There's an epidemic in American health care, and it's not something that you'll see on the news. It's not being debated by Congress in a cleverly named health care act, and you won't see red-faced pundits passionately arguing about it on a cable news program. In fact, the only place you might have heard much about it is at a family gathering, when a parent or a sibling or a relative talks to you about a new machine they've just gotten. This epidemic is quite literally silent—or, rather, it's not silent and it should be.

The rise of sleep disorders is a significant problem in the United States and around the world. Research published by the Centers for Disease Control and international organizations are now categorizing sleep disorders as an epidemic,” says Sal Rodas, CEO of Sleep Architects, Inc. and executive director of the Foundation for Airway Health. Obstructive sleep apnea (OSA) has already been found to have serious comorbidities, such as stroke, high blood pressure and heart disease, so the earlier it is detected and treated it, the better.

As awareness and diagnostics for OSA increase, more patients will be diagnosed, and it’s not just up to physicians to treat them. Dental sleep medicine is a developing treatment modality that has garnered increased attention in recent years, according to Rodas. And the role of the dentist in screening for and treating sleep-disordered breathing is going to become critical.

There are two ways in which dentists can take a more active role in OSA: they can be instrumental in increasing diagnoses of dental sleep apnea and they can also serve as a resource to patients who are looking for alternatives to the medically prescribed CPAP (continuous positive airway pressure) mask.

The alternative is the mandibular advancement device (MAD), often generally referred to as an oral appliance (OA). ...
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• Autoclavable 8 mm light guide
• Always ready for use thanks to easy-to-change spare battery
• 45 20 sec cure cycles off fully charged battery
• Built in radiometer to base charger

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tr>
<td>Wave length range</td>
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<td>Output</td>
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<tr>
<td>Handling</td>
<td>Intermittent use, 10 cycles, each of 20 s duration / 3 min. break</td>
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<tr>
<td>Operating time with fully charged battery</td>
<td>20 s duration</td>
</tr>
<tr>
<td>Light guide</td>
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</table>

Handpiece

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</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>D 12.6 mm, L 210 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.5 oz (incl. device base and light guide)</td>
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Battery charger

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<thead>
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<th>Parameter</th>
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<tr>
<td>Dimensions</td>
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<tr>
<td>Weight</td>
<td>6 oz</td>
</tr>
<tr>
<td>Radiometer</td>
<td>built-in, Green light, sufficient light output, Red light, insufficient light output</td>
</tr>
</tbody>
</table>

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Phone:

E-mail:

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There’s an epidemic in American health care, and it’s not something that you’ll see on the news. It’s not being debated by Congress in a cleverly named health care act, and you won’t see red-faced pundits passionately arguing about it on a cable news program. In fact, the only place you might have heard much about it is at a family gathering, when a parent or a sibling or a relative talks to you about a new machine they’ve just gotten. This epidemic is quite literally silent—or, rather, it’s not silent and it should be.

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The alternative is the mandibular advancement device (MAD), often generally referred to as an oral appliance (OA). See “Dentistry’s sleeping giant,” page 54.
DENTISTRY’S SLEEPING GIANT

Sleep disorders are on the rise. Here’s how dentists can help.

Sleep dentistry is a big business—and it might be saving patients’ lives. Here’s what’s going on in this huge growth area. by Lauren Krzyzostaniak

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TRIOS 3 Wireless

Based on 3Shape’s award-winning TRIOS intraoral scanner, the TRIOS 3 Wireless is designed to connect via Wi-Fi to laptops and the TRIOS cart, eliminating the need for a connecting cable between the intraoral scanner wand and computer. The scanner is designed with an easy battery exchange for nonstop scanning and includes three long-lasting rechargeable batteries with the digital color impression solution. The wand is engineered to be used to navigate between scan pages on the computer so that there is no need to touch the keyboard or mouse when scanning a patient. Innovative technologies in the TRIOS 3 Wireless are said to include intraoral scanning in lifelike colors, built-in shade measurement, an intraoral camera and HD photos. It is designed to be seamlessly integrated with a wide selection of implant manufacturers, orthodontic treatment providers, and select milling machines and 3D printers for same-day dentistry.

3Shape
908-867-0144
3shape.com
CIRCLE RS #2

iCoreExchange

iCoreExchange is a cloud-based messaging platform said to have unparalleled security and intuitive practice productivity features. It was reportedly developed with input from more than 2,000 dental professionals. The platform is engineered to have no file size restrictions, making it easy to share or transfer files, lab reports and X-rays. iCoreExchange is designed to meet or exceed all five legally required technical safeguards for HIPPA-compliant transmission of electronic protected health information. The platform offers 2,048-bit encryption and is said to prevent spam, ransomware, phishing attacks and potentially destructive viruses.

iMedicor
888-810-7706
imedicor.com
CIRCLE RS #3

Trefoil concept

Nobel Biocare recently previewed its Trefoil concept. Trefoil reportedly offers the possibility of same-day rehabilitation of the edentulous mandible or a failing dentition in the lower jaw with a definitive implant-supported prosthesis. The use of an innovative compensation mechanism incorporated into a prefabricated framework—which allows adjustment to a precision fit on three implants—is said to make the Trefoil concept unique. The adjustable framework is engineered to correct meaningful horizontal, vertical and angular misalignment of the three implants placed with guided surgery to achieve a precise fit. It was designed to extend the benefits of osseointegration to a new patient population and offer a reduction in cost using a simplified clinical workflow, standardized prefabricated framework and minimized componentry that reduces treatment time. The Trefoil concept is slated to be available in the U.S. in 2018.

Nobel Biocare
800-322-5001
nobelbiocare.com
CIRCLE RS #4
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Go wireless at 3shape.com/trios
Dr. Leah Capozzi

Dr. Capozzi graduated from the University at Buffalo School of Dental Medicine in 2005. After completing an Advanced Education in General Dentistry at the University of Buffalo, Dr. Capozzi set up private practice in Colorado. Proficient in CEREC dentistry and Invisalign, she teaches CEREC dentistry to dental students with igniteDDS. Dr. Capozzi is a member of the American Academy of Dental Sleep Medicine and currently practices in Buffalo, New York.

Dr. John Flucke

John Flucke, DDS, is Chief Dental Editor and Technology Editor for Dental Products Report and dentistry’s “Technology Evangelist.” He practices in Lee’s Summit, Missouri, and has followed his passions for both dentistry and technology to become a respected speaker and clinical tester of the latest in dental technology, with a focus on things that provide better care and better experiences for patients. He blogs about technology and life at blog.denticle.com.

Dr. Erinne Kennedy

Dr. Erinne Kennedy completed her undergraduate studies at The Ohio State University before earning her degree from Nova Southeastern University College of Dental Medicine in 2015. She subsequently completed a one-year residency at the VA Hospital in Baltimore, Maryland. During dental school, she was involved with the American Student Dental Association (ASDA), serving as the national student representative and contributing editor.

Dr. Kristopher Mendoza, DDS

Dr. Kristopher Mendoza attended undergrad at the University of the Pacific, before graduating from the UCLA School of Dentistry in 2015. He is currently completing a dental anesthesiology residency at UCLA. A member of the American Student Dental Association, Dr. Mendoza served as the national president of the organization in 2014/15, and was the official spokesperson of the organization.

Dr. TARA GRIFFIN, DMD

Dr. Tara Griffin is a 1994 graduate of Millikin University and received her Doctor of Dental Medicine degree from the University of Kentucky College of Dentistry. She completed her general practice residency at the Hampton Veterans Affairs Medical Center, and maintained a private group practice in Illinois for several years, with a focus on comprehensive restorative dentistry and treatment of TMJ disorders and sleep apnea. Dr. Griffin currently practices in Florida.

Dr. Emily Hobart

Dr. Emily Hobart graduated from Midwestern University in Glendale, Arizona in 2015. During her time in dental school she was very involved with the American Student Dental Association (ASDA), serving as the chapter president for two years and District 10 trustee for one year. A native of Ontario, Canada, Dr. Hobart grew up in the Phoenix area. She currently practices in Columbia, South Carolina.

Dr. David Rice, DDS

Dr. David Rice is the founder of igniteDDS, the nation’s largest student and new dentist community. Dr. Rice travels the world speaking, writing and connecting today’s top young dentists with successful dental practices. He maintains a restorative and implant practice in East Amherst, New York. Dr. Rice received his DDS degree from the State University of New York at Buffalo in 1994, and completed his residency at the Allegheny General Hospital in Pittsburgh in 1995.

Dr. Jason Watts

Dr. Jason Watts is a graduate of Florida State University, and received his Doctor of Dental Medicine degree in May 2015 from Nova Southeastern University College of Dental Medicine. Dr. Watts is a contributing editor to igniteDDS, and the lead author for the Wisdom Tooth Blog (MedproDentalBlog.com). He is a dental consultant for Medpro Dental Matpractice and has a private practice in Cape Coral, Florida.

[Our Mission Statement]

Dental Products Report—known for its trusted new product information—delivers a sharp focus on high-tech innovations and their implementation as well as how cutting-edge technologies are transforming practices. DPR helps dentists future-proof their practices and position themselves to deliver the best dentistry possible to benefit both their patients and their practices. We are committed to delivering unbiased, quality content.
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The best and worst states to work in a dental practice: 2017

From 1 to 50, we looked at each state to see how it really stacks up for dentists, dental hygienists, dental assistants and dental front office team members. Read more: http://bit.ly/2nFMuCq

10 things we saw at IDS that blew us away

Some of the most amazing solutions that we experienced at dentistry's biggest show. Read more: http://bit.ly/2oEUMLv

How to reach patients in need

Dental therapists are serving patients who might not have access to a doctor. Read more: http://bit.ly/2byyuOA

NEW CONTENT EVERY DAY

Clicks & Picks

What dentists were searching and savoring in April @DENTALPRODUCTSREPORT.COM

3 MOST-VIEWED PRODUCTS

01 ACTIVA BioACTIVE
Pulpdent

02 TRIOS scanner
3Shape

03 Implant Pro Titanium Probes
Brasseler USA

3 MOST-READ ARTICLES ONLINE

01 The top 5 types of things patients hate but don’t want to tell you
by Lisa Newburger

02 5 ergonomic tips that could save your career
compiled by Laura Dorr

03 Why prevention is cheaper than restoration when it comes to gum disease
by Kara Vavrosky, RDH

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The Nupro Freedom™ Cordless Prophy Package with SmartMode™ Technology provides a cost-effective solution to comply with CDC Infection Prevention Guidelines, with Autoclavable Outer Sheaths, Disposable Barriers for the Inner Module, and Disposable Prophy Angles.

Reduce your patients’ risk of infection—and save your practice from the high costs of purchasing multiple handpieces.

dentsplysirona.com/nuprofreedom

SmartMode Technology allows you to control the cup speed using pressure against the tooth.
THE BENEFITS OF DIGITAL SCANNING

Continued from cover ... Once the dentist invests in digital scanning they have the hassle of finding a lab that works with these model-less impressions. Not all dental labs have the ability to accept these digital files, so dentists are limited in labs they can work with. There is also a significant increase in lab costs associated with these appliances since 3D printers can cost hundreds of thousands of dollars. This increased lab expense leads to a higher cost for the patient.

One application of digital impression taking and 3D printing is the fabrication of oral sleep appliances. 3D-printed appliances offer several advantages over traditional acrylic sleep appliances. The primary advantage of this type of device is the material from which the appliances are fabricated, allowing for increased comfort and smaller, lightweight appliances. Two commercially printed appliances, Panthera and Narval, use a polyamide, which is a resistant biocompatible nylon. This polyamide material is exceptionally strong and can be made very thin to allow for patient comfort. For patients where the tongue shape and size is a major factor in the airway restriction, traditional acrylic appliances are bulky and could potentially compete for space.

While the material is superior it also has one major drawback: the clinician cannot add material to the device (neither chairside nor requesting it from the lab). This becomes a problem for patients who require major changes to their dentition or dental restorations in the near future. For those patients, an acrylic-based appliance offers more flexibility to accommodate future restorative work.

One study completed by Narval, “ORCADES: A prospective cohort study of severe obstructive sleep apnea (OSA) patients receiving second line-treatment with a mandibular repositioning device (MRD),” showed a treatment success of 84 percent, regardless of sleep apnea severity or previous CPAP treatment. The data also showed frequency and duration of snoring were reduced by 50 percent and patients had an increased sleep quality. Only 4 percent of patients stopped treatment early for side effects, and the other 96 percent showed excellent compliance. This study suggests that 3D-printed sleep appliances are an effective therapy for moderate-to-severe OSA that can be used for patients refusing or noncompliant with CPAP.

While both devices are lightweight and have increased comfort compared to traditional oral sleep appliances, more studies are needed to compare the printed appliances with the currently used acrylic mandibular repositioning devices. “Sleep physiology is quite complex, and oversimplifying obstructive sleep apnea treatment to the device used is not scientifically sound,” says Dr. Nojan Bakhtiari, a board-certified orofacial pain expert who also manages OSA in his New York City practice. “The science has not caught up with appliance selection, and it largely remains a trial-and-error process. Nonetheless, this is a very exciting time for patients requiring oral sleep appliances, who cannot tolerate traditional oral sleep appliances.” Once cost can be brought down, more patients can benefit from this new technology.

[ Dr. Laura Barres, DDS ]
DPR Contributing writer
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9 NEW PRODUCTS

Endovac Pure™
Endovac Pure is an irrigation system that reportedly combines a portable base unit with a sterile packed cartridge and an ergonomically designed, single handheld controller for ease of use. It is said to be the only system of its kind to leverage the apical negative pressure technique. Endovac Pure is engineered to remove debris and bacteria from the apical third and provide a continuous flow of irrigants to the canal while minimizing the risk of extrusion past the apex.

Kerr Endodontics
800-537-7123 | kerrdental.com
CIRCLE RS #12

Planmeca announces new dental operating light
The Planmeca Solea™ dental operating light is said to combine optimum visibility with complete adjustability.
http://bit.ly/2opiN8c

Brasseler USA introduces Winter Restorative Concepts diamond bur line
The complete line of diamond burs is designed by leading prosthodontist and master ceramist Dr. Robert Winter.

Log on to DentalProductsReport.com for up-to-date product news and our exclusive content

[ WEB EXCLUSIVES ]

New company Innovato Holdings shows off innovations at IDS 2017
Solutions include a new way to create a healing abutment and more. Compiled by Lauren Krzyzostaniak
http://bit.ly/2pOm81v

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Roundup
Oral Cancer Sensors
Taking a look at some of the top oral cancer detection tools available today.

Benchmark
Achieving Ideal Proximal Contacts with IPR Strips
An evaluation of the IPR Strip System from ContacEZ.

Tech Brief
NL4500 Handpiece
A closer look at the newest handpiece in Brasseler USA’s line of handpiece offerings.
AXESS™ Mask

AXESS Mask is a single-use, lightweight and low profile nasal mask that is said to contour to form fit comfortably over the patient’s nose. The sedation system is reportedly constructed of slender, lightweight tubing to reduce drag that can lead to mask displacement. The mask and circuit combined are engineered to provide patients with a comfortable experience while offering clinicians easy and unobstructed access to the oral cavity.

Crosstex
631-582-6777 | crosstex.com
CIRCLE RS #13

SIDEXIS 4

As the central hub for integration and all diagnostic imaging data, SIDEXIS 4 reportedly allows for the compilation of data in a single software, enabling clinicians to visually present patient information in one unified environment. A “Lightbox” feature showcases digital images on the same screen while the “Timeline” feature presents an overview of a patient’s entire imaging history. A “Compare” feature lets dentists display images side-by-side for instant references to changes in dental anatomy. SIDEXIS 4 is said to offer revolutionary functionality with an easy-to-use, intuitive interface.

Dentsply Sirona
800-877-0020 | dentsplysirona.com
CIRCLE RS #14

Advantage Arrest™

Advantage Arrest is a silver diamine fluoride 38%, unit-dose delivery system. It is said to provide immediate relief from dental hypersensitivity, kill pathogenic organizations and provide important feedback due to its potential to stain visible or hidden caries. Advantage Arrest is available in 8 mL bottles or new 0.1 mL ampules.

Elevate Oral Care
877-866-9113 | elevateoralcare.com
CIRCLE RS #15

TwinPower Turbine

J. Morita introduced the TwinPower Turbine high-torque model, designed to deliver superior cutting efficiency and reduced preparation time. It features a comparatively small head height of just 13.2 mm, yet is engineered with the power to tackle nearly any clinical situation. Its double impeller rotor reportedly fuels its constant torque and speed, even under load. Other features are said to include rapid braking, compatibility with popular coupling systems, contamination control and zero drawback in the air line.

J. Morita
888-566-7482 | morita.com
CIRCLE RS #16
Preprogrammed with color-coded endo sequences from major endo file manufacturers, iOptima provides unrivaled convenience with complete control. Customizable auto-reverse and auto-forward functions, coupled with torque control ensure safety and effectiveness regardless of the file type. iOptima is the only complete endo solution.

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For all your endodontic procedures, the iOptima application now offers numerous preprogrammed options. Quick, efficient and risk-free.
**PRODUCT WATCH**

### [ INSTRUMENT ]

**ImplantPro® Titanium Probes**

ImplantPro Titanium Probes are said to be a reliable alternative to plastic probes and ideal for use on both implants and natural dentition. Engineered with an innovative design and superior ergonomics, the probes reportedly feature precise, black color markings on a smooth surface for a more gentle diagnostic evaluation and improved patient comfort.

**Brasseler USA**  
800-841-4522  |  brasselerusa.com  
CIRCLE RS #18

### [ MATRIX SYSTEM ]

**DUAL-FORCE™ Sectional Matrix System**

The DUAL-FORCE Sectional Matrix System is designed to create exceptional Class II restorations. DUAL-FORCE Rings are engineered using dual NiTi wires that are said to provide strong, balanced separation force on both mesial and distal surfaces. DUAL-FORCE Matrix Bands are designed to wrap the tooth snugly and are thin yet stiff enough to crimp during placement. DUAL-FORCE Active-Wedges are engineered to glide into position with a collapsing tip that reopens once fully placed.

**Clinician’s Choice**  
800-265-3444  |  clinicianschoice.com  
CIRCLE RS #61

### [ MOTOR CONVERSION KIT ]

**ELECTROmatic system**

The ELECTROmatic system is said to increase efficiency and provide better patient care. It is engineered to convert a non-electric dental treatment unit into an electric one. Additional features are said to include constant torque, defined and constant speed, smoother cutting, low noise level and high versatility. Four different controller versions are available to choose from, providing full flexibility for dental offices.

**KaVo Kerr**  
888-275-5286  |  kavokerr.com  
CIRCLE RS #62

### [ CBCT SCANNER ]

**PreXion Excelsior**

The new PreXion Excelsior 3D CBCT is said to have the smallest focal point in the industry. The equipment can reportedly deliver 30 percent lower radiation exposure without compromising image quality. PreXion software is designed to flawlessly integrate into customers’ networks without any specialized hardware. A 3D viewer can be installed on any Windows PC or on the network, which is designed to allow scans to be viewed from any computer.

**PreXion**  
650-212-0300  |  prexion.com  
CIRCLE RS #63
Big innovations that start with a smaller footprint

The iTero Element® intraoral scanner is engineered to deliver everything doctors look for in digital impression technology in a compact footprint design with even bigger capabilities. The iTero Element is designed with speed in mind. It’s portable, powerful, and intuitive, demonstrating our continued investment in clinical precision and patient satisfaction.

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Dentists and hygienists are playing a crucial role in early detection of oral cancer, and for good reason. About 49,670 people will be diagnosed with oral cavity or oropharyngeal cancer this year alone, according to the American Cancer Society, and an estimated 9,700 people will die of these cancers.

While the overall rate of new cases of oral cancer has been stable in men and dropping slightly in women, the American Cancer Society notes that there has been a rise in cases of oropharyngeal cancer in both men and women linked to infection with HPV. Being able to detect and treat these cancers in their early stages is key and can lead to noninvasive treatments and higher survival rates for patients.

Fortunately, oral cancer sensors continue to evolve and take advantage of the latest technology. From utilizing specific wavelengths of light to implementing fluorescence visualization technology to incorporating imaging technology, these devices are enabling clinicians to detect oral diseases early on and help stop them from spreading.

Ensuring the entire dental team has the necessary education and training to understand and use these oral cancer tools is critical and can be a key aspect of providing effective patient care.

Over the next few pages, we’ve compiled a list of some of the top oral cancer sensors available today.
New from the makers of Luxatemp, TempoCemID delivers standout performance by blending in. This esthetic, temporary cement is invisible when you want it to be, yet detectable when you need it to be. Formulated for optimal transparency, TempoCemID will never impact the shade of your provisional, making it an ideal choice for both posterior and anterior restorations alike. Unlike other esthetic temporary cements, excess TempoCemID is readily detectable (even below the gum line) and can often be removed in one piece. Non-eugenol TempoCemID flows and mixes easily, doesn’t stick to instruments and is indicated for temporaries lasting up to six months. See your esthetic worries vanish before your eyes with TempoCemID.
**FEATURED PRODUCT**

**Bio/Screen Oral Examination Light**

The Bio/Screen Oral Examination Light by AdDent Inc., is said to be a new and improved oral cancer biofluorescence screening device. This device can reportedly be used in full room light due to its exceptionally powerful shortwave LEDs. It is made of lightweight aluminum and ergonomically designed for comfort and ease of use. Special optical filters are engineered to improve the contrast between healthy and abnormal tissue to improve visualization of potential problems at an early stage.

AdDent Inc.
855-211-3413 | addent.com
CIRCLE RS #20

**FEATURED PRODUCT**

**DOS SE oral exam system**

The DOS SE is said to be a small yet extremely powerful fluorescent imaging system. With patent-pending LED Beam technology and a high-contrast fluorescence viewer, it reportedly enables both intra and extraoral access for early detection of both HPV and traditional viruses associated with oral cancer without the need for rinsing the mouth. The DOS SE also comes with low-cost disposable barrier sleeves, allowing dentists and hygienists to perform affordable and effective routine oral exams.

DentLight
800-763-6901 | dentlight.com
CIRCLE RS #21

**FEATURED PRODUCT**

**Identafi®**

The Identafi oral cancer screening system reportedly dramatically enhances the appearance of suspicious tissue. The product is said to use three wavelengths of light, revealing mucosal abnormalities that may lead to oral cancer or premalignant dysplasia that may not be apparent to the naked eye during traditional screenings. Identafi’s compact design is engineered to make it easy to inspect hard-to-reach areas and fit seamlessly into existing screening routines.

DentalEZ
866-DTE-INFO | identafi.net
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3M™ Filtek™ One Bulk Fill Restorative

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FEATURED PRODUCT

OralID™

OralID, a simple and efficient oral cancer screening device, was reportedly designed to innovate the current fluorescence oral screening devices on the market. Designed to screen every patient, OralID is said to be the only product that has no per patient costs. A proprietary SmartFilterID™ is engineered to easily photo document lesions with any smart device.

Forward Science
855-696-7254 | forwardsence.com
CIRCLE RS #23

ORALID TESTIMONIAL

“Most all of our patients have really enjoyed the fact that we are using new technology and that we really are taking oral cancer screening seriously and care about our patients’ health.”

— Dr. J. Phillips, DDS

FEATURED PRODUCT

VELscope® Vx

Cordless and compact, the VELscope Vx reportedly implements fluorescence visualization technology to detect oral disease, including cancer. Used as an adjunct to routine oral soft-tissue exams, this product is said to be completely noninvasive. VELscope Vx is battery-operated and rechargeable and compatible with the Vx Camera System and standard digital cameras for photo documentation. An Imaging Adapter is engineered to be combined with a custom-designed Apple iPod 6 Touch holder and a state-of-the-art application to make framing and acquiring images simple.

LED Dental
844-952-7327 | leddental.com
CIRCLE RS #24
Achieving ideal proximal contacts with IPR Strips

An evaluation of the IPR Strip System from ContacEZ.

[ by Shannon Pace Brinker, CDA, Contemporary Product Solutions ]

Achieving ideal proximal contacts is of paramount importance to ensuring complete marginal seating of crowns, veneers, inlays/onlays and contouring direct composite restorations. Interproximal contacts that are too tight can result in incomplete marginal seating of full-coverage restorations, extrusion of adjacent teeth and crowding of anterior teeth. Patients may subsequently experience discomfort, hypersensitivity and recurrent marginal decay.

Additionally, interproximal reduction may be required when patients are undergoing orthodontic treatment with either clear aligners (e.g., Invisalign®, ClearCorrect™, eCligner, Six Month Smiles®). In such instances, it is imperative that the interproximal enamel be stripped without creating sharp corners or sub-gingival ledges. Precisely establishing ideal interproximal contacts facilitates optimal oral hygiene, long-term gingival health and restorative stability.

However, creating interproximal contacts that represent what exists in nature can be difficult. After utilizing traditional interproximal reduction methods, confirming the presence of adequate clearance may be difficult to ascertain with flossing.

What can greatly enhance interproximal reduction efforts is using a clinically proven method for determining and adjusting proximal contacts that incorporates a system of innovative strips (e.g., ContacEZ IPR Strips). This approach enables ideal proximal reduction and stripping to be achieved accurately and with minimal time and effort. As a result, crowns and other indirect restorations can be completely seated, and patients can experience enhanced comfort and functionality after definitive cementation, direct composite placement and/or during orthodontic bracket/aligner therapy.

A systematic approach

The ContacEZ IPR System promotes safe and accurate interproximal enamel stripping utilizing flexible diamond strips that curve and conform to the natural contours of the teeth. This maximizes patient comfort and safety, without creating sharp corners or sub-gingival ledges. Ergonomically designed for single-handed use, the ContacEZ IPR strips provide optimal tactile control and will not remove excessive enamel. ContacEZ IPR strips are effective for anterior and posterior areas and will not injure (i.e., cut) lips or gums. Not only do ContacEZ IPR strips save valuable chair-time and promote efficiency, but their central opening facilitates maximum visual perception.

The yellow IPR Starter strip is a 0.06-mm single-sided, extra-fine diamond strip with a serrated
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The red IPR Opener strip is a double-sided, 0.12 mm medium diamond strip for gently opening the contact and reducing enamel on two teeth. The ContacEZ dark blue IPR Widener is a coarse 0.15 mm double-sided diamond strip for efficiently widening interproximal spaces and reducing enamel. The green IPR Extra-Widener is a double-sided, 0.20 mm coarse diamond strip for safely widening interproximal spaces further for ideal alignment.

In addition, optional strips can help further reduce and enlarge interproximal areas. Among them are a serrated 0.10 mm Clear IPR Single-Sided Opener, which features medium fine diamond grit for reducing enamel on the proximal surface of one tooth; a 0.12 mm medium-coarse diamond cyan IPR Single-Sided Widener strip for further reducing interproximal enamel on the surface of one tooth; a 0.25 mm purple IPR double-sided coarse diamond Super-Widener that also further widens the interproximal space between two teeth; and a brown 0.30 mm IPR double-sided coarse diamond Mega-Widener that creates an extra-wide interproximal space between two teeth.

CPS assistant evaluation team
Some of the evaluators reported that they found that utilizing the ContacEZ to be a simple and smooth process. Of those surveyed, 82 percent stated that they were either extremely likely or very likely to purchase the ContacEZ for their practice. Several commented that the two grips provided exceptional handling properties, making it easy to grasp and access small spaces. One of those surveyed also commented that the flexible design allows the operator to polish the restoration easily, mimicking the contour of the tooth.

The evaluators were asked about their favorite feature of this product, and 50 percent of evaluators stated the ease of use, followed by 25 percent who said size of the strips. In addition to ease of use, the ContacEZ is also autoclavable, making it reusable and cost-effective.

Clinical tips
When asked for clinical tips while using ContacEZ, one evaluator stated, “It is so simple to use, I am not sure anyone would need any tips.” Others surveyed commented that these strips were ideal for Class IV restorations, and another suggested using an assorted pack of strips to determine a preference in grit. Additionally, when asked about suggestions for improvements, they would love to have a larger multiple pack for greater supply purchase.

Conclusion
The ContacEZ IPR Strips represent an efficient tool for thoroughly finalizing restorations that is reusable for increased efficiency and ease of use. Of those surveyed, 93 percent stated that they would recommend this product to a team member or other professional. On the 5-point diamond scale, dental team members who evaluated the ContactEZ rated it, on average, a 4-diagram rating.
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Source: GCC R&D
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Using Midmark’s ClearVision CR Dental Reader in your practice

This dental imager is designed to be easy to use and cost effective.

[compiled by Nicholas Hamm]

Information provided by Midmark

Midmark’s recently launched ClearVision® CR Dental Reader is engineered to be an easy-to-use and cost-effective dental imaging solution that is designed to rapidly deliver high-quality digital images for busy dental practices.

The ClearVision CR Dental Reader features a small footprint that enables it to fit into any size dental office and exam room without causing any disruption to office workflow.

**EASY OPERATION:** It is reportedly low maintenance with no brushes for ease of cleaning and reduction of image artifacts. The automated, magnetized feeding tray offers push and go functionality.

**USER-FRIENDLY:** The reader follows the Digital Imaging and Communications in Medicine (DICOM) standard, making it compatible with existing systems. The product uses a full range of bitewing and intraoral imaging plates that can be easier and faster to position than intraoral sensors. A true size 4c imaging plate is available, which enables clinicians to capture more dental anatomy on a single image without software stitching.

**IMMEDIATE IMAGES:** The Midmark proprietary Progeny® Imaging Software comes standard on the reader, reportedly optimizing image acquisition, processing and management. Clinicians can use the software to view images immediately, as well as export, email or print them for insurers, patients or referrals.

**COST-EFFECTIVE:** Many dental practices are said to prefer the advantages of a phosphor plate system, and this new product provides a compact, cost-effective solution for those customers.

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Applying the NL4500 handpiece in your practice

A closer look at the newest handpiece in Brasseler USA’s line of handpiece offerings.

[ compiled by Nicholas Hamm ]

Information provided by Brasseler USA

Brasseler USA’s new NL4500 handpiece is designed with a unique 45° angle head design that reportedly allows for maximum visibility and posterior access, and is ideal for treating impacted molars. The handpiece is engineered to offer more possibilities for different patients in the operatory.

TRIPLE PORT DESIGN: The special triple port design reportedly delivers a water stream, not a mist, directly to the tip of the bur. The NL4500 delivers a powerful 21 watts of power and features ceramic ball bearings and a push button head, all housed in a lightweight design.

POWERFUL TURBINE: The NL4500’s uniquely designed turbine delivers a powerful 21 watts of power for the cutting speed and control demanded by dentists today. For safety, the head design is said to prevent air flow into the work site.

SOLID CONSTRUCTION: The NL4500 is constructed of lightweight, high-strength titanium that is reportedly more durable and more resistant to corrosion than stainless steel. The NL4500 also features ceramic ball bearings for added durability.

USER-FRIENDLY: The NL4500 benefits from Brasseler’s D-Shield technology. This technology is said to protect titanium from scratches, and also to provide an ideal surface texture for an improved grip. The NL4500 also features push button chuck for easy bur placement and removal, fiber optic light for increased visibility and 360° swivel for excellent maneuverability.
Applying the Resurge® Ultrasonic Cleaner in your practice

The ultrasonic cleaners reportedly offer superior cleaning and ease of use.

[ compiled by Kristen Mott ]

Information provided by Dentsply Sirona

Dentsply Sirona announced the launch of the new Resurge® Ultrasonic Cleaner family, designed to provide dental practices the optimum capacity and flexibility in cleaning dental instruments.

The cleaners are available in 0.8 gallons and 2.0 gallons and are said to meet the needs of offices seeking either high- or low-capacity cleaning requirements.

SUPERIOR CLEANING: Combined with the Resurge® Instrument Cleaning Solution, these new ultrasonic cleaners reportedly offer superior cleaning and ease of use. Both units feature a low-profile design, making it easy to insert and remove instruments. A touchscreen is engineered to make setup and operation simple for users.

FLEXIBLE DESIGN: The ultrasonic cleaners are said to be flexible when it comes to loading instruments. The units are designed with a universal rack that accepts the industry leaders’ cassettes, as well as a stainless-steel basket for loading bundled or loose instruments. A low-profile tray is also available for spreading out the instruments along with a beaker-holder system.

USER-FRIENDLY: The cleaners are designed to be lightweight with easy-to-use handles. The low profile design with lid holder is engineered to make it easy for users to see into the machine and remove instruments. In addition, the touchscreen features a countdown timer for easy control.
Using ALPEN ShapeGuard polishers in your practice

The new line of polishers is said to produce beautiful results.

[ compiled by Kristen Mott ]

Information provided by Coltene

COLTENE recently introduced ALPEN ShapeGuard, a new line of diamond impregnated polishers that are said to be strong in polishing yet gentle on surfaces.

The polishers are engineered to adapt to any surface and distribute uniform pressure for fast, easy and intuitive finishing and polishing. The optimized polishing system reportedly works with composites and ceramics and produces a high luster finish.

**ESTHETICALLY DRIVEN:** ShapeGuard’s new spiral wheel design reportedly offers flexible lamellas for beautiful results with universal composite and ceramic restorative materials. The polishers are engineered to polish incisal, labial, buccal and lingual surfaces.

**EASY TO USE:** ShapeGuard Composite Plus is a simple two-step system, while ShapeGuard Ceramic Plus is designed to be a three-step system. Both Composite Plus and Ceramic Plus polishers are said to be autoclavable for an enhanced lifespan. Composite Plus polishers are engineered to work with COLTENE’s new BRILLIANT EverGlow Universal submicron hybrid composite, Fill-Up Bulk Fill and COMPONEER pre-fabricated composite veneers.

**CONVENIENT:** Both Composite Plus and Ceramic Plus ShapeGuard polishers are available in 5-pack refills. In addition, the Composite Plus polishers come in a convenient 4-pack assortment and Ceramic Plus polishers are available in a 3-pack assortment. All products are available in the United States and Canada.

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Reliance Dental Manufacturing, LLC.
10 SCANNING SOFTWARE IMPROVEMENTS THAT CAN CHANGE YOUR WORKFLOW

Scanning manufacturers are raising the standards for speed, image quality and accuracy. More on page 35.

WEB EXCLUSIVES

What do dental teams REALLY think of digital impressions?

Experts weigh in on the pros and cons of using this technology. by Terri Lively


ADDITIONAL CONTENT ONLINE

Changing the future of implant dentistry with robotics

A robotic guidance system for dental implant procedures just received FDA clearance. by Kristen Mott

http://bit.ly/2mt5pUg

Dentsply Sirona CAD/CAM presents new CEREC SW 4.5

Its features reportedly include user-friendliness, realistic visualization, increased speed and top-quality results.


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TECHNOLOGY EVANGELIST

ASPIDA RECOVERY AND THE CRUCIALITY OF DATA BACKUPS

Having a backup system like Aspida Recovery can be critical in saving your practice in the event of a disaster.

DATA MANAGEMENT

HOW TO ENSURE YOUR EMAIL IS HIPAA COMPLIANT

Dr. Lou Shuman and Robert McDermott discuss if email can satisfy HIPAA requirements.

DATA MANAGEMENT

GET OUT OF JAIL FREE WITH ENCRYPTION

Having to declare a data breach can be devastating for a practice—so it’s critical to take the appropriate preventative measures in advance.

WEB EXCLUSIVES

A robotic guidance system for dental implant procedures just received FDA clearance.

http://bit.ly/2mt5pUg

Its features reportedly include user-friendliness, realistic visualization, increased speed and top-quality results.


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Spurred by the spirit of competition and pursuit of market share, scanning manufacturers have raised the standards for their image quality, speed and accuracy. Dr. Chad Duplantis, DDS, a private practice dentist from Fort Worth, Texas, and frequent lecturer on digital dentistry, says all the scanners employ enhanced speed, accuracy and ease of use for the dentist.

“I don’t know what the computer scientists are doing; I’d be lying if I tried to tell you that,” he says, laughing. “But over the past several years, every scanner software has improved to a certain extent.”

Dr. John Flucke, DDS, a private practice dentist in Lee’s Summit, Missouri, is impressed with how the technology has evolved already.

“The results with the scanners now are better than I thought they’d be,” he says. “The folks that design and create these devices have taken this technology to the point where it’s just so doggone easy.”

So, what are the ways that scanning software has improved? Here’s what our experts had to say.

1 | Removing extra steps: Dr. Alex Kalmanovich, DDS, a private practice dentist from Laguna Beach, California, uses the CEREC Omnicam and before that, the CEREC Bluecam. He appreciates how the upgraded software streamlined the scanning process, from getting rid of powder to adding the ability to perform a continuous scan. “We couldn’t do a continuous scan. You had to click on each image and snap. That was more difficult. Now we just scan like we are shooting a video instead of clicking on images,” he says.

2 | Improving image quality: In addition to streamlining the scanning process, Dr. Kalmanovich likes the improved image quality. “It looks esthetically better. It looks more realistic, more accurate. From what I had before, my new scanner is so many times better in quality. Not
only for the great image, but also for patient education. It looks so nice I could use them to show patients and use it as an intraoral camera almost,” Dr. Kalmanovich says.

**3 Automating and eliminating guesswork:** The new software has simplified the scanning process and automates many aspects of the impression for you. Dr. Flucke, who was an early adopter of scanning software, remembers when he had three different windows that showed the x-, y- and z-axis, which required more calculation on his part. He also recalls spending more time trying to read the scan, looking for margins, and determining where and how tight the contact would be than he does now. “Now you just wave the camera over the working area. It almost finds the margin directly for you, does all the design for you. It’s incredible how simple it’s become as opposed to how complicated it used to be,” Dr. Flucke says.

**4 Improving speed of image capture:** Dr. Ford Gatgens, DDS, a private practice dentist from Dickson, Tennessee, just outside of Nashville, uses the 3M™ True Definition Scanner. He has seen many upgrades to the software and the scanning wand itself. “I saw an increase in my efficiency and improved image capture as the technology and the software gets better,” Dr. Gatgens says. Dr. Duplantis agrees that over the past several years, his 3M Scanner and all the other scanners have enhanced the speed of capture, reducing the time spent taking an impression on a patient. “The software has gotten to the point that as you are moving the wand, it’s capturing the image and you don’t have to hover as long over the teeth to capture that accuracy,” he says.

**5 Tweaking image quality and accuracy:** Per Dr. Duplantis, every scanner is racing to achieve the fastest scanning of the arch without affecting precision, and they are all “within hairs of one another.” Each of the scanners captures information differently, but accuracy is measured using the spatial relationship of the teeth as compared to a static object. “Compared to a predetermined spatial relationship with an object and using a standard deviation, researchers can determine how accurate a scan you get with the wand,” Dr. Duplantis explains. “Every single one of the intraoral scanners is more accurate than a traditional impression.”

**6 Zooming in on fine details:** Dr. Justin Chi, clinical research associate at Glidewell Laboratories, appreciates how his TRIOS® 3Shape camera can pick up and facilitate a close look at fine details. The scale and resolution of the images are such that he can pick out the burr marks on the tooth. Dr. Chi can zero in on a particular spot on his prep to analyze and see things he cannot see even with loupes or high-powered magnification. “The resolution and the details you can see on the screen are extremely accurate,” he says. “It ultimately makes people a better dentist.”

**7 Requesting more information when needed:** Dr. Flucke appreciates how scanning software is not only faster and more accurate but also more assertive when it needs additional data. After taking the scan, the software alerts the doctor to areas where there isn’t enough data to give a good model. Dr. Flucke likes how this automation prevents getting surprises from the lab. Moreover, after the area is retaken, the software automatically fills those indicated areas with the new scan. “Bing, bing, bing. It just knows where it is and fills those areas in,” Dr. Flucke explains. “It’s just incredible.”

**8 Including a clearance function:** Some software added a feature that allows doctors to see the amount of space on their prep. The immediate feedback is great. “So instead of having to wait for your lab to tell you, ‘Hey, you didn’t reduce enough here,’ now you get that information right away,” Dr. Chi explains.

**9 Adding shade matching:** Shade matching has many variables that affect accuracy when handled the traditional way, from the lighting of the room to the experience of the technician. However, the 3Shape produces a live view with an actual color image, eliminating some of the guesswork involved with the shade matching process. Dr. Chi likes how his 3Shape’s resolution of the scan is such that by clicking on the adjacent teeth, the software has an actual shade measurement function that gives you the shade right then.

**10 Working together with open-source technology:** Dr. Flucke is a big fan of open-source technology and manufacturers agreeing to cooperate. With open source, he can mix and match. If he wants to buy an open-source mill, it will work with his iTero® Element™ Intraoral Scanner. He says he likes not feeling limited in choices or pushed into the purchase of an individual brand.

**Is it time to invest in scanning?**

Dr. Gatgens is impressed with the improved features of scanning software from units that are powder-free to those that produce color scans, as well as units that shade match, all features that he sees as beneficial to a dental practice. When it comes to investing in technology, Dr. Gatgens has two questions he asks himself:

- Will it help with my patient outcomes?
- Will it make me more efficient in the office?

“As the technologies continue to improve, the answers to these questions would both be yes,” Dr. Gatgens says. “Technology is how things are going in dentistry for the future and that means better outcomes for our patients. Ultimately, that’s how our decisions have to be made.”

Dr. Flucke is an advocate for scanning over traditional impressions. He believes it is not a technology that is “still working the bugs out.” He also will no longer accept the argument that someone can take a better traditional impression than what the scanner takes. He compares it to the arguments regarding moving to digital X-rays, when doctors said film was more accurate.

“A picture the size of a postage stamp is never going to give me as much information as an image on a 24-inch widescreen monitor. That’s not even open for discussion. It’s the same way with scanning vs. traditional impressions,” Dr. Flucke says.

As far as the reliability, speed and accuracy of scanning software, he thinks the technology is essential to today’s practicing dentist.
How to apply the LightScalpel in your practice

One pediatric dental team highlights the benefits of this CO₂ surgical laser system. [compiled by Renee Knight]

Dr. Martin Kaplan never thought he’d invest in another laser—until he used the LightScalpel CO₂ surgical laser system. Dr. Kaplan, president of Kid Care Dental, already owned several diode and erbium lasers at the time and was about to start teaching a class on how to treat frenum attachment problems in infants at Tufts University. A colleague suggested he try LightScalpel, and once he did, he knew it was the perfect system for soft-tissue procedures in his practice and for his class.

What Dr. Martin Kaplan says about the LightScalpel laser

I was in the process of developing a laser training class at Tufts when I first tried LightScalpel. There’s a big interest in treating infants with breastfeeding problems caused by oral restrictions. These children aren’t growing because of their inability to latch to the breast and they’re on unnecessary reflux medication because of being “gassy” (often because they’re swallowing air while breastfeeding). Many mothers have to give up breastfeeding because of severe nipple pain and damage. This is a subject I’m passionate about.

I’ve been successfully performing the procedure to treat this problem for years with a diode laser. Therefore, I was suspicious of trying LightScalpel at first, but when I did I got a phenomenal result. My treatment time went from 30 seconds to three or four seconds and the babies experienced less stress. When I tried another procedure that usually took a minute and a half, I was able to finish it in about 20 seconds. But it was not the speed of the procedure that impressed me; instead, it was the precision and control that I had, which were missing with the diode and erbium lasers.

After the first procedure and the repeatedly same great results, I immediately purchased a LightScalpel laser. This is now the only laser I use for soft-tissue procedures. It’s economically efficient and has a small foot print, so it’s easy to move. Infection control is much easier than with my diodes, which have fibers that are difficult to maintain. The LightScalpel handpieces are easy to sterilize and maintain as well as to maneuver.

The company itself is easy to work with. If I have a problem (and I only had one with a foot pedal connection) or need advice because something isn’t working right, all I have to do is call and my questions are answered right away. By the way, the foot pedal replacement was overnighted to me and I had zero down time. The customer service is phenomenal.

The LightScalpel also gives me ideal control over the tissue type that I’m treating. I simply adjust the control panel at any time according to my needs during the procedure. You cannot do this with a diode as easily. My vision is not at all compromised with the LightScalpel. There is little to no bleeding. If I used a scalpel, the area becomes bloody, making it difficult to see. I also don’t have to worry about hot and cold spots as I do with a diode fiber tip.

For the patient, it’s a quicker procedure and there’s less post-op discomfort. The LightScalpel is kinder to tissue because of its minimal depth of tissue penetration, so patients heal quicker. My patients also like the fact that I’m using a laser; they consider it high tech. I’ve used multiple lasers over the past 1.5 years, and many patients come to me because I offer this technology. The LightScalpel for soft tissue is light years ahead of any other laser I’ve used in terms of treatment quality.

It’s a safer procedure for all of my patients, especially the infants. They are very tiny, with some as small as 5 pounds. I want the best surgical tool for my procedures with the best efficiency and least amount of side effects. With a CO₂ laser, you’re aiming the beam at tissue to remove it, not touching the tissue, but vaporizing it with the laser’s light. Diodes have a 500-degree to 1,200-degree Celsius hot quartz tip that runs the risk of collateral heat damage causing it to fracture and break off, especially in babies.

Tip fracture is not a problem in the non-contact LightScalpel CO₂ laser.

Some say CO₂ lasers cut too fast, but the LightScalpel is very efficient. CO₂ lasers and the LightScalpel have been used in medicine, including facial surgery, for decades. If there was a problem with too much tissue interaction, no one would use the laser for cosmetic surgeries and scar removal in medicine.

I see about 600 infants a year with breastfeeding, swallowing and choking problems and this is the laser that works the best. I have three diode and two Erbium lasers I no longer use for soft tissue laser surgery. I think I would cry if my laser broke down. In fact, I know I would.

What dental assistant Michelle Mercier says about the LightScalpel laser

The LightScalpel has more speed than any lasers we’ve used before and it seems to be a lot gentler on tissue than a diode. It’s also very easy to set up because you don’t have to worry about cords or tips. Taking care of the laser is also pretty easy. You just sterilize the handpiece and the mirror between uses.

The procedures seem to go a little faster as well, especially when we’re working with infants. It’s a thousand times easier than using a diode. Infants all have different mouth sizes and some aren’t able to open wide. That’s tricky with a diode because you have that glass tip. If a crying baby wiggles or moves too much, the glass tip can hit the lip or tongue and snap off, then you have to worry about finding the sharp tip in the baby’s mouth. With the LightScalpel, you aim the laser where you want it to go, so it’s a lot easier.

One of the benefits for patients is healing time. The tissue is managed in a whole different way, and the procedure itself is also a lot more comfortable. We’re even able to see younger patients. Before we were treating babies closer to 12 month old, and now we can treat patients as young as 2-3 days of age.

I really love this laser and can’t imagine my life without it. It’s a fascinating, unbelievably great machine.

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The benefits of a better laser

Two laser-dentistry experts share their insight as to how diode lasers can be used for more and with better results. [by Terri Lively]

Dr. Kenneth Magid, DDS, FICD, helped develop the Epic Pro and was involved in lasers since they first came to dentistry in the 1980s. Dr. Magid has not only lectured extensively on lasers around the world, but he’s also written articles and textbooks on them. He’s director of laser dentistry at NYU College of Dentistry.

Dr. Sam Low, DDS, MS, MEd, is the chief dental officer and vice president of clinical and dental affairs for BIOLASE. He has 30 years of private practice experience as a periodontist and 20 years’ experience as an associate faculty member of the L.D. Pankey Institute. He’s also professor emeritus at University of Florida, College of Dentistry. He lectures and teaches dental professionals nationwide.

DPR spoke to them about the BIOLASE Epic Pro Diode Laser and what makes it different than the other diode lasers available.

How is the Epic Pro different or unique from the other diode lasers available today?

DR. LOW: The Epic X is an excellent laser, but with most everything in life, there’s always something called the starter and then there’s the next level. The Epic X is an excellent all-around laser for hygienists and for dentists who want to do a frenectomy biopsy and things of this nature. That’s not just about the Epic X, but diodes in general.

DR. MAGID: The most common soft-tissue laser in dentistry is the diode laser. It is the most commonly used and least understood laser that exists today.

DR. LOW: Some clinicians use diodes as electro surgery devices. In other words, they’re primarily using them as a heat stick. Most diodes work off thermal reaction. For the most part, diodes are slow. They tend to drag through tissue. Debris builds up on the tips as a coagulum and must be wiped off, and that somewhat undermines the continuous nature of a procedure. So, diodes are effective; they’re more effective than electro surge, but they still have limitations to them.

DR. MAGID: Unlike an Erbium laser and a CO2 laser, which cut with laser energy, the diode laser cuts with a hot tip. The first question then becomes, if it cuts with a hot tip, how hot? With other diode lasers, the dentist has no idea and no way of controlling how hot the tip is. Second, the question is how consistent is that heat? In other words, if I could set it at a certain temperature, does it stay at that temperature? The answer with any other laser is no. It varies all over the place, creating some unique, untoward problems.

DR. LOW: The Epic Pro performs all procedures that a diode does, but quicker with no buildup of tissue debris on the tip.

DR. MAGID: With the Epic Pro laser, you not only can control the heat and control the heat consistently but you can add to that what’s called Super Pulse where you have tremendous energy, tremendous heat in a cutting mode for 100 microseconds and then it’s off, very much like the Nd:YAG laser.

DR. LOW: Power is measured in watts, and the peak power on a high-level diode can elevate up to 10 watts. The Epic Pro goes up to 150 watts. And then you might ask, well, my goodness, that would be so much, wouldn’t that be dangerous? Well, the fact is that even though it may go up there, it only lasts for a very short time, much shorter than any other diode out there.

How does this help with clinical practice?

DR. LOW: Since one does not get overheating of the tissue, the wound healing is quicker and renders a more positive patient response, which is what you want any time you do any procedure in dentistry. By having such great energy for a short period, the Epic Pro almost acts like a blade. In other words, it’s fast, it’s clean and tissue doesn’t collect around it.

DR. MAGID: With other diode lasers, the dentist spends an enormous amount of time and effort compensating for the deficiencies in the device.

For example, if you are doing a gingivoplasty with a standard diode laser, you get lots of charring and tissue tags. If you’re troughing the tooth and you use a standard diode laser, what you’ll get again is charring and tissue tagging, which makes it difficult if you’re going to use a standard impression material.

If you’re using CAD/CAM scans, you can’t have tissue tags or charring because the scan won’t allow you then to do a restoration.

DR. LOW: Restorative dentistry is rapidly moving toward digital impression. But the unfortunate aspect is that when you do digital, your impression must be so much more accurate than when you use impression material. When you use impression material, the tray assists in moving the tissue away from your impressions.
restorative margin. When you use digital, there’s no physical moving the tissue away from the margin, so one must use significant retraction cord. When you use an Epic Pro for retraction, the margin is exposed via troughing and you don’t see those tissue tags and this coagulum sticking to the area that you’ve been working on. Not only just the tip, but also in the physical area that you’re working on. It’s much cleaner. It’s just such an improvement over current diodes.

What other ways is the Epic Pro different than the typical diode laser?

DR. LOW: A significant limitation to most diodes is inconsistency, and my pet peeve is initiation of the tip. I knew from the beginning as a periodontist and someone who’s been in lasers for 14 years that when folks initiated a tip, the quality of that initiation had everything to do with the energy consistently concentrating on the initiation. And people just do it haphazardly! They find any way they can to get black on there, whether it be a Sharpie or a cork or occlusal paper with inconsistent results.

DR. MAGID: With the Epic Pro, they’ve developed an entirely new kind of tip that deposits titanium and carbon onto the tip permanently. You can cut for three to five minutes, continuous cutting, and nothing wipes off that carbonization. From the beginning where you touch the tissue, it’s a different animal.

You mentioned that the Epic Pro allows clinicians to control the heat, too. How does that work?

DR. MAGID: When the Epic Pro is on either what’s called APC mode—automatic power control—or the Super Pulse mode, I set the temperature I want. The laser then varies the energy to the tip based on maintaining that temperature. When I’m cutting in thick tissue and it takes more energy, the laser reads that instant feedback from the tip, varies the energy to the tip and maintains that temperature. If I then go into some thin tissue, the laser reads it instantly and then lowers the power automatically.

DR. LOW: That’s why the cut is so clean. The tip is staying at the exact same temperature as it moves through the tissue. With a normal diode, naturally it either cools or overheats, thus a significant decrease in effectiveness.

Do you have any specific treatment examples to share?

DR. MAGID: Sure. Doing a frenectomy with a standard diode laser, especially if it’s a thick frenum, is tedious. Dentists wind up cutting the soft tissue and using the glass tip of their laser to pluck the fibrous tissue in the frenum because the lasers are not capable of maintaining the temperature to cut it. With the Epic Pro, you cut.

The standard for cutting soft tissue has always been a CO2 laser. The CO2 is a non-contact laser and more difficult to control. The Epic Pro being a contact laser cuts as aggressively as the CO2 when you want it to, but with a contact means. You can use a standard diode laser to cut fibrous tissue like an operculectomy where it’s very fibrous tissue or uncovering a buried tooth, but boy, it’s just hard, tedious and essentially more damaging that it should be. With the Epic Pro, it’s just like the CO2, but it’s safe on the tooth.

Also, when you uncover an implant with the standard diode laser, you can cut an enormous, damaging amount of heat into the tissue surrounding that implant. That can contribute to the loss of tissue around the implant and expose the neck of the implant, which is unhealthy and can be damaging to the surface of the implant. The Epic Pro can uncover an implant without putting the kind of heat into the peri-implant tissue that would cause damage.

How does the Epic Pro benefit the patient experience?

DR. LOW: All the clinical research associated with BIOLASE now has patient-related outcomes as part of the measure to determine effectiveness. Our clinical observations demonstrate that patients heal exceptionally well. Because of the tip temperature being so consistent and the cut being so clean and the decreased time that you’re with the patient performing the procedure, my experience is that patients have no wound healing complications.

DR. MAGID: It’s much more comfortable for patients. I can do a soft tissue procedure without anesthetic. If I’m doing a laser trough and I’m going around the palliative side, it is not anesthetized because a palliative injection can be painful. I can do it with the Epic Pro. I’m controlling the heat and it’s much more comfortable than the uncontrolled heat of a standard diode laser. If I’m doing a thin frenulum, I would need a topical anesthetic because I’m using it with the control that the Epic Pro provides.

Are there any benefits to the practice that you’re aware of once people start using the Epic Pro?

DR. MAGID: You can do things that you couldn’t do otherwise or not as easily, like biopsies, operculectomies, frenectomies, all the things for which one should use a laser. For the person just getting into it, there are tremendous benefits to the practice, in using it for troughing and CAD/CAM. In implant uncovering with the Epic Pro, your results are so much better. So, as far as controlling your cases, getting the crown back without tissue tagging, uncovering the implant, and taking the impression and the scan at the same time, the Epic Pro gives the practice the ability to control the patient experience and the resulting restorative dentistry.

DR. LOW: The other thing is when you have a faulty tip, you don’t know it except with an observable loss of cutting efficiency. The Epic Pro can determine the effectiveness of the tip and then put an icon on the screen immediately that says ‘change the tip.’ Everything with this laser is not only just allowing the clinician to be more effective, but also creating a better tissue response for the patient, which is why we perform these procedures.

What advice would you have for a clinician considering getting into lasers?

DR. MAGID: The first thing I would say is don’t buy the cheapest product. That’s short-term thinking. The cheaper products will cost you more in the long run because they’re not going to do what you want. The second thing is get educated. Make sure that the laser that you buy provides either online education or training by some means so that you know what you’re doing with the laser.

DR. LOW: The first consideration is to determine what laser procedures are desirable in your respective practice after reviewing all the potential indications of a dental laser. Then match a particular laser to your particular indications. And seek as much objective information as possible into the effective utilization of today’s dental lasers. An excellent resource is the Academy of Laser Dentistry.

DR. MAGID: The Epic Pro is going to cost more than other lasers. You can buy a standard laser cheaper. The problem is that once you get it, you will spend the rest of the time compensating for the deficiencies of the device. The easier it is to use, the less you must compensate for the deficiencies in the device, and the more likely you are to use it. A dentist who wants a laser would be much better served starting out with one that’s extremely simple to use. You just pick the procedure and go ahead and the device does all the work.
How integrating technologies can help your practice

Dr. Edmond Suh explains how full integration of his Dentrix Practice Management Software, his intraoral scanner and other technologies have streamlined his practice workflows.

[by Terri Lively]

Before Dr. Edmond Suh integrated his Planmeca PlanScan intraoral scanner and his Dentrix practice management software, he would have told you that Dentrix was a great front desk software. However, after using the two together for around six months—as well as the integration of his Planmeca Romexis software and DEXIS sensors—he will tell you now that Dentrix has become a central hub for all his patient care.

“I’ve got the ability now to run and integrate all of my CAD/CAM, digital scans and images into my Dentrix patient chart,” Dr. Suh explains. “Not only that, but I also have the ability to run a CT scan in the back and have it also fully integrated within my patient chart as well.”

Dr. Suh marvels at how much easier it is to find what he needs with all the information in one place. Before the integration, he went back and forth between different pieces of software for information. Now his 2D, 3D, CAD/CAM and CT scans are all in one place.

“Romexis is a separate piece of software much like DEXIS is a separate piece of software. But because it’s a button sitting on the patient chart, it’s seamless. It’s like it’s all one congruent software,” Dr. Suh says.

Dr. Suh admits he didn’t know what he was missing before the integration, nor did he realize the impact it would have on his workflow. When he heard about integration, he thought it was “a nice little checkbox in terms of what it could do.” Also, his old system worked fine. He would perform his diagnostic procedure, then double-click a button to open the app, enter the patient number and chart information to transfer the data, and move on with what he was doing.

Now, with the integration between his Dentrix software and his PlanScan scanner, he doesn’t have to click on anything or populate that information. The scan goes into the chart automatically.

“It’s silly how nice it is,” Dr. Suh says. “You don’t realize how cumbersome it was to go back in there and do it the old way we’ve been doing it for so many years.”

The new protocol for patients is simple. The team clicks on the button, and all the information they need for the patient is fully populated. “We can’t mess up the process,” he says.

The only annoying part of the process was searching for old patient information that hadn’t been transitioned into his Romexis software system. “But otherwise everything we’ve been doing for the past few months is pretty much just a one-button click to get all the information we need.”

Dr. Suh said he feels fortunate that his systems came together in the way they did. He initially chose Dentrix because of its easy integration with DEXIS. When he first got into scanning, his scanner wasn’t part of Planmeca. Then Planmeca acquired his scanner’s company and put it under its Romexis software umbrella, along with the CT unit. Now, having the CT and CAD experience integrated into his patient charts has made a huge difference in his workflow.

“If I wanted to look at my patient chart, I can pull up every CAD file or any intraoral scan I took of a patient at any point in time. And, I can pick up any CT image, any 3D image I’ve ever taken, and it’s all under the same patient chart,” explains Dr. Suh. “That’s a pretty easy, seamless thing to do. I don’t need to fish through and search to find different patient’s CT information anymore.”

Dr. Suh encourages doctors to take full advantage of integrating their technology into their Dentrix practice management software. Mixing and matching technology can be powerful when making the digital transition, but he advises doctors to look at the complete functionality of his or her practice. Thinking of each piece of digital technology as a separate entity instead of integrated together under one software system is the wrong mindset, particularly in the day-to-day work of a dental practice.

“If you don’t have to worry about how you’re trying to integrate all the technology in your office, it’s a much easier process for everyone involved trying to get the information that we need to take care of our patients in the manner that we want,” he says. ●
The world’s most popular handheld X-ray unit is changing how dental practices are taking intraoral images.

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Using the Nomad Pro 2 for efficient chairside X-rays

How dental teams and patients are benefitting from this portable handheld X-ray system.  [ compiled by Renee Knight ]

Dr. Christina Carter and the team at her New Jersey-based pediatric practice do everything they can to keep their patients comfortable. They treat children and special-needs patients, making it even more important to invest in products that are easily used while improving the overall patient experience.

One of those products is the Nomad Pro 2™. This portable, handheld X-ray system enables team members to remain chairside with patients as they take X-rays. This improves the quality of the images they receive while also making the patients more comfortable with the process.

Comfort is the practice’s focus, which is why they also have a certified therapy dog, Callie, a toy poodle, comes in two days a week to help calm any nerves patients may have. Like the Nomad Pro 2, the dog makes the practice stand out and shows patients that Dr. Carter and her team truly care about enhancing the patient experience.

Here’s what Dr. Carter has to say about the NOMAD Pro 2
I’ve been using the NOMAD Pro 2 for about a year and a half. It’s been revolutionary for patient comfort. Some of my older patients have noticed how much easier, quicker and more comfortable it is to take X-rays with the NOMAD. I’m also easily able to take bitewings on 3 year olds. By showing the NOMAD to them, taking X-rays doesn’t look as scary to them.

The NOMAD is great because we can stay chairside while we take the X-rays. I also like how easily it can be moved from room to room. If you have a wall-mounted unit, you can’t move it. The NOMAD helps increase patient flow and efficiency.

You can buy one unit for the office as opposed to having to buy a unit for every operatory.

Because I treat special-needs patients, taking images with the NOMAD is easy and a non-issue. With “tell, show, do,” I can easily demonstrate the process. I let them hit the button to simulate the experience, so they see and feel exactly what it is.

The NOMAD makes our job easier day by day, patient by patient. I even purchased a panoramic cephalometric machine to take extraoral bitewings for patients who can’t tolerate traditional X-rays. I haven’t had to use it because of the NOMAD. It’s also really great for sensitive patients who have trouble with gagging.

The image quality we get is fantastic. In fact, when I send the images to other offices they often comment on how clear the images are.

My patients all rave about the NOMAD. They love that I can take the X-rays so quickly and easily and the radiation dosage is at a safe level.

What hygienist Lori Morris says about the NOMAD Pro 2
Before the NOMAD, we had to run out of the room to take the X-ray, which meant we didn’t know what was happening in the room. Now I can see if the patient is moving the sensor or decides to open his or her mouth during the X-ray. We don’t get blurry images anymore because I can stay chairside.

I explain the radiation dose is at a safe level, and parents love hearing that. I’ve found even the most hesitant parents are more amenable to it. Once they see that I’m in the room with their child without a lead apron, it puts them more at ease.

What dental assistant Ginny Erianne says about the NOMAD Pro 2
We rarely need to do retakes anymore, and I can use the larger sensor with younger children early on. We’re able to be more efficient because taking X-rays is now a non-issue with patients. Parents don’t have to go through explaining what we’re doing and then coaxing the child to let us do it.

We actually treat children who have fears of taking X-rays because of experiences they’ve had at other practices. When we do X-rays here, they leave with a smile on their face. It’s a much better experience and they’re not scared anymore.

Nomad Pro 2
The NOMAD Pro 2 is engineered for compatibility. It is a portable, handheld X-ray system that enables dentists and team members to remain chairside with patients as they take X-rays. It works with film, digital and phosphor plate imaging systems.

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I’ve said this before, but I think it bears repeating: The failure rate of hard drives is always 100 percent. That’s right; no matter how much you spend or how much you baby them, hard drives fail… always. Looming over your digital future like death and taxes, your hard drives are slowly marching toward their deaths. Like technological doomsday clocks, you can almost hear the “tick… tick… tick.” Because of that fact and because I am a diehard geek, early into my digital journey I devised a backup plan that would keep me from ever experiencing a “total data blackout.” I used the tools available to me at the time to create a sophisticated backup plan from scratch. When you cannot afford to lose something, it’s amazing the lengths you will go through to keep it safe.

Is it a chain… or is it a leash?
As I wrote here in my January column, you should look at backups as a chain and the chain, in my opinion, should have as many links as possible. Of course, being an outlier, I have more backups than most of you. However, that is also because I am totally dependent on being digital. In that regard, backups of all my systems are the lifeblood of my practice in case of disaster. Yet, as time progresses and all practices become more and more digital, the need for reliable, cost-effective and easy backups will become less and less of a “nice benefit” and more and more of a strategic need to ensure critical practice systems are fully protected.

Because of these critical backup needs, many offices are now paying closer attention to backups and backup protocols than ever before. One of the great benefits of living in the time that we are is the simple fact that technology has evolved along with our ability to use it. When I built my first office network, I had no choice but to do it myself. Because of that, I still have vivid memories of crawling through the dropped ceiling of the office with a network cable clenched between my teeth as I attempted to connect my front desk with my personal office. Now whenever I need something like that done, I simply call my IT team at Goetze Dental and tell them what I need. In no time, they have things configured and running exactly the way they need to.

It’s the same now with backups. Rather than being forced to study the process and create your own protocol, you can now work with IT specialists whose sole focus is health care. They can create the backup system you need and make it as easy as possible for you to maintain. That’s a tremendous advantage to the days of “technology past.”

Not a perfect system
Yet even modern backups have the occasional inherent risk. The biggest one that I can see is HIPAA...
Not a perfect system
Yet even modern backups have the occasional inherent risk. The biggest one that I can see is HIPAA compliance when backups are taken off site. If one does any kind of Internet search, it’s easy to find several stories of health care facilities and offices whose employees lost patient data that was taken home. These losses of computers and/or backups resulted in incredibly large fines and other punishments meted out by the federal government.

The safest way to avoid these types of data losses? Never let your backups up your facility. At one time in the not too distant past I would have scoffed at the previous sentence. However, we now have options for just that solution and the latest one is Aspida Recovery.

The future is here… now
The Aspida company was launched in 2013 and was quick to establish itself as a leader in the health care industry dealing with issues of HIPAA. Their focus is on HIPAA-compliant security systems, including compliant encrypted email. As they worked with more and more offices they saw a glaring need for a backup system that met all compliance requirements while also removing the burden of running, verifying and securing the backups.

Their solution offers beauty in its simplicity. The product is called Aspida Recovery and in addition to “just backing up” it also performs several other background tasks. This means that the Aspida Recovery device will provide you peace of mind for your data recovery as well as functioning as a 24/7 IT monitoring specialist.

The device is a small computer that is connected to your office network. Once connected to the network and booted, Aspida will install a small program on your server. This will allow the Aspida Recovery computer to connect and “talk” to the office server. Once this simple task is completed, the magic begins. The appliance will begin backing up your server onto its hard drives. As this is taking place and creating a local copy (on the AR appliance in the office) the device is also in contact with a cloud storage server where it is also storing all your data off site.

This off-site storage resides in a SSAE 16 Audited Data Center featuring amazing state-of-the-art technology as well as incredible physical security. All the data center’s critical components (cooling systems, UPS and generators) are redundant and audited every year by an independent authority. What does this mean to you in the dental office? This data center is a fortress both physically and IT-wise. Major corporations are backing their data up in the same facility. In a nutshell, your data is as safe as humanly possible. I’ve personally toured this data center. They photographed me and did a background check before I could even get out of the lobby. I left knowing my data was secure.

If you ever experience a server crash, fire or other disaster, you can be back up and running your office within minutes. You can use either the on-site AR appliance or, if it is destroyed, the cloud-based backup. Downtime is minimal and since the appliance is continually monitoring your data, the backups are current and verified. You know they are up to date and you know they will run. That’s a degree of confidence that even I can live with.

The system has a secure online dashboard that allows users to monitor the health of both their server and their backups. The dashboard generates alerts and detailed reports along with a transparent real-time status of the complete solution.

Concerned about ransomware?
If you aren’t, you should be. This dangerous encryption scam is striking healthcare facilities at an alarming rate and many security experts are expecting it to only get worse. While reading the “McAfee Labs Threats Report” for September 2016, I noted this statement: “In 2016, ransomware authors have increasingly targeted the health care industry…” There have also been reports of several dental offices dealing with this disaster.

To combat this threat, the AR appliance monitors your system in real time, constantly on the alert for ransomware. If you should become infected, AR will know the exact time of the infection. It can then restore a backup immediately prior to that point in time. This nullifies the threat and keeps your office running.

Under normal circumstances an office won’t know the exact time of infection and will need to have their IT team figure this out. Because AR is always monitoring your system, this is not a concern making the restoration easier and more predictable.

HIPAA compliance
Since Aspida was founded with HIPAA security in mind, they understand the legal requirements and processes better than their clients do. They will supply BAA (Business Associates Agreements) along with documenting HIPAA handbook policies that are inherent in the backup and recovery processes.

Benefits without user intervention
The whole process and philosophy of backups can be fraught with risks. Over the years, I’ve heard multiple horror stories of every conceivable thing that could go wrong. Things like backing up an empty folder (meaning no backup at all) to backup drive failures, stolen backups and even “the employee in charge of backups just quit doing it and never told anyone.”

Those are just a few of the reasons that I’ve always made the job of performing and verifying the backups my job and mine alone. Yet I realize that there are many of my peers who either don’t have the time or the technical savvy to do that.

That’s why I’m a big fan of backup appliances like Aspida Recovery. Backup and monitoring now require no effort by doctor or staff other than paying the electric company. Aspida Recovery has been in development and testing for a while now and will be available sometime between now and August. When it comes to ensuring your data protection and keeping your office up and running in the event of a data disaster, it should be on a very short list for you to investigate.

ABOUT THE AUTHOR
John Flucke, DDS, is the Technology Editor for Dental Products Report and dentistry’s “Technology Evangelist.” He practices in Lee’s Summit, Missouri, and has followed his passions for both dentistry and technology to become a respected speaker and clinical tester of the latest in dental technology, with a focus on things that provide better care and better experiences for patients. He blogs about technology and life at blog.denticle.com.
How to ensure your email is HIPAA compliant

In part two of a two-part series, Dr. Lou Shuman and Robert McDermott discuss if email can satisfy HIPAA requirements—and what you should be doing to ensure your records are secure.

[ curated by Dr. Lou Shuman with Robert McDermott, president and CEO of iCoreConnect ]

Each month, Dr. Lou Shuman consults with a dental technology specialist to discuss the latest developments in digital encryption, data security, social media trends, SEO strategies, website optimization, online reputation management, marketing and more.

This month, in part two of a two-part series, Dr. Shuman continues his conversation with Robert McDermott, president and CEO of iCoreConnect, on the topic of HIPAA compliance and electronic protected health information (ePHI). This column provides greater depth on the required safeguards for HIPAA-compliant management of ePHI, as well as the relative security of cloud-based systems for the dental office.

Would you review all five required technical safeguards for HIPAA-compliant management of ePHI?

Last month, we talked about the transmission security safeguard, which involves encryption. The current HIPAA encryption requirement is 256-bit. The best technology out there right now is 2048-bit encryption.

A second technical safeguard is integrity. You must have a secure backup that keeps the original version of the document unaltered for at least six years.

Access control is a third technical safeguard that comes down to making sure only those with legitimate need and permission can access patient data. Automatic logoff after a certain period of inactivity satisfies access control.

Authentication is a fourth technical safeguard that means the sender must know that the email recipient is who they claim to be. You also must be able to verify that the recipient is the only person who received the communication. That’s why something like Gmail or Yahoo is not a good venue to send protected health information. I can easily create an email account called DrBob@gmail.com, and you have no way of authenticating that I am actually Dr. Bob.

Audit control is the final technical safeguard. Proper ePHI audit control means you’re able to provide audit journals from doctor to doctor and from doctor to patient. Basically, your system must “follow that email around” and be able to provide a detailed audit of where it came from, who it went to and who opened it.

Let’s shift lanes for just a second and talk about cloud computing. Many dental office systems are migrating to the Cloud, including practice management systems. Is the Cloud secure? Should people be worried that they’re going to lose all that confidential patient data in the Cloud?

A common misconception about the Cloud is that practice data is just floating around out there on the internet. It’s just the opposite.
Cloudbased simply means removing the computer server, which holds all of your patient data, from your office and storing it in a highly secure data center.

In most practices, the server is either in the doctor’s office or underneath the receptionist’s desk. I always ask, “Do you think your server is more secure underneath your desk or safer in an armed, guarded, 24-hour surveillance data center?” It’s almost impossible to break into one of these data centers, whereas someone can easily break into your practice and steal the server.

Remember, your local server has a hard drive, which means every piece of private information is, literally, in that box at your office. Once a thief has your server, they can get everything on your hard drive, especially if it’s not encrypted. I recently saw a report that 98 percent of the servers in medical and dental offices are not encrypted.

When something is cloud-based, the information does not live in your office, so when you log off of your computer or laptop, the information is stored on the remote servers at another location. This protects you and your patients.

Step out of being an ePHI/HIPAA-compliance expert and into the shoes of the average dentist or practice manager. As you are investigating email systems that will keep you HIPAA compliant, what things should you be looking for? What would you be asking?

The easiest place to start is the five simple technical safeguards. I would ask what level of encryption the solution employs; while 256-bit is the requirement, a higher encryption rating is exponentially harder to hack. Ask if the proposed solution uses MicroTokenization. This operates much like the chip on your credit card. Every single transaction is isolated with its own unique username and password. Even if there was a successful hack, it would be contained to exactly one transaction, or in this case, one email.

Next, ask if the solution uses the DIRECT protocol, the federal government’s method for authentication. Seeing as how these are the folks handing out the fines, it makes good sense to adopt their protocol. DIRECT verifies the people on the other end are who they say they are.

Finally, beyond all the technical requirements I would insist on a solution that doesn’t change your workflow very much and is very easy to use. As a businessman, I want anything I implement in my practice to be a benefit, not a burden. I want to increase productivity, efficiency, customer retention and satisfaction. And that means ease-of-use for the dental team and patients. Ask a potential provider to clearly demonstrate these benefits.

ABOUT ROBERT MCDERMOTT
Robert McDermott is a recognized expert in HIPAA-compliant communications and online data security. He is a frequent speaker at national and regional dental conferences. Mr. McDermott is also president and CEO of iCoreConnect, provider of the iCoreExchange HIPAA-compliant email solution, and iCoreDental a customizable cloud-based secure EHR system. Prior to iCoreConnect Mr. McDermott started, managed and operated six technology-oriented companies, three of which were ultimately acquired by major corporations.

ABOUT DR. LOU SHUMAN
Dr. Lou Shuman is a long-time contributor to Dental Products Report, and president and CEO of Cellerant Consultant Group. He is also the chairman of the Technology Advisory Board at WEO Media, a Venture-in-Residence at Harvard’s Innovation Lab, and founded a dental-education internet company.
As I help DSOs and dental groups evaluate and acquire new software systems, there is one thing that has become evidently clear: The world of software for groups and DSOs is rapidly changing to accommodate the unique needs of this growing market.

Dental software with feature sets and functionality for DSOs and multi-location groups is more commonly known as “Enterprise” software. A growing number of vendors are trying to take advantage of this exploding market and to have “true” Enterprise capabilities, but at this point few do. One of the true Enterprise software vendors, Planet DDS, which also happens to be one of the oldest, has over the years rolled out several initiatives that are helping its DSO and group practice clients reach a level of operational and financial efficiency.

As with most software, there are numerous feature sets that I could discuss. However, in this piece I want to focus on four major areas that, when you look at all these features together, help make Planet DDS Denticon software unique when it comes to the Enterprise world: centralized databases, cloud-based technology, Meaningful Use capabilities and revenue cycle management services.

Centralized databases
So how does a DSO or group with 10, 50, 100+ locations make sure that all the data input and retrieval from all these locations used to manage daily operations and support financial analyses is done in a timely manner, with the most flexible reporting and analysis capability and with the most efficient technology? Well, it makes logical sense to have all the data in one place, more commonly known as a centralized database. The problem with some software that claims to manage multi-locations is that each location has its own database, captures its own data and then through some mechanism sends that data to a common location. Or sometimes the data is not even aggregated from the different databases and what you see is what you get: A bunch of databases and information spread out over the locations. I have a few DSO and group clients that are in this situation and cannot aggregate patient records, cannot get the kinds of operational and financial rollup reports and analytics they would like, and cannot easily manage schedules across all locations. In addition, managing all these databases with many locations can be a technical nightmare. The answer is to have a common, centralized database of information where information from every location can be accessed and managed across the enterprise. Planet DDS has had centralized database architecture from the beginning.

Cloud-based technology
Assuming you do have many locations, but do not necessarily have full-time dedicated IT resources to help manage the system, how do you manage all of it? Well, then you're talking about the promises of cloud technology. You don’t need to manage your own servers, make backups, resolve system issues or figure out how to keep your system constantly humming along efficiently. Also, a growing number of third-party applications, such as imaging, secure messaging, analytics, etc., are in the Cloud. So, having a cloud-based software system just makes interfacing and using these applications that much easier. Planet DDS was the first dental software company to offer cloud-based software technology.

Technology subsidy capabilities and support
If you are familiar with my articles, webinars or podcasts, then you know that I have been engaged with helping DSOs and groups obtain federal and state subsidies to the tune of $63,750 per dentist. This federal money can be a windfall for many DSOs and groups. Case in point,
one of my clients had 40 eligible dentists, which translates to $2.5 million in potential subsidies. One of the requirements, in order to be eligible to obtain the subsidies, is that a DSO or group must use “certified” software. The subsidies are spread out over six years. In the first year you must show a purchase of certified software, and in years two through six you need to report on various metrics captured within your software workflow. And here is the problem with some of the Enterprise software out there. Some Enterprise software vendors allow you to get the first year money by purchasing an extra “certified” component. And this works OK to get your first year subsidy. But not having certain “Meaningful Use” metrics built into your software’s workflow along with the reporting that the government requires can make the process of obtaining year two to six subsidies very difficult, if not impossible.

Planet DDS was one of the first Enterprise software vendors to have Meaningful Use built into the software workflow, which allows DSOs and groups to more easily get the subsidies that they are eligible for. I have personally used their reporting “dashboards” to help clients get their year two subsidies.

Revenue cycle management services
Software-based revenue cycle management services offer the ability for a software vendor’s expert billing staff to access a client’s database for purposes of revenue cycle management and collections. A key feature here is that the software allows you to set up various insurance exclusion rules, which allow you to customize revenue cycle management process. Several software vendors in the medical world have offered this service along with their software for a while now, and it has definitely helped cash flow for their software clients. Using cloud-based technology definitely offers an advantage in this area.

The bottom line though is that in general, the dental software industry has not offered this option to the extent the medical world has. Planet DDS was the first to offer revenue cycle management services using its software platform and company trained billing staff to help its clients improve their cash flow.

Planet DDS Denticon, an all-purpose Enterprise solution
The more options you have with your software, the better. There are some Enterprise software vendors out there that offer centralized databases.

“But not having certain “Meaningful Use” metric built into your software’s workflow ... can make the process of obtaining year two to six subsidies very difficult, if not impossible.”

There are cloud-based vendors. There are even a small number of Enterprise vendors that have Meaningful Use built into the workflow, allowing you to obtain years two through six federal subsidies. But, Planet DDS Denticon Enterprise software has all these options rolled up into one with a bonus of robust revenue cycle management services if you choose.

ABOUT THE AUTHOR
Mike Uretz is a nationally-recognized dental software, IT, and Electronic Health Records (EHR) expert. He is the founder of DentalSoftwareAdvisor.com and DentalSoftwareCompare.com as well as the Dental Software Editor for Dental Products Report. As a leading industry consultant and educator Uretz has helped dental groups, DSOs, and individual practices evaluate and select software vendors and solutions, structure and negotiate vendor contracts, and provide vendor management. He also has assisted organizations with obtaining state subsidy payments through the EHR Incentive Program. Mike can be reached at mikeu@dentalsoftwareadvisor.com or 425-434-7102.
Get out of jail free with encryption

Having to declare a data breach can be devastating for a practice—so it’s critical to take the appropriate preventative measures in advance. [by Dr. Lorne Lavine]

In our previous articles, we talked about Dr. L and her experience with hacking and identity theft. There’s no doubt that her experience was horrible... but it could have been much worse! Because, in my mind, there is nothing more devastating to a practice than having to declare a data breach.

Data breaches have become common; there are reports in the news almost weekly about breaches in large corporations such as Target and Neiman Marcus. While these breaches can be upsetting to consumers, they don’t fall into the HIPAA rules as they don’t involve protected health information. A breach at a dental practice, unfortunately, would definitely be a HIPAA violation and require a set of steps that must be taken.

Breaches can take many different forms. One of the most famous was a dentist in California whose server was stolen; this is an obvious breach of data. Other breaches would include someone hacking into the network, a former employee copying patient records before leaving the practice, emailing patient records to the wrong patient, etc.

So, what are the steps that must be taken in the event of a data breach? There are currently three things you must do by law:

1. You must notify the local media, such as local newspapers and TV stations.
2. You must have your practice listed on the Health and Human Services website. This site is affectionately called the Wall of Shame. There are currently around 1,700 practices listed on this site.
3. Worst of all, you must notify all patients in writing, and not only inform them of the breach, but inform them which data was breached. This often includes Social Security numbers and credit card info. To me, this is the most devastating part of the law; our clients who have reported a breach have claimed a loss of 15-30 percent of their patients on average. It’s also considered proper protocol to offer credit monitoring for all affected patients to ensure no identity theft.

The thing I find most frustrating about the Breach Notification is that most dentists are unaware that they have a “get out of jail free card” when it comes to this rule, which we discussed in last month’s article. That card is encryption. If you have encrypted the data at rest, and encrypted your data in motion, then you are exempt from the rule. The most common breach is loss or theft of a mobile device, such as a laptop or backup external hard drive, and encrypting these devices is relatively easy. There are free programs like Bitlocker and VeraCrypt that can encrypt data. You’ll want to work with an IT professional to set it up properly, but you just need to pay for the labor. Compared to the fines you face (up to $50k for the lowest level and $1.5 million for the highest level), encrypting your data makes sense for every dental practice.

While the Breach Notification rule can be devastating for a dental practice, properly planning to protect your critical data can ensure that you never have to go through this process. This is one of those situations where an ounce of prevention is definitely worth more than a pound of the cure.

ABOUT THE AUTHOR
Dr. Lorne Lavine, founder and president of The Digital Dentist, has more than 30 years in the dental and dental technology fields. A graduate of USC, he earned his DMD from Boston University and completed his residency at the Eastman Dental Center in Rochester, New York. He received his specialty training at the University of Washington. He went into private practice in Vermont until moving to California in 2002 to establish TDD, a company that focuses on the specialized technological needs of the dental community. Dr. Lavine has vast experience with dental technology systems. He is a CompTia Certified A+ Computer Repair Technician and CompTia Network+ certified.

As a consultant and integrator, he has extensive hands-on experience with most practice management software, image management software, digital and intraoral cameras, computers, networks and digital radiography systems. He also writes for many well-known industry publications and lectures across the country.

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TIPS & TRICKS

Integrating Planmeca Evolution™ connected dental consoles into your practice

The new line of dental consoles is designed to embrace digital integration.

[ compiled by Kristen Mott ]

Information provided by Planmeca

Planmeca recently introduced its new line of connected dental consoles, designed to help clinicians work more efficiently in the footprint of their existing offices. The new line of Evolution consoles includes the Evolution 12 O’Clock Console, Evolution Central Island Console and Evolution Side Console.

INTEGRATED TECHNOLOGY: Each console is said to feature quick and easy integration of technology, including Ethernet and 3.0 USB connections, PlanScan® integration, CPU storage, LED lighting and medical-grade duplex GFCI outlets. These digital and up-to-the-minute enhancements are engineered to aid the clinician’s workflow and information processing.

INNOVATIVE DESIGN: The Evolution line of consoles was reportedly designed with flexibility, expandability and antiseptic measures in mind. With clinician-requested features such as durable Corian® work surfaces, powder-coated steel bases, writing shelf, pass-thru X-ray apron, X-ray safety door lock and soft close draws and doors, the consoles are said to meet the needs of contemporary operatory environments.

ACCOMMODATING STORAGE: The Planmeca Evolution consoles are designed to accommodate present connected needs, but are also expandable with an eye toward adapting future technology. The consoles are reportedly the cutting-edge of modular storage, introducing digital connectivity to the operatory space.

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Sleep dentistry is big business—and it might be saving patients’ lives. Here’s what’s going on in this huge growth area.

(by Lauren Krzyzostaniak)
SLEEP DISORDERS ARE ON THE RISE—SOME EXPERTS EVEN CALL IT AN “EPIDEMIC” IN THE UNITED STATES. AND WHILE CPAP MACHINES ARE STILL THE MOST COMMONLY PRESCRIBED SOLUTIONS, ORAL APPLIANCES ARE GAINING STEAM AS TREATMENT OPTIONS. SO HOW IS DENTISTRY ADAPTING TO THIS REVENUE STREAM—AND HOW IS DENTISTRY SAVING LIVES?

Today, CPAP masks are far more common, but due to increased awareness of oral appliances as an alternative and the lack of patient compliance with CPAP masks, that will likely change.

Research analyst Tara Shelton states that in 2020, the U.S. market will be double what it was in 2012.3 “Due to the large difference in market size and maturity, there is also less evidence supporting OAs as a first-line treatment when compared to PAP,” Shelton writes. “Only a select population will tolerate and consistently use PAP, and with increasing evidence, OAs could be positioned to consumers, clinicians and payers as a primary method of treatment for sleep apnea.”

To demonstrate, 93 percent of OSA patients were prescribed a CPAP in 2015, while only 7 percent were given an oral appliance, either to use alone or in combination with a CPAP. In 2020, it is predicted that 80 percent of patients will be prescribed a CPAP alone and 20 percent will be given an oral appliance.

The reason oral appliances aren’t as popular yet is because they are not as predictable as CPAPs, says Dr. Steve Carstensen, DDS, co-founder of Premier Sleep Associates and founding editor of Dental Sleep Practice magazine, a publication dedicated to helping dentists learn how to understand and treat sleep apnea. Dr. Carstensen explains that physicians rely on CPAPs because it is proven to manage the problem and patients can start therapy immediately. The issue is compliance: Less than half of those prescribed to use a CPAP use it consistently.

This is where the MAD comes in: to fill the gap in patient compliance with a more comfortable option for patients with mild-to-moderate OSA.

“Research is supporting MAD as almost an equivalent to CPAP in many patients, but it’s not as easy for the physicians to count on it because it doesn’t work on everyone,” Dr. Carstensen says.
While dentists can screen for it in their practices and offer alternative treatment to CPAP machines, they cannot diagnose patients—that’s up to the physician. Therefore, dentists must work with local physicians, which is another issue, says Dr. Carstensen.

“Many physicians don’t have a dentist they can rely on, and the device depends on the skills of the dentist,” he notes. “The [MAD] is custom, whereas with CPAPs, the physician knows that the patient just has to go pick up a machine. It’s more predictable and the physician is more comfortable.”

It’s also more work for the physician, who may end up prescribing a CPAP when MAD therapy fails. Therefore, many physicians prescribe a CPAP as the first-line treatment.

“The more severe the diagnosis of apnea, the more likely any physician will say to try the CPAP first,” Dr. Carstensen says. “The guidelines for mild cases state that the patient or physician can use an oral appliance as an equivalent first step. But in my experience, I get very few primary referrals for oral appliances versus ones who come through having already tried a CPAP.”

CPAP is the ideal therapy for severe apnea patients, but the guidelines address a lack of patient compliance and now state that an oral appliance is better than nothing. For dentists, the time is right to start asking how they can position themselves as potential partners for physicians looking for alternatives to CPAP solutions.

**How dental sleep medicine can save patients—and be a serious revenue driver**

Both dentists and patients can benefit from an increased awareness of sleep-disordered breathing. When dentists are looking for its signs and symptoms, they open up more treatment avenues. When patients receive treatment, their entire lives improve.

There has been some conflict within the industry around practitioners who use dental sleep medicine to increase profits. It was that focus on profitability that kept dentists like Dr. John Flucke, DPR’s technology editor, from getting involved in the area sooner.

“I wasn’t sure if what we were doing in dentistry with sleep apnea treatment was adequate,” Dr. Flucke says. “I had a cone beam machine for a while and as I started to see more science behind it, I realized it wasn’t just something people were looking at as a profit center, which are two words people shouldn’t use in health care. It was about improving people’s lives.”

For most dentists who are providing the service, revenue is an afterthought.

“Dental sleep medicine is considered another service to add to your practice to make it more profitable, but it’s a life-and-death situation,” says Tara Griffin, DMD, of Dental Sleep Solutions in Bradenton, Florida. “We’re helping patients breathe at night and keeping their hearts healthy.

“There are people who have narrowed their practice to focus on sleep medicine and they are running driving practices,” Dr. Flucke says. “It’s definitely a profitable part of the practice as long as you learn to do it and do it correctly. It’s not just ordering the appliance. You need to get the proper training.”

“The National Institutes of Health estimate that approximately 50 to 70 million U.S. adults have sleep-related disorders,” Rodas says. “Of those, approximately 18 million suffer from sleep apnea. Given the prevalence of these disorders, dentists may tap into a large source of patients that need their assistance.”

That assistance doesn’t only come in the form of therapy for sleep-disordered breathing. Providing screenings alone is also an option. “There is no financial benefit there, but it starts a different conversation with the patient, which creates a unique experience in the office,” Dr. Carstensen says. “That gives the patient something to talk about with others, and that might build referrals.”

But being successful with dental sleep medicine takes planning.

“Dentists who do actual treatment have to be careful of the time involved,” Dr. Carstensen believes. “Medical insurance pays nicely for these appliances, so there is no reason it can’t be a good revenue source for the office if they plan it well. It’s important to set the right fees and control the time. The evidence for that revenue is that there are more and more practices that do only sleep medicine. If it wasn’t good revenue, we wouldn’t be able to do that.”

Dentists can have as many sleep apnea patients as they want. “There is no end of adults to treat,” he says.

Dr. Griffin advises that practitioners start with patient education to help reach those patients who may need to be diagnosed, as well as the patients who need to know about all of the treatment options. When patients fail to wear their CPAP mask, they should know that other options may be available. And if they suffer from sleep apnea, that may be something helpful that their dentist can tell them.

“I think that part of our responsibility as dentists is to talk to patients and figure out if it could be something that’s affecting them without them knowing it,” says Leah Capozzi, DDS, owner of Metropolitan Dental in Buffalo, New York. Dr. Capozzi says that many patients who snore have never been evaluated for sleep apnea. “I think there is room for increased diagnosis,” she says.

When patients complain about snoring or mention OSA directly, Dr. Capozzi starts the conversation about therapy options. She compares oral appliances with CPAPs and explains the risks involved to encourage compliance. She also explains that oral appliances aren’t always necessary to treat sleep apnea. She says that her patients have found them to be more comfortable and easier to use. She also notes that they are more affordable than CPAP machines.

**“Dental sleep medicine is considered another service to add to your practice to make it more profitable, but it’s a life-and-death situation. We’re helping patients breathe at night...”**

—DR. TARA GRIFFIN
more comfortable than CPAPs, but it might be the lesser of two evils. “It’s still something that they’re going to have to make an effort to get used to,” she says.

Dentists can use simple surveys to identify at-risk patients, says Dr. Carstensen. “That becomes much like taking blood pressure in the dentist’s office: We do that routinely, but we don’t treat hypertension. If we do a screening and find a problem and we know where to send the patient, that’s a very good service we can provide.”

If dentists do decide to implement dental sleep medicine in their practices, it is crucial to make sure that their treatment is not masking a bigger issue.

“Many practitioners will make a device for patients for snoring, but the problem is that there might be something more going on,” Dr. Griffin says. “Snoring can be benign, but it’s often indicative of a bigger problem.” If you make a device for a patient who snores, you could miss the fact that they actually have sleep apnea.

“I don’t want to ask patients if they snore and then respond by saying they need an airway appliance,” Dr. Flucke says. “There are a lot of diagnostic pieces that fit into the apnea diagnosis. When patients bring up snoring, I can ask questions and check things off the diagnostic checklist, do a CBCT scan, analyze the airway and get objective data. That science was my tipping point.”

There are many dentists who start the process of providing dental sleep medicine and become deterred by the obstacle of medical insurance billing. The good news is that there are third-party billing services that can help. The other option is to have patients pay up front before submitting their claims to their medical insurance themselves. Most insurance, including Medicare and Medicaid, covers oral appliance therapy for patients diagnosed with sleep apnea, says Rodas. That includes the sleep studies, dental office visits and the sleep appliance.

The future of dental sleep medicine

According to a January 2015 Frost & Sullivan report by Tara Shelton, more clinicians will soon prefer dental appliances. Shelton also notes that the industry will see an increase in CPAPs and oral appliances being used in combination, presenting the case for increased collaboration between physicians and dentists.

That collaboration should already be present. “The most important part is that, as a dentist, you shouldn’t be diagnosing sleep apnea,” Dr. Capozzi says. “You should make sure the patient has gone to a sleep doctor, has had a sleep test done, and has been diagnosed by a physician. Then you can work as a team with the sleep medicine provider to give the patient the best option for treatment.”

Companies are coming out with technology that makes it easier for dentists to be champions of patients’ total wellness. Cone beam units are a big part of diagnostics.

“The cone beam has been such an eye-opener for me,” Dr. Flucke says. “When you do an airway analysis on my machine, it literally gives you a 3D color-coded picture of the airway in red, yellow and green, so you can immediately know what you’re seeing.”

While dentists can’t diagnose sleep apnea (or refer a patient to a sleep study lab), most states allow them to provide equipment for at-home sleep studies. “That can be a way to reduce barriers to getting a diagnosis,” Dr. Carstensen says. “A dentist works with a physician to provide the testing equipment, the physician evaluates the study, and the patient gets into therapy quicker than if they waited to have a sleep study done at a lab.”

Some companies, such as Whip Mix, are making it easier for dentists to get involved in treating sleep-disordered breathing. At the end of last year, Whip Mix introduced the GEM and GEM Pro, a pulse oximeter that sends readings to the dental practice over the internet. It measures the patient’s SPO2 (the amount of oxygen in the blood) and heart rate. The GEM Pro also measures the patient’s bruxism, reads body position and records audio of their snoring.
Dr. Carstensen is also involved in breaking down barriers for dentists. He is currently the principal investigator in a clinical trial of an at-home, tablet-controlled remote jaw positioner called Matrix Plus, which has yet to be cleared by the FDA. “We’re testing a patient to see if there is a jaw position that opens the airway to an ideal position,” he says. “I believe it will be a game changer for the treatment of sleep apnea because we’ll be able to identify if a patient is a good candidate for an oral appliance or not. That will help physicians have confidence that their patient is going to be treated with the best possible care.”

Dr. Carstensen hopes to see Matrix Plus on the market this year. He asserts that the future of dental sleep medicine will be “screening by many and treatment by few.”

Many dentists on the frontline of dental sleep medicine believe that every dental office should screen for the issue because dentists are so ideally placed to spot early signs and intervene before OSA’s comorbidities erupt.

“The gold standard for treatment ... for obstructive sleep apnea is to artificially pry open the airway at night with air, plastic or scalpel,” writes Barry Raphael, DMD.4 “But if you look at the progression leading up to obstruction, there are many, many opportunities to intervene, to change the trajectory of the disease and to increase the quality of life.”

Helping kids grow up healthier
The future of dental sleep medicine is brightest in the area of children’s health.

“We’re learning that we can have an influence on kids from almost infancy through the ages of 10 or 11,” Dr. Carstensen says. “Think about a child who turns 13. Their teeth are crooked so they go to the orthodontist. If we can see that child when they’re 4 or 5 and recognize that their jaw structure isn’t growing big enough, we can influence that jaw to grow bigger. A side benefit is that the teeth will have room to grow straight, but the major benefit is that the jaw will be big enough to support a bigger airway so they can breathe well.”

Poor breathing, especially in sleep, inhibits children’s brain development and could be connected to low daytime energy and ADHD.

“Only dentists can influence jaw growth with orthodontic appliances that we have available today,” he says. “That’s the most important contribution to population health that dentistry’s ever had: to help these children grow up with an open airway, breathing well 24 hours a day.”

Orthodontists don’t even have to invest in extra technologies or materials to positively impact children’s airways, he says. “We develop good tongue habits, the right shape for the jaws, and use Habit-Correctors to put nature on course,” Dr. Carstensen says. “It’s not fancy, it’s just making sure growth is directed in the right ways.”

Other dentists are looking to identify at-risk children before they are even born.

“It’s pretty well understood that any airway issue in adults, adolescents or even older children that is related to the morphology of the face and jaw is usually detectable in the primary dentition, and maybe even before a child is born,” says Kevin Boyd, DDS, a pediatric dentist recognized as a leading clinician in the Chicago area for diagnosing and treating interferences to normal growth of the teeth, jaws and face.

Dr. Boyd is currently working with multiple institutions that have dental schools in obstetric hospitals to conduct a retrospective study.

“The proposal is to get children who are recognized as having jaws that are too small or too retrognathic and comparing the ultrasound from the hospital to see if there is a correlation in utero,” Dr. Boyd says.

Retrognatia in early childhood is a known risk factor for sleep-disordered breathing, and if doctors can identify the malocclusion in utero, the unborn child has a better prognosis.

“A kid with a mid-gestation retrognathic mandible will be born with it,” he says. “They don’t self-correct. We haven’t proven this, but that’s what the study is going to be about. We could potentially show in a retrospective trial how predictive the mid-gestational ultrasound was for children being worked up for pediatric work.”

By identifying the issue in utero, Dr. Boyd hopes to encourage doctors to intervene earlier than what they had previously been taught is the ideal first age to intervene. He likens identifying and attending to the issues earlier to investing for retirement as soon as you get your first job.

“The popular knowledge base is that if you invest early and let it grow, your retirement is set up, but if you wait too long, you have to invest too much money and you never get there,” Dr. Carstensen says. “If we invest in a child in single-digit ages, they have a lifetime of breathing well and being healthy. If we wait, then they suffer from heart diseases and diabetes and other chronic diseases that are associated with bad breathing at night time. We can’t just watch kids breathe through their mouths and listen to them sleep and not recognize that that’s not going to be a huge issue later on.”

Despite the fact that the American Academy of Pediatrics advises doctors to ask parents about their children’s snoring, Dr. Boyd says it’s not being done.

“The American Academy of Pediatric Dentistry came out years ago with the recommendation that every child should establish a dental home by age 1, but the American Association of Orthodontics says that

“That’s the most important contribution to population health that dentistry’s ever had: to help these children grow up with an open airway, breathing well 24 hours a day.”

—DR. STEVE CARSTENSEN

The future of dental sleep medicine will be “screening by many and treatment by few.”

Many dentists on the frontline of dental sleep medicine believe that every dental office should screen for the issue because dentists are so ideally placed to spot early signs and intervene before OSA’s comorbidities erupt.

“The gold standard for treatment ... for obstructive sleep apnea is to artificially pry open the airway at night with air, plastic or scalpel,” writes Barry Raphael, DMD.4 “But if you look at the progression leading up to obstruction, there are many, many opportunities to intervene, to change the trajectory of the disease and to increase the quality of life.”

Helping kids grow up healthier
The future of dental sleep medicine is brightest in the area of children’s health.

“We’re learning that we can have an influence on kids from almost infancy through the ages of 10 or 11,” Dr. Carstensen says. “Think about a child who turns 13. Their teeth are crooked so they go to the orthodontist. If we can see that child when they’re 4 or 5 and recognize that their jaw structure isn’t growing big enough, we can influence that jaw to grow bigger. A side benefit is that the teeth will have room to grow straight, but the major benefit is that the jaw will be big enough to support a bigger airway so they can breathe well.”

Poor breathing, especially in sleep, inhibits children’s brain development and could be connected to low daytime energy and ADHD.

“Only dentists can influence jaw growth with orthodontic appliances that we have available today,” he says. “That’s the most important contribution to population health that dentistry’s ever had: to help these children grow up with an open airway, breathing well 24 hours a day.”

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“The American Academy of Pediatric Dentistry came out years ago with the recommendation that every child should establish a dental home by age 1, but the American Association of Orthodontics says that
children should be seen at age 7,” Dr. Boyd says. “I'm thinking the orthodontists should go along with [the AAPD's recommendation]. Certainly before the age of 7 should every child be seen and evaluated for possible craniomandibular morphology that might be restrictive.”

Dr. Boyd says it is important to include general dentists in the conversation as well since they provide pediatric dental care and orthodontic services to both adults and children. But the elephant in the room, he says, is that general dentists and orthodontists are not used to providing care to children.

“Children with less than six permanent teeth are being ignored, but that’s where we could nip the problems in the bud,” he says. “I understand that orthodontists don’t go into the specialty because they want to deal with anxious children. The idea is that orthodontics can wait until the children are older and more equipped to deal with a clinical setting, but it should be the responsibility of the orthodontist to make it a more comfortable experience for younger children so we can start treating these issues earlier.”

However, Dr. Boyd says dentists can still play a positive role in pediatric dental sleep apnea without treating children directly.

“I like to tell general dentists that see adults that, while they’re not treating kids, they’re treating the parents, aunts and uncles, and grandparents of kids that might benefit from this if their adult patient has a history of TMJ and airway problems,” Dr. Boyd says.

Conducting more screenings and identifying sleep apnea in atypical candidates lays the foundation for identifying sleep apnea in children. “Many people think that sleep apnea patients are overweight or they have big necks, but many patients have it that you’d never expect to have it,” says Dr. Griffin. “Patients who grind their teeth tend to have apnea. Also, high blood pressure, heart problems, reflux, depression, anxiety and fibromyalgia tend to be associated with sleep apnea.”

Dentists should use sleep screening questionnaires to help identify patient issues. Even patients who know about OSA may not recognize that they display common symptoms.

How to get started

If a dentist wants to invest more in dental sleep medicine, it should be approached the same way a dentist would approach any other new treatment area, says Dr. Griffin.

“Look for a mentor, someone who has systems in their office that allow them to do it successfully,” she says. “Notice what they’re doing.”

Dr. Griffin took the step from being a general dentist to being a dental sleep specialist nearly a decade ago. Today, her practice is focused on dental sleep medicine and TMJ dysfunction.

“I started by screening patients in my general practice, and now I only do dental sleep medicine,” she says. “My practice is mostly referral-based from cardiologists and primary care physicians for patients who don’t tolerate the CPAP.”

The field isn’t glamorous, but it reaps huge rewards for dentists and patients alike.

“We get rewards when people have been treated well, whether it’s with CPAP or oral surgery, they come back to the person who helped identify the problem and express gratitude,” Dr. Carstensen says. “What an amazing reward for a patient to feel that much better because of what we did. We don’t get that a lot. We as dentists do beautiful work and focus on disease management, but people don’t love that. They love breathing better, sleeping better, working more productively and having a happier life.”

REFERENCES

1. www.cdc.gov/features/dssleep/

Dr Michael Miyasaki DDS

FIRSTFIT is a game changer in conservative restorative dentistry. In the past patients have been given highly invasive crown abutment bridges or costly implants to replace missing teeth.

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Cyrus Tahmasebi D.D.S., F.A.C.D

Inventor

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HOW TO

GAIN AN INSIDE VIEW OF CARIES USING DETECTION TECHNOLOGY

A look at how the DEXIS™ CariVu™ works to detect caries without emitting ionizing radiation. [ by William J. McKibben, DDS ]

TECHNOLOGY CONTINUES TO improve the way clinicians diagnose dental conditions and educate patients. The DEXIS™ CariVu™ caries detection device uses near-infrared transillumination technology in a highly visual way. The images produced appear very similar to X-rays except with an added benefit—CariVu does not emit any ionizing radiation. In the resulting images, enamel appears transparent and carious lesions as dark areas. This technology can help identify occlusal, interproximal and recurrent carious lesions and cracks.

Although it does not completely take the place of radiography in the dental practice, caries detection technology is an effective way to add an additional level of diagnostics to the comprehensive imaging process.

CariVu helps to detect decay at an earlier stage before it becomes really serious. This is especially helpful to illustrate for patients my suspicion of early caries. The images are easy for patients to understand because they can actually see the carious dark spot I point out, even in cases when it is still too small to be seen on an X-ray.

The handpiece tip has two soft flanges with NIR lights and a camera for capturing images (Fig. 1). Simply place the tip over the occlusal surface so that the flanges hug the buccal and lingual/palatal aspects of the teeth (Fig. 2) to view live video of teeth (Fig. 3). I can capture an image in one second with a squeeze on the wand. I can also capture short video clips using a “rocking” technique that actually creates a 5-second video of the tooth seen at varying directions instead of just a static image.

This technique gives even more information on the exact location, size and shape of the carious lesion. While it may be obvious to me that there is a caries issue in a certain spot, patients really appreciate these visuals when faced with treatment.

A recent example shows how a CariVu image can provide peace of mind to even the most doubting people. A patient arrived at my office with the problem of sensitivity on chewing. He told me that he did not think that the tooth was cracked. As a science education teacher at a local college, he felt confident in his self-diagnosis, and narrowed his problem down to one of two teeth. CariVu images showed him that in actuality, both teeth had cracks. The first CariVu image shows a crack on the mesial of tooth #3 (Fig. 4), and the second image shows cracks on the distal of tooth #3 and on the mesial of tooth #2 (Fig. 5). Of note is the dark area around the crack on #2 that represents the spreading caries that originate from the fracture. When faced with the evidence on the CariVu images, this skeptical science person now understood where his sensitivity was originating from, and he was eager to make the appointment for the appropriate repairs to those teeth.

I use CariVu most often to check for interproximal decay that is minimally visible on an X-ray or sometimes not even visible at all. It can help to identify the shape and size of decay in all of its various forms:

- No involvement, sound tooth structure (Fig. 6)
- At the first detectable signs of an enamel caries lesion (Fig. 7)
- An established caries lesion (Fig. 8)
- An established caries lesion that has reached the DEJ at a single point (Fig. 9)
- Dentin caries due to an established enamel caries lesion with extended involvement of the DEJ (Fig. 10)
- Established dentin caries (Fig. 11) Identifying decay, especially the interproximal type, can be challenging. It is not enough just to be aware of a cavity between teeth; with a CariVu image, I can see if the cavity is more toward the buccal or lingual. This helps me to plan my approach to restorative treatment. For an even more distinctive image, I turn on the Spotlight tool in DEXIS™ Imaging Suite software, which enhances the contrast between affected and unaffected tooth structure even more (Fig. 12). With the CariVu image as my guide, I can be minimally invasive thereby removing the least amount of tooth structure possible.

An example of this is the case involving tooth #13, which has two lesions on the mesial. As the CariVu images show, the deeper, more invasive one is toward the buccal and is an established enamel caries lesion that reached the DEJ at a
single point. The second one is more to the lingual and is an established enamel caries lesion (Fig. 13). The bitewing X-ray shows a lesion that is apparently of iatrogenic origin (Fig. 14). It did not appear to be near the DEJ. I had not treated this area and continued to observe it since the patient came to me in 2012. With CariVu, I was able to more clearly see the depth of the lesions and decided to restore it. Interestingly, the photo of the open-tooth molar shows that the lesion on the mesial is deepest at the lingual portion of the box (Fig. 15).

When using the “occlusal view,” I can actually see the transition from enamel to dentin and where the caries appears to that point. Often, this can be easily missed on a bitewing X-ray, but with a view looking straight down at the tooth, the broader area provides an easier and more evident diagnosis in which I can have confidence.

CariVu images serve as my second opinion. In my personal experience, I have never had a false positive indication for decay with this unit. This device has an impressive 99 percent accuracy rate. Sometimes I have worked on a tooth with a cavity that is so small I wonder if I am really in the right tooth—and then, there it is!

Another recent patient gave me an opportunity to use the CariVu in a new and innovative way. The patient complained that food was getting trapped under her new crown. While the contact looked acceptable on an X-ray (Fig. 16) and visually, because of the way it shows the shape and size of a tooth so well, the CariVu image showed the contact between two crowned teeth (which show as dark on a CariVu image) was just at one point instead of the necessary broad and flush contact (Fig. 17) that would prevent the food from being trapped under the gold and porcelain-fused-to-metal crowns. Flossing indicated resistance only on a small portion of the tooth. It was a great application of this technology for patient education so she could immediately understand her problem. We sent the CariVu images as additional documentation for predetermination to the insurance company to see if a new crown can be covered.

Having a caries detection device gives me the opportunity to catch caries more quickly and to provide minimally invasive treatment. While this does not take the place of X-rays, it provides a non-ionizing radiation alternative for certain patients who are reluctant to agree to radiographs for a variety of reasons. With all of the different types of caries that can affect my patients’ teeth, I am happy to be able to provide the information that can contribute to their individualized and targeted care.

References available on DentalProductsReport.com

ABOUT THE AUTHOR

Dr. William J. McKibben graduated from Georgetown University in Washington, D.C., in 1978. He is a member of the American Dental Association, California Dental Association, American Academy of Cosmetic Dentistry, Pacific Academy of Interdisciplinary Dentistry and Harbor Dental Society. He is on the faculty of Esthetic Professionals of Tarzana, Calif., and has completed an Advanced Occlusion Residency, Advanced Fixed Prosthodontics Residency, and Comprehensive Esthetic Residency. He is currently in private practice in Long Beach, Calif. Dr. McKibben has no financial interests in DEXIS, LLC.
PERFORM ADHESION DENTISTRY

What you need to know about adhesion dentistry.

[by Joseph S. Kim, DDS]

IN 1955, MICHAEL BUONOCORE, DDS, documented the use of phosphoric acid to improve adhesion of resin to dental enamel. Since Dr. Buonocore’s observation, adhesion dentistry has played an important role in the evolution of dentistry. Bonding procedures are performed by dentists every day, ranging from bonding orthodontic brackets to delivering stunning porcelain veneers.

Because adhesion dentistry is such an indispensable part of the day-to-day practice of dentistry, a review of its principles will help to refresh the minds and influence the hands of clinicians practicing at every level of experience.

What is adhesion?
In dentistry, adhesion is the chemical and micromechanical union of an adhesive system to enamel, dentin and a restorative material. Put another way, adhesion is the bond between a tooth and an adhesive, the bond between an adhesive and a restorations, the bond between a resin and a restoration. Practical applications of this process include: superior retention of restorations, improved performance and durability of certain materials, the ability to affect the color properties under an indirect restoration and low solubility. Clinically, these benefits are tempered by heightened technique sensitivity, increased moisture control and isolation requirements, and shrinkage of resin based materials.

Optimal adhesion to enamel
Due to its low water content and mineralized crystalline structure, adhesion to etched enamel is very strong and predictable. It is advised that phosphoric acid with a concentration of 32 to 37 percent be applied for 15 seconds on cut enamel and 30 seconds on uncut enamel. Appropriate moisture control measures will prevent enzymes and organic molecules within blood, saliva and crevicular fluid from contaminating the etched enamel. These may include use of various suction devices, a mouth prop, cotton drying aids, a retraction cord or a rubber dam. Isolation techniques may include using plastic or metal matrices, wedges and rubber dam isolation.

Enamel adhesion case
STEP 01 A post-orthodontic direct composite case is an example of enamel bonding, as the discrepancy in the incisal edges are limited to the patient’s enamel (Fig. 1).

STEP 02 In this case, the enamel was prepared with a coarse diamond, extending the margin of the bevel far from the actual restoration site in order to improve retention surface area, minimize the optical transition from tooth to resin and move the restorative junction away from the center of the tooth (Fig. 2).

STEP 03 It is noteworthy that no dentin was exposed in the preparation. Etchant was applied to the right central incisor for 15 seconds and thoroughly rinsed and dried (Fig. 3). Adequately etched enamel will display a frosty white appearance, and should be protected from saliva contamination (Fig. 4).

STEP 04 A mylar strip was used to provide isolation from the adjacent central incisor. All-Bond Universal adhesive was applied in two coats to the etched and visibly moist enamel, followed by gentle air pressure to thin out the adhesive and evaporate the solvent. In this case a wedge was not used, as the patient was not anesthetized. The adhesive was light-cured for a minimum of 10 seconds (Fig. 5).

STEP 05 Composite resin was applied in two layers and sculpted, with each layer receiving an initial cure through the lingual tooth surface in order to shrink the composite against the facial surface (Fig. 6).

STEP 06 The final contour of the restoration was accomplished using a carbide finishing bur to blend in the margins, while an instrument was used to protect the gingiva from trauma (Fig. 7). Primary facial anatomy was also established at this stage (Fig. 8).

A #12 scalpel was used to remove any interproximal flash and define the facial embrasure (Fig. 9).

STEP 07 Brown and green composite finishing rubber points were used to attain a polished surface (Fig. 10).

STEP 08 The same procedures were used for the left central incisor, and the patient was satisfied with the final result (Fig. 11).
1. Pre-operative.
2. Enamel prepared with coarse diamond.
3. Etchant applied.
4. Protecting etched enamel.
5. Applying adhesive and light cure.
6. Applying composite and light cure.
7. Roughing in.
8. Primary facial anatomy accomplished.
11. Final result.

References

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TREAT PROXIMAL CARIES LESIONS WITH DMG ICON

A look at a technique for resin infiltration.

[by W. Johnston “John” Rowe, Jr., DDS, AAACD]

Information provided by DMG.

WHILE THERE HAVE BEEN IMPROVEMENTS in caries incidence and prevalence in the United States, caries is still pandemic. By the age of 40, 90 percent of U.S. adults have experienced coronal caries, and root decay affects approximately one-third of adults over the age of 59. It has been estimated that the prevalence of caries among adolescents is 68 percent, and caries affects the primary dentition in 41 percent of young children.

All age groups and segments of the population are known to be susceptible to developing dental caries. Not all caries lesions progress to cavitation, but knowledge regarding the progression pattern of caries lesions is limited. The International Caries Detection and Assessment System (ICDAS) concept was developed under the direction of professor Nigel Pitts of Kings College in London to evaluate dental carious lesions.

The ICDAS concept entails the use of a standardized system, based on visual evaluation and best available evidence, to acquire information about early and later stage caries severity. This information is to be used to assist with appropriate diagnosis, prognosis and clinical management of dental caries at both the individual and public health levels.

Case study

The following outlines the treatment steps involved in successfully halting the progression of caries lesions through the establishment of a resin diffusion barrier within the demineralized enamel. Once in place, the Icon resin hardens within the enamel, making the site less susceptible to cavitation, and produces an area that is more resistant to continued acid attack. These benefits are achieved without the removal of any tooth structure, either healthy or demineralized. All tooth structure is preserved through the resin infiltration technique.

The patient, a 34-year-old white male, is in good overall health. He attends routine six-month recall visits for dental prophylaxis but admits he isn’t a regular user of dental floss. He presented with an incipient lesion on the distal of tooth #5 (Fig. 1). Being an excellent candidate for resin infiltration, the patient opted for this treatment after a brief explanatory discussion.

Icon is an innovative product for the micro-invasive treatment of dental lesions in proximal regions and on smooth surfaces and available in two variations: Proximal and Smooth Surface applications. Icon Proximal is a specially developed hard tissue preserving treatment for incipient proximal dental lesions.

STEP 01 Cleaning the surface of the tooth to be treated. Before the start of treatment, clean the affected tooth and adjacent teeth. Remove any cleaning residue with water spray. Create a sufficiently dry working field. You should take appropriate measures such as rubber dam, liquid dam or similar, to protect the gingival tissue (Fig. 2).

STEP 02 Isolation of the treatment site. Along with Isolite, use of DMG’s MiniDam offers a fast and convenient means for isolating a single proximal area while helping to maintain a dry field. Here the device is placed with the aid of dental floss, allowing quick placement into the proximal area (Fig. 3).

STEP 03 Accessing the sub-surface pore structure of the lesion. To ensure a successful treatment, a proximal separation of approximately 50 microns is required. Introduce one of the enclosed dental wedges into the treatment site. Apply an ample amount of Icon-Etch onto the lesion site (one-and-a-half to two turns of the shaft). Let Icon-Etch set for two minutes. The etching gel will be activated by the device (Fig. 4).

Clinically important: The Icon Etch is a 15% HCl solution requiring the protection of gingival tissues. The Icon Etch dissolves a thin layer of remineralized enamel, which covers the demineralized tissue. This demineralized area contains porous enamel filled with an air-fluid solution that must be uncovered and disseminated, allowing the Icon resin to flow into the lesion.

STEP 04 Remove the application tip from the proximal area. Suction off Icon-Etch and rinse with water for a minimum of 30 seconds (Fig. 5).

STEP 05 Chemical drying of the lesion. Drying the interior of the
Removal of excess resin.

Second infiltration step is

First infiltration step.

Light-curing the Icon

U

Remove the application tip

8

13

11

10

9

12

14

10

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13

14

Resin. Be sure to light-cure Icon-

Infiltrant from all sides for at least

40 seconds (total). It is prudent to
cure for the entire 40 seconds to
ensure the complete curing of the
Icon though several millimeters of
tooth structure. A leading cause of
failure, when using Icon, is the fail-
ure to allow the different materials
the necessary time to perform their
duties. Therefore, instructions
should be followed to the letter and
on the clock (Fig. 10).

STEP 09 Second infiltration step is
undertaken utilizing the same steps as
in the first infiltration step. Screw a
new Proximal-Tip onto the Icon-Infil-
trant syringe, repeat the application
as before and allow the Icon resin to
penetrate for one full minute (Fig. 11).

STEP 10 Removal of excess resin.
After one minute remove the applica-
tor and clear any excess material
from the site using dental floss or
tape (Fig. 12).

STEP 11 Remove the application tip
from the site. Remove excess mate-
rial with dental floss. Conclude by
light-curing the restoration from all
sides for at least 40 seconds (total)
(Fig. 13).

STEP 12 Use polishing cups or
strips (or similar) for the surface
finish. The goal of this procedure is
to eliminate rough, uneven surfaces
that may provide an ideal trap for
food, debris or plaque in the prox-
imal treatment site (Fig. 14).

AT A GLANCE

1. The patient presented with an
incipient lesion on the distal of tooth #5.

2. Cleaning the surface of the tooth to
be treated. Take appropriate measures
such as rubber dam, liquid dam or
similar to protect the gingival tissue.

3. The device is placed with
the aid of dental floss.

4. Activate the etching gel by
slightly moving the applicator.
Remove excess material.

5. Suction off Icon-Etch and rinse with
water for a minimum of 30 seconds.

6. Chemical drying of the lesion.

7. Air evaporation is employed
to thoroughly evaporate the
Icon Dry after 30 seconds.

8. Introduce the application
tip of the Icon-Infiltrant syringe
to the treatment site.

9. Remove the applicator and clear
any excess material from the site.

10. Light cure the Icon Resin.

11. Repeat the infiltration application
as before and allow the Icon resin
to penetrate for one full minute.

12. Once again, remove the
applicator and clear any excess
material from the site.

13. Light cure the restoration from
all sides for at least 40 seconds.

14. Use polishing cups or strips
(or similar) for the surface finish.

lesion is critical if infiltration is to
take place. The Icon resin can’t dis-
place any fluid that may be occupying
the pore volume of the lesion, there-
fore desiccation is necessary. Desic-
cating the lesion’s pore system is
accomplished in two steps: air drying
and the use of a chemical drying
agent—Icon Dry. Icon Dry is an alco-
hol based drying agent. No moisture
can remain within the pore system of
the lesion. Any moisture remaining
within the lesion will prohibit the
infiltration of the Icon resin. Remem-
ber, the capillary action of the Icon
resin is only possible if the lesion is
completed dissecated (Fig. 6).

Air evaporation is employed to
thoroughly evaporate the Icon Dry
after 30 seconds. Apply sufficient
quantities of moisture free air for
30 seconds. The drying process is
employed to not only desiccate the
tooth surface but also the porosity
within the lesion itself (Fig. 7).

STEP 06 First infiltration step.
Screw a new Proximal-Tip onto the
Icon-Infiltrant syringe, and intro-
duce the application tip into the
treatment site. Be sure to align the
green side of the Proximal-Tip with
the area to be treated. Slowly turn
the syringe handle until the Icon
resin emerges from the buccal/lin-
gual areas. There is no need to use
an excessive amount of the Icon
resin (Fig. 8).

Throughout the three-minute
infiltration period it is necessary to
add small increments of the Icon
resin in order to ensure that enough
resin is available to fill the entire
pore volume of the incipient lesion.
Failure to do so will possibly lead to
an unsuccessful outcome. Do not
apply Icon-Infiltrant under direct
operating light as this may cause the
material to set prematurely. After
three minutes remove the applicator
and clear any excess material from
the site using dental floss or tape
(Fig. 9).

STEP 08 Light-curing the Icon
Resin. Be sure to light-cure Icon-
Infiltrant from all sides for at least
40 seconds (total). It is prudent to

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techniques delivered right to
your inbox each week. Go to
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REDUCING CARIES AND IMPROVING GINGIVAL STATUS WHILE SLEEPING

One study takes a look at the effectiveness of using OraCoat XyliMelts.

We present a case where each night while sleeping, an adult patient used two OraCoat XyliMelts adhering discs, each disc releasing one-half gram of xylitol over 4 to 8 hours, and thereby eliminated previously ongoing carious lesions. Her gingival and periodontal status improved as well.

**Background**

Dental caries is a significant problem for adults. The Xylitol for Adult Caries Trial by Bader et al. studied the daytime use of ordinary xylitol lozenges with ordinary dissolution durations to reduce caries in adults. Root caries were significantly reduced, but caries on other tooth surfaces did not show a significant difference from placebo lozenges that stimulate saliva as much but lack xylitol.

To reduce caries, xylitol must linger in the mouth. Once it is swallowed, xylitol is ineffective. The effectiveness of xylitol to reduce caries is a function of hours per day that an adequate concentration of xylitol is maintained in the mouth. To achieve an adequate concentration over a maximum number of hours per day, the xylitol should be slowly released. Too much ingested xylitol can cause gut discomfort. To obtain maximum benefit from xylitol with minimum gut discomfort, the xylitol should be released when saliva flow is lowest, which is while sleeping. OraCoat XyliMelts adhering discs are designed to dissolve slowly and last up to 8 hours while sleeping. OraCoat XyliMelts have been specifically assessed for use during sleep. Subjects reported that they still tasted xylitol in their mouths upon awakening after 8 hours of sleep. During the day, XyliMelts discs last 1 to 4 hours, depending in part on location in the mouth, rate of salivation and amount of mouth movement. Until 2016, XyliMelts discs contained 500 mg of xylitol per disc. Starting in 2016, they contain 550 mg per disc (Figs. 1-2). With this delivery vehicle, xylitol may be more effective for reducing caries and gum disease than lozenges, chewing gum, gels or sprays.

In an independent survey of 1,168 dentists by the nonprofit CR Foundation about effectiveness of dry mouth remedies known to the dentists, those who were familiar with OraCoat XyliMelts rated it as more effective for dry mouth than did dentists who reported experience with other non-prescription remedies for dry mouth.

**Patient history**

The patient is an 88-year-old retired female with a history of excessive xerostomia not related to an underlying medical condition, with resulting caries and periodontal disease and repeated new carious lesions. Despite use of multiple OTC remedies, dry mouth was reported by the patient to have been a problem for more than 15 years. Oral complications thought to be related to the oral dryness included cervical caries, oral discomfort both daytime and nighttime, gingival inflammation and persistent periodontal disease.

The patient initially self-treated the oral dryness using a fluoride/xylitol lozenge from Norway (Xerodent - www.xerodent.de/xerodent.html - not sold in the U.S.). In addition, she had tried using other products, including Prevident, Biotene gel and Peridex (chlorhexidine) without significant change in her condition. Her typical hygiene protocol included tooth brushing twice a day, once before bed time. Prior dental treatment had included deep scaling, a gingivectomy for crown preparation and fractured tooth repair as well as yearly recall for hygiene prophylaxis.

Other than slightly elevated blood pressure not needing medication, the patient’s medical history was essentially unremarkable. In April 2015 she fell and broke ribs without complication. She is legally blind with very poor vision and has an artificial left knee.

In 2013 the patient presented for dental evaluation. Examination revealed gingivitis, dry oral mucosa and new cervical caries in teeth 24, 25 and 26. The patient was instructed to continue with her normal hygiene practices and was delivered XyliMelts adhering discs (OraCoat XyliMelts; OraHealth, Bellevue, Wash.) to be used at night according to manufacturer instructions: two discs adhered on the upper alveolar ridge opposite the parotid duct, one on each side, prior to bed time (Fig. 3). Each disc slowly released 500 mg of xylitol while sleeping. This protocol, coupled with her typical oral hygiene and dietary practices, was followed consistently for one year until she returned for reevaluation in 2014.

**Results**

After one year of regular XyliMelts use, the patient reported significant reduction in perceived oral dryness and discomfort. The product had been used every night as directed. Examination revealed moist/wet intraoral tissue absent prior observed dryness. The gingiva appeared healthy and could be characterized as having less gingival inflammation than observed the prior year. Periodontal pocket depth had not changed in the year. There were no new carious cervical lesions, in contrast to one year.
earlier when three new lesions were present. No side effects or adverse reactions to the disc use were reported.

The nightly use of two XyliMelts adhering discs during sleep, which released 500 mg xylitol per disc, appears in this case to have resulted in elimination of new carious lesions and an improvement in her gingival and periodontal status.

Conclusion

We present a case of an elderly patient with complaints of dry mouth and associated dental and mucosal abnormality in which an OTC adhering disc product, OraCoat XyliMelts, was used while sleeping (night-time use) for one year. At the one-year recall and after daily night-time use, per manufacturer’s instructions, the patient reported that she was experiencing a significant reduction in perceived oral dryness and discomfort. In contrast to her initial presentation, the intraoral tissue appeared moist and healthy. No new cavities had occurred, in contrast to her visit one year earlier when three new lesions were identified. The OraCoat XyliMelts adhering discs were well tolerated and their use did not incur unwanted side effects or adverse reactions. The above case suggests this remedy can be an important adjunctive treatment for individuals with caries or gum disease exacerbated by dry mouth.

References available on dentalproductsreport.com.

"To reduce caries, xylitol must linger in the mouth. ... The effectiveness of xylitol to reduce caries is a function of hours per day that an adequate concentration of xylitol is maintained in the mouth."

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When it comes to selecting an operator stool, the vast array of designs and features on the market today can make it a perplexing project. Numerous features must be considered and evaluated. However, one of the most poorly understood ergonomic features is the backrest and its impact on your health.

Studies suggest that a pain-free neutral posture involves a slight anterior pelvic tilt, which produces a small curvature of the lumbar spine (lumbar lordosis) and a relaxed thoracic spine. A primary function of the backrest is to help support this lumbar lordosis in sitting by maintaining contact with a convexity on the backrest called the lumbar support. This is an especially important feature with a non-tilting seat pan, which tends to cause rounding of the back. On a flat seat, if the dentist does not maintain contact with the backrest—or there is no backrest at all—slouching typically occurs, and the iliolumbar ligaments and other dorsal soft structures are strained and weakened, predisposing them to injury. Slouching also disengages the posterior vertebral facets, which, in standing, play a primary role in supporting the spine (Fig. 1). When these are disengaged, the load is transferred to the spinal disc. The disc nucleus is then pushed backward and can eventually result in disc bulge or herniation. Slouching also causes dysfunctional arm movements and forward head posture, both of which may lead to neck/shoulder pain as well as heightened muscle activity in the upper and lower back with subsequent low back pain.

The position of the backrest is key to preventing low back pain. The backrest should adjust up and down so that it can be positioned to support the natural lordosis of your low back to reduce activity of the paraspinous muscles. It should also be adjusted forward to prevent flattening of the low back. It should be convex from top to bottom and need only be 8 inches or so in height to provide adequate support (Fig. 2). Many older backrests on dental stools have no recognizable lumbar support at all. This is concerning, since the prominence of the lumbar support can reduce disc pressure. Sizes between 1 and 5 cm in thickness have been evaluated, with the largest benefits gained from the larger (3-5 cm) thickness. Very large backrests should be carefully evaluated to assure adequate convexity of the lumbar support to properly support the low back and to ensure that the upper portion of a large backrest does not push the thoracic spine forward. Therefore, the benefits of the lumbar support are to reduce lumbar disc pressure, decrease low back and referred leg pain, reduce forward head posture and decrease muscle activity (rest the back muscles).

The shape of the backrest is an especially important consideration. A tall backrest that extends above the lower edge of the scapulae can minimize the benefits of the lumbar support by exerting pressure on the shoulder blades, and should, at its highest point, be 6 cm below the lower edge of the scapulae. Because the ribcage is a rigid structure, back support above the lower edge of the shoulder blade is unnecessary, and in dentistry can inhibit shoulder movement. Wide backrests should be avoided because these can inhibit spinal movement and lateral movement of the arms and shoulders, which is especially important in the prevention of low back pain syndromes.

Some dentists wonder how saddle stools can be considered ergonomic when they have no backrest. Studies show that sitting with the thighs sloped steeply downward helps maintain the lumbar curve (Fig. 3). Hence, damaging low back muscle strain is lessened through use of a saddle stool; however, the abdominal activity is substantially increased. A recent study found that adding a backrest to a stool that allows the operator to sit with thighs sloping steeply downward not only lowers the low back muscular effort, but also slightly lowers the abdominal activity and maintains the most neutral posture.

Backrests are just one of multiple ergonomic considerations when selecting an operator stool. Careful assessment of key ergonomic features (cylinder height, armrests, seat material, casters, etc.) is necessary to determine if the stool will contribute to your health and career longevity.

For a free excerpt on operator stool selection and adjustment guidelines from Dr. Valachi’s book, “Practice Dentistry Pain-Free,” please email info@posturedontics.com.

**ABOUT THE AUTHOR**

Dr. Bethany Valachi, PT, DPT, MS, CEAS is author of the book, “Practice Dentistry Pain-Free: Evidence-based Strategies to Prevent Pain & Extend Your Career” and clinical instructor of ergonomics at OHSU School of Dentistry in Portland, Oregon. Dr. Valachi has helped thousands of dental professionals prevent pain and extend their careers, is recognized internationally as an expert in dental ergonomics, and has provided over 700 lectures worldwide. She has published more than 50 articles in peer-reviewed dental journals and offers additional dental ergonomic resources on her website at www.posturedontics.com.
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Dr. Justin Chi, clinical research associate at Glidewell Laboratories, has firsthand experience with postoperative sensitivity with his restoration—as a patient. After his doctor placed his e.max crown on his #30 first molar 10 years ago, he couldn’t eat on the right side of his mouth for over a year. “Every time I bit on it, it was so painful I thought I needed a root canal,” says. The crown eventually came off (via a Jolly Rancher). When his doctor fixed the crown, she used a desensitizing agent on the tooth, scrubbing it in and following with the same cement. Once the crown went back on, he hasn’t had sensitivity since.

It was an important lesson for Dr. Chi, who wasn’t a dentist at the time.

3 WAYS MISHANDLING ADHESIVES CONTRIBUTES TO RESTORATIVE FAILURE

Success and failure in adhesive dentistry has much to do with how dentists treat the tooth underneath.

[by Terri Lively]
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time. His experience with misdiagnosing his crown adhesive postoperative sensitivity as a compromised tooth “stuck” with him.

“Lots of endodontic procedures are performed every day for post-op sensitivity when in reality it is because of dentists not following the right protocol in adhesive dentistry,” Dr. Chi says.

Adhesive dentistry has revolutionized the dental practice. However, it requires a bond between the restorative material and the tooth underneath. Success and failure in adhesive dentistry has much to do with how you treat the tooth underneath. Here are three ways mishandling adhesives contributes to restorative failure.

**#1 Forgetting to follow the directions**

Every adhesive has instructions, and they all have specific details to them. No matter which adhesive you use, following the directions is paramount to your success. Dr. Alex Kalmanovich, DDS, believes this is the most important aspect of any bonding technique. When dentists begin mixing in their ideas, they start experiencing failures. Dr. Kalmanovich thinks each adhesive’s instructions are essential to its success.

“The companies have done the research. The companies have tested their products. They know what works—but based on their recipe. If you follow that you will be successful and get the results they get. If you start doing other things or forgetting to do certain steps, that’s when you have problems,” Dr. Kalmanovich says.

“With adhesive dentistry, it is all about the technique,” Dr. Chi says. “In a busy practice, you are moving quickly and there are a lot of steps, so you have to be diligent about following them properly.”

Dr. Ford Gatgens, DDS, says several problems can occur for your restoration if you don’t follow the manufacturer’s steps precisely, such as:

- Too little or too much of the adhesive where you don’t want it
- Problems with uniformity from lack of air drying the adhesive adequately
- Materials that preset because the vial wasn’t closed all the way or was exposed to light before it should have been

Dr. Gatgens recognizes that there can be more potential for mistakes when there are more steps to follow. He looks for products with a decreased number of steps, even if that doesn’t result in less time spent on the bonding process.

“If you don’t have three or four individual bottles of something that you have to do things with, you are going to decrease the risk of contamination or another problem,” he explains.

**#2 Not giving a dam**

Isolation is crucial for a successful adhesive restoration. However, it is also one of the most difficult aspects for any dentist in adhesive dentistry.

“Isolation can be challenging,” says Dr. Leah Capozzi, DDS. “We work in a dark, wet environment with cheeks and tongues getting in the way.”

“We don’t want to contaminate the area. We have to make sure the adhesive we put on the tooth is nice and clean. Things like saliva and blood and even certain chemicals like the ones we use to control the bleeding have to be cleaned off properly because if there are remnants left behind it could interfere with the bonded tooth,” Dr. Chi says.

Isolation prevents those contaminants from getting into the working area. In dental school, students learn how to isolate with a dental dam for everything they do. However, once dentists begin their practice, time is money, and the dental dam can feel like an extra procedure that is going to slow them down.

**#3 Drying it out**

Adhesive dentistry success is somewhat of a balancing act between controlling the moisture in the area without drying it out too much. If the area is too wet from water, moisture or saliva, it can interfere with the bond. However, if it’s too dry (especially for bonding to the dentin), the patient could experience postoperative sensitivity.

Dr. Chi says over-drying tends to occur when, during a total-etch process, the dentists check to see that they have a good etch on the tooth surface before bonding. Too much air can desiccate the dentin.

Dr. Chung says he used to have problems with over-drying in the priming step, which led to some problems with post-op sensitivity.

“It goes away,” Dr. Chung said, “but you’d rather it never happened.”

Dr. Kalmanovich sums it up: “So, you want to air dry, but you don’t want to make it bone dry.”

**“With adhesive dentistry, it is all about the technique. In a busy practice, you are moving quickly and there are a lot of steps, so you have to be diligent about following them properly.”**

**How to avoid mishandling adhesives**

So, how do you avoid these problems? Dr. Capozzi has the following advice for her dental colleagues regarding adhesives:

1. Know your adhesive system. Every system has specific instructions that must be followed.
2. Isolate. All adhesive dentistry requires a clean, dry surface.
3. Review. Ask your assistants to review your systems at weekly or monthly meetings. Products may change or you may be forgetting a step.
4. Take your time. If something goes wrong, stop and start over.

“We all want to be fast and efficient but not at the expense of the quality of work we provide,” Dr. Capozzi says.

Dr. Chung adds that you should pick a system that has a broad application that you’re familiar with and you know how to use to avoid confusion between the details of the process.

“Sometimes the steps are a little different. One adhesive is cured for 15 seconds, the other is 20 seconds, or maybe longer. If it’s a prime and bond, you must scrub it in and then...”
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When you get into adhesive dentistry, one of the main things that is going to cause it to fail is any moisture or contamination, whether it’s saliva or sulcular fluid or any hemorrhage,”

air dry it and that sort of thing. It can be confusing,” he says. Dr. Kalmanovich has a tip for dentists who struggle with isolation. He admits he rarely uses a dental dam, but he does use DryShield, which retracts the tongue, suctions, serves as a bite block and isolates the area.

“It is one of the keys to success in adhesive dentistry,” Dr. Kalmanovich explains. “I use it for my CEREC imaging. I use it for my bonding. It is one of the tricks that is great if you are doing any kind of adhesive dentistry.”

Both Dr. Kalmanovich and Dr. Chi recommend adding a desensitizing agent between etching and bonding to dentin. Dr. Chi is in a unique position to replace restorations that have resulted in post-op sensitivity. He finds that rehydrating the tooth can often resolve the issue.

“Scrubbing it in well will not only rehydrate the tooth, but it also helps to seal off the dentin tubules. And it’s also an antibacterial agent,” Dr. Chi says.

Dr. Gatgens believes that partnering with an excellent materials company will help you achieve success.

“What I have chosen to do is to partner with an excellent company. When I am using their products, I know they are vetted and tested, and they have a high quality.”

“When you get into adhesive dentistry, one of the main things that is going to cause it to fail is any moisture or contamination, whether it’s saliva or sulcular fluid or any hemorrhage,” explains Dr. Gatgens. “It’s important to have an isolation system that’s going to work for you. It’s not necessarily saying that it always has to be a rubber dam scenario, but the whole process is predicated on a dry field, and any type of moisture contamination will cause problems long-term.”

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I Use That: Oraqix® gel

Two hygienists on what they use for scaling and root planing and why Oraqix® gel is often their anesthetic of choice. [compiled by Renee Knight]

Scalizing and root planing can be an uncomfortable experience for patients, which is why it’s so important to choose an effective anesthetic that’s appropriate for each individual case. Kim Miller, RDH, and M.E. Sanders, RDH, lead profitability coaches with Inspired Hygiene, talk about what they use for certain situations and why they often turn to Oraqix for scaling and root planing treatments.

What Kim Miller says about Oraqix

I’ve been using Oraqix since it was first introduced. When the rep came into the office and showed Oraqix to me, I rubbed a small amount of it on my gums and within seconds my gum tissue started to get numb. I thought to myself, “If Oraqix is this effective on my gum tissue, how much more effective will it be when I deliver it to the site of the infection? This is going to make my patients much more comfortable during treatment.” That’s my primary interest—keeping my patients comfortable. Oraqix does that.

Another advantage of using Oraqix is its neutral to basic pH, which makes it safe to use in and around inflamed and denuded tissues. Other popular topical anesthetics are more acidic and contraindicated for inflamed tissue. For example, Cetacaine® topical anesthetic has a pH below 3.0, is highly acidic, and is contraindicated for use on large areas of inflamed and denuded tissue. Users should be aware that Cetacaine has a maximum usage of .4 ml of liquid or a bead of gel about half an inch long. That’s only going to be enough for about two teeth, meaning clinicians may feel the need to exceed the maximum dosage to get the desired level of patient comfort.

The opposite is true with Oraqix. Initially I was using it too sparingly, and I believe most clinicians have that tendency. Be generous with Oraqix because it is safe, has a neutral pH, and you may use up to five cartridges per treatment session. It’s safe to reapply but I rarely need to if I’ve filled each pocket adequately from the start.

When a patient presents with severe infection and deeper pockets, I opt for an injectable like Citanest Plain, which can be used on patients who will not tolerate a vasoconstrictor. I worked for a periodontist and we used a combination of Oraqix and injectable, depending on which quadrants we were working in and the extent of disease. Oraqix works well on patients with gingivitis to moderate periodontal disease. I want my patients to come back and continue to seek care, so keeping them comfortable is a top priority.

There’s a new gingivitis code, D4346, introduced by the ADA on Jan. 1, 2017, that we should be aware of. This treatment code is indicated for moderate to advanced inflammation in suprabony pockets. These pockets could be ≥4 mm deep. They’re infected and bleeding and allow bacteria into the blood stream, but there’s no bone loss. Oraqix is the perfect non-injectable anesthetic to use when treating patients in this category. In this case, my job is to disrupt the bacterial biofilm that is causing the infection, and I want my patients to be comfortable so I can thoroughly disrupt the biofilm.

In my experience, Oraqix makes it easy to provide a higher level of care for patients and to keep them comfortable at the same time.

What M.E. Sanders says about Oraqix

I like using Oraqix for scaling and root planing because it allows me to focus on patient care rather than waiting for the doctor to come give an injection. I can get right to work, and my patients don’t experience any discomfort. It works within about 20 seconds or so after application, and patients don’t have to worry about being numb for the next two to four hours.

I demonstrate to patients that I’m using a nozzle instead of a needle to apply the anesthetic exactly where I need it to go. I do let the patient know that if he or she has any discomfort I can reapply, but I typically don’t need to. Oraqix is especially great for patients who are worried about pain. I talk with them about the procedure and introduce them to Oraqix early on in the diagnostic process. That way, when they come back for perio therapy, they’re prepared.

Oraqix saves me a lot of time. It is delivered right into the pocket and becomes a gel once it comes in contact with “warm” tissues. Another advantage is the applicator can be bent to assist in delivery throughout the mouth. It’s easy to apply and it makes my patients much more comfortable during non-surgical perio therapy procedures.

If you have not tried Oraqix, give it a try. You will love it and your patients will love you.

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I Use That: VITA ENAMIC® IS
How ENAMIC IS is being utilized by CAD/CAM dentists to replicate natural tooth characteristics.  [by Renee Knight]

When the team at VITA first began developing ENAMIC CAD/CAM blocks, they set out to create the most tooth-like material possible.

They wanted to provide dentists and their patients with a material that mimics natural dentition—in both strength, elasticity and esthetics. That was no easy task, but after more than a decade of research and development, ENAMIC was finally ready for primetime in 2013.

The product was so successful that VITA released another option a few years later in 2016: ENAMIC IS (Implant Solutions). This was a natural extension of the product line, giving CAD/CAM dentists the ability to provide their patients with a material that replicates natural tooth characteristics and is both force absorbing and beautiful in just a few hours, says Jim McGuire, CDT, and director of education and technical support for VITA North America.

Dr. Daniel Butterman of Colorado has been using ENAMIC IS since it was first launched, and says it offers more resiliency than other products on the market—which is key to successful implant dentistry.

“I’ve been placing implants for 18 years, so I’ve seen the evolution of the materials,” Dr. Butterman says. “You used to see fractures and failures because a screw would get loose or too much force would cause the porcelain on a PFM crown to fracture. So we made the screws more rigid and started turning to stronger materials like zirconia.

The problem is when people bite too hard the force has to go somewhere. Because the materials are so strong now, more force is placed on the bone, and that could lead to bone loss and failure. The ideal material is more resilient and takes on some of that force to protect the bone.”

VITA ENAMIC and now VITA ENAMIC IS provide doctors and patients with the tooth-inspired, durable restorative options they’re after. Here’s a closer look at the material and why you might want to consider incorporating it into your practice.

Why it works
ENAMIC is comprised of a structured ceramic matrix that combines the positive characteristics of a ceramic with the resiliency of a polymer, McGuire says, making it look and act more like a natural tooth. The ceramic structure gives the material the stiffness, wear resistance and load bearing properties it needs, while the polymer provides force distribution for heavy loads in both posterior and anterior natural tooth or implant supported indications. The dual-network structure also allows for a less invasive technique and can be milled out as thin as 1 mm for posteriors.

The team at VITA was the first to develop this type of matrix structure, which presented some challenges. They had to achieve a matrix that allowed the polymer to be introduced and interconnected with the ceramic, create a homogenous material, and then determine a way to predictably reproduce the matrix and the ENAMIC material in a production facility.
What they came up with is a material that’s about 86 percent ceramic and 14 percent polymer, making it the only truly structured ceramic with polymer on the market, McGuire says. He describes the creation as similar to a DNA strand, with polymer interwoven between the ceramic scaffolding.

“The ceramic reinforces the polymer and the polymer absorbs the energy from patients chewing before it overloads the ceramic structure,” McGuire says. “Plastic deformation occurs, helping to prevent catastrophic failure that is often observed in traditional glass-ceramic restorations.”

ENAMIC’s resiliency, or force absorbing properties, makes it an ideal solution for implants, which is why VITA created the IS version. The IS block features a pre-drilled hole so it easily connects to the implant’s abutment adapter base, McGuire says. Clinicians can use ENAMIC IS as a single screw-retained restoration or to fabricate a custom implant abutment with more traditional cement-retained restorative material to be bonded to the ENAMIC abutment.

“There’s no built-in resiliency with implants because they’re static,” McGuire says. “ENAMIC is uniquely suited to be an implant material because of its resiliency, force distribution, load bearing capability and toughness.”

ENAMIC is an especially attractive option when clinicians feel there is more potential for an implant to become overloaded, Dr. Buterman says. This might be the case when a patient has a strong bite or is a heavy bruxer. The material absorbs the force in these situations, protecting the implant and the bone surrounding it.

**Same-day dentistry**
ENAMIC IS gives clinicians the ability to deliver a high-quality implant restoration in a single appointment, which is another quality that attracted Dr. Buterman to the material. Before, patients would come in for impressions and then have to return a week later when the crown was ready. Now, because ENAMIC mills so quickly, he can use his CAD/CAM system the way he always intended to: provide patients with same-day dentistry.

“For the dentist, it’s easy to say I want to see the patient for a 15-to-20-minute appointment for imaging, but it’s very different for the patient,” Dr. Buterman says. “For that short appointment, our patients might have to take off an entire day of work or hire a babysitter. There are so many issues that come into play that make this easy appointment very difficult for our patients. If we can eliminate that extra step and take one appointment away so they don’t have to use vacation time, patients are thrilled with that. Nobody wants to wait, and nobody needs to wait anymore because the workflow has improved so much.”

**More control**
Using materials like ENAMIC IS in the digital workflow also gives clinicians more control over how much pressure is put on the tissue and how deep the margins are, Dr. Buterman says. One problem dentists and patients have dealt with in the past is excess cement. The margins in these restorations are often deep and difficult to see, and that makes it common for harmful cement to be left behind. The fact that Dr. Buterman can control the process digitally and see the margins better makes cement cleanup much easier.

“The total control that we have over every aspect of it really makes for a much better restoration,” Dr. Buterman says. “And we’re much less likely to cause damage to the implant because extra cement was left behind.”

The material is also easy to adjust if contacts are too tight, Dr. Buterman says. That isn’t the case with other materials; he has to start over if his contacts are off. ENAMIC has a resin component, so he can always add material if he needs to. It’s also possible to add any necessary color changes right in the patient’s mouth—even years later.

**Other benefits**
Patients love ENAMIC IS because it feels and acts like a natural tooth, McGuire says. It can also be milled very thin, 1 mm within the occlusion and 0.3 mm facially for anterior veneers in support of less invasive tooth preparation that help reduce patient sensitivity and chair time.

“It’s truly a tooth replacement material,” McGuire says. “Dentists like that when they mill the material the definition of the margins is dead on. It mills beautifully at very thin cross sections without losing its marginal integrity. The milling properties provide for very sharp and defined marginal edges in support of esthetic blending into the tooth structure. It’s easy to work with, and because of its unique structure it mills very quickly.”

And once it’s milled, unlike other machineable materials, there’s no post processing other than polishing, McGuire says. There’s no need to put the restoration in the furnace, enabling dentists to focus more on patient care. Though for best esthetic results, Dr. Buterman does recommend taking a few minutes to stain and glaze the restoration.

Overall, ENAMIC IS gives Dr. Buterman another option for implants, and one with the ability to absorb pressure to prevent bone loss. It also saves him time, usually 20 to 30 minutes per restoration.

“Now we have a material that absorbs forces better. That makes me sleep better at night,” Dr. Buterman says. “And the fast processing time and the fact we can deliver the restoration in a single appointment makes my patients sleep better. It’s another material in the tool belt that adds some nice advantages that weren’t there before. The resiliency and processing time are the two big ones for me.”

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**WHY ENAMIC IS**

When placing a restoration on dental implants, dentists need a material that helps prevent overloading the implant-abutment assembly. The more energy-absorbing the material, the more chewing forces are distributed and dissipate from being transmitted to the implant, McGuire says. This will help avoid overloading the implant, which could lead to bone loss or other complications. If there’s too much load on the implant, the bone will remodel away from the excessive energy. ENAMIC IS absorbs the loads before it reaches the implant abutment combination and is approximately 70 percent more force absorbent compared to zirconia.

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“ENAMIC is uniquely suited to be an implant material because of its resiliency, force distribution, load bearing capability and toughness.”

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Matthew H.J. Kim, founder, chairman and CEO of Vigilant Biosciences, shares five key predictions about oral cancer.

**Oral cancer diagnoses will continue to grow**
Statistics show that in the United States, more than 48,000 individuals will be diagnosed with oral cancer this year with more than 9,500 deaths resulting from this disease, killing roughly one person per hour, 24 hours per day. These rates are expected to grow as cases of HPV-related cancer increase, and behaviors such as vaping grow in popularity among the younger population.

**More young people will be diagnosed with oral cancer as a result of HPV**
Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States, which can lead to other serious health issues, including oral cancer. It has been found that 65 percent of consumers do not know that HPV is a risk factor for oral cancer. Although oral cancer has traditionally been thought of as a cancer for older adults, young people are developing it at alarming rates. Currently, up to 70 percent of new oral cancers diagnosed in the throat are related to HPV.

**New, innovative tools will help to diagnose earlier, cut mortality rates**
New, promising technologies are making it easy for dental and medical professionals to detect oral cancer earlier and intervene before it is too late.

This also means aiding clinicians to confidently rule out the disease so as to minimize unnecessary worry or treatments when concerning symptoms might present. Among these new, innovative tests are the OncAlert Oral Cancer rapid point-of-care test strip test and the OraMark laboratory test, both of which are built on technology that measures biomarkers captured in an oral rinse and have been clinically validated to be associated specifically with mouth and throat cancer, to aid clinicians in the early detection and intervention of oral cancer by assisting in clinical decision making.

**More dentists will test for oral cancer, as more new easy-to-use tools become available**
As new simple, rapid tools become available, dental clinicians are likely to both increase and improve upon their oral wellness checks, which include oral cancer screening of their patients during an annual exam. Tests that are non-invasive for patients and easy for dental professionals to integrate into the standard practice of care will become more widely used.

**Growth in awareness will lead to more people getting screened**
A recent consumer survey conducted by Vigilant Biosciences, Head and Neck Cancer Alliance and SPOHNC revealed that only 37 percent of consumers say they have been screened for oral cancer at their last dental check-up; however, more than 83 percent indicated that they would like to be screened for oral cancer at every checkup. As awareness of oral cancer continues to grow, an increase in screening will follow.
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In addition, the patient should be evaluated by an ophthalmologist, as indicated.

Oraqix® coming in contact with the eye should be avoided because animal reactions may be characterized by urticaria, angioedema, and/or conjunctival injection. Only use this product with the Oraqix® blunt-tipped applicator. Allergic hepatic disease are at greater risk of developing toxic plasma concentrations of this compound is a carcinogen in both mice and rats. The tumors associated with methemoglobinemia are more susceptible to drug-induced methemoglobinemia. Oraqix® should be used in those patients with congenital or idiopathic methemoglobinemia and in infants under the age of twelve months who are receiving treatment with methemoglobin-inducing agents. Signs and symptoms of methemoglobinemia may be delayed some hours after exposure. Initial signs and symptoms of methemoglobinemia are characterized by a slate grey cyanosis seen in, e.g., buccal mucous membranes, lips and nail beds. In severe cases symptoms may include central cyanosis, headache, lethargy, dizziness, fatigue, syncope, dyspnea, CNS depression, seizures, dysrhythmia and shock. Methemoglobinemia should be considered if central cyanosis unresponsive to oxygen therapy occurs, especially if meth–inducing agents have been used. Calculated oxygen saturation and pulse oximetry are inaccurate in the setting of methemoglobinemia. The diagnosis can be confirmed by an elevated methemoglobin level measured with co-oximetry. Normally, metHb levels are <1%, and cyanosis must be evident until a level of at least 10% is present. The development of methemoglobinemia is generally dose related. The individual maximum level of metHb in blood ranged from 0.8% to 1.7% following administration of the maximum dose of 8.5 g Oraqix®.

Management of Methemoglobinemia: Clinically significant symptoms of methemoglobinemia should be treated with a standard clinical regimen such as a slow intravenous infusion of methylene blue at a dosage of 1-2 mg/kg given over a five minute period.

Patients taking drugs associated with drug-induced methemoglobinemia such as sulfonamides, acetaminophen, acetanilide, aniline dyes, benzocaine, chloroquine, dapsone, naphthalene, nitrites, nitrofurantoin, nitroglycerin, nitroprusside, pamaquine, para-aminosalicylic acid, phenacetin, phenobarbital, phenyoit, primaquine, and quinine are also greater risk for developing methemoglobinemia. Treatment with Oraqix® should be avoided in patients with any of the above conditions or with a previous history of problems in connection with prilocaine treatment.

Drug Interactions: Oraqix® should be used with caution in combination with dental injection anesthesia, other local anesthetics, or agents structurally related to local anesthetics, e.g., Class 1 antiarrhythmics such as tocainide and mexiletine, as the toxic effects of these drugs are likely to be additive and potentially synergistic.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY: Carcinogenesis - Long-term studies in animals have not been performed to evaluate the potential for other local anesthetics. Data from oral toxicity studies of o-toluidine, a metabolite of prilocaine, have shown that this compound is a carcinogen in both mice and rats. The tumors associated with o-toluidine included hepatocarcinomas/ adenomas in female mice, multiple occurrences of hemangiosarcomas/hemangiendotheliomas in both sexes of mice, sarcomas of multiple organs, transitional-cell carcinomas/papillomas of urinary bladder in both sexes of rats, subcutaneous fibromas/fibrosarcomas and mesotheliomas in male rats, and mammary gland fibroadenomas/adenomas in female rats. These findings were observed at the lowest tested dose of 150 mg/kg/day or greater over two years (estimated daily exposures in mice and rats were approximately 6 and 12 times, respectively, the estimated exposure to o-toluidine at the maximum recommended human dose of 8.5 g of Oraqix® gel on a mg/m² basis). Complete conversion of prilocaine to its metabolite o-toluidine on a molar basis is assumed. This gives a conversion on a weight basis of about 50% for prilocaine base (dependent on the molecular weight, i.e. 220 for prilocaine base and 107 for o-toluidine).

Mutagenesis - o-Toluidine, metabolite of o-toluidine, was positive in Escherichia coli, Saccharomyces cerevisiae, and reverse mouse lymphoma forward mutation assays. Urine concentrates from rats treated orally with 300 mg/kg o-toluidine were mutagenic to Salmonella typhimurium in the presence of metabolic activation. Several other tests on o-toluidine, including reverse mutations in five different Salmonella typhimurium strains with or without metabolic activation, and single strand breaks in DNA of V79 Chinese hamster cells, were negative.

USE IN PREGNANCY: Teratogenic Effects: Pregnancy Category B

There are no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, Oraqix® should be used during pregnancy only if the benefits outweigh the risks.

Nursing Mothers: Lidoicaine and, possibly, prilocaine are excreted in breast milk. Caution should be exercised when Oraqix® is administered to nursing women.

Geriatric Use: In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosage range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

ADVERSE REACTIONS: A causal relationship between the reported adverse reactions and Oraqix® could neither be established nor ruled out.

Following SRP treatment with Oraqix® in 391 patients, the most frequent adverse event was local injection pain. The incidence of any adverse event was 91.6% (355/391). The most frequently reported adverse event was pain, occurring in 55.5% of patients. Other pain associated events included infection, musculoskeletal pain and accident/injury. One patient was headache, taste perversion, nausea, fatigue, flu, respiratory symptoms, vomiting, nausea, vomiting, and agitation. In addition, 157 out of 391 patients treated with Oraqix®, five developed ulcerative lesions and two developed vesicles of mild to moderate severity near the site of SRP. In addition, 168 patients who received placebo. Other symptoms reported in only one patient were headache, taste perversion, nausea, fatigue, flu, respiratory infection, musculoskeletal pain and accident/injury.

OVERDOSAGE: Local anesthetic toxicity emergency: If other local anesthetics are administered at the same time as Oraqix®, e.g. topically or by injection, the toxic effects are thought to be additive and could result in an overdose with systemic toxic reactions. There is generally an increase in severity of symptoms with increasing plasma concentrations of lidocaine and/or prilocaine. Systemic CNS toxicity may occur with plasma concentrations of 2-4 mg/mL. The plasma level of lidocaine observed after the maximum recommended dose (5 cartridges) of Oraqix® in 11 patients exposed over 3 hours ranged from 157-552 ng/mL with a mean of 284 ng/mL 3 122 SD. The corresponding figure for prilocaine was 53-181 ng/mL with a mean of 106 3 45 SD. Clinical symptoms of systemic toxicity include CNS excitation and/or depression (lightheadedness, hyperacusis, visual disturbances, muscular tremors, and animal reproduction studies. Lidocaine and/or prilocaine may cause decreases in cardiac output, total peripheral resistance and mean arterial pressure. These changes may be attributable to direct depressant effects of these local anesthetic agents on the cardiovascular system. Cardiovascular manifestations may include hypotension, bradycardia, arrhythmia, and cardiovascular collapse.

Management of Local Anesthetic Emergencies: Should severe CNS or cardiovascular symptoms occur, these may be treated symptomatically by, for example, the administration of anticonvulsant drugs, respiratory support and/or cardiovascular resuscitation as necessary.

DO NOT FREEZE: Some components of Oraqix® may precipitate if cartridges are frozen. Cartridges should not be used if they contain a precipitate. Do not use dental cartridge warmers with Oraqix®. The heat will cause the product to gel.

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