

Fact Sheet

Influenza (Flu)

What causes influenza?

A virus causes influenza. There are two basic types, A and B. Their genetic material differentiates them.

Influenza A causes moderate to severe illness in all age groups and infects humans and other animals. Influenza B causes milder disease and affects only humans, primarily children.

Subtypes of the type A influenza virus are identified by two antigens (proteins involved in the immune reaction) on the surface of the virus. These antigens can change, or mutate, over time. When a "shift" (major change) or a "drift" (minor change) occurs, a new influenza virus is born and an epidemic is likely among the unprotected population.

How does influenza spread?

Influenza is transmitted through the air from the respiratory tract of an infected person. It can also be transmitted by direct contact with respiratory droplets.

How long does it take to develop symptoms of influenza after being exposed?

The incubation period of influenza is usually two days but can range from one to five days.

What are the symptoms of influenza?

Typical influenza disease is characterized by abrupt onset of fever, aching muscles, sore throat, and non-productive cough. Additional symptoms may include runny nose, headache, a burning sensation in the chest, and eye pain and sensitivity to light. Typical influenza disease does not occur in every infected person. Someone who has been previously exposed to similar virus strains (through natural infection or immunization) is less likely to develop serious clinical illness.

How serious is influenza?

Although many people think of "the flu" as a type of cold, influenza is really a specific and serious disease. Disease complications and death are more common among young children, the elderly, and those with chronic illnesses. Annual deaths from influenza in the United States are currently estimated to be over 36,000. More than 90% of deaths attributed to influenza are among persons 65 years of age or older.

Approximately 114,000 hospitalizations per year are related to influenza. In nursing homes, up to 60% of residents may be infected, with a 30% fatality rate. Children two years of age and younger have hospitalization rates second only to people 65 years and older. The cost of a severe epidemic has been estimated at \$12 billion.

Occasionally, major epidemics occur on an international scale. The first recording of such an event was in 1580, and at least seven international epidemics have occurred in the nineteenth and twentieth centuries. The "Spanish flu" epidemic of 1918-1919 caused an estimated 21 million deaths worldwide, including 500,000 Americans.

What are possible complications from influenza?

The most frequent complication of influenza is bacterial pneumonia. Viral pneumonia is less common but has a high fatality rate. Reye's syndrome is a complication that occurs almost exclusively in children—patients suffer from severe vomiting and confusion, which may progress to coma because of swelling of the brain. To decrease the chance of developing Reye's syndrome, infants, children, and teenagers should not be given aspirin for fever reduction or pain relief. Other complications include inflammation of the heart and worsening of such pulmonary diseases as bronchitis.

Is there an alternative to vaccination in preventing influenza?

While vaccination is the principal means of preventing influenza and its complications, there are four antiviral agents approved for preventing or treating influenza in selected patients. Only two, oseltamivir and zanamivir, will offer protection against both A and B viruses; the other two, amantadine and rimantadine, protect only against the A viruses. Their use is generally limited to situations where an outbreak is underway and immediate protection of vulnerable, unvaccinated persons is critical (e.g., nursing home residents) or in persons who are expected to have an inadequate antibody response to the vaccine (e.g., persons infected with HIV) or who could not otherwise be vaccinated (e.g., persons with severe egg allergies). Antiviral agents are not a substitute for vaccination.

How long is a person with influenza contagious?

A person is most likely to pass on the virus during the period beginning one to two days before the onset of symptoms and ending four to five days after the onset.

Why can't we eradicate influenza like we are doing with some other vaccine-preventable diseases (e.g., measles, polio)?

It is difficult to completely eliminate influenza for several reasons:

1. Influenza viruses mutate frequently, making it very difficult to provide one influenza vaccination that will protect an individual for life.
2. Each year's influenza vaccine is made up of three strains of the virus, based on an educated guess of which viruses will be most active that influenza season. Occasionally, this projection may be wrong, and that year's vaccine will be less effective.
3. Influenza vaccine is not completely effective at preventing infection, especially with older individuals (although it does protect them from serious complications and death).
4. No attempt is made to vaccinate the entire population. Instead, influenza vaccine is mainly recommended for certain groups such as people over 50, health care workers, people with chronic underlying illnesses, and others. Most recently the vaccine was encouraged for use in infants and toddlers 6-23 months of age.

Can you get influenza more than once?

Yes. Influenza viruses change frequently and infection with one strain does not provide protection against all strains.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have this infection, consult a health care provider.

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