

Meet the New Intraoral Sensor

Times have changed, and so have the features that doctors look for in a sensor

by Robert Pauley Jr., DMD



The frequency at which intraoral radiographs should be taken varies based on a number of factors, such as new patient vs. recall, age, risk for caries, and existing periodontal disease. Still, there's no doubt that bitewings and the full-mouth series are some of the most basic X-rays taken in a dental practice. That means the intraoral sensor must provide consistent, high-quality radiographs over and over again.

It's been more than 30 years since the digital intraoral sensor was patented. Since then, oral health-care professionals have had plenty of time to fall into a comfort zone when working with an intraoral sensor. But doing what's comfortable doesn't necessarily lead to innovation. It's 2015, the sensor has evolved yet again, and practitioners need to understand the new advancements that are taking the intraoral sensor to the next level of diagnosis and treatment.

The history of the intraoral sensor

First, in order to better understand how far the sensor has come, let's take a look back at its beginnings. Trophy, a French company that would later launch the first digital intraoral sensor, introduced its first dental X-ray unit in 1963. Where would the intraoral sensor be without its companion, the wall-mounted X-ray generator?

In the early 1980s, sensor technology experienced a huge game changer: digital. Dr. Francis Mouyen patented radiovisiography (RVG) technology, the world's first digital dental radiography system. In 1987, Trophy launched the RVG 25000 digital intraoral sensor, which ushered in a new era of faster turnaround,



Software in use

higher-quality images, and—most important—improved diagnosis.

RVG took off from there, with many iterations and improvements to the technology over the years. Today, many doctors use the digital intraoral sensor as a stepping stone into digital technology, as the workflow is similar to film but with fewer consumables and less time involved.

New advancements in sensor technology

It would be easy to think that the digital intraoral sensor has reached its peak, as manufacturers have had more than 30 years to refine the technology. Doctors have found their preferred look and feel for their radiographs; staff can place a sensor with their eyes closed, and patients know to expect X-rays at their checkups every year or so. However, even if the digital sensor has become a dental practice “old staple,” it remains a sophisticated piece of technology, and technology is always advancing.

Line pairs vs. filters

For years, a sensor’s image quality was defined by its line pairs per millimeter, or lp/mm—essentially, how close the lines could be to each other and still be visibly resolved. With each release of a new sensor, companies boasted of higher and higher lp/mm. While the measurement still plays a significant role in image resolution, these days most digital intraoral sensors provide similar-quality images, even if some claim to offer more lp/mm than others.

What doctors should consider now is software that offers multiple filters for viewing radiographs. Filters allow practitioners to select from a number of preset image-enhancement options. For example, filters can produce smooth and contrast-enhanced images, or reduce artifacts around radiopaque materials.

Also, since what might appear perfectly clear to one practitioner may seem out of focus to another, it’s important to look for software that allows for customization by modifying brightness or contrast. Some filters even replicate the look of traditional film, which can ease the transition between the two workflows.

Many doctors have found a comfort zone for viewing radiographs, which can make them reluctant to either make the switch to digital or change sensor manufacturers. Filter software lets doctors find the perfect look and feel, which can improve diagnostic efficiency.



A sensor should be tough.

Withstanding the abuse

As previously mentioned, an intraoral sensor may be the most-used piece of digital technology in a dental practice. That also means that it’s one of the most abused—patients bite the sensor head, cords get run over by carts, and the instrument is repeatedly submerged in corrosive sanitizer. Could you imagine any other piece of digital technology being put through this and coming out unscathed?

When doctors invest in new technology, they want to be sure that the equipment can stand up to the rigors of a busy dental practice. That’s why the value of a durable digital intraoral sensor cannot be stressed enough.

Look for sensors with few connection points, which allow for a stronger cable. Where connection points do exist, ensure they’ve been reinforced to stand up to hard pulls and torsion. A flexible cord is also important—in some sensors, securely attached flexible cables can support more than 100,000 hard flexions, or the equivalent of 10 years of very intense use. When it comes to the head of the sensor, a shock-resistant casing protects the sensor from bites, shocks and drops. In addition, waterproof sensors are a plus when it comes to standing up to abrasive sanitizers for infection control.

Fewer gizmos, better technology

Finally, look for a sensor with fewer mechanical parts. Having fewer buttons and switches simplifies the workflow, getting patients in and out of the chair faster and improving practice efficiency.

Bitewings and the FMS are commonly taken in dental practices, so it’s easy for doctors and staff to take

the humble intraoral sensor for granted—there’s nothing like a comfortable, if boring, routine. However, the technology behind the digital intraoral sensor has far from plateaued. Practitioners should examine this latest generation of intraoral sensors for their advanced software, durability and sleek, compact design. They might be surprised how such a small—yet crucial—piece of technology can improve diagnosis, streamline workflow and lead to healthier patients. ■



A sensor should be waterproof.

Want to learn more about intraoral sensors? Ask questions on the Dentaltown message board at Dentaltown.com/magazine.aspx

Author Bio



Dr. Robert Pauley Jr. has been practicing dentistry in Union City, Georgia, since graduating from the University of Kentucky College of Dentistry in 1988. He is a member of the ADA/GDA, is an associate fellow of the American Academy of Implant Dentistry, and is a fellow of the International Congress of Oral Implantologists. Dedicated to staying on top of the latest dental technology and treatments, Pauley is currently enrolled in the Advanced Dental Implant Studies program. He completed the MCG/AAID 300 hour maxi-course in implant dentistry in 2009 and is involved as a coach/mentor in the 2015 Maximus Implant Program.

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