DENTAL ECONOMICS®

5 instrument processing myth busters

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STERILE DENTAL INSTRUMENTS must be supplied for each patient, at each appointment, and processed in a consistent manner every time. Each step of instrument processing must be completed per accepted guidelines and recommendations that satisfy applicable regulatory agencies and be performed in a *safe* manner. In addition, dental personnel who clean, inspect, package, sterilize, and store instruments often have a myriad of other clinical responsibilities; instrument processing is only a fraction of one's job! The entire process may seem daunting.

The question remains, how do busy dental personnel learn the proper methods of instrument processing?

Fortunately, manufacturers' instructions for reprocessing dental instruments are provided for each reusable instrument or device. These instructions should be detailed, easy to understand, and posted near the reprocessing area. Fortunately, instrument processing recommendations have been made available to dental personnel in the Centers for Disease Control and Prevention's (CDC) *Guidelines for Infection Control in Dental Health-Care Settings—2003*.[1]

A more recent CDC document provides the "CliffsNotes" version of infection prevention to use as a reference, introduction, and/or review. The 2016 *Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care* is based on the 2003 Guidelines. The *Summary* is not considered a replacement for these more extensive guidelines, and readers are urged to consult the full document for additional background, rationale, and scientific evidence behind each recommendation.[2]

It is important to note that many regulatory agencies base their infection control policies and protocol upon CDC Guidelines. Thus, clinicians should be familiar with CDC Guidelines *and* other regulatory agencies that may impact infection control in their practice. These may include Occupational Health and Safety Administration (OSHA), state boards, and Centers for Medicare and Medicaid Services (CMS), among others.

Unfortunately, dental personnel may also use outdated or noncredible sources for their instrument processing policies and procedures. And unfortunately, protocol provided in a verbal manner exclusively may be inaccurate, miss important details, and may vary from person to person. (It is important to note that a *written* infection prevention program is recommended by CDC and required by OSHA.) In these scenarios, quality assurance is compromised, and the delivery of nonsterile instruments for patient care may occur. In addition, these situations may also lead to instrument processing myths.

A *myth* is typically based upon storytelling, fables, rumors, and popular beliefs. Credible information regarding instrument processing, however, is based upon scientific evidence, review by authorities on infection control from CDC and other public health agencies, academia, and professional organizations. This article will address several common instrument processing myths. In each myth, CDC Guidelines and key elements will be discussed. The myth will be either validated or dismissed.

MYTH NO. 1

It is best to maximize the capacity of loose instruments in pouches to save time and resources. In other words, pouches should be packed to capacity to reduce the amount of packaging used.

Not true!

The CDC states that items to be sterilized should be arranged to permit free circulation of the sterilizing agent (e.g., steam, chemical vapor, or dry heat).[1,2] Thus, an instrument pouch that is overfilled may compromise sterilization. In addition, overfilled pouches increase the occurrence of an instrument poking through the packaging, and causing a sharps injury. The use of sterilization cassettes, however, increases staff safety and facilitates flow of the sterilant within the instrument package as instruments are held in

place and separated by silicone rails. In addition, sterilization cassettes facilitate circulation throughout the autoclave chamber; the shelving provides adequate space between instrument packages. Keep in mind that it is possible to overload an autoclave with loose instruments in pouches. However, it is *not* possible to overload an autoclave with cassettes.

MYTH NO. 2

Hinged instruments can be opened or closed during sterilization; it does not matter!

Not true!

Extraction forceps, scissors, hemostats, and other hinged instruments should be processed open and unlocked to permit the sterilizing agent to contact all surfaces.[1,2] If hinged instruments are sterilized in a closed position, the potential for cross-contamination may occur from the contacting surfaces. When packaged loosely in peel pouches, hinges may close during instrument processing. Sterilization cassettes, however, offer clips to attach instruments securely to the lids. When instruments are placed in these clips in an open position, they will maintain this position throughout all phases of instrument processing.

MYTH NO. 3

It is not critical that instruments are fully cleaned prior to autoclaving. The autoclave kills everything within the chamber anyway.

Not true!

Cleaning to remove debris and organic contamination from instruments should always occur before disinfection or sterilization. If blood or other contaminants are not removed, these materials can shield microorganisms and compromise the disinfection or sterilization process.[1,2] In other words, cleaning *always* supersedes sterilization. If instruments cannot be processed right away, instruments may be placed in a holding tank or enzymatic sprays or gels may be utilized to prevent debris from hardening or crusting on instruments.

MYTH NO. 4

Ultrasonics and instrument washers/disinfectors will remove all dental materials in addition to organic debris.

Not true!

Dental materials—such as cements, composites, and glass ionomers—should be removed chairside prior to instrument cleaning. It is very difficult to remove crusted dental materials from dental instruments, and mechanical cleaning methods (such as an ultrasonic or washer/disinfector) and hand scrubbing may not be effective at removing cured materials. A simple way to remove these materials is to carefully remove the debris with a cotton roll or gauze *at the point of use* before the materials have a chance to harden or cure.

MYTH NO. 5

If all instrument packages have an external indicator, there is no need to place an internal indicator.

Not true!

Chemical indicators monitor the presence of one or more of the key sterilization process parameters such as time, temperature, and the presence of steam or chemical vapor. A chemical indicator should be used inside *every* package to verify that the sterilant has penetrated the package and reached the instruments inside. If the internal indicator cannot be seen from outside the package, an external indicator should also be used.[1,2] It is important to note that chemical indicators do not guarantee that sterilization has occurred; however, they do help detect errors and equipment malfunctions. Clinical personnel should inspect the indicators immediately after removing packages from the autoclave. If the appropriate color change did not occur, the instruments should not be used and should be reprocessed entirely. In addition to a chemical indicator in each pack, a best practice option would be to add an integrator to each load that will test *all* critical variables of steam sterilization (time, temperature, and presence of steam).

IN CONCLUSION

Instrument processing is the most important component of an infection prevention program. It is a complex process that requires specialized equipment, adequate space, qualified personnel, and routine monitoring for quality assurance. As dental personnel process instruments for safe patient care, it is important that they receive education and training from credible sources regarding the entire instrument processing protocol including transport, cleaning, packaging, sterilization, and storage.

CDC Guidelines continue to be the gold standard for infection control in the dental setting. Clinicians should also consult the manufacturer's instructions for reprocessing dental instruments for each reusable instrument or device. Another excellent resource for clinicians is the Organization for Safety, Asepsis and Prevention (OSAP). OSAP offers an extensive online collection of resources, publications, FAQs, checklists, and toolkits that help dental professionals deliver the safest dental visit possible for their patients.[3] These resources and others based upon scientific evidence and reviewed by authorities on infection control, academia, and other professional organizations will help dental personnel obtain credible information about instrument processing—and avoid the myths! DE

REFERENCES

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