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2009 H1N1 Pandemic Update: Pneumococcal Vaccination Recommended to Help Prevent Secondary Infections

Summary of Recommendations: CDC's Advisory Committee on Immunization Practices (ACIP) recommends a single dose of pneumococcal polysaccharide vaccine (PPSV) for all people 65 years of age and older and for persons 2 through 64 years of age with certain high-risk conditions. Among those with high-risk conditions for pneumococcal disease, most are also at high risk for severe complications from influenza. **Special emphasis should be placed on vaccinating adults under 65 years of age who have established high-risk conditions for pneumococcal disease; PPSV coverage among this group is low and this group may be more likely to develop secondary bacterial pneumonia after an influenza infection.** All children younger than 5 years of age should continue to receive pneumococcal conjugate vaccine (PCV7) according to existing recommendations.

Situation:

Streptococcus pneumoniae (pneumococcus) remains a leading cause of vaccine-preventable illness and death in the United States. Some of CDC's Active Bacterial Core surveillance (ABCs) sites have seen greater than expected numbers of cases of invasive pneumococcal disease coincident with increases in influenza-associated hospitalizations. A causal relationship between 2009 H1N1 influenza and this increase has not yet been established, but CDC is pursuing that question with state and local public health officials.

Influenza predisposes individuals to developing bacterial community-acquired pneumonia. During each of the influenza pandemics of the 20th century, secondary bacterial pneumonia was a frequent cause of illness and death and *S. pneumoniae* was reported as the most common etiology. These findings also apply to seasonal influenza. Recently, pneumococcal infections have been identified as an important complication in severe and fatal cases of 2009 H1N1 influenza virus infection. **A key difference between this pandemic and those of the past is that now we have two pneumococcal vaccines that may help to prevent these infections.**

Recommendations:

During the 2009-2010 influenza season, pneumococcal vaccines can be useful in preventing secondary pneumococcal infections and reducing illness and death among those infected with influenza viruses.

CDC's Advisory Committee on Immunization Practices (ACIP) recommends a single dose of pneumococcal polysaccharide vaccine (PPSV) for all people 65 years of age and older and for persons 2 through 64 years of age with certain high-risk conditions. For those 19 through 64 years of age, these include: having asthma or smoking cigarettes. For those 2 through 64 years of age, high-risk conditions include: chronic cardiovascular disease (congestive heart failure and cardiomyopathies), chronic pulmonary disease (including chronic obstructive pulmonary disease and emphysema), diabetes mellitus, alcoholism, chronic liver disease (including cirrhosis), cerebrospinal fluid leaks, cochlear implant, functional or anatomic asplenia including sickle cell disease and splenectomy, immunocompromising conditions including HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, nephrotic syndrome; those receiving immunosuppressive chemotherapy (including corticosteroids); and those who have received an organ or bone marrow transplant, and residents of nursing homes or long-term care facilities.

Among those with high-risk conditions for pneumococcal disease, most are also at high risk for severe complications from influenza. A single pneumococcal revaccination at least five years after initial

vaccination is recommended for people 65 years and older who were first vaccinated before age 65 years. A single pneumococcal revaccination also is recommended for people at highest risk of disease, such as those who have functional and anatomical asplenia, and those who have HIV infection, AIDS or malignancy and have at least five years elapsed from receipt of first vaccination.

All people who have existing indications for PPSV should continue to be vaccinated according to current ACIP recommendations during the 2009 H1N1 influenza pandemic. **Special emphasis should be placed on vaccinating adults under 65 years of age who have established high-risk conditions for pneumococcal disease; PPSV coverage among this group is low and this group may be more likely to develop secondary bacterial pneumonia after an influenza infection.** PPSV is available for ordering through the usual process; ordering PPSV is not linked to placing orders for monovalent 2009 H1N1 influenza vaccine.

Use of PPSV among people without current indications for vaccination is not recommended at this time.

All children younger than 5 years of age should continue to receive pneumococcal conjugate vaccine (PCV7) according to existing recommendations.

According to existing guidelines, the use of a commercially available urine antigen test (Binax NOW®) is recommended for the diagnosis of pneumococcal pneumonia in adults. Such testing, along with blood cultures and testing for influenza infection, can assist clinicians in determining whether secondary pneumococcal pneumonia is occurring.

CDC recommends a yearly seasonal influenza vaccine as the first and most important step in protecting against seasonal influenza. Annual influenza vaccination is especially important for people at high risk of serious influenza complications, including young children, pregnant women, older adults, and people with certain chronic health conditions such as asthma, diabetes, heart or lung disease, and neurologic conditions [including disorders of the brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, epilepsy (seizure disorders), stroke, intellectual disability (mental retardation), moderate to severe developmental delay, muscular dystrophy, or spinal cord injury]. Seasonal influenza vaccine also is important for health care workers and other people who live with or care for high risk people to prevent giving the influenza to those at high risk.

A new monovalent vaccine against 2009 H1N1 influenza is available and is our best option for prevention of 2009 H1N1 infection. People at greatest risk for 2009 H1N1 infection or serious complications and recommended to receive the first available doses of vaccine include children, young adults age 19-24, pregnant women, and people age 25-64 with chronic health conditions. Monovalent 2009 H1N1 influenza vaccine is important for close contacts of infants younger than 6 months of age and health care and emergency medical services personnel. While vaccine supply is currently less than demand, additional doses are becoming available daily and supply will increase through November and December. In communities where 2009 H1N1 is circulating, treatment with influenza antiviral agents is recommended for all hospitalized patients with confirmed, probable or suspected 2009 H1N1 or seasonal influenza and for outpatients who are at higher risk for influenza-related complications. Empiric treatment of patients hospitalized with community acquired pneumonia should include both influenza antiviral agents and appropriate antibiotic therapy. For more information on treatment of influenza, see <http://www.cdc.gov/h1n1flu/recommendations.htm>.

For More Information:

- For Clinicians: Prevention Of Pneumococcal Infections Secondary To Seasonal And 2009 H1N1 Influenza Viruses Infection (http://www.cdc.gov/h1n1flu/vaccination/provider/provider_pneumococcal.htm)
- Pneumococcal Vaccine Website (<http://www.cdc.gov/vaccines/vpd-vac/pneumo/default.htm>)
- Interim guidance for use of 23-valent pneumococcal polysaccharide vaccine during novel influenza A (H1N1) outbreak (http://www.cdc.gov/h1n1flu/guidance/ppsv_h1n1.htm)
- Nov 10 Letter to Providers Promoting PPSV for Adults (<http://www.cdc.gov/h1n1flu/vaccination/provider/lettertoprovider.htm>)
- CDC's Morbidity and Mortality Weekly Report (MMWR):

Bacterial Coinfections in Lung Tissue Specimens from Fatal Cases of 2009 Pandemic Influenza A (H1N1) --- United States, May--August 2009; September 29, 2009 / 58(Early Release);1-4
(<http://www.cdc.gov/mmwr/PDF/wk/mm5838.pdf>)

- Table: ACIP Recommendations for Use of Pneumococcal Polysaccharide Vaccine (http://www.cdc.gov/h1n1flu/vaccination/provider/provider_pneumococcal.htm#table1)
- Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults (<http://www.journals.uchicago.edu/doi/pdf/10.1086/511159?>)
- Preventing Seasonal Flu With Vaccination (<http://www.cdc.gov/flu/protect/vaccine/index.htm>)
- General Information About 2009 H1N1 Vaccines (<http://www.cdc.gov/h1n1flu/vaccination/general.htm>)
- Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season (<http://www.cdc.gov/h1n1flu/recommendations.htm>)
- Interim Recommendations for Clinical Use of Influenza Diagnostic Tests During the 2009-10 Influenza Season (http://www.cdc.gov/h1n1flu/guidance/diagnostic_tests.htm)
- Active Bacterial Core surveillance (<http://www.cdc.gov/abcs>)