

Breaking down reprocessing process; blood cells role; instrument pack weight

by Ray Taurasi, Principal, Healthcare CS Solutions.



Q Is it essential to sanitize all soiled items returned to CS or are decontamination and disinfection sufficient prior to sterilization?

A It is important to realize that decontamination (cleaning), sanitization, disinfection and sterilization are different and unique processes. The first step in reprocessing involves thorough cleaning, which is the removal of soil from used materials. The second step involves a microbicidal process such as sanitization, disinfection or sterilization.

The objective of decontamination is to protect individuals from disease caused by contact with pathogenic organisms on soiled medical devices. Thorough cleaning, while an essential first step, may not always be sufficient to assure an item is safe to handle. Currently there is no standard to measure just how clean or safe to handle an object may be, therefore, to ensure that harmful microorganisms are destroyed a microbicidal process may be employed. Medical devices that have been contaminated by blood, body fluids or large microbial populations must always be subjected to a microbicidal process after cleaning. Deciding which process to use is a risk-versus-benefit decision for each item you process. Therefore, a clear understanding of these processes is imperative.

Sanitization is suitable for easily killed microorganisms and it can reduce the number of microbial contaminants on an inanimate surface to a relatively safe level. Following thorough cleaning, the objects are rinsed by hot water or steam purged for a designated period of time, depending on the method used. Some examples of sanitizing equipment include cart washes, steam guns and utility washers. Sanitization is adequate for items that only come in contact with the surface of unbroken skin.

Disinfection provides a higher level of safety and can be used on work surfaces, medical devices and equipment that have come in contact with highly contaminated substances, body fluids and blood. The disinfection process may be accomplished by thermal, chemical or UV exposure. Most instrument washers today provide a thermal disinfection process during a final rinse with elevated water temperatures. Pasteurization is another example of a thermal disinfection process, which involves exposing an object to a hot water bath at 150 to 170 degrees Fahrenheit for 30 minutes.

It is essential to always consult and adhere to the medical device and processing equipment manufacturer's instructions for use (IFU). Policies and procedures for the processing of medical devices should be developed in compliance with relative IFUs.

Q I always thought that the body's immune system produced white blood cells to defend and rid the system of infections. I recently was reading an article that referred to T cells as the body's major defense against infectious agents, can you clarify this?

A You are correct. The body's immune system, in a healthy person, will produce more white blood cells to combat pathogenic organisms that have invaded the body. There are many types of white blood cells. Lymphocytes are one type of white blood cell, and two major classes of lymphocytes are T cells and B cells. T cells are critical immune system cells that help destroy infected cells and coordinate the overall immune response. The T cell has a molecule on its surface called the T-cell receptor. This receptor interacts with molecules called major histocompatibility complex (MHC). The MHC molecules are on the surfaces of most other cells of the body and help T cells recognize antigen fragments. B cells are best known for making antibodies. An antibody binds to an antigen and marks the antigen for destruction by other immune system cells.

Other types of white blood cells include macrophages and neutrophils. Macrophages and neutrophils circulate in the blood and survey the body for foreign substances. When they find foreign antigens, such as bacteria, they engulf and destroy them. Macrophages and neutrophils destroy foreign antigens by making toxic molecules, such as reactive oxygen intermediate molecules. If production of these toxic molecules continues unchecked, not only are the foreign antigens destroyed, but tissues surrounding the macrophages and neutrophils are also destroyed. This results in diseases known as autoimmune diseases.

Q How can one be certain that an instrument pack doesn't exceed the maximum density of 7.2 pounds?

A The 7.2-pound density ceiling applies to linen packs only. It is not used as a parameter for instrument sets. Recommendations for instrument sets are focused on weight limits and metal mass. AAMI St79 standards state instrument sets should not exceed 25 pounds. Excessive weights can present ergonomic concerns associated with employee injury. Excessive metal mass and weights can impede drying and result in wet packs. **HPN**

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