State of Alaska Epidemiology Bulletin

Department of Health and Social Services
Valerie J. Davidson, Commissioner

3601 C Street, Suite 540
Anchorage, Alaska 99503 http://dhss.alaska.gov/dph/Epi

Division of Public Health
Jay C. Butler, MD, Chief Medical Officer and Director
Local (907) 269-8000
24 Hour Emergency (800) 478-0084

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

Bulletin No. 23 September 7, 2017

Influenza Vaccines Available During the 2017–18 Season

Background

Influenza vaccine options available in the United States this season include the following: Fluarix®, Flulaval®, Fluzone®, Fluzone Intradermal®, Fluzone High-Dose®, Flucelvax®, Afluria®, Fluvirin®, Fluad®, Flublok®, and FluMist®.[1] It is important to note that FluMist® is not recommended by the Advisory Committee on Immunization Practices (ACIP), and will not be provided by the Alaska Immunization Program.

2017–18 Influenza Vaccine Composition

Trivalent vaccines in the United States will contain an A/Michigan/45/2015(H1N1)pdm09-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 three vaccine viruses as well as a B/Phuket/3073/2013-like virus (Yamagata lineage).[1] The 2017-18 vaccine differs from the 2016–17 vaccine in that the H1N1 component has been updated to more closely match the circulating strains.

Influenza Vaccine Abbreviations[1]

- 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)
- Standard dose IIVs (15µg hemagglutinin) and high-dose IIV (60ug hemagglutinin)

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: Afluria®, 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: Fluad®, 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 and RIV4 (Flublok®) are made by using cell culture technology to produce the active ingredient needed for influenza vaccination (i.e., the hemagglutinin or HA protein). Both vaccines are considered *egg-free*, and may be used in persons aged 18–49 years. RIV3 and RIV4 should be stored at 36°–46°F (2°–8°C).[2]

Live-Attenuated Influenza Vaccine

The recommendation by ACIP that LAIV4 should not be used during the 2016–17 season continues to be made for the 2017–18 season. This decision was made due to the low effectiveness against influenza A(H1N1)pdm09 in the United States during the 2013–14 and 2015–16 seasons.

State-Supplied Influenza Vaccines

The Alaska Immunization Program will supply the following four 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: 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, 2017–18 Influenza Season. *MMWR* 2017;66(2):1-20. Available at: https://www.cdc.gov/mmwr/volumes/66/rr/rr6602a1.htm?s_cid=rr6602a1_e
2. U.S. Food and Drug Administration, Vaccines, Blood, and Biologics: Manufacturer Package Inserts. Available at: http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM093833
3. Alaska Epidemiology *Bulletin*. "Influenza Vaccine Recommendations and Administration for the 2017-18 Season". No. 24, Sept 07, 2017. Available at: http://www.epi.alaska.gov/bulletins/docs/b2017_24.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	*ACIP recommends that FluMist® LAIV not be used during the 2017–18 season.*	

[†]*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.*

(Contributed by: Matt Bobo MPH, Kyong Yu, and Sarah Shimer MPH, Section of Epidemiology, Alaska Immunization Program.)