



## KEY FACTS

### Key Facts About Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus

*This fact sheet provides general information about bird flu and information about one type of bird flu, called avian influenza A (H5N1) that is infecting birds in Asia and has infected some humans.*

#### What is avian influenza (bird flu)?

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

#### Do bird flu viruses infect humans?

Bird flu viruses do not usually infect humans, but several cases of human infection with bird flu viruses have occurred since 1997.

#### How are bird flu viruses different from human flu viruses?

There are many different subtypes of type A influenza viruses. These subtypes differ because of certain proteins on the surface of the influenza A virus (hemagglutinin [HA] and neuraminidase [NA] proteins). There are 16 different HA subtypes and 9 different NA subtypes of flu A viruses. Many different combinations of HA and NA proteins are possible. Each combination is a different subtype. All known subtypes of flu A viruses can be found in birds. However, when we talk about "bird flu" viruses, we are referring to influenza A subtypes chiefly found in birds. They do not usually infect humans, even though we know they can. When we talk about "human flu viruses" we are referring to those subtypes that occur widely in humans. There are only three known A subtypes of human flu viruses (H1N1, H1N2, and H3N2); 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.

#### What are the symptoms of bird flu in humans?

Symptoms of bird flu in humans have ranged from typical flu-like symptoms (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 bird flu may depend on which virus caused the infection.

#### How does bird flu spread?

Infected birds shed flu virus in their saliva, nasal secretions, and feces. Susceptible birds become infected when they have contact with contaminated excretions or surfaces that are contaminated with excretions. It is believed that most cases of bird flu infection in humans have resulted from contact with infected poultry or contaminated surfaces. The spread of avian influenza viruses from one ill person to another has been reported very rarely, and transmission has not been observed to continue beyond one person.

## **How is bird flu in humans treated?**

Studies done in laboratories suggest that the prescription medicines approved for human flu viruses should work in preventing bird flu infection in humans. However, flu viruses can become resistant to these drugs, so these medications may not always work. Additional studies are needed to prove the effectiveness of these medicines.

## **What is the risk to humans from bird flu?**

The risk from bird flu is generally low to most people because the viruses occur mainly among birds and do not usually infect humans. However, during an outbreak of bird flu among poultry (domesticated chicken, ducks, turkeys), there is a possible risk to people who have contact with infected birds or surfaces that have been contaminated with excretions from infected birds. The current outbreak of avian influenza A (H5N1) among poultry in Asia and Europe (see below) is an example of a bird flu outbreak that has caused human infections and deaths. In such situations, people should avoid contact with infected birds or contaminated surfaces, and should be careful when handling and cooking poultry. For more information about avian influenza and food safety issues, visit the [World Health Organization website](http://www.who.int/csr/disease/avian_influenza/en/). In rare instances, limited human-to-human spread of H5N1 virus has occurred, and transmission has not been observed to continue beyond one person.

## **What is an avian influenza A (H5N1) virus?**

Influenza A (H5N1) virus – also called “H5N1 virus” – is an influenza A virus subtype that occurs mainly in birds. It was first isolated from birds (terns) in South Africa in 1961. Like all bird flu viruses, H5N1 virus circulates among birds worldwide, is very contagious among birds, and can be deadly.

## **What is the H5N1 bird flu that has been reported in Asia and Europe?**

Outbreaks of influenza H5N1 occurred among poultry in eight countries in Asia (Cambodia, China, Indonesia, Japan, Laos, South Korea, Thailand, and Vietnam) during late 2003 and early 2004. At that time, more than 100 million birds in the affected countries either died from the disease or were killed in order to try to control the outbreak. By March 2004, the outbreak was reported to be under control. Beginning in late June 2004, however, new outbreaks of influenza H5N1 among poultry were reported by several countries in Asia (Cambodia, China [Tibet], Indonesia, Kazakhstan, Malaysia, Mongolia, Russia [Siberia], Thailand, and Vietnam). It is believed that these outbreaks are ongoing. Most recently, influenza H5N1 has been reported among poultry in Turkey and Romania. Human infections of influenza A (H5N1) have been reported in Cambodia, Indonesia, Thailand, and Vietnam.

## **What is the risk to humans from the H5N1 virus in Asia and Europe?**

The H5N1 virus does not usually infect humans. In 1997, however, the first case of spread from a bird to a human was seen during an outbreak of bird flu in poultry in Hong Kong, Special Administrative Region. The virus caused severe respiratory illness in 18 people, 6 of whom died. Since that time, there have been other cases of H5N1 infection among humans. Recent human cases of H5N1 infection that have occurred in Cambodia, Thailand, and Vietnam have coincided with large H5N1 outbreaks in poultry. The World Health Organization (WHO) ([http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/)) also has reported human cases in Indonesia. Most of these cases have occurred from contact with infected poultry or contaminated surfaces; however, it is thought that a few cases of human-to-human spread of H5N1 have occurred.

So far, spread of H5N1 virus from person to person has been rare and has not continued beyond one person. However, because all influenza viruses have the ability to change, scientists are concerned that the 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 the H5N1 virus were able to infect people and spread easily from person to person, an [influenza pandemic](http://www.cdc.gov/flu/avian/gen-) (<http://www.cdc.gov/flu/avian/gen->

## **Information about Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus**

(continued from previous page)

info/pandemics.htm ) (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 very closely and are preparing for the possibility that the virus may begin to spread more easily and widely from person to person.

### **How is infection with H5N1 virus in humans treated?**

The H5N1 virus currently infecting birds in Asia that has caused human illness and death 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 flu caused by the H5N1 virus, but additional studies still need to be done to prove their effectiveness.

### **Is there a vaccine to protect humans from H5N1 virus?**

There currently is no commercially available vaccine to protect humans against the H5N1 virus that is being seen in Asia and Europe. However, vaccine development efforts are taking place. Research studies to test a vaccine to protect humans against H5N1 virus began in April 2005, and a series of clinical trials is underway. For more information about the H5N1 vaccine development process, visit the [National Institutes of Health website](http://www3.niaid.nih.gov/news/newsreleases/2005/H5N1QandA.htm) (<http://www3.niaid.nih.gov/news/newsreleases/2005/H5N1QandA.htm>).

### **What is the risk to people in the United States from the H5N1 bird flu outbreak in Asia and Europe?**

The current risk to Americans from the H5N1 bird flu outbreak in Asia is low. The strain of H5N1 virus found in Asia and Europe has not been found in the United States. There have been no human cases of H5N1 flu in the United States. It is possible that travelers returning from affected countries in Asia could be infected if they were exposed to the virus. Since February 2004, medical and public health personnel have been watching closely to find any such cases.

### **What does CDC recommend regarding the H5N1 bird flu outbreak?**

In February 2004, CDC provided U.S. health departments with recommendations for enhanced surveillance (“detection”) in the U.S. of avian influenza A (H5N1). Follow-up messages, distributed via the Health Alert Network, were sent to the health departments on August 12, 2004, and February 4, 2005; both alerts reminded health departments about how to detect (domestic surveillance), diagnose, and prevent the spread of avian influenza A (H5N1). The alerts also recommended measures for laboratory testing for H5N1 virus. CDC currently advises that travelers to countries with known outbreaks of influenza A (H5N1) avoid poultry farms, contact with animals in live food markets, and any surfaces that appear to be contaminated with feces from poultry or other animals. CDC does not recommend any travel restrictions to affected countries at this time. For more information, visit Travelers’ Health ([www.cdc.gov/travel](http://www.cdc.gov/travel)).

### **What is CDC doing to prepare for a possible H5N1 flu pandemic?**

CDC is taking part in a number of pandemic prevention and preparedness activities, including:

- Providing leadership to the National Pandemic Influenza Preparedness and Response Task Force, created in May 2005 by the Secretary of the U.S. Department of Health and Human Services.
- Working with the Association of Public Health Laboratories on training workshops for state laboratories on the use of special laboratory (molecular) techniques to identify H5 viruses.
- Working with the Council of State and Territorial Epidemiologists and others to help states with their pandemic planning efforts.

## Information about Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus

(continued from previous page)

- Working with other agencies such as the Department of Defense and the Veterans Administration on antiviral stockpile issues.
- Working with the World Health Organization (WHO) and Vietnamese Ministry of Health to investigate influenza H5N1 in Vietnam and to provide help in laboratory diagnostics and training to local authorities.
- Performing laboratory testing of H5N1 viruses.
- Starting a \$5.5 million initiative to improve influenza surveillance in Asia.
- Holding or taking part in training sessions to improve local capacities to conduct surveillance for possible human cases of H5N1 and to detect influenza A H5 viruses by using laboratory techniques.
- Developing and distributing reagents kits to detect the currently circulating influenza A H5N1 viruses.

Working together with WHO and the National Institutes of Health (NIH) on safety testing of vaccine seed candidates and to develop additional vaccine virus seed candidates for influenza A (H5N1) and other subtypes of influenza A virus.

For more information, visit [www.cdc.gov/flu](http://www.cdc.gov/flu), or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

October 17, 2005

Page 4 of 4