



Avian Influenza "Bird Flu" Factsheet

Updated (7-2012)

Definition

Avian Influenza (H5N1 HPAI), also known as "bird flu," is a highly infectious, systemic disease of poultry caused by an Orthomyxovirus of the genus Influenzavirus A. Most AI viruses cause asymptomatic infections or mild diseases in poultry. However a few AI viruses of the H5 and H7 subtypes cause severe, systemic disease in chickens with nearly 100% mortality. Infected birds can shed influenza virus in their saliva, nasal secretions and feces. Domesticated birds may become infected with the AI 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.

Significance

Of the human cases associated with the ongoing HPAI H5N1 outbreaks in poultry and wild birds in Asia and parts of Europe, the Near East and Africa, about 60% of those people reported infected with the virus have died. Most cases have occurred in previously healthy children and young adults and have resulted from direct or close contact with H5N1-infected poultry or H5N1-contaminated surfaces. In general, HPAI H5N1 remains a very rare disease in people. The HPAI H5N1 virus does not infect humans easily, and if a person is infected, it is very difficult for the virus to spread to another person.

Because all influenza viruses have the ability to change, scientists remain concerned that HPAI H5N1 viruses have the potential to possibly change into a form of the virus that is able to spread easily from person to person. Experts around the world continue to monitor for potential changes in the virus and changes in patterns of human infection.

History

The H5N1 HPAI virus was first identified in an infected goose in China during 1996. In the spring of 1997, this virus caused high mortality in chickens on three farms in Hong Kong. By the fall of 1997, the virus was causing high mortality in poultry sold in the live bird poultry markets in urban areas. By the end of 1997, 18 people were hospitalized and six people died from infection of the "bird flu" virus. Roughly 1.4 million chickens and other poultry from Hong Kong farms and retail markets were killed to prevent additional human cases of the disease. A 1998 CDC study indicated the transmission of H5N1 Hong Kong HPAI virus from 1997 was bird-to-human.

In 2001 and 2002, H5N1 HPAI re-emerged in poultry in Hong Kong. Roughly 2.5 million birds were killed during these two years to prevent the spread of the virus. Also in 2001, the H5N1 HPAI virus was isolated from duck meat imported by China by the National Veterinary Research and Quarantine Bureau (South Korea). In a laboratory setting, this virus infected ducks but caused no clinical disease. However, in chickens this virus caused 100 percent mortality.

From December 2002 to February 2003, wild and captive birds infected with H5N1 HPAI virus were discovered dead in two parks in Hong Kong. In the lab, this virus caused high mortality in ducks, chickens, turkey and other gallinaceous poultry species.

In January/February 2003, a family from Hong Kong visiting relatives in China developed respiratory disease. Two died and three were hospitalized. H5N1 influenza A virus was isolated from two family members.

On December 15, 2003, H5N1 HPAI was diagnosed in South Korea in broiler breeder chickens. On January 8, 2004, H5N1 HPAI was diagnosed in Vietnam in broiler breeder chickens. Additional virus discoveries were made in Japan, Thailand, Cambodia and Indonesia in late January 2004. The disease was discovered for the first time in Malaysia in mid-August 2004.

Transmission

Human risk appears to result from exposure to live poultry rather than handling, cooking or eating poultry meat.

Avian influenza viruses are transmitted between poultry primarily through direct or indirect exposure to respiratory secretions or feces of infected birds. A primary method of AI virus spread between farms has been through the movement of contaminated equipment, shoes and clothing. Airborne transmission is theoretically possible, but has been demonstrated only over short distances, such as 50-100 meters.

Transmission from bird-to-human can be prevented to a large degree by limiting exposure to live poultry.

Animal Link

Migratory birds are involved as reservoirs of avian influenza viruses, but most of the viruses cause asymptomatic infections or mild diseases. Historically, migratory birds have not been involved as reservoirs of HPAI viruses and have played only minor roles in spreading the viruses. However, the appearance of H5N1 HPAI in wild and captive birds in Hong Kong in 2003 suggests a possible change in the ecology of the H5N1 virus and a need for examination of wild bird populations as reservoirs and disseminators of H5N1 HPAI virus.

The H5N1 HPAI virus is not present in poultry or other birds on European, African, Australian and North and South American continents.

Prevention and the search for a vaccine

Disinfectants and heat are effective in stopping the spread of avian influenza viruses. Some of the most effective compounds include sodium hypochlorite, phenolics, quaternary ammonia and alkali disinfectants. Normal cooking temperatures and times will kill any AI virus in food products.

Because there are 15 different subtypes of AI viruses, a broadly protective vaccine program is cost prohibitive. However, because three outbreaks of H5N1 HPAI have occurred in Hong Kong, some vaccinations are now required in that country for live poultry. Preventing exposure to AI viruses is the most widely used control strategy.