# Medical News

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## *Federal Register* Notice: Reprocessing Single-Use Devices

The FDA seeks public comment on the proposed voluntary survey of hospitals to collect information on the extent and nature of current practice of reprocessing single-use medical devices by these institutions. Comments should be submitted by June 29, 2001. To view this notice, go to http://www.fda.gov/OHRMS/DOCKETS/98fr/043001g.htm.

## Risk of Infection Associated With Artificial Fingernails

Two studies have recommended that restrictions on wearing of artificial fingernails by healthcare workers (HCWs) should be extended beyond the operating room (OR) to other high-risk areas. In one report, three unusual surgical-site infections were traced to an OR staff member wearing artificial nails. The other study suggested that artificial nails are more likely than natural nails to harbor pathogens and that an alcohol-based gel works better than antimicrobial soap as a cleanser for both artificial and natural nails.

Parry and coinvestigators conducted a case-control study on deep wound infections caused by *Candida albicans* that occurred in three post-laminectomy patients at a Stamford (CT) Hospital in February 1997. Pulsed-field gel electrophoresis showed that the *Candida* isolates were identical. Further it was found that exposure to one OR technician, who had been wearing artificial nails on the dates of the three surgeries, was the only risk factor more common among the case-patients than among uninfected controls. The technician had no direct contact with the patients, and it was unclear how the pathogens reached the wounds; it may have resulted from the technician's preparation of the bone wax used in the operations.

In a separate but related study, McNeil and coinvestigators determined differences in the microbial flora found on the nails of HCWs wearing artificial nails compared to control HCWs with native nails and assessed the effect of hand cleansing with antimicrobial soap or alcohol-based gel in reducing levels of microorganisms. Cultures were obtained from 21 HCWs wearing artificial nails and 20 control HCWs before and after using antimicrobial soap or alcohol-based gel. Before cleansing with soap, 86% of HCWs with artificial nails had a pathogen (gram-negative bacilli, *Staphylococcus aureus,* or yeasts) isolated, compared to 35% of controls. A similar difference was noted before hand cleansing with gel (68% vs. 28%;). Significantly more HCWs with artificial nails than controls had pathogens remaining after hand cleansing with soap or gel. Of HCWs with artificial nails, only 11% cleared pathogens with soap compared with 38% with gel. Of control HCWs, only 14% cleared with soap compared with 80% with gel. The authors concluded that artificial acrylic fingernails could contribute to the transmission of pathogens, and their use by HCWs should be discouraged.

FROM: McNeil SA, Foster CL, Hedderwick SA, Kauffman CA. Effect of hand cleansing with antimicrobial soap or alcohol-based gel on microbial colonization of artificial fingernails worn by health care workers. *Clin Infect Dis* 2001;32(3):367-372. www.journals.uchicago.edu/CID/journal/issues/v32n3/000140/000140.html.

Parry MF, Grant B, Yukna M, Adler-Klein D, McLeod GX, Taddonio R, et al. *Candida* osteomyelitis and diskitis after spinal surgery: an outbreak that implicates artificial nail use. *Clin Infect Dis* 2001;32(3):352-357. www.journals.uchicago.edu/CID/journal/issues/v32n3/000094/000094.html.

## Nosocomial Transmission of Rare Zoonotic Diseases

Drs. Weber and Rutala, from the University of North Carolina at Chapel Hill, recently published a review of zoonotic diseases, which discusses reasons for increased incidence and strategies to prevent transmission. They point out that increased travel, contact with exotic pets, occupational exposure, and leisure pursuits have increased the risk of exposure to zoonotic diseases.

Appropriate isolation precautions are required to prevent nosocomial transmission of rare zoonotic diseases, for which person-to-person transmission has been documented. Isolation and patient-management guidelines are included for the following infectious diseases with documented person-to-person transmission: Andes hantavirus disease, anthrax, B virus infection, hemorrhagic fevers (due to Ebola, Marburg, Lassa, Crimean-Congo hemorrhagic fever, Argentine hemorrhagic fever, and Bolivian hemorrhagic fever viruses), monkeypox, plague, Q fever, and rabies. Several of these infections may also be encountered as bioterrorism hazards (ie, anthrax, hemorrhagic fever viruses, plague, and Q fever). The authors point out that adherence to recommended isolation precautions will allow for proper patient care while protecting the healthcare workers who provide care to patients with known or suspected zoonotic infections capable of nosocomial transmission.

FROM: Weber DJ, Rutala WA. Risks and prevention of nosocomial transmission of rare zoonotic diseases. *Clin Infect Dis* 2001;32:446-456.

## Efficacy of Antiseptics Tested on Skin

Messager and colleagues from the Welsh School of Pharmacy, Cardiff University, United Kingdom, reported on an ex vivo test used to determine efficacy of germicides used on skin. While there are many skin antiseptics commercially available and their antibacterial activity has often been well studied, their potential effectiveness on skin remains poorly documented. To date, in vivo protocols designed for the testing of the antimicrobial efficacy of antiseptics cannot use, for ethical reasons, pathogenic bacteria or new formulations whose toxicity in human subjects is unknown. An ex vivo test recently was developed to overcome these problems. Freshly excised human skin from abdominal or breast reduction was placed in a diffusion cell containing a maintenance medium in the recipient compartment. A bacterial inoculum was then applied to the stratum corneum and, after a drying step, antiseptic formulations were evaluated for their antimicrobial activity.

Several microorganisms were investigated (*Staphylococcus aureus,* methicillin-resistant *S aureus* (MRSA), *Enterococcus faecalis,* vancomycin-resistant *Enterococcus faecium* (VRE), *Staphylococcus epidermidis, Pseudomonas aeruginosa,* and *Escherichia coli),* along with several biocides (para-chloro-meta-xylenol [PCMX], active compound of Dettol; povidone iodine; triclosan (in isopropanol); and chlorhexidine. Results from the ex vivo test were compared with results obtained in suspension and glass-carrier tests. The bactericidal activity of the biocides depended upon the test performed, and results generally were significantly different from one method to the other. All biocides tested in the suspension test achieved >4-$\log_{10}$ reduction in viable bacterial concentrations, apart from povidone iodine tested against *E faecalis* and VRE. The antibacterial activity of biocides tested in the glass-carrier test was significantly lower than in the suspension test, with the exception of triclosan in isopropanol, which was as effective in both suspension and glass-carrier test. In the ex vivo test, triclosan in isopropanol achieved a $\log_{10}$ reduction in viable bacterial concentration of 1.105 to 1.771 (with the exception of *P aeruginosa,* with 0.758-$\log_{10}$ reduction). PCMX, povidone iodine, and chlorhexidine achieved $\log_{10}$ reductions in viable bacterial concentration of 0.303 to 0.901. Chlorhexidine tested against *P aeruginosa* produced a 1.94-$\log_{10}$ reduction in concentration.

These results confirm previous observations about the need for testing the antimicrobial activity of antiseptics on skin surface to determine their in situ efficacy and encourage further the use of the ex vivo protocol.

FROM: Messager S, Goddard PA, Dettmar PW, Maillard JY. Determination of the antibacterial efficacy of several antiseptics tested on skin by an 'ex vivo' test. *J Med Microbiol* 2001;50:284-292.

## VRE in Stools Submitted for *C difficile* Testing

Hacek and coinvestigators from Northwestern University Medical Center, Chicago, investigated a method for screening vancomycin-resistant enterococci (VRE) that used specimens submitted for *Clostridium difficile* testing. They compared this approach to the focused surveillance program of high-risk units during October 1997 to compare the yield of VRE and multidrug-resistant *Enterobacteriaceae* (MDRE) with both methods. Of the stools submitted for *C difficile* testing, 14% were positive for VRE or MDRE, whereas rectal swabs from routine surveillance yielded 11% VRE- or MDRE-positive results. Although stools submitted for *C difficile* testing resulted in a higher percentage of positive cultures, 14 VRE- and 2 MDRE-positive patients from their high-risk population were missed because many patients had no stool submitted for *C difficile* testing.

The authors concluded that, while screening stools submitted for *C difficile* testing cannot replace their focused surveillance program, it appears advantageous to assess these stools at various intervals to detect new patient reservoirs of drug-resistant organisms that may benefit from routine surveillance cultures.

FROM: Hacek DM, Bednarz P, Noskin GA, Zembower T, Peterson LR. Yield of vancomycin-resistant enterococci and multidrug-resistant *Enterobacteriaceae* from stools submitted for *Clostridium difficile* resting compared to results from a focused surveillance program. *J Clin Microbiol* 2001;39:1152-1154.

## Risk of Infection From Reused Virus-Contaminated Catheters

Luijt and colleagues from the Regional Public Health Laboratory, Groningen, The Netherlands, conducted a study to determine the theoretical risk of virus transmission during reuse of catheters. An in vitro study was performed using an RNA virus (echovirus-11) and a DNA virus (adenovirus-2). After deliberate contamination of the catheters, reprocessing and reuse of the cleaned and glutaraldehyde-disinfected catheters was simulated. The presence of residual virus was determined by cell culture and by PCR. After the disinfection step, infectious enterovirus was detectable in one (10%) of the samples, whereas two (20%) contained detectable enterovirus RNA. After simulated reuse, a culture of enterovirus was obtained from one (10%) of the catheters, but no less than six (60%) of the samples were enterovirus PCR-positive, and one (10%) contained detectable adenovirus DNA. After sonification of the catheter tips, no infectious virus could be detected, but enterovirus RNA was detected in two (20%) and adenovirus DNA in three (30%) of the samples.

The authors concluded that, even after rigorous cleaning and disinfection, virus was still present in the catheter. Reuse of catheters labeled for single-use only is dangerous and should be prevented.