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INFLUENZA PREVENTION AND CONTROL, 2013-2014

- Vaccinate everyone aged 6 months and older against influenza as early as possible.
- Give inactivated vaccine to all pregnant women in any trimester.
- Get your flu vaccination as soon as vaccine becomes available and ensure that your staff does the same.

Influenza is a highly infectious viral illness that can cause severe disease or death, especially in young children, older adults, pregnant women, and people with chronic medical conditions or immunocompromising disorders. Vaccination is the most effective means of preventing influenza and its potentially severe complications, including pneumococcal disease.^{1,2}

Both the timing of the seasonal influenza cycle and the severity of illness are unpredictable. Influenza activity begins as early as October and may continue through May or even beyond.³ The 2012-2013 season was moderately severe nationwide, and had an earlier onset than in recent years, with influenza activity increasing in late November and peaking in January.³ Type A (H3N2) virus, generally associated with more severe influenza, predominated until mid-February 2013; after this, B viruses were predominant.⁴

Routinely vaccinate everyone aged 6 months and older against influenza each year, especially those in groups listed in **Box 1** and people with conditions

BOX 1. IMPORTANT GROUPS FOR INFLUENZA VACCINATION^{1,2}

- Children aged 6 through 59 months, especially those <2 years
- People aged ≥ 50 years, especially those ≥ 65 years
- People with certain high-risk medical conditions (**Box 2**)
- Women who are pregnant or plan to be pregnant
- Health care workers
- Residents of long-term care facilities (aged ≥ 6 months)
- American Indians/Alaskan Natives
- People with body mass index ≥ 40 kg/m²
- Household contacts and caregivers of
 - Children aged <5 years, especially those <6 months
 - Adults aged ≥ 50 years, especially those ≥ 65 years
 - People with certain medical conditions (**Box 2**)

listed in **Box 2**. Vaccination of school-age children and health care workers helps reduce community and nosocomial transmission of infection, respectively. Ensure that you and your staff are vaccinated against influenza. Pregnant women are another group at risk for severe disease and should be vaccinated in any trimester with inactivated vaccine.^{2,5}

This season, new influenza vaccines are available, including those that may offer broader coverage against additional strains of influenza and those for use in patients with allergy to egg protein. Begin to vaccinate as soon as vaccine becomes available and continue until vaccine expires.²



BOX 2. MEDICAL CONDITIONS THAT INCREASE RISK FOR SEVERE INFLUENZA COMPLICATIONS²

- Chronic pulmonary disorders (including asthma)
- Cardiovascular diseases (except hypertension)
- Renal, hepatic, neurologic/neurodevelopmental, hematologic, metabolic, or endocrine disorders (including diabetes mellitus)
- Weakened immune system due to disease such as HIV/AIDS, medications such as chronic steroids, or cancer treatment (ie, radiation or chemotherapy)
- Long-term aspirin therapy in children and adolescents <19 years of age because of risk for Reye syndrome after influenza infection

INFLUENZA IN CHILDREN

School-age children have the highest incidence of influenza,^{1,6} although the illness is often not diagnosed.⁷ Children in day care and school are a major source of influenza transmission.^{1,6,8} Vaccinate children in day care and school as early as possible to protect the entire community. Studies have shown that 80% coverage in pediatric age groups can confer significant protection among people who did not receive influenza vaccine.⁹

Severe complications of influenza are most common in children younger than age 2 and those with certain medical conditions (**Box 2**).¹ In 2012-2013, about 34% of all reported influenza hospitalizations in the United States (US) occurred in children younger than age 18.¹⁰ The most commonly reported underlying medical conditions were asthma, neurologic disorders, and immune suppression, but 44% of children hospitalized for influenza had no identified underlying medical conditions.¹⁰ About 90% of influenza-associated pediatric deaths occurred in children who had

not received influenza vaccine; 40% of the deaths were in children with no known chronic health problems.¹¹ In New York State (NYS), 23% of influenza hospitalizations last season occurred in children younger than age 18,¹² and in New York City (NYC), emergency department visits for influenza-related illness (ILI) were highest in children younger than 5 years of age.¹³ See **Box 3** for vaccine dosing guidance for children through age 18.²

INFLUENZA IN ADULTS

Nationally in 2012-2013, half of all reported influenza hospitalizations occurred in adults aged 65 and older.¹⁰ In NYS, almost 50% of influenza hospitalizations occurred in people aged 65 and older and were highest in adults with cardiovascular disease, metabolic disorders, chronic lung disease, and obesity.¹² In NYC, preliminary data from September 2012 through May 2013 indicate that most of the 2,085 influenza- and pneumonia-related deaths were in people aged 65 and older (unpublished data). In long-term care facilities, there were 95 outbreaks of influenza, 1,060 confirmed cases, 69 hospitalizations, and 16 deaths (unpublished data).

Less than 40% of NYC adults reported receiving influenza vaccine in the 2011-2012 season (unpublished data). Be sure to vaccinate all of your adult patients, especially those at higher risk, including people who live with or care for anyone at higher risk for severe influenza-related complications (**Boxes 1 and 2**).

Pregnant women are a high-risk group that should be vaccinated as early as possible (**Box 4**). Advise pregnant patients about the importance of vaccination for themselves and their infants (see **Resources**—NYC DOHMH and CDC for free patient educational materials).

Health care workers are another group at higher risk for acquiring influenza infection and transmitting disease to their

BOX 3. INFLUENZA VACCINATION RECOMMENDATIONS FOR CHILDREN

Despite the life-saving potential of influenza vaccines, coverage in New York City (NYC) children remains low. Only 65% of NYC children aged 6 through 59 months, and 46% of children aged 5 through 8 years, were vaccinated with at least 1 dose of influenza vaccine last season (unpublished data). In addition, only 31% of children aged 9 through 18 were vaccinated. These rates remain far below the Healthy People 2020 goal of 80% coverage in these age groups.

All children aged 6 months to 18 years should receive influenza vaccine as soon as it becomes available, especially those with conditions that put them at higher risk for severe disease, and so should their close contacts, including caregivers and day care providers.^{2,14}

Younger children may require a second dose of vaccine in order to provide protective antibody levels.

For children aged 6 months through 8 years²:

- Give 1 dose of vaccine to children who have received
 - a total of 2 or more doses of seasonal influenza vaccine since July 1, 2010; **OR**
 - 2 or more doses of seasonal vaccine before July 1, 2010, and 1 or more doses of monovalent 2009(H1N1) vaccine; **OR**
 - 1 or more doses of seasonal vaccine before July 1, 2010, and 1 or more doses of seasonal vaccine since July 1, 2010.

Children 6 months through 8 years who do not meet at least 1 of these criteria should be given 2 doses this season.

- Give the first dose as soon as vaccine becomes available and the second dose ≥ 4 weeks later. It usually takes about 2 weeks after the second dose for protection to begin.

See important additional vaccine information at www.cdc.gov/flu/professionals/acip/2013-summary-recommendations.htm and the Advisory Committee on Immunization Practices' recommended immunization schedule at www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-schedule.pdf.

BOX 4. INFLUENZA IN PREGNANCY

Pregnant women are an important priority group for vaccination and should receive a single dose of inactivated influenza vaccine in any trimester as soon as vaccine becomes available.⁵

- Pregnant women are more susceptible to severe illness from influenza¹⁵ and have a 4-fold-greater risk of influenza-related hospitalization than nonpregnant women.¹⁶
- Influenza increases risk of premature labor and delivery.¹⁷
- When pregnant women are vaccinated, they protect themselves and their infants younger than 6 months, who are at high risk for influenza-related hospitalization but not old enough to receive vaccine.^{5,17} **Vaccination during pregnancy is safe.** In the last decade, influenza vaccine has been given to millions of pregnant women without causing harm.¹⁵ **Pregnant women are 5 times more likely to be vaccinated if their providers offer or recommend influenza vaccination.**⁵
- The American Congress of Obstetricians and Gynecologists, American Academy of Family Physicians, Advisory Committee on Immunization Practices, and many other professional organizations strongly encourage providers to urge their pregnant patients to be vaccinated against influenza.
- **Providers should also use this opportunity to administer Tdap vaccine**, which is recommended during every pregnancy. Vaccination of pregnant females allows for direct transfer of antibodies to a newborn infant, which may provide protection against the disease during the infant's first few months of life, the period of highest vulnerability. Vaccination protects the mother from transmitting pertussis to her newborn infant as well. Complete recommendations for Tdap vaccination during pregnancy can be found at www.cdc.gov/mmwr/preview/mmwrhtml/mm6207a4.htm.

patients, colleagues, and families. Vaccination of health care workers is of critical importance in reducing the burden of nosocomial influenza, especially in high-risk groups such as older adults, immunocompromised persons, and pregnant women. High influenza vaccination coverage protects staff and patients and reduces disease burden, health care costs, and absenteeism.^{18,19} According to the 2009 NYC Community Health Survey, only about 42% of health care workers in NYC reported receiving an influenza vaccination within the preceding 12 months.²⁰ **Box 5** includes suggestions for improving vaccination rates in your office or facility. Health care workers should receive annual vaccination with either inactivated (IIV) or live attenuated influenza vaccine (LAIV) as early as possible. Those younger than age 50 may receive LAIV unless they are pregnant or have chronic medical conditions (**Box 2**), or work with patients in a protected environment (ie, bone marrow transplant unit).^{1,21}

Beginning in the 2013-14 influenza season, new regulations require NYS-licensed, Article 28, 36, and 40 health care and residential facilities and agencies to document the influenza vaccination status of all health care personnel, and ensure that unvaccinated personnel wear masks in areas where patients or residents may be present when the NYS Health Department declares that

BOX 5. IMPROVING VACCINATION OF HEALTH CARE WORKERS

- Get vaccinated as early as possible and ensure that your staff does the same.
- Evidence-based strategies to improve staff vaccination rates include offering extended vaccination hours on weekends and evenings; use of mobile carts; vaccination of senior staff; and support of institutional leaders,¹⁹ as well as offering free onsite vaccination for more than 1 day.²²
- Educate providers and staff in contact with patients about influenza vaccination and integrate vaccination into existing programs.
- Implement policies to enforce new New York State regulations requiring that licensed health care and residential facilities and agencies document vaccination status of health care personnel and that unvaccinated staff wear masks while in patient areas.

For facilities not subject to these regulations, consider mandatory immunization of staff, as recommended by the National Vaccine Advisory Committee. The American College of Physicians, American Congress of Obstetricians and Gynecologists, Infectious Diseases Society of America, Pediatric Infectious Diseases Society, and many other professional groups agree that mandatory immunization is the best way to achieve targeted immunization rates of health care workers.^{23,24}

influenza is prevalent. Employers must provide masks, implement policies to ensure compliance, and document that unvaccinated personnel are wearing masks in the presence of patients. Upon request from the NYS Department of Health, facilities are required to report the number and percentage of personnel vaccinated in the current season.²⁵ For more information, see www.health.ny.gov/FluMaskReg. In addition to these new NYS regulations, hospitals are required to continue reporting health care personnel vaccination coverage to the Centers for Medicare and Medicaid Services (CMS) using the National Healthcare Safety Network Platform. This season, data collection will begin on October 1. As of October 2014, CMS will also require ambulatory surgical centers to report health care worker influenza vaccination coverage.²⁶

VACCINE EFFECTIVENESS

Vaccine effectiveness depends on numerous factors, including the age and health of those being vaccinated, the match between the vaccine influenza strains and circulating viruses, and the outcome being studied.²⁷ Even moderate vaccine effectiveness can reduce influenza-related illness, antibiotic use, time lost from work, hospitalizations, and deaths.³ In 2012-2013, vaccine effectiveness in preventing influenza-related outpatient medical visits was demonstrated to be 52% overall, with decreased effectiveness in adults aged 65 and older (32%).²⁸ Although protection from outpatient influenza-related illness was limited in this age group, vaccination has been demonstrated to help protect against more serious outcomes, including hospitalization. Vaccinated community-dwelling adults aged 50 and older had a 61% lower risk of influenza-related hospitalization during the 2006-2009

influenza seasons.²⁹ In 2011-2012, vaccinated adults aged 50 and older had a 77% lower risk of related hospitalization and adults aged 18 and older had a 71% lower risk.³⁰

AVAILABLE VACCINES

The 2013-14 influenza vaccine contains an A/California/7/2009-like (2009 H1N1)-virus, an A (H3N2) virus antigenically like the cell-propagated, or cell-grown, virus A/Victoria/361/2011 (A/Texas/50/2012), and a B/Massachusetts/2/2012-like (B/Yamagata lineage) virus. New quadrivalent vaccines will also contain a B/Brisbane/60/2008-like (B/Victoria lineage) virus.⁴

Traditional trivalent influenza vaccines protect against 3 strains of influenza virus (2 influenza A and 1 influenza B strain). One of two B strain lineages may predominate each season, and between 2000 and 2012, the influenza B strain included in the vaccine did not match the circulating strain type in 6 of 12 seasons. New quadrivalent vaccines contain antigen from both B strain lineages and may offer additional protection against influenza-related adverse outcomes.³¹ Inactivated influenza vaccines will be available in both trivalent (IIV3) and quadrivalent (IIV4) forms this season, and will no longer be referred to as trivalent influenza vaccine (TIV). In this introductory season, limited quantities of inactivated quadrivalent vaccines will be available. However, the quadrivalent form of live attenuated influenza vaccine (LAIV4) will replace the trivalent form entirely.²

In addition to quadrivalent vaccines, new vaccines will be available that are manufactured using cell-based technologies instead of traditional chicken eggs (**Box 6**). Recombinant influenza vaccine (RIV3) contains no egg protein and is recommended for use in patients with a history of allergy to egg protein.² Cell culture-based influenza vaccine (ccIIV3) offers the potential for faster manufacturing since it is not dependent on the supply of eggs or influenza virus.

Providers may wish to choose LAIV4 over IIV for children because of better efficacy of the quadrivalent live vaccine,³²⁻³⁴ but vaccination should not be delayed if LAIV4 is not available. LAIV should not be administered to people with asthma; adults aged 50 years or older; pregnant women; children aged 6 through 23 months; children aged 2 through 4 years who had 1 or more episodes of wheezing in the past 12 months; people with any other underlying medical conditions that predispose them to influenza complications (**Box 2**) or a history of Guillain-Barré syndrome (GBS); close contacts and caregivers of severely immunosuppressed people who require a protected environment; and people with egg allergy.^{1,2} See the CDC's Advisory Committee on Immunization Practices' recommendations on vaccine dosing, formulation, and safety at www.cdc.gov/flu/professionals/acip/2013-summary-recommendations.htm. Full prescribing information for all seasonal vaccines is available at www.fda.gov/BiologicsBloodVaccines/SafetyAvailability/VaccineSafety/ucm110288.htm.

ADVERSE EVENTS

All vaccines can potentially cause minor reactions. The most common adverse reactions to IIV are injection site soreness, redness, swelling, low-grade fever, aches, itching,

BOX 6. NEW INFLUENZA VACCINES AVAILABLE IN 2013-14^{2,34,35}

- **FluMist® Quadrivalent** — Quadrivalent intranasal live attenuated vaccine (LAIV4) for healthy, nonpregnant people aged 2 to 49. Consider choosing LAIV over inactivated influenza vaccine (IIV) for young children.
- **Fluarix® Quadrivalent** — Quadrivalent inactivated vaccine (IIV4) for people aged 3 years and older.
- **Flulaval® Quadrivalent** — Quadrivalent inactivated vaccine (IIV4) for people aged 3 years and older. Available in multi-dose vials.
- **Fluzone® Quadrivalent** — Quadrivalent inactivated vaccine (IIV4) for people aged 6 months and older. Limited quantities of the 0.25 mL dose for children 6-35 months and 0.5 mL dose for people 36 months and older will be available.
- **Flucelvax®** — Trivalent cell culture-based inactivated vaccine (ccIIV3) for adults aged 18 and older; has considerably less egg protein than other IIVs.
- **Flublok®** — Trivalent recombinant hemagglutinin vaccine (RIV3) for adults aged 18 through 49. The Advisory Committee on Immunization Practices recommends this vaccine for people in this age group with egg allergy of any severity because it is made without egg protein.^a It is also free of latex and preservatives.

^aRIV3 is contraindicated in people with known severe allergic reactions (eg, anaphylaxis) to any vaccine component, but is not contraindicated in people with anaphylaxis to egg.

Use of brand names is for informational purposes only and does not imply endorsement by the New York City Department of Health and Mental Hygiene.

and fatigue. While there are few contraindications to IIV, people with moderate to severe acute febrile illness should defer vaccination until their illness improves.³⁶⁻³⁸ A history of GBS within 6 weeks following a dose of IIV is considered a precaution for its use.² Injection site reactions, including redness, swelling, induration, and itching, are more common with the IIV intradermal vaccine than with the intramuscular formulations, but these reactions resolve within 3 to 7 days.

The most common reactions to LAIV4 are runny nose, nasal congestion, cough, headache, myalgia, fever, and wheezing.^{36,39}

Allergy to egg protein is not an absolute contraindication to administration of IIV when proper precautions are taken, but must be distinguished from allergy to influenza vaccine. Patients with less severe egg allergy, ie, those who can eat lightly cooked egg without a reaction, can receive IIV per the usual protocol. Patients who have previously experienced **only hives** after eating eggs or foods containing eggs can also receive IIV (egg- or cell culture-based) or RIV3, but not LAIV4. The vaccine should be administered by a health care provider who is familiar with the potential manifestations of egg allergy, and the patient should be observed for at least 30 minutes for signs of a reaction.²

Patients aged 18 through 49 who have experienced severe symptoms (eg, cardiovascular changes or respiratory distress) or who required epinephrine or other emergency medical intervention after egg exposure may receive RIV3 if there are

no other contraindications. If RIV3 is unavailable or the recipient is outside the indicated age range, refer to a physician with expertise in managing allergic conditions for further risk assessment, as such patients are more likely to have a serious systemic or anaphylactic reaction upon reexposure to egg protein.² A previous severe allergic reaction to influenza vaccine is always a contraindication to receipt of vaccine, regardless of the component suspected responsible for the reaction.² If the component responsible for causing the allergic reaction (ie, egg protein or thimerosal) is known, consider using an alternative formulation that doesn't contain that component (ie, egg-free RIV3 or preservative-free vaccine). All vaccines should be administered in settings in which personnel and equipment for rapid recognition and treatment of anaphylaxis are available.²

ADMINISTERING VACCINE

Begin vaccinating all your eligible patients as soon as vaccine is distributed and continue through the spring until the vaccine expires. See **Box 7** for important information on prebooking, obtaining, storing, and administering vaccine and record-keeping.

PNEUMOCOCCAL DISEASE AND INFLUENZA

Pneumococcal disease is a serious complication of influenza that causes at least 4,000 deaths annually in the US.⁴⁰ Despite efforts to increase vaccination coverage in older adults, pneumococcal polysaccharide vaccine (PPSV23) coverage rates in NYC adults aged 65 and older are still far below the Healthy People 2020 goal of 80%. Between 2008 and 2010, PPSV23 coverage of older NYC adults increased in whites (54% vs 61%) and Asians (40% vs 44%), but decreased in blacks (48% vs 42%) and Hispanics (41% vs 39%).⁴¹ PPSV23 is recommended for all patients aged 65 and older, aged 2 and older with high-risk medical conditions, and aged 19 through 64 who smoke or have asthma (**Resources—CDC Pneumococcal disease prevention**).⁴²

Pneumococcal conjugate vaccine (PCV13) is routinely recommended for all children through age 5. Coverage in NYC is approximately 84% (unpublished data), and providers should continue to ensure that their young patients are vaccinated, particularly those entering prekindergarten or day care. New York State requires pneumococcal conjugate vaccination in these children, if born on or after January 1, 2008 (**Resources—NYS Immunization Schedule**).⁴³

People older than age 5 at high risk for invasive pneumococcal disease due to immunocompromising conditions, functional or anatomic asplenia (eg, sickle cell disease), cerebrospinal fluid leaks, or cochlear implants⁴⁴ are also recommended to receive PCV13 in addition to PPSV23. For information on dosing schedules in children 6 through 18 years, see www.cdc.gov/mmwr/pdf/wk/mm6225.pdf. For information on dosing regimens for PCV13 in adults 19 years and older, see www.cdc.gov/mmwr/pdf/wk/mm6140.pdf.

IMPROVING VACCINATION RATES

The most important strategy for improving influenza vaccination coverage is **to recommend and offer** influenza vaccine—and pneumococcal vaccine, if appropriate—at every patient visit. Educate patients and staff about the importance of vaccination (**Resources—NYC DOHMH**), and dispel any misconceptions that may hinder acceptance, such as the belief that influenza is no worse than a very bad cold, is only dangerous in older people, or that vaccination will cause a mild version of influenza. Consider extending office hours on evenings and weekends to accommodate working families. Have staff follow up by calling patients or sending postcard mailings, or use electronic medical record recall/reminder systems to contact patients due for influenza vaccination (**Resources—City Health Information**). The Health Department's Citywide Immunization Registry has reminder/recall features that allow providers to generate lists of patients due for immunizations and create patient reminder letters that can be mailed (**Box 7**).

Pharmacy-based vaccination of adults aged 18 and older contributes to higher vaccination rates, especially in medically underserved populations.⁴⁵ In 2009, influenza vaccination coverage for people aged 65 and older in NYC was stagnant at approximately 52%. In 2011, after pharmacists were able to provide influenza vaccine to seniors, coverage jumped to 67%.²⁰ In 2012, more than 10% of adults reported receiving an influenza vaccine in a retail pharmacy or store (unpublished data). Be sure to ask patients whether they have received an influenza vaccination this season in a pharmacy or other venue and document this in the patient's medical record. Providers are responsible for ensuring that their patients are protected, even if vaccinations are given outside of the medical home. Documentation of this information will ensure that providers receive credit for patients vaccinated elsewhere in their overall practice level coverage.

ANTIVIRAL MEDICATIONS

Antiviral agents can be life-saving treatments in patients with high-risk conditions.⁴⁶ Oseltamivir (Tamiflu[®]) capsules and zanamivir (Relenza[®]) oral inhalation are active against influenza A and B viruses and are most effective in reducing severity of influenza illness when administered within 48 hours after illness onset.⁴⁷ Oseltamivir is indicated for treatment of uncomplicated acute influenza illness in patients aged 2 weeks and older who have been symptomatic for no more than 2 days.⁴⁷ Zanamivir is indicated for treatment of uncomplicated acute influenza illness in patients aged 7 years and older who have been symptomatic for no more than 2 days; it is not recommended for people with underlying respiratory disease (eg, asthma, COPD).⁴⁷ Both agents may also be used as chemoprophylaxis for health care workers and people at higher risk for complications if vaccine is medically contraindicated.⁴⁶ Two other antiviral agents, amantadine and rimantadine, are active only against influenza A viruses and are not recommended for

BOX 7. ESSENTIAL VACCINE INFORMATION

Obtaining vaccine:

- Even if not prebooked in the spring, vaccine can still be purchased. See www.nyc.gov/html/doh/downloads/pdf/imm/flu-imm-order-info.pdf for a list of manufacturers and www.flusupplynews.com for a list of distributors.
- If you are enrolled in the Vaccines for Children (VFC) program, order vaccine for eligible children at www.nyc.gov/health/cir and order an adequate supply of preservative-free vaccine for young children.
- Order an adequate supply of preservative-free vaccine for pregnant women.

Safe storage and handling:

- **Influenza vaccines MUST be stored correctly to ensure full potency.** View the CDC web-based vaccine storage and handling module, "You Call the Shots," for updated recommendations on storage and handling (<http://www2a.cdc.gov/nip/isd/ycts/mod1/courses/sh/start.asp>) and see www.immunize.org/catg.d/p3035.pdf for a sample safety and storage checklist.
- Store vaccines in a standard household-size refrigerator with a separate freezer compartment. Do not store with food, beverages, or clinical specimens. Maintain refrigerator temperature of 35° to 46° Fahrenheit (2° to 8° Celsius) and log temperature twice daily with a certified, calibrated thermometer.
- Place "Do Not Unplug" signs next to electrical outlets for the refrigerator and freezer, along with emergency contact information in case of power failure.
- If vaccines are exposed to temperatures outside the recommended range, call the vaccine manufacturer to see whether they may still be used.

Vaccination forms:

- Give patients and parents the Vaccine Information Statement (VIS) to read before vaccination, as required by federal law. Separate statements are available for inactivated influenza vaccine (IIV) and live attenuated influenza vaccine (LAIV) in multiple languages at www.immunize.org/VIS.
- Provide additional educational materials, such as the annual influenza Health Bulletin from the NYC Health Department.

- Have those who refuse vaccination sign a Vaccine Refusal Form, available at www.immunize.org/catg.d/p4068.pdf.

Administering vaccine:

- IIV is administered intramuscularly in the deltoid area of the upper arm at a 90° angle.
- Choose needle size for intramuscular vaccine based on patient's weight—use a longer needle for heavier patients. The needle should be long enough to penetrate the muscle mass and prevent vaccine from seeping into subcutaneous tissue, but not long enough to reach the underlying bone.⁴⁸
- LAIV is administered intranasally.
- Intradermal vaccine is administered with a prefilled microinjection syringe in the deltoid area of the upper arm.

Record-keeping:

- As required by federal law, document all vaccinations in patients' electronic or paper medical record, including the VIS edition date and date the VIS was given to the patient or parent/guardian.
- If a Vaccine Refusal Form is signed, include it in medical record.
- Also record vaccinations given outside your facility; some electronic medical records can do this, but if not, use the Vaccine Administration Record for Adults (www.nyc.gov/html/doh/downloads/pdf/csi/flu03kit-clin-adminrec.pdf) or a preventive services flow sheet to document vaccinations.
- **The Citywide Immunization Registry (CIR)** is an electronic central record-keeping system that tracks immunizations of people vaccinated in New York City and securely maintains immunization records.
 - You must report all vaccinations given to children <19 years to the CIR within 2 weeks of administration.
 - You may report vaccinations given to people aged ≥19 years if you have the patient's verbal consent. **Written documentation of consent is no longer required.**
 - Encourage adult patients to participate in the CIR to ensure future availability of their vaccination records.
 - For further information or to register with the CIR, visit www.nyc.gov/health/cir or call 347-396-2400.

treatment or prophylaxis of currently circulating viruses due to drug resistance.⁴⁶ Inactivated influenza vaccine can be administered to patients who receive influenza antiviral drugs for treatment or chemoprophylaxis, but LAIV should not be administered until 48 hours after cessation of these agents.²

REPORTING AND SURVEILLANCE

The NYC Health Department and its partners regularly monitor influenza activity. Updates are posted on the Health Department's Health Alert Network (HAN), which providers can register for at NYC MED (www.nyc.gov/health/nycmed), and on its influenza website (www.nyc.gov/flu).

The NYC Health Department asks providers to report:

- nosocomial cases of lab-confirmed influenza or clusters of 2 or more cases of influenza-like illness in Article 28 facilities: report these cases to the New York State Department of Health at 518-474-1142 or through the Health Commerce System Nosocomial Outbreak Reporting Application at https://commerce.health.state.ny.us/public/hcs_login.html, or complete a Healthcare Facility Infection Control (Nosocomial) Report available at www.health.ny.gov/forms/doh-4018.pdf and fax to 518-402-5165.
- influenza-associated deaths in people aged 17 and younger, which should be reported to the NYC Health

Department at 347-396-2600 if they meet either of these criteria:

- death from a clinically compatible illness in which there is a positive influenza test; or
- death from an unknown febrile respiratory illness.

Join the NYC Health Department's ILINet Influenza Surveillance Program as a sentinel physician. In less than 30 minutes a week, you can support an important national public health initiative. For more information, go to www.cdc.gov/flu/weekly/fluactivitysurv.htm. The data you provide will help us monitor influenza transmission in NYC, and in return, you will get a limited number of free influenza tests at the NYC Public Health Laboratory and guidance on influenza management. Please contact Beth Nivin at 347-396-2616 or e-mail bnivin@health.nyc.gov for further information.

SUMMARY

Vaccination is the most effective way to prevent influenza and its serious complications, such as pneumococcal disease. Recommending and offering vaccine at every patient visit is the most effective way

to ensure that your patients are protected. New influenza vaccine formulations are available this season that may offer your patients better protection, including quadrivalent vaccines that protect against 2 B virus strains. New options are also available for patients with allergy to egg protein.

Everyone aged 6 months and older should be vaccinated against influenza, especially people in high-risk groups, including infants and young children, pregnant women, older adults, and patients of any age who have chronic medical conditions or are immunocompromised, and their close contacts. Children in day care and school are a major source of influenza infection and should be vaccinated early, preferably as soon as vaccine becomes available, to reduce community transmission. All health care workers should be vaccinated as early as possible to reduce their own risk of infection and prevent the spread of influenza to their patients, colleagues, and families. New York State now requires Article 28, 36, and 40 health care and residential facilities and agencies to report the vaccination status of health care workers. Get your flu vaccination as soon as vaccine becomes available and ensure that your staff does the same. ♦

RESOURCES

NYC Department of Health and Mental Hygiene

- Provider Access Line. 9:00 AM to 5:00 PM: 1-866-692-3641/1-866-NYC-DOH1
After business hours: 212-764-7667
- Influenza website: www.nyc.gov/flu
- Health Alert Network (HAN): sign up at <https://a816-healthpsi.nyc.gov>; <https://a816-health29ssl.nyc.gov/sites/NYCHAN/WebPages/home.aspx>; or 1-888-692-3641.
- E-mail questions to NYC Health Department: nycflu@health.nyc.gov
- Provider information: www.nyc.gov/html/doh/flu/html/providers/providers.shtml
- *City Health Information*. Implementing Panel Management to Improve Patient Care: www.nyc.gov/html/doh/downloads/pdf/chi/chi30-2.pdf
- DOHMH Site Locator for flu vaccine: <https://a816-healthpsi.nyc.gov/DispensingSiteLocator/mainView.do>
- General patient information, including free educational materials in multiple languages: www.nyc.gov/html/doh/flu/html/public/general.shtml
- Primary Care Information Project: 347-396-4888 or e-mail pcip@health.nyc.gov
- Bureau of Immunization: www.nyc.gov/html/doh/html/living/immun-prov.shtml

New York State Department of Health

- Bureau of Communicable Disease Control: 518-473-4439
- Nosocomial Report Form DOH 4018: www.health.state.ny.us/forms/doh-4018.pdf
- New York State Immunization Schedule for Pneumococcal Vaccine: www.health.ny.gov/prevention/immunization/schools/docs/pneumococcal_schedule.pdf

Other Organizations

- Centers for Disease Control and Prevention: 1-800-232-4636 or www.cdc.gov/flu
- Influenza vaccines, 2013-2014: www.cdc.gov/flu/professionals/acip/2013-summary-recommendations.htm
- Seasonal influenza vaccination resources for health professionals: www.cdc.gov/flu/professionals/vaccination
- Pneumococcal disease prevention: www.cdc.gov/pneumococcal/clinicians/prevention.html
- Free patient education materials: www.cdc.gov/flu/freeresources/index.htm
- Recommended Adult Immunization Schedule—United States, 2013: www.cdc.gov/vaccines/schedules/downloads/adult/adult-schedule.pdf
- Recommended Immunization Schedules for Persons Aged 0 Through 18 Years—United States, 2013: www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-schedule.pdf
- Immunization Action Coalition: www.immunize.org/influenza
- National Foundation for Infectious Diseases: www.nfid.org/idinfo/influenza
 - Influenza immunization among health care personnel: www.nfid.org/pdf/publications/hcwmonograph.pdf
 - Immunizing health care personnel against influenza: best practices report: www.nfid.org/Docs/hcwtoolkit/bestpracticestoolkitdocument.pdf
- American College of Physicians Immunization Portal: <http://immunization.acponline.org>



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