

INCREASING UNDERSTANDING OF ENHANCED INFLUENZA VACCINE PRODUCTS IN LONG-TERM CARE SETTINGS

Benefits of Enhanced Influenza Vaccine Products

Key Points

An age-related decline in immune function makes standard influenza vaccines less effective in older adults than in younger individuals.

Enhanced influenza vaccines may produce better outcomes for older adult populations. Products licensed for older adults include those with higher amounts of viral antigen, vaccines with adjuvants, and products that utilize new methods of vaccine production.



Achieving the maximum possible level of protection against influenza in long-term and post-acute care facilities begins with the vaccine and its effectiveness, safety, and cost-effectiveness in the primary group residing in nursing homes—older adults—and the staff who care for them. The rapid pace of influenza vaccine research and development has provided new options for clinicians and their patients, with important advantages for older adults.

Advantages of Enhanced Influenza Vaccines

Enhanced influenza vaccines have been developed to overcome age-related decline in immunity, known as “immunosenescence.” Immunosenescence can cause older adults to have lower immune responses to antigens. As a result, the influenza vaccines that worked well in their younger years may no longer provide the same amount of disease protection in people 65 years of age or older.

► Studies show improved clinical outcomes when enhanced influenza vaccines are used in older adults, including:



Higher antibody levels and better protection against laboratory-confirmed influenza illness.¹



Reduced respiratory-related hospital admissions.²



Fewer all-cause hospitalizations.³



Better protection against influenza-like illness.⁴



Significant relative reduced risk in pneumonia events, serious cardiorespiratory events, and all-cause hospitalizations.⁵

For example, a high-dose trivalent influenza vaccine improved disease burden in older adults and reduced costs in an analysis of data from a randomized head-to-head comparison with a standard-dose vaccine in adults aged 65 years or older. Compared with influenza vaccines used in younger people, enhanced influenza vaccine in older adults increases quality-adjusted life-years based on a lifetime horizon. Medical costs were lower, and when assessed from a societal point of view, costs were lower.⁶

Better clinical outcomes associated with the use of enhanced influenza vaccines in long-term and post-acute care residents can also result in cost savings for facilities. In one study, a 27:1 financial return on investment was demonstrated from the payer's perspective; for every dollar spent on enhanced influenza vaccines and their administration, \$27 in costs were averted.⁷

Types of Enhanced Influenza Vaccines

Three types of enhanced influenza vaccines for use in older adults are marketed in the United States: **high-dose, recombinant, and adjuvanted** products. All contain the same 3 or 4 strains (trivalent or quadrivalent, respectively) found in other influenza vaccines for a given season. However, the enhanced influenza vaccines differ from those products—and from each other—in important ways⁸.

High Dose

Key Features

- Contain 4 times the amount of antigen contained in standard-dose products.
- Now contain all 4 recommended strains for an influenza season.

Recombinant

Key Features

- Contain 3 times the amount of antigen contained in standard-dose products.
- Contain all 4 recommended strains for an influenza season.
- Can be safely administered to people with egg allergies (no eggs used in the production process).

Adjuvanted

Key Features

- Contain substances that increase the body's response to the antigens.
- Contain either 3 or 4 of the recommended strains for an influenza season.

Resources

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Influenza viruses produce morbidity and mortality not only through pneumonia and other effects on the lungs but also through cardiovascular complications.

Long-term care facilities can prevent these negative health outcomes through influenza vaccination of both residents and staff.

In addition to pneumonia and potentially fatal lung complications, the influenza virus can increase patients' risk of myocardial infarction (MI) and cerebrovascular accidents (CVAs). Those who survive heart attacks and strokes often find their activities of daily living adversely affected with the individuals residing in long-term care facilities (LTCFs) having an increased acuity level and requiring more assistance.

Influenza-Related Morbidity, Mortality, and Cardiovascular Risks

▶ In the United States over the past decade, an estimated

9 - 45 million

Americans have had influenza infections during a season, resulting in up to



810,000
hospitalizations

+
61,000
deaths

The influenza virus produces cardiovascular complications in the following ways. The influenza virus can directly infect the heart, causing myocarditis or myopericarditis. Through the systemic effects of cytokines and other inflammatory mediators, influenza infection can worsen existing cardiovascular disease; for instance, pre-existing atherosclerotic plaques can be dislodged during systemic inflammation. This creates emboli that can cause an MI if they lodge in coronary arteries or CVAs if they obstruct blood flow to the brain. This increased risk continues for months after influenza infection. Previously healthy individuals can also have cardiovascular events and CVAs as a result of a prothrombotic state induced by systemic inflammation.³⁻⁵

As with COVID-19, influenza more often affects older adults and those with comorbidities; the proportion of influenza-associated fatality is also higher among these patients.^{1,2}

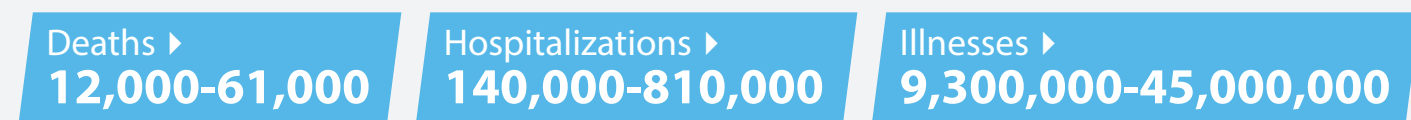
LTCF Residents and Staff Need Protective Immunizations

A growing body of literature shows that influenza vaccines not only reduce the risk of infection but also decrease the severity of an infection if one occurs.^{6,7} For at-risk LTCF residents and the staff who care for them, that is welcome news—and another good reason to be vaccinated annually.

In LTCFs, highly contagious viruses are quickly transmitted among people in confined spaces and sharing common areas. Older adults, especially those with comorbidities, have high mortality rates from severe respiratory illness. Yet only about two-thirds of LTCF residents receive annual flu shots, and among all health care work settings, LTCFs continue to have the lowest staff vaccination rates (67.9% in the 2018–2019 season).⁸

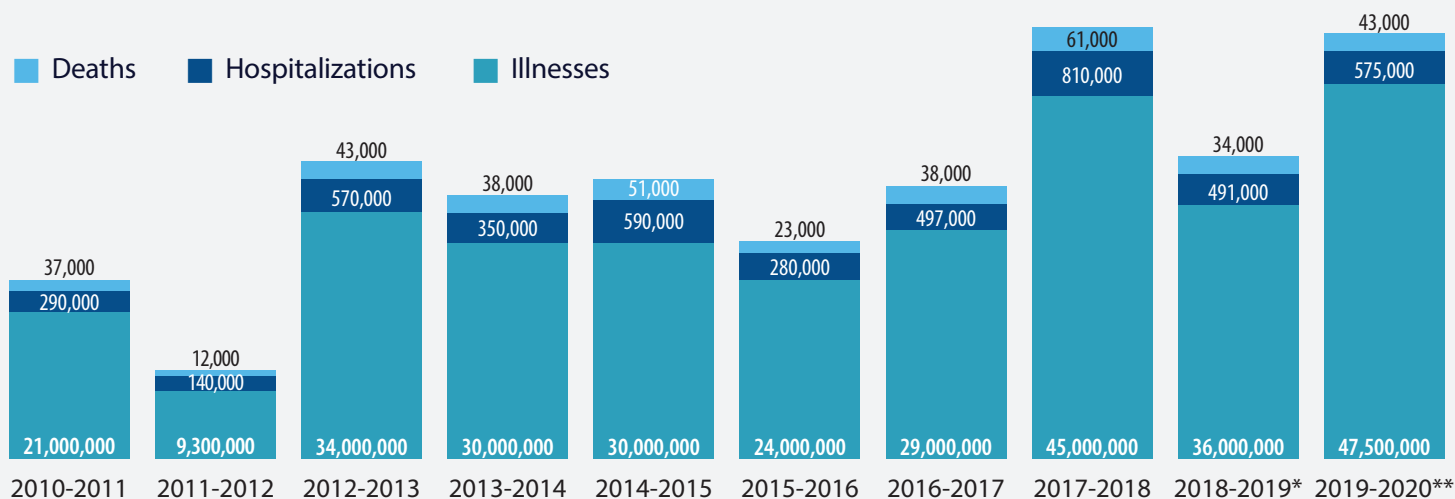
LTCF administrators, medical directors, and directors of nursing must set and enforce nursing home policies that keep residents and staff safe and healthy. Enhanced influenza vaccines have an important role in accomplishing this goal.

▶ **Figure 1. Estimated Range of Annual Burden of Influenza in the United States Since 2010**



*The top range of these burden estimates are from the 2017-2018 flu season. These are preliminary and may change as data are finalized
Source: Reference 1.

▶ **Estimated U.S. Influenza Burden, by Season, 2010–11 Through 2019–20**



*Estimates for these seasons are preliminary and may change as data are finalized.

** 2019–20 data are incomplete. Shown are seasons-to-date figures through April 4, 2020. Only ranges of burden had been released; the midpoint of those ranges is depicted in the figure. The reported ranges for this season at the time this report was prepared were 39 million to 56 million infections, 410,000 to 740,000 hospitalizations, and 24,000 to 62,000 influenza-related deaths.

Resources

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