Influenza at the human-animal interface
Summary and assessment, 29 May to 20 July 2018

- **New infections**: Since the previous update, one new human infection with an influenza A(H3N2) variant virus was 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). This includes any influenza A virus that has demonstrated the capacity to infect a human and its hemagglutinin 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**
According to reports received by the World Organisation for Animal Health (OIE), various influenza A(H5) subtypes continue to be detected in birds in Africa, Europe and Asia. Influenza A(H5N6) viruses have recently been detected in parts of Europe and Asia, however these A(H5N6) viruses are different from the A(H5N6) influenza viruses which have infected humans in China.

**Avian influenza A(H7N9) viruses**
According to reports received by the World Organisation for Animal Health (OIE), A(H7N9) avian influenza viruses continue to be detected by agricultural authorities in China. A nationwide domestic poultry vaccination plan is underway.

Overall, the risk assessments have not changed.

**Swine Influenza Viruses**

**Current situation:**

**Influenza A(H3N2)v viruses**
On 30 June 2018, the United States (US) IHR National Focal Point (NFP) reported the first case of human infection with an influenza A(H3N2)v virus in 2018 in a child from the state of Indiana. The child developed an upper respiratory illness on 18 June 2018 and a sample from the patient was

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1 For epidemiological and virological 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/](http://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](http://www.who.int/ihr/Case_Definitions.pdf)

confirmed positive for influenza A(H3N2)v virus in late June. The patient did not require hospitalization and indirect exposure to swine at an agricultural fair was reported in the week preceding illness onset. The influenza A(H3N2) variant virus identified in Indiana was sequenced by the Centers for Disease Control and Prevention (CDC) of the US, a WHO Collaborating Centre. Sequence analysis confirmed that the virus was closely related to influenza viruses detected in swine in 2017 and 2018 and that are known to circulate in North America. This genetic group of viruses has an haemagglutinin (HA) gene derived from a seasonal human-like H3 HA gene that was likely introduced from humans into swine in 2010. These viruses are also genetically related to previous influenza A(H3N2) variant viruses detected in humans in multiple states in the USA during 2017.

Since 2011, 427 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC. Most cases are associated with mild illness, although several cases have been hospitalized and one case was reported as a fatal case (in 2012). Swine influenza A(H3N2) viruses are endemic in pig populations and circulate among swine in many regions of the world.

**Risk Assessment:**

1. **What is the likelihood that additional human cases of infection with swine influenza viruses will occur?** Swine influenza viruses circulate in swine populations in many regions of the world. Depending on geographic location, the genetic characteristics of these viruses differ. Most human cases are exposed to swine influenza viruses through contact with infected swine or contaminated environments. Human infection tends to result in mild clinical illness. Since these viruses continue to be detected in swine populations, further human cases can be expected.

2. **What is the likelihood of human-to-human transmission of swine influenza viruses?** Although limited human-to-human transmission may have taken place, current evidence suggests that these viruses have not acquired the ability of sustained transmission among humans, thus the likelihood is low.

3. **What is the likelihood of international spread of swine influenza viruses 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 these viruses have not acquired the ability to transmit easily among humans.

**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 virological, 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 virological surveillance and the follow-up of suspected human cases should remain high.

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• All human infections caused by a new subtype of influenza virus are notifiable under the International Health Regulations (IHR, 2005). State Parties to the IHR (2005) are required to immediately notify WHO of any laboratory-confirmed 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 basis 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
Cumulative Number of Confirmed Human Cases of Avian Influenza A(H5N1) Reported to WHO
Avian Influenza A(H7N9) Information
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
Food and Agriculture Organization of the UN (FAO) webpage: Avian Influenza
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