



By Bob Jaeger, BS Pharm

INFLUENZA IMMUNIZATION 2023-2024

Each year the US Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention (CDC) provides guidance on the control of vaccine-preventable diseases for the American population. Among other things, the committee studies which flu viruses are making people sick prior to the upcoming flu season. They also consider the extent to which those viruses are spreading and how well the previous season's vaccines worked. Remember that flu is a *respiratory illness* (affecting the airways and lungs) and starts ramping up in the US usually between October and the following May each year. So you may want to take a few moments to see what has changed for the 2023-2024 flu season.

Similar to last year, many flu vaccines are available this season. Like last year, all flu vaccines are *quadrivalent*. This means they all protect against four different flu virus types. And one of the four types has been updated in all the current vaccines to protect against an additional *strain* of virus. While your physician or other health care provider can help you decide which flu shot is appropriate for your age and medical condition, knowing that flu shots are either *inactivated*, *recombinant*, or *live* can enable you to have an informed discussion with your provider.

Inactivated vaccines. Most flu vaccines are *inactivated*. There are several ways to inactivate a vaccine. An inactivated (or "killed") virus is one that cannot replicate. So you can't get the flu from an inactivated flu vaccine, but it will stimulate your immune system to produce antibodies against the flu virus if you are exposed. Most inactivated vaccines are produced by growing flu viruses in eggs. Flucelvax® is the only influenza vaccine in use in the United States for which the vaccine viruses are grown in a mammalian cell culture. Living cells from a specific mammal are used to grow the virus before it is inactivated for use in the vaccine. No animals are harmed in this process.

Recombinant Vaccine. This method does not require chicken eggs or mammalian cells in the vaccine production process. Scientists use the gene that makes a surface protein found on influenza viruses. This protein is purified for insertion into the vaccine which triggers the immune system to target the real virus. There is one recombinant flu shot (Flublok®) that is available for the 2023-2024 influenza season. Flublok® is one of the preferred shots for people over 65. It is also *not* possible to get the flu from a recombinant influenza vaccine.

Live vaccine. One vaccine, FluMist®, is a weakened (also known as *attenuated*) form of the flu virus. FluMist® is administered as a spray into each nostril, so no needles. Even though it is weakened, it is a live vaccine and it is only for healthy, non-pregnant patients. This nasal spray flu vaccine is also made with egg-based technology. It has not been studied for people with severe asthma or active wheezing. It's approved for ages 2 to 49 years of age. There is a long list of people who should *not* get this vaccine. Choose FluMist® only if your doctor specifically recommends it for you or your child.

Who should get a flu shot? Getting the flu shot is recommended for *everyone 6 months of age or older*. Also, in light of COVID-19, it's more important than ever to get a flu vaccine. The vaccine is especially important for people with serious illness. A study reported just this year shows that a heart attack is significantly more likely within a week of having a *flu infection*. And it's been demonstrated that preventing flu can conserve healthcare resources by reducing the risk of illness, hospitalizations, and death.

Which flu shot should I get? Children six months through 8 years of age *who have never had a flu shot*, should get two doses at least four weeks apart. Check with your pediatrician for the specific CDC recommendations on this. Up to age 64, your provider will advise you on the appropriate shot for you, usually an inactivated, standard-dose vaccine. Vaccines preferred for 65 and older are the high-dose Fluzone® (inactivated), Fluvad® (inactivated plus an ingredient added to boost the immune response), and Flublok® (the recombinant vaccine).

When should I get the flu vaccine? In the US, as soon as possible beginning in September and before the end of October. Getting the shot by the end of October will provide protection that will last throughout the flu season. But even if you're late in getting it, the vaccine will be available as long as flu virus is circulating.

Can flu vaccines be given with other vaccines? Yes, inactivated flu vaccines can be given with other vaccines but should be given in separate limbs. If you're over 65 and getting the Fluvad® vaccine (with the immune system booster), you probably should *not* get the Shingles shot at the same time. Getting them together could cause more side effects. However, any flu vaccine can be given at the same time with COVID-19 vaccines, as long as you get the shots in different arms.

Can you get the flu vaccine if you're sick? If the illness is mild, the CDC recommends still getting the shot rather than miss an opportunity to get vaccinated. But in moderate to severe illness it's better to wait until your symptoms are improved. If you test positive for COVID-19 and have symptoms, wait until moderate to severe symptoms subside and you have completed the isolation period.

Can immunocompromised people receive the flu vaccine? Check with your doctor on this one. You should get vaccinated, but your doctor can help you decide on the standard-dose or the high-dose vaccine. The CDC says that immunocompromised patients may receive any licensed, *injectable* flu vaccine that your provider recommends.

How effective is the vaccine in preventing flu? It's too early to know the effectiveness of the vaccine for the 2023-2024 season. In past years, flu vaccine effectiveness has ranged between 40 to 60%. It varies among age groups, but last season averaged around 44% effectiveness for all adults over 18 years of age. While this seems low, remember that reducing your chance of getting the flu by almost 50% is significant. And even if you get the flu, vaccinated people tend to have milder symptoms and are less likely to be admitted to a hospital. Influenza vaccination reduces the risk of severe flu and death, even when the vaccine is not perfectly matched with any particular year's flu strains. COVID-19 shots have a much higher effectiveness, but that's because influenza and COVID-19 are different viruses. So don't compare.

Can pregnant or nursing women get the vaccine? Yes, pregnant women can get any *injectable* flu vaccine and, according to the CDC, flu vaccine is safe while breastfeeding. Women who get the influenza vaccine while pregnant or breastfeeding also develop antibodies against influenza that they can share with their infants through their breast milk. The CDC also states that the risk of flu and potential complications for a pregnant woman and her baby are greater than any possible risks associated with the flu vaccine. If you're pregnant, continue to follow your doctor's advice on immunization.

(Continued on page 2)

What if I have an egg allergy? According to the CDC, beginning with the 2023-2024 season, it's no longer necessary to exercise special safety precautions (giving the vaccine in a doctor's office, etc.) when giving flu vaccinations to people who are allergic to eggs. Studies have shown that people with a history of severe egg allergy do *not* have higher reaction rates to egg-containing vaccines compared to non-egg allergic patients. But if you're still concerned, ask your provider about egg-free flu vaccines. At least two are available. Flucelvax[®] is approved for anyone over 6 months, and Flublok[®] is available for adults over 18 years of age. With

regard to other allergies, the CDC states, "Although people who are allergic to eggs should receive flu vaccine, people with some other allergies should not. People who have had a severe allergic reaction to other components that are in a flu vaccine should not receive vaccines that contain that component." See the table below.

Should unvaccinated people who already had the flu this year still get the flu vaccine? Yes. It's advisable to get the shot even if you've had flu this season. The current vaccines may protect against other circulating flu viruses.

Summary. The bottom line is that influenza vaccination has a good chance of protecting you from the flu during the 2023-2024 flu season. If you decide to get vaccinated, get it by the end of October. You can choose one of the age-appropriate vaccines in this newsletter or simply rely on your health care provider to suggest the one appropriate for you. If you do get influenza in spite of being vaccinated, you will be less likely to get severely ill, and thus less likely to be admitted to the hospital or the ICU.

Flu Vaccines for the 2023-2024 Season			
Brand Name	Type of Vaccine	Age Approved	Other Ingredients for Sensitive Patients*
Afluria [®]	Inactivated	Over 6 months of age	May contain trace amounts of neomycin and polymyxin B, multiple dose vial contains thimerosal.
Fluad [®]	Inactivated	65 year of age and older	Trace amounts of neomycin and kanamycin.
Fluarix [®]	Inactivated	Over 6 months of age	Octoxynol-10, α -tocopheryl hydrogen succinate, and polysorbate 80.
Flucelvax [®]	Inactivated	Over 6 months of age	Egg-free. May contain polysorbate 80, cetyltrimethylammonium bromide, beta propiolactone.
FluLaval [®]	Inactivated	Over 6 months of age	May contain α -tocopheryl hydrogen succinate, and polysorbate 80.
Fluzone [®]	Inactivated	Over 6 months of age	May contain traces of formaldehyde, octylphenol ethoxylate , multiple dose vial contains thimerosal.
Fluzone [®] High-Dose	Inactivated	65 years of age and older	May contain traces of formaldehyde, octylphenol ethoxylate.
Flublok [®]	Recombinant	18 years of age and older	Egg-free. Contains polysorbate 20 and may contain trace amounts of octylphenol ethoxylate.
FluMist [®]	Live, but weakened	2 to 49 years of age	May contain trace amounts of gentamicin.
* Manufacturers state that most of these chemicals are used in the manufacturing process (not added) and are in the vaccines in trace amounts.			
Table modified from Pharmacist's Letter, Therapeutic Research, September 2023			