

PROTECTING YOUR PATIENTS, COLLEAGUES, FAMILY, AND YOURSELF FROM INFECTION: FIRST WASH

“Nurses Did Not Wash Hands, Blamed for Deaths of 90 British Patients”—So blazed the headline at FoxNews.com¹ just a few months ago, citing a newly released investigative report² from Britain’s Commission for Healthcare Audit and Inspection related to outbreaks of *Clostridium difficile* infection in 2 of Britain’s National Health Service (NHS) Trusts located in southern England. The report noted that over an approximately 2 1/2-year period between April 2004 and September 2006, *C difficile* was “definitely or probably the main cause of death” in 90 of the 345 total patient deaths,^{2(p4)} a definite contributing factor in 124 and a probable factor in 55 deaths.

Immediately following that inflammatory headline, the first 3 sentences continued fanning these accusatory flames:

Unclean and uncaring nurses in the U.K. are blamed [and] may have spread superbugs that led to the deaths of the patients they were charged with caring for.

The nurses are accused of not washing their hands and of leaving patients lying in soiled beds.¹

A more descriptive yet equally targeted account was issued at another popular online portal site, where the “news” was heralded as the following:

The report into the spread of the highly contagious bacterium said nurses at three hospitals run by the Maidstone and Tunbridge Wells NHS trust were often too

busy to wash their hands and left patients in their own excrement.³

The more restrained British Broadcasting Corporation characterized the fatal outbreaks as “scandalous,” and mentioned that financial challenges had resulted from a recent merger and that a “fixation on meeting financial targets” had interfered with addressing other problems such as a nurse shortage, which in turn contributed to poor patient care as nurses lacked time to wash their hands properly or to assist patients in using a commode.⁴

Behind these headlines, if one took a moment to read the Commission’s actual report, a less sensationalized analysis of these findings revealed that these tragic deaths were attributed not solely to nurses but to a substantial number of “serious failings,” including the following⁴:

- systemwide failure to recognize when outbreaks of infection with this organism occurred
- an infection control director who lacked understanding of the role
- an infection control team that lacked clear direction and effective management
- outdated and inaccessible infection control policies
- lack of staff attendance at instructional programs to update infection control practices
- inadequate standards of cleanliness and infection control
- failure to isolate patients known to be infected
- open wards with beds so close it was difficult to clean between them

...when nurses do practice hand washing, or the more recently dubbed “hand hygiene,” we need to get it right.

- inadequately cleaned bedpans, mattresses, and other equipment
- prescription of broad-spectrum antibiotics that predisposed vulnerable patients to infection with this organism

Nurses cannot be excused from any role they may have played in contributing to these untimely and unnecessary deaths, but surely they should bear the burden of their complicity proportionately based on fact rather than singularly based on sensationalized journalism. That proviso aside, however, there is something especially troubling about the Commission's stated finding that nurses reported being "too rushed to undertake hand hygiene....,"^{2(p6)} an aspect of patient care so elemental that it is included in virtually all established hospital procedures involving hands-on patient care and represents a mainstay of good patient care since the days of Florence Nightingale. At these particular facilities, moreover, a lack of due attention to hand washing among hospital staff (as well as visitors) was neither a new nor unrecognized concern. As the Commission's report indicates, a 2005 national survey^{2(p5)} of healthcare staff in that same NHS trust revealed the following:

- Only 30% of staff agreed with the statement that "The trust does enough to promote the importance of hand washing to staff."
- Only 33% of staff agreed that the trust promoted the importance of hand washing to patients and visitors.
- Only 38% of staff agreed that "infection control applies to me in my role."

With that backdrop, then, the findings reported by the Commission in October 2007 might well have been anticipated.

In these times when young, previously healthy high school students can develop a lethal, fulminating infection resistant to most available antibiotic therapies over the course of a weekend, these findings related to nurses' failure to use standard hand cleansing with and between patient contacts is not an issue of negative public relations for the profession, but a grave dereliction of professional practice that potentially endangers our patients, their family, other staff (and their family), our own family and friends, and community.

Do US Healthcare Personnel Wash Their Hands?

Before we go casting any stones toward our colleagues across the pond, however, we need to do some serious

soul-searching and hand cleansing here in the United States, where only a peek at the professional literature instantaneously reveals that neither US physicians nor nurses consistently wash hands before and after patient contact. As one of our physician colleagues so eloquently summarized^{5(p199)}:

... they don't do it. They don't merely not do it every time, they don't do it most of the time and sometimes not even when it might be most expected, as when caring for an intensive care unit (ICU) or emergency room patient."^{6,7}

Handwashing Is So Overrated (ie, Does Anyone Wash Their Hands Anymore?)

Each year for the past 4 years, the American Society for Microbiology (www.asm.org) and the Soap and Detergent Association (www.cleaning101.com) cosponsor a combined telephone and observational survey on Americans' hand-washing practices and maintain a Web site (www.washup.org) to share the survey results and related hand hygiene information to the public. The telephone survey provides data on what adults say they do relative to hand washing and the observational survey affords comparative data relative to actual hand-washing behaviors.

Handwashing—Talking the Walk

When 1000 American adult men and women were polled for the 2007 telephone survey⁸ regarding their use of hand washing, the following self-reports were obtained:

- 92% report that they always wash their hands after using public restrooms
- 86% report that they always wash their hands after using a bathroom in their home
- 34% report that they always wash their hands after coughing or sneezing
- 25% report that they always wash their hands after handling money

Handwashing—Walking the Talk

When more than 6000 American men and women were observed in public restrooms (fully equipped with running water, soap, and towels) in 6 major cities during 2007, trained observers found the following⁹:

- 77% of all adults washed their hands after using the restroom (roughly the same as the 78% observed to do so in 2006, but lower than the 83% observed in 2005)

- 88% of women washed their hands, down only slightly from the 90% in 2005

The overall decline in observed hand washing was largely attributable to men, whose observed rate of hand washing fell from 75% in 2005 to only 66% in 2007.

On a personal level, as a member of a local “health club” for nearly 20 years, my casual observations are that only about 50% of women who use the restroom bother to even momentarily stop to wash their hands before leaving and another 25% manage to complete all aspects of their wash (moisten, soap, lather, rinse, dry) in an astoundingly brief 10 seconds or less—often without the benefit of soap. As a result, my now fully ingrained phobia about touching any exiting door knob, frame, or handle from the women’s locker room with my bare hand appears to me fully justified by a predominance of data over those 2 decades. As far as I am aware, none of these women are nurses.

Why Healthcare Staff Don’t Wash Their Hands

A study recently completed by Whitby¹⁰ in Australia attempted to identify why compliance with basic hand-washing guidelines has been and remains “abysmal.”^{10(p484)} Although the study sample included children, mothers, and nurses, the focus was on identifying the behavioral determinants of hand washing among the 754 nurses from 2 large tertiary care hospitals who worked on infectious disease, internal medical, intensive care, and general surgical wards. The report cited an earlier study by Pittet et al¹¹ in Geneva that found improved hand-washing compliance among healthcare staff when an alcohol-based hand rub was introduced that reduced the amount of time needed for this activity. In addition, another cited study, by Larson et al¹² in Washington, DC, found improved compliance associated with introduction of a planned organizational culture change that promoted hand hygiene and overt program support from senior clinical and administrative staff.

In an attempt to explain why these interventions improved hand-washing compliance, Whitby et al distinguished 2 categories of hand washing: inherent hand washing, the more common form, performed when hands are visibly or perceptibly soiled or sticky or were in contact with body areas nurses considered dirty, and elective hand washing, performed in all other situations.^{10(p487)} Findings revealed that a number of factors affected the importance that nurses placed on hand washing, including the following:

- patient's diagnosis and condition
- patient's display of personal hygiene
- nature, location, and degree of patient contact
- nature of actual tasks performed with the patient
- perceived cleanliness of items handled
- workload

Some especially telling findings from this study related to how nurses decided whether to use hand washing when their workloads imposed time constraints. Under these conditions, nurses appeared to construct a personalized hierarchy of risk to decide when hand washing was necessary. That hierarchy is based on the degree of risk for infection that the nurse perceives is associated with a particular activity.

Activities that produce visible or perceived soiling of the nurse's hands are viewed as high risk and are followed by (intrinsic) hand washing, regardless of how busy the nurse is. Other activities that may involve brief, nonintimate contact with patients or objects (such as palpating a patient's pulse, auscultating breath sounds, or repositioning a patient), by contrast, are not perceived as posing high risk, so often are not followed by (elective) hand washing, regardless of whether the facility's policies dictated that hand washing was mandatory for that situation to prevent cross-contamination.

As the authors discuss, these findings may help explain why measures such as increasing the number or accessibility of sinks does not improve compliance and why reducing the time or effort required for hand washing via alcohol-based rubs may improve intrinsic hand washing, but had no effect on performance of elective hand washing. In short, nurses need "... to believe that handwashing in a particular situation results in a benefit to them."^{10(p491)}

Consistent with Larson's¹² research, the Australian study¹⁰ also found that increased compliance by nurses was associated with role modeling of expected hand-washing behaviors by senior facility administrators and physicians. One distinction in the latter study, however, was that this enhanced hand-washing compliance among nurses was not observed when the role models were other nurses, including nurses who served as infection control practitioners.^{10(p491)} No explanation was offered in the report for this intriguing finding, but it certainly begs research follow-up.

Perhaps protecting others (eg, patients, family, visitors, staff) is not sufficient incentive for nurses to cleanse their hands in all potentially compromising situations.

Perhaps the inevitable "What's in it for me?" aspect of our humanity overrides the socially protective or altruistic basis for our professional behavior at work. In any case, when nurses do practice hand washing or the more recently dubbed "hand hygiene," we need to be sure we get it right.

Hand Washing Versus Hand Hygiene

A few years ago, when the growing prevalence of more invasive forms of antibiotic-resistant *Staphylococcus aureus* infections drove an intense need to reawaken appreciation for the efficacy of this fundamental clinical practice activity, a paper by Boyce and Pittet¹³ extended considerable effort to capture the historical and current clinical significance of hand washing. In that paper, the traditional term of hand washing and the more contemporary nomenclature of hand hygiene are distinguished as follows:

- *Hand washing* refers to washing hands with plain (ie, nonantimicrobial) soap and water
- *Hand hygiene* is a more general term that refers to either hand washing (see above), an antiseptic handwash (using water and soap or other detergent containing an antiseptic agent), an antiseptic hand rub (applying such a product), or surgical hand antisepsis (antiseptic hand-wash or antiseptic hand rub performed preoperatively by surgical personnel)^{13(p53)}

Now that the Centers for Disease Control and Prevention (CDC) has confirmed that invasive methicillin-resistant *S aureus* (MRSA) infections represent a major public health problem not only for certain vulnerable populations found within healthcare facilities (65 years and older, men, blacks), but also for a considerable number of people in the surrounding community who do not have healthcare risk factors for MRSA¹⁴ and that the number of Americans projected to die of these invasive and fulminant infections (18 650 annually)¹⁴ could surpass the number who die each year of HIV-AIDS (approximately 17 000),¹⁵ the importance of primary prevention of infection becomes paramount. Because MRSA is transmitted via direct contact with an infected person or fomites (substances capable of absorbing, retaining, and transporting contagious or infectious agents¹⁶), any form of hand hygiene on a frequent basis is high on all lists of measures to prevent the development of MRSA infections.

When to Implement Hand Hygiene

It seems obvious that a review of the basics is in order. The CDC Web site (www.cdc.gov) has a wealth of

Table Hand washing guidelines

When washing hands with soap and water

- Wet your hands with clean running water. If available, use warm water.
- Apply soap, rub hands together to make a lather.
- Continue scrubbing all hand surfaces for 20 seconds. If you need a timer, sing 2 choruses of “Happy Birthday”
- Rinse hands well under running water.
- Dry your hands using a paper towel or air dryer. If available, use the paper towel to shut off the faucet.

When using an alcohol-based hand sanitizer

- Apply gel to the palm of one hand.
- Rub hands together so the product reaches all hand and finger surfaces.
- Rub hands until dry.
- Use hand rubs before and after each patient contact.
- Note that the volume of gel needed to reduce bacterial counts on hands varies by product.

Gloving

- Use of gloves does not eliminate the need for hand hygiene.
- Use of hand hygiene does not eliminate the need for gloves, which reduce hand contamination by 70% to 80%, prevent cross-contamination, and help to protect patients and staff from infection.
- Gloves need to be changed before and after each patient.

Fingernails

- Healthcare staff should avoid wearing artificial nails.
- Healthcare staff who care for patients at high risk of acquiring infections (eg, on intensive care or transplant units) should keep natural nails less than one quarter of an inch long.

information related to combating MRSA for healthcare professionals. One location¹⁷ provides an overview of Standard and Contact Precautions for MRSA as well as a link for detailed information on managing an outbreak. Under the Standard Precautions, the Hand Hygiene section¹⁷ includes the following guidelines for when hand cleansing measures are warranted:

- After touching blood, secretions, excretions, body fluids, or any contaminated item, whether or not gloves are worn
- Immediately after glove removal and between patient contacts
- Between tasks and procedures on the same patient to prevent cross-contamination of different body sites
- When hands are visibly soiled
- Whenever necessary to avoid transfer of microorganisms to patients or the environment

In addition to these guidelines for healthcare staff, the CDC’s “Clean Hands Save Lives” campaign offers an expanded set of indications for implementing hand hygiene for the public that nurses also need to emulate. The following guidelines are provided for when you should wash your hands¹⁸:

- Before preparing and eating food
- After using the bathroom; changing diapers; cleaning someone who has used the bathroom; coughing, sneezing, or blowing your nose; handling an animal or animal waste; and handling garbage

- Before and after treating a cut or wound and tending to someone who is sick

How to Implement Hand Hygiene

I know that you already know this. All nurses know how to wash their hands—don’t they? But just for those moments when the perceived risk of infection is running high, let’s revisit the CDC guidelines for hand cleansing (<http://www.cdc.gov/cleanhands/>) and start with the following overarching clarification:

- It is best to wash your hands with soap and clean running water for 20 seconds.
- If soap and clean water are not available, use an alcohol-based gel to clean your hands.¹⁸

The CDC’s “Hand Hygiene Guidelines Fact Sheet”¹⁹ was last updated a few years ago, yet it still offers valuable advice for consideration today. A full copy of the fact sheet is available at www.cdc.gov/od/oc/media/pressrel/fs021025.htm to support your efforts in improving nurses’ compliance on this issue. A few noteworthy points from the fact sheet are provided in the Table.

Closing

Because this editorial opened with a problem reported about British nurses, it seems only fitting that it close with a perspective and solution provided by another British nurse, whose clear insights regarding the imperative for nurses to be diligent in frequent hand

washing have been available to nurses worldwide since their publication in 1860^{20(pp93,94)}.

In almost all diseases, the function of the skin is, more or less, disordered; and in many most important diseases nature relieves herself almost entirely by the skin But the excretion ... is left there, unless removed by washing Every nurse should keep this fact constantly in mind,—for, if she allow her sick to remain unwashed, or their clothing to remain on them after being saturated with ... excretion, she is interfering injuriously with the natural processes of health just as effectually as if she were to give the patient a dose of slow poison by the mouth. Poisoning by the skin is no less certain than poisoning by the mouth—only it is slower in its operation.

Every nurse ought to be careful to wash her hands very frequently during the day. If her face too, so much the better.

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