Influenza at the human-animal interface
Summary and assessment, from 11 July to 23 October 2020

• New infections\(^1\): Since the previous update on 10 July 2020, one human infection with an avian influenza A(H9N2) virus and one human infection with an influenza A(H3N2) variant virus were reported.\(^2\)

• 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. Human infections with viruses of animal origin are expected at the human-animal interface wherever these viruses circulate in animals.

• Risk management: Selection of new candidate vaccine viruses (CVVs) for zoonotic influenza viruses for pandemic preparedness purposes was done during a recent WHO consultation.\(^3\)

• IHR compliance: All human infections caused by a new influenza subtype are required to be reported under the International Health Regulations (IHR, 2005).\(^4\) 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
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.

Avian influenza A(H7N9) viruses
There have been no publicly available reports from animal health authorities in China or other countries on influenza A(H7N9) virus detections in animals in recent months.\(^5\)

Overall, the risk assessments have not changed.

\(^1\) 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/)

\(^2\) Standardization of terminology for the influenza virus variants infecting humans: Update. Available at: [https://www.who.int/influenza/gisrs_laboratory/terminology_variant/en/](https://www.who.int/influenza/gisrs_laboratory/terminology_variant/en/)

\(^3\) World Health Organization. Antigenic and genetic characteristics of zoonotic influenza viruses and candidate vaccine viruses developed for potential use in human vaccines. Available at: [www.who.int/influenza/vaccines/virus/characteristics_virus_vaccines/en/](http://www.who.int/influenza/vaccines/virus/characteristics_virus_vaccines/en/)

\(^4\) 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)

**Avian influenza A(H9N2) viruses**

Since the last update on 10 July 2020, one new laboratory-confirmed human case of influenza A(H9N2) virus infection was reported from China to WHO on 28 August 2020. The infection was detected in a 4-year-old female from Guangdong Province, China, who had exposure to domestic poultry. She developed mild symptoms on 3 August and was admitted to a hospital on 4 August. The patient was sampled as part of routine influenza-like illness (ILI) surveillance, has recovered, and no further cases were detected among family members at the time of reporting.

In July 2020, a manuscript describing 16 human cases of A(H9N2) infection detected in January and February 2019 was published in the Virologica Sinica journal. WHO became aware of the findings after the genetic sequences of the 16 H9N2 viruses had been uploaded to GenBank and included in the preparatory materials for the zoonotic component of the WHO consultation on composition of influenza virus vaccines for use in the 2021 Southern Hemisphere Influenza Season held from 29 September to 1 October 2020. WHO has worked with its partners in GISRS, including the WHO Collaborating Center for Reference and Research on Influenza at the Chinese Center for Disease Control and Prevention (CCDC), Beijing, China, to review the currently available information. Further investigations, including laboratory characterization by the WHO Collaborating Center at the CCDC, which has been coordinating with the authors of the paper, were completed. The WHO Collaborating Center did not detect influenza A(H9N2) virus material in respiratory swabs and no antibodies to influenza A(H9N2) viruses detected in sera specimens; two samples from the 16 cases were positive for A(H1N1)pdm09 but no other influenza viruses were detected by PT-PCR. The author of the paper also repeated their tests and could not confirm detection of A(H9N2) viruses in the specimens.

Avian influenza A(H9N2) viruses are enzootic in poultry in Asia and increasingly reported in poultry in Africa.

**Risk Assessment:**

1. **What is the likelihood that additional human cases of infection with avian influenza A(H9N2) viruses will occur?**

   Most human cases follow exposure to the A(H9N2) virus through contact with infected poultry or contaminated environments. Human infection tends to result in mild clinical illness in most cases. 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 epidemiologic and virologic evidence suggests that influenza A(H9N2) viruses assessed by GISRS have 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 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 the A(H9N2) virus subtype has not been confirmed to have acquired the ability to transmit easily among humans.

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7 The report from the meeting can be found here: https://www.who.int/influenza/vaccines/virus/202009_zoonotic_vaccinevirusupdate.pdf?ua=1
Swine Influenza Viruses

Current situation:

**Influenza A(H3N2) variant virus (A(H3N2)v)**

Since the last risk assessment of 10 July 2020, one human case of infection with a swine influenza A(H3N2)v virus was reported to WHO from the United States of America on 25 July 2020. The infection was detected in a child in the state of Hawaii who developed an influenza-like illness on 30 June 2020. The patient received healthcare on 1 July and a sample was collected as part of routine influenza surveillance. On 24 July, the United States Centers for Disease Control and Prevention confirmed an influenza A(H3N2)v virus. No exposure to swine was reported and the source of the patient’s infection was underway at the time of reporting. The patient was not hospitalized, has recovered and no human-to-human transmission was reported. This is the first influenza A(H3N2)v virus infection identified in the United States since 2018.

**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 in most cases. 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?**

   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.

For more information on A(H5), A(H7), A(H9N2), A(H1)v and A(H3)v viruses, please see the October 2020 report: [Antigenic and genetic characteristics of zoonotic influenza viruses and candidate vaccine viruses developed for potential use in human vaccines](#).

**Overall Risk Management Recommendations:**

- WHO does not advise special traveler screening at points of entry or restrictions with regards 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 excreta. 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, epidemiologic and clinical changes associated with circulating influenza viruses that may affect human (or animal) health. 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. Guidance on investigation of non-seasonal influenza and other emerging acute respiratory diseases has been published on the WHO website here

• In the current COVID-19 pandemic, vigilance for the emergence of novel influenza viruses of pandemic potential should be maintained. WHO is developing practical guidance to prepare for the upcoming influenza season and influenza emergencies in the context of the cocirculation of SARS-CoV-2 and influenza viruses.

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

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8 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
10 https://www.who.int/influenza/resources/pip_framework/en/