

# PANDEMIC INFLUENZA

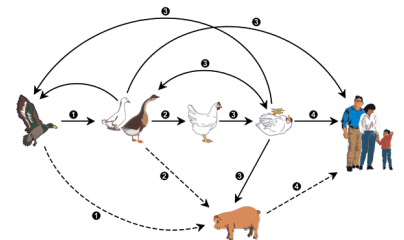


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nfluenza, also known as the flu, is a contagious respiratory disease caused by viruses. In the United States, there is a flu season that begins every fall and ends every spring.

The type of flu people get during this season is called **seasonal flu**. Sometimes, a new type of flu virus may emerge to which the general public has no resistance. The lack of immunity enables the virus to spread quickly and easily from person to person impacting communities around the world in a very short time, causing serious illness and death. This kind of flu is called **pandemic flu**.

The exact symptoms of pandemic flu are unknown. However, the CDC notes that symptoms are expected to be similar to those of seasonal flu, which include:



- Fever
- Sore throat
- Cough
- Runny or stuffy nose
- Extreme fatigue
- Headache
- Muscle aches and pains
- Stomach problems, such as nausea, vomiting and diarrhea (more common in children)

## AVIAN INFLUENZA IN BIRDS

Avian influenza is an infection caused by avian (bird) influenza (flu) viruses. These influenza viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, avian influenza is very contagious among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

Infected birds shed influenza virus in their saliva, nasal secretions, and feces. Susceptible birds become infected when they have contact with contaminated secretions or excretions or with surfaces that are contaminated with secretions or excretions from infected birds. Domesticated birds may become infected with avian influenza virus through direct contact with infected

waterfowl or other infected poultry, or through contact with surfaces (such as dirt or cages) or materials (such as water or feed) that have been contaminated with the virus. Infection with avian influenza viruses in domestic poultry causes two main forms of disease that are distinguished by low and high extremes of virulence. The “low pathogenic” form may go undetected and usually causes only mild symptoms (such as ruffled feathers and a drop in egg production). However, the highly pathogenic form spreads more rapidly through flocks of poultry. This form may cause disease that affects multiple internal organs and has a mortality rate that can reach 90-100% often within 48 hours.

## **HUMAN INFECTION WITH AVIAN INFLUENZA VIRUSES**

There are many different subtypes of type A influenza viruses. These subtypes differ because of changes in certain proteins on the surface of the influenza A virus (hemagglutinin [HA] and neuraminidase [NA] proteins). There are 16 known HA subtypes and 9 known NA subtypes of influenza A viruses. Many different combinations of HA and NA proteins are possible. Each combination represents a different subtype. All known subtypes of influenza A viruses can be found in birds.

Usually, “avian influenza virus” refers to influenza A viruses found chiefly in birds, but infections with these viruses can occur in humans. The risk from avian influenza is generally low to most people, because the viruses do not usually infect humans. However, confirmed cases of human infection from several subtypes of avian influenza infection have been reported since 1997. Most cases of avian influenza infection in humans have resulted from contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretion/excretions from infected birds. The spread of avian influenza viruses from one ill person to another has been reported very rarely, and has been limited, inefficient and unsustainable.

“Human influenza virus” usually refers to those subtypes that spread widely among humans. There are only three known A subtypes of influenza viruses (H1N1, H1N2, and H3N2) currently circulating among humans. It is likely that some genetic parts of current human influenza A viruses came from birds originally. Influenza A viruses are constantly changing, and they might adapt over time to infect and spread among humans.

During an outbreak of avian influenza among poultry, there is a possible risk to people who have contact with infected birds or surfaces that have been contaminated with secretions or excretions from infected birds.

Symptoms of avian influenza in humans have ranged from typical human influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches) to eye infections, pneumonia, severe respiratory diseases (such as acute respiratory distress), and other severe and life-threatening complications. The symptoms of avian influenza may depend on which virus caused the infection.

Studies done in laboratories suggest that some of the prescription medicines approved in the United States for human influenza viruses should work in treating avian influenza infection

humans. However, influenza viruses can become resistant to these drugs, so these medications may not always work. Additional studies are needed to demonstrate the effectiveness of these medicines.

### **AVIAN INFLUENZA A (H5N1)**

Influenza A (H5N1) virus – also called “H5N1 virus” – is an influenza A virus subtype that occurs mainly in birds, is highly contagious among birds, and can be deadly to them. H5N1 virus does not usually infect people, but infections with these viruses have occurred in humans. Most of these cases have resulted from people having direct or close contact with H5N1-infected poultry or H5N1-contaminated surfaces.

### **HUMAN HEALTH RISKS DURING THE H5N1 OUTBREAK**

Of the few avian influenza viruses that have crossed the species barrier to infect humans, H5N1 has caused the largest number of detected cases of severe disease and death in humans. However, it is possible that those cases in the most severely ill people are more likely to be diagnosed and reported, while milder cases go unreported.

Of the human cases associated with the ongoing H5N1 outbreaks in poultry and wild birds in Asia and parts of Europe, the Near East and Africa, more than half of those people reported infected with the virus have died. Most cases have occurred in previously healthy children and young adults and have resulted from direct or close contact with H5N1-infected poultry or H5N1-contaminated surfaces. In general, H5N1 remains a very rare disease in people. The H5N1 virus does not infect humans easily, and if a person is infected, it is very difficult for the virus to spread to another person.

While there has been some human-to-human spread of H5N1, it has been limited, inefficient and unsustainable. For example, in 2004 in Thailand, probable human-to-human spread in a family resulting from prolonged and very close contact between an ill child and her mother was reported. Most recently, in June 2006, WHO reported evidence of human-to-human spread in Indonesia. In this situation, 8 people in one family were infected. The first family member is thought to have become ill through contact with infected poultry. This person then infected six family members. One of those six people (a child) then infected another family member (his father). No further spread outside of the exposed family was documented or suspected.

Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to infect humans and spread easily from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If H5N1 virus were to gain the capacity to spread easily from person to person, an influenza pandemic (worldwide outbreak of disease) could begin.

No one can predict when a pandemic might occur. However, experts from around the world are watching the H5N1 situation in Asia and Europe very closely and are preparing for the possibility that the virus may begin to spread more easily and widely from person to person.

## **HOSPITAL INPATIENTS DIAGNOSED OR SUSPECTED OF HAVING PANDEMIC INFLUENZA**

Patients suspected of having pandemic influenza will be placed on Droplet precautions (**ORANGE PRECAUTION SIGN AND STOP SIGN**) IN ADDITION TO Standard precautions. Those entering the room must wear a surgical mask.

## **TREATMENT AND VACCINATION FOR H5N1 VIRUS IN HUMANS**

The H5N1 virus that has caused human illness and death in Asia is resistant to amantadine and rimantadine, two antiviral medications commonly used for influenza. Two other antiviral medications, oseltamavir and zanamavir, would probably work to treat influenza caused by H5N1 virus, but additional studies still need to be done to demonstrate their effectiveness.

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## **PLANNING AHEAD FOR PANDEMIC INFLUENZA**

During a flu pandemic, government officials may be required to limit community movement or impose travel restrictions to help prevent the flu virus from spreading. Things to keep in mind: You may be asked to stay home for an extended period of time even if you are not sick. Schools, workplaces and public gatherings such as sporting events or worship services may close temporarily.

Mass transportation such as subways, buses, trains and air travel may be limited. You, your family and friends may need to rely on each other when you cannot depend on the services you normally use. Think about how you handle stress and know your strengths. Take steps to plan for, get through and recover from a flu pandemic.

## **PLANNING AT HOME**

- Store a two-week supply of food. Select foods that do not require refrigeration, preparation or cooking. Ensure that formula for infants and any child's or older person's special nutritional needs are a part of your planning. Plan for your pets as well.
- Store a two-week supply of water, 1 gallon of water per person per day, in clean plastic

containers. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

- Store a supply of nonprescription drugs, such as pain relievers, cough and cold medicines, stomach remedies and anti-diarrheal medication, as well as vitamins and fluids with electrolytes (such as sports drinks).
- Store health and cleaning supplies, such as bleach, tissues, a thermometer, disposable gloves, soap and alcohol-based hand sanitizers.
- Ask your health care provider and health insurance company if you can get an extra supply of your regular prescription drugs and medical supplies, such as glucose monitoring supplies.
- Keep an emergency information sheet on all family members.
- Talk with family members and loved ones about how they would be cared for if they got sick.

## **PLANNING IN YOUR COMMUNITY**

- Ask about plans to enable you to stay home if you are or a family member is sick.
- Find out your employer's plans to keep the business open if key staff can't come to work.
- Find out now about your child's school or daycare provider's plans for handling a flu pandemic.
- Ask if there are plans to encourage sick children to stay home to reduce the spread of the disease.
- Ask if there are plans to close during a pandemic that would require all the children to remain at home.

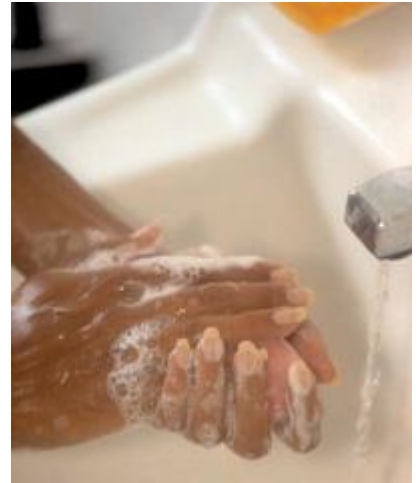
Finding out the answers ahead of time will have a significant impact on your plans and decisions during a flu pandemic.

## **STAYING HEALTHY**

There are some actions that everyone can practice to slow the spread of the flu and reduce its impact, whether the viruses involved are seasonal or pandemic flu. Practicing these actions now will make them easier to do later.

## Hand Washing

- Wash your hands with soap and water or clean them with an alcohol-based hand sanitizer. Wash hands for at least 15 seconds. This will reduce the chance of spreading flu from one person to another.
- For visibly soiled hands, first wash with soap and warm water. When using soap and water:
  - Wet hands with water and apply an amount of soap recommended by the manufacturer to hands
  - Rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and giving added attention to fingernails and surfaces where jewelry is worn
  - Rinse hands with water
  - Dry thoroughly with a disposable towel
  - Use towel to turn off faucet
- For hands that are not visibly soiled, wash with soap and water, use an alcohol-based hand sanitizer (60 percent to 95 per alcohol) or do both. When using hand sanitizer:
  - Use the amount of sanitizer directed in the instructions on the product
  - Rub thoroughly over all surfaces of the hands, including nail areas and between the fingers.
  - Continue to rub until product dries



Frequent and proper hand washing can reduce or prevent the spread of the flu.

## Other Healthy Habits

- Cover your mouth and nose with a tissue when you cough or sneeze, and clean your hands afterwards.
  - Use soap and water or an alcohol-based hand sanitizer (as above).
  - If you don't have a tissue or handkerchief, cough or sneeze into the inside of your elbow or upper arm.
  - Whenever possible, avoid coughing or sneezing into your hands.
- Keep your hands away from your eyes, nose and mouth to keep flu germs from entering your body.
- Stay home if you are feeling sick. Get plenty of rest and drink lots of fluids.

- Avoid close contact with people who are sick. The flu virus is spread by respiratory droplets passed from one person to another. These droplets can pass among people in close contact.
- Avoid sharing objects—such as utensils, cups, bottles and telephones. If you must share, disinfect the objects before and after using them.
- Keep your living and work areas clean.

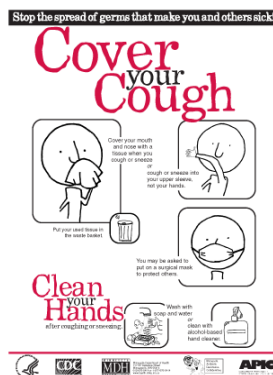
**SUMMARY**

Pandemic flu is more serious than seasonal flu. Most people who get seasonal flu recover within a week or two and usually do not require medical treatment. Pandemic flu is different because more people who get it might not recover, even with medical treatment, and people of every age may be at risk of serious illness or death. The very young, the very old and the very sick are most likely to become seriously ill from any form of the flu virus.

Unlike seasonal flu, there is no **vaccine** for pandemic flu until researchers and pharmaceutical companies are able to create one, which takes time. Even if a vaccine is developed for the pandemic flu, it will be a challenge to manufacture and dispense the vaccine to everyone in a timely manner.

Scientists cannot accurately predict whether the avian influenza virus (H5N1) will cause the next human pandemic flu or when the next pandemic will occur.

The best way to protect yourself and others is to practice healthy hygiene to keep you well now and during a flu pandemic. Practicing these actions now will make them easier to do later. These actions include washing your hands, covering your cough and staying home when you are sick to slow the spread of illness.



## **GLOSSARY**

### **Antiviral**

A medication that may be used to treat people who have been infected by a virus to help limit the impact of some symptoms and reduce the potential for serious complications. People who are in high risk groups are often given antiviral drugs because of their increased potential to develop additional health issues.

### **Avian Influenza (bird flu)**

Commonly known as bird flu, this strain of influenza virus is naturally occurring in birds. Wild birds can carry the virus and may not get sick from it; however, domestic birds may become infected by the virus and often die from it.

### **Epidemic**

The rapid spread of a disease that infects some or many people in a community or region at the same time.

### **H5N1**

The scientific name for a subtype of the avian influenza (bird flu) virus that has spread from birds to humans. The scientific names for these subtypes are classified by different proteins on the virus. New subtypes naturally occur when the proteins change.

### **Influenza (flu)**

A contagious respiratory illness caused by particular strains of viruses.

### **Influenza Pandemic**

A global outbreak of the influenza disease that occurs when a new influenza virus appears in the human population. Because people have little or no immunity to the new strain, serious illness can occur, and the virus can spread easily and rapidly from person to person with no vaccine immediately available.

### **Isolation**

The physical separation of a person suffering from an infectious or contagious disease from others in a community.

### **Pandemic**

An outbreak of a disease that affects large numbers of throughout the world.

### **Pandemic Influenza**

A virulent influenza (flu) caused by a new flu virus strain to which humans have not been



exposed. It is more serious than a typical seasonal flu because there is no natural resistance or immunity to it and infects large numbers of people of different ages all over the world, causing serious illness and possibly death.

### **Quarantine**

The physical separation of healthy people who have been exposed to an infectious disease—for a period of time—from those who have not been exposed.

### **Seasonal Flu**

A contagious respiratory illness caused by influenza (flu) viruses occurring every year. It affects an average of 5 to 20 percent of the U.S. population by causing mild to severe illness, and in some instances can lead to death. Most people have some immunity, and a vaccine is available

### **Social Distancing**

A disease prevention strategy in which a community imposes limits on social (face-to-face) interaction to reduce exposure to and transmission of a disease. These limitations could include, but are not limited to, school and work closures, cancellation of public gatherings and closure or limited mass transportation.

### **Vaccine**

An injection, usually of an innocuous (weak or killed) form of the virus, that stimulates the production of antibodies by the immune system to help prevent or create resistance to an infection. Vaccines are usually given as a preventive measure

## **RESOURCES**

- [www.cdc.gov](http://www.cdc.gov)  
U.S. public health guidelines
- [www.pandemicflu.gov](http://www.pandemicflu.gov)  
U.S. pandemic plan
- [www.who.int](http://www.who.int)  
Global updates and official case reports
- <http://www.ready.gov/america/index.html>  
Information on how to shelter at home in any emergency.

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