PHARMACIST GUIDE
FOR INFLUENZA VACCINE SELECTION

Influenza vaccines for the 2020-21 season

There are 10 U.S. brands of influenza vaccines available on the market for the 2020-21 season made from a variety of manufacturing processes such as egg-based, cell culture-based, and recombinant.[1] All of these vaccines, except one (Fluad), contain four influenza strains comprising one influenza A (H3N2) virus, one influenza A (H1N1) virus, and two influenza B viruses. Table 1 describes the influenza vaccines available for the 2020-21 season.

New for the 2020-21 season are the quadrivalent high-dose vaccine (i.e., Fluzone High-Dose Quadrivalent) and the quadrivalent adjuvanted vaccine (i.e., Fluad Quadrivalent).[1] The Fluzone High-Dose Quadrivalent is replacing the previously available trivalent high-dose formulation, and both the trivalent adjuvanted vaccine (Fluad) and quadrivalent adjuvanted vaccine (Fluad Quadrivalent) are expected to be available for the 2020-21 season.

Table 1. Influenza vaccines available for the 2020-21 season. [1]

Trade name (Manufacturer)	Presentation	Age indication	HA (IIVs and RIV4) or virus count (AIV4) for each vaccine virus (per dose)	Route	Mercury (from thimerosal) µg/0.5 mL
IIV4 Standard dose, egg based Afluria Quadrivalent (Seqirus)	0.25-mL PFS	6 through 35 mos	7.5 µg/0.25 mL	IM	-
	0.5-mL PFS	≥ 3 yrs	15 µg/0.5 mL		-
	5.0-mL MDV	≥ 6 mos (needle/syringe) 18 through 64 yrs (jet injector)			24.5
Fluarix Quadrivalent (GlaxoSmithKline)	0.5-mL PFS	≥ 6 mos	15 µg/0.5 mL	IM	-
FluLaval Quadrivalent (GlaxoSmithKline)	0.5-mL PFS	≥ 6 mos	15 µg/0.5 mL	IM	-
Fluzone Quadrivalent (Sanofi Pasteur	0.5-mL PFS	≥ 6 mos	15 µg/0.5 mL	IM	-
	0.5-mL SDV	≥ 6 mos			-
	5.0-mL MDV	≥ 6 mos			25

APhA

Table 1. Influenza vaccines available for the 2020-21 season. [1] continued

Standard dose, cell culture based (ccIIV4) Flucelvax Quadrivalent (Seqirus)	0.5-mL PFS	≥4 yrs	15 µg/0.5 mL	IM	-
	5.0-mL MDV	≥4 yrs			25
High dose, egg based (HD-IIV4) Fluzone High-Dose Quadrivalent (Sanofi Pasteur)	0.7-mL PFS	≥65 yrs	60 µg/0.7 mL	IM	-
Standard dose, egg based with MF59 adjuvant (aIIV4) Fluad Quadrivalent (Seqirus)	0.5-mL PFS	≥65 yrs	15 µg/0.5 mL	IM	-
IIV3 Standard dose, egg based with MF59 adjuvant (aIIV3) Fluad (Seqirus)	0.5-mL PFS	≥65 yrs	15 µg/0.5 mL	IM	-
RIV4 Recombinant HA Flublok Quadrivalent (Sanofi Pasteur)	0.5-mL PFS	≥18 yrs	45 µg/0.5 mL	IM	-
LAIV4 Egg based FluMist Quadrivalent (AstraZeneca	0.2-mL prefilled single-use intranasal sprayer6	2 through 49 yrs	$10^{6.5-7.5}$ fluorescent focus units/0.2 mL	NAS-	-

Vaccine abbreviations

PFS-prefilled syringe; MDV-multidose vial; SDV-singledose vial; IM-intramuscular; NAS-intranasal; HA-hemagglutinin

There are numerous abbreviations used to describe currently available influenza vaccines which are described in Table 2.[1]

Table 2. Common abbreviations used for the various types of influenza vaccines[1]

Abbreviation	Vaccine
IIV3	Trivalent inactivated influenza vaccine • One influenza A (H3N2) virus, one influenza A (H1N1) virus, and one influenza B virus (B/Victoria lineage)
aIIV3	Adjuvanted trivalent inactivated influenza vaccine
IIV4	Quadrivalent inactivated influenza vaccine • One influenza A (H3N2) virus, one influenza A (H1N1) virus, and two influenza B viruses (B/Victoria and B/Yamagata lineages)
aIIV4	Adjuvanted quadrivalent inactivated influenza vaccine
ccIIV4	Cell culture-based quadrivalent inactivated influenza vaccine
HD-IIV4	High-dose quadrivalent inactivated influenza vaccine
RIV4	Recombinant quadrivalent influenza vaccine
LAIV4	Quadrivalent live attenuated influenza vaccine

The numerals following the letters describe the number of influenza virus hemagglutinin antigens (HA) represented in the vaccine (i.e., 3 or 4).[1] Prefixes such as "a" or "HD" are used to describe some specific vaccine types, with "a" indicating the vaccine has an adjuvant and "HD" indicating the vaccine is high-dose. Influenza vaccines with an adjuvant or those that are high-dose are indicated for patients who are 65 years of age or older and data suggest that these vaccines may produce a more robust immune response compared with standard-dose inactivated influenza vaccines in older adults.[1]

Other abbreviations indicate the manufacturing technology used such as "cc" for cell culture-based and "R" for recombinant.[1] Both the "cc" and "R" influenza vaccines are made via a process that does not involve eggs and may be preferred by patients who are looking for an egg-free option. LAIV is the standard abbreviation used to describe the live attenuated influenza vaccine and may be an ideal option for age-appropriate patients (i.e., 2-49 y/o) who prefer a needle-free option. Pharmacists should be familiar with these abbreviations, as this will help with understanding the vaccine contents, manufacturing process used, and if the vaccine is indicated for a special population.

Selecting between influenza vaccine formulations

The Centers for Disease Control and Prevention's (CDC's) Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccination for all persons aged 6 months and older who do not have contraindications.[1] There is no preferential recommendation for one influenza vaccine product over another for patients for whom more than one licensed, recommended, and appropriate product is available.

Providers may choose to administer any licensed, age-appropriate influenza vaccine, and have the ability to select between a variety of formulations such as the quadrivalent inactivated influenza vaccine (IIV4), live attenuated influenza vaccine (LAIV), quadrivalent cell culture-based inactivated influenza vaccine (ccIIV4), recombinant influenza vaccine (RIV4), trivalent or quadrivalent adjuvanted inactivated influenza vaccine (aIIV3 or aIIV4), or the quadrivalent high-dose inactivated influenza vaccine (HD-IIV4).[1]

Select considerations should be kept in mind when selecting between influenza vaccine formations, which are described in Table 3. The adjuvanted and high-dose formulations have been designed to provide a more robust immune response and are indicated for older patients (i.e., ≥ 65 y/o).[2,3] If patients request an egg-free option, then the recombinant or cell culture-based formulations can be selected. The LAIV may be an ideal option for age-appropriate patients (i.e., 2-49 y/o) who prefer a needle-free option.

Table 3. Influenza Vaccine Characteristics.[2,3]

Quadrivalent (4-component) • Most influenza vaccines are quadrivalent (4-component) • There are multiple vaccines with varying age indications, but influenza vaccines are available for people 6 months of age and older • There is one influenza vaccine still available in a trivalent (3-component) formulation which is the trivalent adjuvanted influenza vaccine approved for people 65 years of age and older	**Live Attenuated Influenza Vaccine (LAIV, 4-component)** • Nasal spray that contains four influenza viruses • Recommended for non-pregnant individuals, 2 years through 49 years of age	**Recombinant** • Produced using a method that does not require an egg-grown virus • Indicated for adults 18 years of age and older
Adjuvanted (3 and 4-component) • Designed to deliver a stronger immune response • Indicated for adults 65 years of age and older	**High-dose (immune-boosting, 4-component)** • Designed to deliver a stronger immune response • Indicated for adults 65 years of age and older	**Cell-based** • Produced with flu viruses grown in cultured cells of mammalian origin instead of in hens' eggs, developed as an alternative to the egg-based manufacturing process • Indicated for people 4 years of age and older

CDC's Share model

The CDC suggests using the SHARE method to make a strong vaccine recommendation and provide important information to help patients make informed decisions about vaccinations. In this method, the pharmacist should:[2]

- **SHARE** the reasons why the influenza vaccine is right for the patient given his or her age, health status, lifestyle, occupation, or other risk factors.
- **HIGHLIGHT** positive experiences with influenza vaccines, as appropriate, to reinforce the benefits and strengthen confidence in influenza vaccination.
- **ADDRESS** patient questions and any concerns about the influenza vaccine, including side effects, safety, and vaccine effectiveness in plain and understandable language.
- **REMIND** patients that influenza vaccines protect them and their loved ones from serious influenza illness and influenza-related complications.
- **EXPLAIN** the potential costs of getting influenza, including serious health effects, time lost (such as missing work or family obligations), and financial costs.

Acknowledgments

- APhA gratefully acknowledges financial support from Seqirus for the development of this resource.
- The following individuals contributed to the content development for this resource:
- Adam C. Welch, PharmD, MBA, FAPhA, Associate Dean for Assessment and Academic Affairs, Bill Gatton College of Pharmacy, East Tennessee State University
- Carrie Foust Koenigsfeld, PharmD, FAPhA, Professor, Drake College of Pharmacy and Health Sciences, and Clinical Pharmacist, Unity Point Internal Medicine at Lakeview

References

1. Grohskopf LA, Alyanak E, Broder KR, et al. Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices - United States, 2020-21 influenza season. MMWR Recomm Rep. 2020;69(8):1-24.
2. Centers for Disease Control and Prevention. Protect Your Patients This Flu Season: Pharmacists Guide and Talking Points. Available at: www.cdc.gov/flu/pdf/professionals/vaccination/protect-your-patients.pdf. Accessed: September 18, 2020.
3. Centers for Disease Control and Prevention. Make a Strong Flu Vaccine Recommendation. Available at: https://www.cdc.gov/flu/professionals/vaccination/flu-vaccine-recommendation.htm. Accessed: September 18, 2020.

Supported by

Seqirus™ A CSL COMPANY

Developed by

APhA

19369