

News Update November 21, 2014

Avian Influenza in Wild Animals

According to a study done by researchers at the National Institute of Allergy and Infectious Diseases in Bethesda, MD, flu viruses expressing the low pathogenicity avian H1, H6, H7, H10 or H15 hemagglutinins (genes that encode the major surface protein for the virus) led to fatal infections in mice and caused more cell damage in normal human lung cells grown in culture compared to avian influenza viruses with other subtypes. Hemagglutinin from birds such as the H1 subtype hemagglutinin is a key virulence factor in the "Spanish flu" pandemic of 1918, which resulted in approximately 50 million deaths, and the fatality rate of humans infected with the highly pathogenic avian influenza H5N1 virus is approximately 50%. In 2013-2014 additional examples of human infection with avian influenza include the nearly 400 cases of H7N9 infections in China, along with small numbers of infections with H10N8 and H6N1 subtypes. The current studies show that currently circulating avian influenza viruses have preexisting mutations that confer an ability to infect mammals. Until more is understood about how flu viruses cross from animals to humans and spread, more research is needed into producing a more broadly protective "universal" flu vaccine that may ultimately offer the best protection against future pandemics, said senior study author Jeffery K. Taubenberger.

Japan

The Environment Ministry reported that a dead duck found Thursday in Koto Ward, Tokyo, has tested positive in a genetic test for an avian influenza virus. A further test will be conducted by the National Institute of Animal Health to determine whether the virus is highly pathogenic. If so, it will be the first bird flu case in Tokyo. The ministry has designated a 10-km radius from where the bird was found as a priority monitoring zone.

A whooper swan found Wednesday in Kurihara City, Miyagi Prefecture, has tested positive for avian influenza, the Environment Ministry reported. The ministry has decided to test more wild birds in order to determine whether they are carrying the highly pathogenic virus, and has asked all citizens to avoid contact with wild birds.

On 11/21, the Japanese Ministry of Agriculture, Forestry and Fisheries reported to OIE (the World Organization for Animal Health) that a fecal sample from one of two tundra swans in Shimane province and one of two fecal samples from "Anatidae" (ducks and geese) collected in Chiba province has tested positive for highly pathogenic avian influenza H5N8 virus. Further characterization is in progress.

Avian Influenza in Poultry

The Netherlands (HPAI H5N8)

Dutch authorities have identified the highly pathogenic avian influenza H5N8 virus at a poultry farm in the village of Hekendorp. 150,000 hens were destroyed. In March, some 10,000 chickens were destroyed after bird flu was found at a farm in the eastern province of Gelderland. The virus was identified as the same strain that prompted massive culls in South Korea and Japan earlier in 2014 and was also found in a duck sample at a slaughterhouse in Panjin City and in an environmental sample collected at the wetlands of the Laio River, in Liaoning province in China.

A second case of bird flu was detected on a farm at Ter Aar containing 43,000 chickens, NVWA said Thursday. The outbreak has been identified a day later as the same H5N8 strain. The farm was located 25 km from Hekendorp and was situated outside of the initial 10 km quarantine zone. Authorities have placed a 10 km cordon around the farm and are testing nearby farms. The farm will be disinfected and the chickens destroyed. A 72 hour nationwide ban on the transport of all poultry and related products has also been put into place.

Birds on a farm situated near the northern town of Kamperveen have tested positive for avian influenza on Friday and those on two nearby farms shown signs consistent with avian influenza infection. Kamperveen is located over 100 km from the first two farms. The subtype of the virus in Kamperveen has not been determined at this time. A total of three Dutch provinces are now positive for avian influenza as the authorities attempt to control the outbreak and investigate how the farms are epidemiologically linked.

UK (HPAI H5N8)

According to the U.K. Department for Environment, Food and Rural Affairs, the highly pathogenic avian influenza H5N8 virus was detected at Nafferton Farm in East Yorkshire. 6,000 Pekin ducks were culled and a two mile restriction zone as well as a six mile surveillance zone has been set up around the farm. The H5N8 viruses characterized to date from Germany, the Netherlands and the UK are all highly related to each other and to the strains that circulated in Asia. How the virus was introduced into Europe is unknown at the present time, but the two most likely routes of the infection are either through wild migratory birds, or through droppings from infected birds being transferred by people or vehicle movements.

Avian Influenza in Humans

Egypt (HPAI H5N1)

Egyptian health officials reported that a 19 year old woman died on Monday of the highly pathogenic avian influenza H5N1 virus at a hospital in the southeast governorate of Assiut. The woman raised domestic chickens, which is known to be a risk factor for H5N1 infection.

A second death occurred Tuesday, of a 30-year-old woman in the southern province of Minya. This brings the number of confirmed cases in the country this year to seven, three of which died. In Egypt, most cases have been identified in rural areas, where villagers tend to raise poultry in their homes, thus

increasing exposure to infected birds. Since 2006, there have been 180 cases of bird flu, 66 of which were fatal. The ministry said it has taken measures to monitor the disease at all hospitals countrywide and to build a stockpile of the Tamiflu medicine. It has also set up isolation units at hospitals and is undertaking training for medical teams.