Provider Information: Influenza VISs

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis.

Thirteen variations of influenza vaccines are approved for use in the United States for the 2013-14 influenza season:

Name	Manufacturer	Age Range	# of Strains
Afluria	Merck/CSL	9 years and older*	Trivalent
Fluarix	GSK	3 years and older	Trivalent
			Quadrivalent
Flublok	Protein Sciences	18 – 49 years	Trivalent
Flucelvax	Novartis	18 years and older	Trivalent
FluLaval	GSK	3 years and older	Trivalent
			Quadrivalent
FluMist	Medimmune	2 – 49 years	Quadrivalent
Fluvirin	Novartis	4 years and older	Trivalent
Fluzone	Sanofi Pasteur	6 months and older	Trivalent
			Quadrivalent
Fluzone High-Dose	Sanofi Pasteur	65 years and older	Trivalent
Fluzone Intradermal	Sanofi Pasteur	18 – 64 years	Trivalent

*Afluria is licensed for ages 5 and older, but ACIP recommends that it not be used in children 5 through 8 years because of increased reports of febrile reactions in this age group. If no other age-appropriate, inactivated influenza vaccine is available for a child 5 through 8 who has a medical condition that increases the risk for influenza complications, Afluria can be used. However, providers should first discuss the benefits and risks of vaccination with Afluria with the child's parent or caregiver. Afluria may be used in persons 9 years of age and older.

"No preference for any particular influenza product is expressed where more than one is appropriate within recommendations and indications."

Influenza Virus Strains in the 2013-2014 Vaccines

A/California/7/2009 (H1N1)-like
A/Victoria/361/2011 (H3N2), or its antigenic equivalent
B/Massachusetts/2/2012-like (Yamagata lineage)

Quadrivalent formulations will also include
B/Brisbane/60/2008-like (Victoria lineage)

Abbreviations used for influenza vaccines

IIV: Inactivated Influenza Vaccine (Afluria, Fluarix, FluLaval, Fluvirin, Fluzone)
(IIV3 = Trivalent IIV; IIV4 = Quadrivalent IIV)

LAIV (Quadrivalent): Live, Attenuated Influenza Vaccine (FluMist)

RIV3: Recombinant Influenza Vaccine, Trivalent (Flublok)

ccIIV3: Cell Culture Inactivated Influenza Vaccine, Trivalent (Flucelvax)

Concurrent Administration

Influenza vaccines may be administered concurrently with other live or inactivated vaccines.

People at Highest Risk for Complications & Their Close Contacts

Influenza vaccination is recommended for everyone 6 months of age and older. However, it is most important for people at risk for severe complications, and people who care for them. In the event of limited vaccine supply, vaccination efforts should focus on vaccinating these groups:

People at Highest Risk for Influenza Complications

- all children 6 through 59 months of age,
- all persons 50 years of age and older,
- anyone with chronic pulmonary (including asthma) or cardiovascular (except isolated hypertension), renal, hepatic, neurological, hematologic, or metabolic disorders (including diabetes mellitus),
- persons who have immunosuppression, including immunosuppression caused by medications or HIV infection,
- women who are or will be pregnant during the influenza season,
- children and adolescents (6 months through 18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye's syndrome after influenza virus infection,
- residents of nursing homes and other long-term care facilities,
- American Indians and Alaska Natives,
- persons who are morbidly obese (BMI $\geq$40).

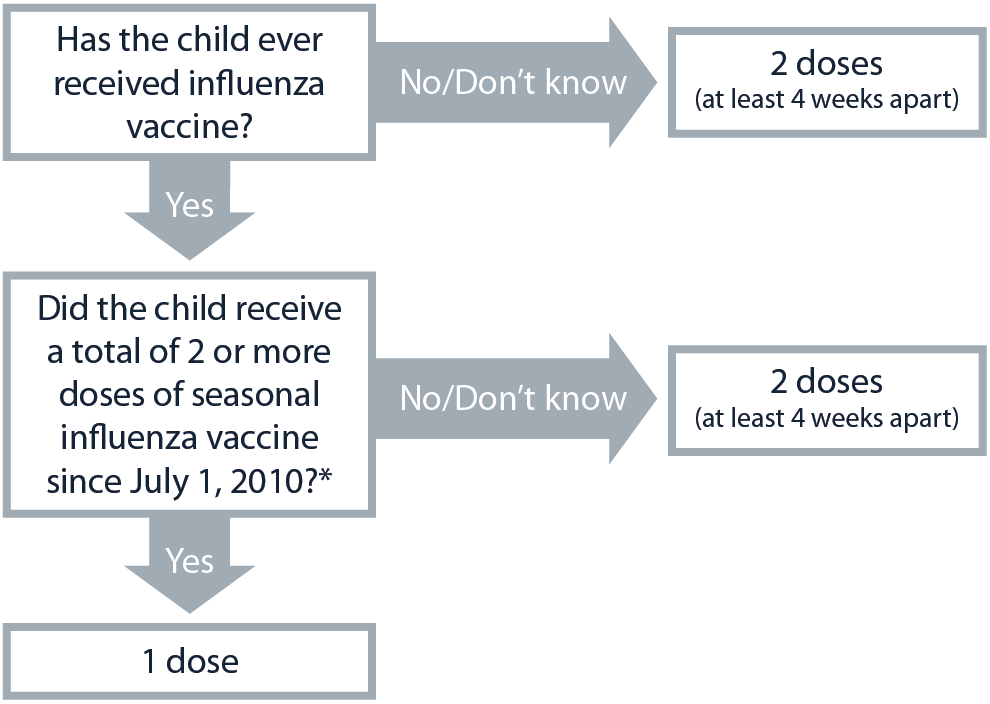
People who Live With or Care for Those at Highest Risk

- healthcare personnel,
- household contacts (including children) and caregivers of children younger than 5 years (i.e., prior to the 5th birthday) and adults 50 years of age and older – particular emphasis on vaccinating contacts of children younger than 6 months,
- household contacts (including children) and caregivers of persons with medical conditions that put them at higher risk for severe complications from influenza (see above).

Vaccinating Children 6 Months through 8 Years of Age

Children 6 months through 8 years of age should receive two doses of influenza vaccine the first year they are vaccinated. Some children in this age group who have been vaccinated previously will also need two doses.

Use the following algorithm to determine whether a patient 6 months – 8 years should get 1 or 2 doses this season:



* As an **alternative**, you may use the following approach for children whose vaccination history before July 1, 2010 is known:

Administer **1 dose** of flu vaccine during the 2013-14 influenza season to a child 6 months through 8 years of age who received:

- 2 or more doses of seasonal influenza vaccine since July 1, 2010,

  OR
- 2 or more doses of seasonal influenza vaccine before July 1, 2010 **and** 1 or more doses of monovalent 2009(H1N1) vaccine,

  OR
- 1 or more doses of seasonal influenza vaccine before July 1, 2010 **and** 1 or more doses of seasonal influenza vaccine since July 1, 2010.

A child who **does not meet any of these conditions** should receive **2 doses** in 2013-14.

Precautions, Contraindications

- **Guillain Barré Syndrome (GBS)**
  "As a **precaution**, persons who are not at high risk for severe influenza complications and who are known to have experienced GBS within 6 weeks of an influenza vaccine generally should not be vaccinated. As an alternative, physicians might consider using influenza antiviral chemoprophylaxis for these persons. The benefits of influenza vaccination might outweigh the risks for many persons who have a history of GBS and who also are at high risk for severe complications from influenza."

  "The number of new cases of GBS among the general population is low. But, people with a history of GBS have a much higher chance of experiencing GBS than people with no history of the disease. It isn't known whether the flu vaccine itself might increase the risk of GBS returning in people who have had GBS in the past."

- **Antiviral Medications**
  "Administration of **IIV** to persons receiving influenza antiviral drugs for treatment or chemoprophylaxis is acceptable."

  "Because antiviral drugs reduce replication of influenza viruses, **LAIV** should not be administered until 48 hours after cessation of influenza antiviral therapy. If influenza antiviral medications are administered within 2 weeks after receipt of LAIV, the vaccine dose should be repeated 48 or more hours after the last dose of antiviral medication . . . with any approved vaccine formulation."

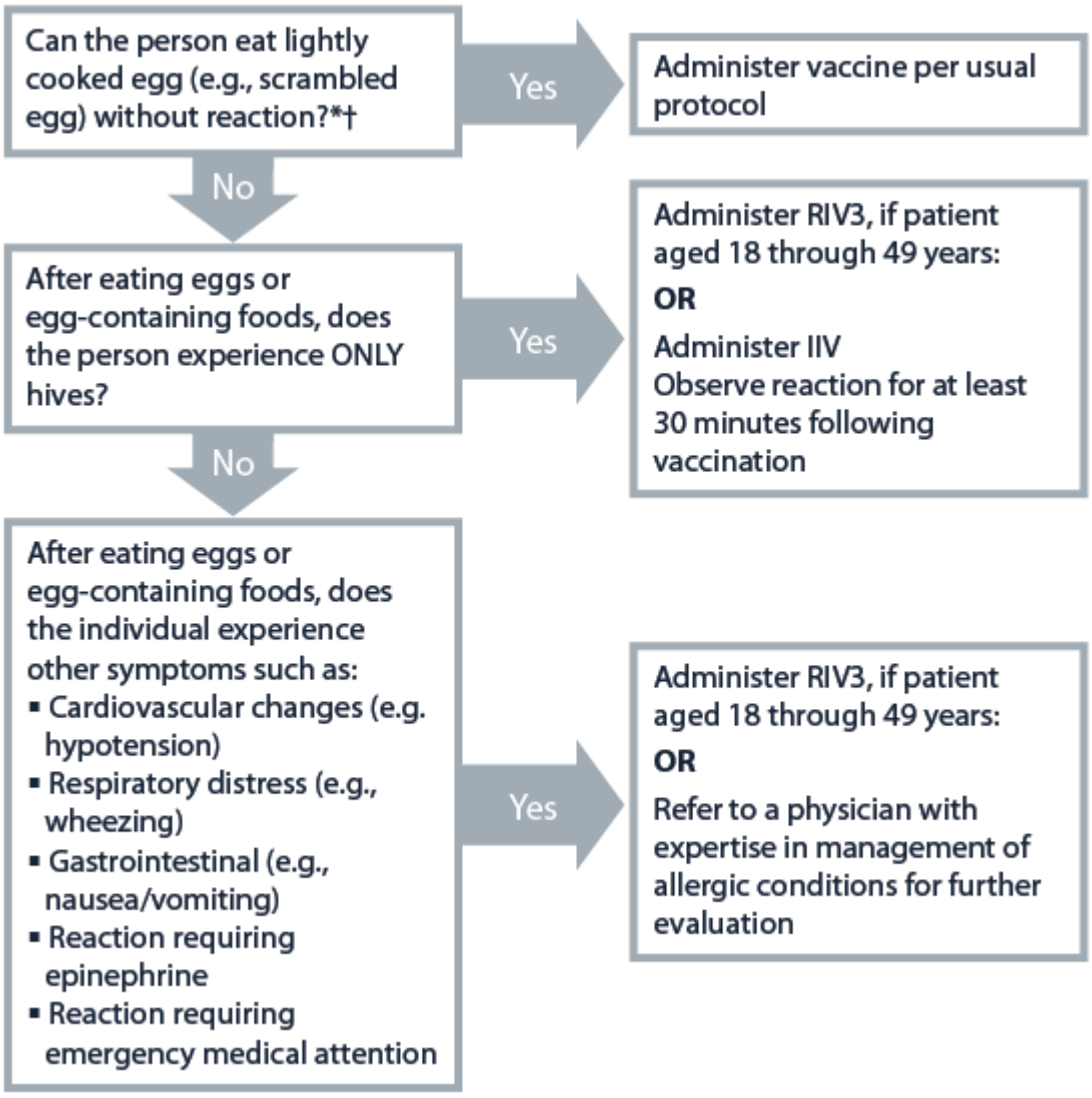
- **Acute Illness**
  "The presence of a **moderate or severe acute illness** with or without a fever is a precaution to administration of all vaccines." (ACIP General Recommendations on Immunization, p. 11) The definition of "moderate or severe acute illness" is left up to the clinical judgment of the provider. A vaccination deferred because of an acute illness should be rescheduled after the illness has resolved.

- **Severe Allergy to Vaccine Component / Allergic Reaction after Previous Dose**
  A history of a **severe allergic reaction** (e.g., anaphylaxis) after a previous dose of influenza vaccine, or to any component of the vaccine being given is a **contraindication** for that vaccine.

  For a list of components for influenza vaccines, see the package inserts or http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf

- **Egg Allergy**
  LAIV:
  "Because of relative lack of data demonstrating safety of LAIV for persons with egg allergy, egg-allergic persons should receive IIV or RIV rather than LAIV."

- **IIV and RIV:**
  Use the following algorithm when vaccinating a patient who reports an egg allergy:



IIV=Inactivated Influenza Vaccine
RIV3=Recombinant Influenza Vaccine, Trivalent (Flublok)

*Individuals with egg allergy may tolerate egg in baked products (e.g. bread, cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy.

† For individuals 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 18 through 49 years.

For more information see:

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2013–2014
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6207a1.htm

- **LAIV**
  Several **contraindications** apply only to LAIV. Administer an **injected influenza vaccine**, rather than LAIV, to:
  - pregnant women (women who are breastfeeding may be vaccinated) ,
  - anyone with asthma,
  - children 2 through 4 years of age whose parent or caregiver reports health-care provider-diagnosed wheezing or asthma during the past 12 months, or whose medical record indicates a wheezing episode during that period,
  - anyone with a chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic/neuromuscular, hematologic, or metabolic disorder,
  - anyone who is immunosuppressed (including immunosuppression caused by medication or by HIV),
  - children or adolescents receiving concomitant aspirin therapy (because of the association of Reye syndrome with wild-type influenza infection),
  - close contacts of an immunosuppressed person who requires a protected environment, such as a bone marrow transplant unit.

  A person who has received an **injected live vaccine** (MMR, varicella, zoster, yellow fever) within the past 4 weeks should wait until 4 weeks have elapsed before receiving LAIV.

Safety

- **Febrile Seizures**
  An increased risk of febrile seizures (<1 per 1,000 children vaccinated) has been observed in children 6 months through 4 years of age who received IIV3. The risk was higher among children who received PCV13 during the same visit. “Taking into consideration benefits and risks of vaccination, **no policy change was recommended for use of IIV or PCV13**.”

  “No increased risk was observed in children older than 4 years of age after IIV3 or in children of any age after LAIV.”

  During the 2010-11 flu season, an increased risk of febrile seizures (up to 9 per 1,000 doses) was observed among young children in Australia, associated with a Southern Hemisphere vaccine similar to Afluria. Because of these findings, ACIP does not recommend Afluria for children younger than 9 years of age.

- **Guillain Barré Syndrome (GBS) and IIV**
  The 1976 swine flu vaccine was associated with increased frequency of GBS (about 1 additional case per 100,000 persons vaccinated).

  Influenza vaccines since then have not been clearly associated with GBS. Worst-case estimates from the few studies that suggest an association between IIV and GBS are low (approximately 1 additional case per million persons vaccinated). GBS has also been noted to occur in relation to influenza illness**.**

  GBS has not been associated with receipt of LAIV.

- **Thimerosal**
  Thimerosal, a mercury-containing antibacterial compound, is used in multidose vials of IIV to reduce the likelihood of bacterial growth. LAIV, RIV, and most single-dose vials or syringes of IIV are thimerosal-free. Accumulating evidence shows no increased risks from exposure to thimerosal-containing vaccines. **"Persons recommended to receive IIV may receive any age- and risk factor-appropriate vaccine preparation, depending on availability."**

- **Risk of Getting Influenza from the Vaccine**

  IIV/RIV
  Vaccines that do not contain live influenza virus cannot cause influenza disease.

  LAIV
  The influenza virus in LAIV is "cold adapted" and "heat sensitive." That is, it has been engineered to replicate in the relatively lower temperatures of the nasopharynx, but not in the relatively higher temperatures of the lungs. It does not cause influenza disease in recipients.

  People vaccinated with LAIV can shed vaccine viruses and, rarely, shed vaccine viruses can be transmitted to unvaccinated persons. However, serious illnesses have not been reported among unvaccinated persons who have been infected inadvertently with vaccine viruses.

For more information see:

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2013–2014
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6207a1.htm

(All quoted text is from this document unless otherwise cited.)