal implant placement as it relates to the restorative outcome, keeping soft

tissue in perspective during the entire process. With this extra information at his/her fingertips, the user can accurately predict the final outcome and discuss possible alternatives with the patient before starting any procedure.

The planning data then provides a basis for creating competitively priced surgical guides via siCAT, a Sirona subsidiary in Bonn, Germany. Thanks to Sirona Implant Software, CBCT workflow is now more efficient than ever before. Not only do GALILEOS users stand to benefit from Sirona Implant, but CEREC users will also reap the benefits of this new technology as well. The software will be available to CEREC dentists who are referring patients to GALILEOS users. Remember, this will be the platform to the next phase: CEREC custom zirconium abutment fabrication and perhaps, someday, milled surgical guides (Figures 14-17).

I invite everyone to join me in the GALILEOS Revolution! ❖



The image features a CEREC AC CAD/CAM machine, which is a compact, white, chairside dental workstation. It has a large monitor on top displaying a 3D digital model of a dental arch. The machine is set against a dark blue background with a subtle gradient. The text 'CEREC® AC CAD/CAM FOR EVERYONE' is overlaid in large, white, sans-serif font across the upper portion of the image.

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 operator to operator without powering down.

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

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