Letters to the Editor

Online Services

To the Editor:

Online services provide a powerful form of communication that apparently is not being used to its full potential by professionals. These services allow infection control practitioners to post comments, questions, and answers on forums. Additionally, articles, documents, and program files can be uploaded to, and downloaded from, the forums' libraries.

Subscribers to CompuServe can leave infection control messages on the public health forum, communicable diseases section. (I assume other online services have similar forums.) Other sections in this forum include Legislative Issues, Information/Science, Health Administration, and Environment and Health. Recent issues of the *MMWR* can be downloaded from the Public Health Library.

Messages posted on the forum can be read by any online subscriber. This means that a message posted on a forum can be read and responded to by millions of people—within minutes of being posted. Readers can respond to posted messages publicly via the forum or privately via e-mail. Forum postings do not require specified recipients as opposed to e-mail messages. The implications of this form of communication are incalculable.

There has been a lot written about the World Wide Web and how it is going to change forever how we communicate and conduct business. In 1996, the Association for Practitioners in Infection Control and Epidemiology (APIC) debuted its Web homepage. As of August 1996, APIC has 11,500 individual members.[1] The 1996 APIC membership directory (based on 1995 membership data) lists approximately only 80 e-mail addresses. This number can be expected to rise dramatically in the next few years.

TABLE
SURVIVAL OF VANCOMYCIN-RESISTANT ENTEROCOCCI ON A COUNTERTOP

	Inoculum		
Day	**Stool**	**VRE Colonies**	**Control**
1	+	+	−
7	+	+	−
22	−	+	−
46	−	+	−
58	−	+	−
129	−	−	−

Abbreviation: VRE, vancomycin-resistant enterococci.

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Long-Term Survival of Vancomycin-Resistant *Enterococcus faecium* on a Contaminated Surface

To the Editor:

Several recent articles in *Infection Control Hospital Epidemiology* have emphasized the possible importance of the environment in the transmission of vancomycin-resistant enterococci (VRE).[1,2] We evaluated the long-term survival of VRE on an inanimate environmental surface.

In the Infectious Diseases laboratory, a countertop that had been shown to be culture-negative for VRE was inoculated with two samples. One area (approximately 70 cm^2) was swabbed with a small amount of stool collected on a cotton-tipped applicator stick from the rectum of a patient known to be colonized with VRE. A second 70 cm^2 area was inoculated with several colonies of vancomycin-resistant *Enterococcus faecium* that were grown on trypticase soy agar with 5% sheep blood and that originally had been isolated from the same patient. A third area that had not been inoculated was used as a control.

At subsequent time points over 4 months, cultures of the inoculated and control surface areas were obtained by swabbing a 4 cm^2 area with a sterile cotton swab moistened with sterile 0.9% NaCl. The swabs were streaked onto bile esculin agar containing 10 µg/mL vancomycin and 10 µg/mL gentamicin. Black colonies were sampled and were identified as enterococci if they were gram-positive cocci that were catalase-negative and able to grow in 6.5% NaCl.

Vancomycin-resistant enterococci persisted for at least 1 week on the area inoculated directly from the rectal swab and for at least 2 months on the area of the counter inoculated with colonies of VRE (Table).

Our findings support other observations of the survival of VRE on surface areas contaminated with stool and extend the length of time previously noted for environmental survival of VRE by Noskin et al.[1] Survival on inanimate objects may well be important in persistence of VRE in hospitals and may contribute to the spread of the organism from patient to patient.[2-4] However, in vitro observations such as ours do

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not verify a role for the environment in transmission of VRE, but merely point out that survival can be prolonged. Future studies should address this aspect of the epidemiology of VRE.

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The authors reply

It is known that vancomycin-resistant enterococci (VRE) can survive for prolonged periods in what many other microbes would consider a hostile environment, including environmental surfaces frequently encountered in the healthcare setting.[1] This fact raises concern as to whether these surfaces serve as a reservoir for spread of nosocomial infections. Although this remains speculative, transmission of VRE among patients by a contaminated rectal thermometer has been well documented.[2] Understanding the potential risk of persistent environmental contamination due to prolonged bacterial survival is one important aspect to control resistant pathogens, because it may have an impact on spread in both institutional and office practice, where infected patients and new hosts at risk are examined and treated.

The report by Bonilla and coworkers in this issue of *Infection Control and Hospital Epidemiology* extends previous investigations examining the duration that VRE can survive on environmental surfaces.[3] They documented persistent recovery of VRE for 58 days following inoculation onto a laboratory countertop. The fact that VRE can be recovered for months following inoculation is an important observation for individuals developing infection control practices intended to manage this organism. Their data suggest that transmission to a susceptible host may occur long after the "donor" individual has left the contaminated area. This confirms the necessity of complying with, and perhaps expanding, the Centers for Disease Control and Prevention (CDC) recommendations that individuals entering the room of a patient with VRE wear gloves and that a gown be worn if contact with the patient is anticipated.[4] At our institution, we have taken a further precaution of requiring both gowns and gloves for everyone entering the room of a patient known to be infected or colonized with VRE and have found that, when carefully followed, this approach can halt the spread of clonal VRE.[5] Furthermore, periodically obtaining cultures of environmental surfaces in institutions where VRE is endemic appears reasonable. Such environmental surveillance is one way to assess the effectiveness of cleaning procedures that may need periodic re-evaluation in light of the data reported by Bonilla and coworkers.

Our experience suggests that an active, ongoing educational program is needed to maintain awareness of how to manage resistant organisms such as VRE appropriately. Furthermore, it is reasonable that infection control practitioners emphasize that VRE is capable of prolonged survival on inanimate objects frequently encountered in hospitals, because this persistence may play a role in nosocomial transmission. The degree to which this occurs is unknown, but must not be underestimated in developing policies to control VRE. An important question that remains unknown is whether a healthcare worker who touches a surface colonized with VRE can transmit the organism to a patient. While we may never know the precise answer to this question, the fact that this is even possible should persuade healthcare workers to consider carefully the CDC-approved guidelines for preventing the spread of VRE and consistently apply them to the healthcare setting in which they practice.

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As pointed out by Bonilla et al,[1] a number of investigators have reported that surfaces in the immediate vicinity of patients with vancomycin-resistant enterococci (VRE) frequently become contaminated with the organism. The extent of environmental contamination reported is variable and may depend on whether or not affected patients have diarrhea, the types of patient-care practices that are used to minimize fecal contamination of objects near the patient, the presence or absence of VRE colonization at other body sites, and the adequacy of housekeeping measures.

Contaminated surfaces have the potential to serve as a reservoir for VRE, because the organism can remain viable for days on dry surfaces.[2,3] Bonilla et al[1] have provided additional data regarding the ability of VRE to survive on contaminated surfaces. The fact that a surface artificially contaminated with stool from a colonized patient yielded viable organisms

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