ACIP Releases Recommendations for Influenza Vaccination, 2015-2016

Key Points for Practice

- Children six months to eight years of age who have received at least two doses of trivalent or quadrivalent influenza vaccine since the 2010-2011 influenza season need only one dose this season.
- Live attenuated influenza vaccine is no longer recommended over inactivated vaccine for children two to eight years of age.
- Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive inactivated influenza vaccine or trivalent recombinant influenza vaccine.

From the AFP *Editors*

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The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) has released its yearly recommendations for routine influenza vaccination in the 2015-2016 season. Updates this year include the antigenic composition of seasonal influenza vaccines available in the United States; information on influenza vaccines expected to be available this season; updated information for determining the number of doses required for children six months to eight years of age; and recommendations for the use of live attenuated influenza vaccine (LAIV) when both LAIV and inactivated influenza vaccine are available, including the removal of 2014-2015 preferential recommendation for LAIV in healthy children two to eight years of age.

Routine annual influenza vaccination is recommended for all persons six months and older who do not have contraindications. Vaccination should ideally occur before the onset of influenza activity in the community. Clinicians should offer vaccination by October, if possible, and continue through the influenza season. Children six months to eight years of age who require two doses should receive their first dose as soon as possible after vaccine becomes available, and the second dose no earlier than four weeks later.

For the 2015-2016 influenza season, U.S.-licensed trivalent influenza vaccines will include hemagglutinin derived from an A/California/7/2009 (H1N1)-like virus, an A/Switzerland/9715293/2013 (H3N2)-like virus, and a B/Phuket/3073/2013-like (Yamagata lineage) virus. Quadrivalent vaccines will contain these viruses plus a B/Brisbane/60/2008-like (Victoria lineage) virus.

Influenza vaccines expected to be available this season are listed in *Table 1*. New vaccines and updated vaccine indications include the following:

- The trivalent inactivated influenza vaccine Afluria has been approved for intramuscular administration via a needle-free jet injector in persons 18 to 64 years of age. Afluria is the only inactivated influenza vaccine that can be administered without a needle and syringe.
- The trivalent recombinant influenza vaccine, Flublok, (for persons with egg allergy) is now indicated for all adults 18 years and older. It was previously approved only for persons 18 to 49 years of age.
- The quadrivalent intradermal inactivated influenza vaccine, Fluzone Intradermal, is now indicated for adults 18 to 64 years of age. This formulation is expected to replace the previously available trivalent intradermal inactivated vaccine.

Children six months to eight years of age require two doses of influenza vaccine during their first season of vaccination. Since the emergence of influenza A(H1N1)pdm09 (the 2009 H1N1 pandemic virus), recommendations for determining the number of doses needed have been based on whether a child previously received vaccine containing influenza A(H1N1)pdm09. Because this strain continues to circulate as the predominant H1N1 virus, and because of the inclusion of an A/California/7/2009(H1N1)-like virus in seasonal influenza vaccines available in the ▶

Table 1. Influenza Vaccines—United States, 2015-2016

Trade name	*Dispensing method*	*Age indications*	*Route of administration*
Inactivated influenza vaccine, quadrivalent, standard dose*			
Fluarix Quadrivalent	0.5-mL single-dose prefilled syringe	≥ 3 years	Intramuscular†
Flulaval Quadrivalent	5.0-mL multidose vial	≥ 3 years	Intramuscular†
Fluzone Quadrivalent	0.25-mL single-dose prefilled syringe	6 to 35 months	Intramuscular†
	0.5-mL single-dose prefilled syringe	≥ 36 months	Intramuscular†
	0.5-mL single-dose vial	≥ 36 months	Intramuscular†
	5.0-mL multidose vial	≥ 6 months	Intramuscular†
Fluzone Intradermal Quadrivalent‡	0.1-mL single-dose prefilled microinjection system	18 to 64 years	Intradermal§
Inactivated influenza vaccine, trivalent, standard dose*			
Afluria	0.5-mL single-dose prefilled syringe	≥ 9 years‖	Intramuscular†
	5.0-mL multidose vial	≥ 9 years via needle‖; 18 to 64 years via jet injector	Intramuscular†
Fluvirin	0.5-mL single-dose prefilled syringe	≥ 4 years	Intramuscular†
	5.0-mL multidose vial	≥ 4 years	Intramuscular†
Fluzone	5.0-mL multidose vial	≥ 6 months	Intramuscular†
Inactivated influenza vaccine, trivalent, high dose*			
Fluzone High-Dose¶	0.5-mL single-dose prefilled syringe	≥ 65 years	Intramuscular†
Inactivated influenza vaccine, cell-culture–based, standard dose*			
Flucelvax	0.5-mL single-dose prefilled syringe	≥ 18 years	Intramuscular†
Recombinant influenza vaccine, trivalent, standard dose**			
Flublok	0.5-mL single-dose vial	≥ 18 years	Intramuscular†
Live attenuated influenza vaccine, quadrivalent††			
Flumist Quadrivalent‡‡	0.2-mL single-dose prefilled intranasal sprayer	2 to 49 years	Intranasal

NOTE: *Clinicians should check U.S. Food and Drug Administration–approved prescribing information for 2015-2016 influenza vaccines for the most complete and updated information, including (but not limited to) indications, contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm093833.htm.*

**—Contraindications: history of severe allergic reaction to any vaccine component, including egg protein, or after a previous dose of any influenza vaccine. Precautions: moderate to severe acute illness with or without fever, or a history of Guillain-Barré syndrome within 6 weeks of influenza vaccination.*

†—For adults and older children, the recommended site for intramuscular influenza vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh. Specific guidance regarding site and needle length for intramuscular administration is available in the Advisory Committee on Immunization Practices (ACIP) general recommendations on immunization at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm.

‡—A 0.1-mL dose of quadrivalent inactivated influenza vaccine contains 9 µg of each vaccine antigen (36 µg total).

§—The preferred injection site is over the deltoid muscle. Fluzone Intradermal Quadrivalent vaccine is administered using the delivery system included with the vaccine.

‖—Age indication per package insert is ≥ 5 years; however, ACIP recommends that Afluria not be used in children 6 months through 8 years of age because of an increased risk of febrile reactions noted in this age group with bioCSL's 2010 Southern Hemisphere trivalent inactivated influenza vaccine. If no other age-appropriate, licensed inactivated seasonal influenza vaccine is available for a child 5 to 8 years of age who has a medical condition that increases the risk of influenza complications, Afluria can be used; however, clinicians should discuss the benefits and risks of Afluria with the child's parents or caregivers before administering the vaccine. Afluria may be used in persons ≥ 9 years of age.

¶—A 0.5-mL dose of high-dose trivalent inactivated influenza vaccine contains 60 µg of each vaccine antigen (180 µg total).

***—For egg-allergic patients. Contraindication: history of severe allergic reaction to any vaccine component. Precautions: moderate to severe acute illness with or without fever, or a history of Guillain-Barré syndrome within 6 weeks of influenza vaccination.*

††—Contraindications: history of severe allergic reaction to any vaccine component, including egg protein, or after a previous dose of any influenza vaccine; concomitant use of aspirin or aspirin-containing products in children and adolescents; or use of antiviral medications within the past 48 hours. Not recommended in pregnant women, immunosuppressed persons, persons with egg allergy, and children 2 to 4 years of age who have asthma or who have had a wheezing episode within the past 12 months. Persons who care for severely immunocompromised individuals who require a protective environment should not receive live attenuated influenza vaccine, or should avoid contact with such persons for seven days after vaccination. Precautions: moderate to severe acute illness with or without fever, history of Guillain-Barré syndrome within 6 weeks of influenza vaccination; asthma in persons 5 years and older; medical conditions that may predispose to complications after wild-type influenza virus infection (e.g., chronic pulmonary, cardiovascular, renal, hepatic, hematologic, neurologic, or metabolic disorders [except isolated hypertension]).

‡‡—Flumist is shipped refrigerated and should be stored in the refrigerator at 35°F to 46°F (2°C to 8°C) after arrival in the vaccination clinic. The dose is 0.2 mL divided equally between each nostril. Clinicians should consult the medical record, when available, to identify children 2 to 4 years of age who have asthma or recurrent wheezing that might indicate asthma. In addition, to identify children who might be at greater risk of asthma and possibly at increased risk of wheezing after receiving the vaccine, parents or caregivers of children 2 to 4 years of age should be asked: "In the past 12 months, has a health care professional ever told you that your child had wheezing or asthma?" Children whose parents or caregivers answer "yes" to this question and children who have asthma or who had a wheezing episode noted in the medical record within the past 12 months should not receive Flumist.

Adapted from Grohskopf LA, Sokolow LZ, Olsen SJ, Bresee JS, Broder KR, Karron RA. Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices, United States, 2015-16 influenza season. MMWR Morb Mortal Weekly Rep. *2015;64(30):820-821.*

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United States since the 2010-2011 season, separate consideration of receipt of vaccine doses containing this virus is no longer recommended. Children six months to eight years of age who received at least two doses of trivalent or quadrivalent influenza vaccine before July 1, 2015, need only one dose this season. The two previous doses do not have to have been given during the same season or consecutive seasons.

LAIV and inactivated influenza vaccine have both been proven effective in children and adults. Although ACIP previously recommended that LAIV be given to healthy children two to eight years of age, recent evidence has shown that LAIV is no more effective than inactivated influenza vaccine. Therefore, LAIV is no longer recommended over inactivated vaccine; when both vaccines are available in an age-appropriate formulation, either can be given.

Egg Allergy

Severe allergic and anaphylactic reactions can occur in response to various components of influenza vaccine, but such reactions are rare. All currently available influenza vaccines except trivalent recombinant influenza vaccine and cell-culture–based inactivated influenza vaccine (Flucelvax) are prepared by propagation of virus in embryonated eggs. For the 2015-2016 influenza season, ACIP recommends the following:

- Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive inactivated influenza vaccine or trivalent recombinant influenza vaccine. Recombinant vaccine can be used in adults 18 years and older who have no contraindications. However, inactivated vaccine may also be used if it is administered by a clinician who is familiar with the potential manifestations of egg allergy and if the patient can be observed for signs of a reaction for at least 30 minutes after vaccination.
- Persons with a history of symptoms such as angioedema, respiratory distress, lightheadedness, or recurrent emesis after exposure to egg, or who required epinephrine or another emergency medical intervention, may receive recombinant influenza vaccine if they are at least 18 years of age and have no other contraindications. If recombinant vaccine is not available or the recipient is not within the indicated age range, inactivated influenza vaccine should be administered by a clinician experienced in the recognition and management of severe allergic reactions.
- Regardless of allergy history, all vaccines should be administered in settings in which personnel and equipment for rapid recognition and treatment of anaphylaxis are available.
- Persons who can eat lightly cooked egg (e.g., scrambled egg) without reaction are unlikely to be allergic. Egg-allergic persons may tolerate egg in baked products (e.g., bread, cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy. Egg allergy can be confirmed by a consistent medical history of adverse reactions to eggs and egg-containing foods, plus skin or blood testing for immunoglobulin E directed against egg proteins.
- In persons with no history of egg exposure who are suspected of being allergic on the basis of allergy testing, consultation with a clinician who has expertise in the management of allergic conditions should be obtained before vaccination. Alternatively, trivalent recombinant influenza vaccine can be administered if the patient is at least 18 years of age.
- A history of severe allergic reaction to influenza vaccine is a contraindication to future receipt of the vaccine, regardless of the component suspected of causing the reaction.

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Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6430a3.htm

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