



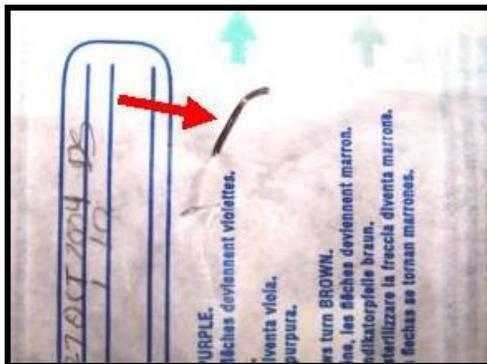
In CONTROL Fact Sheet NUMBER 12

Updated April 2008
(References Updated August 2011)

Instrument Processing: Packaging

What is the purpose of packaging instruments before sterilization? What should be considered when selecting packaging materials?

The purpose of packaging is to protect instruments from contamination after removal from the sterilizer and during storage. Therefore, instruments must be packaged before being placed in the sterilizer and quality packaging materials must be used to ensure sterility is maintained. Packaging materials must be compatible and designed for the type of sterilization process being used (e.g., steam autoclave, dry heat, unsaturated chemical vapor) and cleared by the Food and Drug Administration (FDA). For example, the combination paper/plastic peel packages that are commonly used in the autoclave may burn when used in a dry heat



sterilizer. Inappropriate materials may compromise the sterilization process by not allowing the sterilizing agent to penetrate the packaging material. If an item is sterilized in a closed container (e.g., non-perforated cassette), the sterilizing agent might not reach the contents. If there is any doubt about the packaging material, a spore test can be placed inside the container and processed through the sterilizer. Packaging materials must also be appropriate for the items being sterilized. For example, sharp instruments such as explorers may easily puncture paper packaging.

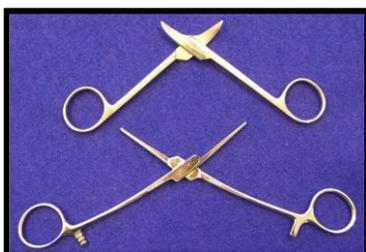
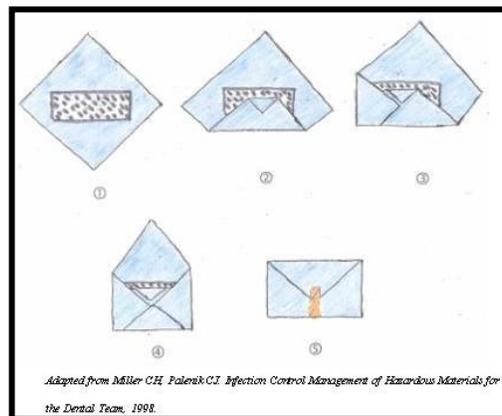
Also, placing too many instruments in a peel pack may cause it to tear easily. Packages should never be sealed with metal closures (e.g., staples, paper clips) as these could puncture the material and cause a break of sterility.

What are some advantages of using instrument cassettes? Is there a special technique used to wrap instrument cassettes?

Using instrument cassettes facilitates instrument processing and can significantly enhance organization of instruments. Cassettes can keep all the instruments for a specific procedure together from the chairside procedure through cleaning, rinsing, drying and sterilization. Following completion of dental treatment, instruments can be arranged in the cassette, transported to the instrument processing area, and placed in the ultrasonic cleaner or instrument washer as a unit. The cassette can be rinsed and dried in this manner also. Therefore, with a cassette system, direct handling of potentially contaminated instruments is significantly reduced before sterilization. Furthermore, by having the instruments prearranged in the cassette, handling following sterilization is decreased. Different types of cassettes are



available. It is important to follow manufacturer's recommendations for cleaning, wrapping, and sterilizing the cassettes. Perforated cassettes are preferable, as completely solid containers may not allow steam or chemical vapor to reach the contents for sterilization to occur. It's also important to consider the size of the sterilizer and amount of storage space available because cassettes can occupy more space than individual packages. The envelope wrap is frequently used to wrap cassettes or instrument trays and is pictured to the right.



Should hinged instruments be sterilized in the opened or closed position?

Hinged instruments, such as hemostats and extraction forceps, should be sterilized in the open position to ensure adequate steam contact with all surfaces.

What information should be included on the package label? Should special marking pens be used when labeling the packages?

After packaging instruments, the package must be labeled and dated before being placed in the sterilizer. Automated labeling devices are available that can preprint the information on self-adhesive labels. This provides an efficient, legible, and standard way of labeling. If a handwritten label is used, marking pens should be indelible, nonbleeding, and nontoxic. Felt-tip ink pens or a very soft lead pencil may be used. Do not write on paper or cloth wrapping materials. Peel packages should be labeled on the plastic portion or on the self-sealing tab.

Information to Include on the Package Label

- Sterilizer identification number
- Load number
- Operator's initials
- An indefinite shelf-life label (if using event-related shelf-life) with the date of sterilization or if using time-related shelf-life policies, an expiration date

NOTE: the use of internal and external chemical indicators are discussed the issue of InCONTROL entitled "Instrument Processing: Monitoring"

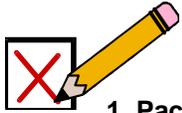
What is the difference between event-related and time-related shelf-life?

The shelf-life or expiration date of sterilized instruments is the period during which an item is considered safe for use. Although, the issue of shelf-life has been addressed by several organizations including the Centers for Disease Control and Prevention (CDC), Association of Operating Room Nurses (AORN), the Association for the Advancement of Medical Instrumentation (AAMI), and The Joint Commission on Accreditation of Healthcare Organizations (TJC), these organizations no longer make specific recommendations regarding expiration policies of sterilized items. Most facilities have adopted event-related shelf-life practices versus placing expiration dates on packages.



Event-related packaging or shelf life is a storage practice that recognizes that the package and its contents remain sterile until some event (e.g., the packaging becomes wet or torn) causes the item(s) to become contaminated. Instead of placing an expiration date (i.e., time-related) on the package, an indefinite shelf-life label with the date of sterilization is placed on the package. Placing the date of sterilization facilitates the retrieval of processed items in the event of a

sterilization failure. In addition to other labeling requirements (see “*What information should be included on the package label?*” question) the package label should contain the following statement (or similar wording): “indefinite shelf life unless integrity of the package is compromised”. While it is acceptable to have both event-related and time-related shelf-life policies, it is recommended to choose one system or the other for uniformity and to avoid confusion in the clinic. With either method, inspect all packages at the time of use and if the packaging is compromised (e.g, torn, wet, punctured), do not use the item(s). The item(s) must be repackaged and resterilized before use.



TEST YOUR KNOWLEDGE ABOUT PACKAGING DENTAL INSTRUMENTS

1. Packaging instruments before sterilization is necessary to

- a. protect instruments from corrosion during cleaning.
- b. protect instruments from contamination after sterilization.
- c. protect them from the sterilizing agent.
- d. All of the above

2. Using instrument cassettes can

- a. make instrument processing more efficient.
- b. increase organization of instruments.
- c. decrease handling of contaminated instruments.
- d. eliminate corrosion.
- e. a, b, c
- f. All of the above

3. With event-related shelf-life policies which of the following would be an indication not to use the package?

- a. The package is torn.
- b. The package is wet.
- c. The expiration date has passed.
- d. a and b
- e. All of the above.

Selected References and Additional Resources (Updated 2011)

Association for the Advancement of Medical Instrumentation, American National Standards Institute. Comprehensive guide to steam sterilization and sterility assurance in health care facilities. ANSI/AAMI ST79-2010 and A1:2010. Arlington, VA: Association for the Advancement of Medical Instrumentation, 2010.

CDC. Guidelines for infection control in dental health-care settings – 2003. *MMWR* 2003; 52(No. RR-17):1–66.

Harte JA, Molinari JA. Instrument Processing and Recirculation. In: Molinari JA, Harte JA eds. *Cottone's Practical Infection Control in Dentistry*, 3rd ed. Baltimore: Lippincott Williams & Wilkins, 2009:221–231.

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Mayworm D. Sterile shelf life and expiration dating. *Journal of Hospital Supply, Processing, and Distribution* 1984;2:32–35.

Miller CH, Palenik CJ. Instrument Processing. In: Miller CH, Palenik DJ, eds. *Infection Control and Management of Hazardous Materials for the Dental Team*, 4th ed St. Louis: Mosby: 2009:135–169.

USAF Guidelines for Infection Control in Dentistry.

Answers: 1)b; 2)e; 3)d