Researchers look at benefits of flu vaccines in the elderly

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New research at the University of Notre Dame looks more closely at the effects of the influenza vaccine on the elderly, who are considered the highest-risk group for influenza-related mortality.

Despite the fact that the elderly are more susceptible to falling ill, very little is known about how well the influenza vaccination performs for those older than 65 years of age. The new study, which looks at the effects of the influenza vaccine in Canada, is the largest to date in terms of numbers of individuals studied and duration. Seniors "age 65 and older are among those at highest risk of serious outcomes following influenza infection," said lead author Benjamin Ridenhour, assistant professor of biological sciences and a member of the Eck Institute for Global Health at Notre Dame, in a manuscript being published this week. While annual flu vaccines are recommended for the older population in the United States, Canada and many other developed countries, debate remains on the effectiveness of the vaccines for this older at-risk group.

The study, published in *PLOS ONE*, titled, "Effectiveness of inactivated influenza vaccines in preventing influenza-associated deaths and hospitalizations among Ontario residents aged ?65 years: Estimates with generalized linear models accounting for healthy vaccinee effects," questions the effectiveness of influenza vaccines in older adults. The researchers' findings indicate that previous estimates of influenza vaccine effectiveness may be upwardly biased because of difficulties identifying and adjusting for confounders of the vaccine-outcome association. The authors said, "We estimated vaccine effectiveness for prevention of serious influenza complications among older persons by using methods to account for underlying differences in risk for these complications."

In their central findings of the research, the authors said, "By combining health data with climate data and developing novel statistical analyses, we found that vaccination was 19 percent effective at preventing pneumonia- or influenza-related hospitalizations and 25 percent effective at preventing death occurring subsequent to a pneumonia- or influenza-related hospitalization."

The results indicate that, over a long time period, the influenza vaccine has performed worse than expected in elderly individuals, thus proving the need for improvements in influenza vaccine development.

Annually, influenza kills approximately 25,000 people in the United States, according to the Centers for Disease Control and Prevention. Likewise, the World Health Organization estimates that nearly 500,000 deaths per year occur globally due to influenza.

Ridenhour specializes in the evolution and ecology of infectious diseases. His research focuses on understanding their spatial and temporal dynamics with particular interest in understanding disease transmission to reduce global burden.

Provided by University of Notre Dame