Save the Old by Vaccinating the Young

By ACSH Staff — October 31, 2005

The idea of vaccinating one population in order to rescue another will strike some as counterintuitive -- and may even seem unethical to some, in an era when groundless scare stories have made many people paranoid about vaccinations. Yet vaccinating the young against flu and pneumonia may be the best way to save the lives of elderly people who might come into contact with them.

The basic dilemma is this: while it is the elderly, not the young, who are most likely to die from flu or pneumonia, it is the young for whom flu and pneumonia vaccination programs are most effective. Few elderly people seek out the pneumonia vaccine, while the flu vaccine has little protective power for elderly patients. The best hope for our older population, then, is to prevent flu and pneumonia in the children with whom they come in contact.

We already have some statistical evidence that the plan makes sense: a report in the current Journal of the American Medical Association (JAMA) indicates that vaccinating infants and toddlers against a group of pneumonia-causing bacteria has had the unintended effect of reducing the toll of "invasive pneumococcal disease" (IPD) among older Americans as well ("pneumococcus" is the commonly used name for the bacteria whose infections are prevented by the vaccine, which is called PCV-7; the serious diseases caused by the pneumococcus are pneumonia, bacteremia, and meningitis).

The study was supervised by a multicenter group of physicians, the Active Bacterial Core Surveillance Network. The researchers studied patients from eight geographical regions comprising a population of over 18 million Americans. They evaluated the incidence of IPD in the period 1998-9, and compared this to the incidence in 2002-3. (The PCV-7 vaccine was licensed for use in infants and toddlers in March of 2000.)

In those over age fifty, the occurrence of pneumococcal pneumonia, bacteremia (bloodstream infection), and meningitis was found to have declined by a whopping 28% (and the reduction in IPD in the target child population -- those under five -- was an even more dramatic 75%!). The reduction in IPD in the older group was noted to have begun in 2001, the year after the childhood vaccine was introduced. The effect was more pronounced each year thereafter through 2002-3.

Even more impressive: there was a 55% decline within that subset of all expected IPD cases that was specifically associated with the seven variants of pneumococcus in the vaccine.

We’ve Seen This Effect Before

This effect should, perhaps, not have been so surprising, given the fact that it has been observed
that vaccinating schoolchildren against influenza ("the flu") in Japan in the 1970s and 1980s led to a dramatic reduction in influenza illness and death among older Japanese. This effect occurred because of reduced exposure to sick children among older relatives who lived in the same household (see my letter in the September 26, 2005 *Archives of Internal Medicine*, "Vaccinate Schoolchildren to Reduce Influenza Toll" [3]).

There are a few crucial facts to remember when considering this "outside the box" approach to reducing the deadly toll of pneumonia (and influenza) in seniors:

--While there is a "pneumonia vaccine" aimed at older adults, the proportion of seniors who actually receive this vaccine is miniscule, compared to the at-risk target group.

--Similarly, even though annual influenza vaccination is recommended for seniors, the percentage of those who get immunized is also around half of the target population -- and this is not because of vaccine shortages.

--The flu vaccine is only borderline effective in protecting against the flu in seniors: their immune response is far less than that in kids and adults.

Flu (the conventional sort of flu, not bird flu, a threat still beyond the horizon, despite all the media attention) kills over 30,000 Americans each and every year, and most of these deaths are preventable. Combined with pneumonia, the toll rises to over 60,000 (of course, not all pneumonia is caused by pneumococcus).

I propose that our public health authorities -- the CDC, the NIH, and HHS -- consider endorsing the universal vaccination of schoolchildren, and perhaps toddlers as well, against both flu and pneumococcus. This will very likely have a dramatic impact on reducing the deadly toll of these diseases in older Americans.

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