



Avian Influenza A Virus Infections in Humans



Avian Influenza A Virus Infections in Humans

Although avian influenza A viruses usually do not infect humans, rare cases of human infection with avian influenza A viruses have been reported. Most human infections with avian influenza A viruses have occurred following direct or close contact with infected poultry. Illness in humans has ranged from mild to severe.

The spread of avian influenza A viruses from one ill person to another has been reported very rarely, and has been limited, inefficient and not sustained. However, because avian influenza A viruses have the potential to change and gain the ability to spread easily between people, monitoring for human infection and person-to-person transmission is extremely important for public health.

Since November 2003, more than 600 sporadic cases of human infection with highly pathogenic avian influenza (HPAI) A (H5N1) virus with high mortality have been reported, primarily by 15 countries in Asia, Africa, the Pacific, Europe and the Near East. (On January 8, 2014 ([/flu/news/first-human-h5n1-america.html](http://flu/news/first-human-h5n1-america.html)), the first case of a human infection with H5N1 in the Americas was reported in Canada.)

HPAI H5N1 viruses circulating among birds have evolved and are continuing to evolve into different subgroups of viruses, called 'clades.' Notably, there are geographic differences in the circulation of some HPAI H5N1 viruses. Because HPAI H5N1 viruses are evolving in unpredictable ways, it is critical to monitor the spread and circulation of these viruses among poultry and other birds, in order to understand the risk of spread to humans.

The World Health Organization (WHO) (http://www.who.int/topics/avian_influenza/en/)  (<http://www.cdc.gov/Other/disclaimer.html>) maintains situation updates and cumulative reports of human cases of avian influenza A (H5N1) (http://www.who.int/influenza/human_animal_interface/H5N1_cumulative_table_archives/en/index.html)  (<http://www.cdc.gov/Other/disclaimer.html>). Most human cases of H5N1 virus infection are thought to have occurred as a result of direct or close contact with sick or dead infected poultry.

Other subtypes of avian influenza A viruses also have infected humans, including both low pathogenic avian influenza (LPAI) A viruses and highly pathogenic avian influenza (HPAI) A viruses. Public health authorities closely monitor cases of human illness associated with avian influenza A virus infections because of concerns about the potential for more widespread infections and transmission in humans. The spread of avian influenza A viruses from one ill person to another through prolonged, unprotected, close contact has been reported very rarely, and has been limited, inefficient and not sustained. However, because avian influenza A viruses have the potential to change and gain the ability to spread easily among people, monitoring for human infection and person-to-person transmission is extremely important for public health.

Signs and Symptoms of Avian Influenza A Virus Infections in Humans

Signs and symptoms may depend on which avian influenza A virus caused the infection. Low

pathogenic avian influenza A virus infections of humans have been associated with generally mild, non fatal illness. The reported signs and symptoms of low pathogenic avian influenza A virus infections in humans have ranged from conjunctivitis to influenza-like illness (e.g., fever, cough, sore throat, muscle aches) to lower respiratory disease (pneumonia) requiring hospitalization. Highly pathogenic avian influenza A virus infections of humans have been associated with a wide range of illness. Illness has ranged from conjunctivitis only, to influenza-like illness, to severe respiratory illness (e.g. shortness of breath, difficulty breathing, pneumonia, acute respiratory distress, viral pneumonia, respiratory failure) with multi-organ disease, sometimes accompanied by nausea, abdominal pain, diarrhea, vomiting and sometimes neurologic changes (altered mental status, seizures). Sometimes infection with highly pathogenic avian influenza A virus infection leads to death, especially with HPAI H5N1 virus. The accuracy of clinical diagnosis of human infection with avian influenza A viruses on the basis of signs and symptoms alone is limited because symptoms from illness caused by other pathogens, including seasonal influenza A or B viruses, can overlap considerably.

Detecting Avian Influenza A Virus Infection in Humans

Avian influenza A virus infection in humans cannot be diagnosed by clinical signs and symptoms alone; laboratory testing is required. Avian influenza A virus infection is usually diagnosed by collecting a swab from the nose or throat of the sick person during the first few days of illness. This specimen is sent to a lab; the laboratory looks for avian influenza A virus either by using a molecular test, by trying to grow the virus, or both. (Growing avian influenza A viruses should only be done in laboratories with high levels of protection).

For critically ill patients, collection and testing of lower respiratory tract specimens may lead to diagnosis of HPAI H5N1 virus. For some patients who are no longer very sick or who have fully recovered, it may be difficult to find the avian influenza A virus in the specimen that was collected, using these methods. Sometimes it may still be possible to diagnose avian influenza A virus infection by looking for evidence of the body's immune response to the virus infection by detecting specific antibodies the body has produced in response to the virus. This is not always an option because it requires two blood specimens (one taken during the first week of illness and another taken 3-4 weeks later). Also, it can take several weeks to verify the results, and testing must be performed in a special laboratory, such as at CDC.

Treating Avian Influenza A Virus Infections in Humans

CDC and WHO currently recommend oseltamivir or zanamivir, two of four prescription antiviral medications currently licensed for use in the United States, for treatment and prevention of human infection with avian influenza A viruses. Analyses of available HPAI H5N1 viruses circulating worldwide suggest that most viruses are susceptible to oseltamivir and zanamivir. However, some evidence of resistance to oseltamivir that developed has been reported in HPAI H5N1 viruses isolated from some human cases. Monitoring for antiviral resistance among avian influenza A viruses is crucial and ongoing to inform [CDC \(/flu/professionals/antivirals/index.htm\)](http://www.cdc.gov/flu/professionals/antivirals/index.htm) and [WHO \(http://www.who.int/csr/resources/publications/swineflu/h1n1_use_antivirals_20090820/en/\)](http://www.who.int/csr/resources/publications/swineflu/h1n1_use_antivirals_20090820/en/) <http://www.cdc.gov/Other/disclaimer.html>) antiviral treatment recommendations.

Preventing Human Infection with Avian Influenza A Viruses

The best way to prevent infection with avian influenza A viruses is to avoid sources of exposure. Most human infections with avian influenza A viruses have occurred following direct or close contact with infected poultry.

Seasonal influenza vaccination will not prevent infection with avian influenza A viruses, but can

reduce the risk of co-infection with human and avian influenza A viruses.

Because rare episodes of limited, non-sustained human-to-human transmission of HPAI H5N1 virus has been reported, persons should avoid sick patients who have suspected or confirmed HPAI H5N1 virus infection. Health care personnel caring for patients with suspected or confirmed HPAI H5N1 virus infection should wear recommended personal protective equipment and follow recommended infection control measures (standard, droplet, contact, and airborne precautions).

Page last reviewed: June 21, 2012

Page last updated: January 8, 2014

Content source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases (NCIRD)

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA
30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - Contact CDC-INFO

