



FACT SHEET

Basic Information About Avian Influenza (Bird Flu)

Avian Influenza

Type A influenza viruses can infect several animal species, including birds, pigs, horses, seals and whales. Influenza viruses that infect birds are called "avian influenza viruses." Birds are an especially important species because all known subtypes of influenza A viruses circulate among wild birds, which are considered the natural hosts for influenza A viruses. Avian influenza viruses do not usually directly infect humans or circulate among humans.

Influenza A viruses can be divided into subtypes on the basis of their surface proteins — hemagglutinin (HA) and neuraminidase (NA). There are 15 known H subtypes. While all subtypes can be found in birds, only 3 subtypes of HA (H1, H2 and H3) and two subtypes of NA (N1 and N2) are known to have circulated widely in humans.

Avian influenza usually does not make wild birds sick, but can make domesticated birds very sick and kill them. Avian influenza A viruses do not usually infect humans; however, several instances of human infections and outbreaks have been reported since 1997. When such infections occur, public health authorities monitor the situation closely because of concerns about the potential for more widespread infection in the human population.

Avian Influenza Infections in Humans

Confirmed instances of avian influenza viruses infecting humans since 1997 include:

- **1997:** In Hong Kong, avian influenza A (H5N1) infected both chickens and humans. This was the first time an avian influenza virus had ever been found to transmit directly from birds to humans. During this outbreak, 18 people were hospitalized and 6 of them died. To control the outbreak, authorities killed about 1.5 million chickens to remove the source of the virus. Scientists determined that the virus spread primarily from birds to humans, though rare person-to-person infection was noted.
- **1999:** In Hong Kong, cases of avian influenza A H9N2 were confirmed in 2 children. Both patients recovered, and no additional cases were confirmed. The evidence suggested that poultry was the source of infection and the main mode of transmission was from bird to human. However, the possibility of person-to-person transmission remained open. Several additional human H9N2 infections were reported from mainland China in 1998-99.
- **2003:** Two cases of avian influenza A (H5N1) infection occurred among members of a Hong Kong family that had traveled to China. One person recovered, the other died. How or where these 2 family members were infected was not determined. Another family member died of a respiratory illness in China, but no testing was done. No additional cases were reported.
- **2003:** Avian influenza A (H7N7) infections among poultry workers and their families were confirmed in the Netherlands during an outbreak of avian flu among poultry. More than 80 cases of H7N7 illness were reported (the symptoms were mostly confined to eye infections, with some respiratory symptoms), and 1 patient died (in a veterinarian who had visited an affected farm). There was evidence of some human-to-human transmission.
- **2003:** H9N2 infection was confirmed in a child in Hong Kong. The child was hospitalized but recovered.

Basic Information About Avian Influenza (Flu)

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Characteristics of Avian Influenza in Birds

Certain water birds act as hosts of influenza viruses by carrying the virus in their intestines and shedding it. Infected birds shed virus in saliva, nasal secretions and feces. Avian influenza viruses spread among susceptible birds when they have contact with contaminated nasal, respiratory and fecal material from infected birds; however, fecal-to-oral transmission is the most common mode of spread.

Most influenza viruses cause no symptoms, or only mild ones in wild birds; however, the range of symptoms in birds varies greatly depending on the strain of virus and the type of bird. Infection with certain avian influenza A viruses (for example, some H5 and H7 strains) can cause widespread disease and death among some species of wild and especially domesticated birds such as chickens and turkeys.

Symptoms of Avian Influenza in Humans

The reported symptoms of avian influenza in humans have ranged from typical influenza-like symptoms (e.g., fever, cough, sore throat and muscle aches) to eye infections, pneumonia, acute respiratory distress, viral pneumonia, and other severe and life-threatening complications.

Antiviral Agents for Influenza

Studies to date suggest that the prescription medications approved for human influenza strains would be effective in preventing avian influenza infection in humans, however, sometimes flu strains can become resistant to these drugs and so they may not always be effective.

Potential for an Influenza Pandemic

All influenza viruses have the potential to can change. It is possible that an avian influenza virus could change so that it could infect humans and could spread easily from person to person. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If an avian virus were able to infect people and gain the ability to spread easily from person to person, an "influenza pandemic" could begin.

Background on Pandemics

An **influenza pandemic** is a global outbreak of influenza and occurs when a new influenza virus emerges, spreads, and causes disease worldwide. Past influenza pandemics have led to high levels of illness, death, social disruption and economic loss.

There were 3 pandemics in the 20th century. All of them spread worldwide within 1 year of being detected. They are:

- **1918-19, "Spanish flu,"** [A (H1N1)], caused the highest number of known flu deaths: more than 500,000 people died in the United States, and 20 million to 50 million people may have died worldwide. Many people died within the first few days after infection and others died of complications soon after. Nearly half of those who died were young, healthy adults.
- **1957-58, "Asian flu,"** [A (H2N2)], caused about 70,000 deaths in the United States. First identified in China in late February 1957, the Asian flu spread to the United States by June 1957.
- **1968-69, "Hong Kong flu,"** [A (H3N2)], caused approximately 34,000 deaths in the United States. This virus was first detected in Hong Kong in early 1968 and spread to the United States later that year. Type A (H3N2) viruses still circulate today.

Once a new pandemic influenza virus emerges and spreads, it typically becomes established among people and circulates for many years. The U.S. Centers for Disease Control and Prevention and the World Health Organization conduct extensive surveillance programs to monitor the occurrence of influenza activity worldwide, including the emergence of potential pandemic strains of influenza virus.

For more information, visit www.cdc.gov/flu, or call CDC's public response hotline at (888) 246-2675 (English), (888) 246-2857 (español), or (866) 874-2646 (TTY).

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