WELCOME TO THE WORLD OF Q-NET

The Q-Net™ Monthly

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What's News

We have received many requests for our book: "Q-Net 96: Questions and Answers in Infection Control and Endoscopy, Part 1." We thank you for your orders.

To obtain a copy of our book, please fax or call us. The cost is $19.95. As always, this monthly newsletter is free!

GI: 'General Interest'

This month's issue addresses microbiologic sampling of surfaces. Although there currently is no standardized or universally accepted method for sampling endoscopes, a generic protocol is presented. Other methods and procedures not presented may be as suitable.

What is 'Q-Net'?

Q-Net is a network and database for questions and answers. Its monthly 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.

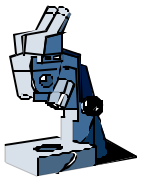
Q-Net addresses the needs of both the health care provider whose goal is to provide the best care possible, and the patient who deserves affordable quality health care.

Microbiologic sampling of surfaces: A brief discussion

The following is a brief discussion of procedures for microbiologically sampling medical device surfaces.

Introduction: Because used medical devices may be contaminated with potentially pathogenic microorganisms, they must be properly reprocessed between patient procedures.

An instrument's internal and external surfaces may be microbiologically sampled and cultured to evaluate the adequacy of the hospital's current instrument reprocessing procedures.



In general, routine microbiological sampling and culturing is indicated only for water and dialysis fluids used with artificial kidney machines, or when conducting an epidemiologic investigation to evaluate the likelihood that an instrument may be the source of nosocomial disease transmission.[1,2]

Sampling techniques: Several techniques may be employed to sample a medical device's surfaces microbiologically. They include: (1) wiping the surface with a sterile, moist (and non-absorbent) swab, (2) rinsing the surface with (or immersing it in) a sterile fluid, and (3) pressing a dry surface against a sterile agar-medium plate. (Each of these techniques must be performed aseptically.)

The first technique is commonly called the *swab-rinse* sampling method. After wiping the surface, the swab is placed into a sterile bottle containing a sterile rinse fluid. The bottle is closed, sealed and shaken to dislodge microorganisms adhering to the swab. The rinse fluid is then assayed to determine whether the surface was contaminated.

Another technique, called simply the *rinse* sampling method, may be used to sample medical devices with lumina. (An appropriate neutralizer may be necessary if the sampled surface contains residual disinfectant.) Sterile fluid is used to rinse the surface, which may be shaken to dislodge adhering microorganisms, and then the rinse fluid is assayed. (This technique is often used to indirectly sample the internal channels of flexible endoscopes.)

A third technique, called the *RODAC, or 'replicate organism direct agar contact,'* sampling method, is used to evaluate the microbial contamination of smooth, flat and dry surfaces. The surface of the agar-medium plate is firmly pressed against the instrument surface.

Sampling a flexible endoscope: Prior to sampling the endoscope, two limitations must be realized: (1) the endoscope's complex design can preclude direct access to all of its internal surfaces, and (2) there is no validated and universally accepted

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method for sampling (or cleaning, disinfecting, and 'sterilizing') the endoscope's external and internal surfaces.

These two limitations notwithstanding, an adaptation of the *rinse* sampling method (see p.3) may be used to indirectly sample the endoscope's internal channels, which are inaccessible to a swab. A volume of sterile fluid typically equal to 3 times the empty volume of the channel is rinsed through each channel via its cleaning/disinfection port[1] (refer to the endoscope's operator's manual for guidance and a description of the location of each channel's cleaning port). For each channel, the effluent is separately collected and assayed.

After rinsing it with sterile fluid, the endoscope's suction/biopsy channel, which is the only channel that can be accessed with a brush, should again be sampled using an appropriately sized sterile brush. Each time its bristles exit an opening (e.g., the endoscope's distal tip), the brush should be rinsed with sterile fluid that is collected and assayed.

When finished brushing this channel, the brush's bristles should be sampled using the *rinse* method's direct immersion technique: the brush is completely immersed in a container of sterile rinse fluid, shaken vigorously to extract microorganisms adhering to the brush, and the rinse fluid assayed. Also, the suction/biopsy channel should again be rinsed with sterile fluid after brushing, and the effluent collected and assayed. This channel's final results are determined by adding the rinsing, brushing and rinsing data.

The endoscope's suction and air/water valves should be similarly sampled using the *rinse* method's direct immersion technique. Its biopsy inlet, valve cylinders, and other ports can be sampled using the *rinse-brush-rinse* technique described above for sampling the suction/biopsy channel.

The *swab-rinse* method (see p.3) is recommended to sample the endoscope's exterior surfaces.[1] While uncommon, the *RODAC* method (also see p.3) may also be used to sample the endoscope's insertion tube. (Some restrictions likely apply.)

References

1 W.W. Bond and E.R. Hedrick. 1992. Microbiological Culturing of Environmental and Medical Device Surfaces. In: H.D. Isenberg and M.J.R. Gilchrist (eds.), Clinical Microbiology Procedures Handbook, Section 11, Washington, DC, pgs. 11.10.1-11.10.9.

2 Garner JS, Favero MS. *AJIC Am J Infect Control* 1986;14:110-26.

Other papers that discuss sampling and culturing of environmental and instrument surfaces should also be read to supplement the material discussed in this newsletter's content.

'iQ': Interactive Q-Net

Below are the answers to the 10 'brain-teasing' questions that appeared in last month's column: ***'Interactive Q-Net.'***

1. The answer is 'C.' Clinical differences (i.e., infection rates) between 'sterilized' and disinfected laparoscopes, arthroscopes and flexible endoscopes have not been reported.
2. The answer is 'E.' Sterilization and each 'level' of disinfection is likely to fail if cleaning is inadequate.
3. The answer is 'B.' Mycobacterium chelonae is the only provided choice likely to be isolated from a contaminated water supply.
4. The answer is 'B.' Each of the others has been associated with patient infection.
5. The answer is 'C.' Filtered hospital water is not sterile because it may contain endotoxins, viruses, and microbial debris smaller than the filter's rating (e.g., 0.2 microns).
6. The answer is 'C.' Rinsing 70% alcohol through the endoscope's internal channels facilitates drying before storage.
7. The answer is 'D.' All of the above.
8. The answer is 'B.' (Choice 'A' is incorrect because a 12 log reduction, not a 6 log reduction, of bacterial spores during a full cycle is an indicator for sterilization, and Choice 'C' defines high-level disinfection.
9. The answer is 'A.' Sterilization is based on inference.
10. The answer is 'C.' Each of the other microorganisms exist.

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 and requests for a subscription to:

Lawrence F. Muscarella, Ph.D., Editor
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