

# The Q-Net™ Monthly

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## What's News

**H**appy New Year and welcome to this newsletter's 14th year of publication. An article, written by LFM and which discusses the reprocessing of rigid laryngoscopes used during intubation, is "in press" and scheduled for publication in the *Journal of Hospital Infection*.

**Search terms:** Checklists, "15 steps ..." antibiotic therapy, healthcare-acquired infections (HAIs), alcohol-based hand cleaners, instrument drying, hand drying, alcohol wiping

## Editor-in-Chief

All of the articles published in this newsletter are written by **Lawrence F. Muscarella, Ph.D.**, Chief, Infection Control at **Custom Ultrasonics, Inc.** Ivyland, PA

## What is 'Q-Net'?

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

The main goal of **Q-Net** is to encourage the infection control, endoscopy, and OR communities not only to ask good questions but also to demand 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.

## Stopping hospital infections

### Published checklists that reduce the risk of HAIs

*This EDITORIAL reviews a checklist, or set of instructions, entitled "15 STEPS YOU CAN TAKE TO REDUCE YOUR RISK OF A HOSPITAL INFECTION."*

**N**EWSPAPER AND MAGAZINE articles within the past month have reported on a number of checklists designed to improve patient care.<sup>1,4</sup> One of these articles—entitled "The Checklist" and published in the December 10, 2007, issue of *The New Yorker*—discusses the success of a specific checklist developed to prevent certain types of healthcare-acquired infections (HAIs).<sup>3</sup> This checklist itemizes five important infection-control steps doctors are to perform prior to inserting a catheter, also referred to as a "line," into an artery, vein, or the heart. Two of these steps instruct doctors to wash their hands with soap and to clean the patient's skin with an antiseptic.

But, not every checklist designed to improve patient care advises doctors and other healthcare professionals. Another checklist, for example—which has received media attention and appears on the homepage of a popular educational website: [www.hospitalinfection.org](http://www.hospitalinfection.org)—counsels patients.<sup>1</sup> This website is the home of the *Committee to Reduce Infection Deaths*—a not-for-profit national

campaign that was founded in 2004 by its chairman, Elizabeth McCaughey, a former Lt. Governor of New York State. According to this website, this campaign is committed to the prevention of HAIs.

Entitled "15 steps you can take to reduce your risk of a hospital infection," this checklist advises patients how to protect themselves from contracting an infection in a hospital, although several of this checklist's 15 recommendations would also apply to other types of healthcare facilities, including surgicenters.<sup>1</sup>

**I** AGREE WITH many of this checklist's 15 recommendations written for patients, such as its advice to stop smoking well in advance of surgery and to ask to have skin hair removed prior to surgery using clippers instead of razors (because razors are sharper and more prone to cuts, nicks, and skin infections).

But, I disagree with this checklist's *Instruction No. 8*, which advises patients to remind their doctors of the potential importance of prescribing pre-surgical antibiotics. According to the CDC and FDA, the request by patients for an antibiotic is a major impetus for doctors to overprescribe these drugs.<sup>5</sup> To reduce patient demand for them, the CDC and FDA have cautioned consumers about the misuse of antibiotics.<sup>6</sup> A top concern of the CDC, the overprescribing of antibiotics is reported to be a significant

contributor to the emergence of antibiotic-resistant microorganisms.<sup>7</sup> Strict control of antibiotic use is warranted,<sup>7</sup> and if adequate infection controls are in place, then the risk of an HAI for most healthy patients and for many types of surgical procedures should be low. Indeed, the blanket and routine administration of pre-surgical antibiotics is potentially unnecessary and insidious. (For example, guidelines contraindicate the routine use of vancomycin for antimicrobial prophylaxis.<sup>8</sup>) A more appropriate instruction might have been to have advised patients to ensure that an antibiotic previously determined by their doctors to be indicated,<sup>8</sup> based solely on clinical need and empirical data and not prescribed because of impromptu persuasion by patients, is timely administered prior to surgery.

I also disagree with the discussion of *Instruction No. 1*. This step soundly advises patients to ask hospital staff to clean their hands before treatment. To be sure, the importance of hand washing cannot be overstated. But, this step's discussion might cause the reader to conclude (erroneously) that alcohol-based hand cleaners and gels are more effective than soap and water at reducing the risk of HAIs. A study published this January (2008) appears to belie this conclusion, having found that, while it improved hand-hygiene compliance, the use of an alcohol-based hand gel, compared to a standard hand soap lotion, did *not* reduce the rates of several different types of studied HAIs.<sup>9</sup> This study's findings are significant, because they suggest that alcohol-based hand cleaners and gels may not result in improved patient outcomes as the discussion provided along with the advice of *Instruction No. 1* implies.

Further, *Instruction No. 2*—which advises patients to ask that the stethoscope's diaphragm "be wiped with alcohol" before its use—warrants clarification. Indeed, wiping a surface with 70% (isopropyl) alcohol might reduce the risk of disease transmission. But, this outcome is a consequence of the cleaning effect of wiping, not the biocidal activity of 70% alcohol as this step's advice intimates. The immersion of an instrument in, and not merely momentarily wiping its surfaces with, 70% (isopropyl) alcohol for up to 5 minutes may be necessary to destroy all types of viruses and achieve the requisite level of disinfection to prevent HAIs.<sup>10</sup>

**A**LTHOUGH SEVERAL OF this checklist's 15 steps are evidence-based, none discuss the contribution of wet surfaces, instruments, and hands to HAIs. While emphasizing the importance of hand washing, *Instruction No. 1* would be more complete if it had noted that hand *drying* after cleaning is an important aspect of hand hygiene and contributor to the prevention of HAIs.<sup>8,11,12</sup> Providing advice on hand hygiene, the CDC states that: "Wet hands have been know (sic) to transfer pathogens much more readily than dry hands or hands not washed at all. The residual moisture determines the level of bacterial and viral transfer following hand washing."<sup>11</sup>

Nor does this checklist of 15 steps advise patients to ask

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their doctors to dry medical instruments that are wet with water or moisture at the time of treatment. Several published studies document HAIs caused by the clinical use of wet (or improperly dried) endoscopes and other types of instruments (and surfaces). The significant contribution of endoscope drying, for example, to the abrupt termination and prevention of true (and pseudo) outbreaks of opportunistic microorganisms that thrive in moist environments—such as *Pseudomonas aeruginosa*—is well-documented. Moreover, an operating-room group states that: "wetness or dampness creates doubt about the sterility of (a surgical instrument) set, and it should be considered unsterile" (refer to this newsletter's May-June, 2006, issue). *The reader would be hard-pressed to identify a more dubious clinical practice than the routine introduction of wet (with rinse water) bronchoscopes, cystoscopes, ophthalmic instruments, or arthroscopes in to the lungs, bladders, eyes, or knees, respectively, of patients to treat disease.*<sup>13</sup>

**W**HETHER PATIENTS ASKING their doctors to clean *and* dry their hands, as well as to use during treatment only medical instruments that are sterile (or disinfected) *and* dry would effect change and markedly reduce the risk of HAIs is unclear. Nevertheless, these two recommendations would seem to be no less practical, empirically-based, or important to the prevention of HAIs than several of this checklist's 15 steps. Therefore, this editorial recommends that this 15-step checklist be amended to express concern about the blanket administration of pre-surgical antibiotics and to provide a discussion of the importance of drying and the increased risk of HAIs associated with wet hands and wet instruments. ● **LFM** (References to this editorial are available on request.)

Thank you for your interest in this newsletter. I have addressed each issue and topic to the best of my ability. Respectfully, Lawrence F. Muscarella, Ph.D.  
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