

A survey was sent to 600 pediatricians. Three hundred eighty (68%) of the 563 pediatricians who were located responded to the survey. Of these 380 pediatricians, 279 provided routine immunizations to children. Of the 270 pediatricians who vaccinated children with hepatitis B vaccine and indicated their practice regarding the birth dose, 50% offered the first dose of hepatitis B vaccine at birth to all infants; the rest either offered the vaccine at birth only to infants of hepatitis B surface antigen (HBsAg)-positive mothers and mothers whose serostatus is unknown, or did not offer the birth dose to any infants. Practicing in the inner city, working for a medical school or government hospital, and living in a state with universal immunization supply policies were associated with the respondent's giving the birth dose. The strongest perceived barriers to giving the birth dose in the hospital were the difficulty tracking these vaccines (39%), the increased cost (27%), and the lack of reimbursement from insurance companies (26%). If a combination vaccine that includes hepatitis B; diphtheria, tetanus, and pertussis (diphtheria and tetanus toxoids and acellular pertussis vaccine); and polio (inactivated poliovirus vaccine) antigens become available in the near future, then 38% of physicians who currently give the birth dose to all infants would prefer to wait until 2 months of age to initiate hepatitis B immunization.

According to the researchers, this study demonstrates that most pediatricians are abiding by current recommendations, which fits the model of physician agreement before adoption. However, as new vaccines are introduced into the mandated childhood immunization program, physicians will trend toward combination vaccines and delaying administering the hepatitis B vaccine until 1 to 2 months of age. The delay in immunization will necessitate the early and focused identification of HBsAg-positive pregnant women to ensure that these particular infants are immunized at birth. Finding methods to improve the universal screening of women for HBsAg is warranted, because, in 1993, only 22% of infants born to mothers of unknown HBsAg status received the birth dose of HBV vaccine.

FROM: Cooper A, Yusuf H, Rodewald L, Malik T, Pollard R, Pickering L. Attitudes, practices, and preferences of pediatricians regarding initiation of hepatitis B immunization at birth. *Pediatrics* 2001;108:E98.

Epidemiology of Community-Acquired MRSA in Minnesota

Naimi et al. from the Minnesota Department of Health reviewed records from 10 Minnesota health facilities to identify cases of methicillin-resistant *Staphylococcus aureus* (MRSA) infection that occurred from 1996 to 1998 and to identify which cases were community acquired. Susceptibility testing and pulsed-field gel electrophoresis (PFGE) subtyping were performed on available isolates. A total of 354 patients (median age, 16 years) with community-acquired MRSA infection were identified. Most case patients (299 [84%]) had skin infec-

tions, and 103 (29%) were hospitalized. More than 90% of isolates were susceptible to all antimicrobial agents tested, with the exception of beta-lactams and erythromycin. Of 334 patients treated with antimicrobial agents, 282 (84%) initially were treated with agents to which their isolates were nonsusceptible. Of 174 Minnesota isolates tested, 150 (86%) belonged to one PFGE clonal group. Community-acquired MRSA infections were identified throughout Minnesota. Although most isolates were genetically related and susceptible to multiple antimicrobials, they were generally nonsusceptible to initial empirical therapy.

FROM: Naimi TS, LeDell KH, Boxrud DJ, et al. Epidemiology and clonality of community-acquired methicillin-resistant *Staphylococcus aureus* in Minnesota, 1996-1998. *Clin Infect Dis* 2001;33:990-996.

Perioperative Prophylaxis With Vancomycin May Be Cost-Effective for Coronary Artery Bypass Graft Surgery

Routine use of vancomycin for perioperative prophylaxis is discouraged, principally to minimize microbial resistance to it. However, outcomes and costs of this recommendation have not been assessed. Zanetti et al. from Channing Laboratory, Brigham and Women's Hospital, used decision-analytic models to compare clinical results and cost-effectiveness of no prophylaxis, cefazolin, and vancomycin in coronary artery bypass graft surgery. They focused on patients who underwent coronary artery bypass graft surgery because this is a large, relatively homogeneous population with substantial risk for serious surgical-site infection.

In the base case, vancomycin resulted in 7% fewer surgical-site infections and 1% lower all-cause mortality and saved \$117 per procedure, compared with cefazolin. In turn, cefazolin resulted in substantially fewer infections and deaths and lower costs than no prophylaxis.

The authors concluded that perioperative antibiotic prophylaxis with vancomycin is usually more effective and less expensive than perioperative antibiotic prophylaxis with cefazolin. Data on vancomycin's impact on resistance are needed to quantify the trade-off between individual patients' improved clinical outcomes and lower costs and the future long-term consequences to society.

FROM: Zanetti G, Goldie SJ, Platt R. Clinical consequences and cost of limiting use of vancomycin for perioperative prophylaxis: example of coronary artery bypass surgery. *Emerg Infect Dis* 2001;7:820-827.

Surveillance of Postpartum Infections Using Automated HMO Data

The epidemiology of postpartum infections has not been well characterized. In part, this is because of the limitations of surveillance systems, which usually monitor infections that are recognized during hospitalization.

However, most postpartum and non-obstetric postsurgical infections occur after hospital discharge. Decreasing lengths of hospital stay may further compromise detection of these infections. Several methods for postdischarge surveillance of postpartum infections have been evaluated.

Yokoe et al. used the inpatient and outpatient data collected by a health maintenance organization (HMO) to identify postpartum infections and describe the epidemiology of these infections. Screening was done on automated ambulatory medical records, hospital and emergency room claims, and pharmacy records of 2,826 HMO members who gave birth during a 30-month period. Full-text ambulatory records were reviewed for the 30-day postpartum period to confirm infection status for a weighted sample of cases.

The overall postpartum infection rate was 6.0%, with rates of 7.4% following cesarean section and 5.5% following vaginal delivery. Rehospitalization; cesarean delivery; antistaphylococcal antibiotics; diagnosis codes for mastitis, endometritis, and wound infection; and ambulatory blood or wound cultures were important predictors of infection.

The researchers concluded that the use of automated information routinely collected by HMOs and insurers allows efficient identification of postpartum infections not detected by conventional surveillance.

FROM: Yokoe DS, Christiansen CL, Johnson R, et al. Epidemiology of and surveillance for postpartum infections. *Emerg Infect Dis* 2001;7:837-841.

Nutrition and Nosocomial Infections in Critically Ill Patients

Caparros et al. from Madrid, Spain, conducted a study to evaluate the effects of a high-protein formula enriched with arginine, fiber, and antioxidants compared with a standard high-protein formula in early enteral nutrition in critically ill patients. Two hundred twenty patients were enrolled in a prospective, multicenter, single-blind, randomized trial in 15 Spanish intensive care units (ICUs). The primary end points were the incidence density rates of nosocomial infections, ICU and hospital length of stay, ICU and in-hospital mortality, and mortality at the 6-month follow-up.

The patients in the control and study groups had similar baseline characteristics. The study group had a lower incidence of catheter-related sepsis (0.4 episodes/1,000 ICU-days) than did the control group (5.5 episodes/1,000 ICU-days), with a relative risk (RR) of 0.07 (95% confidence interval [CI]₉₅, 0.01 to 0.54; $P < .001$). There were no differences in the incidence of ventilator-associated pneumonia, surgical infection, bacteremia, or urinary tract infections between the two groups. ICU mortality (16% in the study group vs 21% in the control group; RR, 1.5; CI₉₅, 0.7 to 2.9) and in-hospital mortality (21% in the study group vs 30% in the control group; RR, 1.6; CI₉₅, 0.9 to 3) were similar without differ-

ences in survival at the 6-month follow-up (75% in the study group vs 68% in the control group, $P = .15$). Patients in the study group who were treated for 2 or more days showed a strong trend for better survival at the 6-month follow-up (76% in the study group vs 67% in the control group, $P = .06$). Medical patients treated with the study diet had better survival than did medical patients in the control group (76% in the study group vs 59% in the control group, $P < .05$).

The authors concluded that critically ill patients fed a high-protein diet enriched with arginine, fiber, and antioxidants had a significantly lower catheter-related sepsis rate than did patients fed a standard high-protein diet. There were no differences in mortality or ICU and hospital length of stay. The subgroup of patients fed the study diet for more than 2 days showed a trend toward decreased mortality.

FROM: Caparros T, Lopez J, Grau T. Early enteral nutrition in critically ill patients with a high-protein diet enriched with arginine, fiber, and antioxidants compared with a standard high-protein diet: the effect on nosocomial infections and outcome. *Journal of Parenteral and Enteral Nutrition* 2001;25:299-308.

Determinants of *S. aureus* Nasal Carriage

Cole et al. from the UCLA School of Medicine screened 230 donors of diverse ethnic and socioeconomic backgrounds and identified 62 (27%) whose nasal secretions were colonized by *Staphylococcus aureus*. In 18 donors in whom the various regions of the nasal luminal surface were separately sampled, the predominant region of *S. aureus* colonization was the moist squamous epithelium on the septum adjacent to the nasal ostium. Nasal fluid from carriers was defective in killing endogenous *S. aureus* and nasal carrier isolates of *S. aureus* but not a laboratory *S. aureus* strain.

Transmission electron microscopy revealed that *S. aureus* isolates incubated in nasal fluid from carriers for 2 hours at 37°C were less damaged than those incubated in noncarrier fluid and were coated with an electron-dense layer. Compared with that from healthy donors and patients with acute rhinitis, nasal fluid from carriers contained elevated concentrations of the neutrophil-derived defensins human neutrophil peptides 1 to 3 (47-fold and 4-fold increases, respectively), indicative of a neutrophil-mediated inflammatory host response to *S. aureus* colonization. The concentration of the inducible epithelial antimicrobial peptide human beta-defensin 2 was also highly elevated compared with that in healthy donors, in whom the level was below the detection limit, or patients with acute rhinitis (6-fold increase). Thus, *S. aureus* takes hold in nasal fluid that is permissive for colonization and induces a local inflammatory response that fails to clear the colonizing bacteria.

FROM: Cole AM, Tahk S, Oren A, et al. Determinants of *Staphylococcus aureus* nasal carriage. *Clin Diagn Lab Immunol* 2001;8:1064-1069.