

Influenza at the human-animal interface
Summary and assessment, 10 April to 10 May 2019

- **New infections¹:** Since the previous update on 9 April 2019, new human infections with avian influenza A(H5N1) and A(H9N2) viruses were reported.
- **Risk assessment:** The overall public health risk from currently known influenza viruses at the human-animal interface has not changed, and the likelihood of sustained human-to-human transmission of these viruses remains low. Further human infections with viruses of animal origin are expected.
- **IHR compliance:** All human infections caused by a new influenza subtype are required to be reported under the International Health Regulations (IHR, 2005).² This includes any influenza A virus that has demonstrated the capacity to infect a human and its haemagglutinin gene (or protein) is not a mutated form of those, i.e. A(H1) or A(H3), circulating widely in the human population. Information from these notifications is critical to inform risk assessments for influenza at the human-animal interface.

Avian Influenza Viruses

Current situation:

Avian influenza A(H5) viruses

Since the last update on 9 April 2019, one new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Nepal on 30 April 2019.

The patient was a 19-year-old male resident of Kathmandu who had illness onset on 17 March 2019. He was hospitalized on 23 March. A throat swab sample was collected for laboratory testing. Antiviral treatment was initiated on 25 March. The patient passed away on 29 March. The detection of influenza A(H5N1) in the sample from the case was confirmed at the WHO Collaborating Centre (CC) in Tokyo, Japan (National Institute of Infectious Diseases). Further characterization of the virus is underway. Among other response actions, a detailed epidemiological investigation was completed. The investigation indicated that the most likely source of exposure of the case to the virus occurred at a live bird market. No symptomatic contacts of the case were detected. Multiple detections of influenza A(H5N1) in domestic birds in Nepal since February 2019 have been reported to the World Organisation for Animal Health (OIE).³

Since 2003, a total of 861 laboratory-confirmed cases of human infection with avian influenza A(H5N1) virus, including 455 deaths, have been reported to WHO from 17 countries (see Figure 1). This is the first human case of A(H5N1) virus infection reported from Nepal.

¹ For epidemiological and virologic features of human infections with animal influenza viruses not reported in this assessment, see the yearly report on human cases of influenza at the human-animal interface published in the Weekly Epidemiological Record. Available at: www.who.int/wer/en/

² World Health Organization. Case definitions for the four diseases requiring notification in all circumstances under the International Health Regulations (2005). Available at: www.who.int/ihr/Case_Definitions.pdf

³ World Organisation for Animal Health (OIE). Available at: www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home

Risk Assessment:

1. What is the likelihood that additional human cases of infection with avian influenza A(H5) viruses will occur?

The overall risk assessment is unchanged. Most human cases were exposed to A(H5) viruses through contact with infected poultry or contaminated environments, including live poultry markets. Since the viruses continue to be detected in animals and environments, further human cases can be expected.

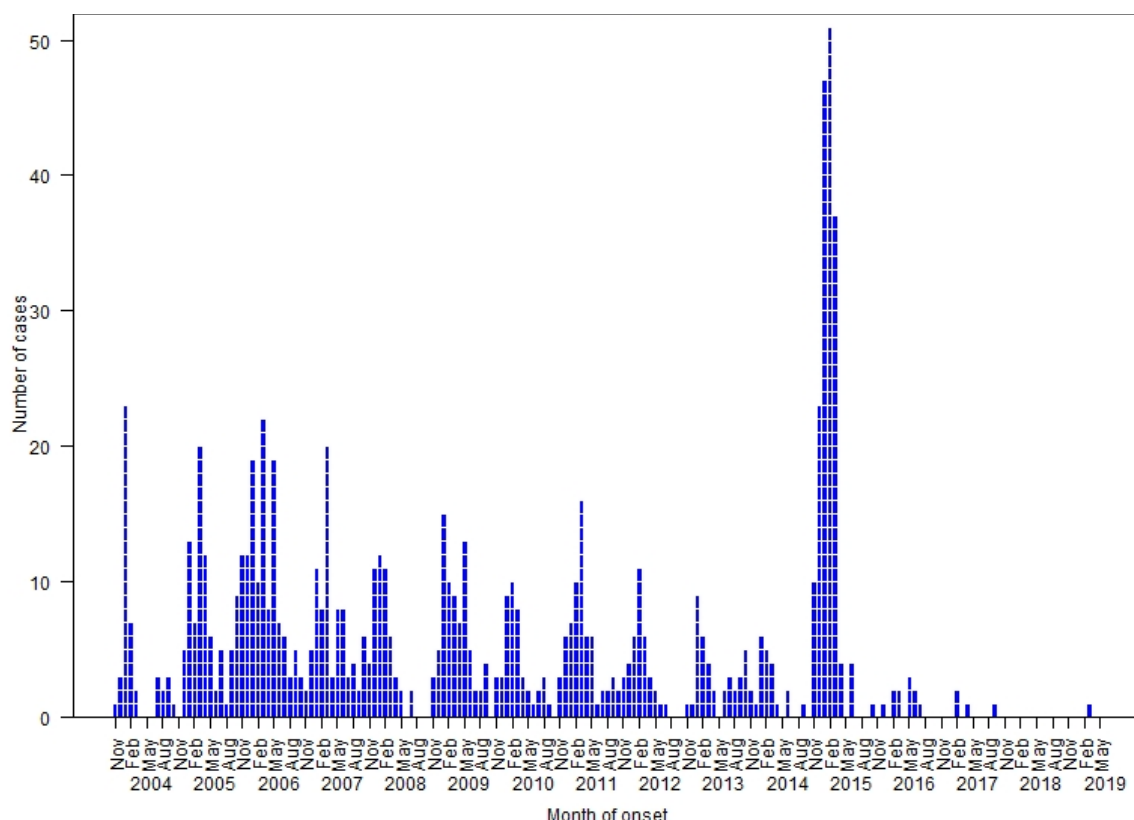
2. What is the likelihood of human-to-human transmission of avian influenza A(H5) viruses?

Even though small clusters of A(H5) virus infections have been reported previously including those involving healthcare workers, current epidemiological and virological evidence suggests that influenza A(H5) viruses have not acquired the ability of sustained transmission among humans, thus the likelihood is low.

3. What is the risk of international spread of avian influenza A(H5) viruses by travellers?

Should infected individuals from affected areas travel internationally, their infection may be detected in another country during travel or after arrival. If this were to occur, further community level spread is considered unlikely as evidence suggests these viruses have not acquired the ability to transmit easily among humans.

Figure 1: Epidemiological curve of avian influenza A(H5N1) cases in humans by month of onset, 2003-2019.



Avian influenza A(H9N2) viruses

Since the last update on 9 April 2019, one new laboratory-confirmed human case of influenza A(H9N2) virus infection was reported to WHO from Oman on 24 April 2019.

A 13-month-old female from living in Oman developed illness on 17 March 2019 and was hospitalized on 22 March. Following treatment, the case recovered and was discharged on 1 April. The detection of influenza A(H9N2) virus in a nasopharyngeal sample from the case was confirmed at the WHO CC in the USA (Centers for Disease Control and Prevention). Further characterization of the virus is underway. The case may have had indirect exposure to chickens. No further human cases were reported among the close contacts. Avian influenza A(H9N2) viruses are enzootic in poultry in Asia.

This is the first confirmed human case of infection with an avian influenza virus reported from Oman.

Risk Assessment:

1. What is the likelihood that additional human cases of infection with avian influenza A(H9N2) viruses will occur? Most human cases are exposed to the A(H9N2) virus through contact with infected poultry or contaminated environments. Human infection tends to result in mild clinical illness. Since the virus continues to be detected in poultry populations, further human cases can be expected.

2. What is the likelihood of human-to-human transmission of avian influenza A(H9N2) viruses? No case clusters have been reported. Current epidemiological and virologic evidence suggests that this virus has not acquired the ability of sustained transmission among humans, thus the likelihood is low.

3. What is the likelihood of international spread of avian influenza A(H9N2) virus by travelers? Should infected individuals from affected areas travel internationally, their infection may be detected in another country during travel or after arrival. If this were to occur, further community level spread is considered unlikely as this virus has not acquired the ability to transmit easily among humans.

Avian influenza A(H7N9) viruses

Since the last update on 9 April 2019, no new laboratory-confirmed human cases of influenza A(H7N9) virus infections were reported to WHO. There have been no publicly available reports from animal health authorities in China of influenza A(H7N9) virus detections in animals in recent months.⁴ Overall, the risk assessment has not changed.

Overall Risk Management Recommendations:

- WHO does not advise special traveler screening at points of entry or restrictions with regard to the current situation of influenza viruses at the human-animal interface. For recommendations on safe trade in animals from countries affected by these influenza viruses, refer to OIE guidance.
- WHO advises that travelers to countries with known outbreaks of animal influenza should avoid farms, contact with animals in live animal markets, entering areas where animals may be slaughtered, or contact with any surfaces that appear to be contaminated with animal faeces. Travelers should also wash their hands often with soap and water. Travelers should follow good food safety and good food hygiene practices.
- Due to the constantly evolving nature of influenza viruses, WHO continues to stress the importance of global surveillance to detect virologic, epidemiological and clinical changes associated with circulating influenza viruses that may affect human (or animal) health, especially over the coming winter months. Continued vigilance is needed within affected and neighbouring areas to detect infections in animals and humans. Collaboration between the animal and human health sectors is essential. As the extent of virus circulation in animals is not clear, epidemiological and virologic surveillance and the follow-up of suspected human cases should

⁴ Food and Agriculture Organization of the United Nations. H7N9 Situation Update. http://www.fao.org/ag/againfo/programmes/en/empres/H7N9/situation_update.html

remain high. New guidance on investigation of non-seasonal influenza and other emerging acute respiratory diseases has been published on the WHO website here

http://www.who.int/influenza/resources/publications/outbreak_investigation_protocol/en/.

- All human infections caused by a new subtype of influenza virus are notifiable under the International Health Regulations (IHR, 2005).⁵ State Parties to the IHR (2005) are required to immediately notify WHO of any laboratory-confirmed⁶ case of a recent human infection caused by an influenza A virus with the potential to cause a pandemic. Evidence of illness is not required for this report.
- It is critical that influenza viruses from animals and people are fully characterized in appropriate animal or human health influenza reference laboratories. Under WHO's Pandemic Influenza Preparedness (PIP) Framework, Member States are expected to share their influenza viruses with pandemic potential on a regular and timely basis⁷ with the Global Influenza Surveillance and Response System (GISRS), a WHO-coordinated network of public health laboratories. The viruses are used by the public health laboratories to assess the risk of pandemic influenza and to develop candidate vaccine viruses.

Links:

WHO Human-Animal Interface web page

http://www.who.int/influenza/human_animal_interface/en/

WHO Protocol to investigate non-seasonal influenza and other emerging acute respiratory diseases

http://www.who.int/influenza/resources/publications/outbreak_investigation_protocol/en/

Cumulative Number of Confirmed Human Cases of Avian Influenza A(H5N1) Reported to WHO

http://www.who.int/influenza/human_animal_interface/H5N1_cumulative_table_archives/en/

Avian Influenza A(H7N9) Information

http://www.who.int/influenza/human_animal_interface/influenza_h7n9/en/

WHO Avian Influenza Food Safety Issues

http://www.who.int/foodsafety/areas_work/zoonose/avian/en/

World Organisation of Animal Health (OIE) web page: Web portal on Avian Influenza

<http://www.oie.int/animal-health-in-the-world/web-portal-on-avian-influenza/>

Food and Agriculture Organization of the UN (FAO) webpage: Avian Influenza

<http://www.fao.org/avianflu/en/index.html>

OFFLU

<http://www.offlu.net/index.html>

⁵ World Health Organization. Case definitions for the four diseases requiring notification in all circumstances under the International Health Regulations (2005). Available at: www.who.int/ihr/Case_Definitions.pdf

⁶ World Health Organization. Manual for the laboratory diagnosis and virologic surveillance of influenza (2011). Available at: www.who.int/influenza/gisrs_laboratory/manual_diagnosis_surveillance_influenza/en/

⁷ World Health Organization. Operational guidance on sharing influenza viruses with human pandemic potential (IVPP) under the Pandemic Influenza Preparedness (PIP) Framework (2017). Available at: www.who.int/influenza/gisrs_laboratory/ivpp_sharing_guidance/en/