GUIDELINE FOR MANUAL CHEMICAL HIGH-LEVEL DISINFECTION

The Guideline for Manual Chemical High-Level Disinfection has been approved by the AORN Guidelines Advisory Board. It was presented as a proposed guideline for comments by members and others. The guideline is effective January 15, 2018. The recommendations in the guideline are intended to be achievable and represent what is believed to be an optimal level of practice. Policies and procedures will reflect variations in practice settings and/or clinical situations that determine the degree to which the guideline can be implemented. AORN recognizes the many diverse settings in which perioperative nurses practice; therefore, this guideline is adaptable to all areas where operative or other invasive procedures may be performed.

Purpose

High-level disinfection is a process that deactivates all types of microorganisms with the exception of bacterial spores and prions.[1] The purpose of this document is to provide guidance to health care personnel for

- performing safe and effective manual chemical high-level disinfection of reusable semicritical items and
- preventing patient and health care worker injury associated with the handling and use of liquid chemical high-level disinfectants (HLDs).

The Spaulding classification system defines reusable medical items as critical, semicritical, or noncritical.[2] The level of processing required (ie, sterilization; high-, intermediate-, or low-level disinfection) is based on the manner in which the item is to be used.[2] Items that contact mucous membranes (eg, endocavity ultrasound probes) or nonintact skin are considered to be semicritical.[2] Spaulding[2] recommended that semicritical items be processed by sterilization or, at a minimum, by high-level disinfection.

Failure to correctly perform high-level disinfection can lead to transmission of pathogens via contaminated medical or surgical devices.[3,4] The vast majority of patient infections and exposures related to processing medical or surgical devices have involved high-level disinfection of reusable semicritical items.[3] In a recent safety report, The Joint Commission[5] noted that processes for high-level disinfection of equipment and devices are frequently found to be inadequate, especially in ambulatory care centers and decentralized locations in hospitals. Breaches in the performance of high-level disinfection can result in outbreaks of viral or bacterial organisms.[5]

High-level disinfectants are harmful to human tissue and the environment.[6] Health hazards associated with the use of HLDs vary from minor irritation of mucous membranes to more serious injury (eg, chemical burns).[1] Health care organizations are responsible for informing health care workers about chemical hazards in the workplace and for implementing measures to reduce personnel exposure and mitigate identified hazards.[7] Implementing safe processes for handling and using chemical HLDs is essential for preventing injury to both patients and personnel.[6]

Guidance for the following topics is outside of the scope of this document:

- processing critical items for sterilization;
- processing semicritical items using thermal high-level disinfection (ie, pasteurization);
- processing flexible endoscopes and accessories and other semicritical items using mechanical (ie, automated) processes for high-level disinfection or liquid chemical sterilization (See the AORN Guideline for Processing Flexible Endoscopes[8]);
- processing endocavity ultrasound probes and other semitcritical items using nebulized hydrogen peroxide mist;
- processing semicritical items potentially contaminated with prions;
- processing noncritical items for intermediate- or low-level disinfection;
- assessing risk and notifying patients regarding high-level disinfection failures; and
- using specific HLDs.

Evidence Review

A medical librarian conducted a systematic literature search of the Ovid MEDLINE®, CINAHL®, and Scopus® databases and the Cochrane Database of Systematic Reviews for meta-analyses, randomized and nonrandomized trials and studies, and systematic and nonsystematic reviews. The initial search was conducted in August 2014, and an additional search was performed in December 2016. In each search, the results were limited to literature published in English in the 5 years prior to the search date. The medical librarian established continuing alerts on the topics covered in this guideline and provided relevant results to the lead author. During the development of this guideline, the author requested supplementary searches for topics not included in the original search as well as articles and other sources that were discovered during the evidence-appraisal process. The lead author and the medical librarian also identified and obtained relevant guidelines from government agencies, standards-setting bodies, and other professional organizations.

Search terms included *high-level disinfection, semi-critical item or device, automated endoscope reprocessor, Spaulding schema or criteria, peracetic acid, hydrogen peroxide, glutaraldehyde, ortho-phthalaldehyde, thermal or heat disinfection, pasteurization, medical device washer, equipment contamination or reuse, anesthesia equipment, disease*