



BY MARY ANNE JACKSON, M.D.

ID CONSULT

What's Hot for the New Year?

The future is here. It's just not widely distributed yet.

—William Gibson

To answer the question of what's going to be hot in 2007, we need only look at the important advances in 2006.

Listed below are my top infectious disease developments from the prior year, which may have an impact on our practice in the coming year:

► Should we still be concerned about meningitis in the infant aged 2-24 months who has fever without a source? The good news is that overall rates of pneumococcal invasive disease are reduced compared to the pre-pneumococcal vaccine era, with the most significant reduction in the number of cases of occult bacteremia. However, we saw more cases of pneumococcal meningitis last year than in any other year in the last decade in our institution, almost all caused by nonvaccine serotypes. Continue to be vigilant in assessing the febrile infant without localizing findings, and carefully document immunization status to identify the underimmunized.

► Have we come to a new era in evaluation and management of pediatric urinary tract infection? For about 25 years, the recommendation has been that a voiding cystourethrogram be done after the first febrile UTI, but this has not been substantiated by current studies. Who should have imaging? Those who fail to respond after 72 hours of effective antibiotics, those infected with an unusual organism, those in whom close follow-up of the patient is not possible, those with abnormal urine stream or abdominal mass, and those with recurrence of a febrile UTI. The utility of prophylactic antibiotics to prevent recurrence of a febrile UTI or renal scarring is not known; some data suggest prophylaxis is not necessary. The knowledge that the risk of urosepsis is highest in youngest infants and recurrence is highest in the first 6 months af-

ter a UTI should be factored in when making the decision concerning prophylaxis. Look for the upcoming American Academy of Pediatrics policy, which will fully delineate these guidelines.

► Will rotavirus epidemiology change, now that the new vaccine has been implemented? Virtually every child is infected with rotavirus by 24 months of age; two-thirds of children are infected more than once. It is estimated that approximately 1 in 17 children will require an emergency department visit and approximately 1 in 65 children will require hospitalization. If the vaccine successfully eliminates 98% of severe cases, the impact on hospitalizations should be dramatic. The vaccine is given orally, with the first dose given between 6 and 12 weeks of age and two additional doses administered at 4- to 10-week intervals. All three doses should be completed before a child reaches 32 weeks of age. This restrictive timing of the immunization schedule has proved problematic, however, and full implementation may take another year or more.

► Should we remove a vaccine-preventable infection from the eradicated list? The resurgence of mumps in 2006 was unexpected. Approximately 5,000 cases were reported starting in December 2005, many occurring in individuals with a history of two doses of vaccine. This would not be unexpected in a highly immunized population, but the percentage of such cases still seems high to me and is not totally explained. The Advisory Committee on Immunization Practices now has redefined evidence of mumps immunity. Practitioners should ensure that preschool children and adults not at high risk have had one dose of a live mumps virus vaccine, and that two doses have been given for children in grades K-12 and adults at high risk (for example, persons who work in health care facilities, international travelers, and students at post-high school educational institutions). Immunity can be assumed for those who were born before 1957, have documentation of physician-diagnosed mumps, or laboratory evidence of immunity.

► What's new in influenza immunization? Those of you in practice who have

struggled with obtaining influenza vaccine for your at-risk pediatric patients are probably wondering how we will ever improve the current distribution system and whether school-based immunization programs will be feasible in the future. A recent *New England Journal of Medicine* article sheds some light on the matter. (See story, page 4.) Investigators at the University of Maryland in Baltimore used intranasal live attenuated virus vaccine in a school-based immunization strategy to see if it reduced outcomes related to influenza-like illness (ILI). Vaccinated children were less likely to become ill, and ILI in adults in the same household also was reduced. There were lower absentee rates for flulike illness among the children, fewer lost workdays among parents, and a reduced rate of use of health care. Sounds good, but we may still be some years away from a universal program targeting flu in school-age children.

► Have we forgotten chickenpox? The average pediatric resident (as well as many young attendings) has never seen clinical varicella. Cases have steadily declined 80%-85% in surveillance sites since licensure of the vaccine. From 1995 to 2001, varicella hospitalizations declined by 72%, and deaths among those 50 years old and younger decreased by 75% or more. A second dose of varicella vaccine is recommended at 4-6 years of age since we learned that 15%-24% of children who have received one dose are not fully protected. Additionally, one dose of the vaccine may not provide immunity into adulthood, when chickenpox is more severe. The Advisory Committee on Immunization Practices also recommends that children, adolescents, and adults who previously received one dose receive a second. The future epidemiologic impact of this disease is not entirely clear.

► How is the new vaccine to prevent cervical cancer being received? The licensure and implementation of the human papillomavirus vaccine has challenged pediatricians to educate themselves and their families about the importance of adolescent immunization programs. The Infectious Diseases Society of America is working on a document delineating the

working principles and actions needed to strengthen U.S. adult and adolescent immunization coverage. Pediatricians are encouraged to offer immunization at all encounters with teens, and financial structures to ensure opportunities for immunization in nontraditional settings (school-based clinics) are being discussed. Getting public and private payers to provide coverage for vaccines is key, and is a current barrier for some physicians to providing immunizations.

► Speaking of adolescent immunization, is eradication of whooping cough achievable now that the adolescent/adult formulation of tetanus-diphtheria-acellular pertussis vaccine (Tdap) has been licensed? Although the incidence of pertussis in North America declined by more than 90% during the last half century as a result of universal childhood pertussis immunization, there has been a steady increase in cases during the last decade, particularly among adolescents and adults. One study found that universal immunization of adolescents 10-19 years old would be expected to prevent between 400,000 and 1.8 million cases and would save between \$1.3 billion and 1.6 billion. Pediatricians should also encourage the use of Tdap vaccine for adults (including themselves) who will have close contact with an infant less than 12 months old, ideally at least 1 month before beginning such contact.

► What is the risk of Guillain-Barré syndrome in adolescents who receive meningococcal conjugate vaccine? As of September 2006, 17 cases of GBS had been confirmed within 1 month of vaccination. Based on current data, the number of excess cases of GBS for every 1 million doses distributed to persons aged 11-19 years is approximately 1.25 (CI = 0.058-5.99). Although a surge of cases following vaccine licensure has not been noted, the timing issue is interesting in that most cases occurred 2 weeks after the patient received the vaccine. ■

DR. JACKSON is chief of pediatric infectious diseases at Children's Mercy Hospital, Kansas City, and professor of pediatrics at the University of Missouri-Kansas City.

Flags Cited for Treating Complex Cases of Acute Otitis Media

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Several factors can help guide empiric therapy for acute otitis media by flagging patients at higher risk for infection with multiple organisms or resistant organisms, Dr. Mendel E. Singer said in a poster presentation at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

Patients with bilateral infection, those with a history of acute otitis media, or patients infected in the fourth quarter of the year may warrant high-dose aminopenicillin therapy rather than low doses, said Dr. Singer, an epidemiologist at Case

Western Reserve University, Cleveland.

He and associates retrospectively analyzed pooled data from 14 studies of patients aged 3-36 months treated at Soroka University Medical Center, Beer Sheva, Israel, for acute otitis media from 1994 to 2004. Among 967 patients, 23% were infected with multiple pathogens.

The 63% of patients with bilateral ear infections were 53% more likely to have multiple pathogens than patients with unilateral infections, he said at the meeting, sponsored by the American Society for Microbiology.

Analysis of drug resistance in a subset of 333 patients infected with *Streptococcus pneumoniae* found that 33% had organisms

resistant to the treatment drug. Data showed high rates of resistance to trimethoprim-sulfamethoxazole (in 67% of patients treated with these drugs) and to the cephalosporins cefdinir, cefaclor, or cefuroxime (in 59% of patients treated with these). There was moderate resistance to azithromycin (in 23%) and to low-dose regimens of the aminopenicillins amoxicillin or amoxicillin clavulanate (in 16% of patients given these drugs). Only 1% of isolates treated with high-dose aminopenicillins were resistant to therapy.

S. pneumoniae was 32% more likely to be drug-resistant in girls than in boys. A history of prior acute otitis media nearly tripled the risk for resistant *S. pneumoniae*.

Infection in the fourth quarter of the year doubled the risk for resistance.

The study suggests that patients with any of these risk factors might best be treated empirically with high-dose amoxicillin or amoxicillin-clavulanate, Dr. Singer said. Patients without these characteristics may respond sufficiently to low doses of these drugs or to treatment with the other medications used in the study.

Dr. Singer has no affiliations with the companies that market the drugs discussed.

Besides *S. pneumoniae*, infection with *Haemophilus influenzae* was common, found in nearly half of patients, the physician said. ■