State of Alaska Epidemiology **Bulletin**

Department of Health and Social Services
William H. Hogan, MSW Commissioner

Division of Public Health
Ward Hurlburt, MD, MPH, CMO/Director

Editor:
Joe McLaughlin, MD, MPH

3601 C Street, Suite 540
Anchorage, AK 99503 http://www.epi.Alaska.gov

Local (907) 269-8000
24 Hour Emergency 1-800-478-0084

Bulletin No. 22 September 14, 2009

TIV and LAIV Seasonal Influenza Vaccines for 2009–10

Note: This Epidemiology *Bulletin* provides information on the use of seasonal influenza vaccine. Seasonal influenza vaccine does not provide protection against the novel H1N1 virus. A separate *Bulletin* will be issued for the novel H1N1 vaccine.

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 2009–10 season, the trivalent vaccine virus strains are *A/Brisbane/59/2007 (H1N1)-like, A/Brisbane/10/2007 (H3N2)-like,* and *B/Brisbane/60/2008-like*. Both TIV and LAIV are initially grown in eggs. Although both types of vaccines are expected to be effective, they differ in several respects (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. An illustration of appropriate LAIV administration technique is available in *Section 2.2 – Administration Instructions* of the product information (package insert).[1] LAIV should be stored at 35–46°F (2–8°C).

Persons Who Should Not Be Vaccinated

Both TIV and LAIV

- Persons known to have anaphylactic hypersensitivity to eggs or other components of influenza vaccine (see package inserts)

LAIV Only

- 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
- Pregnant women
- Children or adolescents aged 6 months through 18 years receiving aspirin or other salicylates
- Precaution: LAIV should not be administered to close contacts of immunosuppressed persons who require a protected environment.

Precautions for both TIV and LAIV

- Persons with moderate to severe acute febrile illness usually should not be vaccinated until their symptoms have abated.
- Guillain-Barré Syndrome (GBS) within 6 weeks of a previous influenza vaccination is a precaution for use of influenza vaccine.

Note: This Epidemiology *Bulletin* and companion *Bulletin* No. 21, *Seasonal Influenza Vaccine Indications and Administration for 2009–10*,[2] 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*.[3]

References

1. MedImmune Vaccines, Inc. FluMist Product Information. Available at: http://www.medimmune.com/pdf/products/flumist_pi.pdf
2. Alaska Section of Epidemiology. Seasonal Influenza Vaccine Indications and Administration for 2009-10. *Bulletin* No. 21, September 14, 2009. Available at: http://www.epi.alaska.gov/bulletins/docs/b2009_21.pdf
3. Centers for Disease Control and Prevention. Prevention and Control of Influenza. MMWR 2009;57(No. RR-8): 1-52. Available at: http://www.cdc.gov/mmwr/PDF/rr/rr5808.pdf

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 virus	Noninfectious virus (i.e., inactivated)
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 2–18 years)	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	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 received only 1 dose in their first year of vaccination should receive 2 doses in the following year, spaced 4 weeks apart.

† Persons at higher risk for complications of influenza infection due to underlying medical conditions (see Table 1, Epidemiology *Bulletin* #21[1]) should not receive LAIV.

§ 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.

¶ LAIV co-administration has been evaluated systematically only among children aged 12–15 months who received MMR or varicella vaccine.

** TIV co-administration has been evaluated systematically only among adults who received pneumococcal polysaccharide or zoster vaccine.