

Influenza Vaccination: What Your Patients Want to Know

This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

Welcome to this CDC influenza podcast for health care professionals. In this podcast, Dr. Tony Fiore from CDC's Influenza Division discusses influenza vaccination and answers common questions asked by patients. For additional podcasts about influenza and other topics, go to www.cdc.gov/podcasts.

Every year, the influenza vaccine is updated in response to changes in the viruses that circulate in the community. That's why you need to be vaccinated each year. This year, all three strains in the vaccine are new, and plenty of vaccine is available. Manufacturers project between 143 and 146 million doses of vaccine will be produced and distributed this year.

As soon as vaccine is available in your community, get vaccinated, vaccinate your staff, and begin vaccinating patients. The flu season can come early and unexpectedly. It takes about two weeks after getting a flu vaccine for a person to develop a protective immune response, so encouraging people to get vaccinated early is important. Even if flu doesn't arrive in your area until February, the people who got vaccinated early, such as late summer or fall, will still be protected. Consider offering vaccination to family members or caretakers who accompany patients into the medical office. Most will have an indication for getting vaccinated, and many won't know it.

Influenza is unpredictable and experts try to select the strains that will circulate and cause the most illness during the upcoming flu season. Worldwide surveillance of circulating flu viruses helps health experts select the vaccine components to use in the influenza vaccine each season.

This season, all early indicators suggest the vaccine is on target to protect against the flu strains that will circulate this year. However, protection varies between people and by year. People who are older or who have chronic medical conditions do respond to vaccination, and most will be protected, but young, healthy people respond the best.

Sometimes the strains in the vaccine don't closely match those circulating in the community, and when that happens, vaccine effectiveness can be reduced. The closer the match between the influenza viruses in the vaccine and those in the community, the more effective the vaccine is in preventing influenza. When the match is good, vaccine effectiveness is high. For young, healthy people, vaccine effectiveness can be as high as 90 percent.

In the past, effectiveness has been lower, sometimes substantially lower, because circulating viruses did not closely match those in the vaccine. But even in seasons when the vaccines' effectiveness in preventing illness is lower, studies have shown the vaccine can still provide protection from severe infection. So instead of completely preventing illness, vaccination can still reduce the chances of needing hospital care.

Flu viruses are always changing, and this problem comes up again and again for experts trying to prevent flu illness. Flu viruses can, and on occasion have, changed between the time we have to

pick the strains for use in the vaccine in February and the time the flu season arrives, which tends to be towards the end of the year - 8 months or later. Changes in viruses even occur during the flu season. For this reason, there is always the possibility of a sub-optimal match between the viruses in the vaccine and those circulating in the community.

To best select which strains to include in the vaccine, experts collect thousands of flu viruses from all over the world and study how the viruses are changing. They look at the viruses' genetic makeup and how they react with antibodies from people and animals.

The seasonal influenza vaccine contains three influenza virus strains – one influenza A, or H3N2, virus; one influenza A, or H1N1, virus; and one influenza B virus. But even when the match between the vaccine and the viruses in the community is not ideal, people still often benefit from vaccination. Antibodies made in response to vaccination with one strain of influenza virus can provide protection against different, but related, strains. A less than ideal match may result in reduced vaccine effectiveness against the variant viruses, but it can still provide enough protection to prevent illness, lessen the severity of illness, or prevent flu-related complications, including death.

As previously mentioned, the influenza vaccine contains three virus strains, so that even if there is a less than ideal match or lower effectiveness against one strain, the vaccine can still provide protection against the other two viruses. For these reasons, even during seasons where there is a sub-optimal vaccine match, CDC continues to recommend influenza vaccination. This is particularly important for people at high risk for serious flu complications and their close contacts.

Why should I get the flu vaccine?

This is a question that patients, and even some health care workers, ask all the time. CDC and just about every society of medical professionals recommends a yearly flu vaccine as the first and most important step in protecting against this serious disease. Each year, influenza places a large burden on the health and well-being of children and families. *And*, the flu vaccine works! While there are many different influenza viruses, the flu vaccine protects against the three main influenza strains that research indicates will cause the most illness during the season.

Why should my child get a flu vaccine?

Many people don't realize that flu has a significant impact on children. Outpatient visits associated with influenza are common among children, especially during the first 5 years of life. Influenza-associated hospitalization rates for children are substantial. CDC estimates that each year, 20,000 children under the age of 5 are hospitalized from serious flu-related complications. Some children will die of flu each year. During the 2007-2008 flu season, CDC received reports that at least 87 children died from influenza-related complications.

Don't forget that children younger than 6 months are at highest risk of complications from influenza, but are too young to get the flu vaccine. The best way to prevent influenza in infants is to vaccinate the people close to them, such as family members and care-takers. Vaccines are our best defense against infectious diseases, but no vaccine is 100 percent safe or effective. People

react differently to vaccines, so some people have side effects or are not protected from the disease.

The most commonly reported side effect of the flu shot is soreness around the injection site. Other mild problems may include redness or swelling where the shot was given, and occasionally, fever and aches. If these problems occur, they usually begin soon after the shot is given and last for one to two days.

Vaccines are held to the highest standards of safety. Manufacturers of influenza vaccine work closely with the Food and Drug Administration each year to be certain that vaccines are manufactured in the safest way possible, and safety is closely monitored in post-marketing surveillance.

What is thimerosal?

Thimerosal is a very effective preservative that has been used since the 1930s to prevent contamination in some multi-dose vials of vaccine. All multi-dose vials must contain a preservative to prevent contamination. Thimerosal contains approximately 49 percent ethyl mercury.

Does the influenza vaccine contain thimerosal?

Yes, the majority of influenza vaccines distributed in the United States currently contain thimerosal as a preservative. However, the capacity for making preservative-free single-dose influenza vaccines is rapidly expanding, and preservative-free influenza vaccines are available for every age group. The nasal-spray vaccine, which is commercially sold as FluMist® does not contain thimerosal.

Should I be concerned about flu vaccine that contains thimerosal?

Multiple, large, well-designed studies have not found any evidence of harm caused by the low doses of thimerosal in vaccines. Minor reactions, such as redness and swelling at the injection site, are the most commonly reported adverse reactions. Again, preservative-free options are available if concerns about thimerosal remain a barrier to vaccination.

Is the influenza vaccine effective?

This is another way of asking whether you should get vaccinated, so the answer is similar: past studies have shown that flu vaccine effectiveness, in other words, the ability of the vaccine to prevent influenza and its complications, has been as high as 70 to 90 percent in healthy adults when the viruses in the vaccine are well matched to circulating flu viruses.

While not perfect, influenza vaccine is the best way to prevent influenza. Even in seasons where there is a sub-optimal match between the flu vaccine and flu viruses in the community, vaccination can help protect against serious influenza-related complications, including hospitalization and death.

Can the flu shot give you the flu?

No, no, and no. This question is easy to answer scientifically, but the myth is harder to dispel. The flu shot cannot cause flu illness. Each of the three influenza viruses in the flu shot are

inactivated or killed, which means they cannot cause infection. Flu vaccine manufacturers kill the viruses used in the vaccine during the process of making vaccine, and batches of flu vaccine are tested to make sure they are safe.

In randomized, blinded studies, where some people get flu shots and others get saline shots, the only difference in symptoms was increased soreness in the arm and redness at the injection site among people who got the flu shot. There were no differences in terms of body aches, fever, cough, runny nose, or sore throat.

The most common side effect of the flu vaccine in adults is soreness at the spot where the shot was given, which usually lasts less than two days. The soreness is often caused by the immune system making protective antibodies to the killed viruses in the vaccine. These antibodies are the key to fighting off the flu viruses that a vaccinated person might later encounter in the community. The needle stick may also cause some soreness at the injection site. According to the Advisory Committee on Immunization Practices, less common symptoms included fever, muscle pain, and feelings of discomfort or weakness. If these problems occur, they usually begin soon after the shot and last one to two days.

What about people who get a flu vaccine and still get sick with flu-like symptoms?

People may be exposed to an influenza virus shortly before getting vaccinated or during the two-week period that it takes the body to gain protection after getting vaccinated. This exposure may result in a person becoming ill with flu before the vaccine begins to protect them. Persons may become ill from one of the many other types of other respiratory viruses that circulate during the flu season, which can also cause flu-like symptoms, such as rhinovirus. Alternatively, a person may also be exposed to an influenza virus that is not included in the vaccine. There are many different influenza viruses.

Unfortunately, some people can remain unprotected from flu, despite getting the vaccine. This is more likely to occur among people who have weakened immune systems. However, even among people with weakened immune systems, the flu vaccine can still help prevent serious influenza complications, including death.

Does getting vaccinated against flu early in the season pose a risk that immunity may wane before the end of the season?

Flu vaccination provides protection against the influenza strains contained in the vaccine through one influenza season. Vaccination can begin as soon as vaccine is available. Children younger than 9 years old who are getting influenza vaccine for the first time in their lives should get two doses separated by at least 4 weeks. Studies have not demonstrated a benefit of receiving more than one dose of vaccine during an influenza season for older persons, including elderly persons with weakened immune systems.

Can the nasal spray flu vaccine give you the flu?

Unlike the flu shot, the nasal spray flu vaccine does contain live viruses. However, the viruses are attenuated, in other words, weakened and cannot cause flu illness. The weakened viruses are cold-adapted, which means they are designed to only cause infection at the cooler temperatures

found within the nose. The viruses cannot infect the lungs or other areas where warmer temperatures exist.

Some children and adults have reported experiencing mild reactions after receiving nasal spray flu vaccine, including runny nose, nasal congestion, cough, chills, tiredness/weakness, sore throat, or headache. These side effects are mild and short-lasting, especially when compared to symptoms of influenza infection.

Is it too late to get vaccinated after Thanksgiving or the end of November?

No, it's not too late. CDC recommends that providers begin to offer influenza vaccination as soon as vaccine becomes available in the fall. If you haven't been vaccinated by Thanksgiving or the end of November, it can still be protective to get vaccinated in December or later because influenza disease usually peaks in January or February most years, and disease can occur as late as May.

Is the "stomach flu" really the flu?

No. Many people use the term "stomach flu" to describe illnesses with nausea, vomiting, or diarrhea. These symptoms can be caused by many different viruses, bacteria, or even parasites. While vomiting, diarrhea, and being nauseated or "sick to your stomach" can sometimes be related to the flu, more commonly in children than adults, these problems are rarely the main symptoms of influenza. The flu is a respiratory disease, not a stomach or intestinal disease.

For more information on influenza, visit www.cdc.gov/flu.

For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO, 24/7.