Influenza (Flu)

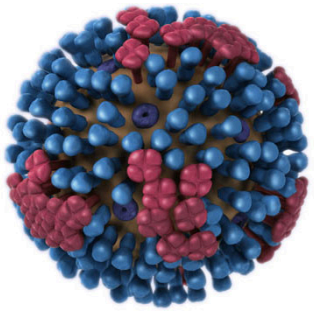
About Influenza

For Everyone

AUG. 13, 2024 •

KEY POINTS

- Flu is a contagious respiratory illness caused by influenza viruses
- Flu can cause mild to severe illness
- Most experts believe that flu viruses spread mainly by tiny droplets made when people with flu cough, sneeze, or talk
- The first and most important step in preventing flu is to get a flu vaccine each year.



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Understanding Influenza

Flu is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and sometimes the lungs. It can cause mild to severe illness, and at times can lead to death. The best way to prevent flu is by getting a flu vaccine each year.

Symptoms

Flu can cause mild to severe illness, and at times can lead to death. Flu symptoms usually come on suddenly. People who have flu often feel some or all of these signs and symptoms:

- fever* or feeling feverish/chills
- cough
- sore throat
- runny or stuffy nose
- muscle or body aches
- headaches
- fatigue (tiredness)
- some people may have vomiting and diarrhea, though this is more common in children than adults.

*It's important to note that not everyone with flu will have a fever.

Not everyone with flu has symptoms

Some people with influenza virus infections do not develop any symptoms at all. A household study conducted during the 2017-2023 flu seasons found that 8 percent of people who tested positive for flu did not have symptoms.

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Similarities and Differences between Flu and COVID-19

How long it takes for signs to show

Period of Contagiousness

You may be able to spread flu to someone else before you know you are sick, as well as when you are sick with symptoms.

- People with flu are most contagious during the first three days of their illness.
- Some otherwise healthy adults may be able to infect others beginning one day **before** symptoms develop and up to five to seven days **after** becoming sick.
- Some people, including young children and people with weakened immune systems, may be contagious for longer periods of time.

Onset of Symptoms

The time from when a person is exposed and infected with influenza virus to when symptoms begin is about two days but can range from about one to four days.

People at risk

Anyone can get flu (including healthy people), and serious problems related to flu can happen at any age, but some people are at higher risk of developing serious flu-related complications if they get sick. This includes people 65 years and older, people of any age with certain chronic medical conditions (such as asthma, diabetes, or heart disease), people with a body mass index (BMI) of 40 kg/m^2 or higher, those who are pregnant, and children younger than five years.

How it spreads

Most experts believe that flu viruses spread mainly by tiny droplets made when people with flu cough, sneeze, or talk. These droplets can land in the mouths or noses of people who are nearby. Less often, a person might get flu by touching a surface or object that has flu virus on it and then touching their own mouth, nose or possibly their eyes.

Prevention

The first and most important step in preventing flu is to get a flu vaccine each year. Flu vaccine has been shown to reduce flu-related illnesses and the risk of serious flu complications that can result in hospitalization or even death. CDC also recommends everyday preventive actions (like staying away from people who are sick (distancing), covering coughs and sneezes, frequent handwashing, and taking steps for cleaner air) to help slow the spread of germs that cause respiratory (nose, throat, and lungs) illnesses like flu. More information is available about core and additional prevention strategies.

Quick facts

U.S annual flu infection rates

A 2018 CDC study published in Clinical Infectious Diseases looked at the percentage of the U.S. population who got sick with flu using two different methods and compared the findings. Both methods had similar findings, which suggested that on average, about 8 percent of the U.S. population gets sick from flu each season, with a range of between 3 percent and 11 percent, depending on the season.

Groups most likely to get sick from flu

The same CID study found that children are most likely to get sick from flu and that people 65 and older are least likely to get sick from flu. Median incidence values (or attack rate) by age group were 9.3% for children 0-17 years, 8.8% for adults 18-64 years, and 3.9% for adults 65 years and older. This means that children younger than 18 are more than twice as likely to develop a symptomatic influenza virus infection than adults 65 and older.

Estimating seasonal flu incidence

Influenza virus infection is very common, and the number of people infected each season can only be estimated because not everyone will seek medical care or get tested for flu. Statistical estimations are based on CDC-measured flu hospitalization rates that are adjusted to estimate the total number of influenza virus infections in the United States for a given flu season.

The estimates for the number of influenza virus infections are then divided by the census population to estimate how common influenza virus infections are in the population (called seasonal incidence or attack rate).

Impact of flu season severity on incidence of flu

The proportion of people who get sick with flu varies. A paper published in CID found that between 3 percent and 11 percent of the U.S. population gets infected and develops flu symptoms each year. The 3 percent estimate is from the 2011-2012 season, which was an H1N1-predominant season classified as being of low severity. The estimated incidence of flu illness during two seasons was around 11 percent; 2012-2013 was an H3N2-predominant season classified as being of moderate severity, while 2014-2015 was an H3N2 predominant season classified as being of high severity.

Table 1. Estimates of the Incidence of Symptomatic Influenza by Season and Age-Group, United States, 2010–2022

Season	Predominant Virus(es)	Season Severity	Incidence, %, by Age Group				
			0-4 yrs	5-17 yrs	18-49 yrs	50-64 yrs	≥65 yrs
2010-11	A/H3N2, A/H1N1pdm09	Moderate	13.7	8.42	5.5	8.2	4.5
2011-12	A/H3N2	Low	4.7	3.7	2.6	3.2	2.3
2012-13	A/H3N2	Moderate	17.8	12.5	8.4	12.8	9.7
2013-14	A/H1N1pdm09	Moderate	12.7	7.4	9.6	13.7	3.8
2014-15	A/H3N2	High	16.1	11.9	6.3	11.6	10.1
2015-16	A/H1N1pdm09	Moderate	11.0	7.7	6.7	10.5	2.9
2016-17	A/H3N2	Moderate	11.9	12.0	6.8	11.8	7.4
2017-18	A/H3N2	High	17.1	13.3	9.9	18.4	10.1
2018-19	A/H1N1pdm09, A/H3N2	Moderate	15.2	12.4	7.1	11.4	4.3
2019-20	A/H1N1pdm09, B	Moderate/High	19.8	14.5	9.6	12.9	3.5
2020-21*							
2021-22	A/H3N2	Low	4.6	5.1	2.6	2.3	1.0
Median			13.7	11.9	6.8	11.6	4.3

* The burden estimate for the 2020-2021 season was not calculated due to the uncharacteristically low level of flu activity that season.

Complications of Flu

Complications of flu can include bacterial pneumonia, ear infections, sinus infections and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.

Testing and diagnosis

It is very difficult to distinguish flu from other viral or bacterial respiratory illnesses based on symptoms alone. There are tests available to diagnose flu.

KEEP READING
Diagnosis for Flu

Treating Flu

There are flu antiviral drugs that can be used to treat flu illness.

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Information for the Flu Season

Resources

Flu A viruses can be broken down into sub-types depending on the genes that make up the surface proteins. Over the course of a flu season, different types (A & B) and subtypes (only for flu A) of flu circulate and cause illness.

- Types of Flu Viruses Flu A and B viruses are responsible for seasonal flu epidemics more commonly known as the flu season.

- How Flu Viruses Can Change Flu viruses can change in two different ways—antigenic drift and antigenic shift.
- Transmission of Flu Viruses from Animals to People Flu A viruses also are found in many different animals, including ducks, chickens, pigs, horses, whales, and seals.
  - Avian (Bird) Flu: Information on flu viruses in birds
  - Canine (Dog) Flu: Information on flu viruses in dogs
  - Swine (Pig)/Variant Flu: Information on flu viruses in pigs and human infections with flu viruses from pigs
- Pandemic Flu A flu pandemic is a global outbreak of a new flu A virus. Learn more, including about past flu pandemics.
- Images of Flu Viruses Graphics of generic flu viruses
- Human Serology and Flu CDC conducts human serology work to improve seasonal flu vaccines and prepare against future flu pandemics.
- Antigenic Characterization of Flu Viruses CDC antigenically characterizes circulating flu viruses each year to monitor for changes and to help inform flu vaccine composition recommendations.
- Flu Virus Genome Sequencing and Genetic Characterization CDC studies genetic changes in circulating flu viruses to support public health objectives.
- Expanding Viral Genomic Sequencing Infrastructure in the U.S. Through a cooperative agreement with the Association for Public Health Laboratories, CDC provides funding and training to a network of state labs for them to do influenza sequencing.
- Advanced Molecular Detection (AMD) and Flu CDC's Advanced Molecular Detection (AMD) initiative uses new technology to study flu viruses faster and in more detail than ever before.

SOURCES

CONTENT SOURCE:
National Center for Immunization and Respiratory Diseases (NCIRD)

SOURCES

- Key Facts About Influenza (Flu) | CDC