

Seasonal epidemics of influenza occur every year in the United States, beginning in the fall. Typically, the epidemics cause about 36,000 deaths and 200,000 hospitalizations. 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 is considering recommending that all U.S. citizens receive the influenza vaccine. *Although this would be a difficult strategy to implement, it would 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 occur between October and April of each year.

## 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. However, because many people have some immunity, yearly epidemics don't infect everyone.

The strains of influenza virus that cause pandemics are different than those that cause epidemics. They typically include genetic material from both human and animal strains of influenza, such as from pigs or birds. When these viruses mix, new viruses are created.

Virtually no one in the world is immune to pandemic viruses. For this reason, pandemic strains of influenza sweep across the world unchecked. Typically, many more people become ill and die during pandemics than during yearly epidemics.



## 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.

## Q. Can influenza be life-threatening?

A. **Yes.** Every year in the United States approximately 200,000 people are hospitalized and 36,000 die from complications of influenza infection. Most of the people who die are older than 65, but many of those who are hospitalized are younger than 4. Children hospitalized because of influenza usually have high fever, wheezing, croup or pneumonia. Because influenza is a virus, it can't be successfully treated with antibiotics.

## Q. Is there a vaccine to prevent influenza?

A. **Yes.** There are two different influenza vaccines.

The "inactivated" influenza vaccine is made by taking influenza viruses, growing them in eggs, purifying them and completely inactivating them with the chemical formaldehyde. This vaccine is given as a shot.

The "live, weakened" influenza vaccine (FluMist<sup>®</sup>) is made so that it cannot grow in the lungs. However, because the weakened viruses can grow in the lining of the nose, they induce an excellent protective immune response. FluMist is also made by growing the viruses in eggs. This vaccine is given as a nasal spray.

Both vaccines contain the three different strains of influenza viruses likely to cause disease that year.

The influenza vaccine will prevent about 70 to 90 of every 100 people who receive it from developing moderate-to-severe influenza infection.

# Influenza: What you should know

## Q. Why do you have to get an influenza vaccine every year?

A. The influenza vaccine is given every year because the strains of influenza viruses that circulate every year are different. Influenza is unique in its ability to change the proteins that reside on the surface of the virus. These changes mean that people naturally infected or immunized one year are usually not protected the next year.

## Q. Are the influenza vaccines safe?

A. Yes. The inactivated influenza vaccine can cause pain, redness or tenderness at the site of injection. It can also cause muscle aches and low-grade fever, but because the vaccine viruses are completely inactivated, 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.

The influenza vaccine does have one side effect that can be quite serious. Because it is made in eggs, the vaccine contains small quantities of egg proteins. People allergic to eggs can have a severe, and rarely fatal, allergic reaction. This reaction happens in about one of every 2 million people who receive the vaccine. For this reason, people who are allergic to eggs should not receive the influenza vaccine.

However, if people are allergic to eggs and are at high risk of severe influenza infection, they should receive the vaccine under a protocol administered by a physician that minimizes the risk of an allergic reaction.

## Q. When should you get the influenza vaccine?

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

## 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 thimerosal. However, thimerosal contained in vaccines has not been shown to cause harm and influenza infections can cause severe illness and death, so the benefits of receiving the vaccine clearly outweigh the risks.

## Q. Who should get the influenza vaccine?

A. The influenza vaccine is recommended for many groups of people. Those groups include: people with asthma; people with chronic diseases of the lungs, heart or kidneys; people older than 50; pregnant women; and children between 6 months and 18 years of age. Because healthcare workers and family members can give influenza to these high-risk groups, it is important for them to be immunized as well. People older than

65 are most likely to catch influenza virus from young children; therefore, immunizing children can also prevent deaths in the elderly.

Children under 9 years of age who have never received an influenza vaccine require two doses. If a child under 9 years of age was immunized for the first time last season and only received one dose, he requires two doses this season.

All people, no matter how healthy, are at some risk of developing severe and even fatal influenza infections.

Therefore anyone who wants to decrease their chance of getting influenza or who may give influenza to a high-risk person, should get immunized. The FluMist vaccine is currently 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. Should pregnant women get the influenza vaccine?

A. Yes. Pregnant women are more likely to experience complications and hospitalization as a result of infection with influenza.

This information is provided by the Vaccine Education Center at The Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from The Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies.

Some of this material was excerpted from the book, *Vaccines: What You Should Know*, co-authored by Paul A. Offit, M.D., and Louis M. Bell, M.D.

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