

# Pneumococcal vaccine could prevent numerous deaths, save costs during a flu pandemic, model predicts

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A new predictive model shows that vaccinating infants with 7 valent pneumococcal conjugate vaccine (PCV7)--the current recommendation--not only saves lives and money during a normal flu season by preventing related bacterial infections; it also would prevent more than 357,000 deaths during an influenza pandemic, while saving \$7 billion in costs.

Keith P. Klugman, PhD, professor of global health at Emory University's Rollins School of Public Health, will present results of the research using the predictive model at the joint ICAAC/IDSA meeting in Washington, DC, Oct. 25-28. (Interscience Conference on Antimicrobial Agents and Chemotherapy/Infectious Disease Society of America.

Bacterial infections, particularly pneumococcal disease, can follow a viral illness such as flu and cause secondary infections that worsen flu symptoms and increase influenza-related risk. Bacterial infections may have been the cause of nearly half of the deaths of young soldiers during the 1918 flu pandemic.

"We've known for years that bacterial infections can develop after influenza," says Klugman.

"Unlike the 1918 flu pandemic, which preceded the antibiotic era, we now have vaccines that can prevent these types of pneumococcal infections. This model shows what a dramatically different outcome we could expect with standard PCV vaccination."

Klugman and colleagues at Harvard University, i3 Innovus in Medford, Ma. and Wyeth Research constructed a model to estimate the public health and economic impact of current pneumococcal vaccination practices in the context of an influenza pandemic.

Since 2000 the Centers for Disease Control and Prevention (CDC) Immunization Practices Advisory Committee (ACIP) has been recommending PCV vaccinations for infants and children.

The new predictive model was used to compare the results of no PCV vaccination to the current routine vaccination of infants less than two years old. The researchers assessed the effect of vaccination policies under both normal and pandemic influenza conditions. They included both direct vaccination effects in vaccinated individuals and indirect vaccination effects (called herd immunity) in the unvaccinated. For manifestations of pneumococcal disease, they included invasive pneumococcal disease (meningitis or bacteremia), all-cause pneumonia and all-cause acute otitis media (ear infections). The model's estimates were based on the 1918 pandemic.

The new model predicted that current pneumococcal vaccination practices reduce costs in a typical flu season by \$1.4 billion and would reduce costs by \$7 billion in a pandemic. In a pandemic, they would prevent 1.24 million cases of pneumonia and 357,000 pneumococcal-related deaths.

"Our research shows that routine pneumococcal vaccination is a proactive approach that can greatly reduce the effects of a future flu pandemic," says Klugman. Countries that have not yet implemented a pneumococcal vaccination program may want to consider this as part of their pandemic flu preparedness."

Source: Emory University

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