

Instrument processing efficiency

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INSTRUMENT PROCESSING AND RECIRCULATION involve a complex series of events. Appropriate cleaning, packaging, sterilization, and storage practices are essential to ensure contaminated items are appropriately treated and safe for patient care. Health professional organizations and agencies provide evidence-based infection control guidelines to assist in addressing instrument processing. Equipment advances and product development continue to promote increased instrument processing efficiency and personal safety. Many of these improvements can be substituted for or enhance less efficient practices used during instrument processing. The following discussion will briefly review a few important infection prevention recommendations for dental settings that are sometimes overlooked.

One recommendation is to use puncture-resistant utility gloves, such as Lilac Utility Gloves (Hu-Friedy Mfg. Co.), when handling and reprocessing contaminated instruments. These sized and reinforced personal barrier increase personnel safety by reducing the potential of accidental sharps injury and chemical exposure when compared to wearing examination gloves. Utility gloves should be worn for chairside clean up, as well as transportation and processing of instruments.

A second recommendation pertains to ultrasonic units and instrument washers/washer-disinfectors for cleaning instruments. This type of cleaning has replaced hand scrubbing in most practices, in large part because these mechanical methods are more effective and safer for removing debris. The key is to use them according to manufacturers' instructions, which are based on results of validation tests designed to maximize equipment effectiveness. However, confusion can still occur. For example, an instrument washer's rinse-hold cycle, while shorter than the unit's cleaning cycles, is only designed to remove "gross" debris from contaminated instruments; this cycle is not intended to accomplish cleaning by itself. A few other rules for ultrasonic units include:

- Mix solutions at the recommended water temperature range (i.e., hot or warm) and correct concentrations.
- Use recommended cycle times.
- Change used solutions daily or more frequently if necessary.
- Do not overload a unit's stated capacity with contaminated instruments.

In other words, read and heed product instructions.

Hand scrubbing contaminated items prior to sterilization has been shown repeatedly to be the *least* effective method for cleaning. Overlooked residual organic debris can remain, and subsequently can be baked on items during heat sterilization.

The same principle applies when assessing cleaning effectiveness after instruments and other items are mechanically cleaned in ultrasonic units or washer/washer-disinfectors. Fortunately, a new generation of

standardized chemical monitors is available to ascertain cleaning of contaminated items prior to sterilization. This technology was originally incorporated into hospital systems as a check on automated cleaning equipment. Similar monitors are also now available for dentistry, such as Wash-Checks Ultrasonic Cleaning Monitors and Washer-Disinfectant Cleaning Monitors (Hu-Friedy Mfg. Co.), the Tosi washer tester (Healthmark Industries Co.), and the Pinnacle Monitor for Automated Enzymatic Cleaning Process (Serim Research Corporation). Test strips are embedded with a colored, non-toxic, artificial test soil, which is designed to simulate blood and tissue. During a cycle, soil that is difficult to eradicate can only be removed completely when the process successfully removes *all* bioburden. Independent studies have confirmed these cleaning monitors provide reliable and reproducible results.

All infection control guidelines state that clean and dry instruments should be packaged before being placed in a sterilizer. Cassettes can be easily wrapped or pouched, and are a very useful and popular means of organizing and managing dental instruments. Their features include cassettes that reduce the potential of sharps injuries and facilitate instrument cleaning and processing. An important characteristic to note here is that a single cassette can be used to hold and organize a complete set of instruments for a specific treatment procedure. They can keep these items together from chairside treatment through

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cleaning, rinsing, drying, heat sterilization, and storage. In addition, the design of these cassettes is such that, when loaded properly, it is difficult to overload them. Perforated cassettes are preferable, as completely solid containers do not allow for proper cleaning and may not allow steam to reach the contents for sterilization. Cassettes' infection control rationale and effectiveness is evidenced by noting that virtually all of today's student dental professionals are using cassettes in their training. They also learn that this established technology can increase practice organization and improve safety in both the operatory and reprocessing areas of a dental facility. **DE**



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