



Influenza at the human-animal interface

Summary and risk assessment, from 27 February to 28 March 2024¹

- **New infections²:** From 27 February to 28 March 2024, one human case of infection with an influenza A(H5N1) virus and three human cases of infection with A(H9N2) viruses were reported officially.
- **Risk assessment:** The overall public health risk from currently known influenza viruses at the human-animal interface has not changed, and sustained human-to-human transmission of the viruses from these cases is currently considered unlikely. Although human infections with viruses of animal origin are unusual, they are not unexpected 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).³ 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

A(H5N1), Viet Nam

Since the last risk assessment of 26 February 2024, one human case of infection with an A(H5N1) influenza virus was notified to WHO from Viet Nam on 25 March.

A 21-year-old male from Khanh Hoa province developed fever and cough on 11 March 2024. On 15 March, he was admitted to a local hospital due to persistent symptoms, including abdominal pain and diarrhea. On 17 March, he was transferred to a provincial hospital as his condition worsened and between 18-19 March, he was treated in the intensive care unit for pneumonia. On 19 March, samples were collected for real time polymerase chain reaction testing by the Pasteur Institute of Nha Trang (PI NT) and were positive for influenza A(H5) virus. On 20 March, the patient was transferred to another provincial hospital with a diagnosis of severe pneumonia, severe sepsis and acute respiratory distress syndrome. Unfortunately, the patient passed away on 23 March.

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

² For epidemiological and virological features of human infections with animal influenza viruses not reported in this assessment, see the reports on human cases of influenza at the human-animal interface published in the Weekly Epidemiological Record [here](#).

³ 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 \(2005\)](#).

On 22 March, result of genomic sequencing conducted by PI NT identified the virus from the patient as an avian influenza A(H5N1) virus. Genomic sequencing is also being conducted by the National Institute of Hygiene and Epidemiology (NIHE).

Initial results from the case investigation revealed that during the second and third weeks of February 2024, the patient had been trapping wild birds. Since then, he had no reported contact with dead or sick poultry nor with anyone with similar symptoms. At the time of reporting, no further cases were suspected among close contacts.

Since 2003, 129 human infections with influenza A(H5N1), including 65 deaths, have been reported in Viet Nam. The most recent avian influenza A (H5N1) case was reported in October 2022 from northern province of Phu Tho, Viet Nam.

According to reports received by the World Organisation for Animal Health (WOAH), various influenza A(H5) subtypes continue to be detected in wild and domestic birds in Africa, Asia, Europe and the Americas. Infections in non-human mammals are also reported.

Risk Assessment:

1. What is the risk of additional sporadic human cases of infection with avian influenza A(H5) viruses?

Most human cases so far were sporadic infections in people exposed to A(H5) viruses through contact with infected poultry or contaminated environments, including live poultry markets. While the viruses continue to be detected in animals and related environments, further human cases among exposed individuals are expected but unusual. The impact for public health if additional sporadic cases are detected is minimal. The overall risk is low.

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

No sustained human-to-human transmission was identified associated with the event described above. In the past, small clusters of A(H5) virus infections were reported, including those involving health care workers, but without evidence of sustained human-to-human transmission. Current epidemiological and virological evidence suggests that contemporary influenza A(H5) viruses have not acquired the ability of sustained transmission among humans. Human-to-human transmission is thus currently considered unlikely.

3. What is the likelihood 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 current evidence suggests these viruses have not acquired the ability to transmit easily among humans.

Avian influenza A(H9) viruses

A(H9N2), China

Since the last risk assessment of 26 February 2024, three human cases of infection with A(H9N2) influenza viruses were notified to WHO from China (see Table 1). The two cases with mild illnesses were detected through routine influenza-like illness. All cases have recovered. Environmental samples collected around the market and backyard of the first and second cases tested positive for influenza A(H9) viruses, while environment samples associated with the third case tested negative for influenza viruses. No further cases were suspected among contacts of these cases.

Table 1. Human cases of influenza A(H9N2) reported to WHO from China from to 27 February to 4 March 2024.

Onset date	Reporting province	Age (years)	Gender	Severity	Hospitalization date	Poultry exposure
2 Feb 2024	Guangxi	3	Male	Severe	5 Feb 2024	Poultry from live poultry market
11 Feb 2024	Jiangxi	11	Male	Mild	15 Feb 2024	Backyard poultry
17 Feb 2024	Guangdong	3	Male	Mild	19 Feb 2024	Backyard poultry

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

Risk Assessment:

1. What is the risk of additional sporadic human cases of infection with avian influenza A(H9N2) viruses?

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 but remain unusual. The impact to public health if additional sporadic cases are detected is minimal. The overall risk is low.

2. What is the likelihood of human-to-human transmission of avian influenza A(H9N2) viruses?

Prior to the event described above, only sporadic cases have been reported. Limited human-to-human transmission cannot be excluded. No sustained human-to-human transmission has been identified associated with the event described above. Current epidemiologic and virologic evidence suggests that contemporary influenza A(H9N2) viruses assessed by the Global Influenza Surveillance and response System (GISRS) have not acquired the ability of sustained transmission among humans. Human-to-human transmission is thus currently considered unlikely.

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 current evidence suggests the A(H9N2) virus subtype has not acquired the ability to transmit easily among humans.

Overall Risk Management Recommendations:

- WHO does not advise special traveller 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 and related products from countries affected by these influenza viruses, refer to [WOAH](#) guidance.
- Given the observed extent and frequency of avian influenza in poultry, wild birds and some wild mammals, the public should avoid contact with animals that are sick or dead from unknown causes, including wild animals, and should report dead birds and mammals or request their removal by contacting local wildlife or veterinary authorities. Eggs, poultry meat and other poultry food products should be properly cooked and properly handled during food preparation.
- WHO advises that travellers 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. All individuals should follow good food safety and 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 influenza viruses circulation in animals is not clear, epidemiologic and virologic surveillance and the follow-up of suspected human cases should continue systematically. 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>.
- Vigilance for the emergence of novel influenza viruses of pandemic potential should be maintained at all times including during a non-influenza emergency. In the context of the co-circulation of SARS-CoV-2 and influenza viruses, WHO has developed practical guidance for integrated surveillance. The guidance is available here: https://www.who.int/publications/i/item/WHO-2019-nCoV-Integrated_sentinel_surveillance-2022.1
- All human infections caused by a new subtype of influenza virus are notifiable under the International Health Regulations (IHR, 2005).⁴ State Parties to the IHR (2005) are required to immediately notify WHO of any laboratory-confirmed⁵ case of a recent human infection caused by an influenza A virus with the potential to cause a pandemic⁶. 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 **timely basis**⁷ with a WHO Collaborating Centre for Influenza of GISRS. The viruses are used by the public health laboratories to assess the risk of pandemic influenza and to develop candidate vaccine viruses.
- When there has been human exposure to a known outbreak of an influenza A virus in domestic poultry, wild birds or other animals – or when there has been an identified human case of infection with such a virus – enhanced surveillance in potentially exposed human populations becomes necessary. Enhanced surveillance should consider the health care seeking behaviour of the population, and could include a range of active and passive health care and/or community-based approaches, including: enhanced surveillance in local influenza-like illness (ILI)/severe acute respiratory infection (SARI) systems, active screening in hospitals and of groups that may be at higher occupational risk of exposure, and inclusion of other sources such as traditional healers, private practitioners and private diagnostic laboratories.
- The Tool for Influenza Pandemic Risk Assessment (TIPRA) provides an in-depth assessment of risk associated with some zoonotic influenza viruses – notably the likelihood of the virus gaining human-to-human transmissibility, and the impact should the virus gain such transmissibility. TIPRA maps relative risk amongst viruses assessed using multiple elements. The results of TIPRA

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

⁵ World Health Organization. Manual for the laboratory diagnosis and virological surveillance of influenza (2011). Available at: <https://apps.who.int/iris/handle/10665/44518>

⁶ World Health Organization. Pandemic influenza preparedness framework for the sharing of influenza viruses and access to vaccines and other benefits, 2nd edition. Available at: <https://iris.who.int/handle/10665/341850>

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: <https://apps.who.int/iris/handle/10665/25940>

complement those of the risk assessment provided here, and those of prior TIPRA analyses will be published at [http://www.who.int/teams/global-influenza-programme/avian-influenza/tool-for-influenza-pandemic-risk-assessment-\(tipra\)](http://www.who.int/teams/global-influenza-programme/avian-influenza/tool-for-influenza-pandemic-risk-assessment-(tipra)).

Links:

WHO Human-Animal Interface web page

<https://www.who.int/teams/global-influenza-programme/avian-influenza>

WHO Influenza (Avian and other zoonotic) fact sheet

[https://www.who.int/news-room/fact-sheets/detail/influenza-\(avian-and-other-zoonotic\)](https://www.who.int/news-room/fact-sheets/detail/influenza-(avian-and-other-zoonotic))

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

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

WHO Public health resource pack for countries experiencing outbreaks of influenza in animals:

<https://www.who.int/publications/i/item/9789240076884>

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

<https://www.who.int/teams/global-influenza-programme/avian-influenza>

Avian Influenza A(H7N9) Information

[https://www.who.int/teams/global-influenza-programme/avian-influenza/avian-influenza-a-\(h7n9\)-virus](https://www.who.int/teams/global-influenza-programme/avian-influenza/avian-influenza-a-(h7n9)-virus)

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

<https://www.woah.org/en/home/>

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

<https://www.fao.org/animal-health/avian-flu-qa/en/>

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