Nebraska Department of Health and Human Services

HEALTH ALERT NETWORK

Department of Health & Human Services
DHHS
NEBRASKA

TO: Nebraska Healthcare Providers & Laboratories

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RE: 2013-14 Influenza Vaccination and Laboratory Testing Guidelines
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It's mid-October and health-care providers' influenza vaccination efforts should be in full swing. For the past 3 years, the official public health recommendation for routine, annual influenza vaccination has broadened to include **all persons over 6 months of age**. We continue to emphasize heightened attention to **persons at increased risk for severe complications from influenza**. These include:

- All children aged 6 months through 5 years;
- All persons aged ≥50 years;
- Adults and children who have chronic pulmonary (including asthma) or cardiovascular (except isolated hypertension), renal, hepatic, neurological, hematologic, or metabolic disorders (including diabetes mellitus);
- Persons who have immunosuppression (including immunosuppression caused by medications or by HIV infection);
- Women who are or will be pregnant during the influenza season;
- Children and adolescents (aged 6 months--18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye's syndrome after influenza virus infection;
- Residents of nursing homes and other long-term care facilities;
- American Indians/Alaska Natives;
- Persons who are morbidly obese (BMI ≥40).

Influenza Vaccine Composition

Thirteen influenza vaccines from seven different vaccine manufacturers are available on the U.S. market this fall; five of the vaccines are newly approved.

- Trivalent vaccines will contain an A/California/7/2009 (H1N1)-like virus, an H3N2-like A/Victoria/361/2011, and a B/Massachusetts/2/2012-like virus.
- Quadrivalent vaccines include an additional component: B/Brisbane/60/2008-like virus.

Influenza Vaccine Abbreviations

• IIV: inactivated influenza vaccine, which is replacing trivalent inactivated influenza vaccine (TIV) this year
• LAIV: live-attenuated influenza vaccine
• RIV: recombinant hemagglutinin influenza vaccine
• cc: a prefix indicating cell culture-based vaccine (e.g., ccIIV)
• Numeric suffix: specifies the number of antigens in the vaccine (e.g., IIV3=trivalent, and IIV4=quadrivalent)

Contraindications and Precautions to the use of Influenza Vaccines

Table. Contraindications and Precautions for Influenza Vaccines, 2013–14 Season[1]

Contraindications for LAIV and IIV	Do not administer if person has:	• anaphylaxis or life-threatening reaction to a previous influenza vaccine • severe allergy (e.g., anaphylaxis) to egg protein or to any component of the vaccine
Additional contraindications for LAIV *(Note: persons with contraindications for LAIV may be candidates for IIV or RIV.)*	Do not administer if person:	• is aged <2 years or ≥50 years • is pregnant • has chronic medical conditions* • has asthma • is a child aged 2–4 years with a history of wheezing in past 12 months • is a close contact of a patient with severe immunosuppression requiring protective isolation • is a child aged ≤18 years receiving long-term aspirin or other salicylates therapy • who received live virus (LAIV, MMR, varicella) vaccine within the last 4 weeks • who received influenza antiviral medication within the last 48 hours
Contraindications for RIV	Do not administer if person:	• is aged <18 years or ≥50 years • has a history of severe allergic reaction to any component of the vaccine
Precautions for ALL influenza vaccines	Do not administer if person:	• has a moderate or severe illness with or without a fever (a person with a mild illness, such as a mild cold, may be vaccinated) • developed Guillain Barré syndrome within 6 weeks of a previous influenza vaccination

**Chronic pulmonary (including asthma), cardiovascular (excluding hypertension), renal, hepatic, cognitive, neurologic/neuromuscular (e.g., cerebral palsy), hematologic or metabolic disorders (e.g., diabetes), immunosuppression including that caused by medications or HIV, and children (through 18 years of age) on long-term aspirin therapy.*

Inactivated Influenza Vaccines

• IIV3 vaccines available this season: Afluria®, Fluarix®, FluLaval®, Fluvirin®, Fluzone®, Fluzone® Intradermal, Fluzone® High Dose.
• ccIIV3 vaccine available this season: Flucelvax® is a cell culture-based vaccine; it is approved for persons aged ≥18 years. Vaccine virus strains are grown in mammalian cells instead of in eggs; however, initial reference strains are passed through an egg and thus the vaccine should be administered following CDC's egg-allergy guidelines.
• IIV4 vaccines available this season: Fluarix® Quadrivalent, FluLaval® Quadrivalent, Fluzone® Quadrivalent.

Live-Attenuated Influenza Vaccine

• FluMist® Quadrivalent is the only LAIV available this season; it is thimerosal-free and available for healthy, non-pregnant persons aged 2–49 years. FluMist is for intranasal administration only, and is supplied in a prefilled, single-use sprayer containing 0.2 mL of vaccine; 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 a video showing the appropriate administration technique are available on the manufacturer's website.

Recombinant Influenza Vaccine

• RIV3 is made by using DNA and cell culture technology to produce the hemagglutinin (HA) protein that induces immunization; the recombinant HA is produced in an insect line using a baculovirus, **thus the vaccine is egg-free**.
• FluBlok® is the only RIV3 available this season; it may be used in persons aged 18–49 years.

The full guidance document on influenza vaccine recommendations is located here: (http://www.cdc.gov/flu/professionals/acip/2013-summary-recommendations.htm).

Recommendations on Laboratory Testing

Once influenza activity is established in a community or geographic area, most ambulatory patients with an uncomplicated flu-like illness can be diagnosed clinically using established definitions of influenza-like illness, and do not require influenza testing for clinical management, including antiviral treatment decisions.

Influenza testing of patients who are not severely ill is a clinical decision. Patients with influenza-like illness (ILI) should be tested by a rapid influenza diagnostic test (RIDT) that can detect and differentiate influenza A or B. Both the collection of a high-quality nasopharyngeal swab and the training/skills of the test operator are critical to optimizing the sensitivity/specificity of these tests. Note that the sensitivity of rapid tests can range from 10% to 70%. When interpreting the test results, clinicians should consider the following factors:

- The patient's duration of illness (influenza diagnostic tests more likely to be positive when the specimen is obtained during the first three days of illness when virus levels are highest);
- State and local influenza surveillance information regarding circulating influenza and other respiratory viruses that can cause influenza-like illness;
- The amount of influenza circulating in the community.

When there is little influenza circulating in the community, specimens that test positive have a greater likelihood of being "false positive" and require careful clinical correlation. As influenza circulates more widely in the population, specimens that test positive are more likely to be "true positive" and reflect actual influenza infection.

For example:

- A **positive** rapid test result during **increased** influenza activity (Likely a **true positive**)
- A **positive** rapid test result during **decreased** influenza activity (May be a **false positive**)
- A **negative** rapid test result during **increased** influenza activity (May be a **false negative**)
- A **negative** rapid test result during **decreased** influenza activity (Likely a **true negative**)

RIDTs can be confirmed via a PCR test or viral culture. Confirmed cases provide a rough indication of activity, but more importantly they allow us to:

- Definitively establish the arrival/presence of influenza activity each year (the "first influenza case of the season") AND
- Determine what strains of influenza are circulating in any given year.

At the start of the flu season we encourage confirmatory (PCR) testing at the Nebraska Public Health Laboratory (NPHL) in the following circumstances:

- Any specimen that tests positive by RIDT in ambulatory clinics or laboratories. These specimens require pre-approval by DHHS (402-471-2937) or your Local Public Health Department (LPHD), http://dhhs.ne.gov/lhd.
- Those designated ILINet sentinel providers and sentinel laboratories should send specimens on patients with influenza-like illness according to DHHS guidelines for these entities.
- Any influenza outbreak or cluster with positive RIDTs should have 3-5 specimens forwarded to NPHL for confirmatory testing.

The NPHL "Influenza PCR Panel (CDC)" includes primers that detect generic Influenza A (universal), generic Influenza B (universal), Influenza A-H1 (pre-2009 strain), Influenza A-H3, and Influenza A-2009 H1 as well as the H3N2v (an uncommon swine-related variant) virus. Test results will be transmitted via fax to both the submitting site and the LPHD. NPHL will send a sample of positive specimens to CDC for further characterization and antiviral resistance testing. These results are usually not available until late in the season and are for epidemiological purposes only.

For specific clinical laboratory questions please contact NPHL client services at 1-866-290-1406 or visit the NPHL website at http://www.nphl.org/.

To submit an influenza specimen to NPHL, complete the Special Influenza Microbiology Requisition indicating that the specimen meets the criteria for public health testing, http://dhhs.ne.gov/publichealth/Documents/Influenza%20Requisition.pdf. **Specimens will not be tested unless accompanied by the Special Influenza Microbiology Requisition and meet the criteria specified above for public health testing. Contact a state or local public health office if you have further questions.**