

The Q-Net™ Monthly


Volume 3, Number 4

April 1997

Dates of Interest

- ✓ AORN's 44th Annual Congress: April 6-11, 1997 in Anaheim, CA
- ✓ SGNA's 24th Annual Course: May 10-14, 1997 in Orlando, FL
- ✓ Digestive Disease Week: May 11-14, 1997 in Washington, DC
- ✓ AAMI June 7-11, 1997 in Washington, DC
- ✓ APIC's 24th Annual Conference: June 9-11, 1997 in New Orleans

GI: 'General Interest'



We have received many requests for our book, "Q-Net 96: Questions and Answers in Infection Control and Endoscopy, Part 1," which is a collection of all of Q-Net's 1996 newsletters. We thank you for your orders. To obtain a copy, call or fax us your PO #: the cost is \$9.95. This monthly newsletter is free!

What is 'Q-Net'?

Q-Net is a technology assessment network of questions and answers. Its newsletter is *The Q-Net™ Monthly*.

Q-Net's main goal is to encourage the infection control and endoscopy communities to not only ask good questions but to also demand succinct and well referenced responses.

Q-Net addresses the needs of both the health care provider whose goal is to provide the best care possible, and the patient who deserves affordable quality health care.

Common processing errors

"Soap and water are all we use to disinfect our endoscopes."

While cleaning is a prerequisite to all decontamination procedures, soap and water are not sufficient to reliably achieve a patient-safe endoscope. However, for some devices that pose a negligible infection risk, such as bed pans, washing alone is typically sufficient.

"Glutaraldehyde's soaking time depends on our daily patient volume."

Oh, really? No matter how many endoscopes your facility processes each day, immersion in a solution of 2% glutaraldehyde for *no less than* 20 minutes (after thorough instrument cleaning) is necessary to achieve high-level disinfection.

"To save money, we discard our 14-day 2% glutaraldehyde solution only after as many days."

This practice is unwise. The concentration of glutaraldehyde, which should be monitored at least daily, wanes after activation. Once glutaraldehyde's concentration drops below its MEC (or, *minimum effective concentration*), which is typically 1.5% (*refer to the December 1996 issue of this newsletter*), the solution should be discarded. Because residual organic debris and rinse water reduce glutaraldehyde's concentration (and efficacy), facilities processing large volumes of endoscopes each day may find that their 14-day 2% glutaraldehyde solution requires replacement after as few as 7 to 10 days.

"28-day glutaraldehyde solutions that contain surfactants are more suitable for processing endoscopes than 14-day solutions that do not contain surfactants."

A recent study (Alamatsu et al. *J Hosp Infect* 1997 Jan;35:47-57) indicated that 3.4% glutaraldehyde solutions that contain surfactants are more effective than 2% concentrations that do not. Their longer use-life and sometimes higher concentrations notwithstanding, glutaraldehyde formulations that contain surfactants are not usually recommended for disinfecting endoscopes because their soapy residues are difficult to remove during rinsing. Instead, 2% (non-surfactant) glutaraldehyde solutions are recommended to achieve high-level disinfection (*refer to the November 1995 and December 1996 issues of this newsletter*).

"We immerse an aquarium heater in our 2% glutaraldehyde solution to elevate its temperature and satisfy its label claim."

Many organizations, including APIC, SGNA, and ASGE, recommend soaking thoroughly cleaned endoscopes in 2% glutaraldehyde for (at least) 20 minutes *at room temperature* to reliably achieve high-level disinfection, its label's temperature requirement notwithstanding.

Moreover, heating glutaraldehyde may accelerate the evaporation of its vapors, which some personnel may find irritating. Alternatively, you may consider replacing your current 2% glutaraldehyde solution with another brand that is labeled

(Continued on page 8)

for use at room temperature (20° C). In short, heating 2% glutaraldehyde to achieve high-level disinfection is unnecessary.

“Bronchoscopes should not be processed in the same basin as gastrointestinal endoscopes.”

Several published papers, including APIC’s ‘Guideline for infection prevention and control in flexible endoscopy’ (*Am J Infect Control* 1994 Feb;19:38), discuss the processing of flexible endoscopes to prevent infection. I have not been able to find any published guideline suggesting that patient safety may be compromised by disinfecting upper and lower gastrointestinal endoscopes in the same basin as bronchoscopes. Hospitals that process these endoscopes in separate basins appear to do so in adherence with their facility’s own ‘good house-keeping’ policies, not a published guideline.

“Because their long incubation time makes routine use of BIs prohibitive, we only use chemical indicators.”

Chemical indicators (CIs) are useful, but their information is limited because they only demonstrate whether the sterilizing agent is present in the sterilization vessel. Biological indicators (BIs), in contrast, not only reveal whether the sterilant is present, but also whether the sterilizer’s cycle satisfied all of the conditions necessary for sterilization, i.e., that the cycle destroyed highly resistant bacterial spores, which is essential and irreplaceable data. (Remember that a negative BI result does not ensure instrument sterility.)

“Instrument wrapping is not really necessary.”

Surprisingly, in addition to supplanting the use of BIs with chemical indicators, current trends in infection control sometimes overlook the importance of protective packaging. To be sure, for a sterilization process to be effective, several sequential steps must each be performed successfully. These steps include cleaning, wrapping, and exposing the entire instrument to the sterilizing agent. Failure to wrap the instrument (e.g., during ‘flash sterilization’ and ‘liquid sterilization’) significantly increases the risk of recontaminating the instrument during its handling and delivery to the patient.

“Bacterial spores have been shown to cause endoscopic infections, which is why we ‘sterilize’ - not disinfect - our rigid and flexible endoscopes with ethylene oxide (EtO) gas.”

Disinfection of endoscopes has not been reported to be less safe than ‘sterilization.’ Almost all spores forms are nonpathogenic, and those that produce disease (such as anthrax and some clostridia species) either are inactivated by high-level disinfection or have not been identified as the source of an infection after laparoscopy (Voyles et al. *Surg Laparosc Endosc* 1995;5(2):139-141). Moreover, there are no peer-reviewed reports demonstrating that flexible endoscopes

can be reliably sterilized by any method.

“We process all of our endoscopes in our EtO gas sterilizer.”

Be careful. Some endoscope models, such as the ERCP side-viewing duodenoscope, have at least one difficult-to-process channel that may preclude EtO gas penetration and may therefore require manual processing using a 2-5 cc syringe filled with 2% glutaraldehyde (Vesley et al. *Am J Infect Control* 1992;20:291-300). Until an alternative liquid germicide becomes available, 2% glutaraldehyde is the *only* germicide that can be used to manually process all of these endoscope models’ narrow channels.


“Because my facility uses a 0.2 micron bacterial filter to produce ‘sterile’ rinse water, we never terminally flush our endoscopes’ internal channels with 70% alcohol.”

A 0.2 micron bacterial filter may produce ‘bacteria-free’ water, but not sterile water. A bacterial filter does not remove either microbial debris smaller than its rating size (e.g., 0.2 microns) or pyrogens and endotoxins from the water (*refer to the October 1996 issue of this newsletter*). Filters are not foolproof and unless properly maintained and regularly replaced, bacteria may colonize on, and pass through, their membrane. Therefore, the endoscope’s internal channels should always be terminally rinsed with 70% alcohol to facilitate drying and minimize the risk of patient infection from opportunistic waterborne microorganisms.

“I never soak my endoscopes in an enzymatic detergent for more than 1 or 2 minutes, regardless of the brand.”

For the enzymes in a detergent to be effective, their time and temperature requirements must be satisfied. Read the detergent’s label to determine whether a soaking time longer than 1 or 2 minutes is necessary. Also, dilute the detergent concentrate in water at the temperature specified on its label.

Thank you for reading this newsletter. *I have responded to these issues to the best of my ability. Respectfully, the Editor: Lawrence F. Muscarella, PhD.* Please direct all correspondence:



Lawrence F. Muscarella, PhD, Publisher
 Director, Research & Development

Custom Ultrasonics, Inc.
 144 Railroad Drive, Ivyland, PA 18974
 Tele: 215.364.1477; Fax: 215.364.7674
 E-mail: q-net@msn.com

Copyright 1995, 1996, 1997. All rights reserved. *It is a violation of federal copyright laws (17 U.S.C. Sec. 101 et seq.) to copy, fax, or reproduce any portion of this newsletter without its publisher’s consent. Q-Net is a registered trademark of Custom Ultrasonics, Inc.*