

FLUZONE® HIGH-DOSE (INFLUENZA VACCINE) FACT SHEET

As people age, the immune system weakens.^{i,ii} For this reason, adults 65 years of age and older do not respond as well as younger adults to influenza vaccine, leaving them more vulnerable to infection and its associated complications.ⁱⁱⁱ



Fluzone High-Dose vaccine, the first influenza vaccine designed specifically for people 65 years of age and older, is the only FDA-approved influenza vaccine for seniors shown in clinical trials to have **superior efficacy** compared to Fluzone vaccine, its standard-dose comparator, in preventing flu.^{iv, v}

Since its introduction in 2010, more than **90 million doses** of Fluzone High-Dose vaccine have been distributed in the United States, and during the **2017-2018 season, about 70 percent** of adults 65 years of age and older who were vaccinated in the United States received Fluzone High-Dose vaccine. Following licensure, Fluzone High-Dose vaccine has met a number of milestones, including publication of several studies in peer-reviewed scientific journals:

Dec. 2009: FDA Licensure

In response to the unmet medical need in older adults, Fluzone High-Dose vaccine was licensed by the FDA in December 2009 under the agency's accelerated approval process. Licensure was based on the vaccine's safety profile and superior immunogenicity compared to Fluzone vaccine.

Jan. 2010: U.S. Commercial Launch

Fluzone High-Dose vaccine was introduced in 2010 and made available to healthcare providers to vaccinate their patients in the 2010-2011 influenza season.

Aug. 2014: Data Publication on Safety & Efficacy

The New England Journal of Medicine (NEJM) published results from a large multi-center, doubleblind, post-licensure efficacy trial demonstrating the clinical benefit of Fluzone High-Dose vaccine compared to Fluzone vaccine in the prevention of influenza disease conducted over two flu seasons involving nearly 32,000 participants 65 years of age and older ("FIM12").^v

Fluzone High-Dose vaccine was found to be **24.2 percent more effective** than Fluzone vaccine, it's standard dose comparator, in preventing laboratory-confirmed influenza caused by any influenza viral type or subtype in association with protocol-defined influenza-like illness, in adults 65 years of age and older. A secondary endpoint demonstrated Fluzone High-Dose vaccine was **51.1 percent more effective** than Fluzone vaccine, it's standard dose comparator, against culture-confirmed influenza caused by viral strains antigenically similar to those contained in the vaccine using a modified Centers for Disease Control and Prevention (CDC) influenza-like illness definition.^{iv}

Nov. 2014: FDA Label Update

FDA approved the supplemental biologics license application for Fluzone High-Dose vaccine to include the efficacy data published in NEJM in the Prescribing Information. *Fluzone High-Dose Prescribing Information*.

Dec. 2014: Data Publication in Long-Term Care Population

Journal of Infectious Diseases published data from a University of Pittsburgh School of Medicine study evaluating Fluzone High-Dose vaccine compared to Fluzone standard dose vaccine in frail, older residents of long-term care facilities.^{vi}

Aug. 2015: Data Publication on Cardio-Respiratory Events

Vaccine published a sub-analysis of the efficacy data looking at serious cardiorespiratory events, all-cause hospitalizations and pneumonia, in study participants 65 years of age and older who received Fluzone High-Dose vaccine compared to Fluzone vaccine.^{vii}

Sept. 2015: Data Publication on Health Economics

The Lancet Infectious Diseases published a sub-analysis of the efficacy data evaluating the cost effectiveness of Fluzone High-Dose vaccine versus Fluzone vaccine in study participants 65 years of age and older.^{viii}

- Feb. 2017:** **Data Publication on Fluzone High –Dose Effectiveness**
[*Journal of Infectious Diseases*](#) published a study evaluating the rate of death after a flu admission for those who received Fluzone High-Dose compared to a standard dose influenza vaccine, across two influenza seasons.^x
- July 2017:** **Data Publication on Nursing Home Residents**
[*The Lancet Respiratory Medicine*](#) published data from the first randomized, controlled, prospective nursing home study to date on the comparative effectiveness of influenza vaccines, evaluating risk of respiratory and all-cause hospitalizations with Fluzone High-Dose vaccine compared to a standard-dose flu vaccine.^{ix}
- Feb. 2018:** **Data Publication High-Dose Efficacy in Veterans Health Administration patients**
[*The Journal of Infectious Diseases*](#) published effectiveness data from a retrospective observational study of Veterans Health Administration (VHA) patients. The study evaluated influenza- and pneumonia-associated hospitalizations in VHA patients 65 years of age or older in the 2015-2016 influenza season who received Fluzone High-Dose vaccine compared to standard-dose vaccine.

ABOUT FLUZONE HIGH-DOSE VACCINE

IMPORTANT SAFETY INFORMATION

Fluzone High-Dose vaccine should not be given to anyone who has had a severe allergic reaction (eg, anaphylaxis) to any vaccine component, including eggs, egg products, or to a previous dose of any influenza vaccine.

Tell your doctor if you have ever experienced Guillain-Barré syndrome (severe muscle weakness) after a previous dose of influenza vaccine. If you notice any other problems or symptoms following vaccination, please contact your health care professional immediately.

The most common side effects to Fluzone High-Dose vaccine include pain, swelling, and redness at the injection site; muscle aches, fatigue, and headache. Other side effects may occur. Vaccination with Fluzone High-Dose vaccine may not protect all individuals.

INDICATION

Fluzone High-Dose vaccine is given to people 65 years of age and older to help prevent influenza disease caused by influenza A and B strains contained in the vaccine.

For more information about [*Fluzone High-Dose*](#) vaccine, talk to your health care professional and see complete Patient Information.

- i. Aspinall R, Del Giudice G, Effros RB, Grubeck-Loebenstien B, Sambhara S. Challenges for vaccination in the elderly. *Immun Ageing*. 2007;4:9.
- ii. Monto AS, Ansaldi F, Aspinall R, et al. Influenza control in the 21st century: optimizing protection of older adults. *Vaccine*. 2009;27(37):5043–5053.
- iii. Centers for Disease Control and Prevention (CDC). What You Should Know and Do this Flu Season If You Are 65 Years and Older. <http://www.cdc.gov/flu/about/disease/65over.htm>. Accessed on March 24, 2016.
- iv. Fluzone High-Dose vaccine [Prescribing Information]. Swiftwater, PA: Sanofi Pasteur Inc.; 2015.
- v. DiazGranados CA, Dunning AJ, Kimmel M, et al. Efficacy of high-dose versus standard-dose influenza vaccine in older adults. *N Engl J Med*. 2014;371:635-645.
- vi. Nace DA, Lin CJ, Ross TM, et al. Randomized, controlled trial of high-dose influenza vaccine among frail residents of long-term care facilities. *J Infect Dis*. 2015;211(12):1915-1924.
- vii. DiazGranados CA, Robertson CA, Talbot K, et al. Prevention of serious events in adults 65 years of age or older: A comparison between high-dose and standard-dose inactivated influenza vaccines. *Vaccine*. 2015;33(38):4988-4993.
- viii. Chit A, Becker DL, DiazGranados CA, et al. Cost-effectiveness of high-dose versus standard-dose inactivated influenza vaccine in adults aged 65 years and older: an economic evaluation of data from a randomized controlled trial. *Lancet Infect Dis*. 2015;15(12):1459-1466.
- ix. Gravenstein S, Davidson HE, Taljaard M, et al. Comparative effectiveness of high-dose versus standard-dose influenza vaccination on numbers of US nursing home residents admitted to hospital: a cluster-randomised. *Lancet Resp Med*. 2017.
- x. Shay D.K., et al. (2017). Comparative Effectiveness of High-Dose Versus Standard-Dose Influenza Vaccines Among US Medicare Beneficiaries in Preventing Post influenza Deaths During 2012-2013 and 2013-2014. *The Journal of infectious diseases*. 215(4): 510-517.