

## LIVE ATTENUATED INFLUENZA VACCINE (LAIV) (FluMist® by MedImmune)

### GENERAL INFORMATION

#### **General Recommendations for Seasonal Influenza Vaccination:**

Beginning in 2013, CDC classifies influenza vaccine in 3 forms: inactivated influenza vaccine (IIV) and recombinant influenza vaccine (RIV, not in health departments), both administered by injection, and live-attenuated, intranasal vaccine (LAIV). See IIV protocol for persons who prefer it or who are ineligible for LAIV.

It is recommended that all persons aged 6 months and up be vaccinated each influenza season. IIV and LAIV are considered equally good options for children or adults age 2 through 49 for whom either vaccine is appropriate. IIV or LAIV may be used interchangeably for either dose,

No preference is expressed for LAIV or IIV for any person aged 2 through 49 years for whom either vaccine is appropriate. An age-appropriate formulation of vaccine should be used.

Children 6 months through 8 years who have previously received 2 or more total doses of trivalent or quadrivalent influenza vaccine as of July 1, 2015, need only one dose for 2015-16. The two previous doses do not need to have been given during the same season or consecutive seasons. Children 6 months through 8 years who have previously received only 1 dose or no doses of seasonal influenza vaccine, or have an unknown history, need two doses of vaccine to be fully protected for the 2015-2016 season.

All LAIV is quadrivalent (contains 4 influenza virus strains). The 2015-2016 LAIV quadrivalent vaccine has 3 new strains compared to last season. It has a new A/California/7/2009 (H1N1)-like virus, an A/Switzerland/9715293/2013 (H3N2)-like virus, and a B/Phuket/3073/2013-like (Yamagata lineage) virus; the unchanged strain is a B/Brisbane/60/2008-like (Victoria lineage) virus.

Begin vaccinating patients as soon as vaccine arrives; delaying vaccination **is not** recommended.

#### **Seasonal LAIV indication:**

LAIV is approved by the Food and Drug Administration (FDA) for use in healthy persons aged 24 months through 49 years who are not known to be pregnant.

#### **Special situations:**

LAIV may be co-administered with any other vaccine at the same visit. Live vaccines not given on the same day (e.g., varicella, MMR) should be administered at least 4 weeks apart. LAIV may be given to breastfeeding women and to close contacts of:

- pregnant women
- infants
- those with mild to moderate immunocompromise.

Because influenza antiviral medications (such as oseltamivir or zanamavir) reduce replication of influenza viruses, LAIV should not be given until 48 hours after stopping influenza antiviral therapy. Influenza antiviral medications should not be administered for 2 weeks after receipt of LAIV unless medically necessary.

**LAIV should NOT be used for:**

- Persons aged <2 years or >49 years
- Persons with contraindications listed in the package insert:  
Children aged 2 through 17 years who are receiving aspirin or aspirin-containing products  
Persons who have experienced severe allergic reactions (e.g., anaphylaxis) to the vaccine or any of its components, including egg protein, or to any previous dose of any influenza vaccine
- Pregnant women
- Immunocompromised persons
- Persons with a history of egg allergy
- Children aged 2 through 4 years who have a wheezing episode documented in the medical record in the past 12 months or whose parents answer yes to the question: "In the past 12 months, has a health care provider ever told you that your child had wheezing or asthma?"
- Persons who have taken influenza antiviral medications within the previous 48 hours.
- Persons who care for severely immunosuppressed persons who require a protective environment should not receive LAIV, or should avoid contact with such persons for 7 days after receipt.

**Precautions (use IIV or refer):**

- ❑ Asthma in persons aged 5 years and older, due to potential for post-vaccination wheezing;
- ❑ Moderate to severe acute illness with or without fever;
- ❑ History of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine;
- ❑ Medical conditions which might predispose to higher risk for complications attributable to influenza, such as chronic pulmonary, cardiovascular [except isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus].

**Common Side Effects**

Mild, transient symptoms, primarily nasal congestion (about 50%); 10% or fewer may have sore throat, headache, lethargy or transient low-grade fever.

**PLAN**

- Have recipient, parent, or guardian read Vaccine Information Statement (VIS)
- Counsel regarding benefits, side effects, and management
- Administer vaccine intranasal spray (0.1 ml in each nostril) according to manufacturer's Recommendation
- Remind that seasonal influenza vaccine is recommended annually.

- Advise the parent or guardian of recipients less than 9 years of age to return for a second dose in 4 weeks if the child has not previously received at least 2 doses of seasonal influenza vaccine before July 1, 2015.
- Advise that recipient should not use an antiviral medication within 2 weeks after LAIV administration unless medically necessary.
- Advise to wait in clinic 20 minutes after intranasal administration
- Record manufacturer and lot number of the vaccine administered, date, name, address, and title of person administering vaccine
- Instruct patient to contact Health Department if adverse reaction occurs (complete appropriate VAERS form: <http://vaers.hhs.gov>)

### Recommended Schedule and Dosage of LAIV (FluMist®):

Age Group	Influenza Vaccination Status	Dosage Schedule
Children 24 months through 8 years	Has <b>not</b> had at least 2 seasonal influenza vaccine doses before July 1, 2015, <b>or not sure</b>	2 doses (each dose 0.1ml per nostril) given at least 4 weeks apart*
	<b>Has had</b> 2 or more seasonal influenza vaccine doses before July 1, 2015	1 dose (0.1 ml per nostril)
Other persons aged 9 through 49 years	n/a	1 dose (0.1 ml per nostril)

\*IIV or LAIV may be used interchangeably for either dose, if appropriate.

### Referral Indicators:

Persons with history of severe allergic reaction to components of vaccine (gelatin, gentamicin, arginine, egg protein) or a severe allergic reaction to a previous dose of influenza vaccine.

Persons who report egg allergy. Evaluate them for administration of IIV using the assessment tool in the IIV protocol.

Persons with history of Guillain-Barré syndrome within 6 weeks of administration of a previous dose of influenza vaccine.

Persons having moderate to severe acute febrile illness or illnesses with significant nasal congestion (until illness resolves)

### REFERENCES

Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices, United States, 2015–16 Influenza Season.

<http://www.cdc.gov/mmwr/pdf/wk/mm6430.pdf> Last accessed August 12, 2015.

FluMist® Quadrivalent, (Influenza Vaccine Live, Intranasal) Prescribing Information for 2014-2015 (MedImmune). <http://www.medimmune.com/docs/default-source/default-document-library/product-and-patient-information-for-flumist-quadrivalent.pdf>. Last accessed 8/12/2015.

## INACTIVATED SEASONAL INFLUENZA VACCINE (IIV)

### GENERAL INFORMATION

#### **General Recommendations for Seasonal Influenza Vaccination:**

CDC now classifies influenza vaccine in 3 forms: inactivated influenza vaccine (IIV) and recombinant influenza vaccine (RIV, FluBlok™, equivalent to IIV), administered by injection, and live-attenuated, intranasal vaccine (LAIV). Injectable and intranasal are considered equally good options for healthy children or adults aged 2 through 49 eligible to receive either (see LAIV protocol if preferred). IIV options may contain either three or four strains of influenza virus; the additional benefit of the fourth strain cannot be predicted. CDC expresses no preference for any influenza vaccine product for the 2015-16 season.

All 2015-2016 IIV options have 2 new strains compared to last season. All IIV options contain an unchanged A/California/7/2009 (H1N1)-like virus, a new A/Switzerland/9715293/2013 (H3N2)-like virus, and a new B/Phuket/3073/2013-like (Yamagata lineage) virus; quadrivalent IIV also contains a B/Brisbane/60/2008-like (Victoria lineage) virus unchanged from the previous season.

Children 6 months through 8 years who have had 2 or more total doses of trivalent or quadrivalent influenza vaccine as of July 1, 2015, only need one dose for 2015-16. The two previous doses do not need to have been given during the same season or consecutive seasons. Children 6 months through 8 years who have previously received 0-1 dose of seasonal influenza vaccine, or have an unknown history, need two doses of vaccine to be fully protected for the 2015-2016 season.

Begin vaccinating patients as soon as vaccine arrives for the season; delaying vaccination **is not** recommended.

#### **Centers for Disease Control and Prevention (CDC) recommendations:**

CDC recommends annual influenza vaccine for ALL persons without medical contraindications, aged 6 months or older.

#### **Contraindications (should not receive influenza vaccine):**

- Children less than 6 months of age.
- History of severe allergic reaction to any component of the vaccine.
- History of allergy to eggs, refer to Figure 2.

#### **Precautions:**

Persons with history of Guillain-Barré syndrome within 6 weeks of administration of a previous dose of influenza vaccine (refer for further evaluation, this is not a contraindication)

Persons having moderate to severe acute febrile illness (until illness resolves)

**PLAN**

- Have recipient, parent, or guardian read Vaccine Information Statement (VIS)
- Counsel regarding benefits, side effects, and management (see figure below for assessment of persons who report egg allergy)
- Administer vaccine injection according to manufacturer's recommendation
- Remind that seasonal influenza vaccine is recommended annually.
- Advise the parent or guardian of recipients less than 9 years of age to return for a second dose in 4 weeks if the child has not previously received at least 2 doses of seasonal influenza vaccine before July 1, 2015.
- Advise to wait in clinic 20 minutes after injection
- Record manufacturer and lot number of the vaccine administered, date, name, address, and title of person administering vaccine
- Instruct patient to contact Health Department if adverse reaction occurs (complete appropriate VAERS form)

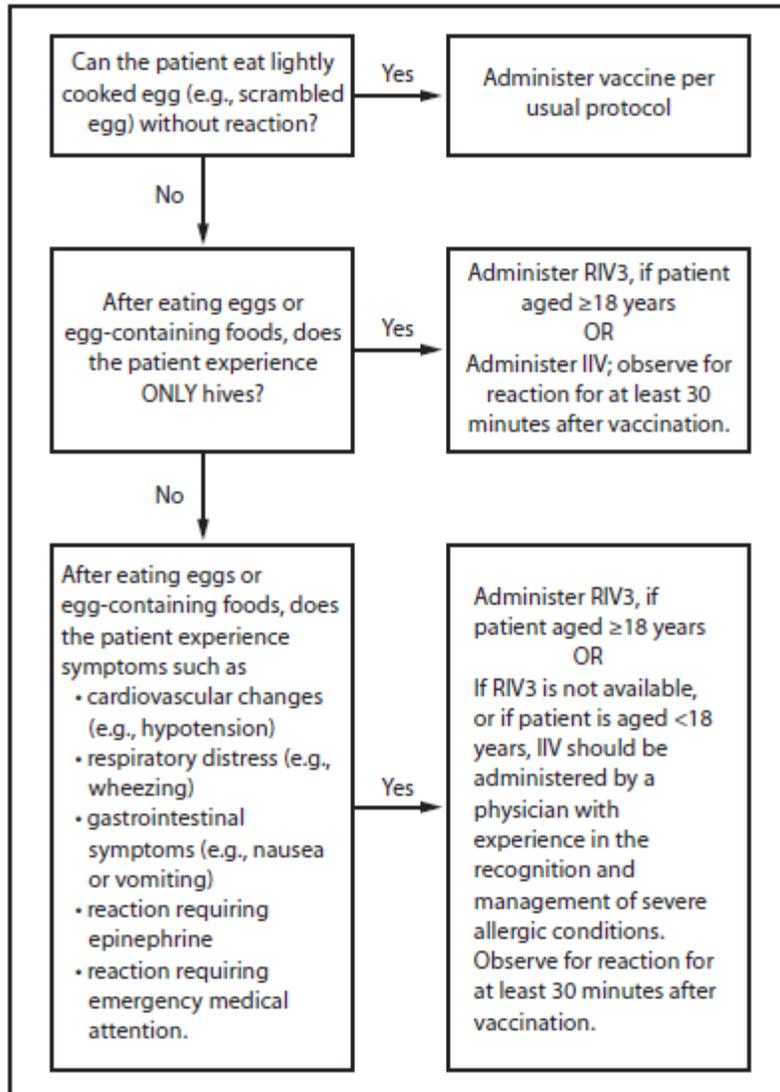
**Recommended Schedule and Dosage of Seasonal Inactivated Influenza Vaccine (IIV):**

<b>Age Group</b>	<b>Influenza Vaccination Status</b>	<b>Dosage Schedule</b>
Children 6 months through 35 months	Has <b>not</b> had at least 2 seasonal influenza vaccine doses before July 1, 2015 <b>or not sure</b>	2 doses (each dose 0.25 ml, IM) at least 4 weeks apart*
	<b>Has had</b> 2 or more seasonal influenza vaccine doses before July 1, 2015	1 dose (0.25 ml, IM)
Children 36 months through 8 years	Has <b>not</b> had at least 2 seasonal influenza vaccine doses before July 1, 2015, <b>or not sure</b>	2 doses (each dose 0.5 ml, IM) at least 4 weeks apart*
	<b>Has had</b> 2 or more seasonal influenza vaccine doses before July 1, 2015	1 dose (0.5 ml, IM)
All others 9 years and up	Not relevant	1 dose (0.5 ml, IM)

\*IIV or LAIV may be used interchangeably for either dose, if appropriate.

**Use the following table to screen all patients who report allergy to egg:**

**FIGURE 2. Recommendations regarding influenza vaccination of persons who report allergy to eggs\*† — Advisory Committee on Immunization Practices, United States, 2015–16 influenza season**



**Abbreviations:** IIV = inactivated influenza vaccine, trivalent or quadrivalent; RIV3 = recombinant influenza vaccine, trivalent.

\* Persons with egg allergy may tolerate egg in baked products (e.g., bread or cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy (Erlewyn-Lajeunesse et al., Recommendations for the administration of influenza vaccine in children allergic to egg. *BMJ* 2009;339:b3680).

† For persons who have no known history of exposure to egg, but who are suspected of being egg-allergic on the basis of previously performed allergy testing, consultation with a physician with expertise in the management of allergic conditions should be obtained prior to vaccination. Alternatively, RIV3 may be administered if the recipient is aged  $\geq 18$  years.

## REFERENCES

Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices, United States, 2015–16 Influenza Season.

<http://www.cdc.gov/mmwr/pdf/wk/mm6430.pdf> Last accessed August 12, 2015.