Spotlight on Sensors: Infection Control and Sterilization

Dr. David Gane | Jun 5, 2013

One of the benefits of writing a blog is the ability to dive deeper into topics that we've explored in the past. This week, I would like to look back at a post I wrote on best practices for infection control and focus exclusively on intraoral sensors.

Infection control is one of the most important things to consider when you are making the switch to digital radiography (DR), since you must understand how to "sanitize" your imaging technology to ensure infection control standards are met. The health and safety of our patients is of paramount importance—not only for maintaining a trusting relationship with them, but also for shielding them from cross-contamination and potential sources of infection. For these reasons, following the best practices for sensor sterilization is critical.

Sensor Disinfection

Because sensors are used intraorally and come into contact with mucous membranes and oral fluids, they are considered semi-critical devices in terms of infection control. As a result, the FDA recommends the use of approved hygienic barriers to meet infection control standards and prevent cross-contamination. However, according to a Journal of the American Dental Association article on "Assessing the Effectiveness of Direct Digital: Radiography Barrier Sheaths and Finger Cots," the plastic barriers on direct digital sensors fail up to 40% of the time (the additional use of a latex finger cot reduced this number to 6%). Therefore, knowing how to adequately disinfect the sensor / plate is important in the event of a barrier sheath tearing or breaking.

Actually 51% *see next page:

While the specifications for disinfecting direct digital sensors will vary greatly depending on the manufacturer, the general process is typically the same. Before a sensor can be disinfected, it must first be cleansed. This is done by:

1. Removing the barrier sheath
2. Cleaning off any organic matter or other debris from the sensor surfaces (if present) with a disposable wipe or brush
3. Inspecting the sensor and, if necessary, repeating the above step.

To disinfect the sensor, you should use only disinfecting solutions that contains Environmental Protection Agency (EPA)-registered, intermediate-level hospital disinfectant with label claims of tuberolicidal activity. Some manufacturers warn against using chlorine-based products—such as bleach—because they are too corrosive for the sensors. The guiding principal here is to follow the manufacturer's recommendations to the letter.

One option to consider when selecting a sensor is to find one that can be fully submersed in a disinfectant solution without harming the sensor's components. Using sensor heads that are 100% waterproof benefits you by expediting the sterilization process and promoting optimal disinfection. Unfortunately, not all sensors are submersible, so it's important to do your research before you select a product.

Finally, it is important to remember that, while it may seem more convenient to purchase a sensor that has detachable cables, these cables and sensors are not submersible and as a result, maybe more difficult to sanitize.. Thus, a better option is to select a well-made water tight, sealed sensor with a durable cable.

Because it's up to each practice to determine their infection control protocol—whether it's wiping, spraying or submersing the equipment—this should always be your determining factor when selecting a sensor that's right for your office.

Click here to learn more about Carestream Dental sensors.

For the original posting, click here.

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ASSESSING THE EFFECTIVENESS OF DIRECT DIGITAL RADIOGRAPHY BARRIER SHEATHS AND FINGER COTS

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Abstract

Background. Effective cross-contamination prevention is critical for direct digital radiography, or DDR, sensors, which are not sterilizeable; however, current manufacturers' recommendations for standard precautions are limited to the use of plastic barrier sheaths, which are commonly known to tear or leak. The authors sought to determine the incidence of digital radiography barrier-sheath leakage, with and without additional latex finger cot protection, as measured by a water pressure test.

Methods. Four hundred plastic barrier sheaths were randomly assigned to four groups based on intraoral radiograph positioning device use and supplemental barrier protection with a latex finger cot. Sheaths were carefully placed to cover DDR sensors for a single intraoral use, gently removed from the sensors and tested for leakage through a water pressure technique.

Results. Perforations occurred in 44 to 51 percent of plastic sheaths after a single radiographic exposure. However, only up to 6 percent of the plastic sheaths that were covered by a latex finger cot leaked during the water pressure test.

Conclusions. At least 44 percent of the plastic barrier sheaths leaked after a single intraoral radiographic exposure. Use of a latex finger cot over the plastic sheath significantly reduced leakage to no more than 6 percent.

Clinical Implications. Latex finger cots used in conjunction with the standard plastic sheaths that cover DDR sensors may more effectively prevent cross-contamination than do plastic sheaths alone. Dentists who use DDR sensors during highly invasive dental procedures such as dental implant surgery are encouraged to consider supplemental barrier protection for these delicate, expensive and nonsterilizeable sensors to prevent patient cross-contamination.

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