

Flu vaccines aimed at younger populations could break annual transmission cycle

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The huge value of vaccinating more children and young adults for influenza is being seriously underestimated, experts say in a new report, while conventional wisdom and historic vaccine programs have concentrated on the elderly and those at higher risk of death and serious complications.

A computer modeling analysis was just published in the journal *Vaccine*, in work supported by the National Institutes of Health. The study suggests that children in school and young adults at work do the vast majority of flu transmission. Programs that effectively increase vaccination in those groups would have the best payoff, the research concluded.

The key point: If you don't catch the flu, you can't die from it. Breaking the cycle of transmission benefits everyone from infants to the elderly, the researchers said. And at stake are thousands of lives and billions of dollars a year.

"In most cases, the available [flu vaccine](#) could be used more effectively and save more lives by increasing the number of vaccinated children and young adults," said Jan Medlock, a co-author of the study and researcher with the Department of [Biomedical Sciences](#) in Oregon State University's College of Veterinary Medicine.

"That approach could really limit the cycle of transmission, preventing a great deal of illness while also reducing the number of deaths among

high risk groups," he said. "Approaches similar to this were used in Japan several decades ago, and they accomplished just that. Our new analysis suggests we should reconsider our priorities for vaccination."

In a perfect world and in accord with recommendations from the [Centers for Disease Control and Prevention](#), researchers agree that almost everyone over the age of six months should get the flu vaccine, unless they were allergic to the shot or had other reasons not to take it. But in the United States, only about one-third of the population actually gets a flu vaccine each year. Historic efforts have been focused on people at higher risk of death and severe disease – often the elderly, and those with chronic illness, weakened immune systems, health care workers or others.

With existing patterns of vaccine usage, the problem is enormous. Seasonal influenza in the U.S. results each year in an average of 36,000 deaths, more than 200,000 hospitalizations, an \$87 billion economic burden, and millions of hours of lost time at school and work – not to mention feeling sick and miserable.

The flu vaccine up until 2000 was only recommended for people over 65, Medlock said, and other age groups were added in the past decade as it became clear they also were at high risk of death or complications – children from age six months to five years, and adults over 50. Just recently, age was taken completely out of the equation.

"Clearly we would want people at high medical risk to get a flu vaccine as long as it is abundant," Medlock said. "But what we're losing in our current approach is the understanding that most flu is transmitted by children and young adults. They don't as often die from it, but they are the ones who spread it to everyone else."

The population and disease transmission modeling done in the new study

outlines this, and concluded that a 25-100 percent reduction in deaths from flu or its complications could be achieved if current flu vaccine usage were shifted to much more heavily include children and young adults, as well as those at high risk.

One obstacle, experts say, is the historic reluctance to add even more vaccines to those already received and often mandated for school-age children.

"A simple program we could consider in our K-12 schools would be to have the school nurse, or other local professional, give every child an annual flu shot, with the parents being informed about it in advance and having the option to decline," Medlock said.

"Vaccinating children could prevent a great deal of illness and save many lives at all ages, not just the children," he said. "More aggressive educational campaigns to reach [young adults](#) would also be helpful."

More information:

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