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Avian influenza

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Fact sheet

Updated April 2011

Key facts

- Avian influenza (AI), commonly called bird flu, is an infectious viral disease of birds.
- Most avian influenza viruses do not infect humans; however some, such as H5N1, have caused serious infections in people.
- Outbreaks of AI in poultry may raise global public health concerns due to their effect on poultry populations, their potential to cause serious disease in people, and their pandemic potential.
- Reports of highly pathogenic AI epidemics in poultry can seriously impact local and global economies and international trade.
- The majority of human cases of H5N1 infection have been associated with direct or indirect contact with infected live or dead poultry. There is no evidence that the disease can be spread to people through properly cooked food.
- Controlling the disease in animals is the first step in decreasing risks to humans.

Avian influenza (AI) is an infectious viral disease of birds (especially wild water fowl such as ducks and geese), often causing no apparent signs of illness. AI viruses can sometimes spread to domestic poultry and cause large-scale outbreaks of serious disease. Some of these AI viruses have also been reported to cross the species barrier and cause disease or subclinical infections in humans and other mammals.

AI viruses are divided into two groups based on their ability to cause disease in poultry: high pathogenicity or low pathogenicity. Highly pathogenic viruses result in high death rates (up to 100% mortality within 48 hours) in some poultry species. Low pathogenicity viruses also cause outbreaks in poultry but are not generally associated with severe clinical disease.

Avian influenza H5N1 background

The H5N1 virus subtype - a highly pathogenic AI virus- first infected

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humans in 1997 during a poultry outbreak in Hong Kong SAR, China. Since its widespread re-emergence in 2003 and 2004, this avian virus has spread from Asia to Europe and Africa and has become entrenched in poultry in some countries, resulting in millions of poultry infections, several hundred human cases, and many human deaths. Outbreaks in poultry have seriously impacted livelihoods, the economy and international trade in affected countries. Ongoing circulation of H5N1 viruses in poultry, especially when endemic, continues to pose threats to public health, as these viruses have both the potential to cause serious disease in people and may have the potential to change into a form that is more transmissible among humans. Other influenza virus subtypes also circulate in poultry and other animals, and may also pose potential threats to public health.

Avian influenza H5N1 infections and clinical features in humans

The case fatality rate for H5N1 virus infections in people is much higher compared to that of seasonal influenza infections.

Clinical features

In many patients, the disease caused by the H5N1 virus follows an unusually aggressive clinical course, with rapid deterioration and high fatality. Like most emerging disease, H5N1 influenza in humans is poorly understood.

The incubation period for H5N1 avian influenza may be longer than that for normal seasonal influenza, which is around two to three days. Current data for H5N1 infection indicate an incubation period ranging from two to eight days and possibly as long as 17 days. WHO currently recommends that an incubation period of seven days be used for field investigations and the monitoring of patient contacts.

Initial symptoms include a high fever, usually with a temperature higher than 38°C, and other influenza-like symptoms. Diarrhoea, vomiting, abdominal pain, chest pain, and bleeding from the nose and gums have also been reported as early symptoms in some patients.

One feature seen in many patients is the development of lower respiratory tract early in the illness. On present evidence, difficulty in breathing develops around five days following the first symptoms. Respiratory distress, a hoarse voice, and a crackling sound when inhaling are commonly seen. Sputum production is variable and sometimes bloody.¹

Antiviral treatment

Evidence suggests that some antiviral drugs, notably oseltamivir, can reduce the duration of viral replication and improve prospects of survival.

In suspected cases, oseltamivir should be prescribed as soon as possible (ideally, within 48 hours following symptom onset) to maximize its therapeutic benefits. However, given the significant mortality currently associated with H5N1 infection and evidence of prolonged viral replication

in this disease, administration of the drug should also be considered in patients presenting later in the course of illness.

In cases of severe infection with the H5N1 virus, clinicians may need to consider increasing the recommended daily dose or/and the duration of treatment.

In severely ill H5N1 patients or in H5N1 patients with severe gastrointestinal symptoms, drug absorption may be impaired. This possibility should be considered when managing these patients.²

Risk factors for human infection

The primary risk factor for human infection appears to be direct or indirect exposure to infected live or dead poultry or contaminated environments. Controlling circulation of the H5N1 virus in poultry is essential to reducing the risk of human infection. Given the persistence of the H5N1 virus in some poultry populations, control will require long-term commitments from countries and strong coordination between animal and public health authorities.

There is no evidence to suggest that the H5N1 virus can be transmitted to humans through properly prepared poultry or eggs. A few human cases have been linked to consumption of dishes made of raw, contaminated poultry blood. However, slaughter, defeathering, handling carcasses of infected poultry, and preparing poultry for consumption, especially in household settings, are likely to be risk factors.

Human pandemic potential

Influenza pandemics (outbreaks that affect a large proportion of the world) are unpredictable but recurring events that can have health, economic and social consequences worldwide. An influenza pandemic occurs when key factors converge: an influenza virus emerges with the ability to cause sustained transmission from human-to-human, and there is very low, or no, immunity to the virus among most people. In the interconnected world of today, a localized epidemic can transform into a pandemic rapidly, with little time to prepare a public health response to halt the spread of illness.

The H5N1 AI virus remains one of the influenza viruses with pandemic potential, because it continues to circulate widely in some poultry populations, most humans likely have no immunity to it, and it can cause severe disease and death in humans. In addition to H5N1, other animal influenza virus subtypes reported to have infected people include avian H7 and H9, and swine H1 and H3 viruses. H2 viruses may also pose a pandemic threat. Therefore, pandemic planning should consider risks of emergence of a variety of influenza subtypes from a variety of sources.

WHO response

Animal health agencies and national veterinary authorities are responsible the control and prevention of animal diseases, including influenza. WHO, World Organisation for Animal Health (OIE), and Food and Agriculture

Organization (FAO) collaborate through a variety of mechanisms to track and assess the risk from animal influenza viruses of public health concern, and to address these risks at the human animal interface wherever in the world they might occur.

¹ [Avian Influenza A \(H5N1\) Infection in Humans](#)

The Writing Committee of the World Health Organization (WHO) Consultation on Human Influenza A/H5. (New England Journal of Medicine, 2005, 353:1374-1385.)

² [WHO rapid advice guidelines on pharmacological management of humans infected with avian influenza A\(H5N1\) virus \[pdf 1.2Mb\]](#)

World Health Organization, 2006