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## Dental Products Report | Technology Guide 2009

### Digital Radiography

Today's systems set tomorrow's standards

The role of digital radiography in practicing minimally invasive dentistry.

By Dr. Rand Mattson

Historically, the field of dentistry has seized emergent technologies and integrated them with lightning speed. Dentists know technology at work in their practices serves the best interest of their patients and creates the foundation of modern, efficient dentistry. Yet digital radiography (DR) has not received this universal welcome, and the technology elicits cheers or fears with no middle ground from dental professionals.

DR, now 25 years old, continues to polarize opinions and has not been as significantly embraced as predicted. A recent study in Indiana indicated a 19% DR utilization rate while other studies indicate usage as high as 30%. Nobel Prize winner Max Planck gave this insight on scientific developments: "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it." When it comes to DR, dentistry is still waiting for that generational shift.

#### What's Holding Dentists Back?

The slow rate of DR adoption is perplexing and stands in contrast to the general public's adoption of new technologies. Digital cameras and cell phones with built-in digital cameras have become ubiquitous, even though they can be expensive and nearly outdated as soon as they are purchased. Data shows the U.S. 'adoption rate' for mobile phones stands at 85%, yet dentists who often rely on viewing big pictures of tiny areas via loupes and other magnification aides continue to walk away from huge flat-screen digital images offered through DR systems and instead stick by tiny and sometimes wet images captured on film.

While DR detractors still use film for their photography needs, after testing out DR, few of the technology's users would be willing to revert to film. Digital images are easy to read, ready in just seconds, never decay and are better for referrals because the digital files can be sent between clinicians with ease via the Internet. In addition to convenience, DR can yield more accuracy in diagnosis and reduce patient exposure to radiation.



**DR Products**

**schick**  
**CDR Wireless**

**CDR Wireless**

CDR Wireless direct digital x-ray sensors transmit images via radio waves to the computer where they are instantly displayed on the screen. Sensor operation is automatic, and images can be

DR in the form of soft phosphor plate sensors and wired or wireless hard sensors represents the number-one dental technology that current users say they cannot live without. Clinicians who already use the technology know how it can improve quality of care, reduce chair time and enhance the patient experience. All of this adds up to an improved bottom line through the use of DR.

### Buying in

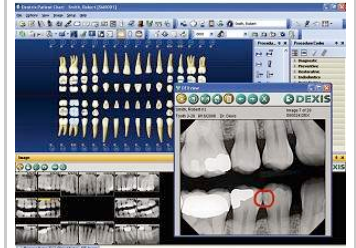
Many dentists considering the purchase of a DR system are scared off by the initial cost and a lack of familiarity with ways it can work in their practice. However, the upfront costs are less imposing after considering the costs associated with film-based imaging, and then adding the lost opportunity costs those practices could realize with a DR system that increases diagnostic capabilities and frees up schedule time.

Patients seamlessly accept DR, even if it is new to a dental practice because they're familiar with digital imaging from daily access to flat-screen TVs and digital cameras. By allowing practitioners to diagnose decay earlier in the disease process and show this to patients on-screen, the technology can improve patient involvement. Large side-by-side comparisons highlight change and help patients take ownership of the process.

While the images produced by film and DR are comparable, the extra advantages from using digital imaging technology make it a hard option to ignore. Film might present a usable image, but the medium's lack of additional features make it a lesser choice for today's practice. Film simply can't compete with the following features that seamlessly integrate DR with modern dental practice, and this is just the short list:

- DR is faster than any chemical system
- DR is more cost-effective in the long term
- DR images are available office-wide
- DR is more comfortable for patients
- DR can be seen by multiple users for e-consults
- Digital images are less expensive to store, easier to organize and harder to lose
- Digital images can be manipulated
- DR is environmentally friendly

viewed without removing the sensor from the patient's mouth. [Click here for more information.](#)



### DEXIS Integrator

This module for DENTRIX practice management software provides direct access to images and DEXIS imaging software. Users can enlarge, enhance or annotate an image without leaving a patient's chart. [Click here for more information.](#)



**PaX-500 OS**  
panoramic/cephalometric  
x-ray

### DR trumps film

When the routine use of chemical-based imaging and DR are compared and contrasted, the answer is clear: DR trumps film. Digital imaging is so significantly superior to film that practices should consider the professional, ethical and clinical ramifications of adopting DR. Put quite simply, this technology allows the delivery of better care.

With digital imaging in the operatory, clinicians can implement treatments such as image-guided operative procedures that were possible but extremely difficult to accomplish with film. Because clinicians must wait three or more minutes for each film to develop, image-guided procedures are not realistic. DR's ability to deliver those same images in just seconds makes image-guided treatments practical for everyday use. The lower radiation exposure for patients is another major benefit of using DR.

Bundled with powerful imaging software, the system produces optimal images based on the Adaptive Layer Control and Automatic Optimizing Processing technology. [Click here for more information.](#)

[>> All digital radiography products.](#)

### DR in action

Post retrieval is a good example of where DR can be used more effectively than film. With its ability to deliver almost immediate 2D images, DR provides instantaneous feedback to keep the clinician on top of every incremental change. The patient is seated, and the assistant is always present in the treatment area to maintain the flow of the procedure. The result is a more efficient and comfortable path to a desirable outcome.

While the science behind these results is not yet clear, some clinicians report a 10-20% increase in diagnosis of the early stages of decay through the use of a DR system. Anecdotally, these results are due to the increased size of digital images, the ability to zoom in on tiny details and the ability to alter contrast in the images to spotlight the early signs of decay. The result of increased early detection is earlier treatment and more conservative restorations.

### Making DR work for you

Today's times are financially turbulent, creating challenges for both dentists and patients. Practices need to play their "A" game to keep existing patients, attract new ones and encourage everyone to stay current with preventive dental care. According to a report by the ADA, patient spending is set to top \$100 billion this year and reach nearly \$170 billion by 2017, making it a great time to invest in technology.

Patients can take a digital photograph with the average cell phone, so it's reasonable for them to expect their dentist to be equally in tune to digital imaging when it comes to DR. Dentistry is advancing like never before; keeping up with technology that can improve care as much as DR is critical for a successful future.