VIRGINIA
EPIDEMIOLOGY BULLETIN

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Prevention and Control of Influenza: Part 1, Vaccines

Recommendations of the Advisory Committee on Immunization Practices (ACIP)*

Summary

These recommendations update information on the vaccine available for controlling influenza during the 1996-97 influenza season (superseding MMWR 1995;44(No. RR-3):1-10). The principal changes include information about a) the influenza virus strains included in the trivalent vaccine for 1996-97 and b) extension of the optimal time for influenza vaccination campaigns for persons in high-risk groups.

Part Two, Antiviral Agents, will be published in the October 1996, Virginia Epidemiology Bulletin.

Introduction

Influenza A viruses are classified into subtypes on the basis of two surface antigens: hemagglutinin (H) and neuraminidase (N). Three subtypes of hemagglutinin (H1, H2, and H3) and two subtypes of neuraminidase (N1 and N2) are recognized among influenza A viruses that have caused widespread human disease. Immunity to these antigens -- especially to the hemagglutinin -- reduces the likelihood of infection and lessens the severity of disease if infection occurs. Infection with a virus of one subtype confers little or no protection against viruses of other subtypes. Furthermore, over time, antigenic variation (antigenic drift) within a subtype may be so

marked that infection or vaccination with one strain may not induce immunity to distantly related strains of the same subtype. Although influenza B viruses have shown more antigenic stability than influenza A viruses, antigenic variation does occur. For these reasons, major epidemics of respiratory disease caused by new variants of influenza continue to occur. The antigenic characteristics of circulating strains provide the basis for selecting the virus strains included in each year's vaccine.

Typical influenza illness is characterized by abrupt onset of fever, myalgia, sore throat, and nonproductive cough. Unlike other common respiratory illnesses, influenza can cause severe malaise lasting several days. More severe illness can result if either primary influenza pneumonia or secondary bacterial pneumonia occurs. During influenza epidemics, high attack rates of acute illness result in both increased numbers of visits to physicians' offices, walk-in clinics, and emergency rooms and increased hospitalizations for management of lower respiratory tract complications.

Elderly persons and persons with underlying health problems are at increased risk for complications of influenza. If they become ill with influenza, such members of high-risk groups (see Groups at Increased Risk for Influenza-Related Complications) are more likely than the general population to require hospitalization. During major epidemics, hospitalization rates for persons at high risk may increase twofold to fivefold, depending on the age group. Previously healthy children and younger adults may also require hospitalization for influenza-related complications, but the relative increase in their hospitalization rates is less than for persons who belong to high-risk groups.

An increase in mortality further indicates the impact of influenza epidemics. Increased mortality results not only from influenza and pneumonia but also from cardiopulmonary and other chronic diseases that can be exacerbated by influenza. It is estimated that >20,000 influenza-associated deaths occurred during each of 10 different U.S. epidemics from 1972-73 to 1990-91, and >40,000 influenza-associated deaths occurred during each of three of these epidemics. More than 90% of the deaths attributed to pneumonia and influenza occurred among persons ≥65 years of age.

Because the proportion of elderly persons in the U.S. population is increasing and because age and its associated chronic diseases are risk factors for severe influenza illness, the number of deaths from

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influenza can be expected to increase unless control measures are implemented more vigorously. The number of persons <65 years of age at increased risk for influenza-related complications is also increasing. Better survival rates for organ-transplant recipients, the success of neonatal intensive-care units, and better management of diseases such as cystic fibrosis and acquired immunodeficiency syndrome (AIDS) result in a higher survival rate for younger persons at high risk.

Options for the Control of Influenza

In the United States, two measures are available that can reduce the impact of influenza: immunoprophylaxis with inactivated (killed-virus) vaccine and chemoprophylaxis or therapy with an influenza-specific antiviral drug (amantadine or rimantadine). Vaccination of persons at high risk each year before the influenza season is currently the most effective measure for reducing the impact of influenza. Vaccination can be highly cost effective when it is a) directed at persons who are most likely to experience complications or who are at increased risk for exposure and b) administered to persons at high risk during hospitalizations or routine health-care visits before the influenza season, thus making special visits to physicians' offices or clinics unnecessary. When vaccine and epidemic strains of virus are well matched, achieving high vaccination rates among persons living in closed settings (e.g., nursing homes and other chronic-care facilities) can reduce the risk for outbreaks by inducing herd immunity.

Inactivated Vaccine for Influenza A and B

Each year's influenza vaccine contains three virus strains (usually two type A and one type B) representing the influenza viruses that are likely to circulate in the United States in the upcoming winter. The vaccine is made from highly purified, egg-grown viruses that have been made noninfectious (inactivated). Influenza vaccine rarely causes systemic or febrile reactions. Whole-virus, subvirion, and purified-surface-antigen preparations are available. To minimize febrile reactions, only subvirion or purified-surface-antigen preparations should be used for children; any of the preparations may be used for adults.

Most vaccinated children and young adults develop high postvaccination hemagglutination-inhibition antibody titers. These antibody titers are protective against illness caused by strains similar to those in the vaccine or the related variants that may emerge during outbreak periods. Elderly persons and persons with certain chronic diseases may develop lower postvaccination antibody titers than healthy young adults and thus may remain susceptible to influenza-related upper respiratory tract infection. However, even if such persons develop influenza illness despite vaccination, the vaccine can be effective in preventing lower respiratory tract involvement or other secondary complications, thereby reducing the risk for hospitalization and death.

The effectiveness of influenza vaccine in preventing or attenuating illness varies, depending primarily on the age and immunocompetence of the vaccine recipient and the degree of similarity between the virus strains included in the vaccine and those that circulate during the influenza season. When there is a good match between vaccine and circulating viruses, influenza vaccine has been shown to prevent illness in approximately 70% of healthy persons <65 years of age. In these circumstances, studies have also indicated that the effectiveness of influenza vaccine in preventing hospitalization for pneumonia and influenza among elderly persons living in settings other than nursing homes or similar chronic-care facilities ranges from 30%-70%.

Among elderly persons residing in nursing homes, influenza vaccine is most effective in preventing severe illness, secondary complications, and death. Studies of this population have indicated that the vaccine can be 50%-60% effective in preventing hospitalization and pneumonia and 80% effective in preventing death, even though efficacy in preventing influenza illness may often be in the range of 30%-40% among the frail elderly.

Recommendations for the Use of Influenza Vaccine

Influenza vaccine is strongly recommended for any person ≥6 months of age who -- because of age or underlying medical condition -- is at increased risk for complications of influenza. Health-care workers and others (including household members) in close contact with persons in high-risk groups should also be vaccinated. In addition, influenza vaccine may be administered to any person who wishes to reduce the chance of becoming infected with influenza. The trivalent influenza vaccine prepared for the 1996-97 season will include A/Texas/36/91-like (H1N1), A/Wuhan/359/95-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For both A/Wuhan/359/95-like and B/Beijing/184/93-like antigens, U.S. manufacturers will use the antigenically equivalent strains A/Nanchang/933/95 (H3N2) and B/Harbin/07/94 because of their growth properties. Guidelines for the use of vaccine among certain patient populations follow; dosage recommendations are also summarized (Table 1).

Although the current influenza vaccine can contain one or more of the antigens administered in previous years, annual vaccination with the current vaccine is necessary because immunity declines in the year following vaccination. Because the 1996-

Table 1. Influenza vaccine* dosage, by age group, United States, 1996-97 season.

Age Group	Product†	Dosage	No. of Doses	Route§
6 - 35 mos.	Split virus only	0.25 mL	1 or 2¶	IM
3 - 8 yrs	Split virus only	0.50 mL	1 or 2¶	IM
9 - 12 yrs	Split virus only	0.50 mL	1	IM
>12 yrs	Whole or split virus	0.50 mL	1	IM

*Contains 15 µg each of A/Texas/36/91-like (H1N1), A/Wuhan/359/95-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens in each 0.5 mL. For both A/Wuhan/359/95-like and B/Beijing/184/93-like antigens, U.S. manufacturers will use the antigenically equivalent strains A/Nanchang/933/95 (H3N2) and B/Harbin/07/94 because of their growth properties. Manufacturers include: Connaught Laboratories, Inc. (Fluzone® whole or split); Evans Medical Ltd. (distributed by Adams Laboratories, Inc.) (Fluvirin™ purified surface antigen vaccine); Parke-Davis (Fluogen® split); and Wyeth-Ayerst Laboratories (Flushield™ split). For further product information call Connaught, 800/822-2463; Adams, 800/932-1950; Parke-Davis, 800/223-0432; Wyeth-Ayerst, 800/FLU-SHIELD.
†Because of the lower potential for causing febrile reactions, only split-virus vaccines should be used for children. They may be labeled as "split," "subvirion," or "purified-surface-antigen" vaccine. Immunogenicity and side effects of split- and whole-virus vaccines are similar among adults when vaccines are administered at the recommended dosage.
§The recommended site of vaccination is the deltoid muscle for adults and older children. The preferred site for infants and young children is the anterolateral aspect of the thigh.
¶Two doses administered at least 1 month apart are recommended for children <9 years of age who are receiving influenza vaccine for the first time.

97 vaccine differs from the 1995-96 vaccine, supplies of 1995-96 vaccine should not be administered to provide protection for the 1996-97 influenza season.

Two doses administered at least 1 month apart may be required for satisfactory antibody responses among previously unvaccinated children <9 years of age; however, studies of vaccines similar to those being used currently have indicated little or no improvement in antibody response when a second dose is administered to adults during the same season.

During recent decades, data on influenza vaccine immunogenicity and side effects have been obtained for intramuscularly administered vaccine. Because recent influenza vaccines have not been adequately evaluated when administered by other routes, the intramuscular route is recommended. Adults and older children should be vaccinated in the deltoid muscle and infants and young children in the anterolateral aspect of the thigh.

Target Groups for Special Vaccination Programs

To maximize protection of high-risk persons, they and their close contacts should be targeted for organized vaccination programs.

Groups at Increased Risk for Influenza-Related Complications:

- Persons ≥65 years of age;
- Residents of nursing homes and other chronic-care facilities that house persons of any age with chronic medical conditions;
- Adults and children with chronic disorders of the pulmonary or cardiovascular systems, including children with asthma;
- Adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications);
- Children and teenagers (6 months-18 years of age) who are receiving long-term aspirin therapy and therefore might be at risk for developing Reye syndrome after influenza.

Groups that Can Transmit Influenza to Persons at High Risk

Persons who are clinically or subclinically infected and who care for or live with members of high-risk groups can transmit influenza virus to them. Some persons at high risk (e.g., the elderly, transplant recipients, and persons with AIDS) can have a low antibody response to influenza vaccine. Efforts to protect these members of high-risk groups against influenza might be improved by reducing the likelihood of influenza exposure from their caregivers. Therefore, the following groups should be vaccinated:

- Physicians, nurses, and other personnel in both hospital and outpatient-care settings;
- Employees of nursing homes and chronic-care facilities who have contact with patients or residents;
- Providers of home care to persons at high risk (e.g., visiting nurses and volunteer workers); and
- Household members (including children) of persons in high-risk groups.

Vaccination of Other Groups

General Population

Physicians should administer influenza vaccine to any person who wishes to reduce the likelihood of becoming ill with influenza. Persons who provide essential community services should be considered for vaccination to minimize disruption of essential activities during influenza outbreaks. Students or other persons in institutional settings (e.g., those who reside in dormitories) should be encouraged to receive vaccine to minimize the disruption of routine activities during epidemics.

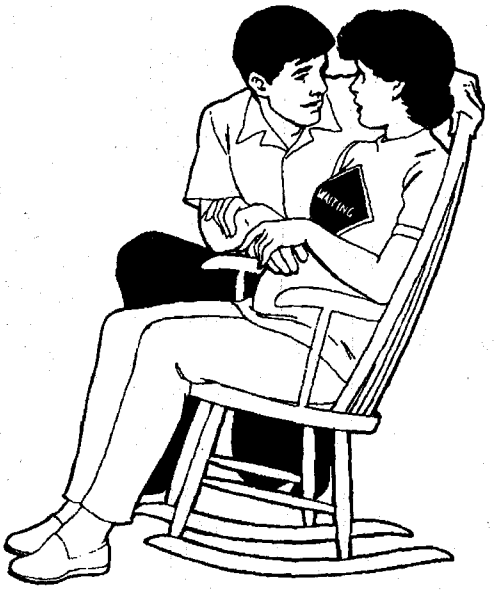
Pregnant Women

Influenza-associated excess mortality among pregnant women has not been documented except during the pandemics of 1918-19 and 1957-58. However, because death-certificate data often do not indicate whether a woman was pregnant at the time of death, studies are needed to assess the risks of influenza infection that are specifically associated with pregnancy. Case reports and limited studies suggest that women in the third trimester of pregnancy and early puerperium, including those women without underlying risk factors, might be at increased risk for serious complications following influenza infection. Certain pregnancy-related physiologic changes may increase the risk for such complications; as pregnancy progresses, cardiac output, heart rate, oxygen consumption, and stroke volume increase while lung capacity decreases. Immunologic changes during pregnancy also may increase the risk for severe influenza illness.

Health-care workers who provide care for pregnant women should consider administering influenza vaccine to all women who would be in the third trimester of pregnancy or early puerperium during the influenza season. Pregnant women who have medical conditions that increase their risk for complications from influenza should be vaccinated before the influenza season, regardless of the stage of pregnancy. Although definitive studies have not been conducted, influenza vaccination is considered safe at any stage of pregnancy.

Persons Infected with Human Immunodeficiency Virus (HIV)

Limited information exists regarding the frequency and severity of influenza illness among HIV-infected persons, but reports suggest that symptoms might be prolonged and the risk for complications increased for some HIV-infected persons. Influenza vaccine has produced protective antibody titers against influenza in vaccinated HIV-infected persons who have minimal AIDS-related symptoms and high CD4+ T-lymphocyte cell counts. In patients who have advanced HIV disease and low CD4+ T-lymphocyte cell counts, however, influenza vaccine may not induce protective antibody titers; a second dose of



Cercarial Dermatitis, Virginia, 1996

During mid-June 1996, the Lord Fairfax Health District received reports of children who developed a pruritic rash after swimming in a lake in Frederick County. Symptoms began within 24 hours after exposure to the lake. Reports were received of 19 children, ranging in age from two to 14 years (median = seven years) with symptoms of papular and vesicular lesions and intense itching. Three children were diagnosed by their physician as having bug bites. The first reported cases occurred June 1 and there were no further reports of problems after June 17.

On June 22, 1996, the Suffolk Health Department received a call from a property owner who reported that seven persons had developed lesions that looked like flea bites the day after swimming in a lake on the property. In addition, the owner developed skin lesions shortly after wading in the lake.

After researching these similar situations, it was decided to test snails living in the two lakes for carriage of avian schistosomes, the causative agent of cercarial dermatitis. Snails were collected from both lakes and sent to the Centers for Disease Control and Prevention (CDC) for examination. Snail specimens collected from the Suffolk location were infected with a species of *Trichobilharzia*, an avian schistosome. The snails collected from the Lord Fairfax District were not found to be infected, but since they were collected several weeks after onset of the last case, this was not surprising. No further cases have been reported from either location.

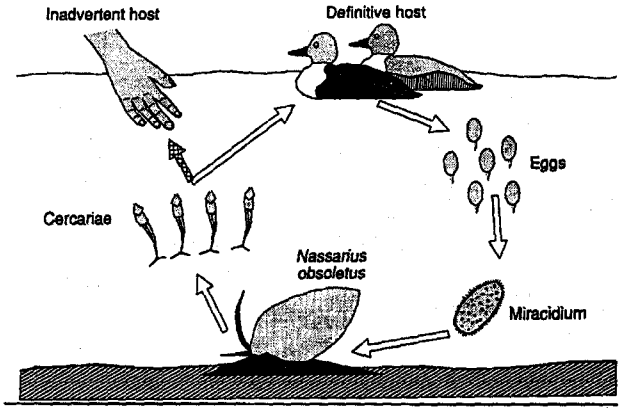


Figure 1. Life cycle of the avian schistosomes.

These events represent the first outbreaks of cercarial dermatitis ever reported in Virginia. Cercarial dermatitis, commonly known as "swimmer's itch", is a cutaneous inflammatory response caused by penetration of the skin by cer-

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vaccine does not improve the immune response for these persons.

Recent studies have examined the effect of influenza vaccination on replication of HIV type 1 (HIV-1). Although some studies have demonstrated a transient (i.e., 2- to 4-week) increase in replication of HIV-1 in the plasma or peripheral blood mononuclear cells of HIV-infected persons after vaccine administration, other studies using similar laboratory techniques have not indicated any substantial increase in replication. Deterioration of CD4+ T-lymphocyte cell counts and progression of clinical HIV disease have not been demonstrated among HIV-infected persons who receive vaccine. Because influenza can result in serious illness and complications and because influenza vaccination may result in protective antibody titers, vaccination will benefit many HIV-infected patients.

Foreign Travelers

The risk for exposure to influenza during foreign travel varies, depending on season and destination. In the tropics, influenza can occur throughout the year; in the Southern Hemisphere, most activity occurs from April through September. Because of the short incubation period for influenza, exposure to the virus during travel can result in clinical illness that begins while traveling, an inconvenience or potential danger, especially for persons at increased risk for complications. Persons preparing to travel to the tropics at any time of year or to the Southern Hemisphere from April through September should review their influenza vaccination histories. If they were not vaccinated the previous fall or winter, they should consider influenza vaccination before travel. Persons in high-risk categories should be especially encouraged to receive the most current vaccine. Persons at high risk who received the previous season's vaccine before travel should be revaccinated in the fall or winter with the current vaccine.

Persons Who Should Not Be Vaccinated

Inactivated influenza vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine without first consulting a physician (see Side Effects and Adverse Reactions). Use of an antiviral agent (i.e., amantadine or rimantadine) is an option for prevention of influenza A in such persons. However, persons who have a history of anaphylactic hypersensitivity to vaccine components but who are also at high risk for complications of influenza can benefit from vaccine after appropriate allergy evaluation and desensitization. Specific information about vaccine components can be found in package inserts for each manufacturer.

Adults with acute febrile illness usually should not be vaccinated until their symptoms have abated. However, minor illnesses with or without fever should not contraindicate the use of influenza vaccine, particularly among children with mild upper respiratory tract infection or allergic rhinitis.

Cercarial Dermatitis - continued from page 4

cariae, the free-swimming larval stage of bird schistosomes.

The avian schistosomes belong to a class of flat-bodied worms or flukes called trematodes. The typical life cycle of the avian schistosomes is illustrated in Figure 1. Adult worms are found in the blood vessels of birds, typically migratory waterfowl. The worms produce eggs which are passed in the feces into the water. Each egg contains a fully developed larval stage called the miracidium. The miracidia infect the snail host by penetrating it and maturing into multiple sporocysts in the digestive gland. After about 5 weeks, the sporocysts give rise to hundreds of cercariae which, when conditions are favorable, leave the snail and penetrate the skin of birds to begin the cycle again. Man is an accidental host of the nonhuman schistosomes. The cercariae attach to human skin and penetrate it but the cycle continues no further. The organisms die, elucidating a localized hypersensitivity response in the infected human.

The dermatologic response in the human host is variable. Symptoms may include reddening and itching of the skin while in the water or immediately after emerging, indicating penetration of the cercariae through the skin. This is followed by a delayed onset of raised pruritic papules that may become vesicular. Previous contact with cercariae causes a more immediate and intense immune response. It is likely that cases frequently go undiagnosed or may be mistaken for poison ivy, chickenpox, or chigger, flea or mosquito bites. Diagnosis is based on history and symptomatology as there are no readily available laboratory tests. Lesions occur on body parts that contact infected water; clothing may offer some protection. When there are only a few itchy spots, treatment may not be necessary as lesions generally resolve spontaneously in about a week. Palliative treatment includes topical corticosteroids and in more severe cases, antihistamines. Sometimes lesions become secondarily infected with bacterial organisms.

Cercarial dermatitis occurs worldwide and is associated with both freshwater and saltwater environments. Outbreaks occur unpredictably but often during spring and fall when water fowl are migrating. Primary prevention involves staying out of infected waters. Most of the time, the problem is transient and disappears when the infected snails die off, several weeks after they begin releasing cercariae. The problem may not occur again for years, if ever.

The Virginia Department of Health is interested in learning about other occurrences of cercarial dermatitis in the state and coordinating investigations with CDC researchers. For more information or to report cercarial dermatitis cases, please call the Office of Epidemiology at (804)786-6029.

Contributed by Elizabeth Barrett, DMD, MSPH.

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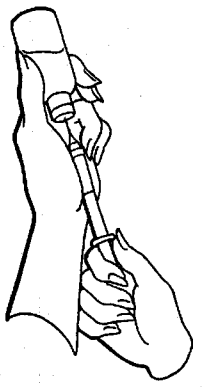
Side Effects and Adverse Reactions

Because influenza vaccine contains only noninfectious viruses, it cannot cause influenza. Respiratory disease after vaccination represents coincidental illness unrelated to influenza vaccination. The most frequent side effect of vaccination reported by fewer than one third of vaccinees is soreness at the vaccination site that lasts for up to 2 days. In addition, two types of systemic reactions have occurred:

- Fever, malaise, myalgia, and other systemic symptoms occur infrequently and most often affect persons who have had no exposure to the influenza virus antigens in the vaccine (e.g., young children). These reactions begin 6-12 hours after vaccination and can persist for 1 or 2 days;
- Immediate -- presumably allergic -- reactions (e.g., hives, angioedema, allergic asthma, and systemic anaphylaxis) occur rarely after influenza vaccination. These reactions probably result from hypersensitivity to some vaccine component; the majority of reactions are most likely related to residual egg protein. Although current influenza vaccines contain only a small quantity of egg protein, this protein can induce immediate hypersensitivity reactions among persons who have severe egg allergy. Persons who have developed hives, have had swelling of the lips or tongue, or have experienced acute respiratory distress or collapse after eating eggs should consult a physician for appropriate evaluation to help determine if vaccine should be administered. Persons with documented immunoglobulin E (IgE)-mediated hypersensitivity to eggs -- including those who have had occupational asthma or other allergic responses due to exposure to egg protein -- might also be at increased risk for reactions from influenza vaccine, and similar consultation should be considered. The protocol for influenza vaccination developed by Murphy and Strunk may be considered for patients who have egg allergies and medical conditions that place them at increased risk for influenza-associated complications (Murphy and Strunk, 1985).



Hypersensitivity reactions to any vaccine component can occur. Although exposure to vaccines containing thimerosal can lead to induction of hypersensitivity, most patients do not develop reactions to thimerosal when administered as a component of vaccines -- even when patch or intradermal tests for thimerosal indicate hypersensitivity. When reported, hypersensitivity to thimerosal has usually consisted of local, delayed-type hypersensitivity reactions.

Unlike the 1976 swine influenza vaccine, subsequent vaccines prepared from other virus strains have not been clearly associated with an increased frequency of Guillain-Barre syndrome (GBS). However, a precise estimate of risk is difficult to determine for a rare condition such as GBS, which has an annual background incidence of only one to two cases per 100,000 adult population. Among persons who received the swine influenza vaccine, the rate of GBS that exceeded the background rate was slightly less than one case per 100,000 vaccinations.

An investigation of GBS cases in 1990-91 indicated no overall increase in frequency of GBS among persons who were administered influenza vaccine; a slight increase in GBS cases among vaccinated persons might have occurred in the age group 18-64 years, but not among persons ≥65 years of age. In contrast to the swine influenza vaccine, the epidemiologic features of the possible association of the 1990-91 vaccine with GBS were not as convincing. The rate of GBS cases after vaccination that was passively reported to the Vaccine Adverse Event Reporting System (VAERS) during 1993-94 was estimated to

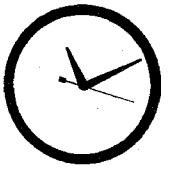
be approximately twice the average rate reported during other recent seasons (i.e., 1990-91, 1991-92, 1992-93 and 1994-95). The data currently available are not sufficient to determine whether this represents an actual risk. However, even if GBS were a true side effect, the very low estimated risk for GBS is less than that for severe influenza that could be prevented by vaccination.

Whereas the incidence of GBS in the general population is very low, persons with a history of GBS have a substantially greater likelihood of subsequently developing GBS than persons without such a history. Thus, the likelihood of coincidentally developing GBS after influenza vaccination is expected to be greater among persons with a history of GBS than among persons with no history of this syndrome. Whether influenza vaccination might be causally associated with this risk for recurrence is not known. Although it would seem prudent to avoid a subsequent influenza vaccination in a person known to have developed GBS within 6 weeks of a previous influenza vaccination, for most persons with a history of GBS who are at high risk for severe complications from influenza, the established benefits of influenza vaccination justify yearly immunization.

Simultaneous Administration of Other Vaccines, Including Childhood Vaccines

The target groups for influenza and pneumococcal vaccination overlap considerably. For persons at high risk who have not previously been vaccinated with pneumococcal vaccine, health-care providers should strongly consider administering both pneumococcal and influenza vaccines concurrently. Both vaccines can be administered at the same time at different sites without increasing side effects. However, influenza vaccine is administered each year, whereas pneumococcal vaccine is not. Children at high risk for influenza-related complications can receive influenza vaccine at the same time they receive other routine vaccinations, including pertussis vaccine (DTP or DTaP). Because influenza vaccine can cause fever when administered to young children, DTaP might be preferable to use.

Timing of Influenza Vaccination Activities



Beginning each September (when vaccine for the upcoming influenza season becomes available) persons at high risk who are seen by health-care providers for routine care or as a result of hospitalization should be offered influenza vaccine. Opportunities to vaccinate persons at high risk for complications of influenza should not be missed.

In previously published recommendations, the optimal time for organized vaccination campaigns for persons in high-risk groups was defined as the period from mid-October through mid-November. This period has been extended to include the first 2 weeks in October. In the United States, influenza activity generally peaks between late December and early March. High levels of influenza activity infrequently occur in the contiguous 48 states before December. Administering vaccine too far in advance of the influenza season should be avoided in facilities such as nursing homes, because antibody levels might begin to decline within a few months of vaccination. Vaccination programs can be undertaken as soon as current vaccine is available if regional influenza activity is expected to begin earlier than December.

Children <9 years of age who have not been vaccinated previously should receive two doses of vaccine at least 1 month apart to maximize the likelihood of a satisfactory antibody response to all three vaccine antigens. The second dose should be administered before December, if possible. Vaccine should be offered to both children and adults up to and even after influenza virus activity is documented in a community.

Strategies for Implementing Influenza Vaccine Recommendation

Influenza vaccine campaigns are targeted to approximately 32 million persons ≥65 years of age and 27 million to 31 million persons <65 years of age who are at high risk for influenza-associated complications. National health objectives for the year 2000 include vaccination of at least 60% of persons at risk for severe influenza-related illness. Influenza vaccination levels among persons ≥65 years of age improved substantially from 1989 (33%) to 1993 (52%); however, vaccination levels among high-risk persons <65 years of age are estimated to be <30%.

Successful vaccination programs have combined education for health-care workers, publicity and education targeted toward potential recipients, a plan for identifying persons at high risk (usually by medical-record review), and efforts to remove administrative and financial barriers that prevent persons from receiving the vaccine. Persons for whom influenza vaccine is recommended can be identified and vaccinated in the settings described in the following paragraphs.

Outpatient Clinics and Physicians' Offices

Staff in physicians' offices, clinics, health-maintenance organizations, and employee health clinics should be instructed to identify and label the medical records of patients who should receive vaccine. Vaccine should be offered during visits beginning in September and throughout the influenza season. The offer of vaccine and its receipt or refusal should be documented in the medical record. Patients in high-risk groups who do not have regularly scheduled visits during the fall should be reminded by mail or telephone of the need for vaccine. If possible, arrangements should be made to provide vaccine with minimal waiting time and at the lowest possible cost.

Facilities Providing Episodic or Acute Care

Health-care providers in these settings (e.g., emergency rooms and walk-in clinics) should be familiar with influenza vaccine recommendations. They should offer vaccine to persons in high-risk groups or should provide written information on why, where, and how to obtain the vaccine. Written information should be available in language(s) appropriate for the population served by the facility.

Nursing Homes and Other Residential Long-Term-Care Facilities

Vaccination should be routinely provided to all residents of chronic-care facilities with the concurrence of attending physicians rather than by obtaining individual vaccination orders for each patient. Consent for vaccination should be obtained from the resident or a family member at the time of admission to the facility, and all residents should be vaccinated at one time, immediately preceding the influenza season. Residents admitted during the winter months after completion of the vaccination program should be vaccinated when they are admitted.

Acute-Care Hospitals

All persons ≥65 years of age and younger persons (including children) with high-risk conditions who are hospitalized at any time from September through March should be offered and strongly encouraged to receive influenza vaccine before they are

discharged. Household members and others with whom they will have contact should receive written information about why and where to obtain influenza vaccine.

Outpatient Facilities Providing Continuing Care to Patients at High Risk

All patients should be offered vaccine before the beginning of the influenza season. Patients admitted to such programs (e.g., hemodialysis centers, hospital specialty-care clinics, and outpatient rehabilitation programs) during the winter months after the earlier vaccination program has been conducted should be vaccinated at the time of admission. Household members should receive written information regarding the need for vaccination and the places to obtain influenza vaccine.

Visiting Nurses and Others Providing Home Care to Persons at High Risk

Nursing-care plans should identify patients in high-risk groups, and vaccine should be provided in the home if necessary. Caregivers and other persons in the household (including children) should be referred for vaccination.

Facilities Providing Services to Persons ≥65 Years of Age

In these facilities (e.g., retirement communities and recreation centers), all unvaccinated residents/attendees should be offered vaccine on site before the influenza season. Education/publicity programs should also be provided; these programs should emphasize the need for influenza vaccine and provide specific information on how, where, and when to obtain it.

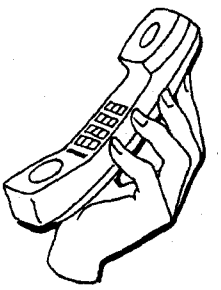
Clinics and Others Providing Health Care for Travelers

Indications for influenza vaccination should be reviewed before travel, and vaccine should be offered if appropriate (see Foreign Travelers).

Health-Care Workers

Administrators of all health-care facilities should arrange for influenza vaccine to be offered to all personnel before the influenza season. Personnel should be provided with appropriate educational materials and strongly encouraged to receive vaccine. Particular emphasis should be placed on vaccination of persons who care for members of high-risk groups (e.g., staff of intensive-care units {including newborn intensive-care units}, staff of medical/surgical units, and employees of nursing homes and chronic-care facilities). Using a mobile cart to take vaccine to hospital wards or other work sites and making vaccine available during night and weekend work shifts can enhance compliance, as can a follow-up campaign early in the course of a community outbreak.

Sources of Information on Influenza-Control Programs



Information regarding influenza surveillance is available through the CDC Voice Information System (influenza update), telephone (404) 332-4551, or through the CDC Information Service on the Public Health Network electronic bulletin board. From October through May, the information is updated at least every other week. In addition, periodic updates about influenza are published in the weekly MMWR. State and local health departments should be consulted regarding availability of influenza vaccine, access to vaccination programs, and information about state or local influenza activity.

Reference

Murphy KR, Strunk RC. Safe administration of influenza vaccine in asthmatic children hypersensitive to egg proteins. J Pediatr 1985;106:931-3.

**SOURCE: MMWR 45(RR-5);1-24 May 03, 1996*

Cases of Selected Notifiable Diseases Reported in Virginia.*

Disease	Total Cases Reported, July 1996						Total Cases Reported Statewide, January through July		
	State	Regions							
		NW	N	SW	C	E	This Yr	Last Yr	5 Yr Avg
AIDS	115	9	28	3	31	44	679	757	660
Campylobacteriosis	108	26	22	20	22	18	395	329	357
Giardiasis	42	2	8	16	9	7	168	132	147
Gonorrhea	672	61	82	94	201	234	5566	6269	7927
Hepatitis A	8	1	3	0	3	1	90	106	91
Hepatitis B	14	1	3	2	2	6	87	59	89
Hepatitis NANB	0	0	0	0	0	0	8	9	19
HIV Infection	108	18	22	3	19	46	604	632	772
Influenza	0	0	0	0	0	0	366	921	715
Legionellosis	0	0	0	0	0	0	12	8	7
Lyme Disease	12	1	4	1	3	3	19	30	45
Measles	0	0	0	0	0	0	2	0	9
Meningitis, Aseptic	15	0	4	3	1	7	85	183	136
Meningitis, Bacterial†	3	2	0	0	0	1	47	86	69
Meningococcal Infections	1	0	0	0	0	1	35	41	36
Mumps	4	0	1	0	0	3	8	15	28
Pertussis	6	1	0	3	0	2	26	10	15
Rabies in Animals	51	11	12	8	9	11	328	245	205
Rocky Mountain Spotted Fever	10	1	2	2	2	3	15	11	7
Rubella	0	0	0	0	0	0	2	0	0
Salmonellosis	131	15	40	20	32	24	574	529	537
Shigellosis	81	38	25	1	4	13	314	135	259
Syphilis, Early‡	184	3	9	4	18	150	540	707	816
Tuberculosis	29	5	15	2	1	6	178	156	192

Localities Reporting Animal Rabies: Amelia 1 raccoon; Arlington 1 raccoon; Caroline 1 cat; Chesterfield 1 bat, 1 fox; Essex 1 cat, 1 raccoon; Fairfax 1 fox, 1 groundhog, 4 raccoons; Frederick 1 raccoon; Henry 1 raccoon; Highland 1 raccoon, 1 skunk; Loudoun 3 foxes, 1 raccoon; Louisa 1 fox; Lunenburg 1 dog, 1 raccoon; Lynchburg 1 groundhog, 1 skunk; Mecklenburg 1 raccoon; Northampton 6 raccoons; Patrick 1 raccoon; Petersburg 1 raccoon; Pittsylvania 1 cat, 2 raccoons; Portsmouth 1 raccoon; Prince William 1 bat; Rockingham 1 cat, 1 raccoon, 1 skunk; Russell 1 skunk; Shenandoah 1 raccoon; Spotsylvania 1 raccoon; Stafford 1 raccoon; Suffolk 2 raccoons; Sussex 2 raccoons.

Occupational Illnesses: Asbestosis 18.

*Data for 1996 are provisional.

†Other than meningococcal.

‡ Includes primary, secondary, and early latent.

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