



City Health Information

PREVENTION AND CONTROL OF INFLUENZA AND PNEUMONIA

Use of 2002–2003 Influenza Vaccine

Influenza results in approximately 114,000 excess hospitalizations and 20,000 deaths annually in the United States.¹ Individuals of all ages suffer the consequences of influenza, with young children accounting for the highest hospitalization rates and adults ≥ 65 years of age accounting for the highest mortality rates. An annual influenza vaccination is the primary method for preventing influenza and its severe complications.

Target Groups for Influenza Vaccination

Influenza vaccine is recommended for:

- All persons ≥ 50 years of age, particularly those at high risk, such as all persons ≥ 65 years and those with underlying medical conditions;
- All persons ≥ 6 months with chronic medical conditions, such as heart disease, pulmonary disorders (including asthma), diabetes, kidney disease, hemoglobinopathies, and compromised immune systems (HIV or immunosuppressive therapy);
- Persons of any age who are residents of nursing homes or chronic-care facilities;
- Women who will be in the second or third trimester of pregnancy during the influenza season;
- Children and adolescents, aged 6 months to 18 years, receiving long-term aspirin therapy;
- Physicians, nurses, and other personnel in both hospital and outpatient-care settings, including emergency departments;
- Close contacts of high-risk individuals, including household members (all persons ≥ 6 months of age) and persons who provide home care (including home-care attendants);
- Employees of nursing homes, chronic-care facilities, assisted-living facilities, and other residences for persons in groups at increased risk.

All Persons 50–64 Years of Age

The recommendation to provide annual influenza vaccination to all individuals ≥ 50 years of age was instituted in 2000. Up to one third of people aged 50–64 years have underlying medical conditions that place them at

Principal 2002–2003 Recommendations

- The optimal time to administer influenza vaccine is during October and November. However, because of vaccine distribution delays during the past 2 years, the Advisory Committee on Immunization Practices (ACIP) recommends that vaccination efforts in October focus on persons at greatest risk for influenza-related complications and health-care workers, and that vaccination of other groups begin in November. In past years, influenza activity has not reached peak levels until late December through early March. Therefore, vaccine administered after November is still likely to be beneficial.
- Vaccination efforts for all groups should continue through early 2003, for as long as the vaccine is available.
- Because young, otherwise healthy children are at increased risk for influenza-related hospitalization, influenza vaccination of healthy children aged 6–23 months is encouraged when feasible. Vaccination of children aged ≥ 6 months with certain medical conditions continues to be strongly recommended.

high risk for complications from influenza. Age-based strategies have been more successful at increasing vaccine coverage than strategies based on medical conditions.

Persons Who Can Transmit Influenza to Those at High Risk for Complications

Persons who are clinically or subclinically infected with influenza can transmit the influenza virus to others. Decreasing the transmission of influenza from caregivers and household members to persons at high risk reduces influenza-related disease and deaths.^{2,3} Vaccination of those in close contact with persons at high risk, including health-care workers and household members, is therefore strongly recommended.

Because children aged 0–23 months are at increased risk for influenza-related hospitalization,⁴ vaccination is encouraged for their household contacts and

out-of-home caretakers. This is particularly important for contacts of children aged 0–5 months, because influenza vaccines have not been approved by the Food and Drug Administration (FDA) for use among children under 6 months of age.

Healthy Young Children

Recent studies have demonstrated that healthy children under 2 years of age, and possibly children 2–4 years of age, are at increased risk of influenza-related hospitalization, compared with older healthy children.⁵ Hospitalization rates for young children are higher than those for adults \geq 65 years of age.

For 2002–2003, the Centers for Disease Control and Prevention (CDC) has recommended influenza vaccination for children 6–23 months of age when feasible.¹ Before a full recommendation to vaccinate all children 6–23 months can be made,¹ several issues and concerns need to be addressed, including: the education of parents and providers regarding the impact of influenza and the potential benefits and risks of vaccination among young children; clarification of the practical strategies for annual vaccination of children, including those children who will need two doses of vaccine within the same season; and reimbursement for vaccination.

Persons Who Should Not Be Vaccinated

Influenza vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the vaccine.

It is important to note that minor illnesses, with or without fever, are **not** a contraindication to administration of influenza vaccine.

Influenza Vaccine Coverage

In 2001 in New York City, 63% of persons \geq 65 years of age reported receiving influenza vaccine (NYC DOHMH unpublished data, 2002). The vaccination coverage rate was significantly lower — only 52% — among blacks. **The nationwide Healthy People 2010 immunization coverage goal for influenza vaccine is 90% for persons \geq 65 years.**⁶ Achievement of this goal will require a substantial increase in vaccination efforts directed toward this age group.

Reported vaccination rates for children at high risk are low. Among children with asthma who belong to Health Maintenance Organizations, influenza vaccination rates are 10% or less.⁷ Among children with severe to moderate asthma who attended allergy and immunology clinics, a vaccination rate of 25% has been reported.⁸ The use of reminder recall systems can increase vaccination rates.⁹

Although annual vaccination is recommended for health-care workers, coverage rates are only in the mid-30% range.¹ Yet data clearly indicate that patients in long-term care facilities in which over 60% of the staff has been vaccinated experience less influenza-related

illness and mortality, compared with patients in facilities where the staff has not been vaccinated.¹⁰

Practice-based strategies that have been demonstrated to be effective in raising influenza coverage rates include: labeling the charts of high-risk patients and using reminder/recall systems. A physician's verbal recommendation to receive influenza vaccine is important for patient acceptance of vaccination. Use of standing orders is recommended for all long-term care, inpatient, and outpatient facilities. Health-care facilities should offer influenza vaccination to all personnel, with particular emphasis on those persons who provide care for members of high-risk groups.

Influenza Vaccine

The 2002–2003 trivalent vaccine virus strains are H1N1, A/New Caledonia/20/99; H3N2, A/Panama/2007/99 (an A/Moscow/10/99-like virus); and B/Hong Kong/330/2001-like virus strain.

The effectiveness of influenza vaccine depends primarily on the age and immunocompetence of the recipient and the degree of similarity between the viruses in the vaccine and those in circulation that season. Among healthy young adults, influenza vaccine is up to 90% effective in preventing clinical illness. For the elderly population, the vaccine is up to 70–80% effective in preventing secondary complications and reducing the risk of influenza-related hospitalization and death.

Influenza vaccine has few side effects. Soreness at the vaccination site is common. Fever and malaise occur rarely. Allergic reactions to the vaccine are rare.

Influenza vaccine cannot cause infection, as it is made from inactivated virus. Coincidental respiratory disease unrelated to influenza vaccination can occur after vaccination.

Influenza Vaccine Supply

Vaccine shortages or delays are not expected during the 2002–2003 influenza season. In recent years, there were substantial shortages and delays because of difficulties with the vaccine manufacturing process. However, as of September 2002, all three manufacturers report that vaccine production is proceeding satisfactorily. They project that approximately 94 million doses of the vaccine will be available this season, compared with 87 million doses last season, and that approximately 80% of the total production will be distributed before November 1. Officials at the FDA and CDC stress that the manufacturers' projections could change as the season progresses. The NYC Department of Health and Mental Hygiene will provide updates in the event that the vaccine supply is less than expected or distribution is delayed.

New this year, a limited amount of influenza vaccine with reduced thimerosal content will be available for the 6–35 month-old population. It is expected to be available in early to mid-November.

Insurance Coverage for Influenza Vaccine

All commercial insurance written in New York State must cover influenza vaccine for high-risk children.¹¹ The Vaccines for Children (VFC) Program continues to cover influenza vaccine for VFC-eligible, high-risk children. Commercial insurance plans may provide coverage for influenza (and pneumococcal) vaccines for at-risk adults. Providers are encouraged to verify coverage for their patients.

For individuals covered by Medicare, the vaccine and vaccine administration fee are covered.

Surveillance for Influenza

The NYC Department of Health and Mental Hygiene, along with international, federal and state partners, intensively monitors influenza activity through laboratory, vital statistics, disease reporting, and sentinel surveillance methods. The Department monitors 911-EMS calls and emergency-department visits to detect increases in respiratory and/or flu-like illness that could herald the start of the influenza season.

When influenza virus is first detected in New York City, the Department notifies key offices in all hospitals and nursing homes via the Department's broadcast alert system. Updates on the level of activity and the types/subtypes of influenza circulating are sent during the season.

Hospitals and nursing homes are required to report the occurrence of one or more laboratory-confirmed nosocomial cases of influenza and/or any increased incidence of influenza-like illness (temperature $\geq 100^{\circ}\text{F}$, with either cough or sore throat, in the absence of another known disease). The facility should complete the Nosocomial Report Form DOH 4018 and fax it to the New York State Department of Health's Bureau of Communicable Disease Control Program at **(518) 474-7381**. The State health department will then notify the New York City Department of Health and Mental Hygiene.

Questions about nosocomial influenza reporting can be directed to the NYC Influenza Surveillance Coordinator at **(212) 442-9050**.

Use of Antiviral Drugs

Antiviral drugs for influenza are an adjunct to influenza vaccine for the control and prevention of influenza. **These agents are not a substitute for vaccination, and widespread and routine use of antivirals is not recommended.**

There are currently four licensed agents effective against influenza. Two of these are effective against influenza A (amantadine and rimantadine); two are effective against influenza A and B (zanamivir and oseltamivir). Widespread and routine use of these agents could result in a high number of adverse effects and an increase in the development of drug-resistant strains, reducing the effectiveness of these drugs. For these reasons, judicious use of antiviral agents is

recommended. Antiviral drug therapy is warranted, for example, in the control of influenza outbreaks in institutions (as an adjunct to vaccination, droplet precautions, cohorting of patients, and movement of ill persons).

For detailed information on indications for use of antiviral agents for influenza treatment and prophylaxis, dosage (including adjustments in dosage for persons ≥ 65 years, persons with impaired renal function and/or liver disease, and persons with seizures), and adverse effects and contraindications (all four agents are pregnancy Category C), refer to www.cdc.gov/mmwr/preview/mmwrhtml/rr5103a1.htm and reference 12.

Use of Pneumococcal Vaccine

There are approximately 500,000 cases of invasive pneumococcal disease in the United States annually, resulting in more than 40,000 deaths.¹³ More than half of these deaths are preventable with adequate vaccination. Fatality rates are highest among persons 70 years and older.

The increasing prevalence of penicillin-resistant and multi-drug resistant pneumococcus underscores the importance of primary prevention through vaccination of high-risk populations. During 2001, the overall prevalence of penicillin resistance (MIC ≥ 0.12 mg/ml) among *S. pneumoniae* isolates in New York City was 30%; 10% of isolates were highly resistant (MIC ≥ 2.0 mg/ml).

Pneumococcal polysaccharide vaccine (PPV23) is recommended for all persons ≥ 65 years and for many of the groups with indications for the influenza vaccine. In addition to preventing pneumonia, it reduces the risk of bacterial complications of influenza infection. Although pneumococcal vaccine is available throughout the year, when patients present for their yearly influenza vaccine during the influenza season, it is an ideal opportunity to vaccinate PPV23-eligible populations.

In 2002 in New York City, 50% of persons ≥ 65 years reported that they had been vaccinated against pneumococcal disease (NYC DOHMH unpublished data, 2002). This falls short of the 90% Year 2010 national objective for this age group.⁶ In New York City, the rates reported by blacks (43%) and Hispanics (46%) were much lower than that of whites (56%).

Standing orders can facilitate the appropriate administration of pneumococcal vaccine at all ambulatory-care centers and in-patient facilities. New York State law requires that all residents and employees in adult long-term residential facilities be offered pneumococcal vaccine.

Simultaneous Administration of Vaccines

- Influenza vaccine may be given concurrently with pneumococcal vaccine and other vaccines (at different anatomic sites).
- Children may receive influenza vaccine concurrently with all routine childhood vaccinations.

The New York City Department of Health and Mental Hygiene offers these guidelines:

- Beginning in October, influenza vaccine should be offered routinely during office visits to all persons at high risk for complications from influenza and their close contacts. Vaccination should continue through early 2003.
- Standing orders should be put in place at all ambulatory-care centers, in-patient facilities, and long-term care facilities to expedite administration of influenza vaccine to all persons \geq 50 years of age. Efforts should be made to expand access to influenza vaccine in clinical settings by offering additional services, such as 'drop-in' clinics, 'express-lane' vaccination services, or weekend and evening clinics.
- Vaccination against pneumococcal disease is strongly recommended for all persons \geq 65 years of age and for selected persons aged 2–64 who have certain chronic illnesses or asplenia, or who are immunocompromised.
- The pneumococcal vaccine can be given simultaneously with influenza vaccine. If there is no documentation of previous pneumococcal vaccination, this vaccine should be offered. Consult the ACIP guidelines for pneumococcal revaccination for select populations.¹³
- Providers should implement office-based strategies to increase adult vaccination rates. Recommended practices include: standing orders for all persons \geq 65 years and other indicated groups, computerized record reminders, chart reminders, mailed or telephone reminders, and provision of health education materials to patients.
- Providers should determine their success in immunizing high-risk patients in order to improve future immunization rates.

The Department of Health and Mental Hygiene provides updated information on influenza vaccination sites and influenza activity in New York City via our website, www.nyc.gov/health, and our hotline, **1-866-FLU-LINE (1-866-358-5463)**. Additional information on influenza and the vaccine supply is available at the CDC website, www.cdc.gov/nip/flu.

References:

- Centers for Disease Control and Prevention. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2002;51(No. RR-3).
- Potter J, Stott DJ, Roberts MA, et al. Influenza vaccination of health care workers in long-term-care hospitals reduces the mortality of elderly patients. J Infect Dis 1997;175:1-6.
- Carmen WF, Elder AG, Wallace LA, et al. Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care; a randomized controlled trial. Lancet 2000;335:93-7.
- Neuzil KM, Mellen BG, Wright PF, Mitchel EF, Griffin MR. Effect of influenza on hospitalizations, outpatient visits, and course of antibiotics in children. NEJM 2000;342:225-31.
- Neuzil KM, Wright PF, Mitchel EF, Griffin MR. Burden of influenza illness in children with asthma and other chronic medical conditions. J Pediatr 2000;137:856-64.
- United States Department of Health and Human Services. Tracking Healthy People 2010. Washington DC: U.S. Government Printing Office, November 2000, Chapter 14.
- Kramarz P, DeStafano F, Gargiullo PM, et al. Influenza vaccination in children with asthma in health maintenance organizations. Vaccine 2000;18:2288-94.
- Chung EK, Casey R, Pinto-Martin JA, Pawlowski NA, Bell LM. Routine and influenza vaccination rates in children with asthma. Ann Allergy Asthma Immunol 1998;80:318-22.
- Gaglani M, Riggs M, Kamenicky C, Glezen WP. Computerized reminder strategy is effective for annual influenza immunization of children with asthma or reactive airways disease. Pediatr Infect Dis J 2001;20:1155-60.
- Centers for Disease Control and Prevention. Immunization of Health-Care Workers. MMWR 1997;46(No. RR-18).
- Circular Letter No. 34 (2000) Update on Implementation of Chapter 728 of the Laws of 1993, Requiring Coverage for Prevention and Primary Care Services. Oct 24,2000. State of New York Insurance Department.
- Pickering, LK ed. 2000 Red Book: Report of the Committee on Infectious Diseases, 25th Edition. Elk Grove Village, IL: American Academy of Pediatrics, 2000.
- Centers for Disease Control and Prevention. Prevention of pneumococcal disease. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(No. RR-8).

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