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  * x-tra depth of cure
  * x-tra high biocompatibility

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BEST PRACTICES

Staying safe during the Coronavirus pandemic

With practices seeing emergency patients amidst a global pandemic, the principles of infection control and prevention are more important than ever.
Admira Fusion x-tra

SINGLE-SHADE OMNI-CHROMATIC NANO-ORMOCER RESTORATIVE WITH ENHANCED PHYSICAL PROPERTIES

Time has become the practitioner’s most valuable asset, and the focus of their enduring interest in materials that can simplify and speed up clinical procedures without sacrificing quality results. Admira Fusion x-tra, a single-shade omni-chromatic nano-ORMOCER restorative fills those needs with superior performance, as a material that reduces procedural steps, simplifies the restorative process and streamlines inventory.

How Admira Fusion x-tra’s shade matching works

Figures 1 and 2 above illustrate the process in which visible light passes through Admira Fusion x-tra, refracts off the surrounding tooth structure and travels back to the observer’s eye influenced by the shade of that surrounding tooth structure. How is this possible? Admira Fusion x-tra’s nano-particulate glass filler is engineered to be a specific size and shape that is smaller in diameter than that of the wave-length of visible light. This allows visible light to pass through uninterrupted, thus creating the omni-chromatic capability to match the entire shade range of human dentition.

NANO-ORMOCER Technology provides enhanced performance

While offering ease-of-use and convenience, Admira Fusion x-tra also features superior physical properties. This includes a low shrinkage rate of 1.25% and a high fill rate of 84% for longevity of the restoration, and a purely silicon oxide-based composition that is 100% BPA-free for unparalleled biocompatibility.

Advantages

- Only one omni-chromatic shade: no guess work and no more wasted shades
- 4 mm depth of cure – saves time
- Easy to polish, highly stain resistant with a high gloss
- Exceptional longevity with low initial volumetric shrinkage of only 1.25%
- No traditional monomers (no Bis-GMA [No BPA], TEGDMA, UDMA, etc.) for unsurpassed bicompatibility
- Based on innovative Nano-ORMOCER Technology with enhanced physical properties
- Compatible with all conventional bonding agents

Admira Fusion’s single universal shade matches:

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<tr>
<th>Shade</th>
<th>Before Light Cure</th>
<th>Final Result</th>
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Source: Internal VOCO data 2019 *(Bleach)

Fig. 3

Fig. 4: Admira Fusion x-tra offers simplicity, speed and reduced inventory to maximize it’s ROI for dentists and its overall quality for patients

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BEST PRACTICES

Staying safe during the Coronavirus pandemic

With practices seeing emergency patients amidst a global pandemic, the principles of infection control and prevention are more important than ever.
Putting the smart in your practice—We explore how smart technology can facilitate automation and clinical technique to bring more “smarts” to everything a practice does.

BEST PRACTICES

Staying safe during the Coronavirus pandemic

With practices seeing emergency patients amidst a global pandemic, the principles of infection control and prevention are more important than ever.

NEW DENTAL PRODUCTS

[DENTALEZ]

Aeras Elite 500 Handpiece by Star®
A powerful air-driven dental handpiece with integrated smart technology for improved maintenance and documentation.

[BRAVRR]

BruxRelief
An easy-to-use, cloud-based system to allow patients to monitor and document bruxism from their own homes.

[DENTSPLY SIRONA]

TruNatomy™
A complete line of endodontic products designed to work together to allow successful root canals with less removal of healthy tooth structure.
Keeping Our Planet Green, Together!

Henry Schein makes it easy for customers to “go green” through our Global Reflections program.

Protecting the richness and beauty of our planet is a key pillar of Henry Schein’s commitment to “helping health happen.” To help others “go green,” Henry Schein offers customers the opportunity to purchase a wide variety of environmentally friendly products for their practices in one place through our Global Reflections program.

As part of our efforts to empower dentists to reduce the environmental impact of their businesses, Henry Schein Cares is proud to support the important work of the American Association for Dental Office Management (AADOM) and its Green Leader Initiative in its efforts to provide continuing education aimed at promoting the “greening” of dental offices.

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Thank You

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For more information and to order, contact your Henry Schein Sales Consultant or visit: www.henryscheindental.com
Aeras Elite 500 Handpiece by Star®

Part of the company’s new Aeras platform of intelligent dental equipment, the Aeras Elite 500 Handpiece by Star is designed to provide the power of an electric handpiece with the lightweight, ergonomic comfort, and control of an air-driven system. This air-driven system provides up to 30 watts of power with a traditionally sized head for improved convenience and performance. The handpiece is designed with LubeFree technology and allows in-office turbine replacement for easy maintenance.

Why this handpiece stands out:

Beyond its pure cutting power, the latest handpiece from DentalEZ features embedded RFID technology to make it simple for a practice to monitor and document handpiece sterilization and maintenance. This allows practices to know where their handpieces are, how they are being used, and when it will require standard servicing, as well as saving time by automating infection control documentation.

DentalEZ
B66-OHE-INFO
dentalEZ.com

BruxRelief

Designed to help document the clinical situation for patients exhibiting signs and symptoms of bruxism, BruxRelief is a cloud-connected wearable device allowing patients to assess and track muscle activity from their own home. The assessments are easily viewed in the associated app, and both clinicians and patients can see the assessments right away. Data collected by the system makes it easier to prescribe treatment and monitor progress.

Why this solution is a step forward:

While there are often physical signs of bruxism, such as tooth abrasion or abfraction, not every patient with bruxism problems exhibits these symptoms. So, monitoring temporals muscle activity can provide detailed evidence of the problem the patient is facing, as well as documentation for insurance and billing purposes. Additionally, with a simple app to monitor the system, access to the cloud-based data from anywhere, and easy to understand reports, the BruxRelief system is simple enough for any practice and patient to use.

Bravett
720-432-6156
bruxrelief.com

TruNatomy™

A complete endodontic instrumentation system, TruNatomy files are designed to take the natural canal anatomy into account to make root canal treatment simpler and less invasive for patients. The system includes an Orifice Modifier and a Glider designed to create easy canal access and glidepaths without requiring straightline access. The shaping files are made from slim, heat-treated NiTi, and are designed to operate at high speeds with reduced effort. They are available in three sizes and working lengths and the full system also includes an Irrigation Needle as well as obturation products.

Why these endodontic files stand out:

The TruNatomy system is designed around the concept of preserving as much dentin during endodontic treatment as possible. The files are designed to work through smaller access orifices, and they can effectively clean a canal without the need for straightline access. In addition, having a complete system to cover the entire procedure from access to obturation allows for confidence and efficiency throughout the treatment.

Dentsply Sirona
844-848-0137
dentsplysirona.com

Cover Products and other EDITOR’S CHOICE products throughout this issue are chosen based on innovation or their perceived impact on improving patient care and practice efficiency.
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Speed. Precision. Consistency.

Embrace the future without changing how you work.
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STAYING HELPFUL WHILE THINGS SHUT DOWN

THESE ARE CERTAINLY UNPRECEDENTED TIMES. The world is facing major personal and financial impacts from the COVID-19 pandemic, which has already shuttered numerous businesses and forced many people in major metropolitan areas to shelter in place and practice social distancing.

Unfortunately, much of the dental industry is caught in this shutdown as the CDC and the ADA are recommending practices stop seeing patients other than emergencies. In some places these are requests for voluntary closures, in other areas these are mandates. In either case, this is an incredibly difficult situation for all involved with impacts on every practice, on all the dental professionals who work there, and on the patients who rely on you for their care.

On the financial side of things, this shutdown can be an extremely difficult obstacle. Most practices are small businesses, with small staffs of people on the payroll. When you can’t see patients, you can’t pay the practice’s bills, including employee salaries, and the pain of the situation cascades. Dental Products Report Chief Clinical Editor and Technology Editor Dr. John Flucke estimates his practice will be losing 85 to 90 percent its regular production by the end of April. Meanwhile, the pain of the situation cascades. Your practice waiting for those emergency cases so you can be there for those people when they need you. You can also do so much more both for yourself and your communities during this time.

That’s what we’re trying to do at Dental Products Report. We’re known as a resource for information on dental products, but in a time when those details are likely less important than actionable advice to manage our immediate challenges, we’ve turned our news team toward providing you with information and resources that can help you and your practice right now. To that end, our monthly Infection Control column is dedicated to providing details on what to do in your practice when you do see patients during the pandemic. (See “Staying safe during the Coronavirus pandemic” on page 68). Online we’re providing links to resources from industry and government organizations, as well as publishing content from Dr. Flucke and others documenting what’s happening in individual practices and the industry overall.

In a similar way, you can look to be a helpful resource for your community and our industry. The first thing that is helpful is following the recommendations and mandates which are designed to combat the spread of COVID-19. But you don’t have to stop there. If you have a surplus of personal protective equipment, especially N95 facemasks, donating part of your stock to a local hospital can help doctors and nurses caring for patients with COVID-19.

You should also look to help your patients by staying in contact with them. Letting them know you’re there for their urgent needs now, and for their regular care as soon as we get through this crisis. You can also use this time to organize your practice, test out new equipment or materials, and catch up on online CE or training.

We’ll be here for you with information to help you stay on track, and we’ll be here by your side as we all get back to our regular day to day at some future time.

[ Mike Hennessy, Sr. ]

Staying Helpful While Things Shut Down

[ Our Mission Statement ]

Dental Products Report—known for its trusted new product information—delivers a complete picture and in-depth coverage of the innovations transforming dentistry for patients and enhancing clinical and dental practice success. Dental Products Report helps dental professionals understand the available dental products and how to select the best options for their practices and patients. We are committed to asking the right questions and delivering unbiased, quality content.
SureSmile® Aligner
by Dentsply Sirona

“Every SureSmile case is driven by a team of clinical experts, starting with me.”

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**[INTRAORAL X-RAY SENSOR]**

**KaVo IXS**

The KaVo IXS intraoral X-ray sensors size 1 and 2 sensors feature KaVoTouch™ engineering in both the sensors and the cable, which reportedly pass the company’s Gendex GXS-700 sensors in both strength and durability. They are said to be three times more resistant to damage or functional failure and withstand double the biteforce than the GXS-700. The sensors have open architecture software capabilities and can be seamlessly integrated into most popular imaging and practice management software without the need for a bridge or additional modules. They also include automatic software updates, direct-download calibration files inside the sensor, and IoT capabilities.

*KaVo Dental*

888-ASK-KAVO | kavo.com

CIRCLE RS #11

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**[MOBILE OPERATORY]**

**Aseptico® AMC-15 Self-Contained Mobile Operatory**

The Aseptico® AMC-15 Self-Contained Mobile Operatory can perform general dentistry and endodontic procedures—all with no connection to air or plumbing. Just fill the two 1-liter water supply bottles and power with either 115V or 230V and it becomes fully operational with two high-speed handpieces, one low-speed handpiece, high-volume and low-volume suction, and amalgam separator. It is easily moved and sets up to make an optimally efficient instant operatory. Add the height-adjustable Auxiliary Arm with Accessory Tray for super efficiency. Suited for use in nursing homes or other institutional settings.

*Aseptico*

800-244-2354 | aseptico.com

CIRCLE RS #9

---

**[LASER ACCESSORY]**

**Photobiomodulation (PBM) Adapter**

The photobiomodulation (PBM) adapter for the Gemini™ 810 + 980 soft tissue diode laser is the company’s latest tool for non-invasive treatments. When paired with the Gemini laser, the adapter gives clinicians the ability to treat a myriad of conditions—specifically pain management, even with such conditions as TMJ disorders—with one easy-to-use device. The adapter functions on the 810 wavelength, the optimal wavelength to be absorbed for photobiomodulation. Designed exclusively for the Gemini 810 + 980 soft tissue diode laser, the PBM adapter expands the Gemini laser’s extensive catalogue of procedures to deliver highly impactful treatments.

*Ultradent Products*

800-552-5512 | ultradent.com

CIRCLE RS #10

---

**[PRACTICE MANAGEMENT SOFTWARE]**

**XLDent Cloud**

XLDent Cloud combines the company’s practice management software with cloud data management technology, and is described as a solution for both prospective and current XLDent customers who want to take advantage of all the cloud benefits. It uses the current XLDent software in a hosted environment. The integrated solutions and feature-rich capabilities that dental practices are familiar with remain fully operational, making this a smooth transition to the cloud. The company also offers a more comprehensive plan, bundling powerful eServices such as Real-Time Insurance Eligibility, Electronic Remittance Advice, Patient and Doctor Portals, Encrypted Email, and more.

*XLDent*

800-328-2925 | xldent.com/cloud

CIRCLE RS #12
**NEW DENTAL PRODUCTS**

**[CURING LIGHT]**

**Radii Xpert**
Radii Xpert is described as a smarter curing light that incorporates the latest in LED technology to deliver targeted, consistent light for optimally cured restorations. Precision curing is achieved with a unique target assist technology, as a positioning light is said to ensure light is correctly placed over the restoration being cured. An optimally collimated beam ensures the light intensity is maintained on the restoration being cured. The 1,500 mW/cm² light intensity over a 4-mm aperture and wavelength of 440 nm to 480 nm, reliably cures all composites without the need for extended wavelengths. Smart technology includes an LCD display, countdown timer, and the ability to save a favorite setting.

**SDI**
800-228-5166  |  sdi.com.au
CIRCLE RS #13

**[BARRIER SLEEVE]**

**Sleeve-itTM**
Sleeve-itTM is a new disposable barrier sleeve line that provides proven protection against cross contamination. Made from high-grade durable material, the barriers have passed extensive testing to ensure patient safety. Easy to use, the barriers slide over syringe dispensers and feature a pre-cut opening to pass through the dispensing tip. Ideal for multiple-use dispensers that cannot be reprocessed using heat-sterilized or high-level disinfectants, they come in multiple sizes and can be conveniently used for each new patient per FDA recommendations.

**Premier Dental Co.**
888-670-6100  |  premierdentalco.com
CIRCLE RS #14

**[PRACTICE MANAGEMENT SOFTWARE]**

**Ava, the Virtual Office Manager**
Ava, the Virtual Office Manager tool, is part of the new MMG Manage suite of services acting as a Virtual Office Assistant. Unified Communications, and its optional AI powered upgrade Ava, were designed, tested, and continually improved by dentists and staff. Ava's primary function is to use AI to prioritize, streamline, and disseminate daily office tasks to team members using the Unified Communications system. The new tool creates tasks such as patient follow up or insurance verification, then assigns each task to the relevant team member or completes the task on its own when applicable. Once assigned, it will monitor the task through to its completion, ensuring efficiency.

**MMG Fusion**
844-938-7466  |  mmgfusion.com
CIRCLE RS #15

**[DIGITAL DENTISTRY SOFTWARE]**

**Heron™ IOS Solution**
Part of the Heron IOS Solution, the HeronClinic software platform is designed to improve the overall scanner performance and HeronCloud enables easy exchange of cases between dentist and lab. The entirely new case management user interface features smart improvements to the scan experience for both dentist and patient, giving a more complete user experience, and better inspection and visualization of the scan. The Manual Bite Alignment function introduces the ability to manually adjust the bite to ensure a perfect alignment is delivered to the lab, improving the CAD/CAM process. Other features provide the ability to Open Jaws; Colored Distance Map; and the new durable tip.

**3DISC**
800-570-0363  |  3DISC.com
CIRCLE RS #16
ANTI-BRUXING DEVICE
GrindRelief

Inspired by the NTI design, GrindRelief anti-bruxing device for professional use does not require models, laboratory fees, nor multiple appointments. Invented and patented by a dentist who also suffered from bruxism, it features a Central Power Bar to prevent bite-through and reduce muscle activity by 60 percent or more. The bar creates pressure on the upper and lower mid-line at the same time; the device doubles the beneficial mechanism of action of the NTI device. It can be fitted to upper or lower arches, can be re-fitted as needed, has a 3-year wear guarantee and FDA clearance. This device can be billed as any other bruxing appliance or splint.

Grind Guard Technologies
877-401-1224 | grindreliefn.com
CIRCLE RS #19

HAND SCALERS
Empowerment Kit

The Empowerment Kit is a new set of hand scalers designed specifically to enhance the effectiveness of ultrasonic and AIRFLOW® treatment protocol to deliver optimal clinical outcomes. This kit is a set of uniquely designed instruments that are optimized for detection and removal of residual calculus from hard to reach interproximal and subgingival areas. It is the first set of instruments that specifically support ultrasonic scaling and AIRFLOW. It features blades that are on average 10 percent thinner, with the clinically proven sharp cutting edge of EVEREDGE 2.0, facilitating easier access to subgingival and interproximal surfaces of the tooth. The instruments included are color coded.

Hu-Friedy Group
800-483-7433 | HU-FRIEDY.COM/EMPOWERMENTKIT
CIRCLE RS #20

PRACTICE MANAGEMENT SOFTWARE
ORCA

ORCA intelligence-backed software is designed to place dentists in full control of their practice by streamlining access to essential business and marketing services, masterclass training, equipment logistics, sales, and data intelligence. The technology gives dental practices instant access to marketing campaigns, progress reports, and a wealth of data in order to spend more valuable face-to-face time with patients. A major feature is ORCA’s artificial intelligence (AI) call analysis capability, which streamlines the way dental practices around the world operate; it is implemented in a new manner utilizing AI to measure intent and potential production opportunities.

Dental Whale
888-805-0091 | www.dentalwhale.com
CIRCLE RS #17

TOOTHPASTE
RiseWell Mineral Toothpaste

RiseWell toothpaste is made with naturally-derived hydroxyapatite, a mineral that makes up 97 percent of tooth enamel and has been proven to strengthen and protect your teeth without fluoride. Unlike many natural toothpastes, the company didn’t just remove the toxic ingredients found in traditional toothpastes; it swapped in 100 percent safe and natural alternatives that clean and protect just as effectively. Made with essential oils (such as peppermint and tea tree) and extracts (such as cinnamon and echinacea) that not only naturally freshen breath, but have been shown to reduce inflammation, fight bacteria, boost your immune system, and more. The toothpaste is Wild Mint flavored.

RiseWell
843-384-1282 | risewell.com
CIRCLE RS #18

By extracting data about a caller and the call itself, it provides key metrics that uncover potential production opportunities for the practice.
The **BEST** anti-microbial and it’s not even close

Post-incubation photos of one agar plate inoculated with S. mutans per each treatment group. In this direct comparison, Hemaseal & Cide demonstrates roughly TWICE the Inhibition Zone of two Glutaraldehyde-based leading brands. A larger Inhibition Zone generally means that the antimicrobial activity is more potent. (The DENTAL ADVISOR July, 2019)

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- **Less Microleakage***
- **1/3 to 1/2 the Price of GLUMA**

"Chlorhexidine is an effective broad-spectrum antiseptic. Hemaseal & Cide is a simple, effective way to reduce sensitivity and enhance the lifetime of restorations, and it costs significantly less than other popular desensitizers. I recommend you try it to keep patients comfortably smiling and recommending you to friends".

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GARY RADZ, DDS, DENVER, CO

"Having used Chlorhexidine for years, I was rather impressed when I was introduced to Hemaseal & Cide. The addition of HEMA to the Chlorhexidine has been so beneficial for sensitivity, and the research speaks for itself in terms of bond strength enhancement and anti-microbial effects. This product has been a great addition to my bonding technique."

CHAD DUPLANTIS, DDS, FAGD, FT WORTH, TX

"How often do we find a product that costs FAR less than the product it replaces? Hemaseal & Cide brings great desensitization, excellent anti-microbial action and a much lower fee than harmful glutaraldehydes. It’s a no-brainer!"

PETER AUSTER, DMD, POMONA, NY

"For me, products that will either enhance outcomes and/ or minimize mistakes are the ones I gravitate towards. Hemaseal & Cide not only does that, but makes me feel like I am doing better dentistry."

TIM BIZGA, DDS, FAGD, CLEVELAND, OH

"Studies available @ advantagedentalinc.com/pages/prod_hc-st.html"

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ENHANCE EFFICIENCY AND PREDICTABILITY WITH COMPOSITE RESTORATIONS

With OMNICHROMA, the shade-selection step is removed, the need for a high-cost inventory of multiple composite shades is removed, and a high-quality restoration can be placed with less clinical chair time. [by Dr. Mark Kleive]

OMNICHROMA

- The first universal composite that matches every patient’s tooth shade with a single shade of composite
- Saves time and money by removing the need for shade selecting and the need to keep excess product for incidental shades
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Tokuyama Dental America
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CIRCLES #22

THE PROFESSION OF DENTISTRY continues to be enhanced by industry leaders that improve the quality of materials that are available, therefore improving the quality of care that we provide our patients.

Tokuyama Dental America continues this trajectory by developing innovative products that are easy to use and have broad applications. The recently introduced OMNICHROMA composite, with its universal color-matching capability and excellent mechanical properties, is yet another example of Tokuyama Dental America’s innovation.

Dental professionals continue to seek products that make their clinical workflow more efficient. Because of the ability of OMNICHROMA to blend with any tooth shade, the shade-selection step is removed, the need for a high-cost inventory of multiple composite shades is removed, and a high-quality restoration can be placed with less clinical chair time.

The predictability in placement of OMNICHROMA also contributes to its unique nature. Prior to light curing, the opaque-white material has a creamy consistency that is easy to place, easy to sculpt with hand instruments and does not slump after placement. Once cured, it mimics the color of the adjacent tooth structure and offers a highly polished surface that looks very natural. It gives the patient a long-term, esthetic restoration they can rave about.

CASE STUDY [1] A 12-year-old patient presented with multiple moderate posterior interproximal carious lesions requiring restoration. After application of a 20 percent benzocaine topical gel into the sulcus of the upper left second bicusp, anesthesia was obtained with infiltration using 4 percent Articaine and 1:100K epinephrine. A W3 rubber dam clamp wasatraumatically placed and a non-latex rubber dam applied (Fig. 1). The preparations were performed with a #245 carbide bur from Brasseler USA with copious water spray. A #4 round bur from Brasseler USA was used to confirm the removal of infected dentin.

The teeth were prepped and sand blasted with 50 micron aluminum oxide (Fig. 2) and then a Composite-Tight 3D Fusion Sectional Matrix System from Garrison Dental Solutions was placed to control the interproximal placement of composite (Fig. 3). Enamel was acid etched with Etch-Rite 38 percent phosphoric acid. Dentin was bonded with Bond Force adhesive from Tokuyama Dental America and light cured for 10 seconds. The preps were filled in 2 mm increments with OMNICHROMA and light cured for 20 seconds with The Light, a high powered LED light from GC America. The initial pre-cured OMNICHROMA demonstrates its opaque-white color (Fig. 4).

Occlusion was adjusted using a Piranha #8 from SS White Dental round single-use diamond bur. The restorations were polished and shaped with a Brownie silicone polisher from Shofu Dental and Sparkle Diamond Polishing Paste from Pulpdent to achieve a natural enamel luster.

The completed restorations were both esthetically pleasing and functional (Fig. 5).

CASE STUDY [2] A 21-year-old patient with inadequate oral hygiene presented with a moderate anterior interproximal carious lesion requiring restoration (Fig. 6). After application of a 20 percent benzocaine topical gel into the sulcus of the upper right lateral incisor, anesthesia was obtained with infiltration using 4 percent Articaine and 1:100K epinephrine. A W2 rubber dam clamp wasatraumatically placed and a non-latex rubber dam applied (Fig. 7). The preparation was performed with a #245 carbide bur from Brasseler USA with copious water spray. A #4 round bur from Brasseler USA was used to confirm the removal of infected dentin.

The tooth was prepped and sand blasted with 50 micron aluminum oxide (Fig. 8) and then a clear polyester matrix tape from 3M Oral Care was applied to control the interproximal placement of composite (Fig. 9).

Enamel was acid etched with Etch-Rite 38 percent phosphoric acid. Dentin was bonded with Bond Force adhesive and light cured for 10 seconds. The preparation was filled in 2 mm increments with OMNICHROMA and The Light was used to light cure for 20 seconds.

Occlusion was adjusted using a Piranha #8 from SS White Dental round single-use diamond bur. The restoration was polished and shaped with Sof-Lex polishing disks from 3M and Sparkle Diamond Polishing Paste to achieve a natural enamel luster.

The completed restoration was both esthetically pleasing and functional (Fig. 10).

CASE STUDY [3] A 61-year-old patient presented with an abrasive lesion requiring restoration (Fig.
11). After application of a 20 percent benzocaine topical gel into the sulcus of the lower left canine, anesthesia was obtained with infiltration using 4 percent Articaine and 1:100K epinephrine.

The lesion did not require further preparation.

The tooth was sand blasted with 50 micron aluminum oxide. Enamel was acid etched with Etch-Rite 38 percent phosphoric acid. Dentin was bonded with Bond Force adhesive and light cured for 10 seconds. The preparation was filled with a single increment using OMNICHROMA and the initial pre-cured OMNICHROMA demonstrates its opaque-white color (Fig. 12). The restoration was light cured for 20 seconds with The Light from GC America. The restoration was polished and shaped with a Brownie silicone polisher, and Sparkle Diamond Polishing Paste to achieve a natural enamel luster.

The completed restoration shown with a VITA shade guide tab A4 demonstrates the chameleon capabilities of OMNICHROMA (Fig. 13).

Because composite restorations are the most widely placed restorations in the dental practice today, a product that enhances efficiency and predictability is paramount. OMNICHROMA satisfies the most important elements that establish it as a potential leader in the composite marketplace: ease of use and predictability of placement.

OMNICHROMA is indicated for all anterior and posterior direct composite restorations as shown in the documented case studies.
1. A W3 rubber dam clamp atraumatically placed and a non-latex rubber dam applied.

2. The teeth prepped and sand blasted with 50 micron aluminum oxide.

3. A Composi-Tight 3D Fusion sectional matrix system from Garrison Dental Solutions was placed to control the interproximal placement of composite.

4. The initial pre-cured OMNICHROMA demonstrates its opaque-white color.

5. The completed restorations for Case Study #1 were both esthetically pleasing and functional.

6. Patient in Case Study #2 with inadequate oral hygiene presented with a moderate anterior interproximal carious lesion requiring restoration.

7. A W2 rubber dam clamp atraumatically placed and a non-latex rubber dam applied.

8. The tooth prepped and sand blasted with 50 micron aluminum oxide.

9. A clear polyester matrix tape from 3M is applied to control the interproximal placement of composite.

10. The completed restoration for Case Study #2 was both esthetically pleasing and functional.

11. A 61-year-old patient in Case Study #3 presented with an abrasive lesion requiring restoration.

12. The preparation was filled with a single increment using OMNICHROMA and the initial pre-cured OMNICHROMA demonstrates its opaque-white color.

13. The completed restoration shown with a VITA shade guide tab A4 demonstrates the chameleon capabilities of OMNICHROMA.
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TREATMENT PLAN FOR BETTER PREDICTABILITY

A more complete treatment plan requires four elements—esthetics, function, structure, and biology.

[by Eric Farmer, DDS, Professional Development Director, Clinical Mastery Series]

Most if not all of us were taught to start our equilibration from the back and move forward, but the advantage of starting in the front is we get to know whether we can achieve guidance and coupling quicker.

We are not recommending pouring and mounting models in the office. We believe it makes tremendous sense to delegate these tasks to the dental laboratory to leverage doctor and staff time to interface with patients. Doing it in office is just not cost-effective. (Fig. 5 of die pinned mounted models).

Most if not all of us were taught to start our equilibration from the back and move forward, but the advantage of starting in the front is we get to know whether we can achieve guidance and coupling quicker, without mutilating posterior teeth. This technique also makes getting to our three options easier when treatment planning a case: Remove tooth structure (equilibrate), add to tooth structure (restore), or move teeth (orthodontics). We were also taught to start with the back teeth for treatment order. Perhaps the thinking was patients would not return if we did the front teeth first?

Starting in the front is logical because we can set up the proper guidance to protect the back teeth when we get there. From our model analysis and photos, we have determined in what direction we need to go, and we will start with the incisal display. Where we want the centrals to live in the face is the first question that determines smile line, length, and display. A lips-at-rest photo as well as smile photo are tremendously valuable to visualize the appropriate positions of the anterior teeth. A direct composite mock-up can help us achieve that visualization on one or two centrals, on your models, or digitally in Keynote or PowerPoint.

While looking at our mounted models in centric relation (Fig. 6), we also determine whether we need to alter the vertical dimension of occlusion. Reasons include esthetics, lack of restorative room, and a degree of conservatism of tooth structure.
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1a, 1b. A deprogrammed centric relation bite should be included.

2. An accurate facebow of the patient should be recorded.

3. Upper and lower impressions should be taken using a highly accurate vinyl polysiloxane material.

4. The models should be mounted in centric relation on a semi-adjustable articulator.

5. The die pinned mounted models are shown.

6. The models are shown in centric relation.
removal. Opening vertical dimension of occlusion is not the demon it is made out to be. In fact, it often makes cases much more conservative and easier to restore in terms of developing an occlusal arrangement that can contribute to a more stable and predictable outcome.

Although developing an ideal treatment plan is in fact pretty easy, it does come with challenges, when we have to plan to budgets and third-party reimbursement plans, for instance. Developing techniques to stage comprehensive cases to execute over time to help with budget concerns and communicating and presenting treatment plans to our patients are entirely different learned skills that take practice as well as repetition to achieve proficiency.

A game changer in my practice was learning and applying a system of treatment planning and model analysis that gave me many more arrows in the quiver not only for my game plan, but also for use in presentations—as well as treatment options that meet patients where they are in their dental health goals.

We invite you to join us for our Treatment Planning Workshop, with more than 50 percent of the course involving hands-on treatment planning and study model analysis to master your skills in predictable comprehensive treatment planning.

“Developing techniques to stage comprehensive cases to execute over time to help with budget concerns and communicating and presenting treatment plans to patients are entirely different learned skills that take practice and repetition.”

ABOUT THE AUTHOR
Dr. Eric Farmer graduated from the University of Nebraska College of Dentistry in 1991 after earning a biology undergraduate degree. He has taken more than 1,800 hours of advanced CE and has the honor of serving 20 years’ experience in family and cosmetic dentistry.

He maintains a practice in Wichita, Kansas, where he focuses on general dentistry and cosmetic dentistry. He is a gifted teacher and thrilled at the tremendous distinction to mentor colleagues in their studies. Dr. Farmer is a member of the American Dental Association, the Kansas Dental Association, he has Fellowship status with the American Academy of Craniofacial Pain and has Master status with BioResearch. Among his many other accomplishments he has been voted by his dental peers as one of the Top Dentists in Wichita and served as President of the Wichita District Dental Society.
HOW TO
SIMPLIFY CEMENTATION OF A SUPRAGINGIVAL LITHIUM DISILICATE CROWN WITH NEW ADHESIVE TECHNOLOGY

The following case illustrates how to use advanced adhesion techniques to dramatically improve dentin adhesion and reduce post-operative sensitivity. [by Richard Young, DDS]

AFTER SELECTING THE BEST RESTORATIVE MATERIAL FOR A GIVEN indication, the clinician is next faced with determining the correct cementation method for that material among a confusing array of products, all with their own multi-step protocols. Kuraray Noritake Dental has introduced a solution to this clinical dilemma: PANAVIA SA Cement Universal. This author has used their products, with their innovative technologies, throughout his 35 years of clinical practice.

PANAVIA SA Cement Universal, the first cement with dual-monomer technology, is a self-adhesive, dual-cure resin that bonds to virtually every dental material without the need for a separate silane or primer.

The unique long carbon-chain silane monomer (LCSi) provides the adhesion to glass ceramics and composite resins without a reduction in strength. The original 10-MDP (Methacryloyloxydecyl Dihydrogen Phosphate) provides the chemical bonding to zirconia, metals and tooth structure.

This high-functioning cement can save clinicians time by eliminating the need for any primers during cementation while creating a strong, durable bond to virtually all surfaces. Further, because the resin sets into a gel after tack curing, thorough cleanup is significantly faster and easier. This advancement in adhesion technology was used to cement a lithium disilicate (Ivoclar Vivadent’s IPS e.max) crown replacing a fractured 12-year-old porcelain fused to zirconia crown.

The method described below uses a traditional impression method with a VPS material from Kettenbach USA and stresses the importance of immediate dentin sealing prior to temporization and cementation, ensuring margins are supragingival, and inclades the use of a black rubber dam.

Case presentation
A 52-year-old man presented to the practice with a fractured porcelain crown placed 12 years prior on tooth No. 19. The fracture, as well as recurrent decay, on visual inspection during the oral examination and was confirmed by radiographs. The recommended treatment plan was to remove the decay and replace the fractured porcelain fused to zirconia crown with one made of lithium disilicate.

Temporary and final restoration
Before removing the old crown, an impression for temporization was taken using Kettenbach’s Panasil initial contact X-Light impression material in a triple tray.

The defective crown was removed using a fine red-striped diamond bur from Komet USA, after which a rubber dam was placed to finesse the preparation to have all margins supragingival for cementation. In this case, deep margin elevation was not required to have the supragingival margins desired for cementation.

After the preparation was completed (Fig. 1), immediate dentin sealing (IDS) was completed on the dentin to seal it prior to temporization and final cementation (Fig. 2). After removal of the rubber dam, another VPS impression was taken, this time for the final restoration. Because the margins were kept supragingival, cord isolation was unnecessary.

To minimize distortion, prior to taking the VPS impression, Liquid Lens from Zest Dental Solutions was placed over the resin and light cured to reduce the oxygen inhibition layer on the bond created with IDS. (This step would not be required with a scanned impression.)

Next, the temporary crown was fabricated using Luxatemp, a bis-acrylic material from DMG America. Because of the IDS on the tooth being treated, a light coat of petroleum jelly was applied before the patient was instructed to bite into the triple tray containing the temporization material, which, after setting fully in the mouth, locks the temporary crown between the interproximal contacts of the adjacent teeth.

The bite was then checked for occlusion, after which the patient was sent home, and the impression was sent to the laboratory for fabrication.

Cementation
At the cementation appointment, the temporary was removed and the restoration was tried in to ensure that contacts, margins and occlusion were correct prior to cementation. The rubber dam was then placed. (Note: The beauty of careful planning with supragingival margins is that rubber dam placement is very easy, resulting in a much cleaner environment for cementation.)

Importantly, either the laboratory or the dentist must adhere to cementation protocols for the restoration material. With lithium disilicate, that means etching with 5 percent hydrofluoric acid for 20 seconds or an alternative is 9 percent such as Porcelain Etch from Ultradent) for 90 seconds (Figs. 3 and 4), after which it was thoroughly rinsed and air-dried. Phosphoric acid was applied to

PANAVIA SA Cement Universal
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AT A GLANCE

1. Final preparation.
2. Immediate dentin sealing protocol was followed.
3. Phosphoric acid was used to etch enamel and clean resin surface on dentin.
4. Hydrofluoric acid etching IPS e.max. Yellow HF etch shown is 9 percent; red HF etch is 5 percent.
5. PANAVIA SA Cement Universal is syringed directly into etched, rinsed, and dried IPS e.max crown; no separate silane is needed.
7. Tack-cure for two to five seconds.
8. Cement, which becomes gel-like after curing, cleans up easily.
9. Additional curing is possible with translucent restorations.
10. Final restoration.
The beauty behind this cement for most clinicians is that no thinking is required—all they need to do is clean the preparation, prepare the restoration according to protocols for the material, inject the cement into the crown, place it and clean off the excess. The cleanup is superb; with a two- to five-second tack cure, it easily peels away.

With the proven original MDP found in Kuraray Noritake Dental products for decades, plus the LCSi silane monomer to enhance adhesion to glass ceramics, PANAVIA SA Cement Universal helps make cementation easier than ever before.}

**Discussion**

The goal in any restoration of this type is to have all margins fully exposed for cementation of the final restoration. Therefore, this method stresses the importance of supragingival margins, which are apparent using a rubber dam. The clinician also follows immediate dentin sealing protocols (to protect the pulp, reduce sensitivity, and increase bond strengths) prior to temporization and final cementation.

For cementation itself, PANAVIA SA Cement Universal promises to greatly simplify the often confusing and arduous process of choosing and using a cementation material. The beauty behind this cement for most clinicians is that no thinking is required—all they need to do is clean the preparation, prepare the restoration according to protocols for the material, inject the cement into the crown, place it and clean off the excess. The cleanup is superb; with a two- to five-second tack cure, it easily peels away.

With the proven original MDP found in Kuraray Noritake Dental products for decades, plus the LCSi silane monomer to enhance adhesion to glass ceramics, PANAVIA SA Cement Universal helps make cementation easier than ever before. ●

**REFERENCES**


**ABOUT THE AUTHOR**

Dr. Richard Young is an Assistant Professor of General Dentistry at Loma Linda University School of Dentistry where he directs as well as lectures in the D3 aesthetics program. His interest in dental photography and adhesive dentistry spans the last 35 years. He lectures on minimally invasive, advanced adhesion dentistry. Dr. Young maintains a private practice with his wife focusing on esthetic dentistry in San Bernadino, California.

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ZR-Cem™ promises to revolutionize zirconia cementation

Indirect restorative dentistry poses unique challenges, but a new cement may provide clinicians with a much-needed solution. [by Chad C. Duplantis, DDS, FAGD]

Cementation is certainly one of the obstacles that clinicians must overcome. They can prep a tooth ideally, choose an appropriate material, and impress to near perfection, yet the restoration is a success only once it’s completed. Cementation is the final piece of the puzzle for restorative success.

Over the past several years, many manufacturers have manipulated chemistry in an attempt to formulate the “perfect” cement. In addition, newer restorative materials have become useful in indirect dentistry. These newer materials pose different challenges and demands that manufacturers must take into account when developing cements.

One such material that has taken hold is the non-silica-based ceramic zirconia. In fact, in 2018, 77.6 percent of all indirect restorations were zirconia based, according to Glidewell Laboratories. This represents a huge shift in restorative dental materials over the past 10 to 15 years.

A commonly encountered clinical problem with the use of zirconia-based components is cementation. Additionally, many clinicians misunderstand the chemistry of zirconia and cements, raising questions over the proper way to cement zirconia and zirconia-based restorations.

About the product
Premier Dental Products is introducing a new cement in the U.S. market that they claim to be revolutionary. The company says the new cement, ZR-Cem, is “an innovative self-adhesive universal resin cement specially formulated for zirconia restorations.” The manufacturer boasts excellent bond strengths, inclusion of the MDP monomer in the chemistry, and formulation with a unique benzoyl peroxide- (BPO), amine-free initiator system that ensures long-term color stability.

Premier also notes that the product is easy to use. Pretreatment of the restoration prior to cementation is not necessary, nor are separate etching or bonding steps for the preparation. The cement also has an optimal viscosity which allows for easy dispensing, placement, and cleanup. ZR-Cem can also be stored at room temperature, with no need for refrigeration, and will still perform as intended.

The evaluation
Premier reached out to Catapult Education to evaluate this cement. Catapult is a group of speakers, reviewers, and practice growth experts throughout North America dedicated to advancing dentistry through education. In addition, the group participates in product evaluations to constantly improve the quality of dentistry that clinicians provide and to give valuable feedback to manufacturers to enhance product development.

ZR-Cem is a self-adhesive universal resin cement specially formulated for zirconia restorations. The dual-cured ZR-Cem is designed to enable a strong bond to all ceramic materials, dentin, and enamel—all while reportedly ensuring superior retention and marginal integrity. This resin cement features a BPO/amine-free initiation system for lasting color stability and its MDP formula enhances adhesion and bond to zirconia substrates. ZR-Cem is available in three shades.

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For this assessment, 17 evaluators participated. In total, the evaluators used 20 different cements on a regular basis. They were provided with samples of ZR-Cem and asked to participate in a survey. The responses were overwhelmingly favorable.

All evaluators felt this new cement performed as well as, if not better than current self-adhesive resin cements used in their practices. While Premier does not offer any other definitive cements, the evaluators noted that this would not deter them from trying ZR-Cem. The latter is the result of the reputation that Premier maintains in the dental marketplace.

The survey asked evaluators about switching cements and incorporating a new cement into their practices. Although they felt that key opinion leader recommendations were important, sample testing, physical testing data, and color stability all ranked high as reasons to switch. According to the manufacturer, the bond strengths and color stability differentiate this cement from others in the same category.

The evaluators were given a list of characteristics that a cement could or should have and were asked to rank them in order of most to least important. In order of greatest importance, the evaluators noted strong, superior bond strength; ease of use/great handling; and fast and easy cleanup. Premier claims that ZR-Cem has all three of the characteristics deemed most important to the evaluators.

**Conclusion**

At the conclusion of the evaluation, the evaluators were asked a series of questions regarding their initial impression of ZR-Cem. The responses were overwhelmingly favorable. All evaluators felt that this cement performed as described and intended. Additionally, not one evaluator experienced a complication. Furthermore, the vast majority of evaluators felt this cement would enter the market at a great price point for the practicing clinician.

In line with the most important characteristics of a cement noted above, many of the comments from evaluators were related to ease of use/ dispensing, ease of cleanup, and overall handling. Not one evaluator reported a single instance of post-operative sensitivity. All evaluators also agreed that the cement warranted regular use in the office.

The evaluators’ final question was, “Would you recommend the product to your peers or include it in your lectures?” The answer again was a resounding and unanimous yes.

Premier has produced a much-needed cement for the largest prescribed classification of indirect restorations in dentistry. Although the cement is marketed toward zirconia-based restorations, this is truly a universal self-adhesive resin cement that performs very well compared with the competition. As such, the evaluators took great pleasure in giving ZR-Cem the Catapult Education Vote of Confidence.

**REFERENCES**

Smart—And Getting Smarter All the Time

How smart technology is changing the dental care landscape. [by Dr. John Flucke]

Smart tech surrounds us on a daily basis. I go to sleep listening to white noise broadcast from my Amazon Echo to my Bose Bluetooth speaker on my bureau. I wake to an alarm from the same Amazon Echo. I stumble out of bed to pour my first cup of coffee, which has finished brewing 15 minutes before my alarm goes off. Five minutes before I am ready to leave for the office, Siri places my order for Starbucks (I know, I consume too much caffeine). Two minutes before I walk out the door, Alexa tells me about the traffic on my commute and the anticipated travel time, and that’s all before my workday gets started.

I’d be willing to bet that many of you have more technology driving your morning than what I just listed. We are now living in a world of smart devices that take care of us. From Nest thermostats to Ring doorbells, we are living in the IoT, or the Internet of Things. Our homes have become technology platforms and in the past 10 years our vehicles have definitely become technology platforms. The exponential growth of devices and technologies has completely changed how we interact with our environment.

I think the short answer is that we aren’t at the point of a truly integrated smart office. Yet.

Development in dentistry always seems to go through a creation phase, which is when individual products are developed and the bugs are worked out. When the technology reaches a critical mass in the market, it then becomes something that we as a profession use on a regular basis and many offices find they can’t do without.

After reaching this point, offices begin to look for ways to integrate these technologies and create a smooth digital workflow. The workflow piece is essential when offices find that these technologies have become mission critical.

To improve and simplify these processes into a truly digital workflow, the creation phase is followed by the integration phase. This is when multiple technologies converge and can work together—think of digital radiography and intraoral cameras. These were both standalone systems when they were created. However, when computers began to appear in the operatory these two standalone technologies were suddenly connected into a smooth digital workflow via the operatory computer. We went from two cart-based systems that were wheeled around the office to a clinical work-
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flow that was always there, always on and easy to use. The current state of the smart office is in the creation phase. The last integration phase stalled when dentistry entered the world of 3D. Cone-beam computed tomography and chairside digital impression/scaner systems required their own computers and high-end graphics capabilities. The hardware was expensive and would have required new computers in every operatory just to view CBCT scans.

The good news is that creation means innovation and that translates to new and exciting things to improve patient experiences and clinical outcomes.

So, let’s take a look at some of the devices that will change our practices and improve our digital workflows as the next phase of integration takes place.

**Artificial Intelligence**

Machine learning is real and it’s changing the world we live in. Society’s current focus on security against terrorism has created a world where cameras are ubiquitous. A quick internet search brought up estimates that the average American is photographed between 40 to 70 times per day.

Now, before we go down the rabbit hole of living in a surveillance state, let’s look at the positive of this. Whenever technology advances, smart people will figure out a way to take the glut of it and repurpose it into other technologies.

The reason that we have such a huge consumer drone market is because of the glut of parts created by the cellphone maker. Manufacturing processes became more efficient, prices fell, and now I’m running my quadcopter on autopilot with the crash avoidance capabilities of a Tesla.

Humans can’t analyze all that photographic digital data. Facial recognition software was one innovation to handle the multitude of digital images. The trickle-down effect is tremendous advances in artificial intelligence (AI) have been made and those algorithms are being applied to dental radiographs.

There are several companies that are training AI programs to identify caries, bone loss, periapical pathologies, you name it.

These systems will not be making a diagnosis instead of the doctor. Rather, they will offer objective second opinions that allow the doctor to have more data points to better make diagnostic decisions.

The other advantage of AI is that as the doctor works with the system and corrects any errors it makes, the system learns (hence the term machine learning) and the system improves at indicating areas of concern. Soon, these algorithms will be examining radiographs once they are taken. This will help diagnostic accuracy and also improve patient communication as patients have more than just the doctor’s opinion.

**Connected equipment and hardware**

The average new automobile now has between 2.5 to 50 central processing units running all kinds of functions in the vehicle. With all of that computing going on, how does the service technician know what the problem is? The technician plugs a small device into the vehicle and those CPUs provide a report to the technician showing what, if any, functions are out of the proper parameters.

Dental offices are now entering that realm as well. Just as some homes are referred to as “connected homes,” there is now the ability to create the connected dental office. Programs such as Romexis Clinic Management software from Planmeca connect the dental units with software and allow those units to communicate back to the practice with all kinds of statistics on usage, number and type of radiographs taken, milling jobs, and maintenance.

The system also allows employees to log into their units via key cards set that the operator up with the user’s preferences with things such as patient chair position, etc.

There is also a Romexis Imaging module that brings 3D, 2D, and digital impressions all into one program. It allows for all of these completely different data sets to be merged into one continually updating 3D patient. This allows for incredibly complex treatment planning with amazing features such as virtual articulation right on the screen.

There are also internet-connected devices, such as the Statim G4 autoclave from SciCan. This is the world’s fastest cassette autoclave from start to sterile. In addition to the speed, the Statim G4 is also internet connected. The device is Wi-Fi compatible and sends data on sterilization cycles to devices or computers so that the person in charge always knows that everything is correct.

If there is a problem requiring service, the Statim G4 will send an alert to your service technician, who will know what the problem is? The technician plugs a small device into the vehicle and those CPUs provide a report to the technician showing what, if any, functions are out of the proper parameters.

Dental offices are now entering that realm as well. Just as some homes are referred to as “connected homes,” there is now the ability to create the connected dental office. Programs such as Romexis Clinic Management software from Planmeca connect the dental units with software and allow those units to communicate back to the practice with all kinds of statistics on usage, number and type of radiographs taken, milling jobs, and maintenance.

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Romexis Clinic Management software from Planmeca connects dental units with software and allows those units to communicate to the practice itself.

The Orthophos SL from Dentsply Sirona is a CBCT system capable of 3D imaging, a technology that opened new possibilities in diagnostics and treatment planning.
is before they walk into the office. This eliminates the need to repair an autoclave off-site and helps increase device uptime as well.

Motion sensing radiography

Earlier, I mentioned how excess inventory from the cellphone manufacturers helped bring the drone evolution to market, but something else has benefited from that industry—intraoral radiography.

The DEXIS Titanium sensor from KaVo Kerr has an accelerometer built into its hardware. That chip senses motion in your cellphone and changes the screen view as you rotate it. Because of that little chip, the sensor can detect movement.

The smart folks at DEXIS took advantage of this by building in the ability of their software to communicate with the sensor that allows the operator to tell the software what kind of X-rays are being taken by moving the sensor in certain ways. This is tremendous for infection control because it allows the operator to take images without having to use a mouse or a touchscreen.

I’m looking for other devices with motion sensing technology to show up in future generations of many of the hardware devices we use.

On the horizon

I cannot discuss all of the latest connected devices I’ve seen lately due to nondisclosure agreements that I’ve signed, but please trust me when I say the best is yet to come. In the past nine months or so, I have seen some incredible things that have the potential to truly change the way we practice. One of the things I love about our profession is the passion that everyone in the field has for what we do. Scientists, chemists, engineers, physicists, business leaders, and employees in the office with us are just a small sample of the number of people who affect the lives of patients for the better.

As things progress, we are going to see another integration phase and what that leads us to is going to be phenomenal. This is going to be fun!

ABOUT THE AUTHOR

John Flucke, DDS, is Technology Editor for Dental Products Report and dentistry’s “Technology Evangelist.” He practices in Lee’s Summit, Mo., 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.

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PUTTING THE SMART IN YOUR PRACTICE

SMART TECHNOLOGY IS EVERYWHERE, FROM SMARTPHONES AND SMARTWATCHES, TO SMART TVS AND REFRIGERATORS. EVEN THERMOSTATS AND DOORBELLS HAVE SMART TECHNOLOGY BUILT IN.

“SMART” began as an acronym for Self-Monitoring, Analysis and Reporting Technology. Today, most people think of smart technology as offering consumers interaction and control of things using the internet. One definition says smart technology provides “cognitive awareness” to animate objects through artificial intelligence (AI), machine learning, and big data analysis.

“We live in such a smart world, that as consumers, we’re conditioned to work with technology to make our lives easier. It helped us be better performers. When it comes to the dental practice, we want to have the same thing at work,” says Jessica Wilson, MPH, business development manager for Instrument Management Systems, Hu-Friedy Group.

Smart technology is used to automate mundane tasks in our everyday lives according to Masa Ogata, CEO of Tokuyama Dental America. “Smart technology is prevalent in every aspect of our private lives from smart light bulbs to automatic pet feeders. It seems a natural progression for practitioners to want to improve their workplace as well. Smart technology will undoubtedly continue to evolve and simplify the centralization of the dental practice, helping to increase potential revenues while reducing overhead costs,” Ogata says.

Jonathan Bass, content marketing manager for RevenueWell, also believes smart technology will become ubiquitous in the dental practice. He envisions a future where dentists can’t live without it. “As younger dentists come in and are more used to technology and the different systems, it will be folded into their muscle memory,” Bass says. “We believe that in the near future ‘smart’ is going to apply to any product that reduces time or effort—in terms of documentation, know-how, troubleshooting, and even worry, and this can be applied to the dental office now,” Heather Trombley, president of DentalEZ, says.

Kyle Stanley, DDS, and chief clinical officer at Pearl, says new technology will provide consistency and bring more dentists into the future. It will also take on mundane...
The benefits of smart technology in the practice
Smart technology is already making an impact in numerous ways. With the automation and integration available today, smart technology and AI are already changing dentistry’s business-as-usual.

Smart technology in the dental practice will mimic the enhancements of our personal lives where technology becomes a multiplier, says Tom McCleskey, general manager of A-dec’s Premium Core Equipment Team. Dentists will have more information in real-time that improves processes.

“Smart technology is a pretty broad term, and it’s saying all of the different devices you’re interacting with can not only receive signals or change the state of different settings, but it also has some processing capability,” McCleskey explains. “Equipment with microprocessors that can interact inside of a particular system and then with other products in an ‘ecosystem’ is a big trend.”

Teledentistry—which uses electronic information, imaging, and communication to provide diagnosis, consultation, and treatment—improves the patient experience during referrals and allows for efficient collaboration, making it more hands-on for the GP in real-time, according to Brant Herman, CEO of MouthWatch. He envisions live video conferencing with the specialist, patient, and treatment coordinator where the GP shares intraoral images and clinical data. Teledentistry also allows the GP more engagement with the patient during and after treatment, elevating the patient relationship.

“So, it’s the provider that they have the relationship with helping guide and increase the case acceptance they’re proposing,” Herman says.

Teledentistry can also facilitate public health dentistry for states that allow it, including community-centered practices, such as screenings at nursing homes and school-based varnish programs that lead patients into brick-and-mortar practices for follow-up care. Herman sees the potential to expand this idea beyond public health.

“We’re seeing more of these programs now where practices are going onsite to an office building and setting up a portable operator. Hygienists are providing preventive and cosmetic services, like whitening and taking images. Dentists then review the images taken remotely and share the treatment plan with the patient,” Herman says.

MouthWatch’s turnkey teledentistry product TeleDent recently launched its patient portal with direct patient messaging designed to improve efficiency with delivering care. Also, the dentist can take snapshots during a live consult, which can be saved into a patient record.

Plus, it allows for offline work when internet service is a problem. Moreover, MouthWatch has end-to-end HIPAA compliance. Teledentistry needs cameras to work, and MouthWatch offers cameras for $299 with an additional discount when purchasing more than one. The company’s goal is to make it possible for every operatory to have a camera whether in traditional private practice, group practice settings, DSOs, and even public health settings.

“We say that intraoral cameras are the starting point to teledentistry, because once practices have the cameras in place, teledentistry can begin. We’ve seen programs thrive by only sending out a hygienist with a laptop and a MouthWatch camera,” Herman says.

Smart technology and increased communication
The Internet of Things (IoT) is an often-used phrase that describes every device connected to the internet. But increasingly, IoT has come to specify objects that “talk” to each other. By combining these devices with automated systems, it’s possible to gather and analyze information and create an action based on that analysis. In layman’s terms, these devices are able to communicate with each other and automatically act on that communication.

IoT impacts the dental practice with smart dental devices, according to John Flucke, DDS, Chief Dental Editor and Chief Technology Editor for DPR. New software can connect devices in the operatory and collect data, including needed maintenance. This connectivity can create efficiencies in the practice.

“If someone can come in and fix a dental chair in the downtime over lunch, you never have downtime in that operatory. It allows us to take advantage of 100 percent of the time potential we have, which is pretty cool,” Dr. Flucke says.

Take Denti.AI, for example—an unbiased cloud-based AI/Machine Learning clinical decision support tool used to identify non-pathological and pathological findings on 2D dental radiographs and provides standardization, clarity, and calibration for the dental profession. Their smart chart technology is capable of automated charting for panoramic films. It also helps with communication between dentists, with patients and—in the U.S.—with insurers. Denti.AI offers both an enterprise model and a model for individual offices.

“Our goal is to help great dentists provide great care,” Dr. Eric Pulver, chief dental officer for Denti.AI, says. Jeremy Krell, DMD, MBA, head of marketing at Simplifye, says technology will improve communication between software. He also predicts more consolidation through acquisition or design, and more multiple-function, one-stop shops improving user experiences for dentistry.

“Everyone should be watching,” Dr. Krell says.

Henry Schein One’s Dentsply Smart Image builds upon the philosophy that everything should work together as one integrated system. Dentsply has a standardized API with more than 250 partners that created integrated solutions. Smart Image is the end of 20 years of silo lockup, or how vendor-chosen relationships ruled dental technology integration, according to Michael Fillmore,

Smart technology is already making an impact in numerous ways. With the automation and integration available today, smart technology and AI are already changing the dental industry’s business-as-usual.”
“Small violations can have big consequences. What could I be missing?”

STAYING COMPLIANT IS MORE CRITICAL THAN EVER.

Managing infection prevention standards and guidelines is no easy task. The number of standards and guidelines outlined by organizations like the CDC, state dental boards, and OSHA can be overwhelming, and everyone is held to a high level of accountability. To have an effective infection prevention program, staff members must be thoroughly trained and committed to following the right steps every time. Because there is no “good enough” – only compliant or noncompliant.

Change the way you look at infection prevention with the GreenLight Dental Compliance Center™ by Hu-Friedy. This exclusive, one-of-a-kind resource keeps all of your infection prevention guidelines and regulations conveniently housed in one portal. With GreenLight, you can easily assess, improve, and maintain compliance.

Get started on the path to increased compliance by visiting GreenLightComplianceCenter.com
Dentrix marketing manager, Henry Schein Practice Solutions. “The choice of what technology works best in your practice is up to the dentist,” he explains. “It’s our job to make sure that it integrates, that it speaks to each other, and it reduces complexity and extra work.”

However, Fillmore says integration was only the first step. The next step is automation. Smart Image is the platform for all the imaging systems that exist from all different vendors to deliver them to the patient file automatically.

For example, if a patient needs bitewings, premier vendors with Smart Image will get the imaging system ready to take them. Afterward, it will attach the bitewings to the patient file and automatically generate the CDT codes and post them to the ledger. The system will also note the bitewings in re-care.

“If you’re using our electronic claims services, it automatically attaches those correct images with correct codes to the correct claim for you to submit, which takes a lot of work off your plate from a financial and clinical perspective,” Fillmore explains. “All of that is about communicating, and it’s easier to have it all under one roof to make it all communicate together.”

Automated communication technology can free up time to focus on developing personal relationships with patients in the office, according to Clint Berry, CTO of Weave. Smart technology also gives practices insights into business performance and improvement.

“So, I see the impact soon being even more time savings to focus on the most important things in a dental practice and insights that tell dentists how to improve,” Berry says.

DentalEZ understands connectivity and communication with their smart line of products. The Aeras™ product line is designed to make it simpler and more efficient to practice dentistry.

“The oral health care professional can focus on what’s really important—great patient outcomes in an efficient care model,” Trombley says.

The new Aeras Ramvac dental compressor has embedded technology coupled with data monitoring that converts operating data into actionable information, such as a text or email. The smart compressor can do things automatically, including scheduling routine maintenance with a service provider.

“The resulting benefits are real and address one of the biggest pain points—unplanned downtime,” Trombley says. “We’ve seen first-hand the reaction by dentists and service providers confirming this; the most common sentiment is, ‘Finally.’”

Moreover, the compressor can be controlled remotely for added convenience.

“No return trip, less time, less worry for the dental practice,” Trombley says of the remote access feature. “That’s smart and it is available now.”

Smart tech in the operatory

This technology can help in clinical situations as well. For example, Pearl AI’s second-opinion product will provide consistent diagnoses while reducing the risk of missing something, Dr. Stanley says.

“It’s like having a part-time radiologist with superhuman eyes. It takes the risk out of looking at radiographs by having a built-in AI second opinion over your shoulder,” Dr. Stanley says. Intelligent software that can flag problem areas on an X-ray has two great implications, according to Dr. Flucke. First, it can serve as an impartial third party that educates patients. Second, everyone is prone to miss something, especially when it’s busy in the practice and things are not going as smoothly as you hoped overall.

“It’s easy to make a mistake. It’s easier when you’re under the gun to miss something,” Dr. Flucke says. “It’s just like having another doctor look over your shoulder and looking at the X-rays and saying, ‘Hey, did you deal with 31? Because that looks like something to me.’”

Pearl AI’s practice management product is a business intelligence tool. Using the second-opinion product, it takes all the data to provide data-driven patient segmentation to help manage their care efficiently. It will also identify if you have enough cases to employ a specialist on staff.

Pearl AI’s Smart Margin can be incorporated with labs and DSOs. It automatically marks and “scores” the margins on intraoral scans. Labs can then route the cases internally based on the scan quality, and practices have unbiased insight into areas of opportunity for staff training.

Tokuyama developed the Smart Materials selection and inventory system to help dentists with productivity. “The idea behind Smart Materials is to boost productivity for the practitio- ner by saving time and money,” Ogata says. Their latest composite, OMNICHROMA, addresses this and other pain points in a practice.

“OMNICHROMA is a prime example of a smart material—a single shade of composite that is clinically proven to match the color of any tooth. The newest composite by Tokuyama Dental not only saves the practitioner time from having to shade match their patient, but it also reduces inventory waste,” Ogata explains.

However, the materials aren’t the only thing in the operatory that has a smart upgrade. For composite restorations, smart technology in curing lights might contribute to the longevity of the restorations compared to using the blue-light LED standard of today, a significant improvement for both the patient and the doctor, according to Nicole Chartier, product manager for Apex Dental Products.

Curing lights haven’t had an update since the blue light LED was introduced, she says. PinkWave™, Apex Dental Materials’ latest innovation, uses QuadWave™ Technology, which means the light uses four different wavelengths: UV light, Blue, Red, and Near-Infrared light (NIR) wavelength, which combine to create a Pink light. The QuadWave technology has increased the polymerization microhardness for restorations by 16 percent on the top of the restoration and 23 percent on the bottom, Chartier says. Furthermore, it decreases polymerization shrinkage over the LED blue light by 10 to 15 percent, depending on the composite.

“There will be less marginal staining and pull, so the restoration is going to look better and decrease the chance of secondary caries,” Chartier says. The light has a transilluminator.
Dentists didn't come to the industry to be business owners; they came to be dentists. Smart technology will make things more streamlined than it is today.

— MADI BULLOCK, HEAD OF PUBLIC RELATIONS, WEAVE

built-in, eliminating the need to buy a second light and saving chair time that dentists previously spent switching between the curing light and transilluminator light. The larger curing capacity of 115 mm² vs. 107 mm², means the head will cover the entire tooth surface, so clinicians can cover the entire prep in one cure cycle. The PinkWave also increases the curing power without heating up the pulp tissue using the NIR wavelength.

“Since the pulp tissue does not absorb these light waves, we can increase the power wattage without heating the tissue, which is safer for the patient,” McCleskey says.

Operatory chairs have upgrades, too. McCleskey was director of product management during the development of the A-dec 500 dental chair, the design of which took into account the challenging physical experience that a dental team experiences daily.

“The new 500 focuses on fostering great ergonomics for the dental team and great integration of all of the technologies at their fingertips with an easy-to-access user interface that allows them on-demand to access instruments and change settings without even a second thought,” McCleskey says.

The design of the 500 is also tolerant of the rate of change of technology, he says. Teams can add technology later that integrates with the system.

“Dentists make a big investment in equipment that they use all day, every day to do their job. They want to have reliable equipment that’s also scalable into the future,” McCleskey says.

The A-dec team also considered repetitive tasks in their design. They have things turn on or reset automatically so the dental team doesn’t have to think about it. Moreover, it needed to be easy-to-use.

“It has to be somewhere where a dentist can go right to work without a lot of learning curve,” McCleskey says.

The A-dec 500 features a capacitive robust interface and feedback screen that moves into a working position so dentists can access their instruments and see the controls while barely turning their heads. Dentists can look over the top of their loupes and make a quick activation or setting adjustment and get back to work.

“It’s having all of that information right where they need it,” McCleskey says.

The organization continues in the operatory with smart systems in place. The Zirc Color-Method is a comprehensive instrument and materials management system. Each procedure is color-coded with every instrument, tool, and material needed for it and organized by color-specific tubs, trays, instrument holders, and Zirc’s EZ ID rings and tape.

“You’ve got everything you need when you go into the treatment room to help that patient,” says Kay Hickey, product and efficiency consultant for Zirc Dental Products.

“You are setting yourself up for success the next day. When the team goes in for a procedure, everything is set-up ahead of time and color-coded, making everyone happier, less stressed, and more efficient,” Holly Winn, Marketing Manager for Zirc, says.

The instrument holders eliminate the need to sort through a pile of instruments for cleaning, which is time-consuming and risky for infection control. Zirc’s fiber-filled and anti-microbial resin cassette keeps the instruments together, so they never get misplaced. Plus, the cassettes are more cost-effective than stainless-steel cassettes.

“Also, with this color method, having that attractive, organized, colorful look right there chairside eases patient anxiety,” Winn says.

Another benefit is managing the inventory. Instead of filling four treatment rooms with the same materials, a procedure tub moves from room to room for each procedure, Hickey says. You can see at a glance what’s available, reducing the risk of over-ordering.

“Through the course of my career as a dental assistant before coming to Zirc Dental Products, I’m sure I’ve thrown thousands of dollars away in inventory. This system prevents that from happening,” Hickey says.

Practice management and technology

Many people underestimate how complicated managing the daily activities of a dental practice can be. A lot of prep work goes into processing patients efficiently and smart technology will help.

“There’s probably not a process that won’t be affected in some way by these systems that can communicate one to another,” McCleskey says.

Many inefficiencies in the practice are due to ignorance because staff don’t even realize a problem as it has become part of the norm, Hickey adds.

“Dentists didn’t come to the industry to be business owners; they came to be dentists,” Madi Bullock, head of public relations for Weave, says. “Smart technology will make things more streamlined than it is today.

Smart technology can help simplify many aspects of practice management, including staffing, compliance training, and handling supply chains.

“Many practices are run with a player-coach mentality. However, dentists don’t always have the time to oversee the practice from a perspective of managing chair time, reschedules, optimizing costs for operations, etc.,” says Joe Fogg, CEO of onDiem, a national, on-demand dental staffing firm. “Technology can provide dentists with deep-dive insights into the practice presented in a dashboard to help them maximize their time, so they can treat more patients and provide better care.”

Smart technology will take hold in dentistry because of its cost-efficiency, says RevenueWell’s Bass. The return on investment (ROI) reverts to the stakeholders’ pockets faster than other technology investments, such as CAD/CAM systems or some laser technology.

“Our technology is a couple hundred dollars a month. Practices pay off the monthly fee in two days,” Bass says. “And the work we’re doing now shows the old-guard how to boost revenue to give themselves a better forecast when they want to sell.”

Smart technology has the ability to streamline patients’ time in the chair, allowing dentists to see more patients and improve practice revenue, according to Chartier.

This technology has also emerged to help drive down the cost of supplies. Dr. Scott Drucker, co-founder and president of Supply Clinic, says they are excited to move supply procurement into the digital era.

“Our online marketplace lets sellers compete for dentists’ business, meaning that dentists see the benefits of their collective bargaining power,” Dr. Drucker says.

Supply Clinic is a transparent online marketplace where practices shop and buy from multiple sources on a single checkout. Then, suppliers ship directly to the customer. Supply Clinic has over 130 sellers listing more than 75,000 products.

Supply Clinic was designed to help provide adequate tools for managing purchasing across multiple offices. The team built these tools to help dentists with more than one location manage their
Many practices are run with a player-coach mentality. Dentists don’t always have the time to oversee the practice from a perspective of managing chair time or optimizing costs.”

—JOE FOGG, CEO, ONDIEM

onDiem handles the onboarding of dental staff on behalf of the practice, managing the working interview, license verification, payroll, benefits, and more. onDiem also matches talent to the practice. Iconography highlights different information, such as background, CE credits, and credentials, among others. Their system works with a mixture of AI and algorithms.

“Some people confuse AI with algorithms. We use different algorithms for matches and use AI to maximize shift fulfillment. AI is constantly evolving the algorithms based on user behavior. Through the combination of algorithms and AI, onDiem will be excellent for candidate sourcing and shift fulfillment,” Fogg says.

Optimizing compliance is another way that smart technology is bringing an analog part of the practice into the digital world, says Hu-Friedy Group’s Wilson. The GreenLight Dental Compliance Center™ by Hu-Friedy Group brings the procedures and protocols for the Centers for Disease Control, state dental boards, and OSHA online into a digital compliance management portal. The Compliance Center also provides practices an easy way to develop their written protocols manual as required by the CDC.

“Essentially, we’re trying to take the burden out of maintaining compliance,” Wilson says.

The portal took two years to develop, in part because state dental associations don’t have protocols already compiled. With the GreenLight Dental Compliance Center, a practice can fill out a questionnaire and submit it. Then, the product creates a compliance manual customized by state in an hour. Wilson says the portal is a huge benefit to group practices because they can manage compliance for multiple sites, as opposed to having a team member have to check compliance physically, which may only happen in-person once a year. Moreover, the portal provides a dashboard which shows the compliance progress of each location.

“We can run through the practices and see if there is some information that is missing, and then they can add that information, and we can also highlight for them so that they know what is going on,” Wilson says.

“With our portal, it gives them management access at their fingertips on their phone for the metrics that we include,” Wilson says. “We also have recommendations for vetted experts in compliance if they need additional consulting.”

Smart technology also automates part of the patient experience. Bullock says that smart technology makes managing the patient experience fast and effective.

“With Weave, front desk staff not only see that a patient had a cleaning appointment last month, but they can see a balance that is due for that cleaning, which they can then text to the patient,” Bullock explains.

The bottom line

CJ Chuapoco, product marketing manager at Weave, says smart technology also helps small dental practices improve their bottom line.

“We know that features like Text-to-Pay help office managers collect payments more efficiently, but we’ve also seen practices using it in unexpected ways, such as charging missed appointment fees immediately with the press of a button. This all adds up to more Accounts Receivable collected with less time, effort, and hassle,” Chuapoco says.

RevenueWell also helps automate patient follow-up by syncing with the practice management system. It “reads” the dental codes entered and sets automatic reminders based on the patient’s treatment.

“You set it and forget it,” Bass says. Practices can also automate expiring insurance reminders by segmenting the insurance remaining in the account and setting the program to send a reminder postcard, he explains.

RevenueWell also facilitates digital forms so staff can take care of administrative tasks before the appointment, which reduces wait times and moves patients through the practice efficiently. Also, fewer no-shows occur when people have invested their time in completing the paperwork.

“Both sides like the expediency,” Bass says.

Smart technology also protects the integrity of Accounts Receivable. Pearl AI’s insurance products use a subset of AI that allows computer vision, which prevents fraud by detecting potentially fraudulent claims in X-ray images. While the percentage of dentists attempting to defraud patients and insurance is small, Dr. Stanley favors a zero-tolerance policy.

Computer vision also streamlines claims approval in real-time. Dental teams can upload to the Pearl AI portal for instant approvals or denials. The patient in the chair can also get an accurate estimate for what they will pay while they are still at the practice.

“We want to bring transparency to every aspect of the dental world,” Dr. Stanley says. “I hope that these products will allow the dentist to have less stress in their lives.”

Smart marketing

Tony McGinnis, EVP of internet marketing for Scorpion, defines smart technology as a set of algorithms performing tasks and making decisions based on actual evidence, giving us quick access to information.

In particular, McGinnis believes Smart marketing technology can optimize a practice’s marketing spend. Smart technology and machine learning can make efficient use of marketing budgets, leading to an improved patient experience because practices are engaging appropriately with the most ideal patients. Evidence-based decisions on marketing spend leads to more patients and positively impacts revenue. Moreover, practices can con-
continue to spend money on marketing initiatives that positively impact revenue and stop spending on initiatives they do not.

“The impact of evidence-based decision making is enormous,” McGinnis explains. “And most dental practices are not taking advantage of it.”

A patient’s process of choosing a healthcare provider is complex and spread across multiple channels and devices, according to McGinnis. Scorpion’s system collects continuous data from many practices’ campaigns happening nationwide to determine the best time, place, channel, and device for capturing patients during the buying process. The machine learning technology optimizes advertising spend automatically by presenting the potential patient the right message at the right time.

“The campaigns we manage for our clients are more data-driven, as we’re basing decisions on tens of thousands of ideal customers,” McGinnis says.

Simplifeye’s flagship product Amplify captures prospective patients on the practice website. About 45 percent of patients shop for a dental provider after hours, Dr. Krell says. Amplify’s 24/7 live-chat feature is HIPAA compliant and ensures practices capture online leads, even on nights and weekends. Moreover, the email response time for Amplify is faster than average—seven seconds versus 17 hours, respectively.

“Many practices are driving patients through multiple channels to the website, from mailers to billboards, to social media ads, etc.,” Dr. Krell says. “Amplify sits on the website and offers a white-glove customer experience and can schedule directly with Dentrix, EagleSoft, and Open Dental platforms for practice management.”

Amplify is a proven product category for Simplifeye, which works with 6,000 doctors. Dr. Krell says a practice usually gets six to 10 new patients a month over what they often did previously.

“We have sent over 195,000 referrals and engaged in 480,000 patient conversations (via chat), generating over $400 million in patient value,” Dr. Krell says, adding that the product is “the most economical assistant you will ever have.”

The team is also expanding into high-level revenue cycle management. Dental practices can charge patients for services that cost less and are easier for the patient. Also, they will facilitate automatic payment plans for credit and debit cards and ACH payments.

“How, the practice is not relying on the patient to send a check, nor do they have an office manager call on a schedule and get the credit card for payment. The payments happen automatically,” Dr. Krell explains.

Traditional marketing is hard to measure, Bass says. A billboard, for instance, might have an estimated number of eyes that see it, but no measurement of how that translates to ROI. With RevenueWell’s patient communications automation, practices can see how many emails were sent and how many appointments they generated.

“The bottom line is, there is a more efficient way to get people in the practice, measure what your return is going to be, see what works and doesn’t, and gauge results in real-time,” Bass says.

The smart tech future
McCleskey says the power of connected systems and information can improve dentistry. However, when new technologies are introduced, it should not create noise and confusion, but address pain points doctors feel every day. Moreover, once smart devices connect inside a clinic, the next step is connecting all of that equipment across multiple locations, which McCleskey says opens up a “whole new frontier for data gathering.”

“One of the real challenges is to convert data into real information that gives you actionable direction on what would be a good way to solve the problem,” McCleskey says.

The connections will continue throughout the people involved in dentistry also, Wilson says. Specifically, it will unite a community of experts on infection control in and out of the practice for shared knowledge and expertise.

“Technology will unify the community of infection control, not only for dental practitioners, but also manufacturers and dealers where there is a lot of opportunity for integration because infection control is interdependent on other things in the office,” Wilson says.

Dentrix sees a future that will facilitate the combination of software
Zirc sees a similar future in technology applications that could enhance their system. Specifically, technology could track inventory and facilitate reorder.

“There are ways that we can utilize technology to monitor inventory easier and more efficiently,” Hickey says. “We’re excited to see where it takes us.”

It’s vital for dental practices to get on the smart technology bandwagon, Bullock says.

“If you are not already tapped into the idea that patients will leave you for a better experience somewhere else, you are behind,” Bullock says.

Chartier says future curving light technology innovations will be centered around improving the restoration and driving a better patient experience.

“Giving the patient a better restoration and making life easier is the priority,” Chartier says. “No one wants to spend a lot of chair time when they can be out doing something else.”

In AI, Dr. Stanley predicts natural language processing will explode— automating phone calls and scheduling, which optimizes the schedule for productivity. Moreover, Dr. Stanley sees AI making connections with medical health records.

“Smart technology and AI will allow us to make treatment plans for patients based on patient health history, ethnic background, muscles in the face, salivary content, diet, etc. You need an algorithm that uses AI to do research and find these connections,” Dr. Stanley explains.

Dr. Pulver says what Dentai.AI has today is only the beginning of what is possible with the technology. His background as an oral and maxillofacial surgeon led to awareness of the impact of oral health on systemic health.

“I see radiographic interpretation as a window into utilizing AI/ML to impact all aspects of care—both oral and systemic,” Dr. Pulver explains. “We believe strongly in the ability of dental professionals to play a significant role in closing the oral systemic health links through this type of innovative technology.”

Looking longer term, McGinnis sees machine learning and AI used to drive decision-making for digital marketing spend based on evidence will become the standard for marketing a dental practice. Moreover, he sees that dental practices—large or small—will get left behind if they are not using it.

“Capturing a patient now and developing a relationship now will continue to pay dividends down the road,” McGinnis says. “If you ignore this technology, you are going to fall behind.”

Dr. Krell sees a future where treatment planning or following oral care protocols are facilitated in automatic ways while the patient is in a “dental frame of mind.”

“Having a platform that gets people into the office and offering a way for them to pay for it there opens up a lot of possibilities for people expanding in the dental space,” Dr. Krell says.

AI having the potential for enhancing teledentistry with diagnoses by flagging potential lesions, is something Herman predicts. He also sees a more extensive medical care integration where every health-care encounter can have a dental component and a referral network ready to address any issues the medical team identifies. Patients will start to expect this level of technology as part of their care, as well.

“It’s going to be essential for practices to find a way to incorporate technology into their workflow that enhances the level of communication with patients.”

— BRANT HERMAN, CEO, MOUTHWATCH

It’s going to be essential for practices to find a way to incorporate technology into their workflow that enhances the level of communication with patients.

REFERENCES


A diode laser that increases clinical success and reduces post-op discomfort

The Bluewave Diode Laser is a portable, effective option for the operatory. [compiled by Kristin Hohman]

Information provided by Clinician’s Choice.

THE PROBLEM

Traditional methods, such as electrocautery, are limited in their scope, while scalpels can be more time-consuming.

Plus, these tools are less precise than a laser and can increase patient discomfort.

THE SOLUTION

Bluewave Soft Tissue Diode Laser

- Allows dentists to perform soft tissue procedures with virtually no bleeding, pain, or post-operative swelling compared to electrocautery or a scalpel.
- Minimal need for anesthesia.
- Designed to decrease treatment time in many cases.
- At 2.55 pounds, this 5W, 810 nm diode laser is lightweight and completely portable, allowing it to be moved between operatories.
- Suitable for a wide range of indications, including gingival contouring, tissue retraction for impression taking, and laser-assisted periodontal therapy.
- Features a unique blue-aiming beam that is designed to produce a higher contrast on oral tissues and blood.
- Its disposable tip reportedly eliminates the inconsistency and inconvenience of strip-and-cleave systems.
- The rechargeable lithium ion battery allows for more than three hours of continuous use.
- The curved, ergonomic hand-piece is designed to provide better posterior access and reduce hand fatigue.

Clinician’s Choice
800-265-3444 | clinicianschoice.com
CIRCLE RS #34

April 2020 | DENTALPRODUCTSREPORT.COM | 41
Perhaps there is no better example of smart technology in the dental profession than the introduction of 3D printing. Initially embraced by dental laboratories, more and more practices are adopting this technology for in-office use. With its cost-savings, efficiency, and immediacy, it’s clear to see why. Plus, 3D printing is suitable for a range of applications, including crown and bridge models; clear aligner models; splints and nightguards; and even full dentures. Just as 3D printers fabricate these objects layer-by-layer, these machines can add an additional layer of services to dental practices. Imagine delivering full dentures or a sleep appliance to your patients in days versus weeks—that’s smart.

A 3D Look at The Future

[compiled by Kristin Hohman]
Structo Velox
• An all-in-one desktop 3D printer with built-in autonomous post-processing features
• Print, wash, and cure appliances at the push of a button for same-day dentistry
• Integration with digital design services providers, enabling users to go straight from intraoral scan to printed appliance
• Designed for chairside use to maximize time

Sprintray Pro Desktop
• Features a large build platform of 18 x 10 cm while still maintaining its desktop form factor
• Touchscreen controls and contextual instructions managed by a 6-core CPU
• Print jobs can be started from the USB port
• Ability to print up to 30 full-arch dental models in a single batch
• The custom 405 nm, LED 95 μm projector provides high-intensity light evenly across the build surface for an accurate print
• Unique resin certification system enables the use of materials from a variety of other brands

NextDent® 5100
• Powered by Figure 4™ technology, facilitating high-speed 3D printing
• Suitable for fabricating crowns, bridges, surgical guides, orthodontic splints, and trays with precision
• Compatible with intraoral scanning and software solutions
• Designed to produce devices at speeds up to 4x faster, while reducing waste and reliance on milling centers, enabling up to 90 percent cost savings

Stratasys J720
• An all-in-one 3D printer that can print realistic models using 500,000 color combinations
• The large-capacity PolyJet machine is designed to access six materials at once
• Sized at 490 x 390 x 200 mm, it has a maximum capacity of 200 μm
• Can print in full color using materials that mimic the shape, texture, and color of teeth and gums
• Uses GrabCAD Print software, which can create a gcode directly from the CAD model without the need to convert files

cara Print 4.0
• A 3-DLP printer that produces monochrome dental appliances using a high-quality photopolymer
• With an X&Y resolution of 53.6 μm, it has the ability to deliver precise restorations faster and more economically
• Its user-friendly interface for both beginners and experienced CAD/CAM users
• Most indications print within one-hour or less
• Together with Kulzer’s dima® Print materials, followed by post-curing in the HiLite® Power 3D, ensures high-quality results

Form 3B
• Advanced Low Force Stereolithography (LFS)™ technology uses a flexible resin tank and a custom-designed, user-replaceable Light Processing Unit to produce consistent prints
• Features an XY resolution of 25 μm, and a build volume of 14.5 x 14.5 x 18.5 cm, designed to print 2-3 times more parts
• Production environments see 55 percent less labor time and costs
• Switch between a library of dental resins with a no-hassle cartridge system

Kulzer
800-431-1785 | kulzerus.com/cara
CIRCLE RS #39

Form Labs
617-702-8476 | dental.formlabs.com
CIRCLE RS #40

Structo
877-787-8286 | struct3d.com
CIRCLE RS #35

Sprintray
800-914-8004 | sprintray.com
CIRCLE RS #38

3D Systems
888-598-1438 | 3dsystems.com/3d-printers/nextdent-5100
CIRCLE RS #36

Stratasys
800-801-6491 | stratasys.com/dental
CIRCLE RS #37

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**Structo Velox**

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- Switch between a library of dental resins with a no-hassle cartridge system

**Kulzer**

- 800-431-1785 | kulzerus.com/cara
- CIRCLE RS #39

**3D Systems**

- 888-598-1438 | 3dsystems.com/3d-printers/nextdent-5100
- CIRCLE RS #36

**Stratasys**

- 800-801-6491 | stratasys.com/dental
- CIRCLE RS #37

**Sprintray**

- 800-914-8004 | sprintray.com
- CIRCLE RS #38

**Dental Technology**

- Cover Story: Solve My Problem
- 3D Printers

April 2020 | DENTALPRODUCTSREPORT.COM | 43
**Envision One cDLM**
- A desktop printer designed for dental and orthodontic applications
- Capable of printing six orthodontic arch models in under 15 minutes
- Features a high-resolution industrial projector with UV glass
- LED light source at 385 nm for higher accuracy on clear parts and crisper details on all parts
- Dual linear slides provide stability during build process, eliminating shifting parts
- Domeless technology delivers high accuracy in Z

EnvisionTEC
313-436-4300 | envisiontec.com
CIRCLE RS #41

**EvoDent S110**
- Compatible with multiple materials as the resin tank can be changed without leveling
- Open system design — all STL files are available
- Features a UV LED light source, 40 mm/h, and has USB, ethernet, and Wi-Fi connectivity
- Capable of a broad range of applications, including veneers, inlays/onlays, temporaries, surgical guides, ortho-models, splints, and removable partial dentures

EvoDent
770-881-8299 | evodent3d.com
CIRCLE RS #42

**VeriBuild LCD**
- This open system printer is able to print 405 nm print resins using the proper file
- Prints accurate surgical guides with slice thicknesses between 25-100 µm
- Its build volume is 118 x 66 x 140 mm and has a high pixel resolution of 47 µm
- Qualified for use with these VeriBuild resins: OS Ivory, OS Golden Brown, OS White, OS Grey, and OS Surgical Guide Resin

Whip Mix
502-637-1451 | whipmix.com
CIRCLE RS #43

**r.Pod®**
- Powered by Fused Filament Fabrication, technology that takes a thermoplastic wire (filament) and feeds it through a hot nozzle, where it is melted and deposited layer by layer into a 3D object
- Eliminates the need for photopolymers, resulting in stronger, longer-lasting restorations with no monomers
- Enables users to print with a variety of thermoplastics, including Valpae®
- Capable of multi-material printing for parts with removable support material and multicolor printing
- Applications include dentures and appliances, custom impression trays, study models, and soft tissue gingiva

Arfona
718-230-9300 | arfona.com
CIRCLE RS #44

**Carbon M2**
- Uses Carbon’s Digital Light Synthesis technology, which is said to be approximately 20 times faster than traditional DLP/SLA techniques
- Over the air software updates
- Features a 189 x 119 x 326 mm build volume for low-volume dental labs
- Open and compatible with any STL file
- Prints typically with +/- 50 µm

Carbon
850-285-6307 | carbon3d.com
CIRCLE RS #45

**XFAB 2500 PD**
- This desktop printer features a “plug and play” USB connection, and a cylindrical work area of 180 x 180 mm
- Specifically designed for small to medium dental labs, it’s provided with Nauta and Fictor software with the possibility to manually set the customized parameters of DWS materials
- Compatible with five materials for dentistry from DWS
- Features a BluEdge® proprietary laser, parametric technology, and automatic heating system and material temperature control

DWS Systems
info@dwssystems.com | dwssystems.com
CIRCLE RS #46
3D printers spur end-to-end digital dentistry. Using a light or laser, these printers polymerize a liquid with computer-guided precision. The two most commonly used 3D printer technologies in dentistry are stereolithography (SLA) and digital light processing (DLP). While both rely on light to cure a photosensitive resin, there are a few key differences.

- **SLA**
  Dating back to the 1980s, SLA is one of the oldest forms of 3D printing. Using a laser, its concentrated light photopolymerizes resin monomers in a given section. The laser moves across a vat of resin and the layer is drawn according to specifications in order to build the 3D object.

- **DLP**
  A technique developed in the late 1980s, DLP projects each layer, creating a plane where photopolymerization will occur. Unlike SLA, where light is directed to a single spot, DLP forms the whole layer at once. Patterning of the desired shape is done using a “mask” produced by a digital micromirror device (DMD). The DMD can be replaced by LCD screens in some models. More modern DLPs use LED as a light source.

Information gathered from all3dp.com.

### Micron P305
- A desktop printer that employs the use of new masked LCD light engine technology that allows for a larger build area without sacrificing accuracy and speed
- Capable of printing 12-24 arches per run as fast as 10 minutes per arch
- A 100 percent open solution option
- Features a 7.5” x 4.7” build plate, a high contrast 2K LCD, and a UV LED light source
- One-click Wi-Fi print from any device

**Micron Dental**
844-444-6008 | micrdental.com
CIRCLE RS #47

### Ackuray A135
- Provides a build envelop of 135 x 76 x 130 mm
- Print speeds up to 4 cm/hr
- Open material system
- Prints detailed appliance +/- 25 µm to +/- 35 µm
- Ability to print with any SLA/DLP resin

**Ackuretta**
support@ackuretta.com | Ackuretta.com
CIRCLE RS #48

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**ORTHOFX™**
A better clear aligner experience for you and your patients.

OrthoFX – a modern approach. In-person doctor supervised care with direct-to-consumer marketing for you.

- No lab bill! We pay you
- We take care of insurance, billing, and financing
- Treatment plans by doctors for doctors with full access
- Fast USA shipping, 510K clearance, latest 3-D printers

Partner with us at orthofx.com/fordoctors

ENTER REFERRAL CODE DPR

Interested? Circle Product Card No. 49
Keeping updated on technological innovations in clinical practice can, for many dentists, be a matter of preference. Keeping current on technological innovations in how your practice shows up online, however, feels like a matter of survival. If a practice exists without a website, does it really exist at all?

The “important” platforms continue to expand, and the ones we just feel like we’ve figured out continue to evolve. How can the conscientious dentist keep up?

Having the right partner helps. More than a plug-and-play template approach to dental marketing, WEO Media is a company I’ve come to respect because in a world obsessed with automation, they don’t just push a button—the team puts its nose to the grindstone, working hard to make your practice successful.

A presence in our industry since the wild west days of the world wide web, I wanted to sit down with WEO co-founders Cory Roletto and Ian McNickle to discuss how the definition of “online presence” has changed for dental practices over the last decade and, more importantly, what should the smart practice owner be considering for the future?

LS: What need did you hope to meet when you first entered the dental market? What made WEO necessary in the crowded space of online marketing?

CR: When we first got started, there were just cookie cutter websites. No company or consultant was really addressing practice needs outside of a basic website. We also found that a large percentage—probably 30 to 40 percent of dentists—not only did not have a website, they didn’t understand websites, and they certainly didn’t understand social media. I remember doing some talks on it, and audience members would come up to me and say, ‘I just don’t get Facebook and what the big deal is; I don’t want to reconnect with my high school buddies from 30 years ago.’ So, when our team came into this, we saw that the need wasn’t just for our “product,” but for educating dentists in a broader way about what these platforms were and why it mattered.

At the time Google search was established, not many people were using it to find services as they do today. There was a mistrust of doing online transactions that is almost hard to remember now that Amazon has revolutionized online purchasing. We knew these things were going to have a big impact down the line and saw the opportunity to educate the community as important to our identity as a partner and not just a provider.

That is still true today. As a company, we are intentional about adapting to digital marketing trends and strategize where and how dentists can make the biggest impact with patients and their buying decisions. A major part of the education today is understanding the changing nature of consumer power: They go to Google to do a search, check out multiple practice websites, find reviews, scan social media, talk to friends, and see if that practice is covered by their insurance. The practice is evaluated by potential patients in each of these places and needs to be consistent.

LS: Understanding the strategic importance of a platform like Facebook seems like a major turning point in dentists embracing online engagement. How did that happen and what can it teach us about how to best assess or take advantage of new social media opportunities?

CR: The biggest shift comes when people who like using those platforms and are comfortable with them start working in the industry—office managers who used Facebook in high school who saw the potential for connecting with patients, or younger doctors who used it in college becoming associates and spearheading its use in the practice.

This is important because it wasn’t an “a-ha” moment for the dental community as much as a
change over time. In dentistry, I’d say that Facebook really started to take off about five or six years ago when the platform itself matured to allow business pages versus everything being a personal page. They changed their model to fit business needs and businesses responded.

**LS:** I agree, business pages were a major development, and Facebook continues to evolve. What tools should a practice utilize to not just engage, but to ensure maximum utilization of the platform? **CR:** There are several pretty big changes Facebook underwent in its mission to monetize its value and go public. Five years ago, you could buy a “Like” campaign to drive users to your page and then “advertise” to them for free. Facebook changed that policy and now a business page only shows up in the Newsfeed if you boost the post or if it is already getting very high social traction—the page isn’t going to show up unless you pay for it to be shown; ironically, people liking your page is now less important.

The algorithm’s preference for video is another significant shift. You can get a lot of viewer-ship through video—something educational, promotional, or even streaming. For example, Pinterest has a focus on customer service and doing things catching a younger demo are things catching a younger demo are

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**IM:** One additional angle to consider is what is changing in marketing and not just technology. For years, we’ve done a good job on behalf of our clients, getting them ranked highly and driving a lot of new phone calls and patient opportunities for the practice, but what can happen—more often than not—is that the team member on the other end of the line doesn’t do a good job of converting those leads into patients.

**CR:** The next generation has migrated to Instagram, and these “kids” are now in their 20s and making their own buying decisions—that means it has a bigger role to play. Depending on what your practice does, other platforms can be useful.

For example, Pinterest has a reputation as being more crafty, so if you’re posting a lot of images—like before and after smiles—it can be a good platform. If you’re really into video, YouTube is an obvious choice, but a lot of young people are moving to platforms like Twitch and Vimeo, and also Periscope, which does live streaming.

We tell our clients to start by thinking about what makes a good patient for them; look at the demographics of those patients and see what social media platforms are most utilized by that demographic. That will give you an idea of where to target your efforts. Effectively using social media takes time, so you have to be smart about where you spend that time and what you focus on.

**LS:** I think many dentists recognize how much time and effort this takes. The solution many of them choose is to hire their niece who is really good at Instagram. If affinity for the platform is important—which we acknowledged earlier in this conversation—then why work with a company like WEO rather than an eager young person?

**IM:** Social media is a lot like marketing—if you don’t understand specifics, it is difficult to be good at it. The niece won’t have a clue on how a patient converts to become a lead. There will be a series of things the strategic practice will want to do and having specific industry knowledge is huge: Creating the right content, using right terminology, understanding the flow of the business. Deep knowledge and expertise in an industry moves you from helpful to driving success. Recognizing this is part of what helped make WEO an industry leader. Just because you can drive a car doesn’t mean you drive in the Indy 500.

However, many doctors can be skeptical of dental marketing companies. The reason is that many of the companies who offer marketing services to dentists have discovered that you can sell just about anything for $300 a month and it will go unscrutinized.

A company promises a laundry list of activities with certain buzzwords—reputation management, SEO, etc.—and the doctor is amazed that they can check off all those boxes and it’s affordable. The reality is, the company isn’t doing all that much, probably a lot of canned posts and SEO basics, and the results are limited.

As we see it, these are really website companies, not marketing companies, serving 10,000 clients with just 10 staff members because their solutions are all templates. At WEO, our ratio of staff to clients is much higher because, simply put, we put more work into doing things for our clients. Five or six years ago, you could get away with less and still get good results on Google, but now you have to put in the work: Lots of unique content, schema code, backlinks and directories, research, and A/B testing.

Many of our competitors are backed by private equity or owned by a conglomerate, which leads to an emphasis of scale, scale, scale, instead of an emphasis on customer service. At WEO, we have three decision makers and we are focused on customer service and doing what’s right.

We’ve worked with more than 1,000 practices and maintain more than a 90 percent retention rate—and that’s with month-to-month contracts. That doesn’t happen if you’re not good at what you do.

**CR:** Our team isn’t incentivized by the amount of money they make for the company, but instead, based on their success with and for customers. For example, our SEO team bonus is dependent on whether or not they can get 75 percent of clients on Page 1 of Google, in the most competitive search, within six months. If they do, they get the bonus. We have similar metrics for the support team, metrics of both quality—as in, we did the job right the first time, 95 percent of the time—and turnaround time—within 48 hours we want to have 90 percent of all requests completed.

To Ian’s point, not only are we setting metrics for ourselves that competitors don’t touch, but our team is incentivized around customers, not profitability.

**LS:** With your emphasis on staying not only current, but ahead of the game, what do you see as the future of marketing for the dental practice?

**CR:** We’ve discussed social media quite a bit already, but the new things catching a younger demo are Instagram, Snapchat, Periscope, Twitch and the surge right now for TikTok. When it comes to websites, the major catalyst for technological advancement was screen size—
Efficient, economical endodontic files

SafeSiders® HF from Essential Dental Systems are designed to reduce file breakage while delivering a number of benefits to assist in what can often be difficult procedures. [compiled by Stan Goff]

Information provided by Essential Dental Systems.

THE PROBLEM

When endodontic files break, the outcome of your treatments can suffer dramatically

Additionally, some file systems are not flexible enough to follow the anatomy of the canal, therefore creating a risk of ledging, transportation, and perforation, as well as a greater loss of dentin.

THE SOLUTION

SafeSiders® HF

- Designed with a patented helical flat. This flat combined with a special heat treated NiTi process is said to produce the safest and most efficient rotary root canal instrument in dentistry
- A system with a reduced number of instruments required for cleaning and shaping while preserving the anatomy
- The instrument is highly resistant to breakage, and the instrumentation flexibility which follows the anatomy of the canal, is designed to reduce the risk of ledging, transportation, perforation and minimize the loss of dentin
- Reduces engagement along length, features a self-advancing, easy, negotiation of canals; also produces faster instrumentation to the apex
- For optimal use and safety, these economical instruments can be used in the Endo-CSV™ Cordless Endodontic Handpiece with Built-in LED Illumination, but also can be used with your current endo motor
- Efficient, time-saving rotary instrument shaping system that is also tough and reusable—the instruments can be used up to three times
You have your tools, we have ours.

Let our dental digital marketing experts help you attract the patients and revenue you deserve.

To set up a consultation, visit Scorpion.co or call 866.622.5648

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Clear aligner therapy at an attractive cost

OrthoFX is offering clear aligners at a set price, and helping this clinician grow his practice along the way. [by Annemarie Mannion]

Offering a more affordable clear aligner therapy for patients who want to straighten their teeth without breaking the bank has paid off for Dr. Gavin Miller, who operates La Jolla Dentistry in La Jolla, Calif.

Dr. Miller began working with OrthoFX in September to offer clear aligners at a set price of $3,950, which includes the aligners, one set of retainers, dental visits, replacement aligners if a patient loses or breaks one, and a 3-year guarantee.

That price, compared to between $5,000 and $6,000 or more for other top name aligners, was appealing to this clinician, who believed it would also be attractive to his patients. He has treated about 40 patients with OrthoFX aligners since September.

“I like being able to provide aligners at a more affordable price,” he says. “I also like that it’s a very innovative company.”

OrthoFX was founded by two former Invisalign executives who saw problems in the tooth straightening world, including patients who were receiving poor results from mail order treatments. They started a company to emphasize clear, upfront pricing, face-to-face dentistry, and incorporate the latest in 3D printing and software technology.

OrthoFX uses 3D scanning technology to create a personalized aligner system that gently moves teeth into position. Made from a next generation polymer, they are designed to fit the teeth like a glove as they apply gentle pressure to each tooth and create movement over time. They are designed for comfort with three layers of material containing an elastomeric layer in the middle, and also are stain resistant and nearly invisible.

“The aligners don’t look intrusive in the patient’s mouth. You wouldn’t even know they are there,” Dr. Miller says. OrthoFX’s partner dentists are carefully selected and must possess a current and valid state dental license. The company audits these records annually.

The process for a patient is very straightforward. A patient makes an appointment to meet with the doctor for an evaluation and a 3D scan is taken of their mouth and sent to OrthoFX. The first aligner is ready for the patient’s second visit. Once a treatment plan is finalized, the rest of the patient’s aligners are delivered chairside to the patient as treatment progresses. Treatments generally last between six and 18 months, during which the patient keeps regular appointments with their doctor.

Dr. Miller said he generally sees patients three to five times depending on the number of aligners.

Patients also have options to try out the aligners before committing to a plan. At no charge they can submit smiling selfies to the OrthoFX website and get a free 3D model of their finished smile. Then there’s a $95 “Try It Kit” option that includes a dental exam, an intraoral scan, and a custom set of passive aligners so patients can actually experience treatment.

Patients who may not be good candidates for the treatment include those with periodontal disease, missing teeth or active dental decay. A doctor will evaluate their condition and make recommendations before they can begin treatment.

Dr. Miller has consulted on occasion with an OrthoFX orthodontist about the treatment plans and has been satisfied with the interactions. He would advise any dentist considering working with clear aligners to do their homework.

“It wouldn’t just dip into it without having learned the therapies,” says Dr. Miller, who began to do CE with Invisalign in the early 2000s.

He classifies the types of cases he treats with OrthoFX and any other clear aligner treatment he uses as mild to moderate, but these aligners can be used for many complex case types as well.

Dr. Miller has occasionally treated people who wanted to fix their smiles after treatment with mail order teeth straightening. “It worries me that they’re not getting the proper supervision and whether their teeth are safe to move,” he says.

OrthoFX also accepts insurance and payment plans and processes insurance claims. “It’s been beneficial to my practice as we have picked up restorative work to do as well for some of these patients,” Dr. Miller adds.
smart moves® complete clear aligners are made exclusively with Great Lakes ComfortTrack™ – a revolutionary, multi-layered material with an elastomeric inner layer that generates ideal initial force and fatigues less over time.

The result?
› Superior patient comfort
› More effective aligners

To learn more and request an aligner sample:
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A frustration shared by many dentists and dental hygienists is seeing patients who, despite reporting good oral hygiene practices, present with cavities, periodontal issues and/or persistent bad breath.

Traditional methods of home care such as brushing and flossing are met with great resistance and multiple excuses for why these habits are difficult to incorporate into the daily routine. The good news is that alternatives are available, and oral care probiotics are one such option. Multiple scientific research studies conducted over the past three decades validate the efficacy of oral care probiotics as an effective means of fighting these all too common oral health issues.

With healthcare moving into a more holistic direction and antibiotic resistance becoming a reality, the suggested effects of probiotics in the oral cavity can be broadly divided into three groups: Modulation of the host inflammatory response, direct effect against pathogenic bacteria, and indirect effect against pathogenic bacteria. For the dental practitioner, oral care probiotics may be useful for the treatment of caries, halitosis, periodontal disease, and oral mucositis.

What are probiotics?
Oral care probiotics are live, healthy bacteria that are identical to the beneficial microorganisms found naturally in the mouth. They should include organisms that naturally occur in the teeth, tongue, and gingival tissue including S. oralis, S. uberis, and S. rattus. A key goal of their use is to interfere with microbial imbalance, a causal agent in caries, and periodontal diseases, by adding beneficial bacterial species.

By attaching to natural oral biofilm and forming live, active bacteria on the surface of the teeth and deep into the sulcus, probiotics reduce oral pathogens often exacerbated by processed foods and high-sugar diets. They can also reduce or prevent plaque biofilm formation and gingivitis, often associated with health problems beyond the mouth.

According to the Centers for Disease Control and Prevention, by age 34, approximately 50 percent of people will have experienced periodontal disease.1,2 Additionally, poor oral health has been linked with other chronic diseases, such as diabetes, heart disease, dementia, and Alzheimer’s disease.3

Oral-systemic connection
The findings linking oral and systemic bacteria are helping to shift the paradigm of dentistry from curative to preventive. This approach may offer life-changing benefits for patients, especially those with potential risk for heart disease. Collaborative treatment efforts between the Heart Attack and Stroke Prevention Center (HASPC) of Central Ohio and Complete Health Dentistry of Columbus, two practices located in the same office in Worthington, Ohio, have shown positive results in preventing heart attacks and strokes. One of their main focuses is to reduce inflammation through using oral probiotics to eliminate high-risk bacteria in the mouth, which can enter the blood stream causing an inflammatory load.4

“Our patient protocol includes testing, treating, and repopulating,” says Lora Hooper, B.S.D.H., RDH, EFDA, part of the oral care team at HASPC of Central Ohio and Complete Health Dentistry of Columbus. “I feel the most important piece is repopulating, which is centered on oral-care probiotics.”

A 2006 study published in Caries Research found pediatric patients who use a mouth-rinse containing the Weissella cibaria bacterial strain showed a plaque index reduction of more than 20%, demonstrating that oral care probiotics can be effective at preventing biofilm formation.”

Strains of beneficial bacteria can help balance the oral environment and promote patients’ oral and overall health.

[by Lisa F. Mallonee, M.P.H., RDH, RD, LD]
creating a healthy oral microbiome by repopulating with beneficial bacteria in the mouth. During my 25 years of patient care, I have seen a dramatic improvement of oral health in patients using oral care probiotics.6,7

Dental benefits for children
An ongoing study conducted by pediatric dental expert Mark Cannon, DDS, MS, of the Feinberg School of Medicine at Northwestern University in Chicago, concludes that an oral care probiotic regimen significantly reduced both the caries risk and the levels of cariogenic dental bacteria in caries-prone children, with no reported side effects.8 The reduction in caries risk for the pediatric study group remained clinically significant three years after the original study.6,7

This data supports use of oral care probiotics in preventive dentistry to reduce both the number of pathogenic dental bacteria and the long-term caries risk in children. “Dental professionals should consider oral care probiotic therapy as one of the most effective caries preventive measures in children,” says Dr. Cannon.

Dental health for the future
The addition of oral probiotics to an oral care regimen can restore the natural balance of beneficial bacteria, which can be depleted by poor nutrition, stress, medication, illness, and other factors. The use of probiotics in patients’ daily oral care regimen following routine prophylaxis or nonsurgical periodontal therapy has the potential to alter the microflora present in the mouth.8

The introduction of beneficial bacteria strains in the oral cavity can crowd out recolonization of unhealthy bacteria, including those that can cause bad breath. Additionally, oral probiotics may support tooth and gum health as well as whiten teeth. Oral care probiotics are a promising treatment option that may offer long-term improvements in oral care—something we can all smile about.●

REFERENCES

ABOUT THE AUTHOR
Lisa F. Mallonee, M.P.H., RDH, RD, LD, is a tenured professor, graduate program director, and registered dietitian at Texas A&M University College of Dentistry, Caruth School of Dental Hygiene, where she teaches public/community health and lectures on nutrition in the dental hygiene and predoctoral dental curriculum. She oversees practicum placement and thesis research as co-director in the College of Medicine’s Education for Healthcare Professionals graduate program. Mallonee received a bachelor of science in dental hygiene and a master of public health with a coordinated degree in nutrition from the University of North Carolina at Chapel Hill. Prior to becoming a registered dietitian, she practiced full time as a registered dental hygienist in both general and public health practice settings.

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WHERE PROBIOTICS CAN HELP
Oral care probiotics are not a part of the majority of patients’ oral care routines, but a growing body of research shows they can be effective for many people. While more research is needed, many studies show the promise of probiotic solutions to common oral and systemic health problems. Here are some of the situations where oral care probiotics have been shown to help:

- Reducing oral plaque and caries – Evidence demonstrates that certain beneficial strains of oral care probiotics can reduce the formation of oral biofilm and interfere with the growth of caries causing pathogens

- Reducing oral inflammation – It has been shown that some probiotics can reduce or eliminate inflammation of the gums caused by periodontal disease or other causes

- Managing gingivitis and reducing bleeding from gums – A study found a specific strain decreased the gingival index for some patients

- Eliminating bad breath – A study looking at using oral probiotics to fight bad breath found efficacy where specific probiotic strains were able to prevent some VSC emitting bacteria from colonizing

- Reducing candida growth and preventing oral thrush – Evidence has shown probiotics offered effective methods in older adults for reducing the colonization of candida in the oral cavity

- Reducing the risks of oral-systemic linked conditions such as heart disease – With a growing body of evidence linking oral conditions with overall health, and specifically with heart health, evidence demonstrates oral probiotics can be a possible approach to help in this area

- One study even shows promise as a way to fight oral cancer – While much more research is needed to see if this is true for humans, a 2013 study found a strain of probiotic bacteria was able to inhibit oral cancer in rats
Power your practice with a smart handpiece

The powerful Aeras 500 Elite Handpiece by Star® from DentalEZ can cut through newer prosthetic materials, delivering the elegance of air and the authority of electric. [compiled by Stan Goff]

Information provided by DentalEZ, Inc.

THE PROBLEM

Typically clinicians can’t cut through zirconia with an air-driven handpiece

Other concerns with some handpiece systems include insufficient in-hand stability and balance, which can lead to increased strain and fatigue.

THE SOLUTION

Aeras 500 Elite Handpiece by Star®

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• Maintain control with in-office turbine replacements to ensure readiness and maximum performance is always within reach. Exclusive LubeFree technology makes it easy to maintain control with in-office turbine replacements.
• Patent-pending embedded RFID technology can reduce the burden for office staff by automating tracking and recordkeeping (when used in conjunction with a compatible RFID reader system).
• This air-driven highspeed handpiece gives the user the cutting experience of an electric handpiece with the tactile feedback of an air-driven unit.
• The push-button chuck system is friendly with all finger sizes making it easy to keep the clinician’s day running smoothly.
One doctor’s personal journey to treat bruxism

After suffering with pain for years, finding relief for bruxism became Dr. Joseph Pelerin’s mission. [by Kristin Hohman]

As many as 10 percent of American adults and 13 percent of American children suffer from bruxism, according to the American Sleep Association. That equates to as many as 32 million people who clench their jaws or grind their teeth, usually without even realizing it.

One of these sufferers was Dr. Joseph Pelerin, a general dentist with his own practice in Auburn Hills, Mich. Dr. Pelerin would have shoulder, neck, and headache pain, but he was unaware of why.

“It was about in my 30s that I started to experience pain—shoulder, neck, and headache pain. There was some point where I went two-three days in a row and it happens like migraine headaches,” Dr. Pelerin says. “My teeth didn’t bother me at all. And even as a dentist, I had no idea that I was clenching or grinding.”

An MRI turned up no cause for his pain. Soon, he began experiencing pain in his left temporal-mandibular and he took a course on bruxism that opened his eyes to how problematic it can be.

“Once I figured that out, I became very passionate and became very interested in the problem of what a lot of people refer to as TMD, Temporomandibular Disease,” Dr. Pelerin says. “And then at the same time, I was treating my own patients, even myself. The perspective I bring is that I was the dentist and the patient at the same time.”

As Dr. Pelerin was uniquely situated to be both patient and doctor, he researched and developed his own device, the GrindReliefN.

“I had a lot of patients that I would make the horseshoe for. They wake up and their muscles are still sore,” he says. “I became frustrated. Yeah, I got the $500 fee, but I wanted more—I wanted my patients to get relief. So, I started experimenting with prototyping, with a device that eventually became the GrindReliefN.”

The GrindReliefN is a sleep appliance that is made from FDA-cleared thermoplastic. Its Power Bar creates pressure on the upper and lower midline at the same time, doubling the beneficial mechanism of action as a traditional NTI device. The GrindReliefN covers the upper or lower anterior. Pressure is concentrated at the midline, where the Power Bar acts as a stimulus to naturally reduce clenching pressure.

“Our device has a central bar built into the tray, which is engaged and puts pressure on the upper and lower at the same time, plus our device is a little bit larger,” Dr. Pelerin says. “Unlike the NTI, when the patient’s jaw slides back, they still have contact at the bicuspids. You’ve got some bicuspids occlusion, and when you slide forward, you go back onto the bar.

Dr. Pelerin says. “My teeth didn’t bother me at all. And even as a dentist, I had no idea that I was clenching or grinding.”

“Once I figured that out, I became very passionate and became very interested in the problem of what a lot of people refer to as TMD, Temporomandibular Disease,” Dr. Pelerin says. “And then at the same time, I was treating my own patients, even myself. The perspective I bring is that I was the dentist and the patient at the same time.”
A universal cleaning paste suitable for all materials

Ivoclean from Ivoclar Vivadent decontaminates bonding surfaces after intraoral try-in. [by Anna Blake]

Ivoclean

Ivoclean is a universal cleaning paste designed to effectively clean the bonding surfaces of prosthetic restorations after intraoral try-in, creating optimum pre-requisites for the adhesive luting procedure. It's designed to perform its action on all dental restorative materials, such as glass, zirconium oxide, and aluminum oxide ceramics. Ivoclean is said to be easy to apply to the bonding surface, and reacts for 20 seconds.

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As a practitioner in rural Pennsylvania running a dual-purpose dental practice that offers both comprehensive cosmetic dentistry and general dentistry, it’s imperative that Dr. Zach Sisler has a reliable product on hand that he can use for all cases. And while he learned an assortment of different cleaning techniques for restorations while in dental school at West Virginia University, he’s found that in the 10 years since graduating, he reaches for one cleansing product exclusively, Ivoclar Vivadent’s Ivoclean.

Dr. Sisler actually uses a range of Ivoclar Vivadent products because he knows he can rely on them to provide predictable results that are esthetically pleasing. However, for him, Ivoclean in particular is unmatched and irreplaceable in his practice.

“I graduated in 2010, and that’s kind of when zirconia crowns and all porcelain restorations were really hitting great stride and taking a competitive share of the marketplace, and that’s when Ivoclar really got on my radar,” he says. “The Ivoclar products were new to me as I was coming out of school, however, they were kind of the latest and the greatest, so that’s what we started using and we kind of haven’t turned back since.”

Ivoclean, a universal cleaning paste used to clean the surface of a restoration after it’s been tried in the mouth and contaminated with saliva, is one product Dr. Sisler uses on a daily basis.

Born out of initial issues with the bonding of zirconia and porcelain restorations that resulted in loose or lost restorations, Ivoclean was created when researchers figured out the try-in phase of the procedure was what created a contaminated environment. This contamination could later compromise the bond and hold of a restoration. Today, Dr. Sisler believes the results have yet to be matched with the same ease and simplicity offered by Ivoclean.

“Any time I put a single unit crown in all the way up to a full mouth rehabilitation, we’re using Ivoclean on the ceramics prior to going in the mouth,” he says. “That’s why we really like Ivoclar products, they make it all very systematic and their products really work well with one another. I can use Ivoclean for a simple, single crown that I’m doing on a general dentistry patient, all the way up to a 28-unit full mouth rehab that we’re doing on a specialty patient. It makes it simple for my staff and for my team to be able to know the product we’re using and the system that’s involved with that,” Dr. Sisler says.

Regardless of the brand or type of dental cement he’s using, Dr. Sisler always uses Ivoclean to prepare the restoration surface. For him, the beauty of this product is that after he’s tried a restoration in the mouth and it’s been contaminated he can easily place Ivoclean and it does its job of cleaning the surface by drawing the phosphates from saliva out of the restoration and into the product itself. In turn, this process creates an ideal surface for the cement to engage the crown as well as adhere to the tooth.

“Honestly, I don’t use anything else and I wouldn’t. I can’t even think of any ways I could suggest to make it better, it’s just that good. They make it so easy and user-friendly I don’t have any need to change what I’m using or even switch to a different product,” Dr. Sisler says. “I’m putting this in the crown, I’m letting it sit for 20 seconds, then rinse and I’m done, compared to using something like acid etch gels in order to get the same results.”

Next to its consistent and dependable results, ease of use is one of the major draws to this Ivoclar Vivadent product for many practitioners. There’s no mess or rigorous clean-up with Ivoclean, just place, agitate, and rinse. For Dr. Sisler, the time and effort saved thanks to that ease is the key to its success and following within the dental community.

“I just like this because it’s simple to use and it’s quick,” he says. “You have to clean the inside of the restoration out regardless, and I know there are other cleansing agents coming on the market trying to replicate Ivoclar’s product, but it’s going to take a lot for dentists to relinquish the predictability they’re getting with Ivoclean.”
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Intelligence to find and book the right patient for the right time

ChairFill from MMG Fusion automates practice scheduling and proactively communicates with patients. [ compiled by Noah Levine ]

Information provided by MMG Fusion.

THE PROBLEM

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Even when the schedule fills up, lining up the right appointments at the right time of day remains difficult.

THE SOLUTION

ChairFill

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What is the most abundant and yet most underused marketing resource for dental practices today?

It's fair to say the answer is data. As consumers have increased their use of digital devices and their engagement with digital media, and as the healthcare industry as a whole has become more digitized (from electronic health records to data gathered from wearable health tracking devices), the volume of information now available to healthcare providers has exploded. This mass of information is commonly called big data, which alludes to large data sets that need to be analyzed computationally to reveal patterns and trends. Big data is expected to grow faster over the next several years in the healthcare industry than in any other sector, including manufacturing, financial services and media, with a projected compound annual growth rate (CAGR) of 36 percent through 2025.

Whether they know it or not, with so much data on hand, healthcare providers, including dentists, are sitting on a treasure trove of valuable insights they can use to maximize efficiency and improve outcomes in both the delivery of care and the management of their business operations.

The problem is that most dentists are not leveraging this advantage, as they do not have an efficient and effective way to collect, organize, analyze, and draw meaningful insights from their data. Often big data’s very nature makes it difficult to process and measure, notably because of its volume, variety, velocity and, veracity (the “four V’s of big data”).

However, with improving technology, more dentists are finding ways to leverage big data to better serve their patients and run their practices, and they’re doing it through artificial intelligence (AI) and machine learning.

AI and machine learning allow dental practices to not only process data but also apply insights from their data faster and more accurately than any human ever could. But for dentists to fully realize how AI and machine learning can improve their practices, they must first understand these terms and how the technologies work together.

What are AI and machine learning?

Artificial intelligence refers to computers’ use of algorithms to mimic the cognitive functions of humans (i.e., acting “smart” by carrying out a task or making a decision as a human would). Notably, while society as a whole has not yet accomplished true AI in the purest sense of the term (experts say more work is needed before machines can apply logic to decision-making in a truly humanlike manner), we’re on our way. Many businesses, including dental practices, are able to benefit from technology that is powered by elements of AI, including machine learning.

Machine learning, which is more commonly responsible for today’s smart tech, is a subset of AI that refers to machines learning from data and changing algorithms as they go to make smarter decisions (better predictive analytics) based on data.

In the grand scheme of things, technology driven by AI and machine learning provides an automated way to organize and analyze data, use that data to make predictions that lead to improved decision-making, and even carry out tasks and decisions on behalf of humans.

MACHINE LEARNING AND AI ARE POISED TO TRANSFORM DENTAL PRACTICES IN 2020

Find out why artificial intelligence and machine learning should be part of your practice’s marketing strategy going forward. [by Daylen Farkas, Vice President of Advertising Research, Scorpion]
When your stand-alone imaging solutions don’t seamlessly integrate with Dentrix, you waste your patient’s time and minimize the care you provide. But with Dentrix Smart Image, you can access all your diagnostic images in the patient chart without bridges or multistep integration paths while also tagging those images with CDT codes that automatically post to the Ledger. Now you can focus on your patient, not just their images, and be confident you’ll get paid for the work you do. Learn more at Dentrix.com/SmartImage/DPR2020
How is dentistry using these tools? Technology inspired by AI and machine learning has become ingrained into consumers’ everyday lives, as it drives the functions behind email spam filters, mobile check deposits, ride-sharing apps such as Uber and Lyft, music streaming services such as Spotify and Apple Music that recommend songs based on users’ preferences, virtual assistants such as Siri and Alexa, and more.7 And within healthcare and dentistry in particular, the use of AI and machine learning is only growing in prevalence and importance. A number of studies suggest AI can perform as well or even better than humans at specific healthcare-related tasks, such as diagnosing disease.9

Dentists can use AI and machine learning-supported technology to analyze large data sets of radiographs and quickly recognize patterns that help them identify serious lesions, among other tasks. The technology also allows them to recommend specific dental care services to patients based on their dental records and even book appointments without the need for human involvement.9

Also, these technologies are helping dentists reduce time and increase precision in the care they deliver, from dental imaging and diagnosis, to treatment and practice management, which can lead to better results and experiences for patients as well as increased efficiency for dental practices. In addition to advancing the actual practice of dentistry, this technology has become integral in modern digital marketing for practices, giving dentists faster, more efficient and more cost-effective ways to reach and attract their most ideal patients on the internet.

How can AI and machine learning help attract patients and increase marketing return on investment? Dentists should be aware of these three AI and machine learning opportunities when planning their digital marketing for 2020 and the years ahead.

1. Predictive Analytics Using Large Volumes of Data

One of the greatest advantages of digital marketing is the wealth of data available on the internet that dentists can tap to better understand and target the most ideal prospective patients. Search engines, social media, video streaming sites, and other popular digital marketing platforms collect data about their users, spanning from demographics to online behavior, and engagement metrics (views, clicks, keywords used, time of engagement with a particular ad, etc.).

Technology supported by machine learning allows dental practices to not only capture and analyze that data but also quickly compare it with larger data sets (i.e., data points from hundreds or even thousands of past campaigns and consumer interactions) to determine what’s most likely to achieve the best marketing outcomes in the future. For example, a digital advertising automation tool powered by machine learning can use historical campaign data to immediately determine the best geographic area to target for a particular ad, the best time of day to run the ad, the highest-converting ad copy, and so on.

By deriving these predictive analytics through machine learning, dental practices can use what they already know about their target patient base and their past campaign performance to create campaigns that are more likely to drive engagement and bring new patients through the door. And they can do it with greater speed and accuracy than ever before because a machine, not a human, is processing these predictive analytics.

2. Real-Time Engagement with Prospective Patients Through Chatbots

Dentists and their office staff can’t possibly be available 24/7. Dental offices are open during only certain hours of the day, and even during those hours, phone lines become busy and current and prospective patients may have to wait to get their questions answered.

This is why many dental practices are investing in chatbot and live chat technology that allows them to assist prospective patients in the moment of need instead of sending them to voicemail. With chat technology enabled on dentists’ websites, site visitors can engage with either a chatbot (AI-inspired technology that is programmed to answer certain questions as a human would) or a live chat specialist (someone answering questions in real time on the dental office’s behalf), allowing the prospective patient to get the information they need without ever picking up the phone.

Chat technology is no longer just a “nice feature to have” for dental offices today—it has become the expectation for many consumers, both within and outside the healthcare industry. Consider that 51 percent of people believe professional service businesses (e.g., a dental practices) should be accessible 24 hours a day,10 and 73 percent of people say timeliness is critical to good service.11

As a result, it should come as no surprise that the global healthcare chatbot market is projected to grow from $16.6 million in 2018 to $345.3 million by 2026, for a CAGR of 14.5 percent.12

When dental practices pair chatbot technology and live chat services with smart patient intake practices, they can more easily provide seamless, around-the-clock support for their website visitors and capture more leads, allowing them to grow their patient volume.

3. Compatibility with Voice Search

Dentists would be remiss if they overlooked the rapidly growing trend of voice search. With the increased popularity of voice search on smartphones and smart speakers, more consumers are relying on voice search, which is built on the foundation of conversational AI, to find information, including details about local dental practices.

Research shows that nearly half (48 percent) of consumers are using voice for “general web searches,” and the four most common reasons for conducting a voice search are looking up a quick fact (68 percent), asking for directions (65 percent), searching for a business (47 percent), and researching a product or service (44 percent).13

As such, dentists should take voice search into account when creating marketing plans for their practices. They should consider how they can optimize their online presence for voice search so they can increase their likelihood of having their practices featured in search results. Common optimization strategies include using everyday language in web content (so practices are a better match for “natural language” voice search queries), adding FAQ pages to websites, and ensuring location and contact information are easy for both users and search engines to find online.

As AI and machine learning become more integral to how dental offices find, connect with, and attract new patients, dentists should consider how they can leverage these resources for their own practices. With the right technologies and tactics in place, dentists have the potential to increase their patient volume, maximize their revenue, and become the go-to dental care providers in their communities. For those who haven’t yet explored the possibilities, 2020 is the perfect time to start.

REFERENCES


To read a full list of references, visit dentalproductreport.com.
Changing the face of dental hygiene

It is important that hygienists understand and embrace dental EHRs and are active in their evaluation and selection. [by Mike Uretz]

Hygienists are becoming aware of how beneficial it would be from both a patient care and liability standpoint if they could actually know a patient’s most recent medical conditions, procedures, medications, and other health related information real-time.

How about the ability to communicate with referral partners, such as periodontists and oral surgeons electronically? Or, what about taking it a step further, sharing results of their patient’s hygiene exams and other records with their medical primary care and specialty providers?

Hygienists are smack in the middle of an expanding Oral Systemic Health Revolution, and along with that, a revolution in next-generation dental electronic health records (EHR) that support it. And hygienists have a unique perspective into the requirements necessary for this new software to support better patient care, especially regarding a patient’s oral health. Hygienists are starting to understand the power they can acquire with a properly designed and implemented electronic health record system.

So, let’s explore just a few of the powerful features that this technology offers for hygienists so they are better prepared to be involved in the dental EHR decision-making process.

**Medical profiles at your fingertips**

How many times has a hygienist had a medically compromised patient, for example a patient with heart problems, sitting in their chair while they were performing various exams and procedures, and wondered to themselves what their patient’s overall medical history or issues were? Or, having some angst about what medical procedures their specialists had performed on them recently?

Would a hygienist be better served to have real-time, accurate, reliable information served up by their computer system? Well, that’s one of the major benefits of a true EHR system. All the medical information about a patient can be captured and displayed in a useful organized fashion. There are no more gray areas as to that patient’s medical history. Imagine, there’s no longer a need to try to contact any of the patient’s medical or dental providers for background information or to fill medical history information gaps during the visit.

Histories, exams, and procedures that were done at the patient’s medical provider office can electronically make its way into the dental EHR system so hygienists can always have a complete medical history at their fingertips prior to performing any exams or procedures. This is happening via interoperability and associated health information exchanges (HIEs), which are like big routing systems through which information from various systems, general providers, and specialists passes.

**Enhancing oral systemic health**

With more and more research linking oral health with systemic health and the simultaneous burgeoning growth of interoperability and health information exchange, dental and medical providers should be able to easily share information of patients they have in common.

Dental EHRs can help facilitate this collaboration and interdisciplinary team approach. For example, with EHR, the hygienist has a mechanism to meaningfully report suspected oral cancers and other medically related issues that are noticed on their exam. This type of dental-medical collaboration would be much more difficult and perhaps more error-prone if not for EHR technology.

**Real-time medication lists**

It is definitely worthwhile from both a patient care and liability standpoint to understand a patient’s present medications and medical history. I’ve heard the story over and over again. A hygienist has an older, medically compromised patient sitting in the chair and when asked what medications they were on they either don’t really know, or refused to answer, “because they are just in for a cleaning.”

How comfortable would it make a hygienist feel in these scenarios if they could push a button and magically get a real-time list of medications for that patient based on their trips to their physician, hospital, or other providers? This is what dental EHR-based, real-time medications is all about. And, although it has become very standard in the medical world, not all dental software companies have embraced it up to this point.

**Be involved**

It is important that hygienists understand and embrace this new technology and demand that they are active participants in a dental EHR’s evaluation and selection for their practice or group. Only a hygienist knows how technology can help their specific situation and they need to be engaged in the process so they can get the best system for their needs.

**About the Author**

Mike Uretz is a nationally recognized dental software, IT, and EHR expert. He is the founder of DentalSoftwareAdvisor.com. As a leading industry consultant and educator, Uretz has helped DSOs and dental groups evaluate and select software vendors and solutions, structure and negotiate vendor contracts, and provide vendor management. He also has assisted dental clients with obtaining millions in technology subsidy payments through the EHR Incentive Program. Mike can be reached at mike@DentalSoftwareAdvisor.com or 425-434-7102.

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Enable two-factor authentication to protect your data

There are many ways to protect your data and online accounts, but using “2FA” can increase your security and help you sleep better at night. [by Dr. Lorne Lavine]

I f you follow the news, then you most likely have heard about two major ransomware virus outbreaks that hit dental offices last year. First, there were 400 offices mostly in Wisconsin that were hit in August, and then another 100 or so from Colorado that were hit in late November. In a previous article, I talked about ensuring that your IT company uses “2FA,” but since that’s so critical, I want to focus this article on a more in-depth look at 2FA, also called Two-Factor Authentication.

Two-Factor Authentication (also sometimes called “two-step authentication”) is a way to increase security. Instead of just a password, there’s two parts involved: Something that only you know, and something you have with you. The former is usually an existing password. The latter is some external object you own, such as a smartphone, or your email account.

When logging into a site, after entering your password, the site will use one of two methods. Depending on how 2FA is set up, the site will either send your phone a text message with a code, or use an app on the phone (tied to the site) that generates a code. After the code is entered into the site, you’ll log in as usual. Some sites will allow you to check a box that makes the device “recognized,” so you don’t have to keep re-entering a code. However, I don’t recommend this, as a lost or stolen phone would put you at risk. There are some custom apps, but one popular app used by many 2FA-using sites is Google Authenticator.

So, what are the reasons you would or would not do this?

On the plus side, because you need two separate items to log into a site (the password and a phone), and because you likely have the phone with you, the security is increased exponentially. Also, as many of you know, hackers use brute force attempts to hack passwords, and 2FA makes this very difficult.

On the minus side, some people aren’t comfortable giving out their phone numbers to sites, and without a phone number or app, 2FA isn’t really going to work well. Obviously, it’s inconvenient to have to wait for and enter a code every time you access a site, especially if you log on multiple times per day. Finally, if you lose your phone, you may be locked out of the site. Some sites deal with this by generating a set of emergency codes to keep stored or printed out. The codes are useful in case a smartphone isn’t available.

At the very least, if you allow your IT company to provide remote assistance, make sure whatever software they are using uses 2FA, as this was the most likely way that the offices in Wisconsin and Colorado were attacked last year. Just ask them what remote control software they use and whether it uses 2FA to secure access. Another way that IP companies can restrict access is by having the software only allow access to a specific set of computers (the ones at their location), and blocking everyone else.

It’s important to realize that 2FA isn’t foolproof; there are reports of hackers still being able to bypass it. Despite the potential inconvenience, I highly recommend you enable 2FA for as many sites as possible. This would include credit card sites, banking, telephone, and utilities. In almost every case it’s free to do this, and you’ll sleep a lot better at night.

ABOUT THE AUTHOR

Dr. Lorne Lavine, founder and president of The Digital Dentist, has more than 30 years invested 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, N.Y. He received his specialty training at the University of Washington and went into private practice in Vermont until moving to California in 2002 to establish TDD, a company that focuses on the specialized technological and HIPAA needs of the dental community. He can be reached at drlavine@thedigitaldentist.com or 866-204-3398.
Moving toward a pain-free practice

Movement and posture are key in staying pain-free during the delivery of dental care. [by Dr. Bethany Valachi]

Dear Bethany: I read that one of the primary causes of pain in dentists is prolonged, static postures. Is that true, and, if so, how am I supposed to move when I am treating patients?

Dear Doctor: Yes, it is true that prolonged, static postures are indeed one of the primary mechanisms leading to pain in dentistry. However, there are several interventions you can do in the operatory to prevent the resultant accumulated microtrauma in your body.

Since four-handed dentistry was introduced in the 1960s, procedures have gotten longer, and dentists are taking fewer breaks. It’s time to take a closer look at how this risk factor is affecting your health in the operatory.

Your body was designed for movement. Over thousands of years, the human body has depended on movement for its survival; for example, if early humans didn’t hunt and gather food, they died. Human physiology has evolved around movement for thousands of years. In the last 250 years, with the onset of the industrial revolution, increasing numbers of workers have performed stationary tasks. More recently, with the advent of computers and as the number of sedentary jobs have increased, the number of Musculoskeletal Disorders (MSD) has risen dramatically, resulting in the formation of such organizations as the Occupational Safety and Health Administration and the National Institute of Safety and Health in 1970.

One study showed the prevalence of low back pain increased by 2,700 percent from 1980 to 1993. When dentists assume static seated postures, more than 50 percent of the body’s muscles must contract to hold the body motionless while resisting gravity. These static muscle forces have been shown to be much more taxing than dynamic (moving) forces. During static, prolonged contraction, muscles do not receive adequate oxygen and nutrients, lactic acid cannot be removed, and painful ischemia may develop. Static pressures also diminish nutrition to the spinal disc and degenerative changes may occur.

When your body is repeatedly subjected to prolonged static postures, it can initiate a series of events that may result in pain, injury or a career-ending MSD. Muscle imbalances, ischemia, trigger points, joint hypomobility, nerve compression, and spinal disc degeneration are several physiological consequences of prolonged static postures.

Movement is required for optimal health of muscles, soft tissues, and spinal discs. Use these three Movement Strategies to help you move the workload from one group of muscles to another and to reduce static spinal disc loading.

1. Change operating positions. Moving frequently between 8-12 o’clock positions around the patient’s head is important. Every time you change positions, you slightly shift the workload to different muscle groups. Remember the 12 o’clock position is your most neutral position, where you are not reaching over the patient’s forehead or over their chest. Strive to deliver 70 percent of your dental care from the 11-12 o’clock positions.
2. Alternate stools. Research suggests that regularly changing your seated posture can reduce low back pain. Try a traditional chair with armrests in one operatory and a saddle-style stool in another. The saddle stool will place the operator halfway between standing and sitting, which uses different muscles than traditional seating and decreases spinal disc pressure. Evaluate chairs to see if they fit your body, height, and operatory layout.
3. Alternate between standing and sitting. One study reveals that dentists who alternate between standing and sitting have less low back pain than seated dentists. Consider standing for extractions, exams, denture adjustments, injections, and impressions.

Just as dentists need to be knowledgeable of the mechanisms contributing to oral pathology so they can effectively treat and prevent the progression of symptoms, they also must understand the mechanisms that contribute to MSDs so they can make informed choices regarding ergonomic equipment, exercise, and lifestyle. Having this knowledge is key in preventing and managing work-related musculoskeletal problems in clinical dentistry.

It’s time to bridge the gap of knowledge between dental ergonomics and work-related pain so dentists can move toward a truly pain-free practice.
Smart marketing technologies for today’s dental practice

Thanks to recent tech advancements, it’s never been easier or more cost-effective to market your dental practice. [by Naomi Cooper, CEO – Doctor Distillery]

From 3D scanning to the latest CAD/CAM equipment, cutting-edge dental technology is changing the way dentists treat and diagnose patients. Did you also know there are smart solutions designed to help dentists attract and retain patients, too?

While print advertising and appointment reminder postcards were the norm a decade ago, today’s marketing options are infinitely more advantageous. Thanks to modern technology, there are a host of new and innovative ways to reach new patients, as long as you subscribe to what I call the 3Ts of modern marketing. These rules highlight the critical areas where modern marketing tactics have far surpassed the old-school efforts. And together, they solve the biggest problem many dentists have with marketing, which is that it’s often too difficult to determine whether marketing is truly effective or not.

Today, dentists have more data at their fingertips. So, as you evaluate your current marketing strategy, use the 3Ts to ensure you are making the best marketing decision for your practice.

**Targeted | Timely | Trackable**

This 3T theory takes the guesswork out of dental marketing and helps you make smarter, data-driven decisions.

Keeping this in mind, there are also tech-savvy solutions that help dentists run more efficient offices and offer the ease and convenience that today’s patients find incredibly appealing, which helps with retention and patient loyalty. Here are five fresh avenues worth exploring for your practice.

- **Live Chat** – About 41 percent of consumers prefer live chat for customer support, topping those who prefer phone, email and social media channels. Live chat enables you to essentially keep your front desk running without actually staffing the desk.

- **Real-Time Communication** – Patients are accustomed to texting, not only with one another but with their healthcare providers as well. They are increasingly ignoring voicemails and emails. The latest in front desk software allows your team to schedule, confirm, and follow up with patients by texting directly to their phones.

- **Scheduling Automation** – Taking real-time communication to the next level, there is an entire category of dental practice insight software that is designed to track, analyze and optimize your practice’s front desk activities. Certain systems can instantly find holes in the daily schedule, then identify the overdue and even dormant patients who are likely to appoint.

- **Online Reviews** – There’s simply no denying the importance of online reviews. People love to write them and patients love to read them. However, it can often feel uncomfortable asking patients to brag about your practice online. That’s why more dentists are relying on software to facilitate the online review process. Using post-appointment surveys and helpful email reminders, this technology gently encourages patients to share their experiences online and then automatically uploads them to review sites.

- **Patient Loyalty Programs** – Yes, there’s an app for that. It has never been more difficult to retain patients, which makes patient loyalty programs all the more valuable. Enter the modern patient loyalty program. Using a smartphone app, your practice can keep your patients engaged before, during, and after their visit. With such services, the data can be captured and easily viewed in order to measure the effectiveness of the program.

While all of these innovative solutions are designed to make marketing your practice infinitely easier and more effective, the real value in them is their ability to enable the dental team to communicate in ways that make sense to patients in 2020. While automating routine daily tasks makes a lot of sense, many dentists worry about losing that personalized touch. But the beauty of today’s smart marketing technologies is that they offer a complete package that augments your current efforts and meets your patients where they are.

Naomi Cooper is President of Minoa Marketing and CEO and co-founder of Doctor Distillery. References and author bio can be found online at dentalproductsreport.com.
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13% of kids in the U.S. have untreated tooth decay. That’s why America’s ToothFairy is working hard to provide resources to safety-net clinics across the nation to help underserved kids access dental care and preventive treatments. Last year our National Varnish Initiative, sponsored by 3M, helped our members protect the smiles of 244,262 children with fluoride varnish application. Thank you, 3M!

Staying safe during the Coronavirus pandemic

Amidst a global pandemic, the principles of infection control and prevention are more important than ever.  

Stay safe

The best way for dental professionals to protect themselves and their patients against the spread of the 2019-nCoV is through basic, tried-and-true Infection Control 101.

“It goes back to the same, old-school system of washing your hands with soap and water for at least 20 seconds,” infection control consultant and speaker Leslie Canham, CDA, RDA, observes. “After the Swine Flu pandemic in 2009, the general public was advised to wash their hands more frequently. If they don’t have soap and water then use alcohol hand sanitizer. People were also advised to avoid touching their eyes, nose, and mouth with unwashed hands, also not to come in close contact with people who are sick, and finally stay home when they are sick.”

One of the challenges with some viruses is that it shares so many of its symptoms with other diseases. Knowing how to differentiate between these maladies is important for staff and patients alike.

“The initial stages of measles looks just like a cold,” Karen Daw, “The OSHA Lady,” speaker and consultant, observes. “How would someone be able to tell if the person hacking, coughing, and sneezing all over the waiting area has measles, flu, Tuberculosis, 2019-nCoV, or just a common head cold? Take the guesswork out of it and have an office policy that demonstrates how we plan on protecting our employees from airborne transmissible diseases. For example, educate patients with a statement in their new patient packet regarding when it would be appropriate to call in and reschedule an appointment. Include language regarding symptoms, and that if running a fever, they should not come in. Let them know that it’s for their health, though we know it is as much for our health as well not to be exposed to someone who is ill.”

Signs and symptoms

For confirmed 2019-nCoV infections, reported illnesses have ranged from people with little to no symptoms to people being severely ill and dying. Symptoms can include:

- Fever
- Cough
- Shortness of breath

The Centers for Disease Control (CDC) believes at this time that symptoms of 2019-nCoV may appear in as few as two days or as long as 14 days after exposure. This is based on what has been seen previously as the incubation period of MERS viruses.

Common human coronaviruses, including types 229E, NL63, OC43, and HKU1, usually cause mild to moderate upper-respiratory tract illnesses, like the common cold. Most people get infected with these viruses at some point in their lives. These illnesses usually only last for a short amount of time. Symptoms may include:

- Runny nose
- Headache
- Cough
- Sore throat
- Fever
- A general feeling of being unwell

Stay home

The best way to avoid trouble is to stay home when you are sick. The best way to avoid trouble is to stay home when you are sick. For example, educate patients with a statement in their new patient packet regarding when it would be appropriate to call in and reschedule an appointment. Include language regarding symptoms, and that if running a fever, they should not come in. Let them know that it’s for their health, though we know it is as much for our health as well not to be exposed to someone who is ill.”

The best way to avoid trouble is to stay home when you are sick.
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The same logic applies for employees, and the practice is advised to facilitate those decisions. “On the flip side, if the employee is not well, the practice should have a policy that does not penalize them for wanting to stay home,” Daw says. “In fact, if they arrive at work sick, the manager or employer should advise them to return home. Train employees on when it is and isn’t appropriate to call in. Advise all employees to stay home if they are sick until at least 24 hours after their fever is gone without the use of fever-reducing medicines. Again, while this is basic information on influenza protection, the principles apply to preventing any type of infectious airborne disease, like 2019-nCoV.”

It may also occur that, if employees are exposed to sick patients, that OSHA could get involved. “OSHA can possibly cite a practice under the General Duty Clause if the state does not have a specific standard regarding protecting employees from airborne diseases,” Daw says. “Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards that are causing or are likely to cause death or serious physical harm. If the practice insists on seeing a patient with flu-like symptoms, the CDC recommends a fit-tested N95 disposable respirator while performing high-risk, aerosol-generating procedures and have a written respiratory protection program that meets OSHA standards. This includes a medical evaluation. Those who are wearing the N95s must be trained in the proper use, fit and disposal and this is in addition to engineering and work practice controls. So, for most practices, it’s just easier to have a policy in place that says, ‘If we suspect flu, we don’t see the patient.’”

Lessons learned
The Coronavirus pandemic can be used to underscore the necessity for proper infection prevention protocols, especially as they are related to the sorts of diseases that circulate every year. Some states take the transmission of airborne diseases very seriously and have Aerosol Transmissible Disease (ATD) standards, administered by OSHA.

“In California, we have a unique ATD, or aerosol transmissible disease standard that is an OSHA requirement for workers who may be exposed to people who have an aerosol transmissible disease. OSHA requires employees to screen patients prior to providing treatment,” Canham says. “We have certain steps that we have to follow in order to comply with this standard. In addition, we’re required to have written plans on how to conduct the screening as part of our injury and illness prevention program. OSHA requires that employees be trained on that screening procedure. Finally, we may not perform aerosol-generating dental procedures on a patient who has an active, infectious ATD unless a physician or healthcare provider determines that they’re not currently infectious.”

The ATD screening steps are based on the 2003 CDC Infection Control Guidelines For Dental Healthcare Settings under the section for M.tuberculosis.

“The following are the steps from CDC that help us screen our patients for aerosol transmissible diseases,” Canham says. “The first step is, while taking patients’ initial medical histories and at periodic updates, dental healthcare providers should routinely ask all patients whether they have a history of TB disease or symptoms indicative of TB.”

These are the other signs to look for:

- A patient has a cough for more than three weeks that’s not explained by non-infectious conditions.
- If a patient exhibits signs and symptoms of flu-like illness — that might include coughing or other respiratory symptoms, fever, sweating, chills, muscle aches, weakness, and malaise.
- The patient states that they have a transmissible respiratory disease, excluding common cold or seasonal flu.
- The patient states that they have been exposed to someone who has an infectious aerosol transmissible disease.

Patient protection
Something that would go a long way toward stymieing infectious disease transmission is providing an “infection prevention station” in the reception room.

“I’m a big fan of making sure that patients see tissue paper, alcohol hand sanitizer, and masks that they may encounter regularly.”

Daw adds, “The last thing you want is for someone to sneeze into the tissue and then place the tissue on an end table or, even worse, hand it off to someone at the front desk to dispose of. Also, have signage in place in the waiting area encouraging people to cover their cough. Free posters are available from the CDC and are a great reminder to patients to follow proper cough etiquette. In addition, include disinfection procedures in the OSHA manual regarding how to disinfect those surfaces, touched by someone who is not well. Disinfecting pens used to sign in, door handles both coming and going, and maybe even arm rests can help prevent the spread of germs from highly touched surfaces.”

The current situation is as far from normal as many can imagine, but keeping your practice ready to provide top notch health care just requires stringently adhering to established practices and routines. The following are the steps from CDC that help us screen our patients for aerosol transmissible diseases,” Canham says. “The first step is, while taking patients’ initial medical histories and at periodic updates, dental healthcare providers should routinely ask all patients whether they have a history of TB disease or symptoms indicative of TB.”

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**TOP 10 STRATEGIES FOR REPLACING A GREAT DEPARTING EMPLOYEE**

Bad news! Your favorite employee just gave notice. She is moving out of state and getting married. Great news for her, but you are devastated. Finding her replacement is not going to be easy. Why? Because you really, really liked working with her. She is fun, smart, and a real go-getter. How do you replace someone like that?

Where to start? Here are 10 strategies that can help you get the ball rolling.

1. **Consider hiring new graduates**
   A bonus with new grads is that you can train them the way you like things to be done. Develop relationships with local dental schools so that this can be a feeder for potential hires.

2. **Take the candidate bowling**
   If you can meet with them away from the office, you will learn quite a bit. It will give you an opportunity to get to know not just the professional side, but also their personal side.

3. **Watch them from the minute they enter the office**
   It is effective to see what they did before the interview starts. Did they talk to anyone? Use their phones? Cram for the interview? Read magazines? Smile and interact with patients or family members?

4. **Use behavioral interviewing questions**
   Past behavior is an excellent predictor of future behavior. This method of interviewing may be trendy but is a much smarter way to interview candidates.

5. **Look at the questions that they ask**
   Was this person prepared for the interview? Do they know anything about your practice? Intelligent questions show how interested they are in working for you.

6. **Ask your employees for referrals**
   Do they have any friends who would fit well with your culture? Referrals from people you trust are the best source for hiring the right person for the job. Why do you think big companies have referral bonuses? They have them because they work. You get better employees when your employees refer them.

7. **Advertise in all the regular places**
   Your website, Indeed, LinkedIn, Facebook, and your dental associations, to name a few. Research and learn as much as possible about these candidates. Social media and the internet can teach you a lot before you ever talk to the applicant.

8. **Hold group interviews**
   Your employees should be a part of the interviewing process. Most dental practices function like a family. It is important to know how well a candidate will fit into that family. This also makes your current employees feel valued. They like to be part of the team and will see that their opinions matter.

9. **Question applicants on their knowledge about the work they do, the industry, and best practices**
   Are they committed to their craft?

10. **Find out what their aspirations are**
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