



# Infection Control Q and A: Instrument processing

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**SPECIFIC INFECTION-CONTROL GUIDELINES** for dentistry have been continually updated since 1978, when the ADA initially published recommendations for preventing hepatitis B virus (HBV) transmission in the dental practice. Since that time, the ADA and CDC have worked together to revise and release updated versions based on ongoing advances in science and technology. The most recent, comprehensive document, published by the CDC in 2003, addressed one of the major infection-control areas known as instrument processing of patient-care items between treatment procedures.

The fundamental principles and procedures for cleaning, decontamination, and sterilization of debris-laden, contaminated patient-care items have not really changed. However, dental professionals have multiple procedure and product choices available as they process contaminated instruments for reuse. Another consid-

eration is that dental practices have different sized room and counter spaces available for reprocessing patient-care items between procedures. These can range from a separate, designated room organized with cleaning units and multiple sterilizers, to small spaces on either side of a sink in a multipurpose room. The majority of practices appear to fit toward the higher end, where a designated area with adequate space is reserved for this purpose. Since the process involves a series of steps that require specialized equipment, adequate workspace, and qualified workers, it is also encouraging to note that dental personnel have become more knowledgeable in their understanding of instrument reprocessing. As expected, however, questions continue to be asked regarding specific concerns. The following question-and-answer sections will focus on a few of the more common inquiries.

**Q | I know of another dental practice that uses a “holding solution” as an initial step when processing contaminated instruments. What is the rationale for this procedure, and is it something we should do?**

**A |** Immersing contaminated instruments in a holding solution prior to cleaning is a good idea under certain circumstances. Holding solutions, including ultrasonic detergents, spray gels, and foams, are formulated to primarily keep biological debris on instruments moist, and prevent the material from drying. A number of these preparations contain enzymes, which can also aid in breaking down proteinaceous components of the bioburden. This approach is especially useful when it is not possible to clean instruments or other items soon after patient treatment. Accumulated soil on instruments that is allowed to dry before reprocessing is more difficult to remove. This presents a greater challenge for subsequent manual or automated cleaning procedures. In addition, attempting to remove hardened debris by hand-scrubbing instruments increases the risk for a sharps accident.

Also, environmental surface disinfectants are not designed to be used as holding solutions. If a disinfectant does not have a specific indication as a holding solution, it should not be used for that purpose. In this context, the most frequent example of chemical misuse I am asked about is “precleaning” debris-laden instruments with a glutaraldehyde disinfectant/sterilant. Glutaraldehyde is a protein fixative agent, and immersion of biologically soiled items in this chemical will basically “fix” debris proteins onto their surfaces. As a result, the items become even more difficult to clean. Bottom line: The use of a holding solution (including enzymatic ultrasonic detergent) and/or enzymatic spray gel can make cleaning contaminated items much easier, thereby facilitating the instrument reprocessing protocol.

**Q | How do you ensure that an ultrasonic unit is functioning properly to clean instruments?**

**A |** Ultrasonic cleaning equipment can and should be tested regularly for proper functioning. The test uses aluminum foil and is a simple and rapid method to check for even distribution of ultrasonic cavitation action within the chamber. Consult with the ultrasonic manufacturer or the operating manual for step-by-step instructions on how to check the cleaning capacity of your ultrasonic unit. If not, a suggested generic approach that can be used is:

1. Using regular or heavy-duty household aluminum foil, cut a piece of foil to fit the width of the cleaner chamber.
2. Prepare a fresh solution of ultrasonic cleaning solution and fill the tank according to the manufacturer’s instructions. Do not turn the heater on for the test.
3. Insert the foil vertically into the cleaner chamber, with the length of the foil running the length of the chamber and the bottom of the foil about one inch above the bottom.
4. Holding the foil as steady as possible, turn on the ultrasonic cleaning unit for 20–60 seconds (if the unit is supplied with a high/low switch, it should be set in the high position).
5. Remove the foil sample and observe for small indentations (pebbling) on the foil. Some holes may also be present.

6. With a properly functioning unit, the entire foil surface will be uniformly “peppered” (covered with a tiny pebbling effect). If areas greater than ½-inch square show no pebbling, the unit may require servicing.

**Q | Do instrument cassettes offer any real efficiency and infection-control advantages for instrument processing compared to loose instruments that are wrapped in paper and plastic pouches?**

**A |** The use of a cassette system for patient care provides a number of advantages compared to using loose instruments packaged in pouches. The *major infection-control feature* is the elimination of certain manual instrument reprocessing steps, thus reducing handling of potentially infectious, contaminated sharps instruments during cleaning, sorting, and packaging. This further minimizes the potential for accidental sharps exposures. In addition, *improved practice organization and efficiency* are also advantages of cassette use, including:

1. Time savings by keeping instruments together in a single cassette for a specific procedure from chairside through cleaning, packaging, sterilization, and storage
2. Decreased need for instrument repackaging and sterilization as a result of sharps items poking through torn paper/plastic pouches and wraps
3. Increase in instrument longevity by protecting them from damage during reprocessing and storage in pouches
4. Allow aseptic and organized presentation of instruments to patients at chairside

There are a number of available, effective procedures and products that allow dental personnel to accomplish instrument reprocessing between treatment appointments. The basic goal, however, remains the same: *to safely provide sterile instruments for patient care.* **DE**

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