Scientists develope optimal flu vaccine priorities, question federal guidelines

August 20 2009

(PhysOrg.com) -- Optimal control of the spread of the seasonal flu and H1N1 is achieved by prioritizing vaccinations for schoolchildren and for adults aged 30 to 39 in the United States. Those are the findings of a new study by Clemson University and Yale University School of Medicine mathematicians.

With the seasonal flu season approaching and uncertainty over whether swine flu will become more severe, new research published by Yale School of Public Health has found that more people are likely to avoid illness if vaccines are given out first to those most likely to transmit viruses, rather than to those at highest risk for complications. This research differs from current vaccination recommendations of the Centers for Disease Control (CDC) and the Advisory Committee on Immunization Practices (ACIP).

The Yale study appears in the August 20 issue of the journal Science online at the [Science Express](#) website,. It will be published in the print journal *Science* at a later date.

The ACIP currently recommends that groups at high risk for complications of swine flu (novel influenza A or H1N1) be given priority for vaccination. The CDC recommends the same for seasonal flu vaccination. High-risk groups include children younger than 5 years old, adults 65 years of age and older, pregnant women, and those suffering from pulmonary, cardiovascular and other disorders.

But the study by Alison P. Galvani, Ph.D., an associate professor in the division of Epidemiology of Microbial Diseases at Yale, suggests that vaccines targeted at groups more likely to transmit flu viruses, rather than those at highest risk of complications, would result in fewer infections and improved survival rates.

Galvani used mathematical models to measure outcomes based on deaths, years of life lost and economic costs. Strikingly, these models found that schoolchildren and their parents, generally in their 30s, are the best groups to vaccinate when even a modest amount of an effective vaccine is available, because schoolchildren are most responsible for transmission and their parents serve as bridges to the rest of the population. By targeting these two age groups, the study found, the remainder of the population is better protected.

"Our results illustrate the importance of considering transmission when allocating vaccines" said Galvani. The paper was co-authored by Jan Medlock of Clemson University.

The CDC expanded its seasonal flu vaccination recommendations in 2008 to include children up to 18 years old. Still, Galvani's study determined that previous, and new, guidelines for both swine and seasonal flu performed substantially worse than the optimal strategies that she and her group identified.

For example, using the ACIP's new vaccination policies for the swine flu, the study determined that ACIP recommendations would result in 1.3 million infections, 2,600 deaths, and $2.8 billion in economic impact. In contrast, Galvani's model resulted in 113,000 infections, 242 deaths, and $1.6 billion in cost.

Galvani said reducing CDC prioritization of children under age 5 and the elderly could significantly improve the CDC's recommendations.

"The optimal allocation of vaccines is paramount to minimizing mortality and morbidity in the population, particularly when there is a supply shortage," she said.

More information: http://www.sciencemag.org/sciencexpress

Source: Yale University (news : web)

Citation: Scientists develope optimal flu vaccine priorities, question federal guidelines (2009, August 20) retrieved 22 December 2022 from https://medicalxpress.com/news/2009-08-scientists-optimal-flu-vaccine-priorities.html