

AVIAN INFLUENZA (BIRD FLU)

Questions and Answers About Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus

- **Avian Influenza**

What is avian influenza (bird flu)

Avian influenza 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, avian influenza is very contagious among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

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.

How does avian influenza spread among birds

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

Do avian influenza viruses infect humans

Bird flu viruses do not usually infect humans, but more than 190 confirmed cases of human infection with bird flu viruses have occurred since 1997. The World Health Organization (WHO) maintains **situation updates** and **cumulative reports of human cases** of avian influenza A (H5N1). Please visit these and previous WHO situation updates and cumulative reports for additional information.

How do people become infected with avian influenza viruses

Most cases of avian influenza infection in humans have resulted from direct or close contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretions and excretions from infected birds. The spread of avian influenza viruses from an ill person to another person has been reported very rarely, and transmission has not been observed to continue beyond one person. During an outbreak of avian influenza among poultry, there is a possible risk to people who have direct or close contact with infected birds or with surfaces that have been contaminated with secretions and excretions from infected birds.

What are the symptoms of avian influenza in humans

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

How is avian influenza detected in humans

A laboratory test is needed to confirm avian influenza in humans.

How is avian influenza in humans treated

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

Should I wear a surgical mask to prevent exposure to avian influenza

Currently, wearing a mask is not recommended for routine use (e.g., in public) for preventing influenza exposure. In the United States, disposable surgical and procedure masks have been widely used in health-care settings to prevent exposure to respiratory infections, but the masks have not been used commonly in community settings, such as schools, businesses, and public gatherings.

Is there a risk for becoming infected with avian influenza by eating poultry

There is no evidence that properly cooked poultry or eggs can be a source of infection for avian influenza viruses. For more information about avian influenza and food safety issues, visit the **World Health Organization website**.

The U.S. government carefully controls domestic and imported food products, and in 2004 issued a ban on importation of poultry from countries affected by avian influenza viruses, including the H5N1 strain. This ban still is in place. For more information, see **Embargo of Birds from Specified Countries**.

We have a small flock of chickens. Is it safe to keep them

Yes. In the United States there is no need at present to remove a flock of chickens because of concerns regarding avian influenza. The U.S. Department of Agriculture monitors potential infection of poultry and poultry products by avian influenza viruses and other infectious disease agents.

What are the risks to humans from the current H5N1 outbreak

H5N1 virus does not usually infect people, but more than 200 human cases have been reported. Most of these cases have occurred from direct or close contact with infected poultry or contaminated surfaces; however, a few cases of human-to-human spread of H5N1 virus have occurred.

So far, spread of H5N1 virus from person to person has been rare and has not continued beyond one person. 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 from person to person.

How does H5N1 virus differ from seasonal influenza viruses that infect humans

Of the few avian influenza viruses that have crossed the species barrier to infect humans, H5N1 virus has caused the largest number of reported cases of severe disease and death in humans. In the current situation in Asia, more than half of the people infected with the virus have died. Most cases have occurred in previously healthy children and young adults. However, it is possible that the only cases currently being reported are those in the most severely ill people and that the full range of illness caused by the H5N1 virus has not yet been defined.

Unlike seasonal influenza, in which infection usually causes only mild respiratory symptoms in most people, H5N1 infection may follow an unusually aggressive clinical course, with rapid deterioration and high fatality. Primary viral pneumonia and multi-organ failure have been common among people who have become ill with H5N1 influenza.

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 detected in Asia and Europe. However, vaccine development efforts are taking place. Research studies to test a vaccine that will protect humans against H5N1 virus began in April 2005, and a series of clinical trials is under way. For more information about the H5N1 vaccine development process, visit the **National Institutes of Health website**.

Is there a risk to importing pet birds that come from countries experiencing outbreaks of avian influenza A (H5N1)

The U.S. government has determined that there is a risk to importing pet birds from countries experiencing

outbreaks of H5N1 influenza. CDC and USDA have both taken action to ban the importation of birds from areas where H5N1 has been documented. There is currently a ban on the importation of birds and bird products from H5N1-affected countries in Africa, Asia, and Europe. The regulation states that no person may import or attempt to import any birds (Class Aves), whether dead or alive, or any products derived from birds (including hatching eggs), from the specified countries (see **Embargo of Birds from Specified Countries**).

Can a person become infected with avian influenza A (H5N1) virus by cleaning a bird feeder

There is no evidence of H5N1 having caused disease in birds or people in the United States. At the present time, the risk of becoming infected with H5N1 virus from bird feeders is low. Generally, perching birds (Passeriformes) are the predominate type of birds at feeders. While there are documented cases of H5N1 causing death in some Passeriformes (e.g., house sparrow, Eurasian tree-sparrow, house finch), in both free-ranging and experimental settings, most of the wild birds that are traditionally associated with avian influenza viruses are waterfowl and shore birds.

Influenza Pandemic Preparedness

What changes are needed for H5N1 or another avian influenza virus to cause a pandemic

Three conditions must be met for a pandemic to start: 1) a new influenza virus subtype must emerge for which there is little or no human immunity; 2) it must infect humans and causes illness; and 3) it must spread easily and sustainably (continue without interruption) among humans. The H5N1 virus in Asia and Europe meets the first two conditions: it is a new virus for humans (H5N1 viruses have never circulated widely among people), and it has infected more than 190 humans, killing over half of them.

However, the third condition, the establishment of efficient and sustained human-to-human transmission of the virus, has not occurred. For this to take place, the H5N1 virus would need to improve its transmissibility among humans. This could occur either by reassortment or adaptive mutation.

Reassortment occurs when genetic material is exchanged between human and avian viruses during co-infection (infection with both viruses at the same time) of a human or another mammal. The result could be a fully transmissible pandemic virus—that is, a virus that can spread easily and directly between humans. A more gradual process is adaptive mutation, where the capability of a virus to bind to human cells increases during infections of humans.