State of Alaska Epidemiology **Bulletin**

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Bulletin No. 21 September 14, 2009

Seasonal Influenza Vaccine Indications and Administration for 2009–10

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

Influenza Vaccine Recommendations

Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications.[1] Influenza vaccine should be provided to all persons aged ≥6 months who want to reduce the risk of becoming ill with influenza or of transmitting influenza to others; particular emphasis should be placed on vaccinating people in the specific target groups listed in Table 1.

Table 1. Influenza Vaccination Target Groups

General age-based recommendations

- All children aged **6 months–18 years** (with continued emphasis on children aged 6–59 months and older children with conditions that place them at increased risk for complications)
- All persons aged **≥50 years**

Persons at risk for medical complications

- Children and adolescents aged 6 months–18 years receiving long-term aspirin therapy (to decrease their risk of developing Reye syndrome after influenza infection)
- Women who will be pregnant during the influenza season
- Adults and children who have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, cognitive, neurologic/neuromuscular, hematological or metabolic disorders (including diabetes mellitus)
- Adults and children who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus)
- Adults and children who are residents of nursing homes and other long-term care facilities

Persons who live with or care for persons at high risk for complications

- Health care personnel
- Household contacts (including children) and caregivers of children aged ≤5 years and adults aged ≥50 years, with particular emphasis on vaccinating contacts of children aged <6 months
- Household contacts (including children) and caregivers of persons with medical conditions that put them at higher risk for severe complications from influenza

Types of Influenza Vaccine

Trivalent inactivated influenza vaccine (TIV) and live, attenuated influenza vaccine (LAIV) are available in the United States. Both types of vaccine are efficacious, include the same influenza antigens, and initially are grown in eggs. For additional information on the use of these two vaccines, see companion Epidemiology *Bulletin* No. 22 and the ACIP recommendations.[1,2]

Primary Changes and Updates in 2009 Advisory Committee on Immunization Practices (ACIP) Recommendations

The primary changes in the 2009 recommendations include:

- Annual vaccination of all children aged 6 months–18 years should begin as soon as the 2009–10 seasonal influenza vaccine is available;
- Annual vaccination of children aged 6 months–4 years and older children with conditions that place them at increased risk should continue to be a primary focus of vaccination efforts.

Additional Recommendations

1. Influenza vaccine should not be given to persons known to have anaphylactic hypersensitivity to eggs or other components of the vaccine. More detailed information on TIV- and LAIV-specific contraindications may be found in the manufacturer package inserts or companion Epidemiology *Bulletin* No. 22.[2]
2. Health care providers should carefully check the vaccine they use to ensure that the product age-group indication includes the age of the person being immunized (Table 2).
3. Health care providers should begin offering influenza vaccine as soon as it is available and throughout the season. Previously, providers felt that elderly persons should not be immunized early in the season due to an apparent decline in protective antibodies ≥4 months after vaccination. However, a 2008 literature review indicates there is no compelling evidence to indicate elderly persons will lose seroprotection if vaccine is received early in the season. Lower vaccine titers sometimes seen several months after immunization appear to result from failure to respond to the primary dose, rather than a secondary decline in antibody.[3]

References

1. Centers for Disease Control and Prevention. Prevention and Control of Influenza. MMWR 2009;58(No. RR-8): 1-52. Available at: http://www.cdc.gov/mmwr/PDF/rr/rr5808.pdf
2. Alaska Section of Epidemiology. TIV and LAIV Seasonal Influenza Vaccines for 2009-10. *Bulletin* No. 22, September 14, 2009. Available at: http://www.epi.alaska.gov/bulletins/docs/b2009_22.pdf
3 Skowronski DM, Tweed SA, De Serres G. Rapid Decline of Influenza Vaccine-Induced Antibody in the Elderly: Is it Real, or Is It Relevant? J Infect Dis 2008; 197:490-502. Available at: http://www.journals.uchicago.edu/doi/pdf/10.1086/524146

Table 2. Approved Influenza Vaccines for Different Age Groups — United States, 2009–10 Season

Vaccine*	Brand Name	Manufacturer	Presentation	Age Group	Mercury Content (µg Hg/0.5 mL dose)	# of Doses	Route
TIV	**Fluzone®**	Sanofi Pasteur	0.25 mL prefilled syringe	6–35 mos	0	1 or 2†	Intramuscular§
			0.5 mL prefilled syringe	≥36 mos	0		
			0.5 mL vial	≥36 mos	0		
			5.0 mL multidose vial	≥6 mos	25		
TIV	**Fluvirin®**	Novartis Vaccine	5.0 mL multidose vial	≥4 yrs	25	1 or 2†	Intramuscular§
			0.5 mL prefilled syringe	≥4 yrs	<1.0		
TIV	**Fluarix®**	GlaxoSmithKline	0.5 mL prefilled syringe	≥18 yrs	0	1	Intramuscular§
TIV	**FluLuval™**	GlaxoSmithKline	5.0 mL multidose vial	≥18 yrs	25	1	Intramuscular§
TIV	**Afluria®**	CSL Biotherapies	0.5 mL prefilled syringe	≥18 yrs	0	1	Intramuscular§
			5.0 mL multidose vial	≥18 yrs	25		
LAIV¶	**FluMist®****	MedImmune	0.2 mL sprayer	2–49 yrs	0	1 or 2††	Intranasal

* **TIV: Trivalent Inactivated Influenza Vaccine. LAIV: Live Attenuated Influenza Vaccine.**
A 0.5 mL dose of TIV contains 15 µg each of *A/Brisbane/59/2007 (H1N1)*-like, *A/Brisbane/10/2007 (H3N2)*-like, and *B/Brisbane/60/2008*-like antigens.

† Two doses administered at least 4 weeks apart are recommended for children aged 6 months–8 years who are receiving TIV for the first time. Those children who received only 1 dose in their first year of vaccination should receive 2 doses in the following year.

§ For adults and older children, the recommended vaccination site is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh.

¶ A 0.2 mL dose of LAIV contains $10^{6.5-7.5}$ fluorescent focal units of live attenuated influenza virus reassortants of each of the same three strains shown above (*) for TIV.

** FluMist is shipped refrigerated and stored in the refrigerator at 35°F–46°F (2°C–8°C). The dose is 0.2 mL, divided equally between each nostril. FluMist should not be administered to persons with asthma. Providers should carefully screen children for asthma or wheezing. (See package insert for additional information.)

†† Two doses administered at least 4 weeks apart are recommended for children aged 2–8 years who are receiving LAIV for the first time, and those who only received 1 dose in their first year of vaccination should receive 2 doses in the following year.