

What's new in high-tech?

5 problem-solving technologies



DR. LARRY EMMOTT

Dr. Emmott looks at five cutting-edge developments that address problems in these areas:

1. Digital radiography
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Problem: Plate scanning
Solution: Easier loading, e.g., A/T ScanX

2. Digital patient education
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Problem: Inefficient program setups
Solution: Server and technology allowing for multi-tasking, e.g., with CAESY Enterprise on the Edge server

3. Intraosseous anesthesia
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Problem: Difficult-to-use devices
Solution: Simultaneous drilling/infusing device, e.g., Intraflow

4. CAD/CAM restorations
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Problem: Cumbersome process, materials
Solution: Improved software, materials, e.g., Cerec 3

5. Web sites (page 40)

Problem: Hijacked sites
Solution: Domain-name registration check-up, e.g., Network Solutions
—The Editors

By Dr. Larry Emmott

Technology continues to change at a remarkable rate. Following are five cutting-edge developments that can have a positive impact on your practice. The first two are new high-tech products that connect to a computer (a digital radiography phosphor-plate scanner and hardware/technology for delivering patient education). The third is a mechanical solution to an old intraosseous anesthesia delivery problem. The fourth is an upgrade of an existing computer-aided system for fabricating in-office lab-style restorations. The last is a unique solution to a problem we never had to consider before the high-tech Internet age: Web-site exploitation.

1 Digital radiography
A/T SCANX DIGITAL IMAGING SYSTEM

There is a lot of buzz in dentistry about a new digital radiography device from Air Techniques called the A/T ScanX. The device is part of the ScanX digital imaging system that consists of a laser scanner, phosphor storage plates (PSP), plate guides, and a computer connector cord (see photographs below).

Phosphor storage plates often are referred to as wireless or cordless sensors. A cordless sensor captures an image on a plate, which then has to be put into a scanner, where it is digitized. The plate or sensor looks like a typical film pack.¹

(Digital radiography systems can also use a wired or corded sensor, which connects to a computer and captures and digitizes an image directly. The corded sensor looks like a chubby black film pack.¹)

A limitation of PSP systems, when compared with corded-sensor systems, has been that they've taken significantly longer to produce an image on the monitor. In contrast, the ScanX produces an initial image in 17 seconds; subsequent images take four seconds each. Panoramic images take 25 seconds to produce. A full-mouth series can be taken in just under two minutes. The ScanX system uses a continuous rapid-feed system that requires no drum holders to load or change, thus speeding the loading process.

Getting a digital image from a PSP system in as little as four seconds is an amazing leap forward for digital radiography. The scanning machine itself looks like a space-age coffee maker. It is a gray cylinder about 24 inches high with a big gray donut around the middle.

Note, though, that the ScanX is a capture-only system; this means that it does not come with any imaging software. Users create the image with ScanX and then import it into an image management software program. The system has great "inter-operability," a term used to refer to the ability of technology components from different manufacturers to work together.

What software should ScanX users look for? ScanX works most completely with Image F/X software from SciCan. This is because "SciCan has just released its XT (X-ray Transport) stand-alone module that allows x-ray images scanned by Air Techniques' ScanX to be brought directly into Image F/X software," the company said for a report on image management software in the July 2002 issue of *Dental Products Report*.²

In theory, though, ScanX users should be able to use the system with any existing image management systems that have a radiography component, as well as with existing digital radiography software. For specific names of several popular imaging programs that are compatible with ScanX, contact Air Techniques.

Sensor images (whether from cordless or corded sensors) have the digital advantage—greatly reduced radiation—and, they can

be stored, transmitted, and enhanced electronically.

Users of digital radiography sensors also save money—there are no film or film mounts to buy and no chemical or maintenance expenses. Digital radiography users also save time—digital images require less time to take than do traditional x-ray film images.

The next few years will see even more changes in digital radiography for the following reasons: The systems are becoming compatible, the vendors are more stable, the technology is mature, and the return on investment is established. All these factors should finally bring digital radiography into the mainstream.

2 Digital patient education programs
CAESY ENTERPRISE ON THE EDGE SERVER

CAESY has introduced a new product, CAESY Enterprise. This development combines new hardware products coupled with the CAESY and Smile Channel programs to make CAESY easier to use, more efficient, more valuable, and more functional than ever.

The new hardware that allows this to happen is The Edge server, a customized stand-alone server that connects to your computer network through a hub or switch. This connection allows for true multi-user multi-tasking from any computer on the network. For example, the dentist can show a veneer presentation in one room, while the hygienist shows a perio presentation in her room, and the office administrator shows a third program to a new patient in another room.

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1 A/T SCANX FROM AIR TECHNIQUES

Problem: Plate scanning
Solution: Easier loading technology

The A/T ScanX phosphor-plate-based digital radiography imaging system features a continuous rapid-feed system that requires no drum holders to load or change. Simply insert plates into the plate guides and then into the unit, which produces intraoral images in 17 seconds after initial exposure and subsequent images in four seconds.

The system includes the following components:

- A/T ScanX unit with a Class 1 laser device
- Twenty #2 phosphor storage plates (PSP)
- Four #2 plate guides
- One each of #0, #1, and #3 plate guides
- Three hundred #2 barrier envelopes
- Power cord and computer connector cord
- Plate transfer box used to safely transport plates from the patient to the scanner

For more information on ScanX, contact:

Air Techniques Inc.
Telephone: 800-AIR-TECH
(800-247-8324)
www.airtechniques.com

Plate guides sit in here



SELECT 58.

2 ENTERPRISE ON THE EDGE SERVER FROM CAESY

Problem: Inefficient program setups; difficulty allowing multiple staff members to use multiple patient education programs simultaneously
Solution: A server that connects to the doctor's existing computer network and allows for multi-tasking by multiple users



CAESY Enterprise on The Edge server allows the entire staff to have simultaneous access on any networked computer to the program's more than 200 multimedia presentations and the Smile Channel. The system also allows users to customize case presentations, import their own digital photos, and print every presentation branded with the practice's information.

Other features include unlimited linking of presentations, which also can be saved for future use; customizable presentation menus that reflect the practice's services; and a customizable "previews" esthetic loop.

A built-in upgrade path allows current CAESY users of the company's products to switch up to this system.

For more information on CAESY Enterprise on The Edge server, contact:
 CAESY Education Systems
 Telephone: 800-691-1980
www.caesy.com



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This new system is ideal for any office with a computer network already installed. Also, because the content is stored on a computer server, it can be customized in many different ways, including links, previews, galleries, and custom office photos and information. The flexible features allow users to import the doctor's own digital images into customized case presentations. In addition, all presentations are printable and are branded with the dentist's practice information.

3 Intraosseous anesthesia delivery INTRAFLOW

This new device isn't a computer product, but it does use new technology to solve a human problem. Have you ever tried to use one of the intraosseous anesthesia systems? If you have, you know they work great...but. The "but" is that they are hard to use. The biggest problem is getting the needle back into the very small hole you have drilled in the cortical bone. Intraflow solves this problem by integrating the delivery system with the drill.

Intraflow looks like a typical slowspeed handpiece. It connects to the unit via a standard four-hole connection and both the speed of the drill and the infusion of anesthetic are controlled with an ordinary foot control. It uses regular anesthetic carpules.

The result is more profound flow of anesthetic, delivered faster, safer, and with less discomfort. If you use anesthetic just 10 times a day it will save 40 minutes of wait time. Plus, your patients will love it. The time savings could generate a significant amount of additional revenue each day if the doctor were to use the device as a primary means of anesthesia. It also could reduce anxiety, as patients do not perceive the combined drilling/drug infusion process as getting a "shot" with a long hypodermic needle.

4 CAD/CAM restorations CEREC 3

I recently revisited Cerec, the CAD/CAM system from Sirona, and I was pleasantly surprised. Improvements in the newest version of Cerec 3 have made it much more practical for the typical dentist to consider using.

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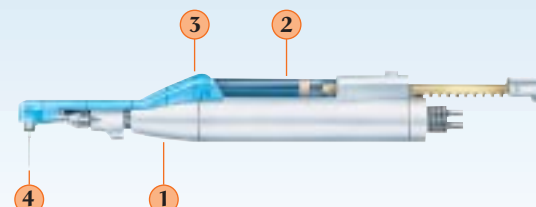
3 INTRAFLOW FROM INTRAVANTAGE

Problem: Hard-to-use devices; time spent getting needle into small drill holes
Solution: All-in-one drilling system

The heart of the IntraFlow intraosseous dental anesthesia system is a lowspeed pneumatic handpiece (1) that is compatible with standard dental units and uses a standard anesthesia cartridge (2). The system is suitable for application in two-thirds of everyday dental procedures and is said to provide increased patient comfort, reduced anxiety, and significant timesavings. Because anesthetic is confined to the adjacent area of the problem teeth, procedures can begin immediately. Work also can be completed in multiple quadrants during a single office visit, providing better care for patients who do not keep necessary follow-up appointments.

Comprising a lowspeed pneumatic handpiece with a disposable transfuser (3) and anesthetic cartridge, along with a 24-gauge rotating needle/drill (4), the footpedal-controlled device delivers anesthetic in a combined process of bone perforation, infusion, and withdrawal. Use of the system is said to produce no post-operative discomfort and offers a low risk of infection and nerve damage.

For more information on IntraFlow, contact:
 IntraVantage Inc.
 Telephone: 877-476-4299
www.IntraFlow.com



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CAD/CAM stands for Computer-Aided Design/Computer-Aided Manufacture. The system uses a specialized camera to take an optical image of a prepared tooth. The computer then designs a restoration and mills it out in a special chamber. The result is a one-step, lab-type restoration

with no impression, no temporary, and no second appointment.

Past criticism of Cerec has centered on poor marginal fit, inability to do full coverage, lack of esthetics, limited materials, and it just took too much time. Cerec 3 addresses all of these issues, as follows:

- The marginal fit now is comparable to that of traditional lab restorations.
- It now does both full and partial coverage crowns (it cannot do bridges).
- The esthetics are better because the materials have improved. They now include materials that are the equivalent of pressed porcelain, such as IPS

4 SIRONA CEREC 3 FROM PATTERSON DENTAL

Problem:
Cumbersome process, materials
Solution:
Improved software, materials



Sirona Dental System's Cerec 3 CAD/CAM system offers improved software and materials to make one-step lab-type restorations more user-friendly. For example, the Windows-compatible software now supports one-way data transfer from practice management software allowing information to be entered only once. In addition, a section window shows a restoration's cross-section to provide increased precision.

For more information on Cerec 3, contact:
Patterson Dental Supply Inc.
Telephone: 800-873-7683
www.pattersondental.com
www.sirona.com

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Empress from Ivoclar Vivadent and composite polymers, such as belleGlass HP from SDS Kerr.

- The new Windows-based software streamlines the process so that a single restoration can be designed in as little as three to five minutes.

Despite all these advantages, most dentists still are afraid of the cost. A single Cerec 3 system costs close to \$100,000. That is a huge investment; however, it actually is possible to justify the cost, based on lab-savings and time savings in the office (Use of Cerec 3 does not require a second appointment).

Making a complete switch to Cerec 3 will be a stretch for offices that still place a lot of amalgams. However, for dentists who are already providing a lot of indirect posterior onlays and crowns, it is a natural fit.

The final new element that makes it all succeed is training. Even with the advanced system, there is a fairly long learning curve and without good ongoing training and support it is hard to make it work. Patterson Dental Supply has committed a great deal to providing support and is opening new advanced training centers around the country.

5 Practice Web sites NETWORK SOLUTIONS/VERISIGN

Imagine this: A loyal patient logs on to your dental-office Web site. However, instead of seeing dental-office information, he or she is transported to an Internet

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5 NETWORK SOLUTIONS/VERISIGN (WWW.NETSOL.COM)

Problem: Hijacked Web sites

Solution: Domain-name check-up site

Is your practice Web site still registered? To find out, go to Network Solutions (www.netsol.com), a division of VeriSign, and perform the following tasks:



On the first screen shown, enter your domain name (for example, "yourpractice"), select the extension (such as ".com"), and click on Search.

On the next screen shown, if "yourpractice.com" is listed under "Unavailable Domain Names" your Web site registration is current (and unavailable to others). If "yourpractice.com" shows up under "Other Names You Might Like," your registration is out of date and available to unscrupulous traffic aggregators.

To renew a Web site name or to register a new name, go to www.verisign.com and fill in the blanks under "Renew a Domain name" or "Register a domain name."

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pornography site!

This distressing situation actually is happening to dental offices and other businesses and organizations as varied as the Boston Philharmonic Orchestra, the Dutch government, and the U.S. Department of Education, according to a report in the March issue of *Network World*.

Underhanded middlemen called traffic aggregators are increasingly buying up expired domain (Web site) names of respectable enterprises and redirecting corresponding Web traffic to other sites, primarily porn and gambling venues, according to the report.

More than 2 million domain names expire every month, and eager traffic aggregators are lurking to buy up these names. Often the legitimate owners of the names haven't kept their contact information current with the Internet Corporation for Assigned Names and Numbers (ICANN).

Formed in 1998, ICANN is a non-profit, private-sector corporation formed by a broad coalition of the Internet's business, technical, academic, and user communities. "ICANN has been recognized by the U.S. and other governments as the global consensus entity to coordinate the technical management of the Internet's domain name system," according to an "ICANN Fact Sheet" on its Web site (www.icann.org).

In a policy paper, ICANN said most of the hijacking problems are caused by the inattention of domain name holders who forget to renew registrations. Another reason for lapsed renewals is that companies often fail to receive notification of a pending domain name expiration because the e-mail address listed at the time of the registration is no longer valid.

Legitimate dot.com domain-name registrations cost \$35 a year. Businesses, which have had their domains hijacked, can try to buy them back. Those who have tried it are advised not to bid anything less than \$1,000.

As if that wasn't bad enough, many
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offices use their domain name as their primary e-mail address. That means once the domain is hijacked, the e-mail is hijacked as well. Every piece of printed information with the Web or e-mail address on it is now a liability.

The primary lesson here is to pay atten-

tion when it comes to your Web site's registration: Keep your ICANN information current and renew on time.

One way to check out the registration information on your practice Web site's domain name is to go to Network Solutions (www.netsol.com), a division of VeriSign, a company involved in Internet

and e-commerce business.

See examples on page 42 for information on how to use Network Solutions' Web site to check if your Web site still is "unavailable" (which means it is still registered). To renew a current Web site name or choose a new one, go to VeriSign's Web site (www.verisign.com).

Summary

The five products noted in this article—A/T ScanX, CAESY Enterprise on the Edge, Intraflow, Cerec 3, and Network Solutions—are representative of continuing change. None of them is unique. There are other new products in every product category covered here, from scanners to anesthesia.

The point of this article is not to promote any one solution, but to point out what is happening in the market, and to advise dentists on future changes. For, the future is coming and it will be amazing!

Note: Also see the sidebar on page 117, "Dr. Emmott looks at shade matching", which is part of the ShadeVision technique article (see page 116), for Dr. Emmott's high-tech solution to the problem of accurately matching crown shades with existing tooth shades. **DPR**

References

1. Dr. Larry Emmott. Making sense of sensors: a guide to choosing digital radiography sensors. *Dental Products Report* 2002;36(3):36-40. Sensor terms (p. 40).
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