



# 2018-19 Influenza Vaccine Recommendations Update

**Lisa Grohskopf**

**Influenza Division, CDC**

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# Some Abbreviations

- ❑ **IIV** = Inactivated influenza vaccine
- ❑ **LAIV** = Live attenuated influenza vaccine
- ❑ **RIV** = Recombinant influenza vaccine
- ❑ **Prefixes:**
  - SD** = standard dose
  - HD** = high dose
  - a** = adjuvanted
  - cc** = cell culture-based
- ❑ **Numeric suffixes** (e.g., IIV3, RIV4) indicate trivalent or quadrivalent, respectively
- ❑ A couple of others:
  - **HA** = Hemagglutinin
  - **VE** = Vaccine Effectiveness

# 2018-19 ACIP Influenza Statement--Overview

- ❑ **Expected publication in late August/early September, 2018\***
- ❑ **Format same as last season**
  - MMWR focuses on recommendations and selected references; contains figure and main tables
  - Supplemental materials (available from ACIP and Influenza Division web pages):
    - Background Document with additional references
    - 4-page summary of recommendations
- ❑ **Core recommendation remains the same:**
  - Annual influenza vaccination is recommended for all persons aged  $\geq 6$  months who do not have contraindications

# Some Things That are **the Same** for 2018-19

1) Groups Recommended for Vaccination

# Groups Recommended for Vaccination

- ❑ **Routine annual influenza vaccination is recommended for all persons  $\geq 6$  months of age who do not have contraindications**
- ❑ **While vaccination is recommended for everyone in this age group, there are some for whom it is particularly important—**
  - People aged  $\geq 6$  months who are at high risk of complications and severe illness
  - Contacts and caregivers of these people, and of infants under age 6 months (because there is no vaccine approved for children this age)

# Groups at Increased Risk for Influenza Complications and Severe Illness

- Children aged 6 through 59 months and adults aged  $\geq 50$  years (children under 6 months of age are also at high risk, but cannot be vaccinated);
- Persons with chronic pulmonary (including asthma) or cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus);
- Immunosuppressed persons;
- Women who are or will be pregnant during the influenza season;
- Children and adolescents (aged 6 months–18 years) who are receiving aspirin- or salicylate-containing medications (who might be at risk for Reye syndrome after influenza virus infection);
- Residents of nursing homes and other long-term care facilities;
- American Indians/Alaska Natives; and
- Persons who are extremely obese (BMI  $\geq 40$ ).

## **Some Things That are **the Same** for 2018-19**

2) There are many influenza vaccines available

# There are Still **Many** Different Vaccines

- **13 distinct products for 2017-18**
- **10 expected for 2018-19 (still a lot)**
- **More than one available vaccine might be appropriate for any recipient**
  - ACIP/CDC express **no preferences** for any one influenza vaccine over another
  - Vaccination should not be delayed in order to obtain a specific product.

# Inactivated (IIV) vs. Recombinant (RIV) vs. Live Attenuated (LAIV)

- ❑ **IIVs: Contain inactivated virus, split or subunit**
  - Many brands, some for those as young as age 6 months (but approved ages vary!)
  - All for 2018-19 are intramuscular
  - Trivalent (1 B virus) or quadrivalent (2 B viruses)
  - Standard Dose (15 µg of HA per virus) or high dose (60 µg of HA per virus)
  - Unadjuvanted or adjuvanted
  - Egg- or cell culture-based
- ❑ **RIV4: Contains recombinant HA → egg-free**
  - Recombinant HA made using insect cell line
  - All quadrivalent
- ❑ **LAIV4: Live attenuated, cold-adapted virus**
  - Egg-based
  - All quadrivalent

# Quadrivalent vs. Trivalent

- ❑ **IIV3, HD-IIV3, aIIV3**
  - Contain an A(H1N1) virus, an A(H3N2) virus, and a B virus (from one lineage)
  
- ❑ **IIV4, RIV4, LAIV4:**
  - Contain an A(H1N1) virus, an A(H3N2) virus, and 2 B viruses (one from each lineage)
  - Designed to provide broader protection by representing both B lineages
  
- ❑ **No preference expressed for trivalent or quadrivalent**

# High-Dose vs. Standard-Dose (IIVs Only)

- ❑ **SD-IIV3 and 4:**
  - Contain 15µg of HA total per virus (45µg total for trivalents and 60µg total for quadrivalents)
  
- ❑ **HD-IIV3 (Fluzone High-Dose):**
  - Licensed for ages ≥65 years
  - Contain 60µg of HA total per virus (180µg total).
  - Observed to provide stronger immune response in persons aged ≥65 years
  - In several studies, HD-IIV3 demonstrated better efficacy/effectiveness compared with SD-IIV3 in this age group, including one large (nearly 32,000 participants) two-season randomized trial
  
- ❑ **No preference expressed for HD-IIV3 or SD-IIVs**

# Unadjuvanted or Adjuvanted (IIVs Only)

- ❑ **Currently licensed U.S. influenza vaccines are unadjuvanted, except for:**
  
- ❑ **aIIV3 (Fluad):**
  - Licensed for ages  $\geq 65$  years
  - Contains MF59, an oil-in-water adjuvant
  - Intended to provide better immune response
  - Non-inferior immune response compared with unadjuvanted SD-IIV3 in pre-licensure studies
  - Better effectiveness compared with unadjuvanted, SD-IIV3 in an analysis from a small observational study (n=227)
  
- ❑ **No preference expressed for adjuvanted vs. unadjuvanted vaccines**

# Egg-Based vs. non Egg-Based

- **For most influenza vaccines, viruses are propagated in eggs. Two exceptions:**
  - **cclIV4 (Flucelvax):**
    - Viruses are propagated in canine kidney cells rather than eggs
    - However, one of the four initial viruses supplied to the manufacturer is egg-derived (for 2018-19, the H1N1 is still egg-derived), so not considered egg-free
  - **RIV4 (Flublok):**
    - Licensed for ages  $\geq 18$  years
    - HA is produced without viruses, in an insect cell line
    - Considered egg-free
    - Better efficacy compared to an SD-IIV4 in a single-season randomized trial of  $\sim 8,600$  participants aged  $\geq 50$  years
  - **No preference expressed for egg-based vs. non-egg-based vaccines**
  - **Egg allergic persons can receive egg-based vaccines**

## **Some Things That are **the Same** for 2018-19**

3) Recommendations for Vaccination of Children aged 6 months through 8 years

## Dosing Algorithm for Children aged 6 months through 8 years

- ❑ **Similar to past two seasons**
- ❑ **If two cumulative doses received prior to July 1, 2018, only one dose needed for 2018-19**
  - The two doses do not need to have been given during the same season
  - They don't need to be the same type or brand of vaccine
- ❑ **If no previous influenza vaccination, or if fewer than two doses received previously, 2 doses needed for 2018-19**
  - These should be given **at least 4 weeks apart**

# 2018-19 ACIP Influenza Statement—Updates

- **Principal changes and updates for 2018-19**
  - Influenza vaccine composition for 2018-19
  - LAIV4 an option for 2018-19
  - Vaccines for egg-allergic persons
  - Two labeling changes for existing vaccines

# Key **Updates** for 2018-19

1) Composition of U.S. influenza Vaccines for 2018-19

# 2018-19 Influenza Vaccine Composition

## □ Trivalent vaccines:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus;  
and
- a B/Colorado/06/2017-like virus (Victoria lineage).

## □ Quadrivalent vaccines:

- The above three viruses, and
- a B/Phuket/3073/2013-like virus (Yamagata lineage).

# Key **Updates** for 2018-19

2) LAIV4 is an option in 2018-19

# LAIV4 Recommendations for 2018-19

- **Can choose any licensed, appropriate vaccine (IIV, RIV4, or LAIV4)**
  - LAIV had not been recommended for 2016-17 or 2017-18
    - Low effectiveness against influenza A(H1N1)pdm09 among children aged 2 through 17 yrs during 2013-14 and 2015-16
    - Thought due to poor fitness of the H1N1pdm09 virus in the vaccine
  - In February 2018, ACIP reviewed additional data
    - Two analyses of previous seasons' data from observational studies:
    - Manufacturer data on shedding and immunogenicity of LAIV
      - New H1N1pdm09 virus showing better fitness
  - For 2018-19, LAIV4 is an option for those for whom it is appropriate
    - No U.S. VE data yet on new formulation with the new H1N1pdm09

# Who Shouldn't Receive LAIV4 (Contraindications)

- ❑ Persons aged <2 years or >49 years
- ❑ Labeled contraindications in package insert:
  - History of severe allergic reaction to any vaccine component\* or to a previous dose of influenza vaccine (like other flu vaccines)
    - Note though that ACIP recommends vaccination of persons with egg allergy
  - Concomitant aspirin- or salicylate-containing therapy in children or adolescents (risk of Reye syndrome)
- ❑ In addition, ACIP recommends LAIV not be used for
  - Pregnant women
  - Immunocompromised persons
  - Children <5 with asthma or wheezing
  - Caregivers and contacts of persons requirement a protected environment
  - Persons who have received influenza antivirals within previous 48 hours

# Precautions to use of LAIV4

- ❑ **Similar to other influenza vaccines:**
  - Moderate or severe illness with or without fever
  - Guillain-Barré syndrome within 6 weeks following a previous dose of influenza vaccine
- ❑ **Additional precautions specific to LAIV4**
  - Asthma in persons aged 5 and older
  - Other medical conditions that predispose to increased risk of severe influenza illness

## Key Updates for 2018-19

3) Influenza vaccination and persons with a history of egg allergy

# Influenza Vaccination of Persons with Egg Allergy

- ❑ **Mostly** unchanged from last few seasons
  - Main change is that LAIV4 is an option
- ❑ **Egg allergic persons can receive any licensed, recommended vaccine that is otherwise appropriate (IIV, RIV4, or LAIV4)**
  - However, RIV not licensed for persons under 18 years of age
- ❑ **For persons with a history of severe allergic reaction to egg (i.e., any symptom other than hives)**
  - “The selected vaccine should be administered in an inpatient or outpatient medical setting (including but not necessarily limited to hospitals, clinics, health departments, and physician offices). Vaccine administration should be supervised by a health care provider who is able to recognize and manage severe allergic conditions.”
- ❑ **No specific post-vaccination observation period recommended**
  - However, per the ACIP General Best Practices guidelines, providers should consider observing all recipients of any vaccine for 15 minutes to avoid injury due to syncope

## **Key Updates for 2018-19**

4) Labeling changes for Afluria Quadrivalent and Fluarix Quadrivalent

# Afluria Quadrivalent

- ❑ **Standard-dose IIV4 (Seqirus)**
- ❑ **Licensed in August 2016,**
  - Initially for persons aged  $\geq 18$  years
  - In August 2017, age indication expanded to persons aged  $\geq 5$  years
- ❑ **Like Afluria, can be administered via jet injector (the Pharmajet Stratis), but only for those aged 18 through 64 years**
  - No other jet injector licensed
  - Those outside 18 through 64 years of age: needle and syringe
- ❑ **Trivalent formulation of Afluria also available this season**
  - Both Afluria and Afluria Quadrivalent are licensed for  $\geq 5$  years

# Fluarix Quadrivalent

- ❑ Standard-dose IIV4 (GSK)
- ❑ **Previously licensed for ages  $\geq 3$  years; since January 2018 licensed for  $\geq 6$  months**
  - One of three IIVs approved for children 6 through 35 months of age
- ❑ **Dose volume is same as that for all ages (0.5mL)**
  - Until 2017-18, through 35 month-olds recommended to receive smaller doses of influenza vaccines than older persons

# ***Quick aside about influenza vaccines for 6- through 35-month-olds--***

- ❑ **Two potential points of confusion**
  - **Three licensed products, but the **dose volumes differ:****
    - Fluarix Quadrivalent: 0.5mL
    - FluLaval Quadrivalent: 0.5 mL
    - Fluzone Quadrivalent: **0.25 mL**  - ***Dose volume* is distinct from *number of doses* needed:**
    - A child aged 6 months through 8 years who needs 2 doses—
    - (for example, if a first-time vaccinee)—
    - and who gets 0.5mL FluLaval Quadrivalent for a first dose—
    - *Still* needs a second dose of influenza vaccine,  $\geq 4$  weeks later

# Summary

- ❑ **Still a good number of different influenza vaccines available**
  - Age indications differ
- ❑ **No preferences for any one product over another**
- ❑ **LAIV4 is an option for those for whom it is appropriate for 2018-19**
  - Not recommended for some groups, as previously
  - Can be given to egg-allergic recipients of otherwise appropriate
- ❑ **Now three different IIVs available for 6- through 35-month-olds**
  - But dose volumes differ!

# Thank You!

# Questions?

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

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