

## **Influenza at the human-animal interface**

Summary and assessment, from 16 April to 21 May 2021<sup>1</sup>

- **New infections<sup>2</sup>:** Since the previous update on 15 April 2021, one case of human infection with an influenza A(H9N2) virus, three human cases of infection with influenza A(H1N1) variant viruses, and one human case of infection with an influenza A(H1N2) variant virus were reported officially.<sup>3</sup>
- **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.
- **IHR compliance:** All human infections caused by a new influenza subtype are required to be reported under the International Health Regulations (IHR, 2005).<sup>4</sup> 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.<sup>5</sup>

Overall, the risk assessments have not changed.

##### **Avian influenza A(H9N2) viruses**

Since the last risk assessment on 15 April 2021, one human case of infection with an influenza A(H9N2) virus was reported from China on 25 April 2021. Influenza A(H9N2) was detected in 30-

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<sup>1</sup> This summary and assessment covers information confirmed during this period and may include information received outside of this period.

<sup>2</sup> 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](#).

<sup>3</sup> Joint announcement of FAO, OIE and WHO. Standardization of terminology for the influenza virus variants infecting humans: Update, 30 January 2014. [Standardization of terminology for the influenza virus variants infecting humans: Update](#).

<sup>4</sup> World Health Organization. Case definitions for the 4 diseases requiring notification to WHO in all circumstances under the International Health Regulations (2005). [Case definitions for the four diseases requiring notification in all circumstances under the International Health Regulations \(2005\)](#).

<sup>5</sup> Food and Agriculture Organization of the United Nations. H7N9 Situation Update. [www.fao.org/ag/againfo/programmes/en/empres/H7N9/situation\\_update.html](http://www.fao.org/ag/againfo/programmes/en/empres/H7N9/situation_update.html)

year-old woman from Guangdong province, who had illness onset on 20 April 2021, as part of routine influenza-like illness (ILI) surveillance. She had mild illness, was not hospitalized and has recovered. No clear history of live poultry exposure prior to illness onset was reported and no further cases were detected among family members.

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.

### **Swine Influenza Viruses**

#### **Current situation:**

##### **Influenza A(H1) variant viruses (A(H1)v)**

On **16 April 2021**, the United States of America (USA) reported the detection of a human case of infection with an influenza A(H1N1)v virus. On 31 March 2021, a child under 18 years old of age, with no underlying medical conditions associated with increased risk for severe influenza, developed an influenza-like illness in Wisconsin. On 1 April, the person sought medical care and a respiratory specimen was collected for influenza testing.

Real-time RT-PCR testing conducted at the Wisconsin State Laboratory of Hygiene indicated an unsubtypeable influenza A virus infection. The specimen was forwarded to the Influenza Division of the Centers for Disease Control and Prevention (CDC) on 8 April for further testing.

The Influenza Division of the Centers for Disease Control and Prevention confirmed an A(H1N1)v virus infection by genome sequence analysis on 15 April. Sequence analysis demonstrated close genetic similarity to swine influenza viruses currently circulating in the USA. Virus was isolated from the specimen and further characterization is underway. Retrospective investigation into the source of the infection revealed that the child had direct contact with swine at the child's residence. The patient was not hospitalized and has recovered from illness. No human-to-human transmission has been identified associated with this patient.

On **28 April 2021**, Canada reported the detection of a human case of infection with an influenza A(H1N2)v virus. The virus was confirmed with genome sequencing conducted by the National Microbiology Laboratory (NML) in a sample collected from an individual with an influenza-like illness in Manitoba. The case, as well as family members, were sampled as part of a COVID-19 household investigation in late March/early April. Another symptomatic family member tested negative for influenza A and B viruses. The case had no known animal contact prior to illness onset; however, one family member had worked in pig barns prior to the case's illness onset. The case was not hospitalized and has recovered. The haemagglutinin (HA) and neuraminidase (NA) genes from this virus were most closely related to A/Swine/Iowa/A02245578/2020 (H1N2). Epidemiological, animal health and virological investigations are ongoing.

On **29 April 2021**, Canada reported the detection of a human case of infection with an influenza A(H1N1)v virus. The virus was confirmed with genome sequencing conducted by the NML in a sample collected from a child under 18 years of age from Manitoba shortly after illness onset in early April 2021. Epidemiologic, animal health and virological investigations in the community were ongoing at the time of reporting. Preliminary investigations revealed that this case and family members have direct contact with swine. No other ILI cases were reported from the community in early April. Respiratory specimens from the area collected during the time period of illness in this case that were negative for SARS-CoV-2 have also tested negative for influenza. Influenza surveillance in swine is ongoing in the area, with increased active surveillance since identification of this human case of Influenza A(H1N1) variant virus. Sequence analysis of all 8 gene segments showed they were closely related to influenza A(H1N1) and A(H1N2) swine virus isolates from Manitoba in recent years.

On **7 May 2021**, Germany reported the detection of a human case of infection with an influenza A(H1N1)v virus in a 17-year-old boy from Mecklenburg-Western Pomerania who developed an influenza-like illness onset on 18 April 2021. The virus was confirmed with genome sequencing conducted at the National Influenza Centre (NIC) at the Robert Koch Institute in a sample collected as part of routine sentinel surveillance. Sequencing indicated the virus belonged to the Eurasian avian-like (EA) lineage of swine influenza A viruses, specifically clade 1C.2.1. The patient worked on a swine farm a few days prior to illness onset. After developing respiratory symptoms, he was isolated as SARS-CoV-2 infection was suspected. There were no symptoms in other workers at the farm or other members of the case's family and the case has recovered. Further animal health and virological investigations are ongoing.

### **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 animals 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.

### 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: <https://www.who.int/publications/i/item/WHO-WHE-IHM-GIP-2018.2>.
- 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).<sup>6</sup> State Parties to the IHR (2005) are required to immediately notify WHO of any laboratory-confirmed<sup>7</sup> case of a recent human infection caused by an influenza A virus with the potential to cause a pandemic<sup>8</sup>. Evidence of illness is not required for this report.
- It is critical that these influenza viruses from animals or from 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 influenza viruses with pandemic potential on a regular and **timely basis**<sup>9</sup> 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/](http://www.who.int/influenza/human_animal_interface/en/)

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

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<sup>6</sup> World Health Organization. [Case definitions for the four diseases requiring notification in all circumstances under the International Health Regulations \(2005\)](#).

<sup>7</sup> World Health Organization. Manual for the laboratory diagnosis and virological surveillance of influenza (2011). Available at: <https://apps.who.int/iris/handle/10665/44518>

<sup>8</sup> <https://apps.who.int/iris/handle/10665/44796>

<sup>9</sup> World Health Organization. Operational guidance on sharing influenza viruses with human pandemic potential (IVPP) under the Pandemic Influenza Preparedness (PIP) Framework (2017). Available at: <https://apps.who.int/iris/handle/10665/25940>

<https://www.who.int/publications/i/item/WHO-WHE-IHM-GIP-2018.2>

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

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

<https://www.oie.int/en/disease/avian-influenza/>

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

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

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