



Epidemiological Alert

Detection and outbreaks of Avian Influenza due to reassortant viruses, public health implications for the Americas 6 February 2015

Situation summary

Since December 2014, the World Organization for Animal Health (OIE, per the French acronym) has been receiving notifications about detections and outbreaks of highly pathogenic avian influenza (HPAI) in North America due to a new reassortant of H5 viruses.¹

In early December an outbreak of HPAI **A(H5N2)** was detected in Fraser Valley, south of the province of British Columbia, **Canada**. Other outbreaks, all in the same area in commercial and non-commercial sites were detected following that report. Depopulation of all infected premises was conducted, and under the supervision of the Canadian Food Inspection Agency (CFIA), appropriate cleaning and disinfection was carried out. These were the first reported outbreaks of HPAI due to Eurasian H5 reassortant viruses in North America.

From December 2014 to January 2015, the **United States** Department of Agriculture (USDA) received 14 notifications of birds infected with HPAI viruses of Eurasian origin in the U.S.; seven (7) notifications of infection with HPAI **A(H5N2)**, six (6) for **A(H5N8)** and one (1) **A(H5N1)**. These are the first reports of infection with these H5 reassortant viruses in domestic and wild birds in the U.S., and is the first detection of HPAI subtypes A(H5N8) and (H5N1) in birds in the Americas.

The avian influenza A(H5N1) virus isolated in a wild bird of the U.S., is a new reassortant virus (of mixed-origins) which is genetically different from the avian influenza A(H5N1) that has caused human infections with high mortality in many countries. To date there have been no reported human infections with this new reassortant virus.

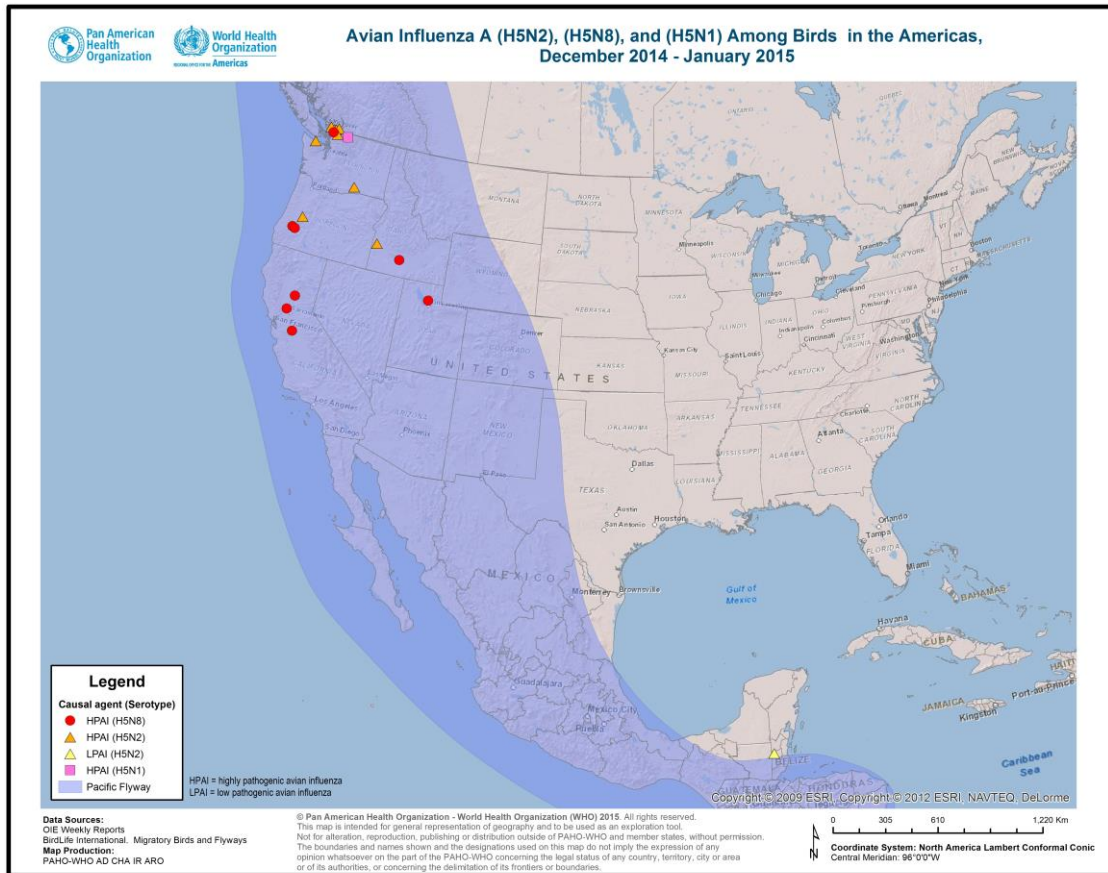
National and local authorities in the U.S. are continuing to conduct a comprehensive epidemiological investigation and enhanced surveillance (including surveillance of wild birds collected by hunters) in response to the detections of HPAI A(H5N8), A(H5N2), and A(H5N1) viruses in domestic and wild birds. The measures implemented to control the outbreaks in domestic birds include quarantine, stamping out, movement control within the country and disinfection of infected premises/establishments.

On 23 January 2015, the **Belize** Agricultural Health Authority (BAHA) reported to the OIE an outbreak of low pathogenic avian influenza virus (LPAI) **A(H5N2)** in broiler breeder farms in the Cayo District, Belize. The diagnosis was made by the Central Veterinary Laboratory and confirmed by the National Veterinary Services Laboratory, USDA United States of America (OIE's

¹ Influenza aviar viruses are divided into two groups based on their ability to cause disease in poultry: high pathogenicity or low pathogenicity. http://whqlibdoc.who.int/hq/2005/WHO_CDS_2005.29.pdf

Reference Laboratory). Appropriate prevention and control measures have been implemented by BAHA.

Map: Avian A(H5N2), (H5N8), and (H5N1), among birds in the Americas. December 2014 – January 2015.



Advice to national authorities

Both HPAI and LPAI viruses can spread rapidly among poultry through direct contact with waterfowl, other infected poultry, or through contact with fomites or surfaces contaminated with the virus. The infection of poultry with HPAI virus can cause severe disease that results in high death rates. LPAI viruses infect poultry but are more often associated with subclinical infection. The terms HPAI and LPAI only apply to symptoms in poultry (chickens, in particular) and both types of viruses have the potential to cause infections in humans.

Human infections with avian influenza viruses are rare and when they have occurred, these viruses have not spread easily from person to person. So far there have been no reported human cases of infection with the avian influenza A(H5N8) or A(H5N1) reassortant viruses in the Americas.

There is no evidence to suggest that the avian influenza viruses can be transmitted to humans through properly prepared poultry or eggs. A few A(H5N1) human cases have been linked to consumption of dishes made of raw, contaminated poultry blood.

Intersectorial approach

Control of the disease in animals is the first step in decreasing risks to humans. Therefore, it is important, both in the animal and human health sector, to undertake prevention and control activities in a coordinated and collaborative manner. Efficient information sharing mechanisms should be established and/or strengthened to facilitate coordinated decision making.

Surveillance for human infections

People directly or indirectly exposed to infected birds and those individuals participating in the culling and cleaning operations on affected farms are at risk of infection. Appropriate personal protective equipment (PPE) and other protective measures to prevent zoonotic transmission in these operators is strongly recommended.

For early detection of animal-human transmission, surveillance of exposed persons is recommended. It is recommended to monitor for the occurrence of influenza-like-illness (ILI) or severe acute respiratory infection (SARI) in persons who have been exposed to birds (domestic, wild, or captive birds) infected with avian influenza viruses.

Clinicians and health care workers should be informed of the possibility of human infection in exposed people and should consider testing patients with ILI or SARI who have had recent contact with birds infected with HPAI or LPAI, especially in areas where these viruses have been identified.

Laboratory diagnostics

The specific diagnosis of human infection with avian influenza is based on the detection of viral genome by molecular techniques (Polymerase chain reaction - PCR) in swab specimens (oropharyngeal or nasopharyngeal), nasopharyngeal aspirate or bronchoalveolar lavage (only in hospitalized patients), taken within the first seven (7) days (maximum 10) from the onset of symptoms.

The diagnostic algorithm includes an initial screening for Influenza A or B followed by the identification of the specific hemagglutinin protein gene that will define the subtype (H1, H3, H5, H7, etc.). All unsubtypeable influenza A viruses or those that are defined as an avian subtype (H5, H7, etc.) should be immediately sent, under appropriate conditions, to a reference laboratory or to a WHO Collaborating Centre (WHO CC) for a more complete antigenic and molecular characterization.

As part of the Global Influenza Surveillance and Response (GISRS), in the Region of the Americas, 22 of the 24 National Influenza Centres (NICs) and 3 national laboratories, have the capacity for molecular detection of H5 (and also to detect some H7 and H9). In addition, established mechanisms are in place for quality control and shipment of samples for complete characterization to the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta, which is the WHO Collaborating Centre for the Region.

Antiviral treatment

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

In suspected cases, irrespective of severity, oseltamivir should be prescribed as soon as possible (ideally, within 48 hours following symptom onset) to maximize its therapeutic benefits. The use of corticosteroids is not recommended.

References

1. OIE. Weekly Disease Information. Available at: http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI/index/newlang/en?
2. Michael J and Deborah N. Outbreaks of Avian Influenza A (H5N2), (H5N8), and (H5N1) Among Birds — United States, December 2014–January 2015. MMWR. February 3, 2015 / 64(Early Release); 1-1.
3. Avian influenza investigation in British Columbia. Canadian Food Inspection Agency. Available at: <http://www.inspection.gc.ca/animals/terrestrial-animals/diseases/reportable/ai/2014-ai-investigation-in-bc/eng/1418491040802/1418491095666>
4. OIE-FAO Flu (OFFLU). OIE/FAO Reference Laboratories and experts for highly pathogenic avian influenza and low pathogenic avian influenza (poultry). Available at: <http://www.offlu.net/index.php?id=78>

Related links:

- WHO Avian influenza factsheet: http://www.who.int/mediacentre/factsheets/avian_influenza/en/
- WHO Avian influenza in humans: http://www.who.int/influenza/human_animal_interface/avian_influenza/en/
- WHO Influenza – Information resources: <http://www.who.int/influenza/resources/en/>
- WHO – Influenza at the Human-Animal Interface (HAI): http://www.who.int/influenza/human_animal_interface/en/
- WHO – Avian influenza: food safety issues: http://www.who.int/foodsafety/areas_work/zoonose/avian/en/index1.html
- FAO Avian Influenza – Food and Agriculture Organization of the United Nations: <http://www.fao.org/avianflu/en/index.html>