Influenza at the human-animal interface
Summary and assessment, from 21 January to 28 February 2020

- **New infections**: Since the previous update on 20 January 2020, two new human infections with avian influenza A(H9N2) viruses and one new human infection with an influenza A(H1N1) variant virus 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 at the human-animal interface wherever these viruses continue to 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.²

- **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**
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.⁴ Overall, the risk assessments have not changed.

**Avian influenza A(H9N2) viruses**
Since the last update on 20 January 2020, two new laboratory-confirmed human cases of influenza A(H9N2) virus infections were reported.

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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/)


³ 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)

The first human case was reported to WHO from China, Hong Kong SAR on 7 February 2020, in a 7-year-old boy, with an onset of illness on 4 February 2020. The patient was hospitalized on 5 February and was in stable condition at the time of reporting. The virus was subsequently identified as influenza A(H9N2). The patient had visited relatives in Guangdong Province, China. Backyard poultry were kept at the relatives’ residence but no direct exposure to live poultry was reported. No further cases among contacts of the case were detected.

The second human case of infection with an influenza A(H9N2) virus was detected in a child in February 2019 in the Ziguinchor region of Senegal. The patient presented to an outpatient clinic for influenza-like illness (ILI), was not hospitalized and recovered. The likely source of exposure to the virus was 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 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 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 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 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 this virus has not acquired the ability to transmit easily among humans.

Swine Influenza Viruses

Current situation:
Influenza A(H1N1)v virus
One new laboratory-confirmed human case of influenza A(H1N1)v virus infection was detected in China. A 38-year-old man from Hebei had illness onset on 14 November 2019. The case was detected through routine ILI surveillance. The patient had mild illness and has recovered. Information on the contacts of the case and likely source of exposure was not available.

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(H7N9), A(H9N2) and A(H1)v viruses, please see the February 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 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, epidemiologic and clinical changes associated with circulating influenza viruses that may affect human (or animal) health, especially over 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. Guidance on investigation of non-seasonal influenza and other emerging acute respiratory diseases has been published on the WHO website here 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). 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

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
7 https://www.who.int/influenza/resources/pip_framework/en/
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/food_safety/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