

in the article is the problem of bacterial or fungal contamination of handwash products themselves. Again, as they point out, handwashing products such as chlorhexidine, hexachlorophene and iodophors have all been found over the past decade to be contaminated with a variety of bacterial and fungal species. As a result of this study, a triclosan handwash product may be added to the list.

As members of the Indiana University Medical Center Infection Control Committee and one of us the Director of the Department of Hospital Infection Control, we have been concerned for many years about "proper handwashing" in our hospitals. Roughly 12 years ago we began addressing the problem of how to encourage hospital personnel to wash their hands when appropriate. We learned quite early in our efforts that a significant portion of the problem was due to irritation of hands by a variety of handwash products, particularly among nurses who wash their hands frequently as often as 50 or more times a day. We conducted a trial on several of our hospital care units where we had personnel use examples of most of the health care handwash products available. Each product was used for a period of several weeks, and at the end of the trials conclusions were obtained from those who tried the variety of products. OR Scrub was found to be, and has in subsequent similar trials, the one product least irritating to hands of all those tested.

Eager to encourage frequent and appropriate handwashing, we began to use OR Scrub on our Newborn Intensive Care Unit. We were aware, however, of concerns among the Food and Drug Administration about the lack of effectiveness of triclosan with respect to certain gram-negative organisms which might result in selection pressure toward such organisms. As a result, we performed extensive infection surveillance and environmental microbiological surveillance on this particular unit designed to determine whether or not OR Scrub in fact did result in selection pressure toward gram-negative bacterial nosocomial infections and/or gram-negative microbiologic contamination. After approximately one and one-half years of study we concluded

that use of OR Scrub definitely did not result in an increase of either gram-negative nosocomial infections or in gram-negative bacterial contamination of the environment of the hospital unit. At the present time, we have been using OR Scrub on our Newborn Intensive Care Unit for approximately 10 years without an associated gram-negative bacterial infection problem. While this information has not been published, it has satisfied our Infection Control Committee and the Director of our Newborn Intensive Care Unit.

We did, however, publish the results of a study comparing the use of the OR Scrub and a variety of other surgical scrub products in association with one of our orthopedic surgeons who was concerned about optimum infection control in his surgical cases.¹ All of the products tested were done so in actual surgical cases. Among our conclusions was one which indicated that all of the surgical scrub products, including OR Scrub, were effective in reducing the microbial flora on the hands and forearms of the surgical team to an acceptably low level and that choice of a surgical hand scrub product among those tested could be mostly a matter of personal preference. All of the products tested, including OR Scrub, were tested in association with careful surveillance of infections by the surgeon who maintained an incidence of infection of less than 0.5%.

The intent of this letter is to attempt to make infection control practitioners aware of some information that has led us, at least, to make substantially different conclusions concerning the efficacy of OR Scrub. Since the product was sterile when unopened and a very small number of contaminated containers (4) was identified we would strongly encourage a much more extensive investigation of this and other commonly used handwash products before issuing such a serious condemnation. This would be particularly appropriate in view of the fact that the manufacturer improved the product even before this publication. We have found OR Scrub to play a very important role in our efforts to encourage frequent and consistent handwashing and as a result plays an important role in our infection control program.

REFERENCES

1. Eitzen HE, Ritter MA, French MLV, et al: A microbiological in-use comparison of surgical handwashing agents. *J Bone Joint Surg* 1979; 61A:403-406.

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The authors of the article in question offer the following response.

Boyd raises several questions about the in vitro methods used to evaluate his company's product, OR Scrub, a handwashing agent containing 1% triclosan. The purpose of our investigation was to confirm our initial observation that "in-use" OR Scrub appeared to lack activity against *Serratia marcescens*, and to further evaluate the findings of other investigators that triclosan is ineffective against *Pseudomonas aeruginosa*.^{1,2} The in vitro data confirmed our suspicions and to our surprise, indicated that "Wash," a non-antiseptic soap also produced by Huntington Laboratories, had greater activity against *S. marcescens* and *P. aeruginosa* than OR Scrub.

In response to Boyd's concern about the use of dilutional methods for evaluating OR Scrub, we would point out that all ingredients (soap, water, and organisms) were well mixed throughout the experiments, and that OR Scrub is not used on dry hands in the hospital. Furthermore, more recent studies have revealed that direct inoculation of OR Scrub with *S. marcescens* failed to kill the organism. In the absence of specific data, it is difficult for us to comment on the other techniques listed by Boyd.

Apparently Huntington Laboratories was convinced enough by our findings to modify their product. We commend their efforts to improve the product and acknowledged this by adding an addendum to our manuscript after it was accepted for publication. However, the limited activity of the "modified OR Scrub" against *S. marcescens* at one hour, even in the absence of a neutralizer, remains a

concern.

The observations of Eitzen and Morris on the use of OR Scrub in their newborn nursery are similarly difficult to evaluate without specific data. Their study on use of OR Scrub in surgical cases points out that the product reduces colony counts on the hands of health care personnel, but no microbiologic data concerning *S. marcescens* and *P. aeruginosa* were offered.³

The purpose of our initial abstract and manuscript was to alert the medical community of potential problems related to the use of OR Scrub in critical care areas. Any antiseptic soap that would allow the growth of a common nosocomial pathogen would be of concern to infection control personnel. As we emphasized in our article, extrinsic and intrinsic contamination of several commonly used antiseptic soaps has been previously reported. A better understanding of the limitations of antiseptic agents and potential mechanisms for producing contamination will hopefully decrease the risk of serious nosocomial infections. Our article and those of other investigators underscore the need for continued surveillance of products used in hospitals. At the present time, there are severe gaps in our knowledge about antiseptic soaps; the efficacy of antiseptic soap in reducing nosocomial infection rates in the intensive care unit setting has been demonstrated for only one product.⁴ Further studies are needed to critically evaluate the efficacy of these products and their role in the delivery of better health care.

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1. Regos J, Zak O, Solf R, et al: Antimicrobial spectrum of triclosan: A broad spectrum antimicrobial agent for topical application. *Dermatologica* 1979; 158:72-79.
2. Over the counter drugs generally recognized as safe, effective and misbranded. *Federal Register* 1978; 43(Jan 6):1210-1233.
3. Eitzen HE, Ritter MA, French MLV, et al: A microbiological in-use comparison of surgical handwashing agents. *J Bone Joint Surg* 1979; 61A:403-406.
4. Maki D, Hecht J: Antiseptic containing handwashing agents reduce nosocomial infection—A prospective study. Read before the Interscience Conference on Antimicrobial Agents and Chemotherapy, Miami Beach, FL, October 4-6, 1982.

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Cost of Hepatitis B Prevention in Hospital Employees

To the Editor:

I read with interest "Cost of hepatitis B prevention in hospital employees: Post-exposure prophylaxis" in *Infection Control* August 1984.¹ I have some doubts about the recommendations illustrated in the figure. Would not one dose of HBIG plus a simultaneously initiated hepatitis B vaccination give a less expensive and more long-lasting protection for the person exposed to hepatitis B than two doses of HBIG?

REFERENCES

1. Kirkman-Liff B, Dandoy S: Cost of hepatitis B prevention in hospital employees: Post-exposure prophylaxis. *Infect Control* 1984; 5:385-389.

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The authors of the article in question were invited to respond.

The prevention strategy suggested by Nyström has been adopted recently by the Immunization Practices Advisory Committee (ACIP) of the Centers for Disease Control.¹ When our work was undertaken in 1982, the post-exposure procedure presented in the figure was the official recommendation of the ACIP and, thus, the one used for our calculations of cost.

REFERENCES

1. Recommendations of the Immunization Practices Advisory Committee of the Centers for Disease Control. Post-exposure prophylaxis of hepatitis B. *MMWR* 1984; 33:285-290.

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Airborne Route of Cross-Infection

To the Editor:

In a Letter to the Editor, "Reasonableness in Kidney Transplant Precautions," in the January 1984 issue of *Infection Control*,¹ a statement is made regarding the closing of the door and the absence of infection by the airborne route. This is of some interest to me in view of communication I have had with John Burke, MD, of the Massachusetts General Hospital. Burke feels that the airborne route, although less efficient a method of transferring bacteria than the contact route, is still an ever-present source of cross-infection (written communication, July 1984).

REFERENCES

1. Crow S: Letter to the editor: Reasonableness in kidney transplant patients. *Infect Control* 1984; 5:11.

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Sue Crow, RN, BSN, Nurse Epidemiologist, was invited to respond to Dr. Beck's comments.

I agree that airborne contamination is an important factor in wound infections during surgery. However, the issue in question had to do with caring for kidney transplant patients postoperatively. Once the wound is closed, the risk of airborne contamination is greatly reduced.

There are no studies regarding the position of the door during routine postoperative care. Keeping the door closed is important when a patient has a disease that may be airborne, such as tuberculosis or chickenpox, but for a postoperative patient, including a kidney transplant, I see no need to close the door.

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