Letters to the Editor

Screening for Methicillin-Resistant *Staphylococcus aureus* in a Nursing Home

To the Editor:

A recent guideline from the Society for Healthcare Epidemiology of America regarding the prevention of nosocomial transmission of multidrug-resistant strains of *Staphylococcus aureus* and *Enterococcus* recommended the application of active surveillance cultures given that current control efforts were generally ineffective. Most of the evidence for this approach was hospital based and observational.[1] This prompted us to review our limited experience with focused clinical screening of the roommates and contacts of carriers residing on the same nursing unit, as well as voluntary screening of staff during 8 years.

When a clinical specimen revealed that a resident was infected with methicillin-resistant *S. aureus* (MRSA), small numbers of focused surveillance cultures were sometimes performed in a "tight circle" to determine whether that individual might be part of a cluster of transmission. These cultures included wounds, Foley catheters, tracheostomies, and gastrostomies ("fertile ground"), as well as respiratory secretions (chronic cough or rhinorrhea), hand dermatitis on the same nursing unit, or the anterior nares of roommates. Concerned staff were offered screening cultures of the nares or wounds through the Employee Health Nurse.

We identified 29 situations in which an index case had a roommate. In 8, screening cultures of roommates were not performed. In 7 situations, cultures of roommates yielded MRSA. In 4, the roommate's MRSA was isolated within days of the index case. (In 3, the isolates were identical and in 1, they varied by 4 bands on pulsed-field gel electrophoresis.[2,3]) In 3 separate situations, a pair continued to share a room following their initially negative cultures, with subsequent discovery of MRSA in the second roommate within 6 to 7 months. (In 1, the roommate's isolate was identical; in 1 situation, they varied by 1 band; and in 1, they were unrelated, with more than 6 bands of difference.) We also identified 14 other situations where roommates were tested and found to be negative soon after the index case was discovered without subsequent discovery of MRSA. Therefore, 5 of 21 roommates had isolates that varied by 1 band or less.

TABLE
NUMBER OF ANNUAL SCREENING CULTURES FOR METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* IN A 721-BED NURSING HOME

Years (August Through July)	No. of Residents (Positive Cultures)	No. of Staff (Positive Cultures)
1994–1995	3	0
1995–1996	34 (2)	45 (2)
1996–1997	26 (2)	52 (1)
1997–1998	30 (2)	12
1998–1999	11 (0)	0
1999–2000	22 (4)	14 (1)
2000–2001	10 (0)	11
2001–2002	36 (5)	6

In addition, 13 non-roommate isolates were discovered on the same floor or nursing unit during screening around an index case (9 residents, 4 staff). In 9, the secondary cases were genetically identical, in 1 there were 3 bands of difference, and in 3 they were unrelated. The table lists the numbers of staff members and residents screened each year with the numbers of positive results in parentheses. Overall, 3% of staff screened with nasal cultures were carrying MRSA, whereas 8% of screened residents were carriers.

Bradley et al. reported that only 3% of patients at risk for acquiring MRSA from a roommate became colonized. The mean follow-up was 3.6 months.[4] Our data with longer follow-up indicate a higher percentage. If we use a threshold of 1 band of difference to indicate transmission of MRSA, we calculate that transmission occurred in 5 (24%) of 21 roommates. This underscores the recommendation that MRSA carriers be cared for in private rooms or cohorted if possible. Because similar strains were clustered on nursing units, it is possible that roommates acquired MRSA on the unit rather than from the roommate.

Screening non-roommates of an index case on a nursing unit also yielded evidence of transmission. This may be especially helpful if the index case is independently mobile with marginal hygiene and restrictions of freedom in activities of daily living are being contemplated. This practice offers an earlier indication of transmission than would be provided by routine cultures of infected secretions where evidence of transmission may not manifest itself for months.

Declining numbers of staff seeking screening probably indicates "acclimatization." In 1994 to 1995, an ongoing clustering of identical MRSA isolates in a single building ended following successful treatment of two staff members who carried that strain in their noses. Our limited experience with focused screening followed by pulsed-field gel electrophoresis has yielded useful information.

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Paul J. Drinka, MD
Mary E. Stemper, MS, RM (AAM), MT (ASCP)
Cathy D. Gauerke, MT
Janice E. Miller, MT
Wisconsin Veterans Home
King, Wisconsin
Kurt D. Reed, MD
Marshfield Laboratories
Marshfield, Wisconsin

Semipermeable Dressing Used to Cover Smallpox Vaccination Sites as a Cause of Skin Damage

To the Editor:

Vaccinia was discontinued in the United States as a routine vaccine in 1971. In 2003, the Advisory Committee on Immunization Practices (ACIP) recommended the vaccination of selected healthcare workers (HCWs).[1] The Centers for Disease Control and Prevention provided recommendations for site care of HCWs designed to minimize the risk of disease transmission from HCWs to patients.[2] More recently, the Healthcare Infection Control Practices Advisory Committee (HICPAC) has provided additional draft recommendations for vaccination site care for HCWs.[3] ACIP and HICPAC have recommended that vaccination sites be covered with a sterile gauze pad and semipermeable dressing.

We report the frequency of adverse local skin reactions to the transparent dressing, Tegaderm (3M Health Care, St. Paul, MN), provided by our state health department and used on employees of our hospital. We followed the recommended protocol for the placement of site dressings.[2,3] We vaccinated 28 HCWs on March 5, 2003. All HCWs were evaluated at 48 hours and at 7 days.

Twenty-one (75%) of the HCWs complained of itching and burning and developed erythema in areas of contact with the semipermeable dressing adhesive at 48 hours. At 1 week, all volunteers had evidence of a vaccine take. Between days 5 and 7, 7 (25%) of the HCWs required an alternative dressing due to local skin irritation. The alternative dressing was composed of two to three layers of 4 × 4–cm sterile gauze pads secured with sterile gauze wrap and tape. By day 7, 5 of the HCWs had developed vesicles under the adhesive and 9 had skin tears or open skin. Two HCWs were relieved from duty and provided oral diphenhydramine hydrochloride: one HCW at day 7 missed 2 days of work and one HCW on day 8 missed 1 day of work following vaccination.

Twelve days after vaccination, we began using a new semipermeable dressing, Curafoam Island (Kendall Co., Mansfield, MA), on HCWs with significant skin reactions. All dressings were changed every 3 days until the scab separated between days 19 and 21. On March 18, 27 HCWs received vaccination. All HCWs received a Curafoam Island dressing, which consists of a one-piece dressing that includes a central sterile foam covering semipermeable material. The alternative dressing was approved by the North Carolina State Health Department (Judith Agner, RN, personal communication, March 14, 2003). Dressings were changed every 3 days or when wet or nonadherent. Only 1 HCW developed skin irritation. This individual, after having the dressing changed to one using Tegaderm, continued to manifest skin irritation and developed erythema multiforme on day 8 that was believed to be unrelated to the dressing.

The more frequent skin reactions associated with Tegaderm may be due to the type of adhesive used in the dressing, traction on the skin during use of the dressing, or removal of the dressing. We believe that traction is the most likely cause of the skin irritation. This problem may possibly be minimized by ensuring that the dressing is applied in such a manner as to not produce skin traction and removed after anchoring the skin. Alternatively, a different semipermeable dressing may be used.

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Elaine Crittenton, RN, CNOR
Alonzo Davis, PhD, MD
Department of Infection Control
Carteret General Hospital
Morehead City, North Carolina
Karen K. Hoffmann, RN, MS, CIC
William A. Rutala, PhD, MPH
David J. Weber, MD, MPH
University of North Carolina at
Chapel Hill School of Medicine
Chapel Hill, North Carolina