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For more information

Direct any questions to Healthcare Purchasing News (941) 927-9345, ext 202.

Learning Objectives

At the completion of this self-study module the reader should be able to:

- 1) Discuss the various methods of decontamination
- 2) Understand the relationship between the disinfection level and the types of microorganisms destroyed
- 3) Identify the levels of disinfection
- 4) Select the appropriate decontamination process for a particular medical device

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Decontamination methods and selection

by Heide Ames, product manager, STERIS Corporation

What is "decontamination?"

Is it bed pans being processed through a washer? A colonoscope being soaked in glutaraldehyde? Perhaps it's a container of instruments being processed in a sterilizer. Actually, all of these activities are examples of decontamination. The Occupational Safety and Health Administration (OSHA) describes decontamination as "the use of physical or chemical means to remove, inactivate, or destroy blood-borne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal." The medical community expands on this definition by defining decontamination as the removal of pathogenic organisms so that the instrument or surface is safe for use or further processing. This is generally defined on two levels; sterilization and disinfection. Sterilization is well understood as the destruction of all pathogenic microorganisms, which renders the item sterile. Disinfection is the destruction of *some but not all* microorganisms, which renders the item safe to handle or use in specific situations. Regardless of whether a sterilization or disinfection method is used, an effective pre-cleaning regimen is required to ensure that the chosen decontamination process can effectively reach and destroy microorganisms on the surfaces of a medical device or item.



Steam sterilization

What is "disinfection?"

The Center for Disease Control and Prevention (CDC) defines disinfection as "the destruction of pathogenic and other kinds of microorganisms by thermal or chemical means." In the healthcare environment, disinfection is performed using

heat or chemistries that have been cleared by both the Environmental Protection Agency and the Food and Drug Administration. All disinfection processes fall into one of three categories; low level, intermediate level or high level. The levels of disinfection are identified by the type and quantity of microorganism that is destroyed by the process.

Microorganism basics

Microorganisms cannot be seen by the naked eye. These organisms include bacteria, fungi, viruses and other microscopic forms.

Bacteria are single-celled organisms. The majority of bacteria exist in the vegetative form, a state of being that allows them to grow and reproduce. It is the vegetative form of pathogenic

bacteria that causes disease in animals and humans.

Some bacteria can also change their state by becoming an endospore, a dormant state in which the bacteria do not grow or reproduce. The endospore state protects the bacteria and allows them to survive extreme environmental conditions, including conditions that would normally kill the vegetative state of the organism.

Some pathogenic bacteria are capable of producing endospores. The spore state protects these dangerous bacteria during their transport between host individuals. It is not uncommon for endospores to be viable for many years outside of a host animal or human. Furthermore, both vegetative and endospore forms of an organism are typically present in an individual presenting with a disease.

Fungi also have vegetative and spore forms. The vegetative state is either yeast or a multicellular mold structure. Fungal spores are only produced from the

