DENTAL ECONOMICS®

STEAM STERILIZATION INTEGRATORS —

AN IMPORTANT COMPONENT FOR QUALITY ASSURANCE IN DENTAL INSTRUMENT STERILIZATION

BY **MARY GOVONI**

Validation of instrument sterilization is a critical part of infection prevention and patient safety in health-care settings. Media coverage of infection control breaches in dental practices earlier this year in Oklahoma and Rhode Island has focused a great deal of attention on instrument sterilization procedures.

Spore testing or validation with biological indicators is recommended on a weekly basis by the Centers for Disease Control and Prevention in its 2003 "Guidelines for Infection Control in Dental Health-Care Settings." The CDC also recommends that a chemical process indicator be placed inside each pack that is sterilized.

While weekly monitoring of the sterilizer(s) in dental practices is an important quality assurance process, it only validates that the sterilizer was functioning properly during the cycle in which the test was performed. Dental practices typically process multiple loads of instruments each day, leaving room for error in loading the sterilizer (a common cause of "failure" of a spore test) for any number of those cycles.

For example, if the sterilizer is overloaded, the steam may not be able to penetrate into all of the packages in the center of the load. Improper loading could result in instruments that have been processed through a sterilization cycle but have not been properly sterilized.

There are several different types of chemical process indicators, and it is important to understand which is most appropriate.

Class I indicators, such as autoclave tape, are designed to react to one or more sterilization variables, typically temperature. These indicators are used to seal packs and cassette wraps and serve as visual cues to differentiate between processed and unprocessed packs. Some class I indicators are incorporated into sterilization pouches, and are located inside and outside the pouch.

Class 4 chemical indicators are designed to react to two or more variables of sterilization (e.g., time and temperature). Typically, they are paper strips that are placed inside instrument packs or may be printed inside of instrument pouches.

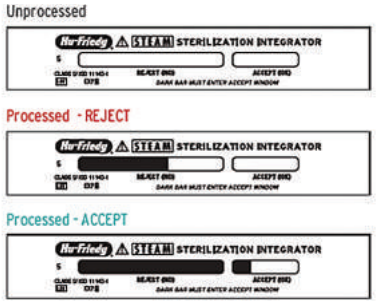
Class 5 integrating indicators look similar to Class 4 chemical indicators, but use steam sensitive chemicals — layered between paper and aluminum foil — that melt during the sterilization cycle. As the chemicals reach the melting point, they move along a paper wicking strip. The time it takes to move the chemical into the "pass" or "accept" area of the strip approximates the time it is necessary for bacterial spores in spore strips to be killed, with an added margin of safety (additional time).

Class 5 integrators are designed to react to all three critical variables of sterilization — time, temperature, and steam. An integrator will confirm that steam has penetrated a pack for a certain amount of time at a certain temperature. Class 5 integrating indicators must indicate exposure that is comparable to a biological indicator — 121°C or 250°F for longer than 16.5 minutes.

The benefit in using a Class 5 integrator is that it provides the user with immediate feedback about the sterilization process, with the accuracy of a biological monitor. When instrument packs are removed from the sterilizer, each pack should be checked to make sure that the indicator demonstrates a "pass" or "accept." If not, the instruments should be repackaged and reprocessed.

It is important to note, though, that Class 5 indicators are not substitutes for sterilizer spore testing. These indicators can be used in gravity sterilizers as well as pre-vacuum and immediate-use (flash sterilizers).

The "moving front indicator technology" used in the Hu-Friedy Steam Sterilization Integrator is unique in that it is easier to read since the chemical (visible as a dark bar) must have moved past the "reject" window into the "accept" window in order for the instruments to be used. On some indicator strips, the color change indicator is sometimes difficult to read.



The Hu-Friedy integrators are latex free, and do not pose an allergy risk to patients. They are also lead free, and are safe to throw away in the trash since there are no environmental risks.

In a time when dental teams want to reassure patients that they do everything they can to ensure their safety, sterilization integrators are an added level of quality assurance. DE

MARY GOVONI, CDA, RDA, RDH, MBA, is the owner of Mary Govoni & Associates, a consulting company based in Michigan. She is a member of the Organization for Safety, Asepsis and Prevention. She can be contacted at mary@marygovoni.com or www.marygovoni.com.