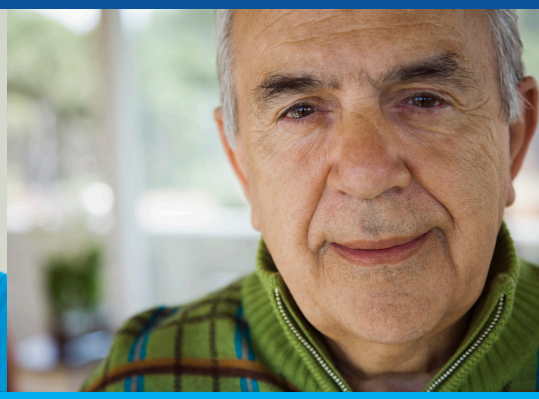
Understanding the Challenges and Opportunities in Protecting Older Adults From Influenza





A Brief from the National Foundation for Infectious Diseases

A Panel Featuring:

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Background

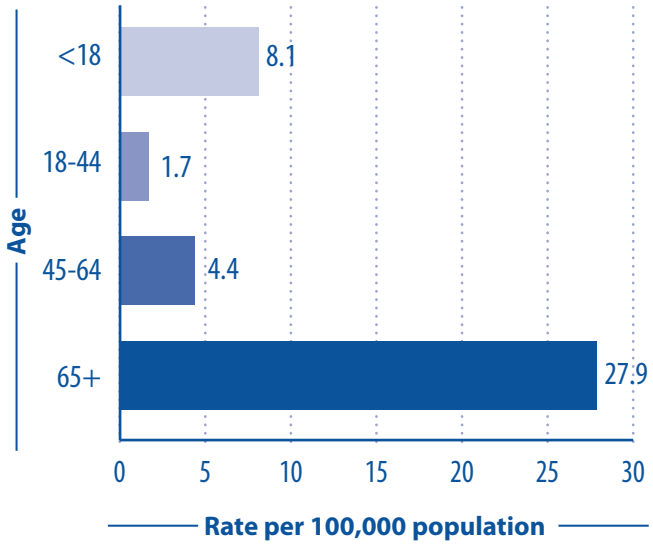
Although there has been substantial research into the topic of influenza in the older adult (65+) population, many health care professionals remain unaware of the difficulties surrounding vaccination and immune response for older adults. Concurrently, an increasing number of new strategies offer the potential for greater protection against influenza, including the recently approved high-dose influenza vaccine for Americans age 65 and older.

To help increase understanding of these unique challenges and new opportunities in protecting older Americans from influenza, in early 2011 the National Foundation for Infectious Diseases (NFID) convened a panel of experts including: Dr. Arnold Monto, Dr. Kristin Nichol, Dr. Keipp Talbot, and Dr. William Schaffner.

The Burden of Influenza in Older Adults

Influenza is a contagious viral infection that affects people of all ages, but one group is especially hard-hit: people 65 years of age and older.

The rate of hospitalization for influenza by age, 2004*



*Based on principal diagnosis.
**The denominator is the entire U.S. population for each age group. U.S. Census Bureau, Population Division, Census 2004.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2004.

Hospitalization rates vary from year to year, depending on the dominant virus strains, but they are almost always highest in this population.[1] Consider the experience in 2004, a year with neither an exceptionally high nor an exceptionally low rate of hospitalization for influenza. In that year, the influenza-associated hospitalization rate in the US for people age 65 and over was 27.9 per 100,000; the next highest rate was 8.1 admissions per 100,000 among children younger than 18 years. In 2004, 48 percent of all hospitalizations for influenza were in people aged 65 and older — an age group that accounted for only 13 percent of the US population.[1]

Summary

People of all ages can become infected with influenza virus, but the infection is particularly serious in older adults. The hospitalization rate for influenza is especially high among people aged 65 and older, and most deaths associated with influenza are in this age group. The influenza vaccine is less effective in preventing the infection in older adults than in younger people, but it nevertheless is beneficial, reducing morbidity and mortality. One new vaccine option specifically for older persons—the high-dose influenza vaccine — has been approved and is associated with a stronger immune response in vaccinees; other influenza vaccines formulated for older Americans may be introduced soon. Health care professionals need to become more knowledgeable about the unique needs of older patients and options designed specifically for them. Most experts concur that the best way to protect people age 65 and older from influenza and associated comorbidities is to receive influenza vaccine each year.

It takes time to recuperate from an illness serious enough to necessitate hospitalization. For the 65+ population, the burden goes beyond just lost time and money. Many older people, especially those age 85 and over experience loss of independence in activities of daily living after being hospitalized.[2]

The mortality associated with influenza is also highest among older adults. This pattern was observed every year between 1976 and 2007, regardless of the prevailing virus strains. People age 65 and over account for nearly 90 percent of the overall estimated average annual mortality associated with influenza during this 30-year span.[3]

There are several explanations for the heavy burden of influenza among older adults. People in this age group often have underlying chronic conditions, which may be exacerbated by influenza infection.[3] In addition, their waning immune system reduces both their ability to respond to infection[4] and their response to standard influenza vaccine.[5]

Reduced response to the standard influenza vaccine does not mean that vaccination is wasted on this population. Although the vaccine may be less effective in older adults overall, the response of an individual vaccinee may be robust. No study has definitively determined the level of response that is protective for an older patient. Furthermore, the goal of influenza vaccination in older adults is different from that in younger populations. Whereas the goal in younger people is to prevent influenza infection, the goal in older adults is to prevent severe illness, including exacerbation of underlying conditions, hospitalization, and mortality.[6]

More needs to be done to increase awareness of the benefits and safety of influenza vaccination not only among the oldest segment of society—indeed, among people of all age groups — but also among their health care providers.

Benefits of Vaccinating Older Adults Against Influenza

Numerous studies have demonstrated that influenza vaccination reduces morbidity in people age 65 and older. Hospitalization rates for influenza and pneumonia are lower in community-dwelling adults who received the seasonal influenza vaccine.[7,8,9,10] Immunization is associated with reduced hospitalization of older patients for cardiac, respiratory, and cerebrovascular diseases.[7,9,11,12]

Influenza vaccination may prolong the life of older adults. During the influenza season, the risk of death from any cause is lower in community-dwelling seniors who received the influenza vaccine.[7,8,9] Some analysts, however, maintain that the mortality benefits of influenza vaccine in this population have been exaggerated by study flaws and biases. For example, vaccination benefits may be overstated by the possibility that the frailest elderly, whose end of life is near, may choose to forego the vaccine, and die not from influenza-related causes, but from preexisting conditions.[13,14,15] Because policymakers emphasize the importance of annual influenza vaccination, it would be unethical to withhold the vaccine, making placebo-controlled trials impossible, so most data on influenza vaccine efficacy come from observational studies.

The value of influenza vaccination appears to be greatest among the most fragile elderly. Vaccination offers protection for nursing home residents not only against influenza-like illness, but also against pneumonia, especially during the influenza season.[16] Meta-analyses that included nursing home residents found that they benefitted the most from influenza vaccination.[17,18]

Mainly because it reduces hospitalization, influenza vaccination in older adults is cost-effective. Studies based on data from 1994 to 2003 estimated average cost savings of $80 to $103 per immunized Medicare recipient.[11, 19] Although this may not seem like much, the savings mount up quickly given the size of the Medicare population. The cost-effectiveness of annual influenza vaccination in people aged 65 and older has been estimated at $980 per quality-adjusted life year.[20]

Even the occasional reviewer who questions the protective effects of influenza vaccine in older adults notes its safety profile.[21] Indeed, many decades of widespread vaccination administration — hundreds of millions of doses — provide evidence of the safety of influenza vaccine for all age groups. The potential for adverse neurologic effects have received the most attention, but thorough study has failed to provide consistent evidence of a causal relationship.[22] The greatest concern for adults has been the potential for development of Guillain Barré syndrome. Adults age 50 and older are at the greatest risk for developing Guillain Barré syndrome; some studies suggest that one case of Guillain-Barré syndrome may be associated with every one million persons vaccinated.[3,23]

Beyond personal protection, another benefit of vaccination is protection of loved ones. Annual influenza vaccination is especially important for older adults who are in close contact with infants too young to be immunized. Vaccination of older Americans is also a means to lessen influenza exposure in other high-risk groups, including older children and other older adults.

Continued Opportunities for Prevention

More than any other age group, people aged 65 and older tend to embrace the concept of influenza vaccination, reflecting the long-standing recommendation for this population by the Advisory Committee on Immunization Practices (ACIP). In the decade 1989-1999, the percentage of people in this age group who received the vaccine increased each year among all racial and ethnic groups. Influenza vaccine coverage remained fairly steady at around 70 percent throughout the first decade of the present century. The extent of coverage was far higher in older adults than in other age groups. For example, in the 2009-2010 influenza season, vaccine coverage was 72 percent among those aged 65 and older, compared with just 45 percent to 55 percent in younger age groups.[24] However, that still leaves about 30 percent of the vulnerable older population without vaccination protection against influenza.

Call for Increased Education and Action

Annual influenza vaccination for people age 65 and older — as part of universal vaccination of everyone older than 6 months

of age — is the best way to protect older adults. To assure that every older adult is protected, health care providers need to educate themselves and their patients and dispel myths and false claims about vaccine efficacy and safety. The public must become aware that influenza is far more serious than the common cold, especially for older people, and that the vaccine is both safe and beneficial.

Embrace the Universal Recommendation, but Practice Patient-Specific Care

Health care providers need to understand that the response of older patients to vaccine is different from that of younger adults. Because older adults have diminished immune responses, the standard vaccine may be less effective in preventing influenza. Nonetheless, vaccination is likely to reduce the severity of illness. The vaccine has no major side effects or adverse effects. Therefore, annual influenza vaccination is wise for every older adult. It is especially beneficial for those with chronic illnesses.

Demonstrate a Personal Commitment to Influenza Vaccination

Health care providers can set a good example—and protect themselves and their patients— by receiving the influenza vaccine every year and by encouraging their colleagues and all members of their staff to do so too. Until the health care community as a whole attains a near universal influenza vaccination rate, there is room for much progress to be made in this area.

Understand & Utilize New Strategies for Prevention

The US Food and Drug Administration recently approved a high-dose influenza vaccine for people aged 65 and older. This vaccine, which is fully reimbursable under Medicare Part B, is the first influenza vaccine to use a higher dose of antigen that is intended to induce a stronger immune response. Additional types of influenza vaccination options aimed at better protection for older adults will likely continue to increase in the future.

Health care providers should stay alert for the introduction of these new vaccines, learn their benefits for specific populations, and consider all options when planning ahead for the influenza season. In settings with large numbers of frail elderly, such as nursing homes, familiarity with the different options for preventing and managing influenza is especially important.

Vaccination Strategies for Protecting Older Americans

Without question, the influenza vaccine offers benefits for older adults. However, challenges in disease prevention among this population cannot be ignored.

- One possible way to compensate for the reduced immune response in older adults is to increase the dose of antigens in the vaccine, as in the newly approved high-dose influenza vaccine. A safety study demonstrated a dose-related immune response in people aged 65 and older.[25] Subsequent trials using the highest dose in that study — 60 µg of each antigen, or four times the dose in the traditional influenza vaccine — confirmed the safety and immunogenicity of this approach.[26,27]

- Because 2010-2011 was the first full influenza season that this vaccine was available, clinical experience with it is limited. Although injection site reactions are relatively common, serious adverse effects have not been reported. An upcoming randomized, controlled, double-blind trial will compare the clinical efficacy of the high-dose vaccine and the traditional vaccine in preventing actual influenza disease in older adults.[28]

- Europeans have taken a different approach to improving the influenza vaccine. An adjuvanted vaccine has been licensed in Europe for more than a decade.[29] Adjuvanted vaccine is more immunogenic than traditional vaccine in the elderly, especially in those with chronic disease.[30] However, adjuvanted influenza vaccine is not available in the US and studies have not yet been undertaken to compare the immunogenicity and efficacy of adjuvanted vaccine with that of the new high-dose vaccine for people aged 65 and older.

- Other strategies to improve vaccine effectiveness are under investigation. Intradermally administered influenza vaccines appear to be safe and immunogenic, although results have sometimes been conflicting.[29,31,32] Novel methods of antigen presentation through carrier systems such as virosomes or liposomes are also being explored.[32,33]

Footnotes

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