

temperature to achieve high-level disinfection. Completely immerse the blade and/or handle, unless otherwise indicated in the reprocessing instructions. (C) **Rinse** the blade and/or handle with a large volume of sterile, demineralized water (or, fresh, clean warm potable water). Do not reuse the rinse water. Three or more separate water rinses may be necessary; refer to the LCS's label. (D) **Dry** the blade and/or handle with a clean, dry, soft lint-free cloth or towel. A wipe lightly dampened with 70% alcohol may be used to facilitate drying.

Note 1: Prolonged immersion in a LCS may result in instrument damage and/or patient injury.

Note 2: Monitor the concentration of the LCS to ensure it is equal to or above its *minimum effective concentration*, or "MEC." (Refer to section "4.b" of the May-June 2004 issue of this newsletter for more information on monitoring LCSs.)

Note 3: **Pasteurization** may also be a recommended method for reprocessing the laryngoscope's blade and/or handle. Refer to the laryngoscope's reprocessing instructions.

Note 4: Although steam sterilization is always preferred due to its wider margin of safety, high-level disinfection of the laryngoscope's blade and handle has not been reported to pose an infection risk. *Clinical differences in the infection rate between sterilized and high-level disinfected, or pasteurized, laryngoscopes, as well as other rigid and flexible endoscopes, have not been reported.*^{28,29} Several factors such as cost, turn-around time, available space, label claims, and convenience contribute to a medical facility's selection of a specific sterilization or high-level disinfection process.

4.d Transport the blade and handle from the decontamination area to the procedure room, using care to prevent re-contamination and damage prior to reuse. **Reassemble** the blade and handle if required and as described in the laryngoscope's reprocessing instructions. Some laryngoscope manufacturers may recommend reassembly prior to, instead of after, sterilization or high-level disinfection.

STEP 5. Storage, handling, and care:

Purpose: To prevent re-contamination and damage of the blade and handle during storage, handling, and care.

5.a Transport the blade and handle from the decontamination area to the storage area, using care to prevent re-contamination and damage prior to and during storage.

5.b Store the blade and handle in a clean, dry area. Refer to the laryngoscope's instructions for proper storage. To avoid bacterial colonization, do not store the blade or the handle in a closed carrying case, container, or kit.

Note: If the blade and/or handle has been sterilized,

consider the application of the "event-related" paradigm for maintaining instrument sterility.

5.c When needed for laryngoscopy, carefully **transport** the blade and the handle from storage to the procedure room. **Examine** the blade and the handle for re-contamination and damage prior to reuse. Confirm that the batteries have been placed back into the handle and are charged. **Test** the blade and handle for proper functioning and to ensure the light is bright and is not flickering or otherwise operating improperly. Have available spare batteries, bulbs, light pipes, lamp assemblies, and other replacement parts as required. *The End* ● **LFM**

References: <http://www.myendosite.com/refs071004.htm>

"Dear AORN, Part II"

"Do the handles of laryngoscopes require high-level disinfection or sterilization?"

~ Inconsistencies in published guidelines ~

Background: This newsletter's *January-February 2004 issue* discussed a significant inconsistency in several reprocessing guidelines with regard to endoscope drying. For unclear reasons, several of the *Association of periOperative Registered Nurses'* (AORN) published "*Recommended Practices*" support the clinical use of *just-reprocessed-and-wet-with-rinse-water* rigid and flexible endoscopes. Specifically, rather than recommending that the endoscope be dried after completion of every reprocessing cycle, AORN recommends use of the wet endoscope "immediately" after reprocessing.³⁰

This recommendation is problematic, however, because it encourages, for example, the introduction of wet bronchoscopes into the lungs of critically-ill patients suffering from pneumonia and AIDS in a ICU (or, the introduction of wet arthroscopes, laparoscopes, and cystoscopes into patients' knees, peritoneal cavities, and bladders, respectively).³¹ It would be difficult to identify another "recommended" medical practice that poses as significant a risk of nosocomial infection (and pseudo-infection) from, for example, water-borne bacteria (including *Pseudomonas aeruginosa*) as the introduction of wet endoscopes into patients' organs and cavities.³¹ (*Nota bene:* No data or studies have been published that support the claim that "sterile" rinse water can be produced by filtering a hospital's tap water through a water filtration assembly that includes a 0.2 micron bacterial filter.)

The risk of transmission of bacteria during flexible (and rigid) endoscopy can be virtually eliminated, however, by drying the endoscope after completion of every reprocessing cycle—a practice that, while not supported by AORN (and a few other organizations), is recommended by the *Society of Gastroenterology Nurses and Associates* (SGNA) and ➔

the American College of Chest Physicians.^{31,32}

Handles of rigid laryngoscopes: Published reprocessing guidelines are not only inconsistent with regard to endoscope drying. The *July-August 2004 issue* of this newsletter published a review of several reprocessing and infection control guidelines, to evaluate the minimum infection control standards required for reprocessing rigid laryngoscopes. In addition, an unpublished review of AORN's pending "Proposed Recommended Practices for cleaning, handling, and processing anesthesia equipment"³³ was performed. Both reviews reveal an inconsistency in published guidelines with regard to reprocessing the laryngoscope's handle. Indeed, the resolution of this inconsistency has significant infection control and economic implications.

The laryngoscope's blade and handle can become contaminated during routine use.^{3,5,8-12,20,23} Proper reprocessing of both, therefore, is required to prevent patient-to-patient disease transmission (refer to this newsletter's main article).^{2,3,9} These AORN-pending "Proposed Recommended Practices" state that "laryngoscope handles are non-critical" devices that are required to be "cleaned and low-level disinfected between patients" to prevent nosocomial infection.³³ According to the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), and other organizations, however, instruments that directly or indirectly contact mucous membranes (or oral tissues) without ordinarily penetrating sterile tissue—examples include the laryngoscope's handle (as well as its blade and dental handpieces)—are *semicritical*.^{1-6,8-12,20,23,25,34,35}

As discussed in this newsletter's *July-August 2004 issue*, the American Association of Nurse Anesthetists (AANA), like the CDC and FDA, also classifies laryngoscope handles (and blades) as *semicritical* instruments,² which require cleaning followed by high-level disinfection (or sterilization) to prevent cross-infection.^{1-6,8-12,20,23,25} (These AORN-pending "Proposed Recommended Practices"³³ recommend low-level disinfection of the laryngoscope's handle based in part on a report by Phillips and Monaghan [1997].⁵ This report, however, does *not* recommend low-level disinfection; rather, it recommends that the handle [and blade] be high-level disinfected or sterilized after each patient use.⁵)

A chain is only as strong as its weakest link: Once a high-level disinfected (or sterilized) blade is connected to a low-level disinfected handle to perform rigid laryngoscopy, the blade's integrity becomes compromised. The blade can arguably no longer be considered high-level disinfected but only low-level disinfected. It is necessary, therefore, to high-level disinfect (or sterilize) the handle as required for the blade to which it attaches.^{1-6,9,25} It is suggested that AORN "strengthen the chain," revisit its rationale for recommending low-level disinfection of the laryngoscope's handle, and consider—for the sake of consistency, to raise the standard of care, and to improve patient safety—recommending high-level disinfection (or sterilization) of the handle, in accordance with the CDC's, FDA's, and AANA's guidelines.^{1,2,4}

If high-level disinfection (or sterilization) of the laryngoscope's handle is not feasible, then medical facilities may want to consider using a single-use, sterile sheath to cover the handle, to help prevent its contamination during laryngoscopy. But use of a sheath may not eliminate reprocessing. The FDA requires the laryngoscope be reprocessed after removal of the sheath—out of concern that the sheath may break during use, or that the laryngoscope may become recontaminated during application or removal of the sheath.⁴ If a manufacturer has shown that the sheath provides a barrier that is sufficiently "protective," the FDA recommends that the laryngoscope receive "intermediate-level disinfection."⁴

This recommendation (which appears to be in agreement with the CDC's guidelines for reprocessing specific types of barrier-protected *semicritical* devices in dentistry³⁵), however, may be lacking. Viewed from a different perspective, if reprocessing of an instrument is required after the sheath's removal, then it could be argued that the instrument's classification should dictate the minimum level of disinfection or sterilization required to prevent nosocomial infection (refer to this newsletter's *March-April 2004 issue*). Because the laryngoscope's blade and handle are classified as *semicritical* devices,^{1-6,8-12,20,23,25,34,35} it is suggested that the FDA consider recommending that both be cleaned followed by high-level disinfection (or sterilization)—not intermediate-level disinfection—after the sheath's removal.^{1-6,9,25} Intermediate-level disinfection would only be indicated if a barrier-protected *semicritical* device could not "tolerate"³⁵ high-level disinfection (or sterilization). *The End* ● LFM

The references for this current newsletter and the *July-August 2004 issue* of this newsletter are at:
<http://www.myendosite.com/refs071004.htm>

Thank you for your interest in this newsletter. *I have addressed each issue to the best of my ability. Respectfully, the Publisher: Lawrence F. Muscarella, Ph.D.* Please direct all correspondence to:

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