



Update on Highly Pathogenic H5N1 Avian Influenza January-June 2007

Introduction

Since January 2007, highly pathogenic avian influenza (HPAI H5N1) was officially reported for the first time in six countries: England, Saudi Arabia, Bangladesh, Kuwait, Ghana, and Togo. New outbreaks occurred in seven countries that had previously declared themselves free of the disease: Japan, Thailand, Hungary, Russia, Turkey, Czech Republic, and Germany. The pattern of outbreaks in 2007, which continued through June, differed markedly from that in 2006, which peaked earlier and had largely subsided by May. Worldwide, a least 60 countries have been infected with HPAI H5N1 since the start of the panzootic in 2003. Testing of wild birds for influenza in Canada and the United States in 2006 did not reveal any HPAI viruses, although low pathogenic strains of H5N1 were found in several states. Wild bird sampling in North America will continue in 2007 with more emphasis on testing sick and dead birds.

Disease Outbreaks by Country

In early January 2007, Japan discovered HPAI H5N1 in farmed chickens in Miyazaki Prefecture on Japan's southernmost Island of Kyushu, about 900 kilometers southwest of Tokyo. The outbreak killed approximately 3,800 chickens over a span of three days. Authorities culled the remaining 8,200 birds. Two additional outbreaks affecting chickens in Miyazaki, and one outbreak in Okayama Prefecture, were confirmed later in January. Japan later reported that a wild Hodgson's hawk eagle was found to have been infected with and apparently killed by HPAI H5N1 virus. The eagle was found in January within 75 km of the three affected farms in Miyazaki. Miyazaki is Japan's largest poultry producing region. Japan suffered four outbreaks of HPAI H5N1 in poultry in 2004, but had been free of the disease until it re-emerged this year.

Also in January, Thailand confirmed its first outbreak of HPAI H5N1 in six months. According to the World Organization for Animal Health (OIE), the disease killed 100 farmed ducks and 1,970 were destroyed.

Europe's first reported outbreak of HPAI in 2007 took place in Hungary. A national laboratory detected H5N1 virus in farmed geese after several birds died in a flock of more than 3,000 geese. The affected flock was in Csongrad County, southeastern Hungary. Veterinary

authorities quickly culled the infected flock and established protection and surveillance zones in accordance with European Union regulations. A second infected flock, containing more than 9,300 geese, was discovered soon after within the surveillance zone. As a precaution, all poultry within 10 km of the affected flocks were culled. Hungary last reported HPAI in June 2006, also in Csongrad County. In April 2006, HPAI H5N1 killed several wild swans in south-central Hungary.

In late January, Russian officials confirmed three backyard poultry outbreaks of HPAI H5N1 in the Krasnodar region, in southwestern Russia near the Black Sea. In February, poultry in three towns on the outskirts of Moscow were hit by HPAI H5N1, the first ever confirmed outbreaks near the Russian capital. Authorities culled the affected flocks near Moscow and temporarily closed a Moscow bird market that was the suspected source of the outbreaks. HPAI H5N1 virus also was found in Kaluzhskaya Province, about 80 km southwest of Moscow. In 2006, Russia reported more than 90 outbreaks of HPAI H5N1 and vaccinated more than 94 million poultry against the disease. No human cases of HPAI H5N1 have been recorded in Russia.

In February 2007, British veterinary authorities reported an outbreak of HPAI H5N1 on a commercial turkey farm in Suffolk, England. The farm, about 110 km northeast of London, was owned by Bernard Matthews Holdings, Ltd., Europe's largest poultry producer. Approximately 2,500 turkeys died in the initial outbreak which began on January 27th. Although this was the first occurrence of HPAI H5N1 in poultry in the United Kingdom, in March 2006, a dead swan infected with H5N1 was found washed up on a beach in Scotland, north of Edinburgh.

H5N1 infection was initially found in one of 22 sheds on the affected turkey farm. Follow-up tests confirmed the infection in three additional sheds. In all, 159,000 turkeys were depopulated. In accordance with European Union rules, the British government restricted poultry movements and imposed protection and surveillance zones around the farm. It also implemented a wider restricted zone which required poultry to be isolated from wild birds and movements of poultry and poultry products to be licensed. In addition, all bird gatherings, including shows, markets, fairs and pigeon races, were temporarily banned. Several countries, including the United States, temporarily halted all poultry imports from the affected area or from the United Kingdom.

British and European health authorities conducted an investigation to determine the source of the outbreak. A final epidemiological report released in April said the source of the virus remained unknown but might have

been contaminated turkey meat imported from Hungary and shipped to a processing plant near the affected farm. The Department for Environment, Food and Rural Affairs (Defra) had previously reported that the H5N1 strain found on the Bernard Matthews farm was similar to an Asian HPAI strain detected at a goose farm in southeastern Hungary in late January.

Also in February, Turkey announced an outbreak of HPAI H5N1 at a farm in the southeastern part of the country. According to the agricultural ministry, the outbreak began on February 5th and affected poultry in a village in Batman Province, about 740 km east of the capital, Ankara. The suspected source of the outbreak was contact with wild birds. Nearly 800 poultry were culled – mostly backyard chickens, but also turkeys, geese, ducks, and pigeons. Prior to this outbreak, Turkey's last reported occurrence of HPAI H5N1 in poultry was in March 2006.

In February, the Kuwait health ministry reported finding HPAI H5N1 in backyard and captive birds at several locations. A government spokesman said that falcons, chickens, and turkeys at the Kuwait Zoo, as well as birds on farms and at a clinic for falcons, were infected. HPAI also was reported in turkeys and chickens in the southern region of Wafra, south of Kuwait City, as well as in the northern district of Doha. As of late April, the Kuwait health ministry had culled about 1.7 million birds, most of which were in Wafra. The ministry also banned imports of live birds, and closed the country's zoo and poultry shops in residential areas. Culling measures heavily impacted Kuwait's egg production, and the government pledged to compensate farmers and bird owners. Poultry sales had reportedly fallen about 40 percent since the outbreak of the disease.

Bangladesh and Saudi Arabia reported first occurrences of HPAI H5N1 in March 2007. The outbreak in Bangladesh affected layer chickens at three farms near the capital, Dhaka. As new outbreaks mounted rapidly, officials worried that a HPAI epizootic would devastate Bangladesh's poultry industry, which employs some 4 million people and produces \$750 million in earnings annually. As of late June 2007, officials had culled more than 238,000 birds at 73 farms in Bangladesh. Both commercial layer flocks and backyard poultry farms have been affected.

The outbreak of HPAI in Saudi Arabia reportedly involved a private collection of turkeys, parrots, peacocks and ostriches at a farm in Eastern Province. According to the report to the OIE, 106 birds died, 564 were destroyed, and the site was cleaned and disinfected. The suspected source of infection was contact with wild birds. In April, the Saudi health minister issued a statement that HPAI had been completely eliminated from the country. H5N1 has been reported in several countries near Saudi Arabia, including Egypt, Israel, Jordan, Iraq, Kuwait, and Sudan.

Ghana reported its first HPAI H5N1 outbreak in May 2007. The initial outbreak was discovered April 24th on a chicken farm near the port city of Tema, east of the capital, Accra. According to the OIE, 447 birds died and another 1,944 were culled in an effort to contain the outbreak. ProMED reported that the H5N1 strain isolated from the outbreak was very similar to other isolates from Sub-Saharan African countries and less similar to Asian strains, indicating there had been no new introduction of a new virus strain into Ghana. A second outbreak of HPAI H5N1 in Ghana occurred in May on a poultry farm in Sunyani, a provincial capital 400 km north of Accra. Veterinary officials reportedly culled thousands of birds in Sunyani and destroyed animal feed and farm equipment. In June, agriculture officials reported HPAI H5N1 had spread to poultry in the town of Aflao, Volta region, bringing the number of affected areas in the country to three. The discovery led to the culling of 1,100 birds. No human cases of HPAI H5N1 have been confirmed in Ghana. Human cases have been reported in Egypt, Djibouti, and Nigeria.

In June 2007, HPAI H5N1 outbreaks were reported in three countries – Czech Republic, Togo, and Germany. In the Czech Republic, the country's first HPAI H5N1 outbreak in poultry killed 2,500 turkeys in a 6,000-bird flock near the village of Tisová, east of Prague. Agricultural officials supervised the culling of remaining birds and imposed 3- and 10-km security zones around the affected farm. Another 1,000 birds were culled from small poultry farms in the area, and more than 200 people who could have been exposed to the virus were given Tamiflu. Although the source of infection was deemed inconclusive, some officials speculated that straw litter collected near a pond could have been contaminated by droppings of infected wild birds. A second HPAI outbreak was detected through surveillance at a chicken farm in the nearby town of Norin. The affected farm was under the same ownership as the first farm and had more than 27,000 broiler chickens, at least 60 of which tested positive for H5N1. Culling and biosecurity measures were applied and regional authorities banned poultry exports to other member countries of the European Union. A dead wild swan near the town of Lednice later tested positive for HPAI H5N1 virus. Lednice is located in the eastern part of the Czech Republic, close to the province that reported the two HPAI outbreaks in poultry. These reports were the first confirmed appearances of HPAI H5N1 in the Czech Republic since 2006, when 14 dead wild swans tested positive for the disease.

In June, Togo became the tenth African nation, and the seventh in West Africa, to be infected with HPAI H5N1 virus. The outbreak occurred at a semi-industrial farm at Sigbehoue, about 45 km east of the capital, Lome. Approximately 2,000 chickens of a 3,000 bird flock died over a two-day span. Officials quarantined the farm and culled the remaining chickens. They also banned poultry movements and closed local poultry markets within the prefecture. The source of the infection was unknown although the farm reportedly received a shipment of

chicks from Ghana. (Ghana issued its first report of HPAI H5N1 in May 2007). ProMED pointed out that it may be useful to view the outbreaks in West Africa holistically, as the distances between countries is relatively short, volume of traffic is large, and national borders are porous. In neighboring Nigeria, more than one million birds have been destroyed since the first HPAI H5N1 outbreak in February 2006, and the virus has been confirmed in 22 of Nigeria's 36 states.

In late June, Germany reported that six wild birds (five swans, one goose) tested positive for HPAI H5N1. This was the first appearance of the virus in Germany since a swan at the Dresden zoo tested positive in August 2006. The birds were found dead in Nuremberg in the southern state of Bavaria and were tested as part of routine testing for avian influenza in dead birds. Authorities ordered Nuremberg farmers to confine their poultry and banned transport of poultry into and out of the area. Later, three wild swans in Leipzig in the eastern state of Saxony tested positive for HPAI H5N1 virus.

The HPAI H5N1 report from Germany followed less than a week after the virus was confirmed in turkeys from the Czech Republic. Genetic testing of viruses from both areas by the Friedrich-Loeffler Institute (FLI) concluded they were more than 99% similar, but it remained unclear if the outbreaks in the two countries were related. According to FLI, the most likely scenario is that a common source, most likely wild birds, infected waterfowl in Germany and poultry in the Czech Republic.

Sources

ProMED-mail.

<http://www.promedmail.org/pls/promed/f?p=2400:1000>

CIDRAP News.

<http://www.cidrap.umn.edu/cidrap/content/influenza/avianflu/index.html>

Argus Watchboard. (Proprietary)

For more information, contact:

USDA:APHIS:VS:CEAH
Center for Emerging Issues (CEI)
NRRRC Building B, M.S. 2E5
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000

Or visit CEI on the Web at
<http://www.aphis.usda.gov/vs/ceah/cei/>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.