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TIV and LAIV Influenza Vaccines for the 2008–09 Season

Background

Trivalent inactivated influenza vaccine (TIV) and live, attenuated influenza vaccine (LAIV) are widely available in the United States. Both TIV and LAIV contain the same three vaccine antigens that are antigenically matched to the annually recommended influenza strains. For the 2008–09 season, the trivalent vaccine virus strains are *A/Brisbane/59/2007 (H1N1)-like*, *A/Brisbane/10/2007 (H3N2)-like*, and *B/Florida/4/2006-like*. Both TIV and LAIV initially are grown in eggs. Although both types of vaccines are expected to be effective, they differ in several respects, as shown below in Table 1.

TIV-specific Information

The composition of TIV varies according to manufacturer, and package inserts should be consulted. TIV formulations in multi-dose vials contain the preservative thimerosal; however, thimerosal-free single-dose preparations also are available. TIV should be stored at 35°–46° F (2°–8° C) and should not be frozen. Common adverse events following TIV vaccination include injection-site reactions, fever and rash.

LAIV-specific Information

LAIV is constituted as live, attenuated, cold-adapted, temperature-sensitive vaccine viruses. The vaccine does not contain thimerosal. LAIV is made from attenuated viruses that are only able to replicate efficiently at temperatures present in the nasal mucosa. Common adverse events following use of LAIV include mild runny nose, nasal congestion, fever or sore throat.

LAIV is for intranasal administration only. The vaccine is supplied in a prefilled, single-use sprayer containing 0.2 mL of vaccine. Approximately 0.1 mL is sprayed into one nostril while the recipient is in the upright position. An attached dose-divider clip is removed from the sprayer to administer the second half of the dose into the other nostril. A video illustrating appropriate LAIV administration is available on the manufacturer's website.³ LAIV should be stored at 35°–46° F (2°–8° C).

Persons Who Should Not Be Vaccinated – TIV

- Persons known to have anaphylactic hypersensitivity to eggs or other components of influenza vaccine (see package inserts)
- Persons with moderate to severe acute febrile illness should usually avoid vaccination until their symptoms have abated (minor illnesses with or without fever do not contraindicate use of influenza vaccine)
- Avoiding vaccination of persons who have had Guillain-Barré Syndrome (GBS) within 6 weeks of a previous influenza vaccination and who are not at high risk for severe influenza complications may be prudent

Persons Who Should Not Be Vaccinated – LAIV

- Persons known to have anaphylactic hypersensitivity to eggs or other components of influenza vaccine (see package inserts)
- Persons aged <2 years or ≥50 years
- Persons with underlying medical conditions that serve as an indication for routine influenza vaccination
- Children aged 2–4 years with wheezing or asthma during the previous 12 months
- Children or adolescents receiving aspirin or other salicylates
- Persons with a history of GBS after influenza vaccination
- Pregnant women

References

1. Alaska Section of Epidemiology. Influenza Vaccine Indications and Administration for the 2008–09 Season. *Bulletin* No. 18, September 22, 2008. Available at: http://www.epi.alaska.gov/bulletins/docs/b2008_18.pdf
2. Centers for Disease Control and Prevention. Prevention and Control of Influenza. *MMWR* 2008;57(No. RR-7): 1–60. Available at: <http://www.cdc.gov/mmwr/PDF/rr/rr5707.pdf>
3. MedImmune Vaccines, Inc., Video – How to administer FluMist to patients. Available at: <http://www.flumist.com/Professional/Dosing-Administration>

Note: This *Epidemiology Bulletin* and companion *Bulletin* No. 18, *Influenza Vaccine Indications and Administration for the 2008–09 Season*,¹ provide summary information only. For complete information, consult the appropriate manufacturer package inserts and the recommendations of the Advisory Committee on Immunization Practices (ACIP) for the *Prevention and Control of Influenza*.²

Table 1: Live, Attenuated Influenza Vaccine (LAIV) Compared with Inactivated Influenza Vaccine (TIV) for Seasonal Influenza, U.S. Formulations

Factor	LAIV	TIV
Route of administration	Intranasal spray	Intramuscular injection
Type of vaccine	Live-attenuated virus	Killed virus
Number of virus strains included	Three (2 A/ 1 B)	Three (2 A/ 1 B)
Vaccine virus strains updated	Annually	Annually
Frequency of administration	Annually*	Annually*
Approved age	2–49 years [†] (Due to funding limitations, state-supplied vaccine limited to age 2–5 yrs)	Persons aged ≥6 months
Interval between 2 doses recommended for children aged ≥6 months–8 years who are receiving influenza vaccine for the first time	4 weeks	4 weeks
Can be administered to person with medical risk factors for influenza-related complications	No	Yes
Can be administered to children with asthma or children aged 2–4 years with wheezing during the preceding year [§]	No	Yes
Can be administered to family members or close contacts of immunosuppressed persons not requiring a protected environment	Yes	Yes
Can be administered to family members or close contacts of immunosuppressed persons requiring a protected environment (e.g., hematopoietic stem cell transplant recipient)	No	Yes
Can be administered to family members or close contacts of persons at high risk but not severely immunosuppressed	Yes	Yes
Can be simultaneously administered with other vaccines	Yes [¶]	Yes**
If not simultaneously administered, can be administered within 4 weeks of another live vaccine	Prudent to space 4 weeks apart	Yes
If not simultaneously administered, can be administered within 4 weeks of an inactivated vaccine	Yes	Yes

* Children aged 6 months–8 years who have never received influenza vaccine before should receive 2 doses. Those children who receive only 1 dose in their first year of vaccination should receive 2 doses in the following year, spaced 4 weeks apart.

† Persons at high risk for complications of influenza infection should not receive LAIV. (See Table 1, *Epidemiology Bulletin* #18.¹)

§ Clinicians should screen for possible reactive airway diseases when considering use of LAIV for children aged 2–4 years and should avoid use of this vaccine in children with asthma or a recent wheezing episode.

¶ Live attenuated influenza vaccine coadministration has been evaluated systematically only among children aged 12–15 months who received MMR or varicella vaccine.

** Inactivated influenza vaccine coadministration has been evaluated systematically only among adults who received pneumococcal polysaccharide or zoster vaccine.