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Influenza Vaccines Available During the 2016–17 Season

Background

A variety of influenza vaccine products are licensed and available in the United States from several different manufacturers.¹ Influenza vaccine options available this season include the following: Fluarix®, Flulaval®, Fluzone®, Fluzone Intradermal®, Fluzone high-dose®, Flucelvax®, Afluria®, Fluvirin®, Fluvad®, Flublok®, and FluMist®.¹ It is important to note that this year FluMist® is not recommended by the Advisory Committee on Immunization Practices (ACIP), and will not be provided by the State Immunization Program.

2016–17 Influenza Vaccine Composition

Trivalent vaccines in the United States will contain an A/California/7/2009 (H1N1)-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-like virus (Victoria lineage). Quadrivalent vaccines will contain these vaccine viruses and a B/Phuket/3073/2013-like virus (Yamagata lineage).¹

Influenza Vaccine Abbreviations¹

- IIV: inactivated influenza vaccine
- RIV: recombinant hemagglutinin (HA) influenza vaccine
- LAIV: live-attenuated influenza vaccine
- cc: prefix indicating cell culture-based vaccine (e.g., ccIIV4)
- a: prefix indicating adjuvanted vaccine (e.g., aIIV3)
- Numeric suffix: specifies the number of antigens in the vaccine (e.g., IIV3=trivalent, and IIV4=quadrivalent)

Inactivated Influenza Vaccines (IIV)

IIVs as a class will include:

- Egg-based, unadjuvanted, and adjuvanted trivalent influenza vaccines (IIV3s)
- Egg-based, or cell culture-based unadjuvanted quadrivalent influenza vaccines (IIV4s)

Inactivated influenza vaccine contains inactivated viruses and thus cannot cause influenza. The composition varies according to manufacturer; therefore, package inserts should be consulted.²

IIV formulations in multi-dose vials contain the preservative thimerosal; however, thimerosal-free single-dose preparations also are available. IIV should be stored at 36°–46°F (2°–8°C), and should not be frozen.

The most commonly reported adverse event following IIV vaccination is local soreness at the injection-site. Other less commonly reported adverse events include mild fever, muscle pain, and rash.

- IIV3 vaccines available this season: Afluria®, Fluvirin®, and Fluzone® High-Dose.¹
- IIV4 vaccines available this season: Fluarix®, FluLaval®, Fluzone®, and Fluzone® Intradermal.¹
- ccIIV4 vaccine available this season: Flucelvax®, approved for persons aged ≥4 years.² Vaccine virus strains are grown in mammalian cells; however, initial reference strains are

passed through an egg and thus the vaccine should be administered following the Centers for Disease Control and Prevention's egg-allergy guidelines.¹

- aIIV3 vaccine available this season: Fluvad®, approved for persons aged ≥65 years.² This vaccine contains an adjuvant called MF59, which increases the body's immune response to the vaccine.¹

Recombinant Influenza Vaccine (RIV)

RIV3 (Flublok®) is made by using cell culture technology to produce the active ingredient needed for influenza vaccination (i.e., the hemagglutinin or HA protein). RIV3 is considered *egg-free*, and may be used in persons aged 18–49 years. RIV3 should be stored at 36°–46°F (2°–8°C).²

Live-Attenuated Influenza Vaccine

In light of low effectiveness against influenza A(H1N1)pdm09 in the United States during the 2013–14 and 2015–16 seasons, ACIP made the interim recommendation that LAIV4 should not be used during the 2016–17 season. However, LAIV4 is still a licensed vaccine that is sold in the United States and some providers might elect to use it despite the lack of ACIP recommendations for the 2016–17 season.

State-Supplied Influenza Vaccines

The Alaska Immunization Program will supply the following five presentations of influenza vaccine this season:³

- Fluzone® Pediatric IIV4: prefilled syringe, preservative-free, latex-free, available for children aged 6 through 35 months.
- Fluzone® IIV4: prefilled syringe, preservative-free, latex-free, available for persons aged ≥36 months.²
- Fluzone® IIV4: multi-dose vial, contains thimerosal, available for persons aged ≥6 months.²
- Fluzone® High-Dose IIV3: prefilled syringe, preservative-free, latex-free, available for persons aged ≥65 years.
- Fluarix® IIV4: prefilled syringe, preservative-free, latex-free, available for persons aged ≥36 months.

Influenza vaccine contraindications and precautions are summarized below (Table).

References

1. CDC. Prevention and control of seasonal influenza with vaccines: recommendations of the ACIP, United States, 2016–17 influenza season. *MMWR* 2016;65(5):1-54. Available at: http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm?s_cid=rr6505a1_e
2. U.S. Food and Drug Administration, Vaccines, Blood, and Biologics: Manufacturer Package Inserts. Available at: <http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApproveProducts/UCM093833>
3. Alaska Epidemiology *Bulletin*. "Influenza Vaccine Recommendations and Administration for the 2016-17 Season". No. 20, September 19, 2016. Available at: http://www.epi.alaska.gov/bulletins/docs/b2016_20.pdf

Table. Contraindications and Precautions for Influenza Vaccine

	Contraindications	Precautions
IIV	History of severe allergic reaction to any component of the vaccine or after a previous dose of any influenza vaccine. [†]	Moderate to severe illness with or without fever. History of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.
RIV	History of severe allergic reaction to any component of the vaccine.	Moderate to severe illness with or without fever. History of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.
LAIV	<i>ACIP recommends that LAIV not be used during the 2016–17 season.</i>	

[†]History of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of IIV and LAIV. However, ACIP recommends that any licensed, recommended, and appropriate IIV or RIV may be administered to persons with egg allergy of any severity.