

Letters to the Editor

Apparent Transmission of Two Species of Gram-Negative Rods in Catheterized Residents on a 50-Bed Nursing Home Unit

To the Editor:

Infection control reporting in nursing homes usually lists clinical syndromes (eg, respiratory tract or urinary tract infection), room number, and date. Unfortunately, such listings do not provide much evidence of transmission unless they occur as part of an explosive outbreak. The various infection syndromes may be caused by different organisms and a common strain may produce more than one syndrome (eg, methicillin-resistant *Staphylococcus aureus* may cause pneumonia, wound infection, or urinary tract infection).¹

Infection control surveillance at the Wisconsin Veterans Home includes a review of a computerized database with bacterial isolates for each nursing unit stacked by species, looking for clustering of organisms (ie, identical species and antibiotic sensitivities) in space and time.² In December 2001, we noted that two chronically catheterized residents with acute urinary symptoms on the same 50-bed nursing unit shared two urinary organisms (*Klebsiella pneumoniae* and *Pseudomonas aeruginosa*) within 5 weeks of one another (November 8 and December 14, 2001). The isolates showed no unusual sensitivity patterns. Both individuals were totally dependent on staff for their activities of daily living. They did not socialize directly. Pulsed-field gel electrophoresis (PFGE) was subsequently performed and revealed indistinguishable PFGE patterns for the two species in the two residents. These PFGE results suggest the possibility of transmission. During the previous 6 months, eight additional PFGE analyses had been performed on eight other *P. aeruginosa* isolates at the home: seven were completely unrelated (ie, all varied by > seven bands) and one varied by three bands from the two reported. The third iso-

late had been collected on October 16, 2001, from the urine of an acutely symptomatic, catheterized individual who resided in a different building. We found no direct epidemiologic link between the two individuals with indistinguishable *Pseudomonas* isolates from the same floor and the third individual from a different building with an isolate that varied by only three bands. The three individuals could have shared inter-building caregivers. All three isolates were clustered in time (November 8 to December 14, 2001).

Similar to others, we have demonstrated clustering of gram-negative organisms in nursing homes using PFGE.^{3,4} The other studies included extensive longitudinal or cross-sectional sampling as part of research protocols. In our study, we detected a cluster of transmission by simply reviewing culture reports, identifying two chronically catheterized residents on the same nursing unit who shared two organisms, and further supported the transmission hypothesis with PFGE. The sharing of two organisms might strengthen the possibility. Such investigations are within the scope of many facilities and serve as a powerful personal reminder to staff that organisms may be transmitted in their facility and that lapses in technique have consequences. The Foley catheter should always be approached as a potential reservoir of resistant organisms. It is critical for staff who are caring for those with Foley catheters to maintain excellent hygiene practices as they go from resident to resident in the hope of slowing down the documented phenomenon of clustering and transmission of organisms in nursing home residents who are chronically catheterized.

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Molecular Epidemiology of Methicillin-Resistant *Staphylococcus aureus* in a Veterans Administration Medical Center

To the Editor:

The work of Herwaldt et al. entitled "Molecular Epidemiology of Methicillin-Resistant *Staphylococcus aureus* in a Veterans Administration Medical Center"¹ prompted us to review our clinical experience with individuals who had pulsed-field gel electrophoresis (PFGE) typing of 2 isolates separated in time. Herwaldt et al. reported that of 10 patients who had 2 isolates more than 3 months apart (mean, 56 weeks), 5 patients had more than 1 strain. An isolate was considered to be different if the dice coefficient was less than 85%.¹

We previously reported a 6-year experience performing PFGE on 71 initial methicillin-resistant *S. aureus* (MRSA) isolates in a 721-bed nursing facility.² At this time, our data have extended to 8 years with 113 initial isolates. During the 8-year investigation, we encountered 8 residents with initial MRSA isolates who had been treated with antibiotics because of infection, or "decol-

TABLE
RELAPSE OF METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS*

Case No.	Initial Positive Sites*	Negative Cultures During Remission	Remission Duration (mo)	Band Difference
1	Urine	None	8	2
2	Urine, nose	5 urine, 1 nasal	8	2
3	Conjunctiva, nose	3 conjunctiva, 3 nasal	20	2
4	Urine	2 urine	20	3
5	Urine, wound	2 urine, 3 wound	9	3
6	Nose, sputum	3 nose, 3 sputum	9	4
7	Urine, nose	4 urine, 3 nose	11	5
8	Urine, nose	4 urine, 1 nasal	24	5

* Nasal cultures were performed in all cases.

onized" because extra secretion precautions were an impediment to their freedom in activities of daily living. Individuals were selected for a second PFGE determination when 8 to 24 months had passed without an MRSA isolate. We were interested in the genetic relationship between the 2 isolates and wondered whether the delayed isolate represented relapse or reinfection. The table presents the initial sites infected or colonized, the duration of apparent remission, the number and site of negative cultures obtained during "remission," and the genetic relationship between the initial and the delayed isolates. We recommend 3 negative cultures of previously colonized sites. The authors did not individually treat these residents. In 3 cases, the sets of isolates varied by 2 bands; in 2 cases, by 3 bands; in 1 case, by 4 bands; and in 2 cases, by 5 bands. In our database, a difference of 3 bands corresponds to a dice coefficient of 84.2% to 85.7%.

It is unclear what criteria should be used to differentiate probable relapse from reinfection. The relatively long durations between the sets of isolates could allow time for "genetic drift" with one or two mutations. None of these individuals had moved from their original nursing unit during the period of observation. We have previously reported statistically significant clustering of identical PFGE isolates on nursing units in time and space.² This makes reinfection with a genetically related strain a possibility. Our data, however, make

us suspicious that residents of nursing homes may harbor a strain for prolonged periods despite apparent eradication.

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The authors decline to reply.

A Gown Is a Gown Is a Gown: Or Is It?

To the Editor:

The results of the study by Srinivasan et al.¹ published in the

August 2002 issue of *Infection Control and Hospital Epidemiology* on the effectiveness of cover gowns in reducing the nosocomial transmission of vancomycin-resistant enterococci (VRE) in an intensive care unit warrant comment.

In an earlier study listed in the references,² the researchers concluded that the use of cover gowns had no influence on the rate of transmission. This is particularly noteworthy because the two studies were comparable in length (4 to 5 months), and the same cover gown was used in both. The results of the two studies should have been similar, despite the behavioral component of healthcare worker compliance with gown use and hand hygiene. However, the results were contradictory.

In another study on the influence of cover gowns on VRE,³ the researchers found that gown use proved to be "protective in reducing VRE acquisition in an MICU with high VRE colonization pressure." However, during the 18-month period of this study, personnel wore reusable gowns that were made of a fluid-resistant material (L. Mundy, MD, personal communication, October 3, 2002).

Although the specifics of that fluid-resistant capability are not known, that is not the case with the disposable polyethylene gowns used in the other two studies. The material was described as water resistant after it displayed its level of resistance when subjected to the challenge presented by the American Association of Textile Colorists and Chemists Hydrostatic Head Test 127. Expressed in terms of the height of a column of water, the material was found to resist penetration until the water reached 11.5 cm.² (The maximum height that the test can accommodate is 55 cm, which is the equivalent of 0.8 pound of pressure per square inch.)

The Hospital Infection Control Practices Advisory Committee qualifies its recommendation about the use of a "clean, non-sterile gown"⁴ in the manner that the Occupational Safety and Health Administration has described as the "task and degree of exposure anticipated."⁵ Thus, the selection of a cover gown is not a matter of whether it is reusable or disposable, but rather one that should be predicated on its protective capability for the anticipated level of exposure.⁶