

Seasonal epidemics of influenza (flu) occur every year in the United States, beginning in the fall. Typically, the epidemics cause thousands to tens of thousands of deaths and about 200,000 hospitalizations each year. Since the 1940s, a vaccine has been available to prevent influenza; unfortunately, the vaccine is not used as much as it should be. To prevent the hospitalizations and deaths caused every year by influenza virus, the Centers for Disease Control and Prevention has recommended that all U.S. citizens more than 6 months of age receive the influenza vaccine. *This recommendation has the potential to save thousands of lives.*

Q. What is influenza (flu)?

A. Influenza (flu) is a virus that infects the nose, throat, windpipe and lungs. The virus is highly contagious and is spread from one person to another by coughing, sneezing or talking. Influenza infections typically occur between October and April each year.

Q. What are the symptoms of influenza?

A. Typical symptoms of influenza include fever, chills, muscle aches, congestion, cough, runny nose and difficulty breathing. Other viruses can cause symptoms similar to influenza. But, influenza virus is a more common cause of severe, fatal pneumonia.

Most, but not all, people who die from influenza are older than 65. Sadly, last year almost 150 children died as a result of influenza. Children younger than 4 often require hospitalization because of high fever, wheezing, croup or pneumonia.

Because influenza is a virus, it can't be successfully treated with antibiotics. While some antiviral medications are available by prescription, not all strains of influenza are susceptible to them, and they work best when used early in the infection.

Q. Who should get the influenza vaccine?

A. The influenza vaccine is recommended for everyone 6 months of age and older.

Children under 9 years of age require two doses of influenza vaccine separated by four weeks if they have never received an influenza vaccine or have an uncertain vaccination history.



The nasal version (FluMist®) is only recommended for healthy people between 2 and 49 years of age and has the advantage of inducing an excellent immune response without requiring a shot.

Q. How is the vaccine made?

A. Traditionally two types of influenza vaccines have been available, often referred to by the method of administration — the shot or the nasal spray. However, this year, more vaccine types are available, so describing them by the way they are administered is insufficient.

- **Trivalent inactivated influenza vaccine** – This is the traditional influenza vaccine shot that has been used in the past; it is made by taking three different influenza viruses, growing them (individually) in eggs, purifying them and completely inactivating them with the chemical formaldehyde. A few brands of this vaccine are available with specific ages for use; however, this version is typically given to the broadest group of individuals, including infants.
- **Quadrivalent inactivated influenza vaccine** – This version is made in the same way as the trivalent version; however, it contains four types of influenza viruses. This vaccine is given as a shot and can be used for people 6 months and older.
- **Cell culture-based influenza vaccine** – This version contains three different influenza viruses and is made similar to the other inactivated vaccines; however, instead of growing the viruses in eggs (avian cells), they are grown in mammalian cells. This vaccine represents an advance in technology because it contains less egg protein than the version grown in eggs. It is given as a shot.
- **Recombinant influenza vaccine** – This version of influenza vaccine contains only one surface protein of the virus known as hemagglutinin. The protein is produced by inserting the gene for hemagglutinin into an insect virus that then produces large quantities of the hemagglutinin protein as it replicates. The protein is purified and used as the vaccine. This represents an advance in technology because it is the first egg protein-free influenza vaccine. This version is given as a shot and can be used in people between the ages of 18 and 49 years of age. It contains three types of influenza virus.
- **Live weakened influenza vaccine** – This is the traditional nasal spray version of the influenza vaccine; however, this year for the first time it will contain four types of influenza viruses instead of three. The viruses are live, weakened influenza viruses that can grow in the lining of the nose, but not in the lungs. Therefore, the vaccine induces an excellent protective immune response without causing disease. This version is grown in eggs, and as in previous years, can only be used in healthy, non-pregnant 2- to 49-year-olds.

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Influenza: What you should know

Q. Does the influenza vaccine work?

A. The influenza vaccine typically prevents about 70 of every 100 people who receive it from developing moderate-to-severe influenza infection; that is, if the vaccine doesn't completely prevent influenza infection, it will still lessen the length and severity of the illness.

While the vaccine is not perfect, it is still the best option for protection from influenza. The addition of a fourth type of influenza to some of this year's vaccines should help.

Q. When should I get the influenza vaccine?

A. Immunizations should be administered throughout the season because the peak incidence of influenza can occur as late as February or March.

Q. If I got the influenza vaccine last year, do I need this year's influenza vaccine?

A. Yes, getting the current vaccine is still of benefit for a few reasons. First, some versions have an additional strain of influenza. Second, some people are not protected after getting the vaccine, so another dose will protect an additional percentage of them. Third, antibody levels wane, particularly in the elderly, so another dose will boost the antibody levels before the start of the influenza season.

Q. Are the influenza vaccines safe?

A. Yes. Influenza vaccine shots can cause pain, redness or tenderness at the site of injection as well as muscle aches and low-grade fever, but because the vaccine viruses are completely inactivated or the vaccine contains only individual proteins, they cannot possibly cause influenza.

The live, weakened vaccine can cause mild congestion and runny nose. However, because the live, weakened vaccine has been modified so that it cannot grow in the lungs, it cannot possibly cause pneumonia.

Although most versions of the influenza vaccine are made in eggs and some people are severely allergic to eggs, the quantity of egg proteins is typically insufficient to cause a severe allergic response. But just to be sure, adults 18-49 years old with severe egg allergies that result in a drop in blood pressure or difficulty breathing should get the egg-free (recombinant) version. Those younger than 18 or older than 49 with severe allergies should consult an allergist, and people of all ages with less severe allergies, such as those who get hives, can get other versions of influenza vaccine, but it is suggested that they remain at the provider's office for 30 minutes after receiving an egg-based version.

Q. Does the influenza vaccine contain thimerosal?

A. Some multi-dose preparations of the inactivated influenza vaccine given as a shot still contain a small quantity of the mercury-based preservative known as thimerosal. However, the quantity contained in vaccines does not cause harm. Influenza infections can cause severe illness and death, so the benefits of receiving the vaccine clearly outweigh the theoretical risks.

Q. What is the difference between seasonal influenza and an influenza pandemic?

A. A pandemic is a worldwide epidemic. Every year in the United States and throughout the world, influenza viruses cause epidemics. Because many people have some immunity, yearly epidemics don't infect everyone.

However, new strains of influenza virus can form when genetic material from both human and animal strains of influenza mix. Because virtually no one is immune to these new viruses, they have the potential to sweep across the world unchecked. Typically, many more people become ill and die during pandemics than during yearly epidemics.

In 2009 this happened with the novel H1N1 strain. Luckily, this new strain was not as fatal as some previous pandemic strains. Unfortunately, 60 million people in the United States still became ill, 270,000 were hospitalized and about 12,000 died. Of those who died, between 1,100 and 1,200 were children, about 10 times the number who die during a normal influenza season.

Recently, a novel H7N9 strain of influenza sickened and killed people when it spread from poultry. However, to date, this version has not adapted to move easily from person to person. Public health officials continue to remain vigilant.

Q. Can pregnant women get the influenza vaccine?

A. Yes, in fact, this is one of two vaccines that pregnant women are urged to get during pregnancy; the other is Tdap. Because pregnant women are more likely to experience complications and hospitalization as a result of infection with influenza, it is important for them to be immunized.

Pregnant women should receive the influenza shot, not the nasal spray.

Q. Can I avoid getting the vaccine and the virus by washing my hands and staying away from others who are ill?

A. While careful hand-washing, covering coughs and sneezes, and staying home when ill can help prevent the spread of disease, we cannot be certain that others will do the same. Further, not everyone infected with influenza realizes they are transmitting it since infected people begin to spread the virus a day or two before they have symptoms.

So, while these measures can reduce your chance of getting influenza, and in fact helped to stem transmission during the pandemic of 2009, they can only do so much to prevent influenza infections. The reality is that the only way to ensure protection from a specific disease is to have immunity acquired through immunization or previous exposure to the disease.



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