

## MENINGOCOCCAL DISEASE, INVASIVE: Notes about the Disease

A case of meningococcal meningitis or meningococemia (meningococcal septicemia) in a North Carolina community is likely to stir considerable public anxiety, particularly if the case is fatal. Much of this anxiety stems from the suddenness with which a child (or adult) can go from a state of apparent good health to a comatose state with a florid petechial rash within just a few hours. Even with proper treatment, the case-fatality ratio can still approach 15%. Some cases, particularly those of meningococemia, seem destined to progress quite rapidly with a poor prognosis.

The meningococcus (*Neisseria meningitidis*) is an encapsulated Gram-negative bacterium comprising 13 different serogroups. In the United States, groups B, C, Y, and W-135 are the most frequent causes of invasive disease. Serogroup A, which has caused widespread epidemics in Africa, is not often seen here. Notwithstanding, occasional small clusters of cases caused by other serogroups do occur from time to time.

The highest attack rates for invasive meningococcal disease are in young children—particularly infants—and age-specific attack rates fall rapidly during the first five years of life, remain level for about a decade, then rise slightly during the late teens and early 20s. The elevated risk during the late teen years, coupled with stress and close living quarters, helps explain why military recruits living in crowded barracks and—more recently recognized—freshman college students living in dormitories are considered top priority candidates for receipt of meningococcal vaccine. As tetravalent meningococcal conjugate vaccine (MCV4) supplies become available, routine immunization of 11-12 year-olds (and teens entering high school during the 2005-2008 period) is also recommended so that a population of immune adolescents can be established.<sup>1</sup> Even though children under five years of age have the highest rates of meningococcal disease, both the MCV4 and the older tetravalent polysaccharide vaccine evidence poor immunogenicity in this age group, and their use is accordingly restricted.

The public health worker confronted with a case of meningococcal disease should carefully assess the necessity for chemoprophylaxis or immunization of contacts of that case. While bearing in mind the most current recommendations of the ACIP,<sup>1</sup> he/she must also understand the importance of clearly communicating who does and does not need prophylaxis to the concerned community. Since the great majority of individuals colonized by meningococci do not develop disease, culturing contacts is not helpful in identifying those who need prophylaxis. Depending on the antibiotic used for treatment of his/her disease, the case patient should be given rifampin to ensure clearance of the causative organism before discharge from the hospital.

1. Centers for Disease Control and Prevention. [Prevention and Control of Meningococcal Disease Recommendations of the Advisory Committee on Immunization Practices (ACIP)]. *MMWR* 2005;54(No. RR-7):[1-21], [www.cdc.gov/mmwr/PDF/rr/rr5407.pdf](http://www.cdc.gov/mmwr/PDF/rr/rr5407.pdf).