

Louisiana Pharmacists Association Educates Patients about the Flu Vaccine for the 2018-2019 Season

As fall and winter approach, the incidence of influenza (flu) increases. Last year roughly 80,000 Americans, including 183 children¹, died in the deadliest flu season in more than 40 years, according to the Centers for Disease Control and Prevention (CDC). Approximately 80 percent of those that died did not receive a flu vaccine. The flu or influenza is caused by contagious respiratory viruses that result in mild to severe illness. These viruses are spread by airborne droplets from sneezing or coughing and by touching objects that have come in contact with droplets. The flu virus mainly affects the upper respiratory tract and causes symptoms such as fever, chills, body aches, and headaches². Prevention is the best way to protect yourself and those around you from influenza.

There are several types of flu vaccines available, including trivalent and quadrivalent inactivated, recombinant, and attenuated vaccines. Each vaccine induces the body's immunity to several strains of the influenza virus. Trivalent vaccines contain two A strains and one B strain of the influenza virus, while quadrivalent vaccines contain two A strains and two B strains of the influenza virus. The specific strains covered vary from year-to-year based upon the current most prevalent influenza strains.

Inactivated influenza vaccines are prepared with influenza viruses that have either been grown in chicken eggs or in cell culture. The viruses grown in cell culture are formulated specifically for patients with egg allergies. The viruses are then harvested, inactivated with formaldehyde, and concentrated using special equipment. After concentration, the viruses are put through two steps of purification and then suspended in an isotonic sodium chloride solution. Solutions are then put into either a five-milliliter multidose vial or a single-dose vial or pre-filled syringe. The multi-dose vial contains thimerosal, a mercury derivative, added as a preservative³. The words 'formaldehyde' and 'thimerosal' are alarming to many; however, it is important to note that formaldehyde is endogenously produced and metabolized by the human body⁴, and the risk related to thimerosal is theoretical and unproven. The potential benefit of protection from the influenza virus is considered to far outweigh the theoretical risk from the small amount of thimerosal in the vaccine⁵. For those with a concern for risks associated with the mercury derivative, the single-dose vials or pre-filled syringes are great options as most are not formulated with thimerosal or any other preservative³.

The recombinant influenza vaccines are prepared with proteins from influenza viruses that are grown in cells in a medium made up of lipids, vitamins, amino acids, and mineral salts. They are then extracted from the cells and purified. After purification,

the different proteins are blended together and filled into single-dose syringes. Each syringe also contains sodium chloride, sodium phosphates, and polysorbate 20. These vaccines contain no egg proteins, antibiotics, or preservatives, and the single-dose, pre-filled syringes contain no natural rubber latex⁶.

Finally, the live attenuated influenza vaccine, or intranasal spray, is prepared by allowing viruses to replicate within eggs. The viruses are harvested, filtered, and concentrated, then diluted with sucrose (a sugar) and potassium phosphate. The viruses in this vaccine are attenuated, meaning the viruses are live; however, they are not able to produce classic influenza-like illness once administered to patients. The vaccine is filled into individual sprayers for nasal administration. Each sprayer contains the attenuated viruses, and small amounts of monosodium glutamate, a porcine gelatin, arginine, sucrose, and potassium phosphates. This vaccine also contains no preservatives⁷.

For the 2018-2019 flu season, the CDC's Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccination for everyone 6 months and older with either the inactivated influenza vaccine, recombinant influenza vaccine, or the live attenuated influenza vaccine. ACIP does not express preference for one vaccine over another; however, some vaccines are not appropriate in some situations and health conditions, and some individuals should not receive influenza vaccines at all¹.

Patients should be aware of the CDC's annual recommendations on influenza vaccinations in order to ensure adequate immunization. The CDC recommends that patients get their immunization by the end of October; however, it is never too late to protect yourself against the flu. It is also important to note that it takes about two weeks for the body to build an adequate immune response to the influenza virus following vaccination. Due to this delayed immune response, it is still possible to contract the flu during this time frame; however, the flu vaccine cannot give you the flu. To avoid catching the flu while the body builds its immune response, it is good practice to avoid close contact with those who are ill; keep hands washed; avoid touching your eyes, nose, and mouth; and disinfect surfaces and objects that may be contaminated with germs like the flu virus. Remember, the CDC recommends everyone over the age of 6 months receive a flu vaccine yearly, especially children, elderly, and those living with certain diseases¹. If you have any questions about which vaccine is best for you or concerns about vaccine recommendations, your pharmacist is an easily accessible resource who is willing to discuss all questions and concerns you have regarding vaccinations.

References:

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- ⁵ Committee on Infectious Diseases. Recommendations for Prevention and Control of Influenza in Children, 2018-2019. *J Pediatr*. 2018;142(4):11-12.
- ⁶ Flublok® [package insert]. Meriden, CT: Protein Sciences Corporation; 2018.
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