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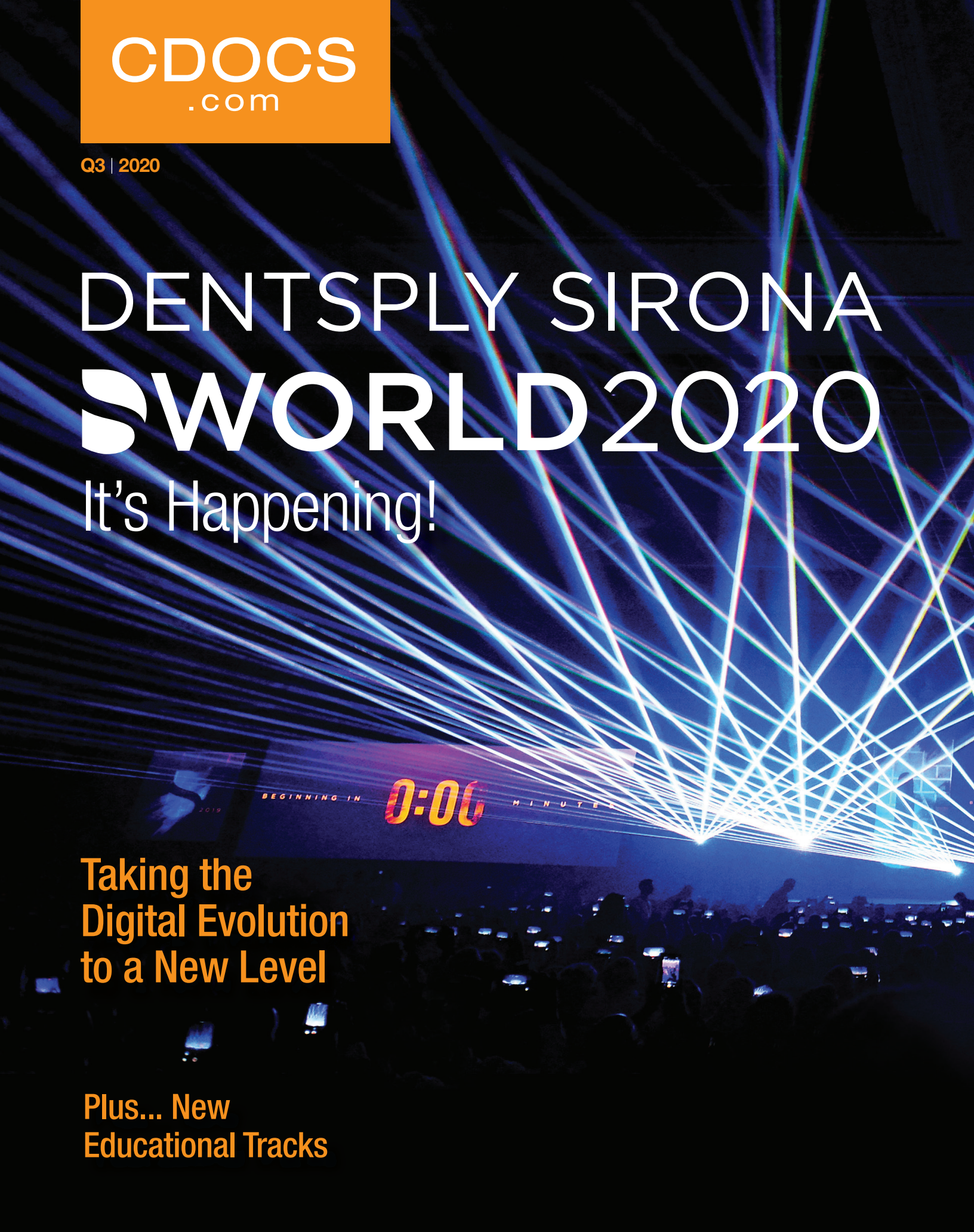

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Well…Part 2

Then put your seat belt on, Buckle Up

Buckle Up by Pearl Jam

When we last met, I basically left you with the phrase "this too shall pass." Well, it doesn't quite seem like we have gotten past the pass part! With everything going on these days, it seems like Mercury is forever in retrograde with all momentum rearranged. Whoever said it's all been said and done, well, make sure that seat belt is REALLY tight!!

This issue, in my humble opinion, is full of practical means of getting one through the turbulence that is facing a lot, if not all, of us today. Basically, this situation calls for all hands on deck. We have Dr. Meena Barsoum exploring a different way of doing exams and maximizing current technology. Dr. Barsoum is constantly stretching the bounds of what is possible in his office to create a better experience for his patients, his team, and himself.

Dr. Kristine Aadland shares her story and how she has dealt with the effects of the pandemic. Rather than give up, she stresses the importance of community to help her and her team through these troubling times. It's inspiring to read how she and her team planned to hit the ground running when they were able to get back to practicing.

There are other challenges that these times present to offices. Our partners at Spear Practice Solutions give us practical ideas about how to deal with the importance of scheduling, not only for operative patients but for hygiene patients as well. And our partners at Dentsply Sirona help the dental community manage dental aerosols with regard to COVID-19. Speaking of how the dental profession is and has been respected for its commitment to patient safety and disease prevention, make sure you read Dr. Puri's article that challenges how organized dentistry responded to the crisis and what might be done in the future.

As always, we have great clinical articles to help you see the possibilities we have in the digital arena to deliver the best treatment possible to those who have trusted us now and will continue to trust us for their care.

I know this has been a little on the heavy side. Don't allow for hopelessness to come in and control what you do or how you view what is happening around you. Find a way to utilize your connection with this community and deal with what appears to be imperceptibly big — big as the ocean and just as hard to control. Hang in there, and I hope that "this shall pass" will be in the past the next time we meet. Take care and be well!

For questions and additional information, Dr. Fleming can be reached at mfleming@cdocs.com.

Mark Fleming, D.D.S.
Editor

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Managing Dental Aerosols with Regard to COVID-19

Teresa A. Dolan, D.D.S., and Rainer Seemann, D.M.D., Ph.D.

The dental profession is globally respected for its commitment to patient safety and the prevention of oral diseases. Similarly, the profession is recognized for its willingness to adapt to challenging situations, including disease outbreaks, to support the public's health and well-being.

As COVID-19 impacted many communities and countries, elective dental care was put on pause, mostly so dental teams could follow the directives for social distancing while scientists and epidemiologists learned more about the disease and its spread. This action also facilitated directing personal protective equipment (PPE) to front-line healthcare workers treating patients infected by the virus.

Depending on the local situation, dental practices are resuming elective procedures and are following strict guidelines in terms of hygiene and preventive measures to ensure the best possible safety for their patients and dental staff. High-speed handpieces, ultrasonic scaling devices, and three-way syringes are routinely used for operative and preventive dental procedures. Most restorative and prophylaxis procedures cannot be performed without them, making aerosol-generating procedures (AGPs) a major component of modern dentistry.

Country-specific infection control guidelines including hand hygiene, use of PPE (e.g., gloves, makes, eyewear), and environmental surface cleaning and disinfection, as well as other standard precautions are designed to prevent infection spread in the dental setting. In addition, the use of high-volume evacuation (HVE) equipment allows the dental team to manage aerosols. This might explain why, to the best of our knowledge as of today, no transmission of COVID-19 in dental offices has been reported in the United States.[1]

Although currently no evidence exists of transmission of SARS-CoV-2 (the virus that causes COVID-19) via dental aerosols, public health agencies and dental associations globally recommend minimal use of aerosol-producing dental procedures at this time. By way of illustration, included below are two agency statements about dental aerosols:

Centers for Disease Control and Prevention:[1]

"The practice of dentistry involves the use of rotary dental and surgical instruments, such as handpieces or ultrasonic scalers and air-water syringes. These instruments create a visible spray that can contain particle droplets of water, saliva, blood, microorganisms, and other debris. Surgical masks protect mucous membranes of the mouth and nose from droplet spatter, but they do not provide complete protection against inhalation of airborne infectious agents. There are currently no data available to assess the risk of SARS-CoV-2 transmission during dental practice. To date in the United States, clusters of healthcare personnel who have tested positive for COVID-19 have been identified in hospital settings and long-term care facilities, but no clusters have yet been reported in dental settings or among DHCP [dental healthcare professionals]."

Robert Koch Institute (Germany):[2]

"There is no evidence for a transmission via aerosols.

Although no evidence exists of transmission of SARS-CoV-2 via dental aerosols, public health agencies and dental associations recommend minimal use of aerosol-producing procedures.

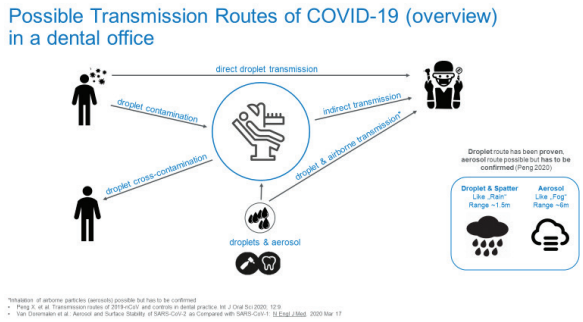

Fig. 1: Possible transmission routes of COVID-19 in a dental office.

Transmission routes in dental settings include direct transmission via droplets or indirectly when infectious materials contaminate surfaces or equipment.

Table 1
Helpful resources for dental offices

OSAP: CDC Summary, Checklist and Mobile App	osap.org/page/NewCDCSummary
CDC: Guidance for Dental Settings. Interim Infection Prevention and Control Guidance for Dental Settings During the COVID-19 Response	cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html
OSHA: Guidance on Preparing Workplaces for COVID-19	osha.gov/Publications/OSHA3990.pdf
ADA: Coronavirus Center for Dentists	success.ada.org/en/practice-management/patients/infectious-diseases-2019-nov-el-coronavirus
ADHA: COVID-19 Resource Center for Dental Hygienists	adha.org/covid19

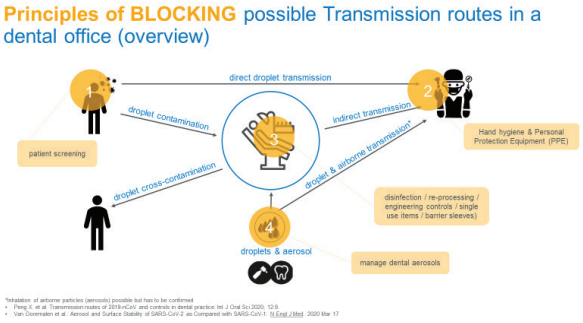

Fig. 2: Principles for mitigating infection transmission routes in a dental office

However, the generation and spreading of aerosols should prophylactically be avoided. This should be done primarily using an efficient high-volume evacuation." ["Für eine Übertragung durch Aerosole gibt es keine Evidenz. Aus Gründen des vorbeugenden Gesundheitsschutzes sollte dennoch die Entstehung und Verbreitung von Aerosolen wirksam vermieden werden. Dies sollte zuallererst durch eine effiziente, hochvolumige Absaugung geschehen. …"]

Possible COVID-19 Transmission Routes in Dental Treatment Rooms

Dental patients and DHCPs can be exposed to pathogenic microorganisms, including viruses such as SARS-CoV-2. The transmission routes in a dental setting include direct transmission via droplets (cough, sneeze) or indirectly when an infectious material, such as saliva, contaminates surfaces of dental equipment and instruments and is then transmitted either to the DHCP or other patients (Fig. 1).[3]

Studies have suggested SARS-CoV-2 may be airborne via aerosols formed during dental procedures using high-speed handpieces, air-water syringes, or ultrasonic scaling devices, although evidence for this transmission route is lacking.[3] Potentially, these dental aerosols also can contaminate surfaces and may lead to an indirect transmission of pathogens. The current scientific consensus is that most transmission via respiratory secretions occurs in the form of large respiratory droplets rather than small aerosols. Therefore, all dental procedures, including periodontal treatment carried out with hand instruments, should be undertaken with caution as hand instrumentation produces considerable amounts of potentially infectious droplets and spatter.[4] Droplets frequently

Fig. 4: High-volume evacuation (HVE). ADA recommendation: HVE = 100 cubic ft/min (Molinari 2004)

are heavy enough that they do not travel very far; instead, they fall from the air after traveling about six feet (approximately 1.5 m). Aerosols are much smaller and can travel longer distances (approximately 6 m). An analogy from daily life might be that droplets are more like rain, while aerosols are more like fog.

Mitigating Infection Transmission in the Dental Setting

To mitigate the risk of infection transmission in a dental setting, a variety of infection prevention measures are recommended. Please note that guidelines, recommendations, and regulations vary in each country and even by state or specific locale. Due to the current pandemic, these guidelines are frequently updated and should be monitored carefully (Table 1).

In the United States, reliable sources of infection prevention information include the Centers of Disease Control and Prevention, the Occupational Safety and Health Administration, the American Dental Association (ADA), the American Dental Hygienists' Association, and the Organization for Safety Asepsis and Prevention. Recommendations from these agencies and organizations follow the same basic infection prevention principles (Fig. 2):

1. Screening patients
2. Performing hand hygiene and using appropriate PPE
3. Disinfecting and reprocessing equipment and instruments, emphasizing single-use items, and cleaning and disinfecting environmental surfaces (and using barrier sleeves)
4. Managing dental aerosols

Managing Dental Aerosols

To minimize contamination risk from aerosols created when using high-speed handpieces, ultrasonic scalers, and air-water syringes, three principle measures are recommended in dental settings (Fig. 3):

1. DHCPs should protect themselves by using proper PPE and infection prevention measures in compliance with the applicable local-, state-, or country-specific guidelines as generally described above. Isolating the operation field using a rubber dam also has been recommended as this measure creates a barrier between the teeth and soft tissue and saliva.[3,5]
2. Ask patients to use a preprocedural mouth rinse with viricidal capability to sanitize dental aerosol. A 1% hydrogen peroxide or 0.2% povidone as well as Listerine have proven to be viricidal; chlorhexidine (commonly used against bacteria) has shown a very limited effect against viruses. More research is needed to give clear guidance.[3,6]
3. Using HVE instead of saliva ejectors is an important cornerstone to reduce the amount of dental aerosol. Studies published by the ADA show that proper HVE can reduce the amount of aerosol by 90% to 98%.[7,8]

To ensure dental aerosol management, an infection control protocol must be implemented. The protocol should

Dental aerosols can be managed by using proper PPE, taking disinfecting measures, and complying with the infection measures according to the country-, state-, and locale-specific guidelines.

include following recommendations for donning and doffing PPE, using environmental surface disinfectants according to the manufacturer's instructions, and properly using HVE. Because dental hygienists (DHs) usually work alone and are not in a position to perform "four-handed dentistry" (Fig. 4, left), they typically use standard saliva ejectors instead of HVE (two hands are required to operate both the mirror and the aerosol-generating device). Engineered HVE devices such as the Purevac® HVE enable the DH to simultaneously use HVE and an intraoral mirror as needed. This provides the benefit of evacuating fluid and debris while facilitating retraction, visibility, and illumination (Fig. 4, right).

Conclusion

In more and more countries, dental practices that had been stopped or limited to critical or emergency procedures due to the COVID-19 pandemic have resumed operation. Dental practices already follow strict guidelines in terms of hygiene and preventive measures to ensure the best possible safety for their patients and dental staff, but the current situation puts a special focus on hygiene and preventive measures in dental offices and during dental procedures.

Aerosol-generating procedures are a major component of modern dentistry. Most restorative and prophylaxis procedures cannot be performed without using rotating handpieces that create potentially infectious spatter and droplets. Currently, no evidence exists for a transmission of SARS-CoV-2 via dental aerosols. However, minimizing the risk for DHCPs and patients is essential. Thus, reducing and managing the amount of dental aerosols generated is a key focus of dental teams.

Dental aerosols can be managed by using proper PPE, taking disinfecting measures, and complying with the infection prevention measures according to the country-, state-, and locale-specific guidelines. The amount of generated aerosols can be further reduced by using HVE instead of saliva ejectors during procedures. HVE enables the evacuation of fluid and debris with 90% less aerosols during ultrasonic scaling compared to low-volume saliva ejectors.

For questions and additional information, Dr. Dolan can be reached at terri.dolan@dentsplysirona.com, and Dr. Seemann can be reached at rainer.seemann@dentsplysirona.com

Disclaimer: All information, content, and materials cited in this paper are for general informational purposes. Readers should consult their own legal and other advisors for specific information impacting their practices.

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Meet the CDOCS Team

CDOCS offers comprehensive education provided by dedicated experts

Sameer Puri, D.D.S.

After 15 years of hard work, the phrase "overnight success" is appropriate when I consider our small company. What started as a hobby has morphed into an organization that's dozens strong, all with the cumulative goal of helping to educate the dental community.

CDOCS started as a company dedicated to the education of CEREC® technology. Today, it is so much more. We have 14 faculty members — who are a combination of practicing general practitioners and specialists — all dedicated to ensuring that attendees at the workshops receive the finest in dental education.

As of February 2020, in addition to educating doctors on CEREC and cone beam computed tomography (CBCT), CDOCS now offers a comprehensive educational package that allows doctors to become proficient in placing and restoring dental implants, treating misaligned teeth

with clear aligner therapy, and treating endodontically involved teeth. All core disciplines that round out the treatment capabilities of a clinician.

We offer 18 educational workshops taught by 14 dedicated instructors teaching thousands of clinicians yearly. That is what CDOCS provides on our two campuses — the Dentsply Sirona Academy in Charlotte, North Carolina and the CDOCS Scottsdale campus in Scottsdale, Arizona.

The healthcare pandemic delayed the start of the workshops that were slated to begin in spring 2020. Delayed but certainly not dismayed, our faculty and team are ready to launch in the fall, likely by the time you are reading this publication. For this issue of the CDOCS magazine, I wanted to take this opportunity to introduce our readers to our hard working faculty and also share some information about our workshops that may be valuable for an individual looking to gain expertise in a variety of dental disciplines.

CDOCS Workshops and Clinical Accelerator Program

First and foremost, all CDOCS workshops are certified by the Academy of General Dentistry for continuing education (CE). All 2-day workshops are Academy of General Dentistry Program Approval for Continuing Education (AGD PACE) eligible to receive up to 13 CE credits. In addition, all CDOCS workshops can be redeemed using a Clinical Accelerator voucher from Dentsply Sirona. A Clinical Accelerator is included with the purchase of any capital equipment from Dentsply Sirona and allows the recipient to attend two CDOCS workshops of their choice, receive a 1-year membership to cdocs.com and receive $2,500 in supplies from Dentsply Sirona. Capital equipment can range from select Dentsply Sirona CBCT devices as well as intraoral scanners, such as CEREC Primescan, and milling units, such as CEREC Primemill.

The Clinical Accelerator program is exclusive to CDOCS and allows us to expand the educational offerings

We have 14 faculty members — who are a combination of practicing general practitioners and specialists — all dedicated to ensuring that attendees at the workshops receive the finest in dental education.

The Clinical Accelerator program is exclusive to CDOCS and allows us to expand the educational offerings we provide.

we provide. The workshops included with the Clinical Accelerator program can be redeemed in any educational discipline the doctor prefers, including CAD/CAM, implant placement, clear aligner treatment, and endodontics. Additional workshops on CBCT interpretation and use also are included.

Talented Faculty

These highly informative workshops would not be possible without the talented clinicians who lead them. Let's take a moment to meet the faculty who will be teaching these workshops so you are familiar with the faces when you attend workshops.

CEREC

Our original and longest running workshops are the CEREC workshops. These classes are what started our company all those years ago. Having personally been involved in all CEREC workshops for close to 15 years, my role is now to support and cheerlead the various faculty who lead them.

For the CEREC workshops, Dr. Mike Skramstad along with Drs. Meena Barsoum, Dan Butterman, and Mark Fleming will be leading the classes. The workshops include courses on the fundamentals of CEREC and progress to more complex topics such as restoring implant restorations with CEREC, anterior cases, single-unit and full-mouth cases using CEREC, and more advanced topics such as utilizing the inLab software for more complex and comprehensive treatment. All of the doctors who present the workshops are beta testers of the software and have a combined experience of more than 60 years with CEREC.

The CEREC workshops are intended to take novice users and make them not only proficient but help to attain mastery of the topic so they can realize the full economic benefits of the CEREC system. I've been preaching to the choir about the economic advantages of CEREC when used properly. Learning the right tools in the CDOCS CEREC courses is tantamount to providing better care for your patients and taking advantage of the economic savings offered by the technology.

Implant Placement

Many CEREC users learn to restore implants with CEREC in our workshops but now those doctors who want to learn to place implants can do so by attending our comprehensive implant educational series. Taught by Dr. Farhad Boltchi and Dr. Doug Smail, a periodontist and oral surgeon respectively, the implant placement

courses take a doctor through learning to place implants first in models, then in pig jaws, eventually teaching them to graft appropriately and finally learning about full-mouth digital rehab with implants.

Just as with the CEREC workshops, there are significant economic benefits to adding implant placement to your treatment armamentarium. One implant placement per week can result in a revenue increase of over $100,000 for a dental practice. The CDOCS workshops are designed to give doctors the confidence to start placing implants and give them a broader understanding of implant dentistry when more complex cases need to be referred to specialists.

Endodontics

Implant placement workshops aren't the only ones led by specialists. Dr. Diwakar Kinra leads the CDOCS endodontic workshops. A practicing endodontist from Michigan, Dr. Kinra has been working with clinicians to teach them the foundations of endodontic excellence for years. Over the course of the two planned endodontic workshops, clinicians will learn all endodontic concepts from access to obturation and everything in between, using multiple filling, cleaning, and obturation methods on all teeth, including anteriors, premolars, and molars.

Orthodontics

Dr. Shalin Shah leads CDOCS' orthodontic workshops, which will focus on teaching the fundamentals of correcting misaligned teeth with clear aligner therapy. Our workshops focus on the SureSmile system as it is the only system that allows users to visualize the movement of the roots in the bone by allowing them to integrate a CBCT scan with the movement of the teeth.

Dr. Shah is a board certified orthodontist and is joined by Dr. Jessica Cohen, also a practicing orthodontist in the Chicago area. Both have years of educational and practical clinical experience under their belts and will be leading the workshops in both our Scottsdale and Charlotte campuses.

CBCT

Finally, the CDOCS educational offerings are rounded out with education in CBCT technology. Dr. Darin O'Bryan and Dr. Ross Enfinger lead the CBBT or Cone Beam Basic Training workshops. These workshops are included at no additional charge with the purchase of a Dentsply Sirona CBCT system. For those doctors who want more in-depth training on radiologic interpretation, oral and maxillofacial radiologists Dr. Don Tyndall and Dr. Heidi Kolthfarber lead the CBCT interpretation workshops where clinicians have the opportunity to spend 2 days immersed in the fundamentals of radiologic interpretation using 3D technology.

We Are CDOCS

As you can see, the CDOCS educational offering is robust and the faculty is knowledgeable and experienced. There is no doubt that anyone wanting to learn more procedures, perform the procedures they are already doing more efficiently or just gain more knowledge to become a more well-rounded clinician will thoroughly enjoy the workshops offered through CDOCS. The fact that these workshops are part of the Dentsply Sirona Clinical Accelerator program is just the icing on the cake.

For me personally, this is a gratifying position to be in. For years, doctors have entrusted their learning and education to CDOCS, and I've had the privilege to educate scores of clinicians in workshops and lectures. To see our faculty expand as it has today tells me that the years of hard work have paid off. Two campuses. Fourteen faculty. Dozens of supporting staff. We are CDOCS.

For questions and additional information, Dr. Puri can be reached at spuri@cdocs.com.

Treating a Calcified Central Incisor with SICAT Endo

Darin O'Bryan, D.D.S.

Treating a calcified canal on a tooth can be time consuming and stressful. We have all had those cases where the canal is hard to find, the pulp chamber is nonexistent, and if you can see the canal, it's halfway down the canal or further. Historically, when I would try to tackle these cases, it went a little something like this: Drill for a little bit, take an orientation X-ray, drill some more, take another orientation X-ray, correct my path, sweat some bullets, drill some more, take an orientation X-ray, swear because I almost perforated the tooth, reorient, drill some more…you get the idea. Then, if all goes well, I would find the canal after 30 to 45 minutes.

Enter SICAT Endo software (Dentsply Sirona), which was first previewed in 2017 at IDS in Germany. Not many cases have shown the use of SICAT Endo, in part due to a misunderstanding of what it is really good for and how it fits into the digital tools we have. The following case will help illustrate how having guided access helps make a tough procedure more predictable and efficient and leads to better outcomes.

Case Study

The 63-year-old female patient presented with pain on tooth #9. Teeth #8 and #9 had IPS e.max (Ivoclar Vivadent) cantilever bridges and #8 had a previous root canal therapy and post placed. Radiographic evaluation showed a calcified canal with very limited visualization of the canal (Fig. 1). The patient was referred to the local endodontist and came back to tell me the endodontist didn't think this was a good case to treat due to the very short root. We discussed tooth removal and implant placement with a cantilever bridge on the implant. The patient was reluctant to remove the tooth and wanted to know if we could try to save it.

I was willing to try using the guided endodontic access from SICAT. I informed the patient that I would have everything lined up for removal and implant if I got into the tooth and determined that treating it was not the best option.

Fig. 1: Calcified canal

The first step is to open SICAT Endo from Sidexis 4 (Dentsply Sirona). The layout is very similar to the other programs within the SICAT Suite (Fig. 2). You start by preparing the case. In this phase, you can do three things: Alter the panoramic curve or angulation of the cone beam computed tomography (CBCT) scan, overlay a 2D panoramic into your cone beam, or import your optical impression.

In this case, we only needed to import our CEREC® Primescan optical impression. When you come to the import and register optical impression screen, you will

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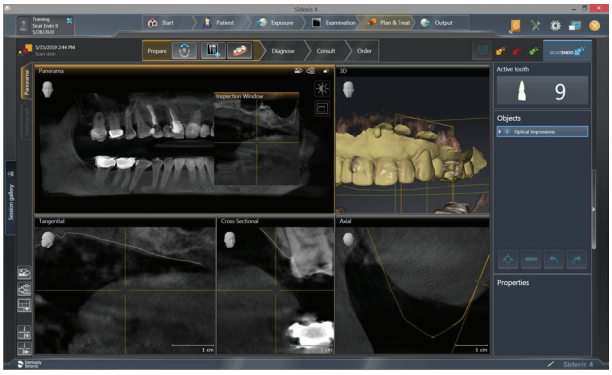

Fig. 2: SICAT Suite

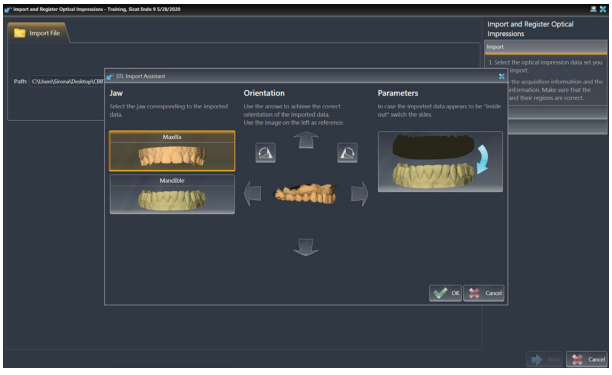

Fig. 3: Importing arch

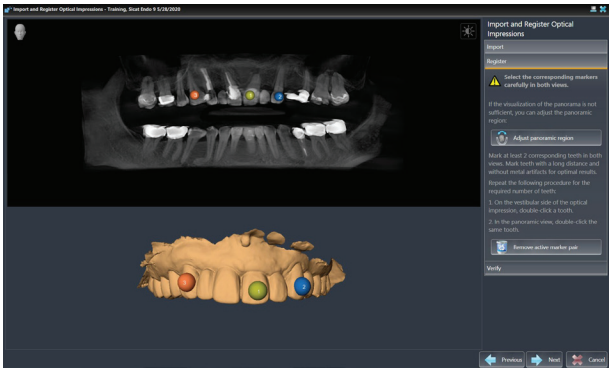

Fig. 4: Stitching process

need to browse for your file. With the SICAT Suite, if you do not have to have a .ssi file to import, you can use a .stl file instead. Because you can use a .stl file, you don't have to design a restoration in some weird place just to get a proposal you aren't going to use. But it does mean you have to tell the software what arch you are importing (Fig. 3). After importing the model, you stitch it together just like we do in other software (Fig. 4).

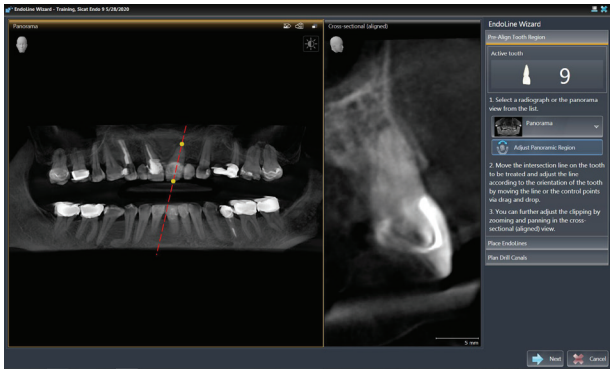

Fig. 5: Isolating area

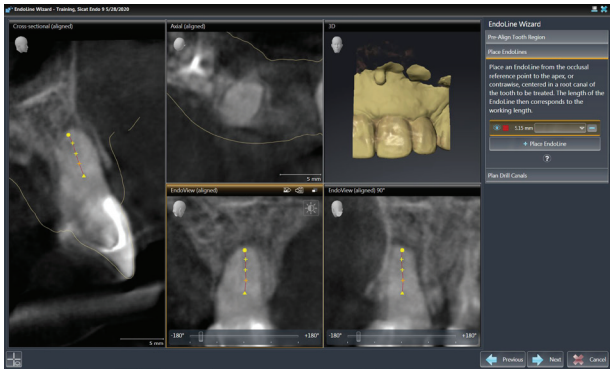

Fig. 6: Mapping canal

After the prepare tab, you will move to the Diagnosis tab. The first step is isolating the area of interest. A tooth is picked on the digital tooth chart, which will pop up once the icon of the tooth with the "?" on it is used. Then, the area is isolated on the CBCT scan. This is done by moving the yellow dots on the panoramic to the apical and coronal portions of the tooth (Fig. 5). This not only isolates the area of interest but also adjusts the CBCT slice to the new long axis of the tooth that you have selected.

Once you have the tooth selected, you will map the canal space. In this case, the canal could not be visualized very well. About halfway down the root, at the height of the crest of bone, a vague hint of the canal becomes visible. Tracing the canal is done in a very similar fashion to how the nerve is mapped in the implant software. You initiate the ENDOLINE function by double-clicking to start the first mark and then single-click as you scroll through the slice and trace the pulp chamber. Once you get to the apex, you

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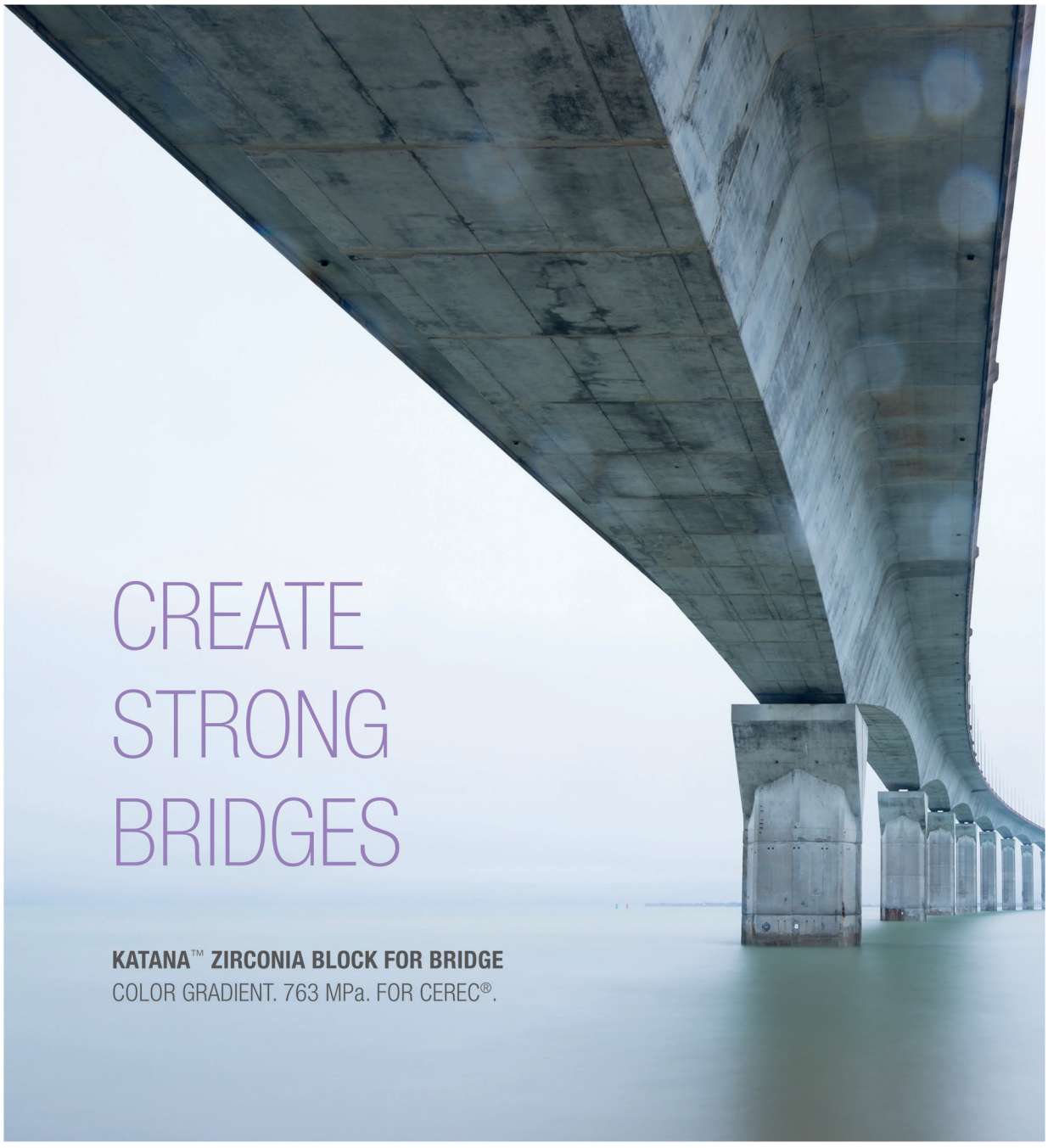

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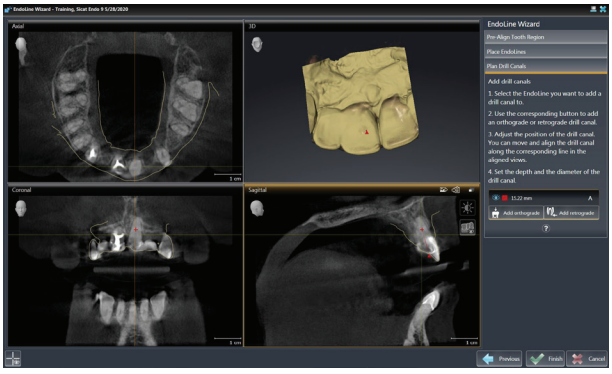

Fig. 7: Marking access

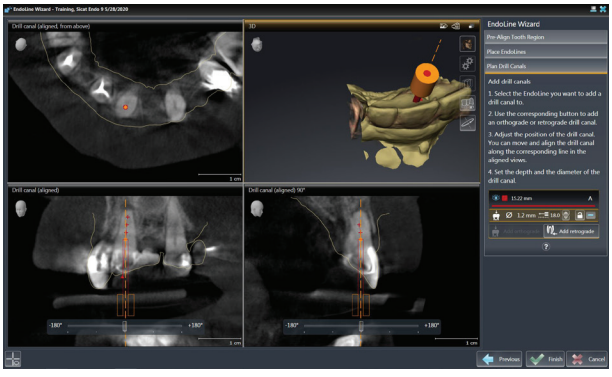

Fig. 8: Moving guide process

Fig. 9: Guide and access drill

double-click to end the line. As you are mapping out the canal, the two windows on the bottom left are formed — ENDOVIEW (aligned) and ENDOVIEW (aligned) 90° (Fig. 6). With each progression through the scan and clicks added, the ENDOVIEW will form more of the image, which is now fixated on the line that you have drawn mapping the canal. In the ENDOVIEW window, instead of slicing through the tooth along the various planes, the tooth is spun around the long axis you have created with the ENDOLINE. This is very helpful in seeing how to navigate the canal and in diagnosing pathology involving the root structures.

After the canal is mapped, the first marking is moved to the coronal surface to mark where you would like your access opening (Fig. 7). This allows you to put the access hole in the most advantageous spot. Also, if you are not using a guide, it gives you good visualization of where you need to start your access with landmarks to help guide you.

Advancing forward, you will now design the type of guide you want, either Orthograde (nonsurgical) or Retrograde (surgical). In this case, I was doing an Orthograde guide. The guide is placed at the very first mark, which at this point is on the occlusal surface of the tooth. You can alter the guide's position and move it deeper in the canal. It will only follow the path of the lines you have drawn. After placing the first marker at the occlusal surface, move the second marker to the point where you can see the canal. As you move the guide down the line, you can stop it at the point where you first see the canal (Fig. 8). You also can alter the angle of the guide entry, but it will still have the end point at the line you have designated. The top of the guide to the access of the canal will be the length that is set during guide fabrication. This length is noted and used to place the rubber stopper on the guide drill.

At this point, you can send out the case to have the guide fabricated. It takes about five days in the lab to create the guide. You will get an email if anything looks problematic. In this case, when I first designed the path of the guide, it made one of the walls less than 1-mm thick after the guide drill would have passed to its depth. The guide drill is 1.2-mm wide, so I was able to alter its location enough to minimize the damage to the root. By correctly orienting myself within the narrow root, I was able to maintain more stability of the remaining tooth structure. This is a huge advantage over more conventional methods of calcified canal access. From SICAT, you will get a guide and an access drill if you ordered one (Fig. 9). The drills come in 16-mm and 24-mm lengths and can be reused. The guide fits over the teeth exactly like an implant guide except that the drill hole is now centered over an existing tooth (Figs. 10-11).

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Fig. 10: Guide seated

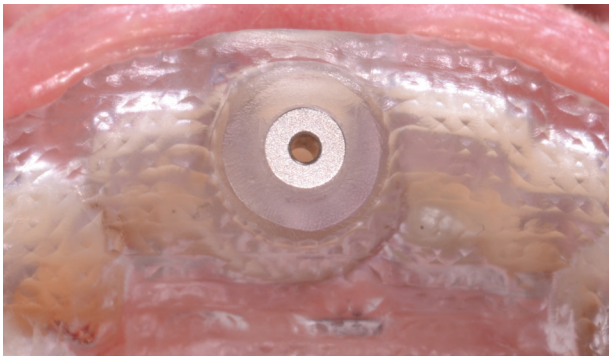

Fig. 11: Drill hole centered

Fig. 12: Access marked

Ideally, you would have the rubber dam on and then place the guide. It is more difficult that way, so I place the guide and gain access before I place the rubber dam. Once the guide is in place, I mark where to access the tooth. In this case, since I was going through IPS e.max, I scored it with a fine diamond bur (Fig. 12). After removing the guide, I used a diamond bur to gain access to the underlying tooth structure. Once I had access, I replaced the guide; make sure you have an

Fig. 13: Access opening made

Fig. 14: Guide drill used

access hole a little bigger than 1.2 mm in diameter or the guide drill will not fit. The size of the access hole through the crown is very small since we know exactly where we need to go to find the canal (Fig. 13). This limits the amount of substructure being removed and improves tooth and existing restoration longevity.

With the guide in place, I set the rubber stopper to the right height based on our design. In this case, it was simple since I set the top of the guide at 16 mm and used the 16-mm drill. The guide drill is then placed through the guide and, with copious irrigation, drilled to the length (Fig. 14). The speed at which we are able to get to the depth is incredibly fast compared to the conventional methods. In less than five minutes, I had the drill fully at depth. I then used an endo explorer to feel for the canal opening. I used my ultrasonic tip to remove a little more calcification and jumped right

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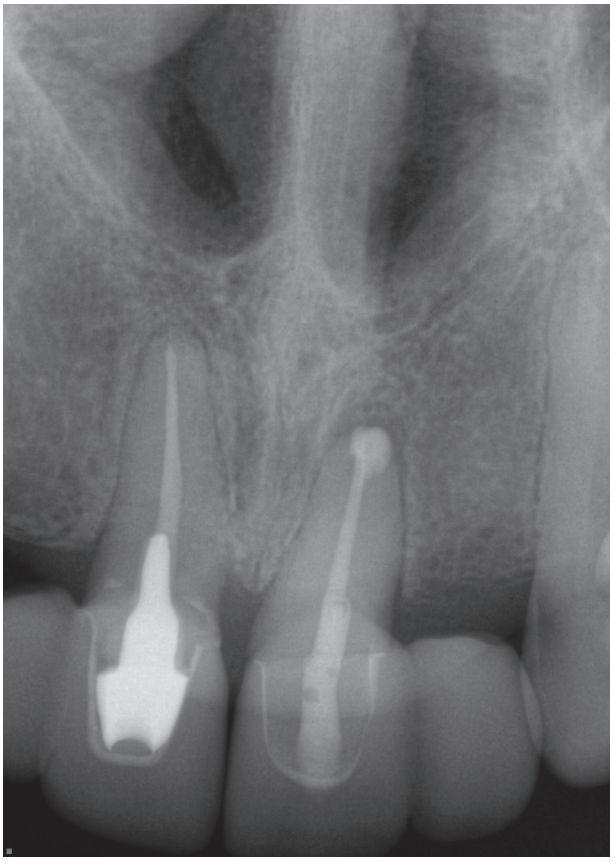

Fig. 15: Final fill

into the canal. So, in less than 10 minutes, from the time I first placed the guide, I had access to the canal structure. As I stated before, accessing the calcified canal could easily take 30 to 45 minutes in a case like this. Even if I didn't charge for the guide, which I did, it would be worth the cost just for the speed at which the case could be completed.

After accessing the canal, I used a 10 file and Root ZX (Morita) apex locator to verify my working length, which had already been determined from the SICAT software. I then instrumented the canal to a 20 file. At this point, there is enough room for irrigants to reach the apex. I flushed the canal with sodium hypochlorite. WaveOne Gold (Dentsply Sirona) reciprocating files were used to instrument with copious irrigation between each file. A primary file was more than adequate to get good instrumentation. In this case, the irrigants were not in the canals long enough on their own, so low frequency ultrasonics were used to help agitate the sodium hypochlorite for three to five minutes. The final rinse was with chlorohexidine and EDTA mixed. I allowed this to set while the master cone was trimmed and the sealer was prepared. The canals were dried, and the root canal structure was sealed with an MTA sealer and gutta percha (Fig. 15).

With the help of the SICAT Endo software, I was able to take a case that would have been stressful and time consuming and make it very straight forward and efficient. The total time of treatment was under one hour, including taking photos and placing the filling in the access hole. The ability to do guided access in this case made the procedure not only more efficient but also saved tooth structure by not hunting for a canal opening. The result is a much better long-term prognosis for the tooth.

For questions and more information, Dr. O'Bryan can be reached at dobryan@cdocs.com.

With the help of the SICAT® Endo software, I was able to take a case that would have been stressful and time consuming and make it very straight forward and efficient.

CBCT in Sleep Dentistry: Part 2 — Reading the Sleep CBCT

Douglas Smail, D.D.S.

In Part 1 of this series, I cleared up a lot of common misconceptions about the need for cone beam computed tomography (CBCT) imaging in sleep dentistry. In Part 2, I want to show in detail how to read CBCT images from a sleep perspective using the GPS Method.

The GPS Method is an organized way to read CBCT images and document those findings in the chart. The GPS Method is simple, systematic, and clinically focused; a downloadable copy of the form is available at CDOCS.com. This is the same method taught in the CBCT course at CDOCS, and it will help you see and document pathology that affects your treatment planning for sleep dental patients.

GPS stands for General, Pathology, and Specific. In the General Section, I will use STAMMDO (sinuses, TMJ, airway, maxilla and mandible, dentition, other) to illustrate common radiographic findings that we see in sleep dental patients. The findings described below are not meant to be a comprehensive list.

Sinuses

Acute or chronic sinus disease is common in patients with obstructive sleep apnea (OSA) because normal breathing patterns are disrupted. If possible, significant and symptomatic sinus disease should be evaluated and treated before the sleep study. It's important to describe the radiologic features of any abnormal findings, noting unilateral/bilateral (Fig. 1), partially/completely opacified, maxillary or other sinus involvement, ovoid opacity vs. air/fluid level vs. "pillow-like" opacification, etc.

The GPS method is an organized way to read CBCT images and document those findings in a chart. It is simple, systematic, and clinically focused.

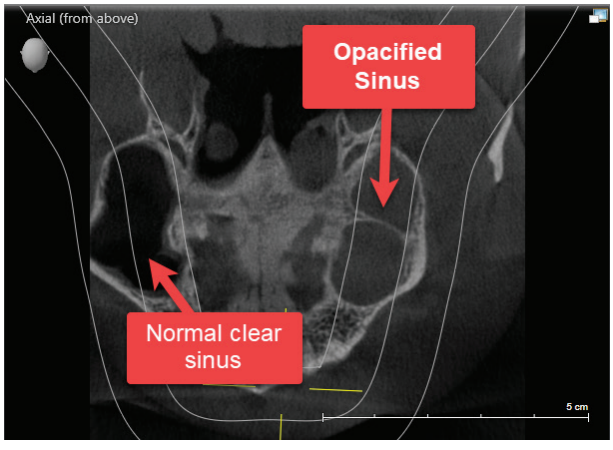

Fig. 1: Sinus

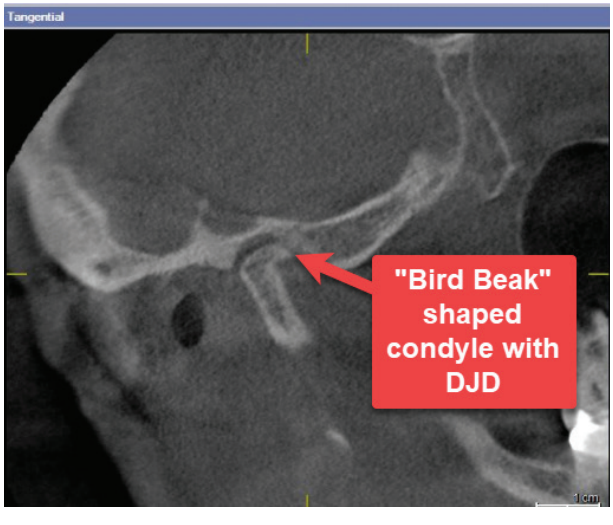

Fig. 2: TMJ

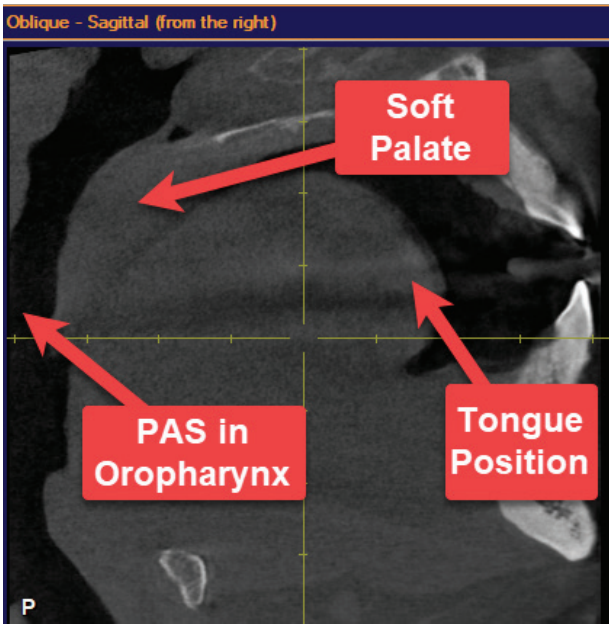

Fig. 3: Airway

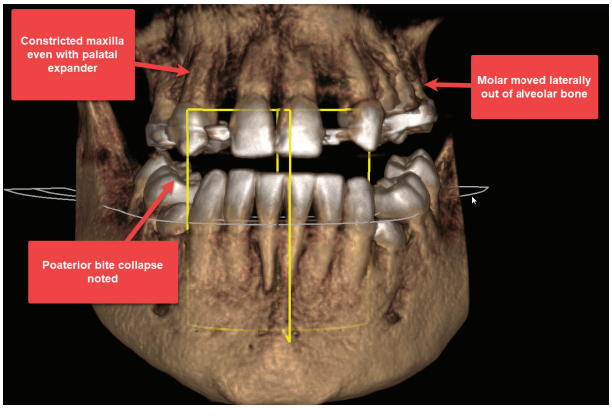

Fig. 4: Maxilla mandible

TMJ

TMJ findings are not uncommon in patients with OSA, whether due to sleep bruxism, pressure from a full-face mask continuous positive airway pressure device, or other causes. TMJ pathology should be documented and, if symptomatic, treated before initiating sleep appliance therapy. Radiographic features such as condylar shape, position, room for the articular disc/superior joint space, cortical breakdown in the condyle or posterior slope of the articular eminence, or other findings should be documented (Fig. 2).

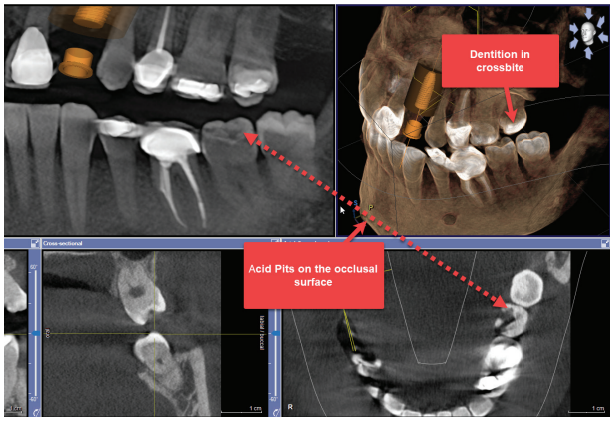

Fig. 5: Dentition

Airway

Obviously, airway issues are extremely common in patients with OSA, and most of these issues affect whether an oral appliance would be clinically effective. At a minimum, radiographic anatomy in the oropharynx, such as posterior airway space, tongue position, and the size and shape of the soft palate should be documented (Fig. 3).

Maxilla and Mandible

Skeletal Class II is a common finding in patients with OSA, as well as constricted maxillary width, vaulted palate, tori, vertical maxillary excess with associated

At a minimum, radiographic anatomy in the oropharynx, such as posterior airway space, tongue position, and size and shape of the soft palate should be documented.

The Specific part is where the clinical correlation comes in and treatment decisions — such as referral for a full radiologist reading of the images, medical evaluations...and dental treatment plans — are made.

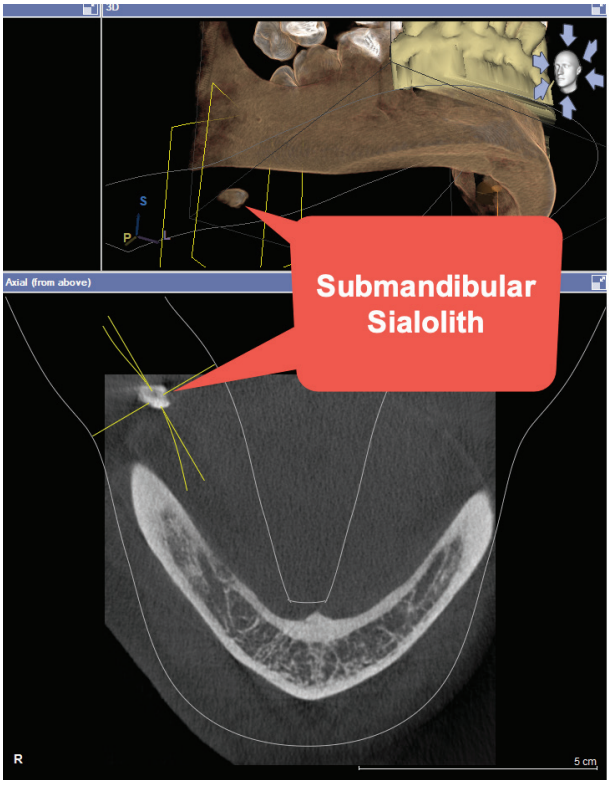

Fig. 6: Other

high mandibular plane angle, and alveolar bone issues from orthodontic treatment or dental compensatory eruption (Fig. 4).

Dentition

Malocclusion, partial or complete edentulism, periapical radiolucencies, and dental crowding are typical findings, and you also can see more subtle changes such as acid pitting from gastroesophageal reflux disease, part of the "triad" described by Dr. Jeff Rouse (Fig. 5).

Other

Xerostomia from snoring and mouth breathing can lead to submandibular sialolith formation (Fig. 6). In addition, inferior positioning of the hyoid bone has long been associated with OSA, and with the higher incidence of cerebrovascular accident. Calcifications in the carotid and vertebral arteries should be looked for and documented if present.

After all of the radiologic pathology is identified in the General part of the GPS Method, the pathology is further described in the Pathology and Specific sections. The Specific part is where the clinical correlation comes in and treatment decisions — such as referral for a full radiologist reading of the images, a medical evaluation by the patients primary care provider, ear nose and throat specialist, vascular surgeon, or sleep clinic, and dental treatment plans — are made.

I hope these two articles help you see the wealth of information that can be gleaned from reading your sleep patients' CBCTs so you can visualize and treat all of the associated pathology using a multidisciplinary approach.

For questions and additional information, Dr. Smail can be reached at dsmail@cdocs.com

3 Keys to Optimal Oral Health: A Message to All Dental Teams and Dental Patients

Mitchell Ellingson, D.D.S.

It has been amazing what we have seen in the dental profession over the past three months. From the shut-down of all offices, to the mighty restart that has been experienced across the nation, dentists and their teams have experienced an emotional roller coaster.

At Practice Solutions, we have seen everything from teams coming back completely fractured to teams that are closer than they have ever been. It has been a time full of challenges that, at times, can seem exhausting. The dental profession needs to rally around one collective vision so that we can get our energy back and get our teams aligned.

We NEED to unite behind the most common vision we all see for our dental offices, and that is to help patients achieve optimal oral health. There is no doubt that can come off as cliché, but there is a new reason that is driven by COVID-19. Now more than ever, we need dentistry as a profession to rally together. The dentist, hygienist, dental assistants, front office, and all other supporting staff need to ensure that we come together to protect the cohort of the population deemed by the Centers for Disease Control and Prevention (CDC) to be at risk. The CDC has defined that cohort as those who are 65+ with a pre-existing condition.

When you think of that cohort, it is a group that consists of our parents, grandparents, leaders in companies, teachers, friends, and many others. If we are thoughtful as a profession, we can do our part to ensure three key things happen when it comes to their dental care:

- Key 1: Keep them safe with the proper safety measures (personal protective equipment [PPE], sterilization, etc.).
- Key 2: Help them avoid pain and complications.
- Key 3: Minimize their time in the office and maximize their oral health.

Key 1

The three keys really start with something we have always done — ensure we observe universal precautions. This means we will wear the PPE necessary to protect them from any possible transmission route in the office. We have seen the addition of face shields and N95 masks to enhance our universal protocols.

Key 2

The second key is one that we all know but sometimes don't express to the patients. We all know as clinicians that dental issues left to time and further degradation will likely end up in a more progressed state. Many times, this is what triggers the unpredictable event of a dental emergency. As clinicians, we know how to stop this from happening; it is just what we do. The only things that get in the way of helping these patients are:

- Our inability to get through to the patient to show the importance of the care
- The cost of the treatment
- The time it takes to complete the treatment.

There has never been a time before now that has forced the dentist and the patient to level with each other and say here is what you need to keep your oral health predictable. Many times, the patient could argue there is an ulterior motive, which we have all heard in the past. Today, it is all about people helping people. It is the reason we all do what we do. So now that you have removed your own barriers to talking with the patient and they see that you are genuine in your reasoning for their needs, what is next?

Key 3

Key 3 is how we as a profession can really help ensure we are doing the most efficient dentistry possible. As CEREC® dentists, we have always thought that it was ideal if we have two teeth next to each other it would be best to complete treatment at the same time for a multitude of reasons (restorations made together fit better, have better shade match, etc.). Now, it has everything to do with time in the office. For the at-risk group of patients, you now need to explain how they can minimize their time in the office yet maximize their oral health. Since you have the technology to leverage (CEREC), you have the means to achieve this more than a dentist who has yet to adopt CAD/CAM. Let's use an example of a patient needing three crowns to drive the point home:

As I said, the key is to help minimize time and maximize oral health. The way we do this is by ensuring we group treatment together so we minimize trips to the office. For the patient who needs the three crowns, they have the choice to come into the office three separate times or one time to get all three crowns down at once.

First, let's focus on what it looks like to do each crown separately. This would take three trips to and from the office (let's assume a 20-minute commute). There would be three 1-hour appointments to prepare the tooth for the crowns and then three 1-hour appointments to place the crowns.

To office travel: 3 x 20 minutes = 60 minutes

From office travel: 3 x 20 minutes = 60 minutes

Preparation and placement time of 3 crowns x 2 hours each = 6 hours

Total time: = 8 hours

Now let's focus on what happens if we do all the crowns at the same time. For CEREC users, even more efficiency is built in.

To office travel: 1 x 20 minutes = 20 minutes

From office travel: 1 x 20 minutes = 20 minutes

Preparation and placement time: 1 x 2.5 hour = 2.5 hours

Total Time: = 3 hours 10 minutes

As you can see, we are able to decrease travel and exposure time by over 60%. The bottom line is the more the patient can do at one time, the more they can decrease the time in the office. With the proper sequencing and financial options, the patient can work with your office to find a way to minimize time and maximize oral health.

The dental profession has the challenge to target July through October to complete a very difficult feat. That is to ensure a part of our patient base is taken care of. The focus is on having patients age 65+ with pre-existing conditions stable in regard to their oral health by Fall. If we can do this, we can protect the profession from another complete shutdown.

As we have all read and now understand, this virus is very targeted at the part of the population that is more advanced in age and has a more complex health history. For those who are younger and healthy, the virus behaves in a predictable manner.

The great profession of dentistry has the chance to treat at-risk patients in such a way that allows them to predictably be away from a dental office for the next six to 12 months. This group of patients can safely move about their life without being forced from their homes for dental emergencies. It also allows dentistry to remain open for business when and if the second wave of the virus hits and if the CDC says we can stay open but not see at-risk patients. As dental professionals, we have an opportunity to do our part to help our patients get and stay healthy. The group of doctors best positioned to do this are those who have CEREC.

The most important place to start getting aligned on verbiage and workflow is with your hygiene team. Make sure to read Amy Morgan's article on page 26 for some suggestions on how to make this happen. Keep learning, keep leading, and good luck helping all of your patients.

For questions and additional information, Dr. Ellingson can be reached at mellingson@speareducation.com.

Navigating the Ideal Hygiene Exam to Get to "Yes" in the Age of COVID-19

Amy Morgan

As part of the three keys to minimize time and maximize oral health discussed in Dr. Ellingson's article on page 24, looking at the systems that support the results we're driving towards is essential. During these challenging times, the most impacted system in the practice is the flow and protocols for the hygiene therapy visit. With infection control, distancing protocols, and the PPE that must be worn by hygienists and doctors, the most difficult part of the "new normal" is creating an effective pre-exam and periodic exam that influences and inspires patients to say yes to comprehensive care.

An essential element of the messaging campaign is leaning into the concept of same-day, quadrant, complete dentistry, delivered in a minimal number of visits. There is no better opportunity for a CEREC® user to celebrate the capability of accomplishing more in less time. And the best time to educate and motivate a patient of record to commit to their ideal hygiene, restorative, and cosmetic treatment solutions is at their hygiene therapy visit. Of course, the key to acceptance is a co-diagnostic partnership where the patient owns their problem, embraces the solution, and is willing to pay (and schedule) for their care!

Relationships require a connection. Masks and guards make it hard to connect. It is vital that the team reassess their opportunities for diagnosing, treatment planning, and treatment conferencing to create new norms to establish a connection that leads to "yes." The goal is to adjust to the obstacles with the intention of continuing to create codiagnostic partnerships with patients that inspire loyalty, value, and commitment to long-term care.

How Can the Courtesy Call and COVID-19 Screening Help?

While sheltering in place, we learned to use virtual meetings (Zoom, Skype, etc.) to maintain connections and relationships. The need for prescreening provides the team an opportunity to use these new forms of

communication and see each other without masks.

Whether the COVID-19 prescreening is done by the hygienist, treatment coordinator, clinical assistant, or a front desk team member (or even the dentist at times when appropriate screening indicates a significant treatment plan may be warranted), some of the elements that occur during the pre-exam may be able to be completed through teledentistry, for example:

- Learning the patient's recent motivators and concerns that may affect treatment decisions through a purposeful conversation. Use open-ended questions, such as, "Tell me your feelings about maintaining your oral health now."
- Documenting any life events or changes that may impact future treatment.
- Reviewing the patient's medical and dental history including COVID-19 screening questions. Use the questions as an opportunity to highlight any future needs that will be discussed during the hygiene therapy visit.

Once the patient is in the operatory, a data summary of what was discussed can easily roll into any needed assessments and X-rays. For these deeper calls to occur before the appointment, clarity about patient filters, timing of calls, and assigning the calls to specific team members will need to be brainstormed and an action plan created.

Making the Periodic Exam Effective

The choreographed interplay between the doctor and the hygienist in the periodic exam is one of the most important factors in the patient experience and case acceptance. The goals of an excellent periodic exam are to:

1. Provide a seamless hand-off (baton pass) from the hygienist to the dentist regarding motivators, concerns, any potential additional hygiene or restorative treatment, and any risk factors based on initial findings.
2. Provide an opportunity for the patient to hear the message from two trusted healthcare professionals, influencing and inspiring the patient to commit to ideal hygiene, restorative, or clinical treatment that benefits their overall health.

Based on infection control and distancing protocols, the approach to this vital patient interaction needs to be well thought out. Creative solutions including re-appointing for an exam in the dentist's chair, the use of teledentistry, the dentist reviewing X-rays from a separate conference room via Zoom or Skype, and many more need to be discussed and implemented as options for each unique practice.

The following key elements need to be replicated in a teledentistry environment:

1. During the pre-exam and prophy, the hygienist shares their "initial findings" (not diagnoses) with the patient. Using the dentist's name and agreed upon language (which includes urgent, important, cosmetic, elective), the hygienist sets up the periodic exam.

Based on what you and I just reviewed on the X-rays, I know Dr. DeWood will want to address this with you as this would be considered an urgent need.

2. The hygienist posts pictures of the area of concern so the dentist can review them with the patient, along with focused patient education videos.
3. The hygienist alerts the patient that the dentist will be doing an evaluation (live or virtual).
4. The hygienist greets the dentist and the patient sitting in the room and summarizes the appointment up to that point, focusing on any observations about needed restorative treatment, using the same language you shared with the patient. The hygienist includes any patient concerns or objections in the handoff to the dentist and alert the dentist to all relevant pictures and radiographs.

The most difficult part of the "new normal" is creating an exam that inspires patients to say "yes" to care.

Dr. DeWood, Amy, and I reviewed _____ and we knew that you would want to address this if indeed it is urgent and requires treatment.

5. The dentist delivers a quality statement about the hygienist and diagnoses any needs based on initial findings, X-rays, and assessments.

Thank you, Marcy. I always trust your professional guidance. Amy, you continue to be in great hands.

6. The dentist and the hygienist summarize anything the patient has said that might reveal their motivators and concerns.
7. The dentist and hygienist gain patient agreement on next steps.

It sounds like we agree that the next step to address this urgent need are an extraction, followed by an implant and restoration…And because we use the very latest in technology, this can be accomplished with minimal visits!

8. Respond to any objections and pass the baton to the treatment coordinator to gain commitment and negotiate the financial agreement when appropriate.

It is vital for the team to brainstorm innovative techniques to accomplish these crucial steps to patient acceptance, so patients get the dentistry they deserve, and the practice remains productive, efficient, and effective! A famous Chinese proverb states, "When the winds of change blow, some people build walls and others build windmills." Use the hygiene pre-exam and periodic exam as your opportunity to build windmills. In times of chaos, come the most important innovations!

For questions and additional information, Amy Morgan can be reached at amorgan@speareducation.com

My Story of Resilience as a CEREC® Dentist: Adapting to the COVID-19 Era and Finding Best Practices for Modern, Clinical Restorative Dentistry

Kristine Aadland, D.M.D.

I will never forget the panic I felt knowing I would have to shut down my practice for two weeks because of the COVID-19 pandemic. I, like so many other dentists, am pretty OCD and regimented when it comes to my schedule and goals. How was I possibly going to make up two whole weeks of production (unscheduled), and what was I going to do with my team? Question after question kept coming to mind with no answers in sight. Ultimately, two weeks became two-and-a-half months, and my world was turned upside down.

I believe just about every dentist experienced the classic stages of grief:

- Denial: We are essential…there is no way they can really shut us down for that long.
- Anger: This is unfair! How am I going to support my family?
- Bargaining: If only I would have been better prepared, then I would not feel this way.
- Depression: What if my team refuses to come back? I can't possibly work my way out of this nightmare.
- Acceptance: The world has changed and now we must do the same to move forward.

I watched as friends buried themselves in the backlog of to-do lists in their practices while others sipped cocktails and enjoyed precious time with their families. Our community became very polarized about what was right versus what was wrong, and friendships were lost because of it. Then, just when there appeared to be light at the end of the tunnel, there was news of giant hornets — "murder hornets" — in Washington State, and not long after that, protests across the country and we were devastated once again.

It's time to accept the "new normal" and move forward. What will it take to succeed during this COVID-19 era? One word: resilience. We must adapt to the new standards, new personal protective equipment (PPE) requirements, and new way of dentistry — whatever that may be. Personally, one of the biggest challenges has been staying up to date with industry changes that

Fig. 1: Front desk area

are being made daily or sometimes even hourly. It can be exhausting to keep up with the minutiae but having a great team and trusted colleagues to bounce ideas off of makes a huge difference. The CEREC® community has always been incredible with sharing information, and I know I wouldn't have gotten through these weeks and months without it.

From Reopening My Practice to Current Day

As soon as we got the green light to reopen our practices in Washington State, I was ready! I had a solid plan and thought I had solutions to the concerns voiced by team members and patients. We were successfully navigating the ever-changing protocols from the Centers for Disease Control and Prevention, Occupational Safety and Health Administration, and state guidelines about social distancing, use of N95 masks, fit testing, face shields, and more. Beyond our practice, it was inspiring to witness the dental community come together with 3D printing and .stl file sharing to help enhance preventive measures.

Since March, we have utilized air filters, UV lights, fogging machines, and plexiglass barriers throughout the office. We also integrated patient forms, such as the new COVID pre-screening form, through OperaDDS (Patterson Dental) that allow patients to fill out intake materials on their phones, tablets, or computers prior to coming in. This helps minimize contact risk through paper and pens and increases efficiency. We also changed the traffic flow within our practice by creating a separate entrance and exit for patients (Fig. 1).

To date, patients are asked to text staff upon arrival and wait in their cars until treatment rooms are ready. Before entering the office, patients are greeted by a team member with a contactless thermometer to ensure their temperatures are below 100.4° F; and only the minimal number of people, including family and team members, are allowed in the room. When it comes to hygiene exams, we have been conducting them by virtual consult to further minimize contact. We also changed patient checkout initially. At the beginning of reopening, we would send a patient with a balance a "text-to-pay" while they were still in the room. If they had another appointment to schedule, we would call or email to follow up instead of doing it in person.

Despite a relatively successful start to reopening, there were still obstacles. For instance, we made it through a day-and-a-half before two of my employees decided they no longer wanted to work in the dental industry, with others requesting reduced hours because they didn't have childcare. Hiring new employees proved to be impossible as most could easily make more money on unemployment. Distraught, I watched my treatment acceptance and recall schedule rates plummet. Our dentists' schedules that were once booked out one month were now booked out less than a week and suddenly every goal we had went out the window.

Patients were happy to be back in the office, and that made us happy. However, because we had to change our hands-on approach to care, a large part of our culture was lost and we noticed a difference. For some patients, coming to our practice was their first outing after being in their homes for months, and all they wanted was a little normalcy. Others were just plain terrified, and no matter what protocols we had in place, it would not be enough. We needed to quickly adapt once again to find a happy medium.

Finding New Success through Practice Systems

Having systems in place and knowing your numbers, such as treatment acceptance rates and daily goals, are crucial at a time like this. When you know your numbers, you know what is working and what is not working. Using platforms, such as Spear Practice Solutions, offers this information right at your fingertips in real time, making it easy to track your software reports. Because our treatment and recall scheduling rates dropped significantly, we decided to start having patients check out with our schedule coordinator. Now there was face-to-face interaction, albeit through plexiglass and facemasks. Making this switch allowed staff to explain the treatment needed, held the patient more accountable, and helped accelerate our schedules once again.

We now preauthorize all procedures and check benefits prior to every appointment because there have been so many changes in patients' employment and insurance. Participating in regular morning huddles and reading patient reviews also were crucial and helped us determine how patients were responding and what needed to stay or change. Communication and continuous adaptation were key to overcoming challenges and bringing us to where we are today.

That said, back office systems are just as important as front office systems. From a prevention perspective, we continue to prescreen and take patients' temperatures at the door. Once in the treatment room, they are given a pre-rinse, such as Colgate Peroxyl. We also have mandated that any aerosol-generating procedure is performed with a DryShield or ReLeaf (Kulzer) in place to help with extra suction and efficiency. Using mouthpieces, such as DryShield, have significantly reduced our treatment times and helped free up team members to do other tasks.

Kuraray: My Go-To Clinical System for Restorative Dentistry

Having a dependable clinical system in place is crucial to staying profitable during the times we are living in now. This is why I love Kuraray restorative products: they are efficient and help produce predictable treatment results. I have grown to trust their products over the years because they are innovative, reliable, and help streamline my practice workflow.

As a CEREC dentist, I am in love with the KATANA Zirconia block (Fig. 2). It has the ideal balance of strength

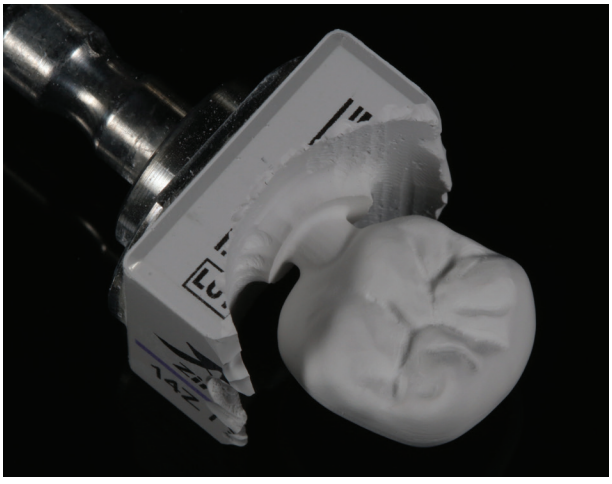

Fig. 2: Milled KATANA Zirconia

Fig. 3: KATANA bridge

and beauty. With CEREC Primemill, I can mill the block in under four-and-a-half minutes, which provides great time savings. I also use PANAVIA SA Cement Universal, which contains two different monomers, allowing it to bond to a variety of materials and eliminating extra steps to prepare crowns.

With Kuraray as my go-to system for restorative dentistry, my tray is cleaner and more streamlined because there are fewer bottles. Additionally, my team works more efficiently because we have one protocol for all restoration types. For instance, in zirconia crown cases, we prepare the intaglio of the crown by air abrading the zirconia and steam cleaning it. Afterwards, we do a try-in to check the margins and contacts. Then, we use KATANA Cleaner on both the crown and the tooth before we cement it.

If I want to increase bond strength for a less retentive prep design, I add CLEARFIL Universal Bond Quick to the tooth. For my ceramic restorations, instead of air abrasion, I use 5% Hydrofluoric Ceramic Etch on the restoration after try-in. Then I steam clean, scrub the CLEARFIL Universal Bond Quick into the prep, air dry, and then bond the restoration with PANAVIA SA Cement Universal. I also use CLEARFIL Universal Bond Quick for bonding in composite cases.

Overall, my goal is to minimize the number of products used to simplify procedures and reduce costs. Before I started using Kuraray products, set-up used to be so complicated depending on what crown material I was using and if I was doing fillings at the same time. Now, there are minimal products, a lot of time and money savings, and patients are in and out of the chair faster, which is especially beneficial these days!

The KATANA bridge block also has changed my workflow simply because it mills in just 18.5 minutes, instead of the usual 45 minutes required of other bridge blocks (Fig. 3). This allows me to complete bridge appointments in one visit (versus two) without much of the extra chair time. As dentists, we know a few minutes here and there doesn't always seem like a big deal until you add them up. That said, the value of a streamlined, efficient environment is paramount currently. As much as we love our patients, we want to provide treatment and send them on their way as fast as possible, for their safety and ours.

CEREC doctors are used to being adaptable and innovative. Between having those qualities and being able to access our CEREC community, we will absolutely get through these difficult times. I look forward to seeing friends and colleagues again at workshops and can't wait until everyone can geek out on all things dentistry at Dentsply Sirona World! Until then, keep sharing your cases, ideas, and protocols, and let's make this profession stronger than it has ever been before.

For questions and additional information, Dr. Aadland can be reached at krisaadlanddmd@gmail.com

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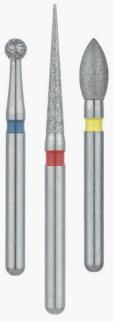

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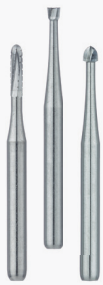

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Taking the Digital Evolution to a New Level

Meena Barsoum, D.M.D.

As we return to our practices after the COVID-19 pandemic, it is a great opportunity to revisit certain norms and standards in dentistry. During the 10 weeks our office was closed, I spent a significant amount of time working on safety measures and respiratory policies to protect myself, my team, and my patients. I also spent a lot of time thinking about dentistry as a whole and looking for opportunities to redefine how care is delivered in the 21st century.

I looked to local restaurants, who were hit the hardest with the government closures, for inspiration. Rather than sit idle and slowly die, many of them decided to pivot. Some restaurants developed meal kits that you could buy for several days at a time. And some restaurants completely changed to grocery services, essentially selling high-quality ingredients that they use in their menus. I decided that it was time to pivot in dentistry and adapt to the changing world. Technology has been our "brand," so to speak, and I wanted to carry that theme into other aspects of our practice.

But it was important to make sure that whatever pivot we adopted had a reason and a vision. I did not want to simply implement new technology just for the sake of it. When I first brought in CEREC to the practice, the reason and the vision was better, faster, and more efficient dentistry for myself and my patients. The same with CBCT — better, faster, and more predictable diagnosis and implantology. So when I set out to redefine how the periodic exam was performed, I needed something that was better, faster, and more efficient for me, my team, and the patient.

I decided to "reinvent" the periodic exam for two reasons: to preserve personal protective equipment (PPE) and minimize patient interaction. We have a five-operatory practice with three full-time hygienists and two treatment rooms. At any given hour, I could easily interact with at least five different patients. My goal was to potentially limit the physical interaction with one to two of the three hygiene patients each hour.

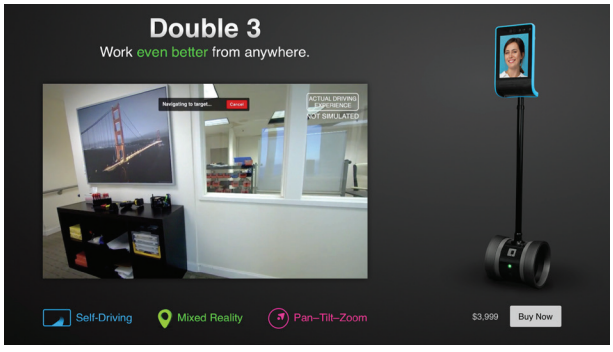


Fig. 1: Double Robotics — The Double 3 is a motorized telepresence device that allows you to have remote two-way video and audio from anywhere in the world.

Fig. 2: Facebook Portal — This two-way video chat device allows you to communicate with your Facebook friends and family. The devices come in various sizes, but I chose the larger size on the right for my virtual exam project.

This would allow me to preserve PPE by limiting gown and mask changes needed to move from room to room.

To properly perform a virtual periodic examination, it was important to have visualization and ease of use. The last thing I wanted to do was ask my hygienists to click a bunch of buttons or use a tablet that could potentially be cross contaminated between patients. I currently use Splashtop to remotely control all the computers in the office, so that was an easy option for accessing the computer and patient monitor in the hygiene operatory. All that was left was a two-way video solution so we could talk remotely. I looked into

expensive network cameras and secondary displays that would need a lot of infrastructure and wiring to install. Since this was simply a beta test of the virtual exam, I did not want to make a large capital investment until I could prove that the concept would be effective and well-received.

I found a company called Double Robotics, which has a very neat solution that is basically an iPad mounted to a motorized coat hanger (Fig. 1). You can control the device remotely from any web browser, and it creates a virtual environment where your camera feed displays on the tablet with two-way video and audio. Double Robotics was kind enough to let me demo the device remotely, and it was quite impressive. I was able to drive it around their corporate headquarters and talk to their employees as if I was right there. Applying this technology to dentistry makes sense since there is only one device to purchase with no physical wiring or infrastructure needed. I think with a little practice, navigating the device around operatories and obstacles would be easy and intuitive. I decided not to use this solution just yet because of the relatively high cost of $4,000 for the unit. If I can prove that virtual examinations can become a staple of our practice, then a $4,000 investment is not a huge issue.

The other option I looked into was the Facebook Portal (Fig. 2). With all of the current privacy concerns, I was extremely hesitant to even entertain this option, but I wanted to give it a fair assessment before dismissing it. Facebook states that all the video and audio is encrypted and nothing is ever recorded. Nothing is recorded locally to the device either. As I thought about the conversations happening within the virtual exam, I realized that no personal health information (PHI) would be transmitted. Meaning, I'm not going to ask the patient to confirm their name, date of birth, and social security number over the virtual exam. Also, with the relaxed Health Insurance Portability and Accountability Act (HIPAA) requirements on telemedicine right now, I figured it was a small enough investment to make now just to prove the concept since Facebook Messenger has provisional approval for telemedicine during the pandemic.

So I decided to purchase the Facebook Portal+, which is only $249 for each of the hygiene rooms. For my private office where I would be conducting the virtual exam, I purchased the Portal TV, which connects to an existing TV screen to provide two-way audio and video (Fig. 3). That cost only $149. I decided to add a second Portal TV in my consult room so my associates can use

Fig. 3: Facebook Portal TV — This is the same software and camera as the Facebook Portal but without a screen. You connect it to an existing TV with an HDMI cable and it uses WiFi to make calls to other Portal devices.

Fig. 4: Portal+ and speaker stand — This is the setup in my hygiene rooms. I was able to put our branding on the screen, and it has a very small footprint. The nice thing is the device turns on and off automatically based on motion and connects to the network via WiFi.

Fig. 5: The patient is ready for the virtual exam call.

Fig. 6: This is a virtual exam call in session.

Fig. 7: My remote view on the Portal TV. Note that the screen above is the same screen the patient sees in the operatory. At my desk, I have complete control over the operatory computer so I can point to findings, highlight any concerns, and chart any treatment needs.

it as well. I also found white speaker stands on Amazon to put in the hygiene rooms to give the setup a clean look (Fig. 4). I was able to load our branding on the screen. The device turns on and off based on motion in the room. It has a small enough footprint that it does not take up any space.

For setup, you need to have a Facebook account linked to each device. I did not want to use my personal Facebook account or ask my team to use theirs. Each of our team members has their own corporate email address (firstname@ahdentist.com), so I simply created new Facebook accounts using those email addresses. I did not want to use full names so we went with First Hygiene (aka Susie Hygiene) as the Facebook account name. The Facebook "Friends" for each account are my dummy account and each of my associates. That way only three people total can communicate with each hygienist. This was the easiest and most secure way to create the setup.

The last piece of the puzzle was the intraoral visualization of the virtual exam. This was an easy solution since we already have intraoral cameras in each operatory. During the exam, we simply open the live camera feed, and my hygienist moves the camera along the teeth. We actually follow the old orthodontic scanning protocol (lingual/occlusal/buccal by quadrant), which helps me get a very solid visualization of their teeth.

Now that I had the hardware and software component dialed in, it was time to develop an actual protocol to ensure that the exam was completed in a thorough and detailed manner. I decided that not every single patient is eligible for a virtual exam, and that each patient should receive a physical exam at least once per year. In addition, virtual exams would only be completed as a periodic exam and not a comprehensive or new patient visit. To make it easy to keep track, we would perform only a virtual exam if a second data point (radiographs) was available. If the patient receives bitewings or a CT scan that day, I feel confident that I could diagnose caries or pathology using those images combined with the intraoral camera feed.

I polled a few of my longstanding patients to see how they felt about the idea of a virtual exam and the response was extremely positive. I will admit, our first few virtual exams were a bit clunky, but now that we are four weeks into the process, we have it dialed in really well. If a patient is eligible for a virtual exam, and the hygienist did not find anything major that would require my physical examination, they send me a note on our office messenger and I dial into their operatory from my Portal TV (Fig. 5). They answer by tapping the screen, and I'm instantly connected face-to-face with the patient (Fig. 6). I also remote into the hygienist's computer using

Fig. 8: This is an example of an intra-oral exam with the camera. We use MouthWatch cameras because they are good quality and relatively inexpensive.

Fig. 9: Exam completed, findings and treatment plan discussion

I challenge you to look for ways to get out of your comfort zone and adapt to the changing world around us...I look foward to seeing your own setups on the CDOCS.com discussion forums.

Splashtop and instantly have access and control to the main computer and the secondary patient display. It's as if I am sitting in the room with them (Fig. 7). It's a lot more personable to talk to someone face-to-face than with a mask and face shield.

After a little small talk, asking about any concerns, and a review of findings by my hygienist, it's time for the intraoral camera assessment. I normally use 5x loupes, but nothing compares to an illuminated image, full screen on a 55" display (Fig. 8). The hygienist will move the camera quadrant by quadrant as I guide her and describe my findings. We try to position the patient in a way that they can see the live feed as well. This creates a tremendous sense of value and co-diagnosis for the patient. After the exam is complete, we discuss findings and treatment needs and my team takes it from there (Fig. 9).

This pivot certainly is not for the faint of heart. Especially if you are comfortable in your ways and norms. But I challenge you to look for ways to get out of your comfort zone and adapt to the changing world around us. While you may be confident in your skills to diagnose virtually, you also need highly trained team members you can rely on for the full co-diagnostic process. I encourage you to think about ways to implement this or a similar workflow, and I look forward to seeing your own setups on the CDOCS.com discussion forums.

For questions and additional information, Dr. Barsoum can be reached at meena.barsoum@gmail.com.

Azento Single-Tooth Replacement

Dan Butterman, D.D.S.

Mike is a healthy 58-year-old male with multiple edentulous sites (Fig. 1). He presented for the replacement of missing tooth #12 with a fixed implant restoration. The replacement of tooth #12 took place over three appointments, using the Azento treatment protocol (Dentsply Sirona).

Appointment #1 was data collection. CEREC® Primescan and Sirona Connect Software (Dentsply Sirona) were used to obtain a full-arch upper scan, lower scan, and double buccal bite (Fig. 2). A cone beam computed tomography scan was taken with Orthophos XG 3D (Dentsply Sirona) (Fig. 3). These data were uploaded to Azento, and a prescription was completed (Fig. 4). A plan was available for review indicating the implant size and position, along with the abutment, crown, and surgical guide (Fig. 5). After the plan was approved, the Azento box arrived approximately one week later (Fig. 6).

Fig. 1: Patient and preop

Fig. 2: Full-arch CEREC scans

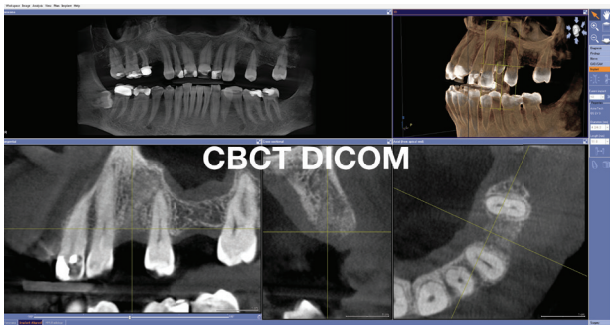


Fig. 3: CBCT image with Orthophos XG 3D

Fig. 4: Azento order website (www.orderdigitalsolutions.com)

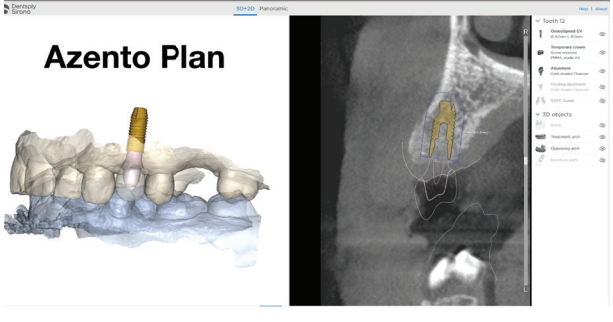


Fig. 5: Azento plan with 3D viewer

Fig. 6: Azento box components

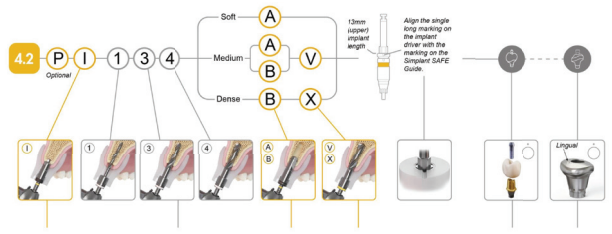


Fig. 7: Azento surgical recipe

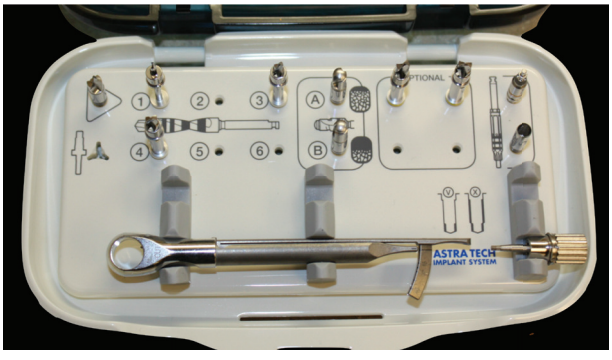


Fig. 8: Surgical tray set up using Azento surgical components

Appointment #2 was for the surgical placement of a 4.2 x 11 mm Astra Tech Implant System EV implant (Dentsply Sirona). The osteotomy and implant placement were performed using the included surgical guide and took approximately 20 minutes (Figs. 9-18). At the time of implant placement, the prefabricated gold-colored titanium abutment and temporary crown were tried on to verify surgery accuracy (Fig. 19). It was decided that this patient would have a custom healing abutment placed for the duration of the healing period (Fig. 20).

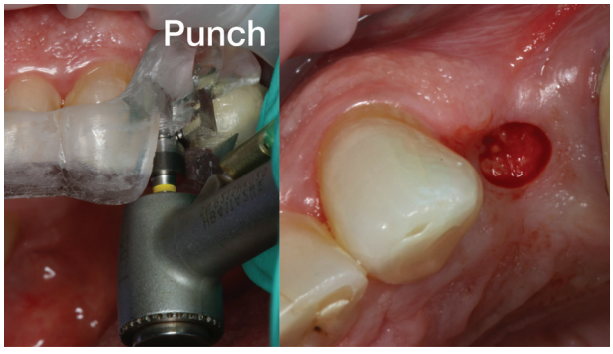


Fig. 9: Tissue punch

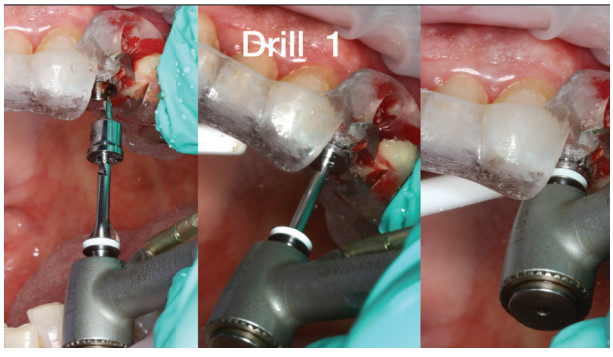


Fig. 10: Spongeous bone preparation drill 1

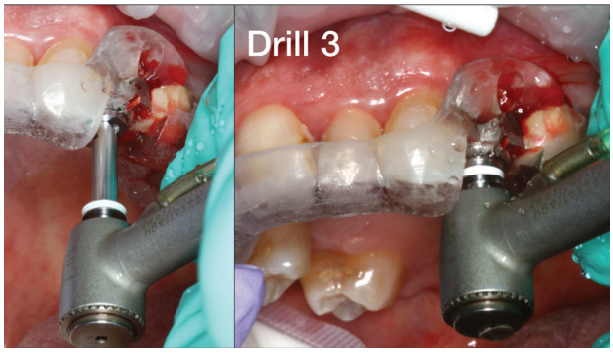


Fig. 11: Spongeous bone preparation drill 3

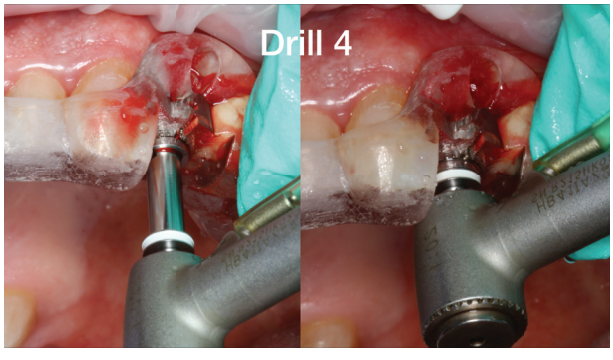


Fig. 12: Spongeous bone preparation drill 4

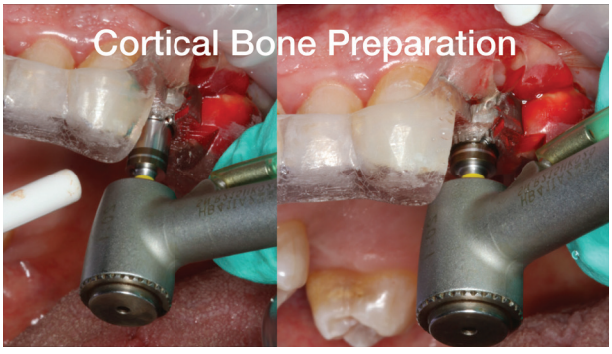
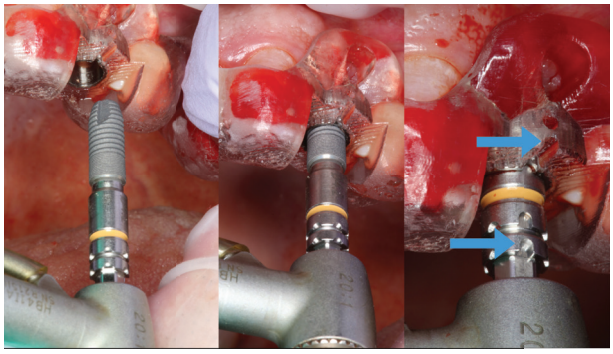
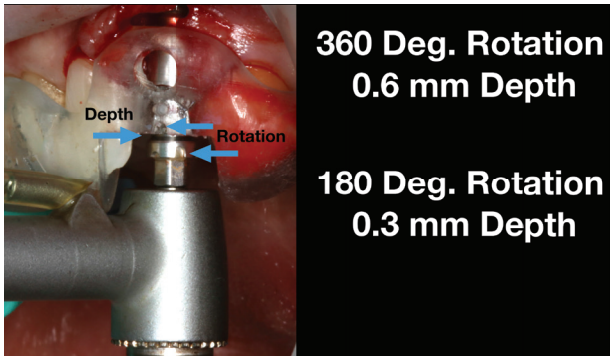


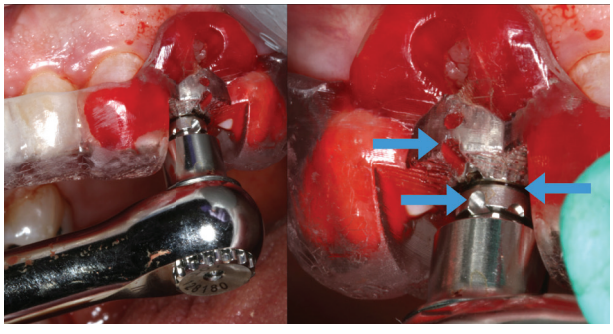
Fig. 13: Cortical bone preparation drill A

Fig. 14: Optional drill 5 to remove bone in apical third

Fig. 15: Completed osteotomy







Figs. 16-18: Implant placement with control of depth and rotation with surgical guide

A few days before the patient arrived for appointment #3, the included core file was imported into the CEREC Software 5, and the final KATANA Zirconia STML shade A2 crown (Kuraray) was designed and milled (Fig. 21). The patient returned for appointment #3 for delivery of the final restoration (Figs. 22-23). The prefabricated gold-colored titanium abutment was torqued to 25 Ncm, and the KATANA crown was cemented with PANAVIA SA Universal cement (Kuraray) (Figs. 24-25). No anesthetic was needed for delivery, and the patient felt no discomfort because the contours of the custom healing abutment were identical to the final abutment.

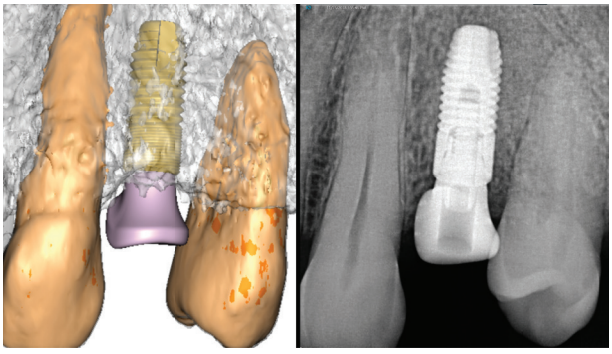


Fig. 19: Postop X-ray compared to plan

Fig. 20: Custom healing abutment immediately postop

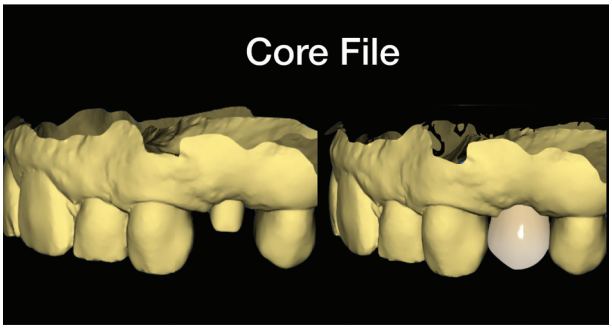


Fig. 21: Core file with crown design

Fig. 22: Three-month postop with custom healing abutment

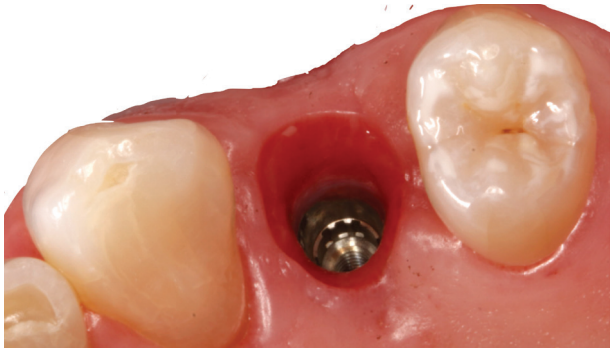


Fig. 23: Healing abutment removed at three months

Fig. 24: Custom gold-colored titanium abutment

Fig. 25: Cemented KATANA crown postop delivery

The Azento procedure eliminated the need for an imaging appointment because the restorative components were prefabricated based on the Azento plan.

For questions and additional information, Dr. Butterman can be reached at dbutterman@cdocs.com

Single-Visit Dentistry: Today's New World Order

Peter Gardell, D.D.S.

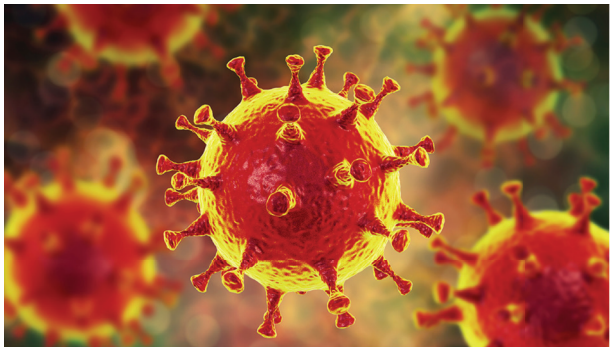
A powerful segment in the CEREC® ACCEPT program is a discussion of the status quo. We have all been there, and we have all been *comfortable* there, in a position where things are on autopilot, moving along on the path of least resistance. While this is a comfortable position, it also is a stagnant situation where change will not happen. In fact, change is frowned upon when you concentrate on the status quo.

Disruption is a requirement for change. If you attempt change and do not feel a little uncomfortable, I say you are not trying to change enough.

Required Change

With the state of current events, if you are not feeling a little uncomfortable, then I would say you are being naive. The world is changing, and evolution is required from a professional and business point of view. You will not be able to continue with your status quo and attempt to swim against the tide for long. The force of multifactorial external pressures is too great. While you may say much of what is discussed is overreach and will never last, I will say that our day-to-day operations will permanently change. My basis for that premise is the paradigm shift in dentistry that occurred due to the AIDS crisis in the 1980s and 1990s, a time when I was doing my schooling and setting up my first office. I remember being the first class at New York University College of Dentistry that had to wear gloves for all procedures in preclinical and clinical areas. As foreign as the idea of not wearing gloves may seem to you now, it was a shot across the bow for established dentistry at the time. Use this opportunity to make a change that will benefit you and result in a stronger, healthier office in the long run.

Dental offices are safe; we have a long and successful track record with infection control measures. We, as the dentists, and our staffs take this matter very seriously, and our patients recognize and appreciate the efforts. But as the world is changing before our eyes, it is important to not only maintain the trust — we need to be proactive to enhance the steps we currently take as well. As business



owners, we also need to put on our financial hats when evaluating the day-to-day operations. We cannot afford to be nonprofit organizations — we lose, our staff loses, and our families lose. We need to know the cost of doing business, and we need to be honest with ourselves when calculating it. We cannot rely on the insurance companies to suddenly become "nice guys" and increase the reimbursement for procedures to include additional costs associated with performing treatment in this new normal.

Gordon Christensen has written in the past that the average fee for preparing an operatory between patients is $65 in material and labor; a figure that many of us probably have not thought about. After all, cleaning a room is an automatic response. As mentioned above, it is paramount to a healthy business to know and understand the cost of doing business.

So with our new world order, what is it we need to implement, how can we do it in a cost-effective manner, and how can we maintain efficiency? To accomplish these goals, we do not have to throw out the playbook we have been using. Instead, it is wise to rethink some of the methods. Below are some terms and definitions we will discuss and demonstrate.

- Quadrant dentistry — Complete all required treatment in a region of the mouth in one visit.
- Maximize role of materials — Streamline and create treatment workflow overlap to minimize the materials required.

- Minimize cross-contamination — Minimize materials used to decrease items required in the operatory at the time of treatment.
- Minimize aerosol generation — Minimize the production of aerosols from dental treatment and incorporate methods to remove produced aerosols.
- Minimize people collisions — Improve the ergonomics within the office to minimize people coming into close contact with one another during the routine functioning of the office.
- Clean environment — Present an office that is "sensory" clean to patients and staff.

Let's look how these ideas can combine to create an overall smooth running workplace, creating an efficient visit for a patient with an urgent need.

Fig. 1: Preop radiograph of area of discomfort

Case Example

Demetrios calls the office complaining of a toothache that he has had for a few days and is getting worse. He thinks he broke the tooth. The basic screening questions are posed, and acceptable answers are received from this 25-year-old in good health. He is told he can come in if he is comfortable going out in public. It turns out he was worried he would have to go to the hospital, so he waited to call; he didn't know we were open for emergencies. He says thank you and will be right over. The preop radiograph demonstrates the situation clearly (Fig. 1).

Scheduling

The waiting room is an area where there is a high probability of what I am calling people collisions. After all, our waiting rooms are not usually designed with endless square footage. They are for all intents and purposes not a revenue-generating part of the physical office. Patient collisions are minimized by thinking about the ergonomics involved with welcoming and discharging a patient.

Think about the last time you took an airplane. You may have looked at your ticket and asked why 4:11 PM was chosen as a departure time. Why not make it 4:00 PM, like I do at my office? The answer is that staggering departure times helps with the functioning of the whole airport. Think about what is involved with preparing the plane for travel, unloading the newly arrived flight of people, luggage, and waste. Now the outbound flight must be prepared by cleaning the equipment and then loading it with food, luggage, fuel, and passengers. Once loaded, the plane has to move through a series of pathways to get to the runway where it can do what you are on the plane to do — fly. Even then, the plane has to wait until the previous plane is over four miles away, so the air is clean for your plane to take off smoothly. All this has to be done for your flight, in addition to every single other plane you see on the ground. It is truly a ballet that has to be performed by countless individuals for the airport to run smoothly.

So how do you get your office organized? Ground traffic control is what is needed. It can be as simple as having people wait in the parking lot until the room is ready and communicating with them via text.

I also think that you need to schedule so you don't have several people showing up for their appointments, which are all at the same time. You should get everyone staggered so you can limit possible patient collisions. There is no reason why all your appointments have to start on the hour or half hour. Have different start times for each hygienist and yourself. You also can implement the transaction side of the patient's visit in the operatory. Scheduling the six-month recare visit, posting them out, and collecting payment can all be done quickly and easily in the operatory, not at the front desk where a potential collision may occur.

Clean Environment

As patients walks through your clinic, it is important that they sense, with sight and smell, the office is clean. Keep counters clean, and minimize what is out to the

most basic needs. This includes items used in treatment as well as the models and demonstration aids for patient education. Our operatories are limited in size, so a halo of six feet around our patients usually extends past the confines of the treatment center. So, is there a digital option that can be run on your operatory computer? Make it the primary method of initiating conversation.

Many of the surface disinfectants we use do not have a distinct and powerful smell. Since we are around it all the time, we may notice it, but our patients do not. In addition to normal surface preps, a quick wipe with a bleach-based cleaner will instantly provide smell reassurance to patients that the operatory is clean.

Treatment

Demetrios is brought into the office and directed to the operatory for an evaluation. We note the chief complaint and history, perform a clinical exam, and take a radiograph. We make a diagnosis of irreversible pulpitis due to a carious exposure for tooth #13 (Fig. 2). There also is a carious lesion on the distal of tooth #12.

The patient's urgent need is removing the cause of discomfort, but he is glad that in one visit his pressing dental needs can be definitively completed. A root canal, a core, a crown, and a filling are required to get this quadrant healthy again. Quadrant dentistry and CEREC mean fewer visits for the patient, fewer disruptions to his schedule, and a more productive visit for the office. It also allows for less movement of patients throughout the office.

Decay is removed from the second premolar and the expected carious exposure is found. The damage is repaired with a restoration fabricated with Tetric PowerFlow (Ivoclar Vivadent) and Bluephase PowerCure curing light (Ivoclar Vivadent). Tetric PowerFlow can be used for direct restorations, but in this case it makes for a very efficient core buildup. Adhese Universal, Tetric PowerFlow, and Tetric PowerFill all have three-second cure times when the Bluephase PowerCure light is used. The buildup will ensure the isolation of the tooth during endodontic therapy.

During treatment, isolation is for the safety of our staff and ourselves. A rubber dam is the gold standard for endodontic therapy because it can ensure a pristine surgical field. OptraDam (Ivoclar Vivadent) is my method of choice because it has an integral frame, which minimizes components involved in the rubber dam process (Fig. 3). For operative and hygiene procedures, Isolite (Zyris) plays an even more important role in office health. Studies conducted by Zyris have demonstrated that the release of aerosols into the operatory are reduced considerably when a negative pressure is created throughout the duration of the aerosol-producing segment of the appointment.

CEREC allows one to rethink how the treatment is staged when doing one-visit dentistry. It fits well with quadrant dentistry because you are able to bring

Fig. 2: Tooth #13 prior to endodontic access

Fig. 3: Example of OptraDam in place

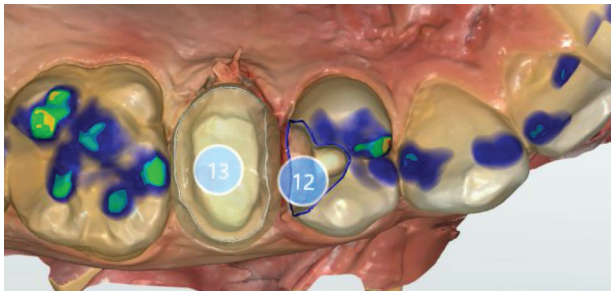


Fig. 4: Initial margin proposal for prepared teeth. Slight modification was required due to subgingival margin on tooth #13.

Fig. 5: Intraoperative image of the prepared teeth. The detail in the virtual models is impressive.

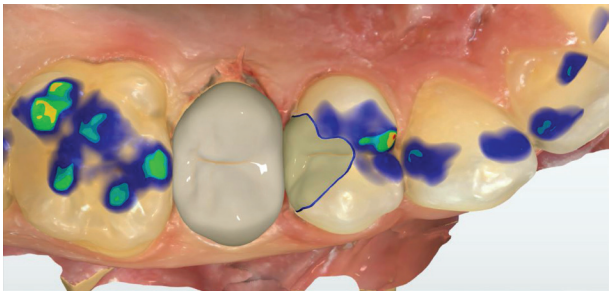


Fig. 6: Restoration proposals. Minimal operator input is required to get to the endpoint.

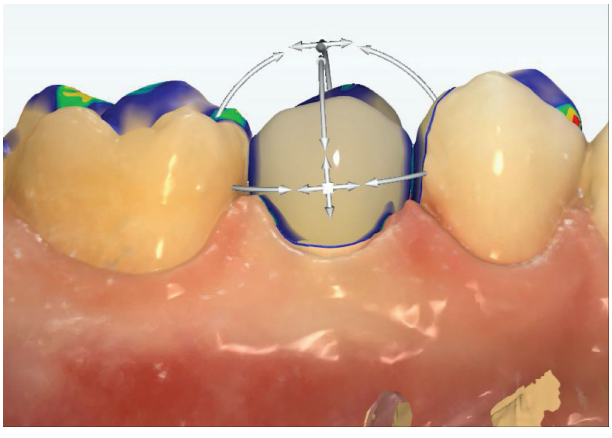


Fig. 7: Initial Move Tool placement

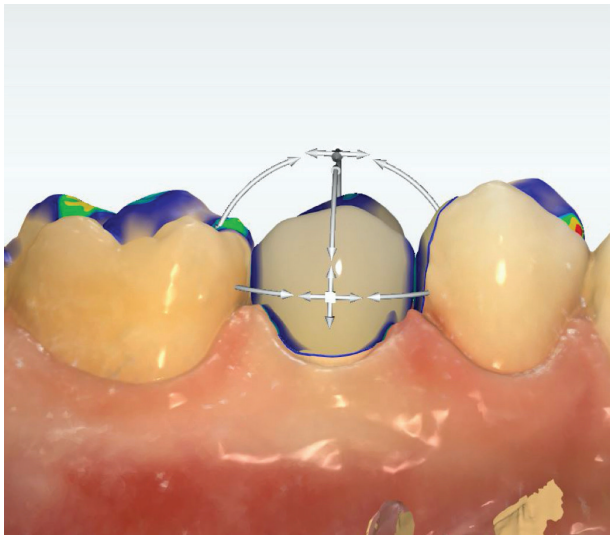


Fig. 8: Adjusted Move Tool (right mouse button)

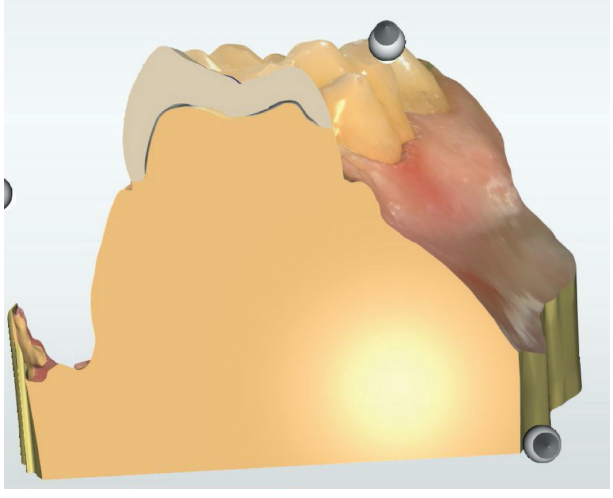


Fig. 9: Cross section of proposal viewed with Slice Tool

treatment to completion for numerous restorative needs. The premolars are prepared and imaged before beginning endodontic therapy. With CEREC Software 5.1 and a CEREC Primescan, imaging is fast and accurate; in just a few seconds, subgingival margins of the preparations are captured cleanly (Figs. 4-6). The time the software takes to complete the proposals is just a few seconds. One area where these young teeth sometimes require modification is at the marginal ridge; I find them being proposed too low. The CEREC software tool of choice for me is the Move Tool, a 3D tool that moves the entire proposal without disturbing the anatomy of the occlusal table.

A tip for improving this tool is to evaluate the axis orientation. Initially, the tool is not lined up with the long axis of the restoration (Fig. 7). With the tool active, depress the right mouse button and the axis can be changed to something more favorable, minimizing the changes to contacts when the proposal is raised to line up the marginal ridges (Figs. 8-9).

Less computer time adds up to increased return on your

investment since the system is only generating a return when your miller is spinning. Leveraging time is the term we use for this productive treatment combination. As the crown is being fabricated, the endodontic treatment can be completed, minimizing idle time.

Dentsply Sirona Endodontics offers comprehensive solutions for your endodontic needs. For example, WaveOne Gold endodontic files minimize the number of files required to complete most cases, and the ProMark Apex Locator has proven to be very accurate and eliminates the need for numerous radiographs during the endodontic phase of the appointment. So, the time it takes to mill, crystalize, and polish the restorations is used to complete the instrumentation and allow the medicaments to act as intended. The addition of the EndoActivator to the workflow enhances the efficacy of the chlorinated soda and QMix 2in1 irrigating solution for thorough cleaning of primary and secondary anatomy.

Using the CEREC system for quadrant dentistry doesn't lock you into using one material for all the teeth being restored. You can treat each tooth as a separate entity and select the best material for the clinical situation. A premolar that has undergone endodontic therapy will require a strong material with a more traditional prep style. While the prep in this case was not brought down to the gingival level on the palatal of the tooth, a defined shoulder was placed to incorporate a mechanical element to resist splitting and dislodgement.

IPS e.max (Ivoclar Vivadent) delivers a winning combination: restorative strength to the compromised tooth and beautiful esthetics that fool the patient's eye. The three translucencies available from Ivoclar cover the wide spectrum of clinical situations that present to our office. In this case, due to the patient's age and nonstained dentin, a modified prep was used to maximize the esthetics with minimal effort. Using a high-translucency (HT) material with a minimally modified shoulder along with a taper to the buccal profile of the prep allows us to hide the restoration (Fig. 10). There is no need for extensive stain and glaze to be a con artist. Instead, use the material's intrinsic properties and the way it allows dentin warmth to come through. In a case like this, IPS e.max HT serves as an enamel replacement.

For the decay present on the distal of tooth #12, we have two treatment options: Use a direct hand-stacked composite or use CEREC to fabricate an indirect restoration out of a resilient ceramic material. Resilient ceramics such as Tetric CAD (Ivoclar Vivadent) are a great treatment option, especially in these current times. It's fast to mill and quick to polish with a single OptraPol finishing point (Ivoclar Vivadent). Fewer items to complete the task at hand.

CEREC offers a solution that saves time and simplifies the process. The burden of building the correct emergence and contact with a sectional matrix band is removed, as is the need to create a restoration layer by layer. While completing endodontic therapy, the milling chamber produces a partial coverage restoration that fits exquisitely in the preparation along with beautiful and functional anatomy.

New World Order

How does Demetrios' appointment fit the criteria created to deal with the new world order we live in? Does it help us reach goals? Does it complicate the steps? Does it reduce the yield on the procedure?

Scheduling — Stagger the appointments. This is not difficult, but it is does require some thought. Just like ground control at the airport, you need to think through the logistics to minimize collisions. Use the resources in the operatory to limit the need for people to congregate in the front office.

Clean environment — Create an environment that is clean to patients' senses. Use their automatic responses to your advantage. Let them smell what you want them to smell, keep the work areas visually clean with no clutter. There is beauty in simplicity, and it will calm your patients without having to say a thing.

Minimize aerosols — While we can't separate teeth from the average patient to create sterile typodonts, we can use some tried and true isolation methods. OptraDam is an easy barrier system to use with few components. Isolite creates a negative pressure environment that sweeps out aerosol and prevents it from spreading in our operatories, or beyond. Studies on the various isolation techniques used by dentists have proven that contrary to its reputation, isolation is a time saver.

Contamination is in the forefront of our patients' thoughts. While we have been concerned with it all along and have put systems in place, we need to ensure that we make our efforts as evident as possible to our patients.

Fig. 10: Direct and indirect bonding armamentarium for restorative part of this quadrant visit

Fig. 11: Occlusal view of restorations

Fig. 12: Buccal view of restorations

Streamline treatment — Reduce the number of components required for each dental procedure. Finding products that are able to accomplish multiple roles during a quadrant restoration appointment should be a focus for the office (Fig. 11). In Demetrios' case the same bonding materials are used for the core build-up and delivery of the indirect restorations. Adhese Universal VivaPen (Ivoclar Vivadent) delivers a bonding agent cost-effectively and cleanly with use of a barrier.

After the obturation of tooth #13, warm Tetric PowerFill is used to fill the access hole and chamber, providing a strong dense core with a just 3-second cure. The restorations are then bonded at the same time using selective etch, Adhese Universal, and Variolink Esthetic DC (Ivoclar Vivadent). This proven combination works for both indirect restorations, even though they are different materials. Variolink Esthetic DC is available in five shades, allowing you to make shade corrections to the final restoration if needed. The try-in pastes are true to the final shade of the cement, making selection of the perfect cement shade straightforward. Another advantage of the Variolink Esthetic is that it's easy to clean up. A PreCure program in the Bluephase PowerCure brings the cement to an easy-to-clean gel stage. Complete the cure and then a quick polish with Optrapol to finish (Figs. 12-13).

Fig. 13: Periapical of completed one-visit quadrant dentistry

Step Out of the Status Quo

Streamline for business, streamline for cleanliness. One does not have to work against the other. Take this time of disruption and use it to force a change for your office. Think about what you presently do and seek to simplify steps and cut out redundancies. Some thinking today about your systems can help push your business and your practice out of the status quo, preparing you not just for what today holds but for whatever the future brings.

For questions and more information, Dr. Gardell can be reached at drpeteg@aol.com.

PMMA Provisional to Zirconia All-on-4 in the Digital World

Anthony Ramirez, D.D.S., M.A.G.D, D.I.C.O.I.

It can take up to five appointments to replace an immediate-load provisional with the definitive screw-retained zirconia prosthesis in the analog world. We were able to use a digital workflow to reduce the number of restorative visits to two.

This case report describes and illustrates an efficient and simplified method that takes advantage of the extreme accuracy of the CEREC Primescan intraoral optical scanner (Dentsply Sirona) and the sophisticated capabilities of the 3Shape design software. This, combined with intelligent preplanning and the innovative digital workflows, streamlined the fabrication of a screw-retained zirconia All-on-4 prosthesis to create an insertion visit that was accomplished expeditiously.

Validated by 20 years of clinical documentation, the All-on-4 treatment concept produces a life-changing solution for the edentulous or terminal dentition patient. This protocol, as pioneered by Malo, requires the use of four strategically placed implants to retain and support an immediate-load, full-arch restoration. The method:

- replaces a complete dentition with "Teeth-in-a-Day"
- offers a fixed solution
- reduces the need for bone augmentation
- avoids sinus augmentation and the typical placement of eight or more implants
- shortens treatment time by immediately loading implants
- allows longer implants to be placed in the posterior region by tilting these fixtures up to 45 degrees
- distributes masticatory forces over a wider anterior-posterior spread and reduces or eliminates cantilevers
- reduces cost of treatment.

This treatment will increase patient comfort, improve speech and chewing ability, and provide patients with a fixed natural-appearing dentition. The dental team can develop treatment plans and execute them with a guided approach for precise implant placements via flapped or flapless surgery. Evolving technologies and techniques have led me to digitize these procedures, which improves efficiency, shortens surgical chair time, and provides predictable and precise protocols that decrease postop complications in my experience. These treatments are associated with extreme patient satisfaction.

Phase 1 Teeth-in-a-Day

I presented a digital workflow in the Q3 2019 issue of CDOCS magazine, which featured the use of Primescan and the digital lab to complete "Teeth-in-a-Day" treatment. This case report will describe the next phase of treatment for this case. The immediate-load polymethyl methacrylate (PMMA) provisional prosthesis acted as the interim prosthesis to bridge the gap between a failing natural dentition and the definitive CAD/CAM screw-retained zirconia restoration. This immediate-load provisional was the first All-on-4 case that I treated within a completely digital workflow, and I attribute much of that success to the development and introduction of the CEREC Primescan. Full-arch optical impressions are easily captured with this scanner and have made the integrated dental

Validated by 20 years of clinical documentation, the All-on-4 treatment concept produces a life-changing solution for the edentulous or terminal dentition patient.

Fig. 1: Preoperative smile

Fig. 2: Two weeks post immediate load PMMA provisional

Fig. 3: PMMA close up smile at three months

practice more productive and better equipped to handle expanded implantology applications.

In a team web meeting with me and the laboratory technicians, we planned the esthetic and functional tooth positions for the provisional PMMA immediate-load restoration. We merged cone beam computed tomography (CBCT) with CAD/CAM three-dimensional data sets to form a virtual patient in 3Shape design software to determine the best implant positions based on the

Fig. 4: PMMA in centric occlusion with new shade selected for definitive restoration

existing boney anatomy and tooth positions. We avoided sinus augmentation by distally tilting the posterior fixtures as per the original All-on-4 protocols. Due to a narrow maxillary arch form, only four implants could be placed. Our current protocol may add one or two fixtures to enhance biomechanical resistance to mastication when possible in the anterior maxilla. This digitally designed immediate-load provisional prosthesis would be instrumental in the design and fabrication of the definitive zirconia prosthesis. As I previously described, much of the work for this provisional was digitally preplanned, and the actual treatment closely followed the virtual both in the surgical and prosthetic treatment phases (Figs. 1-3).

Out with the Old

Before employing a digital workflow to produce the working models and subsequent restoration for an All-on-4 case, it would be necessary to remove the existing provisional and capture a new open or closed tray final abutment level impression of the multiunit abutments. This would be followed up with a visit to verify the working cast with a GC America resin verification jig or a stone jig that would snap if any cylinder was not seating passively. Depending on the accuracy of the impression and quality of the lab, this could turn into multiple visits. The third visit would be to try in a set up or prototype, either accept or modify, and then receive the zirconia or titanium framework for an additional verification. If all went well, we would move to the definitive restoration. These procedures could take five visits to accomplish. I will submit to you that the digital restorative workflow I will outline for this

Fig. 5: The scan bodies are placed on anterior multiunit abutments for optical CEREC® Primescan impression. Tissue is inflamed from PMMA prior to reducing and polishing intaglio surface.

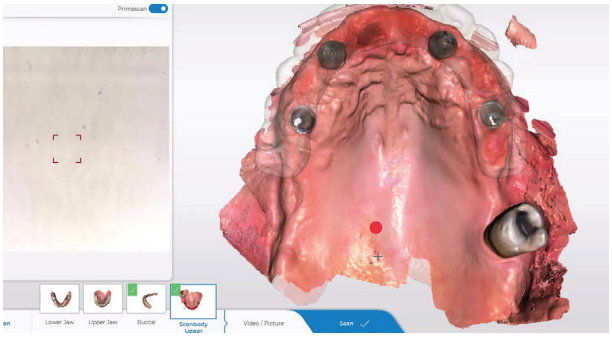


Fig. 6: Fourth optical scan of protective cap scan bodies and full palate anatomy

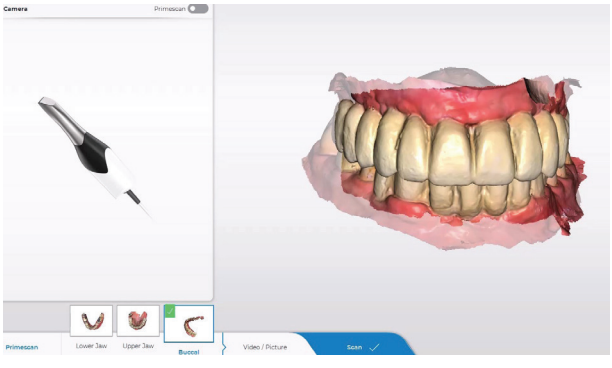


Fig. 7: Third optical scan of buccal bite

case was the simplest and easiest transition that I have been able to perform for an All-on-4 case.

Evaluating the First Phase of Treatment: Patient Interview

I followed the patient for four months and based on a clinical and radiographic examination determined integration was complete and the implants were ready

Fig. 8: Translucent PMMA immediate load superimposed on multiunit implant positions

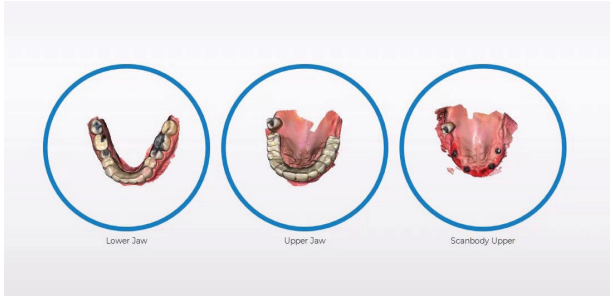


Fig. 9: Acquired scans moving into model phase preparing for transfer through the CEREC® Connect portal

to support the definitive restoration. There were no postop complications to this point, and the crestal bone levels were stable around all four implants. Implants that required bone augmentation regenerated to produce a substantial bone volume to support the distally angulated implants. The patient was transformed in the provisional and was satisfied with her esthetics and function. I evaluated the overall case for esthetics, speech, tooth display, lip support, tooth positioning, tooth morphology, midline, smile curve, and occlusion. No evidence of parafunction existed, and both joints were comfortable. We spent some time discussing any changes the patient desired and agreed to lighten the shade from VITA A2 to A1. We were now ready to produce the milled CAD/CAM full-contoured definitive zirconia restoration (Fig. 4).

Primescan Facilitates Producing the Zirconia Prosthesis

Four optical intraoral scans captured the multiunit positions along with the matured gingival tissue, the existing PMMA prosthesis, a bite registration, and the

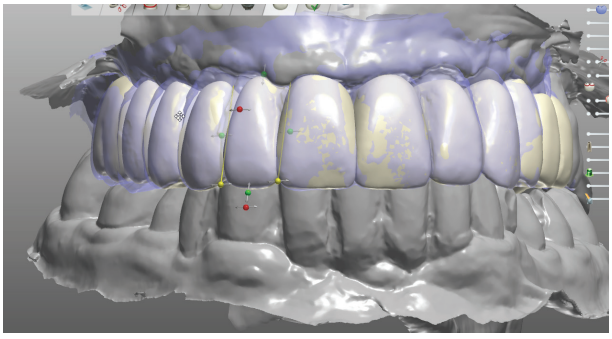


Fig. 10: Digital design changes in 3Shape software being made to reduce crown size and tooth display in upper right quadrant

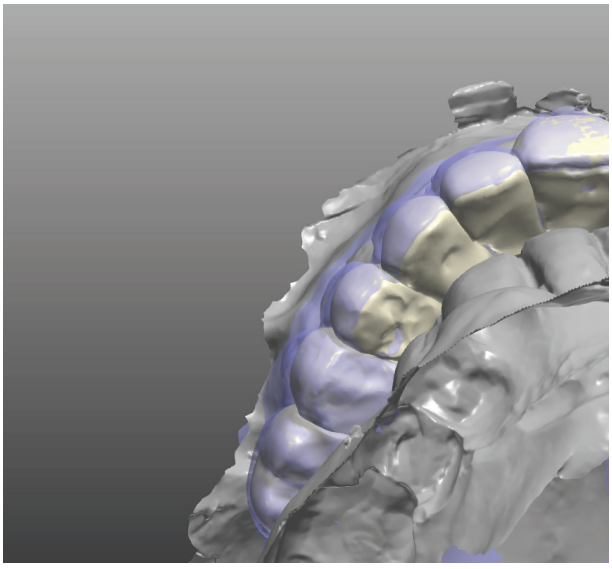


Fig. 11: Manipulating the shape of the PMMA in 3Shape to improve the morphology and reduce crown size and tooth display in upper right quadrant

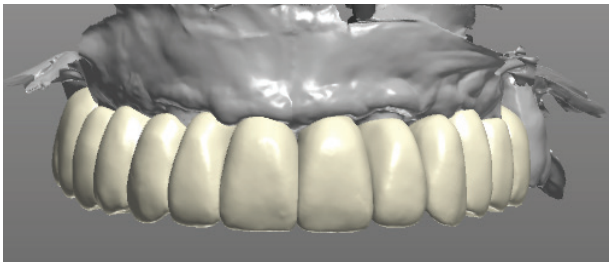


Fig. 12: 3Shape digital smile design of maxillary prototype

lower arch. The protective cap that screws onto the multiunit serves as a scan body in the BioHorizons implant system and is recognized in the 3Shape software. The lab required only an intraoral scan that captured one or two of the scan bodies and the matured gingival

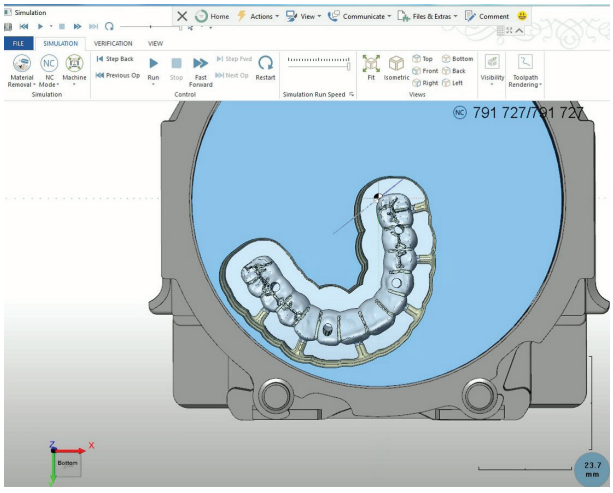


Fig. 13: Software-simulated milled zirconia prosthesis

tissue. These scans and the models obtained in CEREC Primescan and intraoral photographs were digitally transferred to the lab. This visit was completed in under one hour. The lab imported these files into the 3Shape design software and retrieved my original intraoral scan that captured the four multiunit abutments from the original "Teeth-in-a-Day" scan to create a virtual patient. The lab merged all the scans into one file so we could view the PMMA provisional over the implants and gingival tissue as a reference in centric occlusion (Figs. 5-9).

Digital Smile Design

The interdisciplinary treatment planning began after all CAD/CAM data were loaded into the design software. I was able to directly collaborate via a web conference with the design team to discuss the parameters essential to enhance the overall treatment outcome. We worked off of the initial PMMA and could modify tooth position, morphology, occlusion, and esthetics for the final design that would be milled to fabricate the definitive prosthesis. The implant positions that were registered in a new CEREC Primescan impression combined with the verified working stone cast that was retained from the original immediate-load case negated the need to verify the implant positions again.

This Biocopy, which served as a prototype for us to reference, and the patient's intraoral photographs provided the technicians with a clear understanding of the patient's existing occlusion, esthetics, and smile

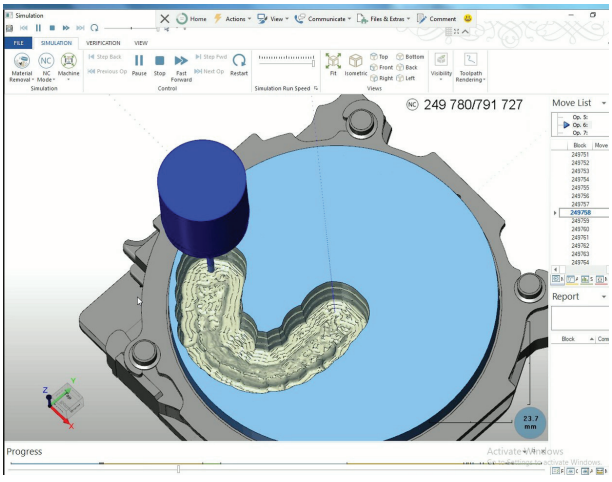


Fig. 14: Progress in the mill phase as the zirconia prosthesis is being shaped

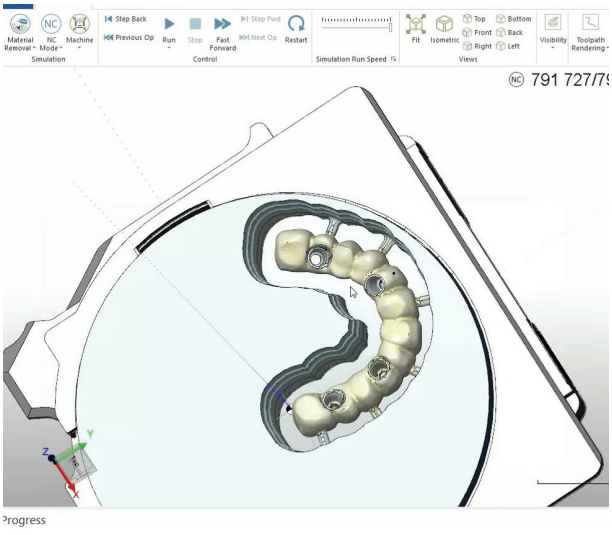


Fig. 15: Screenshot of zirconia prosthesis with connectors

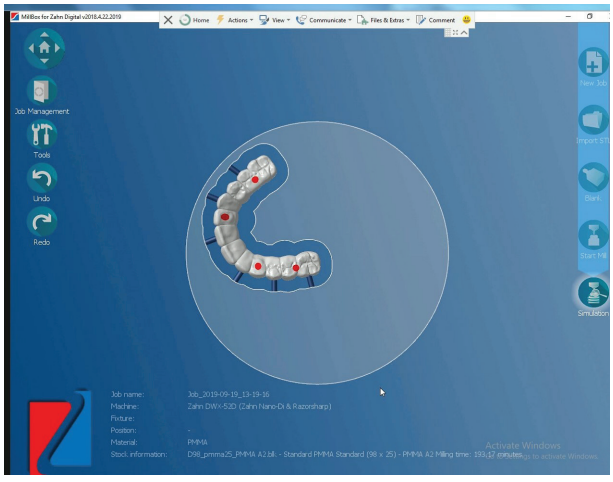


Fig. 16: Mill box with zirconia prosthesis completed

curve. Incisal edge lengths were correct so they could be copied and maintained in the zirconia restoration. The ideal incisal length is determined by the usual criteria found in denture prosthetics and cosmetic dentistry. This includes the overall esthetic evaluation in the smile, display at rest, age, and how the patient speaks and annunciates words. I felt the buccal tooth display in the maxillary right corridor was too wide and overcontoured and the anterior tooth morphology too square with minimal separation, so these areas would be modified in the design before moving to the mill phase.

An implant-protected occlusal scheme was developed to improve the distribution of forces, provide canine guidance, and avoid excursive interferences. Single centric contacts and maintaining the structural integrity of the milled zirconia with small access

The case demonstrates a true collaborative effort with coordination of all aspects of restorative implant dentistry digitally optimized to minimize treatment times.

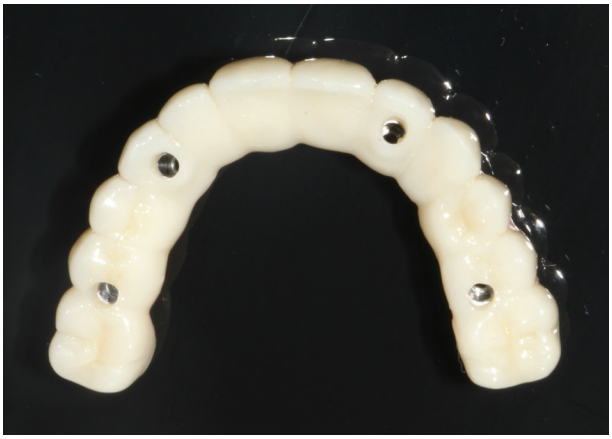


Fig. 17: Milled and processed zirconia prosthesis

Fig. 18: Zirconia All-on-4 restoration in centric occlusion

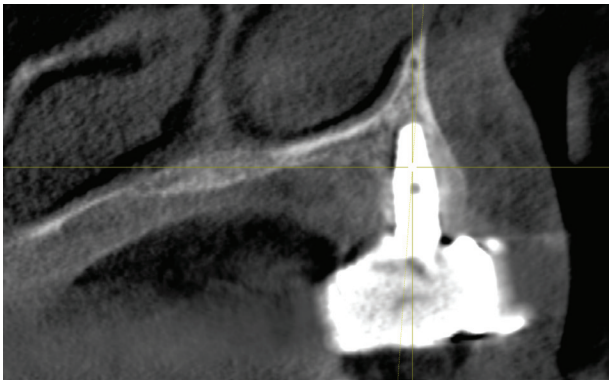


Fig. 19: #4 cross-sectional postop image

openings and minimal cantilevers completed the design. Overjet and overbite would remain unchanged. The vertical dimension of occlusion that was previously established would be maintained, and the newly designed morphology was evaluated and agreed upon

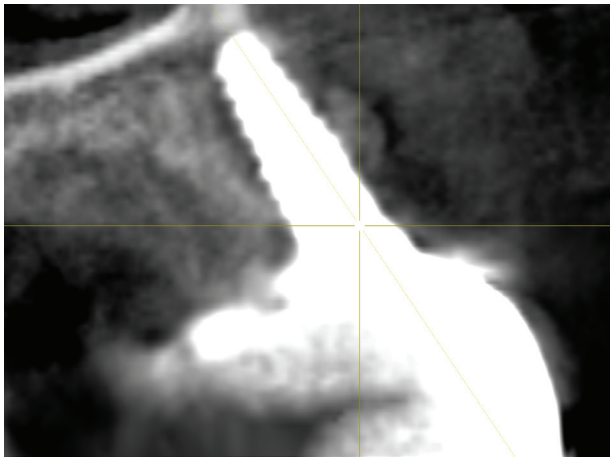


Fig. 20: Sagittal view #6 implant

Fig. 21: Sagittal view #10 implant

by me. This meeting was instrumental in producing a case that could be completed without a try-in visit. Our conference lasted a total of 20 minutes. (Figs. 10-12)

Biodental Sciences Lab created working models for the design in a model build phase and manufacture of milled CAD/CAM materials; they followed strict quality-control parameters to ensure nothing was overlooked. Changes requested during the web meeting were completed, and the prosthesis was milled out of a zirconia puck and then finished with a pink porcelain addition to mimic natural gingival tissue throughout the cervical transition zone and papillae of this prosthesis. The lab completed the case by characterizing and finishing the restoration and securing the titanium connectors (Figs. 13-16).

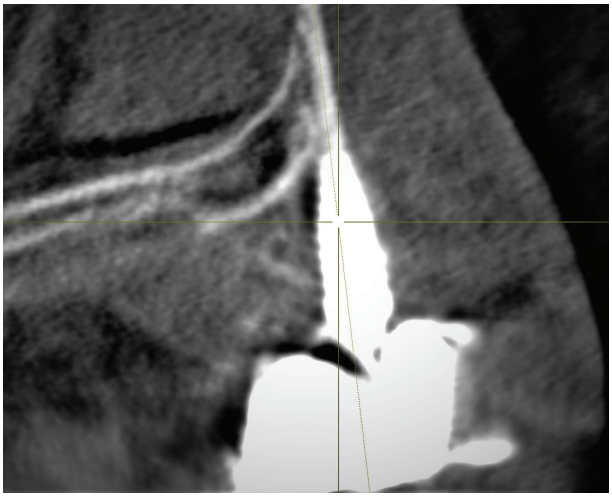


Fig. 22: #13 cross-sectional image

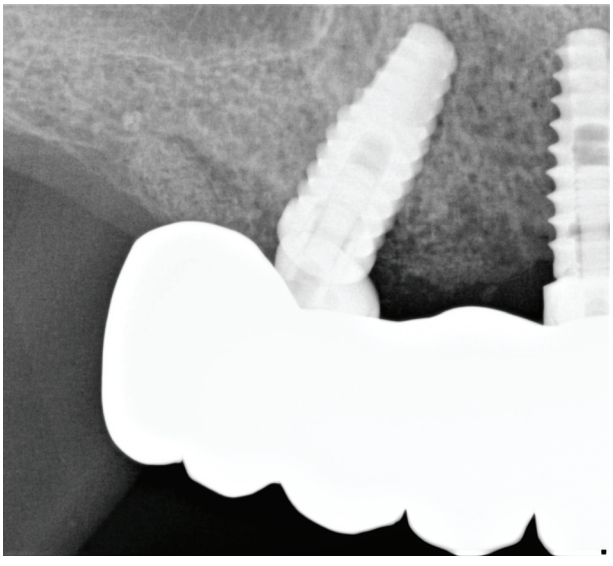


Fig. 23: Periapical image tilted implant #4 postop

Delivery of the Screw-Retained Zirconia Restoration

This digital workflow reduced the visits to two, which was possible only because there were minimal changes required from the provisional to the final, and we were confident we had captured accurate CEREC Primescan optical scans. The zirconia gingival intaglio surface lightly compressed the gingival tissue to prevent air from escaping while speaking and avoid food impactions.

The fit and passive path of insertion were tested via the Sheffield test and subsequently checked with periapical images. This test is performed by inserting a

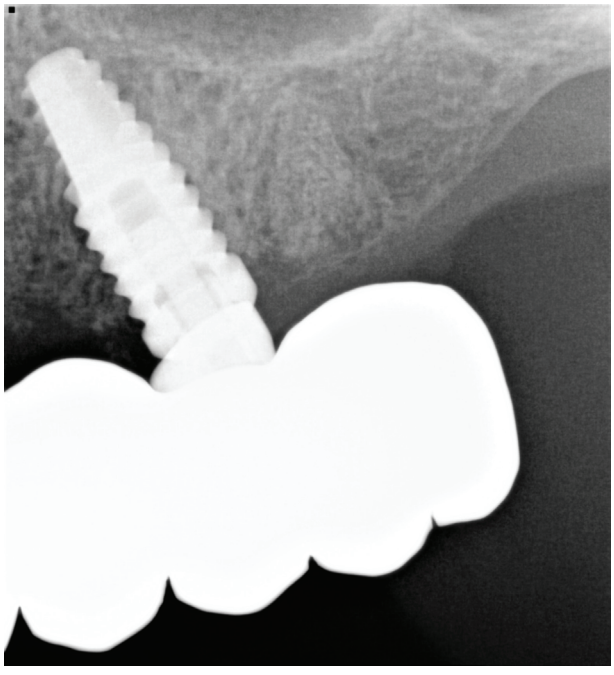


Fig. 24: Periapical image tilted implant #13 postop

Fig. 25: Occlusal view of completed All-on-4 prosthesis

Fig. 26: Close-up postop full smile

Fig. 27: Full-face smile

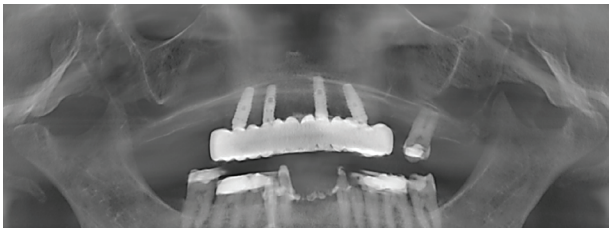


Fig. 28: 2D panoramic image postop

single prosthetic screw hand tightened into a posterior implant and validating there is no movement on the contralateral side. Individual prosthetic screws were torqued into each implant at 15 ncm and then covered with Teflon and the properly shaded resin. Opening the distal incisal embrasures and creating a rounder crown shape with more individual separation led to a softer and more natural appearing tooth morphology. The pink porcelain enhanced the esthetics by reducing the overall size of the crown display and creating a more natural tooth display in the patient's smile curve.

We demonstrated how to maintain the zirconia with floss threaders and monoject syringes. The patient was released with soft diet instructions for a couple of weeks and a three- to four-month maintenance schedule for the first year.

This visit, accomplished in less than one hour, included removing the PMMA provisional, inserting the zirconia restoration, torqueing the prosthetic screws, covering the access openings, equilibrating the occlusion, and imaging the case with photographs, periapical X-rays, and a CBCT scan. I estimated the total restorative treatment time to be less than two hours and 20 minutes (Figs. 17-28).

Proper Planning Prevents Poor Performance

The digital workflow described has led to efficient and productive restorative therapies to advance the fabrication of long-span implant restorations. There is a substantial reduction in chair time due to the computer-assisted design and manufacture of millable materials. This case was initiated with prosthetically driven implant planning and transitioned effortlessly to the installation of the definitive CAD/CAM zirconia restoration. A harmonious esthetic smile replaced unsightly failing dentition, giving this patient new-found confidence that is common with the All-on-4 treatment concept.

The case demonstrates a true collaborative effort with coordination of all aspects of restorative implant dentistry digitally optimized to minimize treatment times and deliver the ultimate solution for a very complex dental problem. What is novel is our ability to work within the digital realm to reduce the number of visits and scope of the processes necessary to take these cases from planning to execution.

Special thanks for the lab work performed by Biodental Sciences, New York, NY.

For questions and additional information, Dr. Ramirez can be reached at info@dranthonyramirez.com.

Using Clinical Efficiency and Technology to Perform Same-Day Quality Restorations

A Q&A with Dr. Miyen Kwek

Mark Fleming, D.D.S.

Miyen Kwek, D.D.S., has been practicing digital technology for some time but is relatively new to the world of CAD/CAM. Approximately two years ago, he adopted the full digital workflow with CEREC® technology, not realizing it would elevate his practice to another level. What he discovered has allowed him to stay true to his particular style of same-day, efficient dentistry, while also realizing a more effective way to practice.

In the following Q&A, Dr. Kwek discusses his style of same-day dentistry and shares a case that resulted in a quality, permanent restoration that was created and delivered during a half-hour emergency appointment.

Dr. Fleming: Talk about your particular style of same-day dentistry. What are you known for?

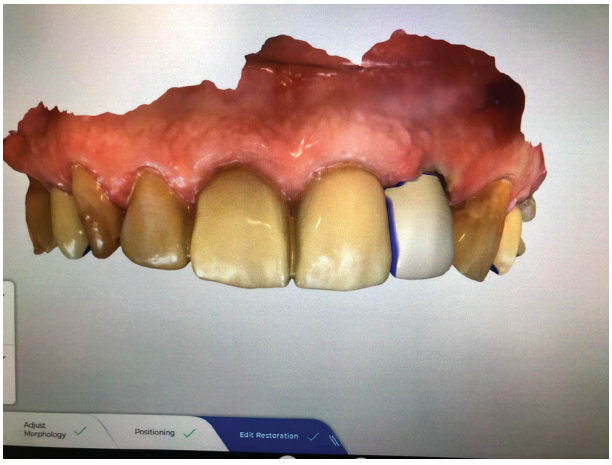
Dr. Kwek: I am relatively new to CAD/CAM dentistry and have been practicing with it for a little over two years. My forte has always been on clinical efficiencies — providing high quality dentistry in a very timely manner. I've realized that I can combine equipment technology with CEREC, and 3D shade technology with VITA blocks, to produce very esthetic and efficient dentistry. I believe there are many dentists who relate to this style of dentistry and don't necessarily want to get into the more artistic elements, like staining and glazing, if it isn't necessary. If there's a way to produce a quality result in a fraction of the time, compared to the traditional workflow, that's an advantage many may want to incorporate. Especially now, during the current pandemic, dentists are asking how they can be more efficient in order to survive. I am able to explain that everyone can learn how to maximize efficiencies in dentistry to be highly profitable.

Fig. 1: Preop photo of male patient in his mid-70s who presented with a fractured upper left lateral incisor

Dr. Fleming: Tell us about a recent case where you were able to put your clinical efficiencies and technology into practice.

Dr. Kwek: I had a half-hour emergency appointment available. An existing male patient in his mid-70s presented with a fractured upper left lateral incisor (Fig. 1). The biggest challenge was to see if there was enough ferrule to retain a permanent restoration. Although the before picture I took does not show it particularly well, it turned out he had adequate tooth height to complete the restoration. The angle here is not ideal, but when I

I've realized that I can combine equipment technology with CEREC, and 3D shade technology with VITA blocks to produce very esthetic and efficient dentistry.



Figs. 2-3: I use the CEREC Primescan design software to customize and tweak slight anatomical variations before milling.

Fig. 4: During final polishing, a GEZA 100 HP goat hair brush with DiaShine and a Renfert 22-mm goat hair bush (polished dry) were used to bring out the luster and high sheen.

Fig. 5: The after photo of the patient with the quality, permanent VITA ENAMIC multiColor high translucency restoration created and delivered during a half-hour emergency appointment.

snapped this picture, I had no idea it would be used for an article, otherwise I would have taken better pictures.

CDOCS.com: How were you able to determine if there was adequate ferrule to proceed with the restoration?

Dr. Kwek: Using retraction cord, I retracted the gingival tissue apically and was able to gain an additional 1.5 mm to 2 mm. Once I determined that the patient had more than enough ferrule, I decided to proceed with a final CEREC restoration.

If there's a way to produce a quality result in a fraction of the time, compared to the traditional workflow, that's an advantage many may want to incorporate.

Dr. Fleming: What material did you elect to use for the restoration and why?

Dr. Kwek: I chose to use VITA ENAMIC multiColor in High Translucency. I selected this block for several reasons. I wanted to have a gradation of shade for the natural transition, but I also wanted to take advantage of VITA's 3D shade guide technology to blend in more accurately to the adjacent teeth. In addition, the processing time with this material is very quick and efficient. This particular crown was milled and polished in under 10 minutes.

Dr. Fleming: How did you prepare the tooth?

Dr. Kwek: Based on the amount of structure the patient had remaining, he had adequate ferrule to be able to restore the tooth with pins and a build-up of composite. I used retraction cord to expose more tooth structure, placed two pins, and built up a composite core. Then I minimally prepped the tooth for a VITA ENAMIC multiColor crown and checked for adequate clearance and occlusion. Upper and lower scans were taken with a digital bite registration using the CEREC Primescan. The design software of the Primescan is so much more accurate and efficient compared to the Omnicam. In under a minute, I can customize and tweak slight anatomical variations and my final design is ready to be sent to the mill (Figs. 2-3).

Dr. Fleming: How did you finalize the restoration?

Dr. Kwek: After prepping and scanning, I polished the milled restoration with VITA ENAMIC Polishing Set technical and then did a final polish using a GEZA 100 HP goat hair brush with DiaShine (VH Technologies) and a Renfert 22-mm goat hair brush (polished dry) to bring out the luster and high sheen (Fig. 4). After try-in, the restoration was steam-cleaned, followed by selective etching with 5% hydrofluoric acid (VITA CEREAMICS ETCH, VITA Zahnfabrik). I bonded with Adhese Universal and Variolink Esthetic (Ivoclar Vivadent).

Dr. Fleming: How did the patient react to the finished restoration?

Dr. Kwek: The patient was shocked that he actually left my office with the final product. When he came in, he assumed we would be extracting the tooth and replacing it with an implant. Instead, he left with a quality, permanent restoration in a 30-minute visit. He was very pleased with the final outcome (Fig. 5). We gave the patient all the available options, and he chose the most conservative route and the one that made the most sense for him based on his situation.

If you understand how to use time to your advantage and how to use and incorporate technology, then it is possible to complete a quality restoration and maximize efficiencies.

Dr. Fleming: What is the primary takeaway from this case?

Dr. Kwek: If you understand how to use time to your advantage and how to incorporate the various technologies available, such as equipment, materials, and shade, then it is possible to complete a quality restoration, maximize efficiencies, and most importantly, create an overall result that the patient is happy with. As dentists, we can be highly profitable while always doing what is best for our patients and practicing ethically.

For questions and additional information, Dr. Kwek can be reached at miyen.kwek@gmail.com

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Maximizing Your CBCT Workflow: The 6 "P's" of Success

Douglas Smail, D.D.S.

If you have a cone beam computed tomography (CBCT) unit or are thinking of getting one soon, you always have two questions that are front and center in your mind: How can I maximize the CBCT to improve patient care and treatment outcomes, and how can the CBCT grow my practice and improve my bottom line? The answer lies in the 6 P's — pathology, planning, precision, persuasion, problems, and perceptions. I'll show you a case example for each to illustrate.

Pathology

How much are you missing on 2D imaging? The answer is a lot. While most of the time what you're missing is minor, sometimes it's serious. A healthy man in his 40s came in to see me for a third opinion. He saw his general dentist, who took a PA X-ray and saw nothing. He then sent him to an oral surgeon, who took a panoramic X-ray and also saw nothing on the lower left side. I saw nothing obvious clinically, and I told the patient that I felt a CBCT was necessary; he agreed. The CBCT image I got showed a large radiolucency with significant bony destruction (Figs. 1-2). I biopsied the lesion, and the report came back as metastatic cancer. I referred him immediately to an ear, nose, and throat specialist who does head and neck oncologic surgery.

Planning

Can I really do that surgery? With CBCT imaging, you'll know for sure and be able to visualize the surgery before you ever pick up a scalpel. Let's look at this case, referred for exposure and bonding of a bracket and chain of unerupted tooth #20 for forced eruption. In 2D, you couldn't be sure whether it was lingually malposed or had a thick buccal plate, two things that would make the surgery more difficult. In 3D, you can see that the tooth is not tipped, and that there is no thick bone covering the buccal coronal tip (Figs. 3-4). To access the

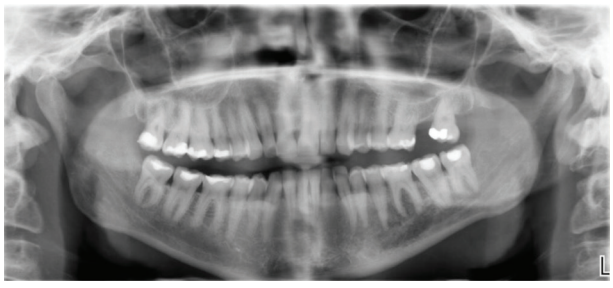

Fig. 1: Panoramic X-ray used for diagnosis

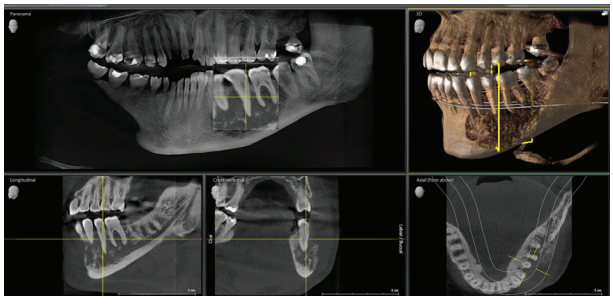

Fig. 2: CBCT used for diagnosis

How much are you missing with 2D imaging? The answer to that question is a lot. While most of the time what you're missing is minor, sometimes it's serious.

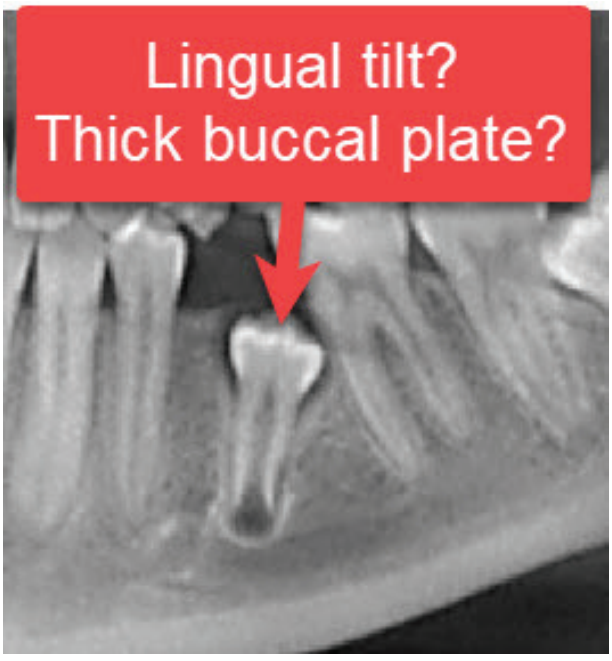

Fig. 3: 2D image of tooth #20

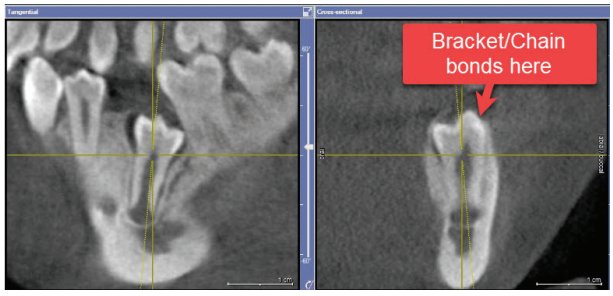

Fig. 4: 3D image of tooth #20

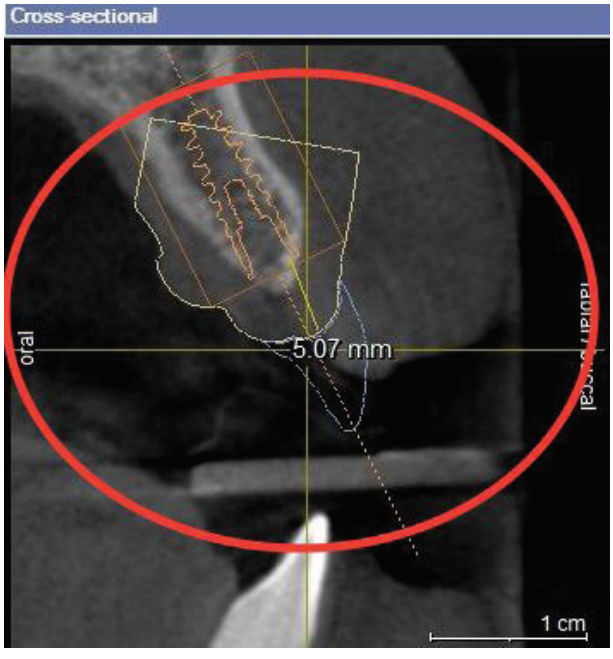

Fig. 5: 3D planning mage

buccal enamel and bond a bracket and chain, all you need is a basic crestal incision with small verticals to release. This becomes a simple 30-minute procedure including sutures. Not so scary when you can plan it all out in 3D!

Precision

Can I really place that implant exactly where I want it? When you combine the Orthophos CBCT (Dentsply Sirona), the CEREC® crown design, and SICAT guides, that precision is certified. This case is a congenitally missing lateral incisor, one of the hardest implant cases to do. If you're doing this in 2D, you could perforate the buccal plate, hit an adjacent tooth, put it shallow because of the lack of natural bone scallop, or any of the many things that could go wrong. Now you scan, plan, place, and restore with precision and confidence because you know it's right (Figs. 5-7).

Persuasion

This patient had maxillary molar endodontic treatment and multiple follow-up visits for continuing pain and two full courses of antibiotics. The patient was referred for extraction of the tooth. In 2D, the endo fill looked great, but in 3D, you can clearly see the untreated second mesio-buccal canal and the periapical abscess with sinus involvement (Figs. 8 and 9). I reviewed these findings with the patient and sent a screenshot back in a letter. She had the tooth retreated and has been fine ever since. The power of the CBCT to show the patient exactly what was wrong persuaded her not to remove the tooth. Imagine how much time, money, and pain could have been saved with 3D imaging from the beginning.

Problems

Will the CBCT help me avoid problems? As the previous case showed, absolutely, but here's another case

Fig. 6: Radiograph of implant drill

Fig. 7: Final implant restoration

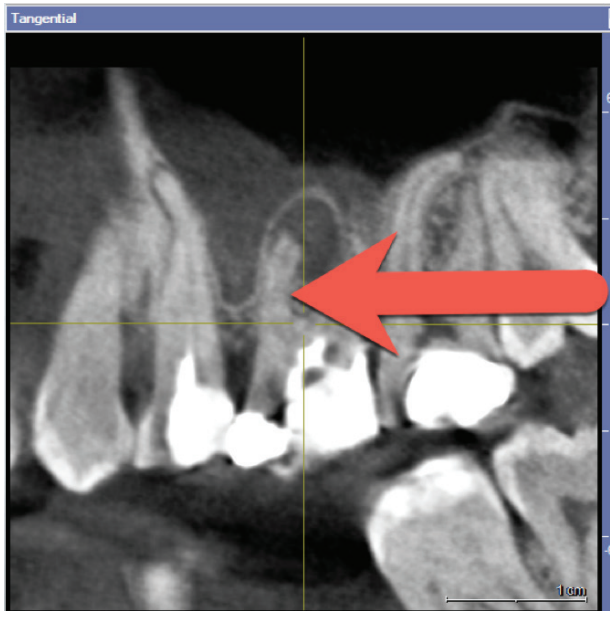

Fig. 8: 3D image

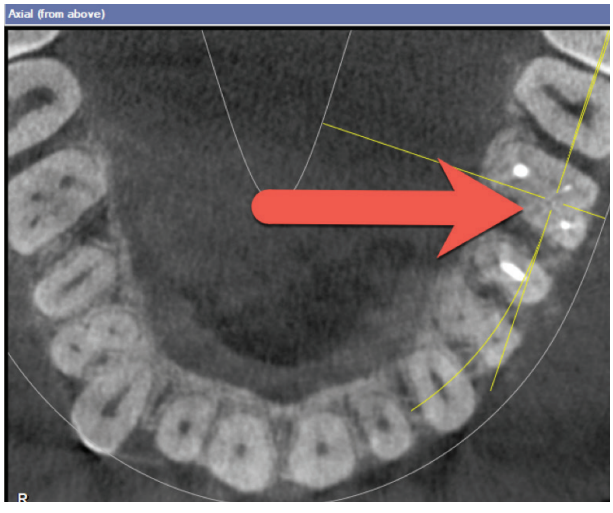

Fig. 9: 3D slice of molar

to drive it home. Maxillary molar implants are always challenging because the sinus floor is never far enough away. In this case, freehand surgery without proper 3D planning resulted in an acute sinusitis because of too-deep placement that perforated the sinus floor. The patient was referred to me after oral antibiotics failed to relieve his worsening facial pain and pressure. I removed the implant, suctioned out the sinus, did a layered closure, and it healed without a fistula. If this case had a CBCT and guided surgery, this wouldn't have happened. There actually was enough bone, and you can measure the distance to the floor in the Galaxis Implant Software (Dentsply Sirona). As far as placement, with a sleeve system like Astra EV, each drill has a stop to prevent you from drilling too far. Problems? What problems? (Fig. 10)

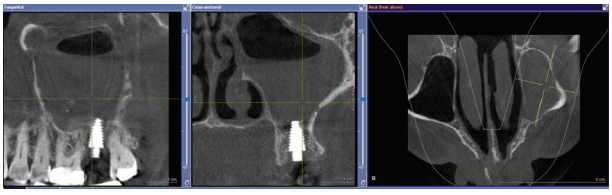

Fig. 10: 3D image of calcified artery

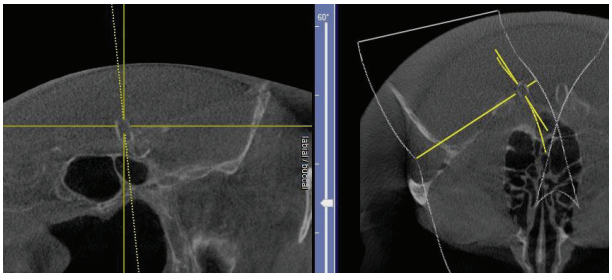

Fig. 11: 3D image of calcified artery

Perception

Will my CBCT change how patients see me? I review the imaging with every patient on a big screen TV. They love every aspect of the CBCT. They love that they can see themselves in 3D, they love that you invested in this cutting-edge technology, and they really love that you took the time to review it with them. They see you in a whole new light. Trust, confidence, and treatment acceptance… through the roof! This patient, an older man with some medical comorbidities, came in for an implant consult. In reviewing the images, I noticed the circular (tubular) radiopacities near the sphenoid sinus (Figs. 11-12). These are the calcified walls of the internal carotid artery. I discussed this with the patient, sent the images to an oral and maxillofacial radiologist for a secondary reading, and sent screenshots to his primary care physician and

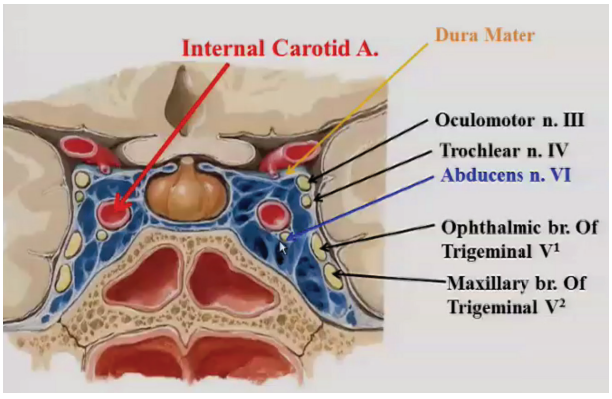

Fig. 12: Textbook rendering of artery

cardiologist. They were all amazed that this got picked up "at the dentist's office." What do you think their perception of you would be when you send them something serious that you pick up on a CBCT? You'd be a rock star!

New and Improved Normal

How do you incorporate the six P's in your practice? First, get a CBCT if you don't already have one. Second, get the education and training, and use it to its fullest potential. Thankfully, that part is easy now that CDOCS.com and Dentsply Sirona have partnered with the Clinical Accelerators Program. Basic and advanced CBCT reading videos and courses, and multiple levels of implant surgery videos and courses will help you make the most of your investment. Now is the time, in light of all that's been going on, to make your "new normal" a "new and improved normal."

For questions and additional information, Dr. Smail can be reached at dsmail@cdocs.com

How do you incorporate the six P's in your practice? First, get a CBCT if you don't already have one. Second, get the education and training, and use it to its fullest potential.

Nonessential?

Sameer Puri, D.D.S.

Now that we are what appears to be at the tail end of a global pandemic, it's time to do what all successful companies and businesses do: Evaluate the situation, develop a postmortem, and react accordingly in case something similar arises in the future. In evaluating our current state of affairs by looking in the rearview mirror, I cannot help but think of the emotions that arise inside me when I recall that dentistry was deemed a nonessential business during the pandemic. How do we prevent that from happening in the future?

Dentistry as a whole has had better infection control protocols in place than virtually any industry and by far vastly superior to Home Depot, Walmart, car dealerships, or any of the other "essential" businesses that were allowed to remain open. If you tell me that it was safe to walk into a Home Depot when there was a virus that could potentially infect millions but not safe to get treatment at a dental office where providers wear masks and gloves, each operatory is thoroughly cleaned between patients, and items are thrown away after being used, I would have a hard time believing you.

The leadership organization of record at the American Dental Association (ADA) could have done more to push back with the fact that dentistry is safe and essential. Politics and mass hysteria tied their hands, but one has to consider a data point: 53,000 cases of oral cancer are diagnosed every year. What are the ramifications of going two months without seeing and screening patients? The same can be extrapolated to other medical fields where primary care check-ups were all but eliminated and preventive medicine and dentistry were ignored for two months.

Hindsight is 20/20, and one cannot look back at how things were and cast blame — that is counterproductive and useless. Organized dentistry has a responsibility to its constituents and a responsibility to educate the public. We can all argue about how dangerous this virus is or how dangerous the next infectious disaster will be, but you cannot argue that the universal precautions taken in dentistry as a whole are not only adequate but industry-leading. What organized dentistry needs to do is lead a comprehensive and cohesive marketing campaign to bolster the perception of dentistry to the public.

It's time to take a portion of the millions in collected dues and direct a comprehensive marketing campaign to promote dentistry to the public. "Got Milk," "Beef. It's What's for Dinner," "A Diamond is Forever" — all of these slogans should be reminders that a public campaign to promote our profession is not a radical idea. It's been done. Successfully. No reason dentistry should not benefit from the same efforts as other industries.

I call upon the ADA to lead this campaign. If not them, who? If not now, when? It saddens me that dentistry as a profession was lumped in with other businesses that were deemed nonessential. In evaluating the situation, we need to ensure that something like this never happens again. The higher the perception of our profession to the public, the less chance dental offices in the future are shut down.

For questions and additional information, Dr. Puri can be reached at spuri@cdocs.com.

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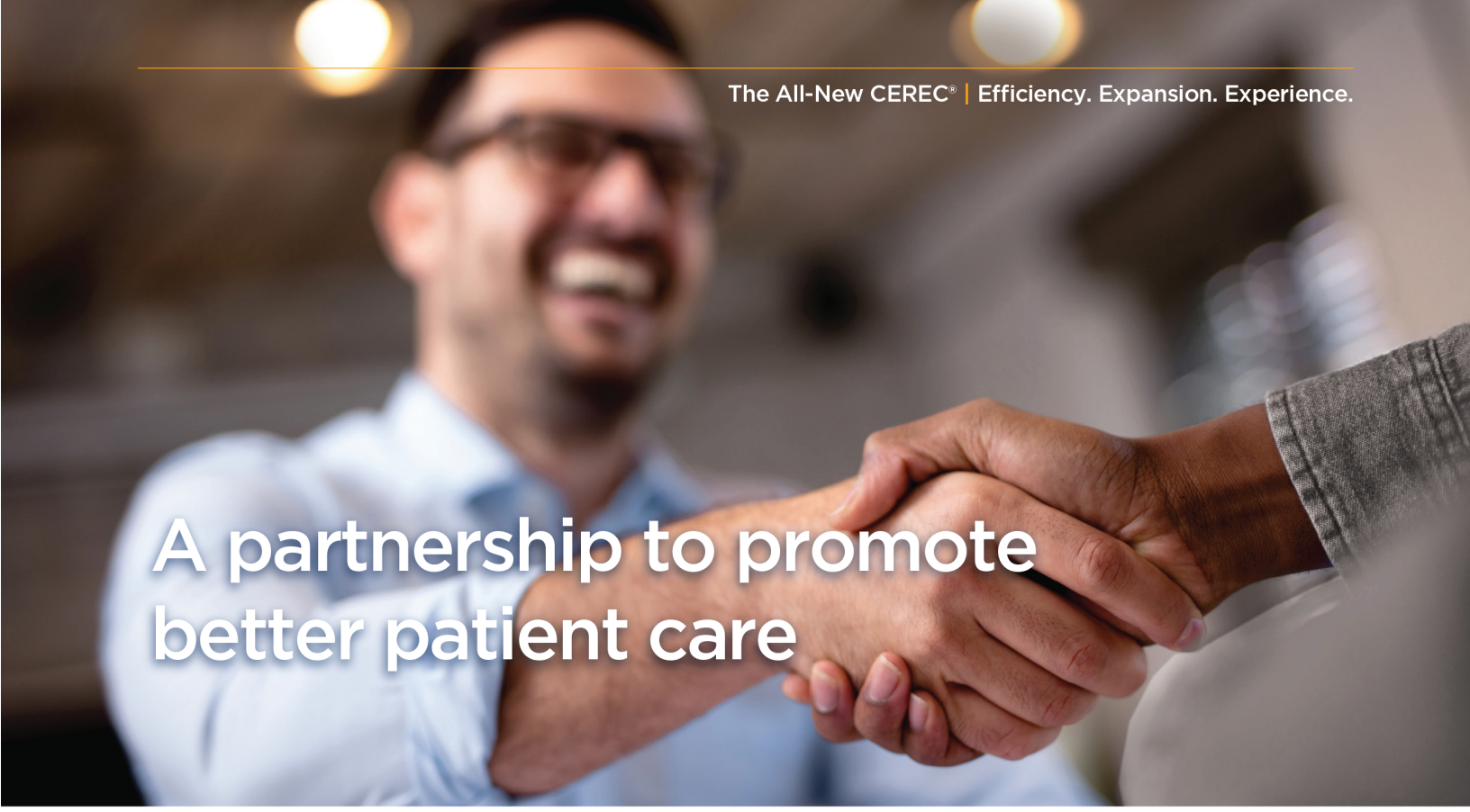

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