

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 about 100 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. The nasal spray version is preferred for children between 2 and 8 years of age because children are better protected. However, vaccination should not be delayed if this version is unavailable; it is more important to be immunized as soon as possible.

Q. How is the vaccine made?

A. Traditionally two types of influenza vaccines have been available, often referred to by their method of administration — the shot or the nasal spray. However, in recent years, more vaccine choices have become 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 currently contains three different influenza viruses and is made in a manner 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. The protein is purified and used as the vaccine. First available in the fall of 2013, this version 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 18 and 49 years of age. It currently contains three types of influenza virus.
- **Live weakened influenza vaccine** – This is the traditional nasal spray version of the influenza vaccine; however, it now contains 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; even though the vaccine might not completely prevent influenza infection, it will still lessen the length and severity of the illness.

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 people are not protected after getting the vaccine, so another dose will increase their chance of being protected. Second, antibody levels wane, particularly in the elderly, so another dose will boost antibody levels before the start of influenza season. Finally, sometimes influenza virus changes significantly from one year to the next, so immunization or natural infection the previous year is not protective.

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; 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 epidemic, or seasonal, influenza and pandemic influenza?

A. 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.

A pandemic is a worldwide epidemic caused when new strains of influenza virus form. This happens 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 a pandemic centered on the novel H1N1 strain. Luckily, this new strain was not as fatal as some previous pandemic strains. Still, 60 million people in the United States 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.

Q. Can pregnant women get the influenza vaccine?

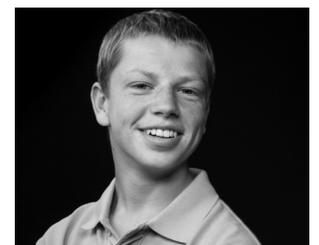
A. Yes, in fact, this is one of two vaccines that pregnant women are urged to get during pregnancy; the other is Tdap. Because pregnant women are more likely to experience complications and hospitalization as a result of infection with influenza, it is important for them to be immunized.

Pregnant women should receive the influenza shot, not the nasal spray and should be immunized early in the pregnancy to afford the longest period of protection.

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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