State of Alaska Epidemiology **Bulletin**

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

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

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

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

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

Bulletin No. 25 September 13, 2011

Note: This Epidemiology *Bulletin* and the companion *Bulletin* No. 26, Influenza Vaccine Recommendations and Administration for 2011–12,[1] provide **summary information only**. For complete information, consult the package insert www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM093833 and the recommendations of the Advisory Committee on Immunization Practices (ACIP) for the Prevention and Control of Influenza with Vaccines.[2,3]

TIV and LAIV Influenza Vaccines for 2011–12

Background

Trivalent inactivated influenza vaccine (TIV) and live, attenuated influenza vaccine (LAIV) are trivalent and contain three virus antigens that are matched to the main circulating strains of influenza each year. For 2011–12, the vaccine virus strains are unchanged from 2010–11: *A/California/7/2009(H1N1)-like* (the same strain as 2009 H1N1 monovalent vaccines), *A/Perth/16/2009(H3N2)-like*, and *B/Brisbane/60/2008-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 (Table).

TIV Injectable and Intradermal Information

The composition of TIV varies according to manufacturer (see package inserts). TIV formulations in multidose 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. The most commonly reported adverse event following TIV vaccination is local soreness at the injection site. Other less commonly reported adverse events include mild fever, muscle pain, and rash. *TIV contains inactivated viruses and thus cannot cause influenza.*

LAIV Intranasal Information

There is only one formulation for LAIV, which contains live, attenuated (weakened), temperature-sensitive (cold-adapted) viruses that are able to replicate efficiently only at temperatures present in the nasal mucosa. LAIV viruses are attenuated to prevent the vaccine from causing disease. LAIV is for intranasal administration only, and is supplied in a prefilled, single-use sprayer containing 0.2 mL of vaccine, which does not contain thimerosal. An attached dose-divider clip is removed from the sprayer to administer the second half of the dose into the other nostril. An illustration and video providing the appropriate LAIV administration technique are available on the manufacturer's website.[4] LAIV should be stored at 35–46 °F (2–8 °C). The most commonly reported adverse events following use of LAIV include nasal congestion, cough, headache, and sore throat.

Persons Who Should *Not* Be Vaccinated

Both TIV and LAIV

- Persons known to have had a severe allergic reaction (e.g., anaphylaxis) to egg protein, the influenza vaccine, or any component of the vaccine (see package inserts)

LAIV Only

- Persons aged <2 years or ≥50 years
- Persons with underlying medical conditions that serve as an indication for influenza vaccination; may be candidate for TIV
- Children aged 2–4 years with wheezing or asthma during the preceding 12 months
- Persons with asthma
- 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 illness with or without fever should not be vaccinated until symptoms have abated.
- Guillain-Barré Syndrome (GBS) within 6 weeks of a previous influenza vaccine is a precaution for future receipt of influenza vaccine.

References

1. Alaska Section of Epidemiology. Influenza Vaccine Recommendations and Administration for 2011-12. *Bulletin* No. 26, September 13, 2011. Available at: http://www.epi.alaska.gov/bulletins/docs/b2011_26.pdf
2. CDC. Prevention and Control of Influenza with Vaccines. *MMWR Morb Mort Wkly Rep* 2010;59(RR-8):1-62. http://www.cdc.gov/mmwr/pdf/rr/rr5908.pdf
3. CDC. Prevention and Control of Influenza with Vaccines. *MMWR 2011;* August 26, 2011;60(33):1128-1132. http://www.cdc.gov/mmwr/pdf/wk/mm6033.pdf
4. MedImmune Vaccines, Inc. Information for Healthcare Professionals: Dosing and Administration. Available at: http://www.medimmune.com/pdf/products/flumist_pi.pdf

Table. Comparison of Trivalent Inactivated Influenza Vaccine (TIV) and Live, Attenuated Influenza Vaccine (LAIV), US Formulations

Factor	TIV	LAIV
Route of administration	Intramuscular injection intradermal injection	Intranasal spray
Type of vaccine	Killed virus	Live virus
Number of virus strains included	Three (2A/1B)	Three (2A/1B)
Vaccine virus strains updated	Annually	Annually
Frequency of administration	Annually*	Annually*
Approved age	Persons aged ≥6 months§ (State-supplied vaccine is limited to persons aged 6 mos–18 years)	2–49 years† (State-supplied vaccine is limited to persons aged 2–18 years)
Interval between 2 doses recommended for children aged 6 months–8 years who are receiving influenza vaccine for the first time or did not receive seasonal influenza vaccine in 2010–11	≥4 weeks	≥4 weeks
Can be administered to person with medical risk factors for influenza-related complications†	Yes	No
Can be administered to children with asthma or children aged 2–4 years with wheezing during the preceding year¶	Yes	No
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)	Yes	No
Can be administered to family members or close contacts of persons at higher risk, including pregnant women, 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 a live vaccine	Yes	Space ≥4 weeks apart
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 a seasonal or H1N1 monovalent influenza vaccine should receive 2 doses, spaced ≥4 weeks apart. Those children aged 6 months–8 years who were vaccinated for the first time in the 2010–11 season with the seasonal 2010–11 vaccine should receive 1 dose of the 2011–12 seasonal vaccine (see Figure, Epidemiology *Bulletin* 26).

† Persons at higher risk for complications of influenza infection due to underlying medical conditions (see Box, Epidemiology *Bulletin* 26) should not receive LAIV.

§ Approval varies by formulation (see Table, Epidemiology *Bulletin* 26).

¶ Clinicians should screen for possible reactive airway diseases when considering use of LAIV for children aged 2–4 years and should not use this vaccine in children with asthma or a wheezing episode within the previous 12 months.

** 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.