

MENINGITIS, PNEUMOCOCCAL: Notes about the Disease

Although it has, fortunately, not replaced acute otitis media as the most common manifestation of pneumococcal disease in infants and young children, pneumococcal meningitis is historically one of the “big three” types of bacterial meningitis in young children, the other two being meningococcal and *Haemophilus influenzae* type b (Hib) meningitides. Because of the success of the Hib immunization program in the United States, pneumococcal meningitis has now replaced Hib meningitis as the leading cause of bacterial meningitis for children <5 years old. Unfortunately, it has the highest case-fatality ratio of the big three.

Streptococcus pneumoniae, the pneumococcus, shares a property with the other two classical causes of pediatric bacterial meningitis that increases its pathogenicity: the ability of some strains to form a capsule. Actually, pneumococcal strains that do not produce polysaccharide capsules are non-pathogenic. Because persons with certain chronic diseases (e.g., sickle cell disease and other hemoglobinopathies, anatomic asplenia) and certain other groups are at high risk for encapsulated bacterial diseases such as invasive pneumococcal disease, it is recommended that 2-4 year-old children with these diseases or risk factors receive the 7-valent pneumococcal conjugate vaccine (PCV7), available since 2000. All children 2-23 months of age should be immunized with PCV because of the heightened pneumococcal meningitis risk during the first two years of life.¹

Young children are not the only people at elevated risk for pneumococcal invasive disease. The elderly, with their higher rates of pneumococcal pneumonia and meningitis, are in this group and should receive the 23-valent polysaccharide pneumococcal vaccine (PPV23), available since 1983. Persons under five years of age do not respond as well immunologically to the unconjugated PPV23 as do older children and adults.

Those involved with communicable disease control should be aware that, even though for many years pneumococcal infections responded almost universally to penicillin, significant levels of antibiotic resistance have arisen in recent decades, even in NC.² It is also important to know that day care center contacts to a case of invasive pneumococcal disease (including meningitis) would only rarely benefit from antibiotic chemoprophylaxis.

1. Centers for Disease Control and Prevention. [Recommendations of the Advisory Committee on Immunization Practices (ACIP): Preventing Pneumococcal Disease Among Infants and Young Children]. *MMWR Recommendations and Reports* 2000; 49(RR09):[1-38], www.cdc.gov/MMWR/preview/mmwrhtml/rr4909a1.htm.
2. CR Stein, DJ Weber, and M. Kelley, “Using Hospital Antibiogram Data to Assess Regional Pneumococcal Resistance to Antibiotics,” *Emerg Infect Dis* 9 (2003): 211-6, www.cdc.gov/ncidod/EID/vol9no2/pdfs/02-0123.pdf.