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CAD/CAM

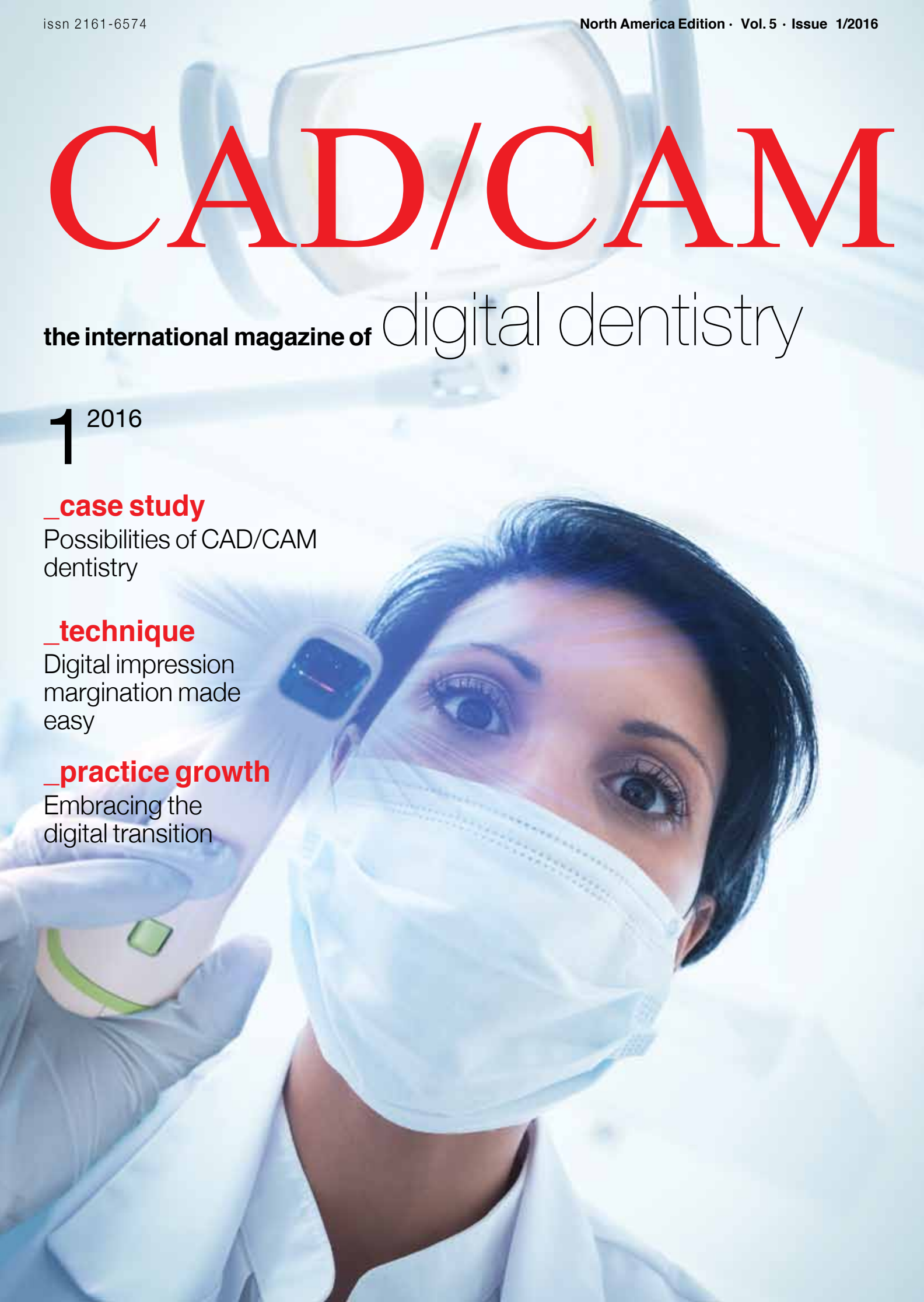
the international magazine of digital dentistry

1 2016

_case study
Possibilities of CAD/CAM dentistry

_technique
Digital impression margination made easy

_practice growth
Embracing the digital transition



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A look to the future: It's all about connectivity …

Jukka Kanerva, President, Planmeca CAD/CAM Solutions

_We are a connected society. The Internet now allows people to talk, text, email, video conference and share pictures instantly across an ocean at the push of a button, click of a mouse or tap of a touchscreen. This means that friendships, as well as business arrangements, are being fostered across traditional culture borders. Likewise, the practice of dentistry is continuously evolving to more connected digital platforms. Patient management systems can manage the entire office – pulling virtual patient records and incorporating all digital files, from radiographs to digital impressions and advanced CT scans that allow full treatment planning with the patient in the chair. While we have firmly rooted knowledge in the basic principles of dentistry, massive change is occurring at a frantic pace within our profession. As the adoption of digital technology takes hold with CAD/CAM, dentists can produce highly precise prosthetics chairside and further enhance the patient experience.

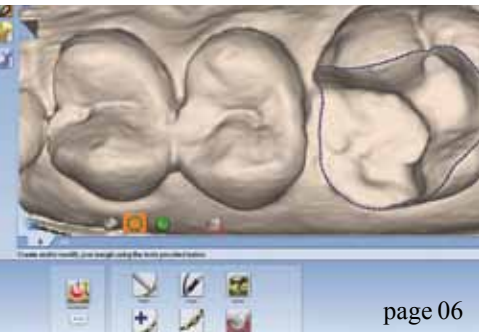
While CAD/CAM was introduced years ago, this technology continues to expand and evolve. Planmeca is leading the way in CAD/CAM dentistry with the Planmeca FIT™, the complete chairside CAD/CAM system, composed of the PlanScan scanner, PlanCAD software and PlanMill 40 mill as a fully integrated open CAD/CAM system for same-day dentistry. The FIT solution provides a digital workflow that combines for exceptional patient experience and convenience as well as high-quality restorations with the perfect fit.

In this issue of CAD/CAM magazine, we take a look at the many advantages of same-day digital dentistry. In "The Possibilities of CAD/CAM dentistry" by Dr. Mike Moroni, we take a look at four cases, from the simple to the everyday to the complex, which were all accomplished with the Planmeca FIT system and show you just how easy it is to do the same thing in your office. In "Practice considerations for technology integration" by Dr. Gary Kaye, we take a look at how integrating technology requires a combination of clinical and management skills. And in "Upgrade your practice with digital dentistry," Dr. Kaveh Ghaboussi offers us examples from his own practice of how the switch to digital benefited not only himself but his staff and patients, too.

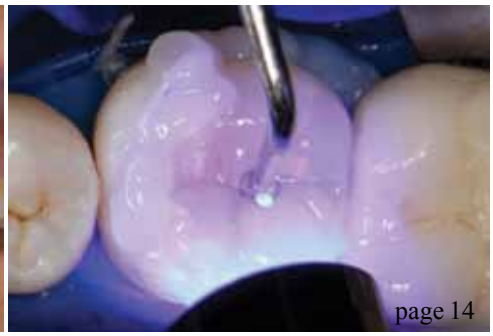
These are just a few of the many articles featured in this issue, and we hope you take the time to read them all. The advances in technology are ever evolving. For the field of dentistry, the future is NOW, and it is time to embrace it.

Sincerely,

Jukka Kanerva
President
Planmeca CAD/CAM Solutions


page 06


page 10


page 14

case study

06 Possibilities of CAD/CAM dentistry
_Dr. Mike Moroni

techniques

10 Click here! Digital impression margination made easy
_Dr. Alex Touchstone

14 Cementation of restorations: A new luting composite
_Dr. Stephanie Huth

18 Implant restoration replaces failing post and core
_Dr. Louis R. Kaufman

technology

22 Planmeca introduces the Planmeca FIT System: An open CAD/CAM system

practice growth

23 Embracing the digital transition
_Winnie Guan

25 Practice considerations for technology integration
_Dr. Gary Kaye

27 Upgrade your patient and team experience
_Dr. Kaveh Ghaboussi

28 Growing your practice with digital dentistry
_Brent Parr

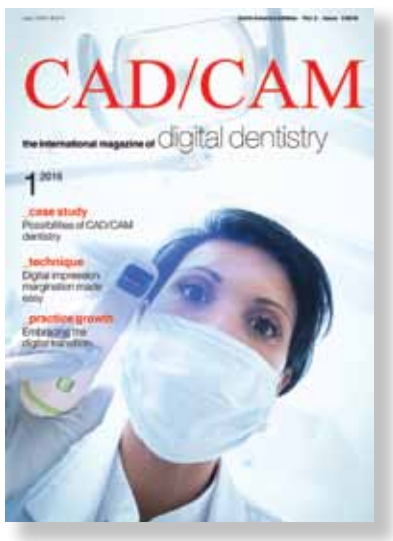
products

30 Planmeca Romexis software: Open architecture, endless possibilities

32 Redefining CAD/CAM efficiency with the Anutra Local Anesthetic Delivery System

about the publisher

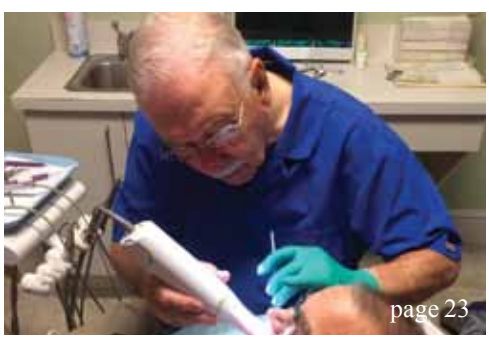
34 _imprint

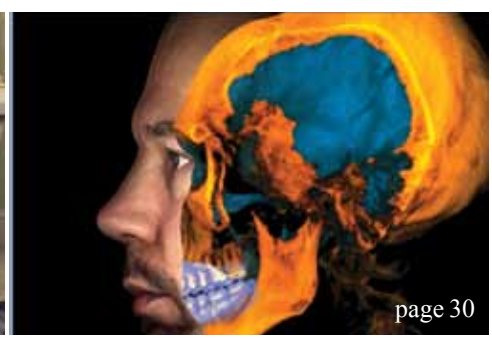


on the cover

Cover image provided by Planmeca


page 18


page 23


page 30

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Possibilities of CAD/CAM dentistry

Author_Mike Moroni, DDS

_When I travel around the country giving lectures and presentations on the Planmeca FIT CAD/CAM system, I usually hear the same comments from my audience. The first comment is, "I can't afford it." I usually answer that question with a resounding, "You can't afford to not have it!" You see, what most dentists miss is that it is costing them to not have a CAD/CAM system in their office.

The second comment is typically when a dentist talks to me privately, stating, "I don't know if I am ready to buy into this technology." My usual response is to ask them if they have digital radiography, or intraoral cameras, or if they are making appointments on dental software like Dentrix. . Usually the answer is yes, so I move in for the common-sense progression of jumping into CAD/CAM.

It is really a jump, both getting the doctor on board and also the team. Most of the time, the team presents the biggest obstacle for the dentists. Having said that, though, some offices would like to make the jump and get very excited to implement the technology, but it is actually the doctor who is the resisting force in not moving forward with the new system.

Change can be scary, especially for dentists who have been practicing traditional methods of dentistry for the last 10 to 20-plus years. Why change if it is working perfectly for them now?

The third comment I usually hear is that they have seen CAD/CAM restorations in some of their patients' mouths, and they look horrible. They are bulky buccal-lingually, they have little to no anatomy, usually pretty flat in the central fossa and cuspal area, and the incline planes show little or no development anatomically to the adjacent teeth.

This comment really hits home for me because I have personally seen many patients who have received poor-fitting restorations from previous dentists. But where they have a problem, I see the solution: Digital dentistry allows us to restore these patients' less superior restorations.

Our skill level dictates how to make it right for the patient. While some older CAD/CAM crowns look great, others may not. Situations like these go the same for lab-fabricated restorations, so it is not exclusive to CAD/CAM restorations. We, as dentists, need to step up and always provide the best that we can with every patient we see.

To make a blanket statement that all CAD/CAM restorations are poor-looking and ill-fitting is short-sighted to say. The technology has come a long way and continues to evolve. Now, it is in the control of the crown designer.

If it is the dentist designing the crown, then he or she can design a crown tailored uniquely to fit the patient. However, as the dentist, I rarely scan the patient in my office because my assistants are trained to scan, design, mill and try-in the final restoration. Usually, I am in another chair prepping for another restoration or utilizing my time in other ways while having full confidence in their abilities to create a restoration.

Keep in mind though, that if the dental assistant

Fig. 1_Tooth #19 pre-op.

Fig. 2_Tooth #19 prepped.

(Photos/Provided by Dr. Mike Moroni)

is designing the crown, he or she has to be properly trained to do so. The dentist can train the assistant to do this, or there are many educational training opportunities to send your team to in order for them to be the best designers in the country. The best place to start is at Planmeca University, the main training facility in Dallas. The training there is unsurpassed and your team will love the education they receive there.

An additional concern is how to incorporate the technology into an existing workflow of a busy office. If the office is moderately busy, the addition of the Planmeca FIT may be readily utilized in that environment. If the office is very busy, the addition of this technology may be a bit more challenging because the scheduling must be effective and timely.

The administrative side of the office will need to be aware of how long it takes to complete a restoration digitally. During the learning phase of CAD/CAM dentistry, restorations may take a longer period of time to complete, but as the team gets more proficient at it, restorations will likely take an hour to an hour and a half to complete.

In order to incorporate the Planmeca FIT into an office, the entire team must be trained and ready to implement. Most of this will coincide with how readily the team accepts change. If either the doctor or the staff are afraid of this new technology, then the CAD/CAM system may just sit in the corner and not be used, kind of like a treadmill that holds laundry on it. The team must be involved and fully accept the technology in order for it to be successfully implemented into the office.

_Return on investment

To address the first question that is always posed to me, "Is it worth the cost?" (which, oftentimes is, "Can I afford to purchase this?"), I usually like to answer that question with one of my own, "How can you afford to not purchase one?"

Utilizing someone else to fabricate what can be done in your own office makes absolutely no sense to me. Yes, there was a time when dental labs were used exclusively to produce final restorations, but now, the dental office can produce that same quality of product without having the patient come back for a second visit.

There is still a place for modern digital labs in the dental community. If the lab is willing to change and adapt to these new technologies, it will remain a busy adjunct for dental offices. If it is stuck in the past and refuses to adapt, then its business may slowly decrease as more and more dental offices turn toward CAD/CAM dentistry.

The ROI for the Planmeca FIT digital system is potentially huge, depending on how it is utilized in the office. If used to its utmost ability, the ROI is amazing. For example, if the typical lab cost for a single unit crown is $200 and an office performs 20 units in a month with a patient charge of $1,000 per crown, the total produced is $20,000, and the cost to produce the final restoration from the lab would be $4,000.

Off set the cost of the lab because it would be produced in the office, and the $4,000 does not exist. One would then merely look at the costs of the block and monthly costs of the system itself.

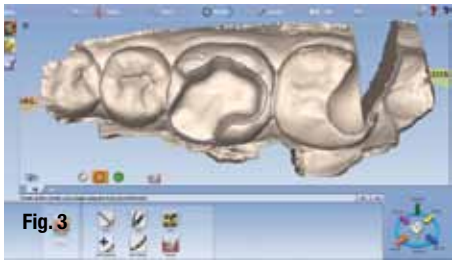
Fig. 3

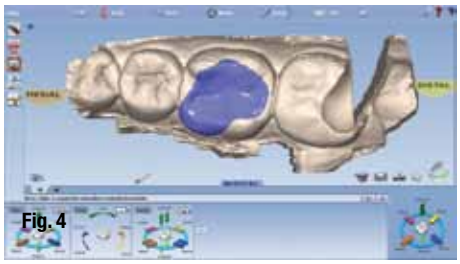
Fig. 4


Fig. 5


Fig. 6

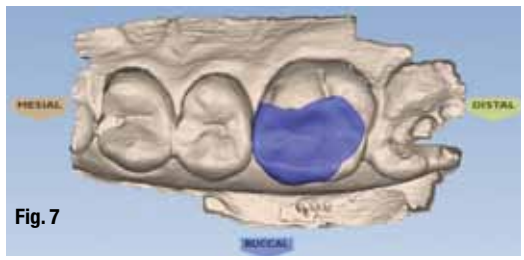

Fig. 7

Fig. 3_Scanned prep.

Fig. 4_Designed onlay.

Fig. 5_Tooth #19 onlay seated.

Fig. 6_Prep design for case No. 2.

Fig. 7_ Prep scanned, margin drawn, design of onlay and milled.

If the monthly cost is $2,500 for the system and the cost of a block is $30, then the total monthly cost is $3,100 (system cost of $2,500 plus $600 in blocks). If the production is $20,000 minus expenses of equipment and blocks, the amount saved is $16,900. I would venture to say that is a great ROI for the CAD/CAM system and likely the best ROI seen on any single purchase for the dental office.

_Clinical examples

As with anything for the dental office, the proof of how it works can be easily documented. The cases featured below range from the simple to the everyday to the complex – all of which I have done with the Planmeca FIT system. It is truly amazing what can be accomplished with the Planmeca FIT open CAD/CAM system.

_First case

The patient presents a failing composite for tooth #19 on occlusal-facial surface. The resin has been worn and is breaking down because of occlusion patterns displayed by the patient (Fig. 1). Tooth is prepared, decay identified and removed (Fig. 2). Prep is scanned, margin drawn (Fig. 3), onlay designed (Fig. 4) and restoration milled. This is all done by my assistants, who have been trained extensively to perform this function for the office.

Once milled, restoration is cemented onto tooth. Cementation technique varies depending on material used. Here, a 3M LAVA block was used because restoration was not a supporting cusp (Fig. 5).

_Second case

Patient presents with decay and fractured mesial-buccal cusp and mesial decay on radiograph. Prepped an MOB onlay for tooth #19. Proper prep design is critical and part of the learning curve with CAD/CAM dentistry (Fig. 6). Of particular note is the smooth margins.

The tapered axial walls of the tooth are smooth and allow for easy scanning and insertion of final restoration. There are no undercuts and all surfaces of the internal prep are visible from the occlusal view. Prep scanned, margin drawn, design of onlay and milled (Fig. 7). Restoration seated on same day.

_Third case

Patient presents with fractured crown (Fig. 8) on tooth #9, with very little remaining tooth structure left to work with (Fig.9).

Patient is visiting from out of town to attend her granddaughter's wedding the next day. ParaPost measured and cemented in canal and build up placed. Prepared tooth and scanned, designed, milled and cemented in place (Fig. 10). Radiograph of final restoration (Fig. 11).

This case may have a limited long-term prognosis, but it was an ideal solution for an emergency situation. Entire procedure completed in a single visit in one appointment.

Patient wrote a beautiful letter to my office and gave a Starbucks gift card to all of my employees to thank them for their skills on developing a crown that saved the day during her family visit.

_Fourth case

As the skill level of the clinician increases with digital dentistry, situations such as the one shown in case No. 4 can be achieved. Veneers can be difficult for the most skilled clinician, but with experience and proper training, they can easily be completed with the Planmeca FIT system.


Fig. 8


Fig. 9


Fig. 10

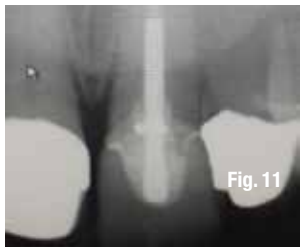
Fig. 11


Fig. 12


Fig. 13


Fig. 14

Fig. 8_Fractured crown of case No. 3.

Fig. 9_Crown off tooth.

Fig. 10_Final crown prepped.

Fig. 11_Final radiograph.

Fig. 12_Before image of case No. 4.

Fig. 13_Veneers placed.

Fig. 14_After full smile.

Patient selection is clearly a critical component. This patient presented to the office because his wife wanted his teeth and smile to "look better." The patient was motivated to get his smile fixed because he was going for an interview to get a promotion in his job. See before pictures of teeth (Fig. 12). After reviewing his occlusal pattern and determining that veneers would be possible, we proceeded forward with his case.

Teeth #5-#12 were prepped, scanned and a temporary was fabricated. This is the only time I make temporaries in my office. After scanning, a polyvinyl impression was taken and poured up in die stone. This was only done to have a working model for the veneers.

Once the scanning process was done, margins were drawn, and the proposed teeth were then shaped, sized and contoured exactly how the patient wanted his new teeth to look. The patient gave his input while the designing was being created right next to him as he was sitting in the dental chair.

Once the design was complete, veneers were fabricated in the Planmeca PlanMill 40. After each veneer was milled, the marginal fit was confirmed individually on the working model. After the second veneer was milled, checking of the interproximal contacts was achieved on the model. This was done after all the restorations were milled and then checked marginally and also interproximally again, prior to final processing.

After the veneers are milled, slight contouring can be achieved with select burs, if desired, prior to crystallization. For this case, hand glazing of the facial surfaces of the veneers was completed. The veneers were then placed in the oven for appropriate crystallization time.

Once cooled, the fit of the veneers should be rechecked on the working model again. At times, the glaze can accumulate at the interproximal contact areas and prevent adequate cementation of the final veneers onto the prepared teeth.

Cementation is achieved based on what material was used for the veneers. For this case, the veneers were fabricated with IPS Empress e.max blocks (Ivoclar Vivadent) shade BL-3.

Once veneers were seated, a final check was made to ensure all excess cement and/or bonding agent had been removed from all surfaces. Patient was very pleased with the final cosmetic result (Figs. 13, 14).

_Conclusion

The ROI on the Planmeca FIT System can be tremendous, if utilized properly. Training team members to operate at optimal levels ensures the finest quality restorations for your patients, and their confidence shines with the patient as well.

Patients will further the ROI by referring their friends, families and co-workers to the office that employs this technology._

_about the author CAD/CAM

Dr. Mike Moroni attended California State University at Hayward, where he received his B.S. in biology. In 1997, he graduated with his doctorate in dentistry from Case Western Reserve University in Cleveland, Ohio. He then completed his GPR at the world-renowned Cleveland Clinic Foundation. He has a multi-specialty dental facility in Castle Rock, Colo. Moroni originally started using CEREC CAD/ CAM technology in 2007. Presently only using the Planmeca FIT System for all of his CAD/CAM digital workflow needs, he has placed more than 5,000 CAD/CAM restorations.

Moroni is currently constructing an 18,000-square-foot dental office that will include The Mirage Training Institute, where general dentists and specialists can gather for training to enhance their skills and advance their dental offices and teams. Moroni has many professional affiliations and memberships, including the American Academy of Cosmetic Dentistry and the American Dental Association.

Click here! Digital impression margination made easy

Author_Alex Touchstone, DDS

_One of the primary reasons I embraced CAD/CAM dentistry 20 years ago was the promise that the chairside digital workflow offered in exercising more control over every aspect of the restorative process. Even today, the idea of creating quality dental restorations in one visit for my patients is quite appealing.

I have found, however, that in order to cause the vision to crystalize into a beautiful IPS e.max CAD restoration for a patient, I need more than just the furnace required to crystalize the restoration. I need a clinical technique that is precise, repeatable and efficient.

While the CAD/CAM workflow is composed of many steps, each essential in their own respect, this "quick tip" will focus on establishing clear, clean and dry preparation margins in support of the digital impression and restoration bonding processes.

_Preparation before preparation

Before we spin up the turbine on the handpiece, two steps will lay the foundation for success. The first is to evaluate the patient's periodontal status and consider any treatment required to achieve periodontal stability, because we know that excessive bleeding during the procedure will place the outcome at risk (Figs. 1 and 2). The second is to consider whether the preparation margins are to be subgingival and, if so, place a length of dry, knitted retraction

Fig. 1_Patient presents with active periodontal disease and rampant caries.

Fig. 2_Patient after initial periodontal therapy stabilized to begin the restorative process.

(Photos/Provided by Alex Touchstone, DDS)


Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5


Fig. 6


Fig. 7

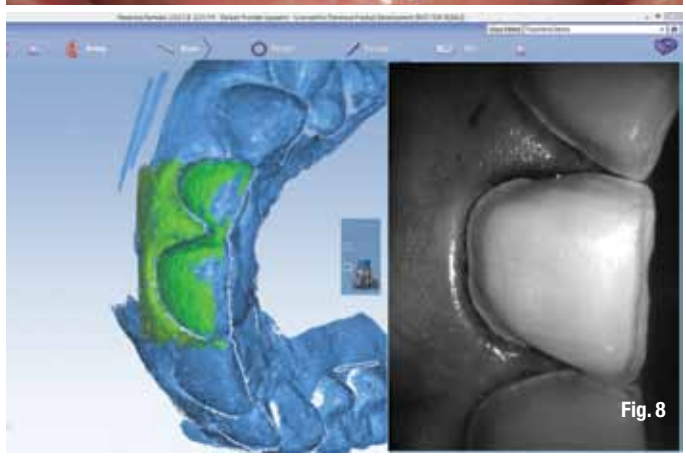
Fig. 8

cord (Knit-Pak, Premier Dental Products, Plymouth Meeting, Pa.) (Fig. 3).

As a guide for what size cord to use, determine the minimum probing depth in the region of the sulcus that will adjoin a subgingival margin and then subtract that number by "1" to arrive at the cord size. So, for instance, in Fig. 3, the minimum probing depths for the facial and interproximals for the teeth to be veneered was 2 mm so #1 cord was placed. It is important to place the required cord prior to beginning the preps as they will provide some protection against soft-tissue trauma imparted by the bur during preparation.

Another hedge against insulting the gingiva during preparation is to use a finishing grit diamond bur (round-end taper 782.8F, Premier Dental Products) to finalize the position of subgingival margins (Fig. 4). Even with these hemorrhage prevention measures, some bleeding may occur and/or the tissues may become edematous during the preparation process (Fig. 5). If nothing is done to mitigate the bleeding or edema, the quality of the digital impression and, later in the procedure, the adhesive bond will both be compromised.

The next line of defense against these clinical complications is application of a hemostatic retraction paste for two minutes (Fig. 6, Traxodent, Premier Dental Products). This is followed by copious rinsing and thorough drying. When drying the area, care should be taken to thoroughly dry each sulcus as the

Fig. 3_Placement of dry retraction cord prior to beginning preparations.
Fig. 4_Use of finishing bur in subgingival areas to mitigate gingival trauma.
Fig. 5_Clinical situation after preps and before placement of hemostatic retraction paste.
Fig. 6_Appearance of hemostatic retraction paste in place.
Fig. 7_Clinical situation after hemostatic retraction paste effect.
Fig. 8_'Live View' of digital impression in progress.


Fig. 9


Fig. 10


Fig. 11

Fig. 9_'ICE View' demonstrating the distinction between marginal hard tissue and adjoining gingival.

Fig. 10_Adhesive bonding proceeding without complications because of proper isolation.

Fig. 11_Postoperative appearance of patient.

cord in place acts as a wick for moisture, and it will require more time to dry than the teeth themselves.

It is also helpful during the procedure to use a soft-tissue retraction device to gain better access and to prevent the retraction paste from being displaced during the two-minute material action period (Comfort-View, Premier Dental Products).

After rinsing and drying, one should inspect the margins carefully and expect to clearly see them from the occlusal and/or facial aspect (Fig. 7).

At this point, the digital impression may proceed with ease. In the case pictured, the veneer preparation impression was captured using the Planmeca PlanScan scanner (Planmeca USA, Roselle, Ill.). During live scanning, the margins are clear and visible on the screen, just as they were in the mouth (Fig. 8).

A quality digital impression will carry over to a higher degree of confidence in subsequent steps, such as marking the margins on the virtual model. Note in Fig. 9 how using the ICE view in the PlanCAD software (Planmeca USA) allows one to clearly distinguish between hard and soft tissues and thus click through the margination step with speed and precision.

Preparation is critical to achieving the final result for a patient. While the design process is not shown here, you can see the precision of this patient's restoration, milled with Planmeca PlanMill40.

Re-application of Traxodent (Premier Dental Products) prior to bonding, using the same technique previously described, will help to ensure that the marginal areas of the teeth are dry and exposed (Fig. 10).

The combined use of a general soft-tissue retractor (Comfort View), dry cord (Knit-Pak) and hemostatic retraction paste (Traxodent), described herein, have the combined effect of supporting an ideal treatment outcome as illustrated in the post-treatment appearance of these veneers (Fig. 11).

While this clinical workflow was presented in the context of chairside digital CAD/CAM dentistry using the Planmeca FIT system (Planmeca USA), one should appreciate its application for all types of digital or physical fixed restorative impressions as well as adhesive bonding procedures._

_about the author CAD/CAM

Dr. Alex Touchstone has 20 years of experience in clinical application of digital dentistry in his dental practice. He holds two U.S. patents in the area of shade control for translucent dental restorations. During the past several years, he has had the privilege of teaching hundreds of dentists, per year, how to grow their practices through proper integration of carefully selected technologies. Touchstone also serves on the Clinical Advisory Board for Natural Dental Implants, AG and as an adjunct assistant professor at Tufts University School of Dental Medicine in the Postgraduate Prosthodontics Division. He is also the founder and editor-in-chief of the online education and networking portal, *LearnDigitalDentistry.com*, created for the benefit of dentists and team members who are driven to excellence in the digital restorative community. He can be reached at *alex@learndigitaldentistry.com*.

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1. Strategic Dental Marketing, 2014. / Clinical images courtesy of Shalom Mehler DMD, Teaneck, NJ.

Cementation of restorations: A new luting composite

Author_Stephanie Huth, DDS

_Variolink Esthetic (Ivoclar Vivadent), the light- and dual-curing luting composite, allows the dental professional to adhesively cement highly esthetic ceramic and composite restorations thanks to its flexible and well-structured Effect shade concept. Pre-polymerized excess material can be easily and efficiently removed.

Cementation materials establish a durable bond between the tooth structure and the restorative material and, therefore, contribute significantly to the long-term success of indirect restorations. Cementation materials are classified into three different types: conventional luting cements, self-adhesive and adhesive resin cements.

The advantage of conventional cements (e.g. zinc phosphate or glass ionomer cements) lies in the ease of use and more forgiving properties in adverse clinical conditions, such as excessive saliva or bleeding. However, these luting cements adhere mechanically to the tooth structure, hence retentive tooth preparation is required, and esthetically they are easily discernible because of the opaque shade.

The advent of adhesive resin cements has contributed to the rising importance of innovative restorative materials. Adhesive resin cements bond chemically with highly esthetic all-ceramics restorations, such as IPS e.max Press/CAD (Ivoclar Vivadent), and hence can be used even if no retentive preparation has been performed.

It is essential in such cases, however, that a luting material of an appropriate shade and translucency level is selected in order to obtain excellent esthetic results. This applies in particular to restorations with a low material thickness.

An additional advantage of adhesive luting composites over conventional cements represents the enhanced long-term integrity of the restoration margin. The low solubility and high resistance to wear of these luting composites lead to a reduced washing out of the cement gap.

Adhesive resin cements use adhesive to ensure a reliable bond to the tooth structure. The adhesive penetrates into the dentin tubuli and forms a hybrid layer by bonding to collagen fibres. Etching of the tooth structure removes the smear layer and exposes the dentin tubuli, resulting in an increased micro-retention.

The luting composite forms a chemical bond with the hybrid layer and, therefore, adheres well to dentin and enamel. Although the pre-treatment time of well-established self-adhesive composite cements is considerably reduced as no conditioning is required, they demonstrate lower bond strength values.

The high strength of IPS e.max lithium disilicate (Ivoclar Vivadent) allows clinicians to choose conventional, adhesive or self-adhesive composite cement for cementation. However, because of lower bond strength, it is recommended that self-adhesive and conventional cements be utilized in clinical situations with retentive prep design (less than 8 degree taper and minimum 4 mm height), adequate thickness (greater than 1 mm for anterior and 1.5 mm for posterior) and tight fit.

Although adhesive cements (e.g., Variolink Esthetic) are also indicated for these conditions, adhesive cements compliment IPS e.max lithium disilicate's high strength in a variety of additional indications, including all types of restorations, any


Fig. 1


Fig. 2

preparation design and any thickness of restorations. With no minimum requirements for adhesive cementation, adhesive cementation provides higher immediate bond strengths and a better marginal seal with IPS e.max restorations.

_Optimum esthetics for a broad range of indications

Variolink Esthetic is a light- and dual-curing luting composite for the permanent cementation of ceramic and composite restorations. The light-curing version (Variolink Esthetic LC) is suitable for high translucent restorations where a longer working time is desired. This allows the dental professional to position, secure and subsequently light-cure all-ceramic veneers without any time constraints.

The dual-curing version (Variolink Esthetic DC) is suitable for ceramic and composite restorations for which a complete polymerization with light cannot be ensured because of the material's opacity or strong wall thickness. In such cases, complete polymerization of the luting composite is achieved by the material's combination of light- and self-curing properties, resulting in a reliable adhesion of the restoration.

Variolink Esthetic is available in five different shades. Variolink Esthetic Neutral, which features the highest level of translucency, does not affect the brightness value of the restoration and is color neutral.

"Warm" and "Warm+" increase the chroma of the restoration and, therefore, result in a gradual darkening of the overlying ceramic and composite restoration.

The shades "Light" and "Light+" have a gradual brightening effect on the restoration. Utilizing the Variolink Esthetic Try-In pastes ensure that the ideal shade is selected to flow seamlessly with the adjacent dentition.

_Easy excess removal

In the past, the time-consuming removal of excess luting cements before and after polymerization represented a disadvantage of the adhesive cementation technique. Variolink Esthetic has been further developed and sets a new standard for easy removal of excess material, making esthetic cementation simple. Excess material can be easily removed while still in a gel-like consistency because of the material's optional pre-polymerization feature.

For the pre-polymerization, Variolink Esthetic DC is light-cured using the quarter technique, i.e., each quarter surface (mesio-oral, disto-oral, mesio-buccal, disto-buccal) is polymerized with light for two seconds. In case of Variolink Esthetic LC, the entire cement gap is pre-polymerized for two seconds (circular technique).

_Controlled viscosity

The consistency of Variolink Esthetic has been optimally adapted to the requirements of dental practitioners. It has a convenient level of flowability and can be effortlessly and precisely extruded from the syringe. Furthermore, excess material smoothly flows from the cement gap but remains stable at the cementation joint so that it can be readily removed after successful pre-polymerization.

_Combination with Adhese Universal

The adhesive material Adhese Universal (Ivoclar Vivadent) ideally complements Variolink Esthetic. The optional etching step with phosphoric acid is part of the "selective-etch" and the "etch and rinse" technique and results in an enhanced adhesion to enamel and optimized marginal seal. Adhese Universal is applied onto the tooth surface to be treated, starting with the enamel margins, and agitated for at least 20 seconds.

Fig. 1_Preoperative situation: Tooth 19 with an insufficient composite filling.

Fig. 2_Try-in of the IPS e.max restoration with Variolink Esthetic Try-In Paste Neutral.

(Photos/Provided by Dr. Stephanie Huth)


Fig. 3


Fig. 4


Fig. 5

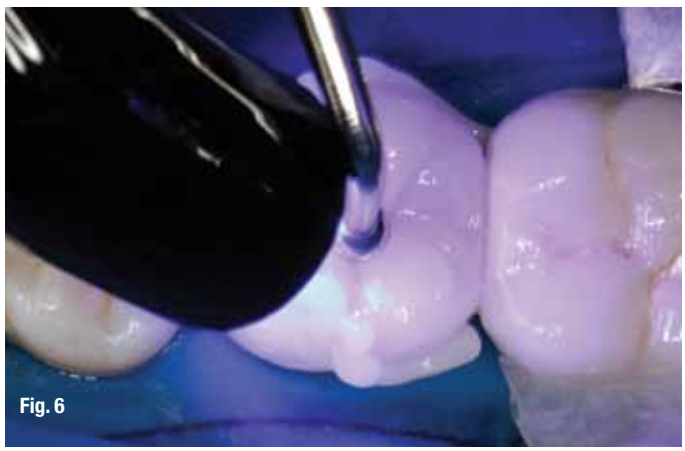
Fig. 6


Fig. 7

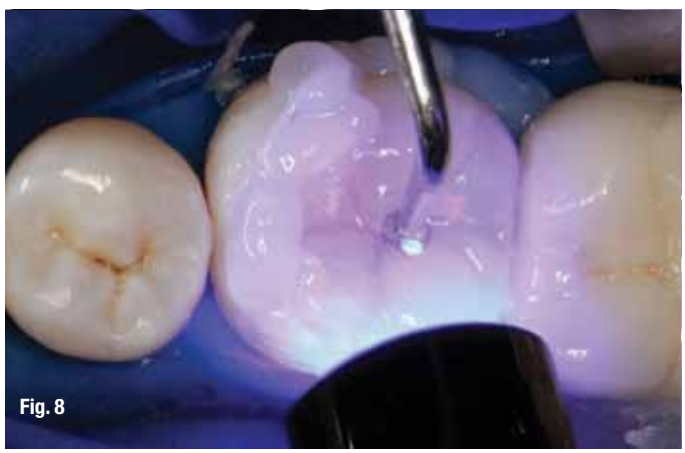
Fig. 8

Fig. 3_Placement of the anatomically shaped OptraDam rubber dam.
Fig. 4_Acid-etching of the prepared tooth surface with 37 percent phosphoric acid (Total Etch).
Fig. 5_Application of Adhese Universal.
Fig. 6_Pre-polymerization of excess luting cement using the quarter technique, i.e. each quarter surface is light-cured for two seconds with the polymerization light held at a maximum distance of 10 mm.
Fig. 7_Removal of gel-like excess luting cement material using a scaler.
Fig. 8_After the application of a glycerine gel (Liquid Strip), each segment of the restoration is light-cured.

Subsequently, the adhesive is dispersed with oil- and water-free air until a glossy, stable film results. Because of the adhesive's adapted thixotropy, the film thickness is kept to a minimum so the fit of the restoration is not affected. The material is polymerized with a light intensity of ≥ 500 mW/cm2 for 10 seconds before the placement of the indirect restoration.

_Clinical case

A 25-year-old patient presented to our practice with a compromised resin composite restoration


Fig. 9

Fig. 9_One week post-op picture.

and secondary caries on tooth# 19 (Fig. 1). Because of the defective area was very large, treatment with an IPS e.max CAD restoration was decided in order to achieve an efficient and esthetic result.

After placement of the core build-up and preparation of the tooth, the tooth was scanned intraorally and a partial crown was designed.

Subsequently, the non-crystallized restoration in blue stage was tried in in the patient's mouth to check the contact points and the fit of the restoration.

In order to assess the esthetic appearance and the shade effect, the characterized and fired restoration was again tried in using Variolink Esthetic Try-In Paste Neutral (Fig. 2).

During these trial placements, care was taken that the tooth was sufficiently moist to ensure a lifelike shade impression. An anatomically shaped rubber dam (OptraDam Plus) was used for absolute isolation during the final placement of the restoration (Fig. 3).

First, the enamel was etched for 15 seconds (Fig. 4), followed by the entire cavity for another 15 seconds (Fig. 4). Then, Adhese Universal was scrubbed onto the prepared tooth surface for 20 seconds and dispersed with a stream of air (Fig. 5). Special care was taken that no material pools formed at the cavity floor. Subsequently, the restoration was light-cured with a polymerization light (Bluephase Style) for 10 seconds.

To obtain an optimum bond, the IPS e.max CAD restoration was etched with hydrofluoric acid (IPS Ceramic Etch Gel) for 20 seconds and conditioned with Monobond Plus 60 seconds followed by air-drying. In a next step, Variolink Esthetic DC was applied on the restoration, which was subsequently positioned on the tooth. After pre-polymerization of the excess material using the quarter technique (two seconds per quarter surface) (Fig. 6), the gel-like excess material could be easily removed using a scaler (Fig. 7). Glycerine gel (Liquid Strip) was applied to prevent the formation of an oxygen inhibition layer.

In a final step, each segment of the restoration was light-cured for 10 seconds (Fig. 8), the composite gap was finished and polished (Astropol) and the occlusion was checked._

_about the author CAD/CAM

Dr. Stephanie Huth is a research associate in the internal clinic of Ivoclar Vivadent`s research and development department. She is responsible for clinical studies concerning restorative dentistry and prosthodontics, particularly adhesives and zirconia restorations. She started her career at the Julius-Maximilians-University in Würzburg, Germany (2005-2010), where she passed the examination with distinctions and earned a doctorate in the department for functional materials in medicine and dentistry.

Implant restoration replaces failing post and core

Author_Louis R. Kaufman, DDS

_A female patient presented with a post and core on tooth No. 5, with caries present and the lingual portion fractured off. I explained that the tooth definitely required extraction and then outlined the next two treatment options: a fixed 3-unit bridge or an implant-supported single crown.

The patient chose the implant but elected to forego wearing a temporary partial. I extracted the remaining root and placed MinerOss Cortical & Cancellous allograft material (BioHorizons). The patient returned in a week for suture removal and then in four months for CBCT scanning to assess the site and to plan implant placement.

The Romexis software used with my Planmeca ProMax 3D system generates images that I can use for planning and patient education. The flexible software is compatible with the online 3D Diagnostix services that I used for accurate surgical guide fabrication.

I took conventional impressions using DenMat's SplashMax polyvinyl siloxane. A DICOM file was simply uploaded to 3D Diagnostix, and once the guided surgery was approved, a planning session was done remotely with 3D Diagnostix, and the surgical guide was created.

At the surgical placement visit, the surgical guide fit was verified, both before the flap procedure and after, making sure it fully seated with no interference from soft tissue.

We chose a 3.8 x 12 mm Tapered Internal implant (BioHorizons).

With the Isolite dental isolation system in place, I took a 2.0 pilot drill to a depth of 16 mm — accounting for the sleeve length of 4 mm and the implant length of 12 mm. Then, I used a guide pin to confirm angulation and depth.

To finish the site, I used a 3.2 final drill to a depth of 12 mm from the crest of bone. After again confirming angulation as well as width with an analog, I placed the implant and a cover screw. The patient was reappointed for a four-month post-op visit.

At follow-up, osseointegration was confirmed.

Fig. 1_Digital periapical (captured with Planmeca ProSensor) reveals post and core in tooth No. 5, with lingual decay and a fracture.

Fig. 2_At the follow-up appointment after extraction, a CBCT scan is captured to assess the site and verify implant positioning.

(Photos/Provided by Dr. Louis R. Kaufman)

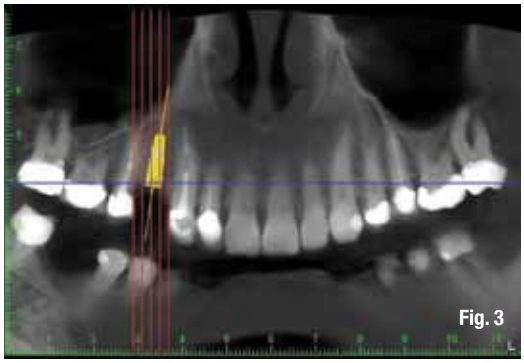
Fig. 3


Fig. 4


Fig. 5


Fig. 6

Fig. 3_Planmeca Romexis software is used for patient education, measurements and implant selection.

Fig. 4_DICOM-compliant files are uploaded to 3D Diagnostix for guided surgery.

Fig. 5_A surgical guide is fabricated and returned for fit verification.

Fig. 6_At the surgical appointment, I use the Isolite system to provide optimal isolation and visibility. Prior to guide placement, a full-thickness flap is raised.

After administering local anesthesia (prilocaine), I used the topical surgical guide with a periodontal probe to locate the cover screw. The screw was exposed with DenMat's NV2 diode laser. The healing cap was placed and allowed to heal for two weeks.

At the next visit, final impressions were taken and stock abutment was used to fabricate a a PFM (high-noble substructure). It was cemented with Premier Implant Cement._

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Fig. 7_Guide fit is again confirmed after flap.
Fig. 8_ The pilot drill is taken to 16 mm.
Fig. 9_ Angulation and depth are verified with a guide pin placed periapically.
Fig. 10_ Final drilling is done to 12 mm (measured from crest of bone).
Fig. 11_ An analog is used to determine proper angulation land implant-to-tooth distance.
Fig. 12_ Radiograph confirms the analog positioning.
Fig. 13_ The implant is placed.
Fig. 14_ The cover screw is placed.
Fig. 15_ Osseointegration is confirmed radiographically at a four-month follow-up, and the implant is ready to be restored.
Fig. 16_ The final crown.


Fig. 7


Fig. 8


Fig. 9


Fig. 10


Fig. 11


Fig. 12


Fig. 13


Fig. 14

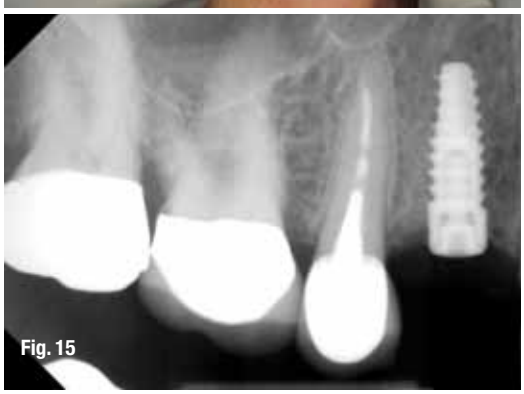
Fig. 15


Fig. 16

_about the author CAD/CAM

Dr. Louis R. Kaufman is an educator, author and practicing clinician. He is a graduate of the University of Illinois School of Dentistry. In 1995, he joined his father's well-established 60-year-old general practice treating third- and fourth-generation patients. Kaufman serves on the advisory boards of numerous dental manufacturers, consults on product development and educates clinicians around the globe. He lectures at approximately 20 continuing education programs annually and has published numerous articles on restorative and cosmetic dentistry. Kaufman holds professional memberships in the American Dental Association, the Academy of General Dentistry, the American Academy of Cosmetic Dentistry, the Chicago Dental Society and the Illinois State Dental Society.

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Planmeca introduces the Planmeca FIT System: An open CAD/CAM system

Author_Planmeca Team

(Photo/Provided by Planmeca)

_Planmeca has announced new branding for its complete chairside CAD/CAM system. Introducing Planmeca FIT, composed of the PlanScan scanner, PlanCAD software and PlanMill 40 mill as a fully integrated open CAD/CAM system for same-day dentistry. The FIT solution provides a digital workflow that combines exceptional patient experience and convenience as well as high-quality restorations with the perfect fit.

_Power of the perfect fit

Focusing on a full system approach, the Planmeca FIT will adapt to a practice's schedule, needs and expectations – a perfect fit for today's busy lifestyle. It is the ultimate chairside digital solution to create a profitable dental practice. Planmeca FIT contains three key components: PlanScan scanner to accurately scan intraorally, PlanCAD software for intuitively designing the restorations and PlanMill 40 to precisely mill out the restoration in-office. With this complete system, dental professionals can achieve chairside restorations that patients appreciate, all in the same day.

"We wanted to package PlanScan, PlanCAD and PlanMill 40 as a full system that provides the perfect fit in restoration strength and aesthetics, as well as for the patient's health and well-being," said Jukka Kanerva, president of Planmeca CAD/CAM Solutions. "The Planmeca FIT open CAD/CAM system allows us to do just that. We have received many positive responses and are very excited to see its powerful impact to the marketplace as we continue to create solutions to better the patient and user experience of our products."

Dental patients expect convenience and a comfortable experience. The Planmeca FIT System exceeds both of these expectations by providing beautiful, natural-looking restorations with the added convenience of same-day dentistry. Restorations fabricated by Planmeca FIT are strong, beautiful and natural in appearance – a perfect fit for the ideal smile. With Planmeca FIT same-day technology, practitioners can now go beyond traditional dentistry and create a new level of exceptional patient experience.

_About Planmeca Oy and Planmeca Group

Planmeca Oy is one of the world's leading dental equipment manufacturers with a product range covering digital dental units, CAD/CAM solutions, world-class 2-D and 3-D imaging devices and comprehensive software solutions. Headquartered in Helsinki, Finland, Planmeca's products are distributed in more than 120 countries worldwide. With a strong commitment to pioneering innovations and design, it is the largest privately held company in its field.

Visit *www.planmeca.com* and *www.planmeca cadcam.com* for more information. The Planmeca FIT System is distributed exclusively in North America by Henry Schein Dental._

Embracing the digital transition

Author_Winnie Guan

_Setting the precedent

Dr. John Hagen came from a family of blacksmiths where you practiced a certain trade. In those days, college was generally not the path, but for him, his motivation was to go to college. Having taken an aptitude test from the advice of a high school science teacher, John moved on into dental school, which set a different precedent for his future lineage.

Knowing his family's history of blacksmiths but also seeing his father break away from that history to become a dentist, Dirk Hagen had always been intrigued by John's dental work while growing up. Although he didn't know from the beginning, dentistry was Dirk's lifetime calling from high school on.

When you hear about a hometown dentist who has been in practice for more than 60 years, you think of a dentist who is comfortable in his old ways with the tried-and-true formulas of traditional dentistry — but this is not the case at all for John. John is a forward-thinking dental professional who continues to integrate new technologies into his practice. Together, John and Dirk push their practice, Opera House Dental, to great heights of productivity and profitability with digital dentistry to better serve their patients with the best that dentistry has to offer.

_History in the making

With 95 years of experience between the two, John and Dirk have both seen the dental industry evolve from a focus on materials to technologies, but very little of the techniques and products that either of them were taught or used in dental school are still utilized today. With new technologies on the rise, clinical approaches have changed over time. This in turn affects the patients they see, because they want to continue providing them with the best restorative materials.

Opera House Dental has evolved over the years and continues to follow the tech curve. The practice has progressed from slow-speed belts to electric handpieces, rotary equipment, digital radiography and computer-operated operatories. Having started this practice from the ground up, John has kept up with current technologies in the industry, setting the stage up for Opera House Dental to continue moving toward a digital workflow environment.

While John has always been interested in CAD/CAM technology, cost was a major concern of his. About one year ago, Dirk went to a Planmeca PlanScan event and heard Dr. Mark Morin speak on the technology. "It really took me over the edge and got me thinking that this is where the future of dentistry lies. After hearing about the superiority of the materials and that same-day service was a possibility for our patients, I knew it would fit right in with our practice," he said. "I was convinced it was time to take Opera House Dental to the next level."

Excited with anticipation of this new technology, Dirk returned to John with the proposal. With an open-mind, John encouraged him to move forward. In December of 2014, they purchased the full Planmeca FIT open CAD/CAM system (PlanScan, PlanCAD, and PlanMill 40).

_The pay-off

Integrating this new technology has been a lot more complex than just installing new equipment. Juggling patient schedules with their workflow has been a bit challenging, especially because this concept is completely different than what they are

Drs. John Hagen, above, and his son, Dirk Hagen.

Dr. John Hagen scanning a patient with the PlanScan scanner.

traditionally used to. While there is a learning curve, they have both seen their investment pay off. "Both my staff and the patient response to digital dentistry has been amazing, and the patient acceptance is high," John said.

"Our team is very supportive of our ideas, and so when either of us believes in a product, they will too," added Dirk. "Additionally, patients get more excited about it than we do. They have been very welcoming and receptive to it, and the technology really just blows them away."

_Digital workflow

As part of the Planmeca FIT family, John and Dirk have both been very well-supported by the Support On-Site (SOS) team at Planmeca, clinical and technical experts who provide remote support to FIT customers throughout their digital transition. Having gone digital for less than eight months, Dirk has sent only one prep over to the laboratory.

He started his digital journey with onlay cases and has moved on to full coverage crowns. "I really love the idea that I get to be in control of the restoration. I can be more (or less) conservative with not having to remove too much tooth structure," he said, one of the major selling points for him.

Dirk occasionally cuts into John's daily workflow by creating restorations that he would rather see created digitally in-house instead of sending them off to the lab – this helps cut costs and reduce fees. For those patients, John educates them on the workflow beforehand. "We have a system set up in the office where I bring my patients back there to show and explain to them the digital process. We tell them basically what it is, and a lot of my patients are already in the high-tech industry, so they understand computer-aided designing and manufacturing. This just puts the icing on the cake because they are already interested in having same-day restorations with a metal-free mouth," John said.

John's patients are especially happy with these services because the patient expectation for quality and a restoration that fits perfectly is very high – both of which are key benefits to owning Planmeca FIT.

"Older patients value the convenience of having their teeth restored in a single day," John said. "They love it because not only is it a much more comfortable experience, but they are also able to continue their daily life routines without any disruptions."

He continued: "We are both very pleased with the final restorations' strength and esthetics, as well as the results of same-day dentistry. So while we continue to learn more about optimizing our practice to the digital workflow, we see the possibilities and benefits of going completely digital, including less dependency on the lab, having more control of the final restoration and being able to continuously reduce extra costs."

Together, both John and Dirk continue to work toward all of these goals to provide the best dental experience for their patients.

_Open mind, endless possibilities

John has always been accepting of new changes within the practice, especially with new materials and technologies. While the Hagens would not describe their practice as "cutting-edge," they do believe that they are working closer toward that with the implementation of chairside CAD/CAM dentistry. Dirk added: "Patients realize that we are trying to keep up with current technologies in the industry, and we pride ourselves in the fact that we do look ahead toward the future of where dentistry is going to provide our patients with the best experience, restorations and care."

John is excited to see how digital dentistry will continue improving for more advanced cases and is very eager to take more advanced classes at Planmeca University to further provide new techniques for better dentistry. His advice? Make sure you and your team all have an open mind and that you are whole-heartedly committed to this modern technology before making the investment. "Everything else will fall into place when you have support behind you," said John. Both John and Dirk look forward to seeing further innovations from Planmeca to continue their digital journey with the latest and greatest.

So when you hear a dentist tell you that he or she is too close to retirement to see the value of investing in CAD/CAM technology or that his or her practice and team are not ready to take the next step, John and Dirk Hagen can tell you otherwise. The possibilities of digital dentistry are endless and worth it, especially when you can create an environment for your patients that allows them to leave your office comfortably to eat, talk and smile.

"That's a good thing, because not only does it help them but your patients will love you for it," John said._

_about the dentists CAD/CAM

Dr. John Hagen has been practicing dentistry for 61 years. He received his DDS from Temple University dental school and served in the United States Navy for two years before he opened his own practice, Opera House Dental, in Parkesburg, Pa., where he continues to practice today. Dr. Dirk Hagen, Dr. John's son, has been practicing for 34 years. He also received his DDS from Temple University and then joined his father in practice.

Practice considerations for technology integration

Author_Gary Kaye, DDS, FAGD

_The world is going digital, and dentistry is no exception. As practices strive to stay up-to-date, digital technology can be incorporated into practices to enhance and simplify procedures, helping dentists to achieve the maximum return on investment in more ways than one. Newer technology allows dental offices to offer advanced, more streamlined services, accept more patients and provide treatments with greater efficiency.

Integrating technology into practices requires a delicate combination of clinical and management skills and should not be undertaken without careful planning. Because technology is an investment of time, money and human adoption, a detailed, sequential plan of action can help a practice realize its objectives and goals more effectively. Here are some considerations for developing such a plan to ensure implementation and financial success when making a fundamental change with technology at the core.

_Understanding changes in the dental practice

Practices may find it easy to make minor changes, but major changes, such as switching to a new practice management system, may be more difficult. Many practices struggle the most when it comes to fundamental changes, a category under which integrating advanced technology such as CAD/CAM, digital radiography or laser dentistry generally falls. Fundamental change requires a change in mindset, which many people do not want to experience, especially when it will disrupt their normal habits and comfort zone.

Introducing CAD/CAM and changing how we provide restorations involved more than just the technology and equipment. It also involved scheduling patients for single-visit restorations and altering the way appointments were handled. Patients come in for fewer visits but for longer periods of time.

There was initial hesitation amongst the staff to learn a new way of doing restorations; it was unfamiliar and intimidating. Now, it is a seamlessly integrated process for the practice, and we can't imagine not having it.

_Integration objectives and specific measures

When considering implementing a new process, procedure or technology, it's worthwhile for dentists to consider its economic feasibility.

Understand that a return on investment may not be immediately realized. So if new equipment is not needed, it may not be wise to make a purchase for the sake of buying something new. For example, if you do very few indirect restorations per month, you may find your current technology and processes serve your purpose. It is important to distinguish between what you need and what you want.

However, it can be helpful to integrate new technology even if the expected return on investment is not very high nor urgently needed. My practice did not need to purchase a digital apex locator, but the purchase proved to be economical in ways we hadn't considered. We drastically cut down on our patients' radiation exposure, procedures are much more streamlined, and patients are much happier with the care they receive.

Additionally, using CAD/CAM can enhance productivity by allowing an assistant to design restorations in the office. Techniques become more streamlined, and the entire process is simplified when performed in-office.

_Managing the human side of technology

Dental professionals must stay abreast of new technologies. Opportunities for learning are easily accessible, especially online, where webinars, discussion groups and communities of dentists can be found. Dental professionals should take advantage of these options to develop and enhance their skill sets, as well as for continuing education.

When dentists first began taking impressions, it was a frustrating experience, required a lot of effort and no one knew how to do it correctly. Introducing new technology is the same way. Once new procedures are learned and mastered, office productivity soars.

One of the biggest mistakes a practice can make is giving up too quickly. This is easy to do when change is frustrating, success is not immediately realized, or integration is unwelcomed by staff. This underscores the need for a detailed plan for integration that incorporates staff opinions. When everyone sees that change does not just mean the introduction of new technology but a new mindset and approach to how they will practice, they can become active participants in the transformation.

_The dentist's multiple roles

During any given day, dentists wear one of three hats: clinician, manager and practice owner. As a clinician, we consider what is best for patients. As a manager, you are responsible for your staff, so you can involve them in decisions that affect them so they will be more receptive to change. As a practice owner, you also can consider what will be best for the practice.

Digital technology, therefore, should provide you with a return on investment, whether through a monetary profit, new patients, enhanced patient care or more efficient and productive teamwork flow.

_Asking the right questions

A well-thought-out plan that addresses the right questions can accelerate your return on investment. It is critical that the staff have an open mind, are willing to move forward with change and see the change as a paradigm shift in the practice, not just the installation of new equipment.

Underlying problems with a practice need to be honestly addressed ahead of time. These changes become a great opportunity to recalibrate systems and procedures that may have been overlooked. Incorporating new technology into a practice does not fix what is wrong, but it will enhance what is already working well.

No matter what changes need to be implemented, know that you must be willing to provide leadership and focus to your staff throughout the process._

_about the author

CAD/CAM

Gary Kaye, DDS, FAGD, completed his graduate dental school training at the Columbia School of Oral Medicine in New York City. He is recognized as one of the first general dentists in the United States to be certified in Invisalign; is the founder of Kaye Dentistry PLLC, a world-class reconstructive, cosmetic and implant dental practice; and is the founder and director of the New York Center for Digital Dentistry. Kaye consults with other dentists and dental manufacturers, lectures on topics including ceramics, occlusion and digital dentistry, and performs live patient demonstrations to dentist audiences. He is a graduate of the Dawson Center for Advanced Dental Training, a member of the International Speaker's Academy and is on the guest faculty for Planmeca University in Richardson, Texas.

Upgrade your patient and team experience

Author_Kaveh Ghaboussi, DMD

_Digital dentistry utilizes computer-aided design (CAD) and computer-aided manufacturing (CAM) to take three-dimensional scans of a tooth preparation. A restoration can then be created through either design software and then milled in an office milling system or sent to a lab to finish the tooth. While dental laboratories are the early adopters of digital dentistry, dental offices are now slowly but surely moving in that direction as well.

While I was skeptical of this new technology at first, I heard from peers about how beneficial CAD/CAM could be and knew it could potentially be a step in the right direction to take my practice to the next level. With two complete CAD/CAM solutions on the market that were capable of creating excellent restorations, I did some extensive research, and in the end, I chose to purchase the Planmeca FIT system. Needless to say, I have not looked back ever since.

One of the greatest features is Planmeca's open platform, which has allowed me to collaborate freely and given me many more opportunities. From being able to work simultaneously on a case with multiple users at the office to sending off some work to an off-site lab, this open platform has allowed for easy collaboration and sharing of information during any step of the workflow — not to mention the ability to quickly transfer large STL files to any of those users.

Patient experience, as well as team experience, has also drastically improved within my dental office. We all know patients are always weary of taking time off work for dental visits — taking one day off isn't so bad. But for those who need more extensive dental care, taking off multiple days is almost impossible.

With patients expecting faster turnaround times, there is no better feeling than to be able to deliver same-day dentistry to them with Planmeca FIT system.

My team appreciates same-day dentistry as much as the patients do. While my team enjoys using CAD/CAM tools, patients enjoy the added benefit of knowing the person who made their restoration, as well as being able to see the restoration designed right in front of their eyes.

I take pride in the quality of the restoration, while patients often praise my team for how natural the restorations look.

However, it doesn't come easy. The team has to work hard to continuously improve their skills through training and education, all of which is provided by Planmeca University.

From a two-year maintenance warranty to less associated wait times, lower lab bills and not having to pay for extra materials, I have saved quite a bit of money with the addition of a digital impressioning system into my practice.

I would encourage anyone who is interested in digital dentistry to request a demo at your office. If you find that the demo impresses you, make sure you schedule a visit to the Planmeca University training center in Dallas to get the ultimate hands-on experience of CAD/CAM technology.

This digital impression system has done wonders for my office, and I am confident that for anyone who would like to upgrade their practice to utilize this new technology, the Planmeca FIT system is the way to go._

_about the author CAD/CAM

Dr. Kaveh Ghaboussi is a dentist in Madison, Wis., and has been using the Planmeca FIT system at his office for the past three years. He has lectured across the country on subjects such as implant surgery, cone-beam technology, practice management and CAD/CAM dentistry.

Growing your practice with digital dentistry

Build a better mousetrap and the world will beat a path to your door

Author_Brent Parr

_We all hear it. Have a superior product or service, and customers will automatically stream through the office door. If only it were so easy.

The reality for most dentists is that new technology does not lead to a major increase in patients. Yes, there are often more referrals because of satisfied patients, but not the hoped-for volume increase. The good news is that relatively small investments in marketing can change this and lead to significant growth of the practice.

Once you've made the decision to grow your patient base using digital dentistry, you have to target and engage potential patients. Here are the four most critical:

1. Develop an impactful website.
2. Execute a patient review strategy.
3. Engage with your community on social media.
4. Deliver targeted marketing campaigns.

_You only have eight seconds to convert a lead

According to the National Center for Biotechnology Information, the average attention span is now 8.25 seconds. Test this theory. Show your website to someone new and time them. What can they report back to you? The bottom line is: only a truly effective website can grab the attention of a prospective patient in less than eight seconds. And if you can't grab their attention, you certainly can't convert them.

Here are a few ways to ensure your website not only grabs the attention of prospects but, more importantly, turns them into patients.

Images with captions

Images with captions are read on average 300 percent more. Adding captions gives you a golden opportunity to show a tool like the Planmeca FIT system for open CAD/CAM and communicate why it benefits patients.

Videos

Visual learning leads to improved memory retention and comprehension and triggers an emotional response while motivating the learner. This is why television advertising remains the largest segment of advertising spending.

Q&A

You may only have eight seconds to get a new

patient's attention, but you also need to provide the depth of content to answer their questions and build credibility. A Q&A format is an easily digestible format for understanding and communicating the technology, ultimately building credibility.

Call-to-action

This may seem simple but is often forgotten on dental sites. Tell your patients the next step – whether it's to call, email, book or simply learn more. You need to ensure your phone number is prominent and clickable on mobile devices. You also need to include a submit form for users who access your site during evenings and weekends.

Custom photography

High-quality, custom photography makes your practice approachable and gives you a chance to highlight the new technology you have invested in. A competitor website full of stock photos looks like any generic office, whereas using custom photography ensures your practice comes across as unique and personable.

_Ask for patient reviews

Ask patients who have experienced the benefit of CAD/CAM technology to provide you with an online review on Google+, Facebook or Yelp. Online reviews build instant credibility when someone is looking for a dentist. Reading reviews about a positive experience and unique technology impacts people's decision when looking for a dentist.

The best way to get reviews is to ask for them. Make it part of your daily routine. Send an email to the patients you saw that day and ask them to provide you with an online review. An email template can streamline this process.

_Engage with your patients on Facebook

Having a vibrant Facebook profile is important. Potential and current patients are going to look on it. You want it filled with oral health tips and dental education, illustrating that you care about the oral health of the local community.

In addition to the general Facebook engagement, you have the option to boost your posts using targeted advertising to reach people who have not already liked your page. For example, you may share a post on the convenience of one-visit dentistry for the busy professional. Targeting options in Facebook are extremely powerful – not only can you target people based on demographic information, you can target based on interests, education and even areas of study.

_Advertise on YouTube

Television advertising has been the primary medium to build brand awareness. The challenge for most dental offices is that television advertising is expensive and covers a geographic area beyond the service of their practice.

YouTube provides the impact of television ads, but in a targeted geographic area, meaning you can roll out highly engaging videos commercials with a much smaller budget.

_In summary, digital marketing and the better mousetrap

Your investment in digital dentistry will help you stand out compared with other dentists in your local area. By initiating a comprehensive marketing strategy, you can display the technology you've invested in and increase the number of new patients who choose you and your office._

_about the author

CAD/CAM

Brent Parr is president and CEO of Optio Publishing Inc. He has developed industry-leading patient education and online marketing solutions for dental offices for more than 12 years. Working with hundreds of dental offices in the United States and Canada, Parr and his team have developed proven marketing strategies that leverage patient education, search engine optimization, social media and paid display to attract new patients and promote high-value services such as dental implants and single visit restorations.

Planmeca Romexis software: Open architecture, endless possibilities

Author_Planmeca Team

_Technology in dentistry is evolving. With an ever-growing platform and so many options in the industry, it's time for a software platform that features all-in-one capabilities and open architecture, allowing you to choose the best technology for your practice.

Built on an open architecture software platform, Planmeca Romexis offers best-in-class integration, providing users with the freedom to use third-party products for a customizable workflow built to fit the needs of any office. TWAIN protocol and DICOM compliance, as well as full support for Windows and Mac OS operating systems, make Planmeca Romexis an ideal fit for any practice.

_Your all-in-one software solution

Planmeca Romexis is the first software in the world to combine 2-D and 3-D imaging with complete CAD/CAM workflow and even extended connectivity with Planmeca dental units. Planmeca Romexis software offers these capabilities and more – IO scanning and restorative design, ceph analysis and tracing, orthodontic tasks with Ortho Studio and

Planmeca Romexis software is built on an open architecture software platform.

(Photos/Provided by Planmeca)

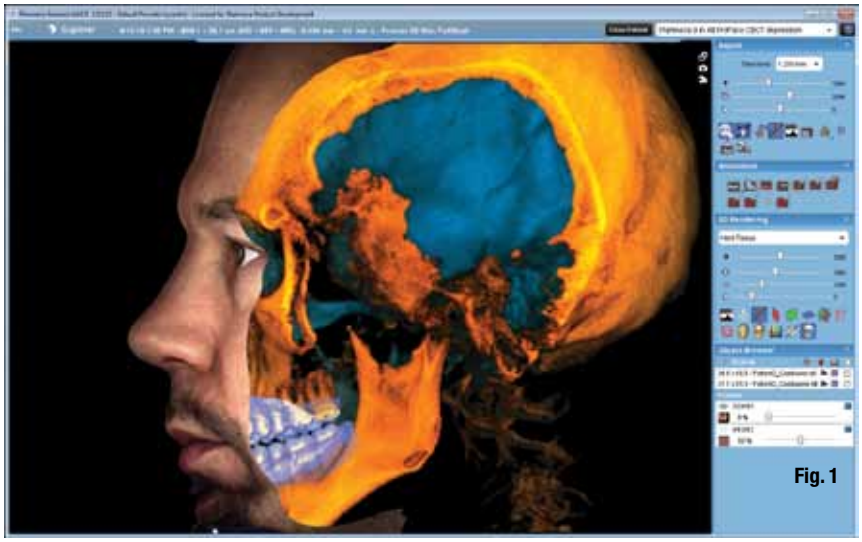

Fig. 1_Planmeca 3DMax 3 x 3D = CBCT + ProFace + impression scan.

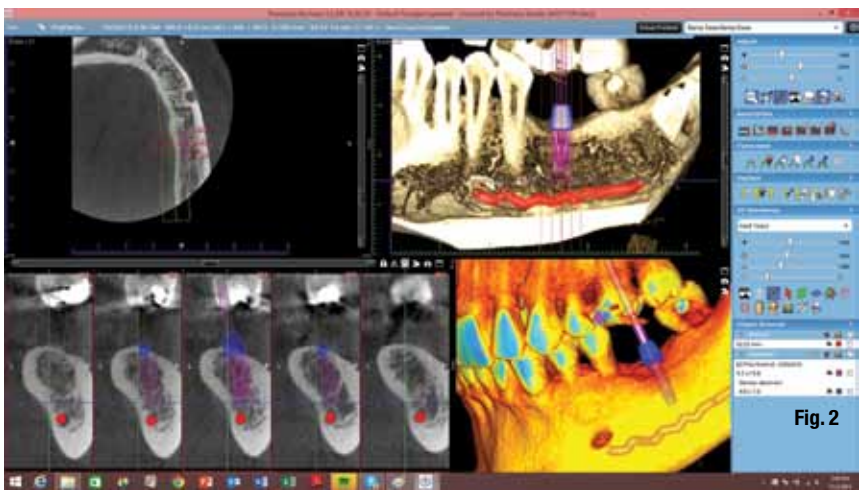

Fig. 2_Planmeca 3Ds large view image.

Planmeca ProFace true 3-D facial photos for case presentations that are more detailed than ever.

_Exceptional usability

With Planmeca Romexis, versatile applications are easy to use with intuitive features that make it simple to view, edit and enhance images as well as create detailed treatment plans.

Easy mouse-driven navigation means no complicated keyboard combinations to remember: Your necessary functions are in front of you, clearly marked and ready to use.

_Secure image sharing from anywhere

Share files from wherever you are with the Planmeca Romexis Cloud, a secure transfer service for Planmeca Romexis users and their partners. The service is easy to use and seamlessly integrated into Planmeca Romexis, saving you even more time and cost by eliminating OVOs and other physical processes.

_Efficient clinic management

For larger practices with multiple operatories, Planmeca Romexis also offers its Clinic Management module for an innovative link between software and equipment, making it possible to remotely monitor your unit functions, access user-specific presets from any unit, proactively manage unit maintenance for decreased downtime and more.

_A future-proof investment

Planmeca Romexis software offers a complete workflow engineered with the flexibility to adapt to you and your patients' evolving needs. Planmeca Romexis leads the world in image capture and diagnostics for superior treatment planning, with the ability to upgrade and make your investment future-proof. Open file architecture and true modularity means you can add technology as you need it, ensuring your practice won't be left behind as dental technology continues to advance._

Redefining CAD/CAM efficiency with the Anutra Local Anesthetic Delivery System

Author_Pat Peri IV

_Imagine going to work on a patient's CAD/CAM restoration within minutes without ever having to leave his or her side nor wait extended periods of time for the anesthetic to take effect. This is the advantage of buffering local anesthetics with the Anutra Local Anesthetic Delivery System.

The efficiency and time-saving benefits of Anutra buffered anesthetics allow for more efficient workflow for your staff to quickly deliver the patient's restoration. It significantly enhances patient experience and comfort while transforming a practitioner's efficiency, profitability, predictability and reliability of local anesthetics.

The Anutra Cassette, part of the Anutra Local Anesthetic Delivery System. (Photos/Provided by Anutra)

By redefining buffered anesthetics and "same-day dentistry" with the Anutra Local Anesthetic Delivery System, you are creating a greater patient experience as well as increasing profitability for the practitioner. This is what we call a win-win scenario. Using the Anutra Local Anesthetic Delivery System is the best way to buffer local anesthetics to enhance the productivity of CAD/CAM.

Why does Anutra's buffered anesthetics create a better workflow in producing CAD/CAM restorations for "same-day dentistry?" It allows the practitioner to quickly work on the patient as well as complete the restoration in a single appointment.

Dr. Abernethy from Renaissance Dental Care stated: "I was amazed. I mean within two minutes, and this was for a block, I was able to pick up my handpiece and go. As far as time savings, this is huge."

After all, the goal of CAD/CAM restorations is to deliver same-day results on even the most complicated of restorations. By improving workflow and reducing the time for the patient to become numb, the practitioner is able to deliver final restorations in one appointment.

With the introduction of the Anutra Local Anesthetic Delivery System, buffering is made simpler and more effective by lowering the acidity level of lidocaine with epinephrine. This allows the patient to become numb quicker and for the procedure to be completed without interruption.

The Anutra Syringe, part of the Anutra Local Anesthetic Delivery System.

Dr. Gregory Mayes at Preston Dental Care said: "I was amazed. My first patient said he felt numb immediately, so we got started in a minute and a half."

In traditional anesthetics, there normally is a significant delay from when the practitioner administers the anesthetic injection and when the patient is ready for the procedure. This delay can be very time consuming, especially in the case of CAD/CAM restorations, and hinders "same-day dentistry."

With the Anutra Local Anesthetic Delivery System, the buffered anesthetic is raised to the patient's physiologic pH, which allows the anesthetic to more readily cross the nerve membrane. This means a patient can reach pulpal anesthesia in as little as two minutes, even with blocks.

Additionally, anywhere from 4,000 to 6,000 times the active molecules of anesthetic will cross the nerve membrane, making it more profound than normal lidocaine. Increasing the predictability that a patient will get numb the first time improves efficiency as well as profitability for the practitioner. With a more predictable time block for the patient to reach pulpal anesthesia, CAD/CAM restorations can be scheduled more effectively, which provides for a more profound doctor/staff relationship.

Dr. Lisa Mayes said: "My team loves me because I stay on time, and my patients and my staff get out of the office on time. It's a smooth schedule and they are comfortable."

What adds to the power of buffered anesthetic is that the topical effect is the result of a CO2 micro bubble that is formed when local anesthetic is mixed with sodium bicarbonate.

The Anutra Local Anesthetic Delivery System is revolutionary in conjunction to CAD/CAM technology because it combines all of these in a simple yet ergonomically designed product called The Anutra Cassette. The Anutra Cassette leverages the science of buffering to precisely mix lidocaine with epinephrine and sodium bicarbonate to effectively and efficiently buffer local anesthetics.

By loading an Anutra Cassette at the beginning of the week, clinicians can simply buffer anesthetic for every patient by twisting the knob on the Anutra Dispenser. Nothing could be easier and more cost effective.

The Anutra Local Anesthetic Delivery System not only provides an easy-to-use platform for you to buffer anesthetic in your practice, it also introduces the first-known, FDA-approved, multi-dose, one-handed fully disposable aspiration syringe. You can draw up to 6 milliliters of anesthetic in a single syringe. No need to reload cartridges after each use. With the Anutra Syringe, the practitioner can draw the equivalent of three traditional 1.8-milliliter dental cartridges, which provides for a more efficient and practical way to administer anesthetics.

With an affordable cost point, a revolutionary new haptic syringe, a simplistic dosing system and a long shelf life, the Anutra Local Anesthetic Delivery System is a must-have for every dental practice. By incorporating the Anutra Local Anesthetic Delivery System with the technology of CAD/CAM, you can redefine patient restorations with efficiency, profitability, predictability and reliability.

According to Mayes: "It's like Anutra and Planmeca were made for each other. With predictable patient comfort and profound anesthesia achieved so quickly from Anutra, I can now stay chairside and start prepping in about two minutes. This meshes perfectly with Planmeca because there are no preoperative impressions needed. With no lag time for anesthesia, I can now prep and move on to another patient while my assistant scans, designs, mills and finishes the restoration, and since Anutra helps me to do this next procedure more efficiently too, I am back to deliver the Planmeca FIT restoration before the Anutra wears off. It's liberating for all of us!"_

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