

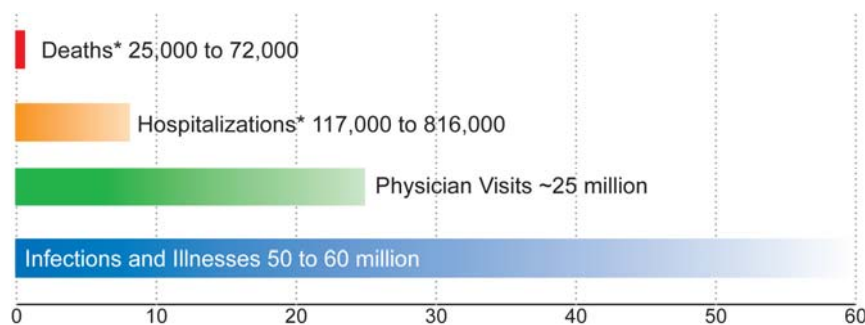
INFLUENZA BACKGROUNDER

Influenza Overview

Influenza, also called “the flu,” causes an average of 36,000 deaths and more than 200,000 hospitalizations in the U.S. every year.^{1,2} Combined with pneumonia, influenza is the eighth leading cause of death in the nation.³ The virus can lead to serious complications by aggravating existing medical conditions; it can also result in infections of the brain, heart and other organs.¹ Influenza is a contagious virus that spreads from person to person, primarily when an infected individual coughs or sneezes. The virus can be transmitted even before symptoms appear.¹

Symptoms can include the abrupt onset of fever (usually high), muscle aches, dry cough, headache, runny or stuffy nose, and sore throat. Hospitalizations and deaths are often related to bacterial infections that may complicate the primary infection with the influenza virus. Even among individuals who are not hospitalized, influenza can cause extreme tiredness that may last days or weeks after the other symptoms resolve.

Influenza Disease Burden in the U.S. in an Average Year*



*All-cause hospitalization and mortality associated with influenza virus infection.

Sources: Thompson WW, et al. *JAMA*. 2003;289:179; Thompson WW, et al. *JAMA*. 2004;292:1333; Couch RB. *Ann Intern Med*. 2000;133:992; Patriarca PA. *JAMA*. 1999;282:75; ACIP. *MMWR*. 2004;53(RR06):1

Vaccination Recommendations

Vaccination is the best way to protect against illness due to seasonal influenza. The Centers for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices (ACIP) recommends an annual influenza vaccination for the following groups:¹

- All persons, including school-aged children, who want to reduce the risk of getting influenza or transmitting influenza to others
- Children from 6 months up to 5 years of age
- Pregnant women
- People 50 years of age and older

- People 6 months of age and older with a chronic medical condition (e.g., asthma, diabetes, heart disease), a weakened immune system (e.g., HIV/AIDS) or any condition that can compromise breathing (e.g., seizure disorders, severe cerebral palsy)
- Household contacts and caregivers (parents, grandparents, siblings, babysitters) of anyone at high risk for complications, such as children younger than 6 months of age and people over 65 years of age
- Residents of nursing homes and other long-term care facilities
- Health care workers

Influenza Among Infants and Children

Influenza infection rates are highest among children, and influenza-related deaths occur in children of all ages. The CDC estimates that nearly 100 U.S. children younger than 5 years of age die every year due to influenza and its complications.

In addition, influenza-related hospitalization rates for infants and toddlers are comparable to or sometimes higher than any other group, except for older persons where rates are similar.^{1,4,5} Children 24-59 months of age are at increased risk of influenza-related visits to health care professionals, emergency departments and clinics.¹

Children with chronic conditions, such as diabetes, asthma and cardiovascular disease, also face increased risks from influenza infection, and are five times more likely than healthy children of the same age to be hospitalized with influenza-related illnesses.¹

However, despite recommendations for routine annual influenza immunization, vaccination rates in children are extremely low. For example, only 30 percent of the eight million infants and children with asthma get vaccinated every year. Additionally, only about 18 percent of all children 6 months up to 2 years of age are immunized against influenza, leaving most of them vulnerable to infection and its severe complications.⁶

Outbreaks usually begin in children and then move on to the community at large. People are usually contagious for at least one day before their symptoms appear, and for five to seven days after. Children, however, can spread influenza for twice as long as adults, making them particularly virulent sources of illness. There is evidence to suggest that vaccinating children will provide additional benefits within a community, including reducing the rate of influenza among household members.^{7,8}

Influenza Infection in Health Care Workers

The CDC has long recommended annual influenza vaccination for all health care workers, yet on average only one third of this population is immunized annually. Health care workers infected with influenza can transmit the virus to patients in their care who may be at high risk for influenza-related complications, leading to serious morbidity and mortality.

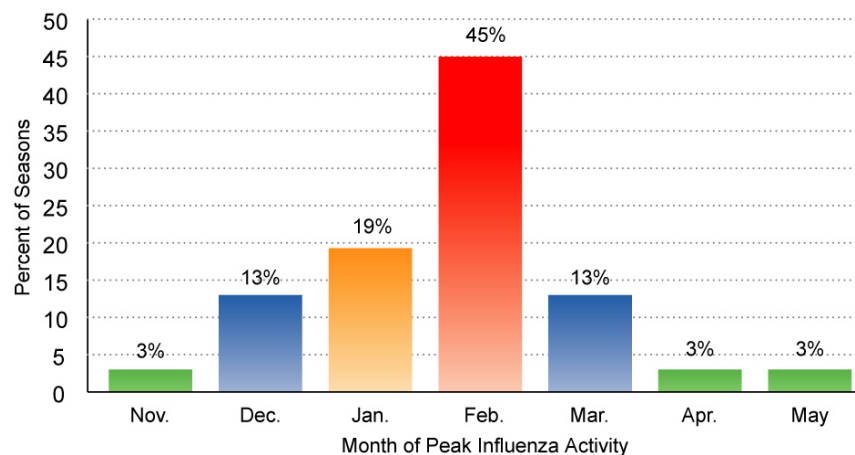
Research suggests unvaccinated health care workers can be a key cause of outbreaks in a variety of health care settings. Beyond the problem of transmission of infection to patients, institutional influenza outbreaks can have serious implications, including development of staff shortages, curtailing of admissions and increased costs. Published studies clearly demonstrate these outcomes.^{9,10,11,12}

The CDC emphasizes that all health care workers should be vaccinated against influenza annually, and that facilities that employ health care workers be strongly encouraged to provide vaccine to workers by using approaches that maximize immunization rates. Current CDC recommendations provide evidence-based guidance for health care institutions nationwide to assist in efforts to improve compliance with this recommendation.¹

Timing of Annual Vaccination

Annual vaccination is the most effective way to prevent influenza. Influenza season can begin as early as October and last as late as May, and vaccination should continue throughout the season. Since influenza typically peaks in February, getting vaccinated in December, January or beyond is beneficial.

Month of Peak Influenza Activity, U.S. 1976-2006



Source: Centers for Disease Control and Prevention, 2006

Additional Influenza Vaccination Information

Vaccine Types

There are two types of influenza vaccine available: the injectable trivalent inactivated influenza vaccine (TIV) and live attenuated influenza vaccine (LAIV).

The influenza virus used in TIV is “killed” and cannot cause influenza. The vaccine is approved for use in anyone 6 months of age and older, regardless of health status.

The nasal vaccine (LAIV) is an option for non-pregnant healthy persons aged 5-49 years, including health care workers and other persons in close contact with groups at high risk and those wanting to avoid the spread of influenza.

Who Should Not Receive Influenza Vaccine

Individuals with egg allergies or those who have had a previous vaccine-associated allergic reaction should avoid immunization. Persons with acute febrile illnesses (high fever) should usually wait until their symptoms subside. However, vaccination can proceed during minor

illnesses, with or without fever, particularly among children with mild upper respiratory tract infections or hay fever.

Certain groups should not receive LAIV, including persons younger than 5 years of age, those 50 years and older, children or adolescents taking aspirin, pregnant women and individuals with certain underlying medical conditions, such as asthma, diabetes and severe impairment of the immune system.

Adverse Effects of Influenza Vaccination

The most frequent adverse effect of the injectable influenza vaccine is soreness at the injection site for one to two days. Occasionally, some people experience a period of mild fever and fatigue for a day or two following immunization. The injectable vaccine is made from an inactivated, or dead, virus and cannot transmit infection.

Side effects from the nasal influenza vaccine are generally mild and temporary. The most common is runny nose; others include various cold-like symptoms, such as headache, cough, sore throat, tiredness/weakness, irritability and muscle aches.

As with all vaccines, in rare instances an allergic reaction may occur in either the injectable or nasal influenza vaccine. Recipients cannot get influenza from the vaccine.

Vaccine Strain Selection

Each year, a new influenza vaccine is formulated to protect against three predominant circulating influenza strains. The 2007-2008 influenza vaccine will include Influenza A/Solomon Islands/3/2006 (H1N1)-like (new for the 2007-2008 season), Influenza A/Wisconsin/67/2005 (H3N2)-like, and Influenza B-Malaysia/2506/2004-like antigens. Because circulating strains mutate (change) constantly, it is not unusual that in some years the circulating influenza virus strains may not match exactly those contained in the vaccine. However, research has shown the vaccine is still protective against infection and reduces severity of influenza-associated complications.¹

Antiviral Medications

Although vaccination is the first line of defense against influenza, prescription antiviral medications also play an important role in prevention and treatment, particularly for people who suffer from chronic diseases. Antiviral medications should not be considered a replacement for vaccination. The CDC currently recommends use of one of two available antiviral medications, oseltamivir or zanamivir, if antiviral treatment or chemoprophylaxis (prevention) of influenza is indicated.¹

As with vaccines, prescription antiviral medications are anticipated to be in ample supply during the 2007-2008 influenza season. Antiviral drugs may be helpful in preventing and controlling the spread of influenza, particularly among individuals who could not or did not undergo vaccination.

Studies have shown that antiviral medications effectively treat influenza, reducing the duration of illness and risk of serious complications. In particular, people with chronic diseases, such as asthma, diabetes, and heart disease, should consider seeing their doctor for antiviral treatment,

since those people are at high risk for complications. Antivirals can also be used in those patients who cannot receive a traditional influenza vaccine because of egg allergies.

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