

## INFORMATION PAPER

Military Vaccine Agency

22 September 2006

SUBJECT: Pneumococcal Disease and Pneumococcal Vaccines

1. Purpose. To describe pneumococcal disease and the vaccines to prevent it.
2. Facts.

- a. Microbiology. Pneumococcal disease is an infection caused by the bacteria *Streptococcus pneumoniae*, also known as the pneumococcus. Pneumococcal disease is a leading cause of death around the world and can lead to serious infections of the lungs (pneumonia), the blood (bacteremia), and the covering of the brain (meningitis).

- b. Epidemiology. *Streptococcus pneumoniae* bacteria spread from person to person through secretions from the nose, mouth, and throat. Although the bacteria can spread contagiously, pneumococcal disease does not usually occur in contacts of ill people, and no special treatment of contacts of people infected with pneumococci is necessary. About 1 out of 20 people who get pneumococcal pneumonia dies from it, as do about 2 out of 10 people who get bacteremia and 3 out of 10 people who get meningitis. Pneumococcal infection causes about 40,000 deaths annually in the United States.

- c. Vaccines. Two distinct pneumococcal vaccines are distributed in the United States, a protein-conjugated vaccine for young children (*Pneumovax*) and a polysaccharide vaccine for others (*Pneumovax*).

- (1) *Pneumovax* (abbreviation PPV 7, brand name *Pneumovax*). This vaccine is manufactured by Wyeth-Ayerst as a sterile solution of saccharides of the capsular antigens of *S. pneumoniae* serotypes 4, 6B, 9V, 14, 18C, 19F, and 23F individually conjugated to diphtheria CRM<sub>197</sub> protein. *Pneumovax* is a suspension containing an aluminum adjuvant. The dose is 0.5 mL injected intramuscularly.

- (2) *Pneumovax* (abbreviation PCV 23, brand name *Pneumovax*). Pneumococcal polysaccharide vaccine is distributed by Merck. *Pneumovax* is a sterile, liquid vaccine for intramuscular or subcutaneous injection. It consists of a mixture of highly purified capsular polysaccharides from the 23 most prevalent or invasive pneumococcal types of *Streptococcus pneumoniae*. These types most frequently cause invasive, drug-resistant pneumococcal infections among children and adults in the United States. The dose is 0.5 mL.

- d. Immunization. Several doses of *Pneumovax* are given to children 2 months or older, based on their age at time of vaccination and number of previous doses. The standard regimen is a dose at ages 2, 4, 6, and 12-15 months of age. Older children receive fewer doses. *Pneumovax* is recommended for everyone 65 years or older, plus people

with chronic heart, lung, or metabolic conditions, regardless of age. People without a spleen or with cochlear implants should also be vaccinated. Routine revaccination of immune-competent people previously vaccinated with 23-valent polysaccharide vaccine is not recommended. People with immune disorders should receive a single additional dose 5 years after the first. The Advisory Committee on Immunization Practices (ACIP) states that pneumococcal vaccine may be administered at the same time as influenza vaccine (by separate injection in the other arm) without an increase in side effects or a decrease in antibody response to either vaccine.

e. Cautions. The following people should not receive this vaccine: people with known hypersensitivity to a vaccine component. Administer pneumococcal vaccination at least 2 weeks before starting immune-suppressive therapy or elective splenectomy. Avoid vaccination during chemotherapy or radiation therapy

f. Adverse Events. The most common adverse reactions after vaccination are injection-site complaints such as soreness, warmth, erythema, swelling, and induration. Serious allergic reactions are very rare.

g. DoD Policy. Administer *Prevnar* to children according to ACIP guidelines. Administer *Pneumovax* to adults 65 years of age or older, adults with normal immune systems who have chronic illness, adults who are immune compromised, people without spleens, and others, according to ACIP guidelines.

### 3. References:

a. Advisory Committee on Immunization Practices. Prevention of pneumococcal disease. *MMWR* 1997;46(RR-8):1-25. [www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm)

b. Advisory Committee on Immunization Practices. Preventing pneumococcal disease among infants and young children. *MMWR* 2000;49(RR-9):1-38. <ftp://ftp.cdc.gov/pub/Publications/mmwr/rr/rr4909.pdf>

c. Multiple resources (e.g., product insert, Vaccine Information Statements) assembled by Military Vaccine Agency: <http://www.vaccines.mil/pneumococcal>

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