

ed. Efficacy was estimated by comparing the incidence of *S. aureus* bacteremia in the patients who received the vaccine with the incidence of *S. aureus* bacteremia in the control patients.

Reactions to the vaccine were found to be generally mild to moderate, and most resolved within 2 days. The capsular polysaccharides elicited an antibody response of at least 80 µg/mL (the estimated minimal level conferring protection) in 80% of patients for type 5 and in 75% of patients for type 8. The efficacy during weeks 3 to 54 was only 26% ($P = .23$). However, between weeks 3 and 40 after vaccination, *S. aureus* bacteremia developed in 11 of 892 patients in the vaccine group who could be evaluated for bacteremia, as compared with 26 of 906 patients in the control group (estimate of efficacy, 57%; 95% confidence interval, 10% to 81%; nominal $P = .02$).

The researchers concluded that for patients receiving hemodialysis, a conjugate vaccine can confer partial immunity against *S. aureus* bacteremia for approximately 40 weeks, after which protection wanes as antibody levels decrease.

FROM: Shinefield H, Black S, Fattom A, et al. Use of a *Staphylococcus aureus* conjugate vaccine in patients receiving hemodialysis. *N Engl J Med* 2002;346:491-496.

Promotion of Prescription Drugs to Consumers

Spending on prescription drugs is the fastest growing component of the healthcare budget. There is public concern about the possibility that direct-to-consumer advertising of prescription drugs will result in inappropriate prescribing and higher costs of care. Guidelines issued in 1997 by the Food and Drug Administration (FDA) regarding advertising to consumers through electronic media are considered by some to be responsible for unleashing a flood of direct-to-consumer advertising.

Rosenthal and colleagues from the Harvard School of Public Health examined industry-wide trends for various types of promotion using data on spending for promotional purposes and sales of prescription drugs. They also tracked the relation between promotional efforts and sales over time. They documented the variation in direct-to-consumer advertising among and within five therapeutic classes of drugs and compared the variation in the intensity of such advertising with the variation in the intensity of promotion to healthcare professionals.

The results indicated that annual spending on direct-to-consumer advertising for prescription drugs tripled between 1996 and 2000, when it reached nearly \$2.5 billion. Despite this increase, such advertising accounts for only 15% of the money spent on drug promotion and is highly concentrated on a subgroup of products. Within a therapeutic class, there is marked variation in the intensity of direct-to-consumer advertising, and the amount of such advertising for specific products fluctuates over time. The initial surge in direct-to-consumer advertising preceded the 1997 FDA guidelines that clarified the rules for electronic

direct-to-consumer advertising, and thus the 1997 guidelines may not have been the most important reason for the overall increase.

The researchers concluded that although the use of direct-to-consumer advertising has grown disproportionately in relation to other forms of promotion, it continues to account for a small proportion of total promotional efforts. Nevertheless, physicians must assist patients in evaluating health-related information obtained through direct advertising.

FROM: Rosenthal MB, Berndt ER, Donohue JM, Frank RG, Epstein AM. Promotion of prescription drugs to consumers. *N Engl J Med* 2002;346:498-505.

Community-Acquired Outbreak of Foodborne Illness Caused by MRSA

Infections with methicillin-resistant *Staphylococcus aureus* (MRSA) are increasingly community acquired. Jones and colleagues from the Tennessee Department of Health, the Centers for Disease Control and Prevention, and Vanderbilt University School of Medicine investigated an outbreak in which a food handler, a food specimen, and three ill patrons had positive results on culture for the same toxin-producing strain of MRSA.

The investigation began when three members of the same family became ill within 3 to 4 hours of eating barbecued pork and coleslaw purchased from a convenience store. *S. aureus* was recovered from the stool cultures of these individuals, from one sample from the coleslaw, and from five nasal swabs from the three food handlers at the convenience store. Isolates from the stool cultures of the three family members, from the sample from the coleslaw, and from the nasal swab of one of the food handlers were indistinguishable by pulsed-field gel electrophoresis. This strain produced enterotoxin C and was identified as MRSA (resistant to penicillin and oxacillin, but sensitive to all other antibiotics tested). The food handler with MRSA did report visiting an elderly relative in a nursing home approximately two to three times the month before the outbreak. The relative had an MRSA infection and subsequently died.

This outbreak suggests that as MRSA becomes increasingly common in the community, it will be implicated in clinical manifestations of staphylococcal infection. This is the first report of an outbreak of gastrointestinal illness caused by community-acquired MRSA.

FROM: Jones TF, Kellum ME, Porter SS, Bell M, Schaffner W. An outbreak of community-acquired foodborne illness caused by methicillin-resistant *Staphylococcus aureus*. *Emerg Infect Dis* 2002;8:82-84.

Interactive Education Increases Sinkless Hand Washing

Despite current guidelines that recommend hand cleansing before and after patient contact, the adherence of

healthcare workers to recommendations for hand hygiene remains low. To improve the rate of adherence with hand hygiene, researchers from Cook County Hospital installed sinkless, alcohol-based degermers and delivered inservice education to hospital personnel using an interactive audience response (AR) system.

The researchers conducted 479 hours of direct hand hygiene observations on 24 patient-care units at 4 facilities during a 14-month period. Adherence to hand hygiene was defined as any act of hand antisepsis with soap and water or the alcohol-based degermer after patient contact. A 40-minute AR presentation was developed that contained questions related to hand hygiene and included educational slides on effectiveness, convenience, and benefits to skin of sinkless degermers.

Among the 4 study hospitals, overall adherence to hand hygiene was 37%. Hospital-specific rates varied considerable among the 4 facilities (range, 26% to 46%). Rates of hand hygiene after patient contact increased significantly in hospitals A and B. In hospital C, the rate of hand hygiene remained stable, but there was an increase in the use of the alcohol-based degermer. At hospital D, which did not receive the AR intervention, the adherence with hand hygiene remained low and showed no significant change over time.

The researchers concluded that the introduction of sinkless degermers in conjunction with an interactive educational inservice resulted in increased adherence with hand hygiene.

FROM: Vernon MO, Peterson BJ, Welbel SF, Trick WE, Weinstein RA. Impact of an interactive educational intervention on hand hygiene adherence rates in a multicenter study. Presented at the 41st Annual Interscience Conference on Antimicrobial Agents and Chemotherapy; December 16–19, 2001; Chicago, IL. Abstract no. K1331.

Rings as a Risk Factor for Hand Colonization in an Intensive Care Unit

Risk factors for potential pathogens on the hands of registered nurses were studied in a 27-bed surgical intensive care unit. Using a glove juice technique, Hayes and colleagues from Cook County Hospital, the Centers for Disease Control and Prevention, and Rush Medical College sampled the hands of 66 nurses during 14 weeks. Potential risk factors were skin condition, dominant hand, glove use, ring wear, nail length, nail application, and number of assigned patients.

The nurses' hands were found to be contaminated with methicillin-resistant coagulase-negative staphylococci (71%), gram-negative bacilli (15%), *Staphylococcus aureus* (14%), *Candida* species (12%), and vancomycin-resistant enterococci (2.1%). With the use of univariate analysis, several risk factors were identified for hand contamination. With the use of multivariate analysis, only ring wear remained an independent risk factor for contamination by presumably transient organisms (ie, methicillin-resistant coagulase-negative staphylococci excluded) regardless of

the category of organism. The colonization frequencies of those who did and those who did not wear rings were 25% and 9.5% for gram-negative bacilli, 25% and 9.5% for *S. aureus*, and 21% and 8.5% for *Candida* species. With ring wear, there was a stepwise increase in hand contamination by any transient organism: no rings, 29%; 1 ring, 76%; and more than 1 ring, 94%. Ring wear was also associated with a greater median number of colony-forming units for gram-negative bacilli (325 for ring wear vs 50 for no rings) and *Candida* species (120 for ring wear vs 10 for no rings).

The researchers concluded that wearing rings was a major risk factor for hand carriage of many potential pathogens.

FROM: Hayes RA, Trick WE, Vernon MO, et al. Ring use as a risk factor for hand colonization in a surgical intensive care unit. Presented at the 41st Annual Interscience Conference on Antimicrobial Agents and Chemotherapy; December 16–19, 2001; Chicago, IL. Abstract no. K-1333.

Vancomycin Versus Cefazolin Prophylaxis for Cardiac Surgery When the Prevalence of Methicillin-Resistant Staphylococcal Infections Is High

Finkelstein and colleagues from Haifa, Israel, conducted a study to compare the efficacy of vancomycin prophylaxis with that of cefazolin prophylaxis in preventing surgical-site infections in a tertiary-care medical center with a high prevalence of methicillin-resistant staphylococcal infections. All patients 18 years and older scheduled for cardiac surgery requiring sternotomy were randomly assigned to receive vancomycin (1 g every 12 hours) or cefazolin (1 g every 8 hours). Prophylaxis was started during the induction of anesthesia and continued for only 24 hours. Patients were followed for at least 30 days (1 year for those receiving a cardiac implant). Surgical-site infections were stratified according to the National Nosocomial Infections Surveillance System risk index.

Of the 885 patients included in the study, 452 received vancomycin and 433 received cefazolin. The overall surgical-site infection rates were similar in the two groups (43 cases in the vancomycin group [9.5%] vs 39 cases in the cefazolin group [9.0%], $P = .8$). Superficial and deep incisional surgical-site infection rates were also similar in the two groups. There was a trend toward more frequent organ-space infections and infections with beta-lactam-resistant organisms among patients receiving cefazolin, but this trend did not reach statistical significance. In contrast, surgical-site infections caused by methicillin-susceptible staphylococci were significantly more common in the group receiving vancomycin (17 cases [3.7%] vs 6 cases [1.3%], $P = .04$). The durations of postoperative hospitalization and the mortality rates were similar in the two groups.

The authors concluded that this trial suggests that vancomycin and cefazolin have similar efficacies in preventing surgical-site infections in cardiac surgery.

FROM: Finkelstein R, Rabino G, Mashiah T, et al.