Influenza Vaccination 2011-2012: What You Need To Know
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Background
Influenza, or the flu, is a viral illness that causes significant morbidity and mortality. It can affect people of any age, but rates of serious infection, including death, are the highest among persons ≥65 years, children aged <2 years, and persons of any age who have medical conditions that place them at increased risk for complications from influenza. Influenza vaccination remains the most effective method for preventing influenza virus infection and its complications, however, vaccination rates remain low.

The 2010-2011 influenza season was unusual because it followed the 2009 influenza A pandemic (H1N1) season and it was the first season the vaccine was recommended for all persons age ≥6 months. The season was also notable due to a record number of influenza vaccine doses being distributed. By February 28, preliminary vaccination coverage estimates were 49.0% for children 6 months -17 years, 30.2% for adults age 18-49 years, and 68.6% for adults ≥65 years. The record high seasonal vaccination coverage achieved during 2009-2010 (41.3%) among persons age ≥6 months was sustained during the past season (42.8%).

During the 2010-2011 influenza season, influenza activity peaked nationally in early February. The graph below from the Centers for Disease Control and Prevention (CDC) demonstrates influenza positive tests from laboratories located in all 50 states and Washington, D.C., for the 2010-2011 year. Compared with the previous pandemic year (2009-2010), higher rates of hospitalization were observed for persons age ≥65 years during the 2010-2011 season, whereas lower hospitalization rates were observed in younger populations during that year.
Influenza Vaccination Recommendations for 2011-2012
In 2010, the CDC’s Advisory Committee on Immunization Practices (ACIP) first recommended annual influenza vaccination for all persons aged ≥6 months in the United States. This “universal” vaccination recommendation in the U.S. was made to expand protection against influenza to more people.
Vaccination should occur before onset of influenza activity in the community, and providers should offer vaccination as soon as vaccine is available. Vaccination should continue to be offered throughout the influenza season.

While everyone should get an annual influenza vaccine, it is especially important that certain people get vaccinated because they are at high risk of having serious flu-related complications, or because they live with or care for people at high risk for developing flu-related complications. This includes people living in long-term care facilities, health care workers, household contacts of persons at high risk for complications from the flu, and household contacts and caregivers of children younger than 5 years of age with emphasis on vaccinating contacts of children younger than 6 months of age. Others at high risk include the following groups:

- Children younger than 5, but especially children younger than 2 years old
- Adults 65 years of age and older
- Pregnant women
- American Indians and Alaskan Natives
- Those with the following medical conditions:
  - Asthma and chronic lung disease (COPD, cystic fibrosis)
  - Neurological and neurodevelopmental conditions
  - Heart disease
  - Blood disorders (E.g., sickle cell disease)
  - Endocrine (E.g., diabetes mellitus) and metabolic disorders
  - Kidney and liver disorders
  - Weakened immune system
  - Age <19 receiving long-term aspirin therapy
  - Morbidly obese (I.e., Body mass index of 40 or more)

Vaccine Doses for Children 6 Months – 8 Years
Typically it is recommended that children 6 months of age through 8 years require 2 doses of influenza vaccine (administered a minimum of 4 weeks apart) during their first season of vaccination. Providers should note that, in previous seasons, children 6 months-8 years who received only 1 dose of influenza vaccine in their first year of vaccination required 2 doses the following season. However, because the 2011-2012 vaccine strains are unchanged from the 2010-2011 season, children in this age group who received at least 1 dose of the 2010-2011 vaccine will require only 1 dose of the 2011-2012 vaccine. Figure 1 is an algorithm depiction of influenza vaccination in children 6 months through 8 years of age. Children in this age group who did not receive at least 1 dose of the previous years vaccine, or for whom it is not certain whether the 2010-2011 vaccine was
received, should receive 2 doses of this years influenza vaccine. Recommendations for this age group on
the number of doses of vaccine may change for the 2012-2013 season if vaccine antigens change.

Who Should Not Be Vaccinated?
Certain individuals are not candidates for influenza vaccination. The following describes instances where
vaccine should not be given.

Inactivated vaccine
- Anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine unless the
  recipient has been desensitized.
- Persons with moderate to severe acute febrile illness usually should not be vaccinated until
  symptoms have resolved.
- Guillain-Barre Syndrome (GBS) within 6 weeks following a previous dose of influenza vaccine is
  considered to be a precaution for use of influenza vaccines.
- Known hypersensitivity to neomycin or polymyxin (Afluria® only).

Live attenuated influenza vaccine (LAIV)
- FluMist® is contraindicated in persons with a history of hypersensitivity, especially anaphylactic
  reactions to eggs, egg proteins, gentamicin, gelatin, or arginine, or with life-threatening reactions to
  previous influenza vaccinations.
- In children age 2-4 years, LAIV should be avoided in those who have asthma or have had a
  wheezing episode within the previous 12 months.
- Persons with moderate or severe illness with or without fever is a precaution for use of LAIV.
- GBS within 6 weeks following a previous dose of influenza vaccine is considered to be a
  precaution for use of LAIV vaccines.
- LAIV should not be administered to close contacts of immunosuppressed persons who require a
  protected environment.
- Additionally, the LAIV should not be administered to the following groups:
  - Children aged younger than 2 years, because of an increased risk for hospitalization and
    wheezing observed in clinical trials.
  - Persons with asthma.
  - Persons age 50 years and older.
  - Adults and children who have chronic pulmonary, cardiovascular (except isolated
    hypertension), renal, hepatic, neurologic/neuromuscular, hematologic, or metabolic
    disorders.
  - Adults and children who have immunosuppression.
  - Children or adolescents aged 6months-18 years receiving aspirin or other salicylates
    (because of the association of Reye syndrome).
  - Pregnant women.

Vaccines for the 2011-2012 Influenza Season
The 2011-2012 influenza vaccine virus strains are identical to those contained in the 2010-2011 vaccine.
Although vaccine strains are unchanged, annual vaccination is recommended even for those who received
the vaccine from the previous season, as studies have shown that postvaccination antibody titers decline
over the course of a year.5

Multiple influenza vaccines are available for the 2011-2012 season. All vaccines contain the same
antigenic composition. The “flu shot” is an inactivated vaccine that contains a killed virus. Most people
who are healthy, with chronic medical conditions, and women who are pregnant are able to get this shot.
The inactivated vaccines should be administered intramuscularly, with the exception of Fluzone®
Intradermal, a new vaccine for the 2011-2012 season.
Fluzone® Intradermal is indicated for persons aged 18 through 64 years and contains less antigen than intramuscular inactivated preparations (9 mcg per strain instead of 15 mcg) in a smaller volume (0.1ml rather than 0.5ml). This is useful because the same amount of available antigen can be used to make more doses of the vaccine. This vaccine is administered into the skin instead of the muscle, via a single-dose, prefilled microinjection syringe. The most common adverse reactions include injection-site erythema, induration, swelling, pain, and pruritus. With the exception of pain, these reactions occurred more frequently than with intramuscular vaccine, but resolved within 3-7 days. Fluzone® Intradermal is an alternative to other inactivated preparations for those in the indicated age range, with no preferential recommendation. Because this vaccine uses a very fine needle that is 90% smaller than the needles used for regular flu shots, it may be helpful for people who don’t like needles.

As during the 2010-2011 season, a high-dose vaccine containing 60micrograms of hemagglutinin per vaccine strain (rather than 15micrograms per strain in other intramuscular inactivated preparations), is available as an alternative vaccine for persons age ≥65 years. The high-dose vaccine is intended to create a stronger immune response. However, no preference is indicated for this inactivated vaccine versus other inactivated preparations.

The nasal spray flu vaccine is a live attenuated influenza vaccine (LAIV) that includes a live, weakened influenza virus. LAIV is only approved for healthy, non-pregnant persons between the ages of 2-49 years without chronic health conditions.

No preference is indicated for the LAIV versus inactivated vaccine formulations.

**Conclusion**
Influenza vaccination remains the most effective method for preventing influenza virus infection and its complications. Routine annual influenza vaccination is recommended for all persons age ≥6 months. Multiple influenza vaccines are available for the 2011-2012 season, including a new intradermal preparation, which uses a smaller needle and less antigen. Vaccination should begin when vaccine is available.

**Additional Resources**
- Centers for Disease Control and Prevention: http://www.cdc.gov/flu/

**References:**

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