Influenza at the human-animal interface
Summary and assessment, 22 January to 12 February 2019

- **New infections**: Since the previous update on 21 January 2019, two human infections with avian influenza A(H9N2) viruses and one human infection with an influenza A(H3N2) 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.
- **Risk management**: Selection of new candidate vaccine viruses (CVVs) for zoonotic influenza for influenza pandemic preparedness purposes was done during a recent WHO consultation.
- **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 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**
Since the last update on 21 January 2019, no new laboratory-confirmed human cases of influenza A(H5) virus infections were reported to WHO. 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. Overall, the risk assessment has not changed.

**Avian influenza A(H7N9) viruses**
Since the last update on 21 January 2019, no new laboratory-confirmed human cases of influenza A(H7N9) virus infections were reported to WHO. There have been no publicly available reports from animal health authorities in China of influenza A(H7N9) virus detections in animals in recent months. Overall, the risk assessment has not changed.

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1 For epidemiological and virologic 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)
Avian influenza A(H9N2) viruses
Since the last update on 21 January 2019, two new laboratory-confirmed human cases of influenza A(H9N2) virus infection were reported to WHO, both from China.

On 31 January 2019, the detection of avian influenza A(H9N2) virus in a 2-year-old boy from Hunan province, with an onset of illness on 27 November 2018 was reported. The case was detected through routine influenza-like illness surveillance and has recovered. During epidemiological investigations, no further cases among family members were reported.

On 11 February 2019, the second reported case of human infection with an avian influenza A(H9N2) virus occurred in an 8-year-old girl from Yunnan province, with an onset of illness on 27 January 2019.

For both cases, the illnesses were reportedly mild and no clear histories of exposure to live poultry were reported. Avian influenza A(H9N2) viruses are enzootic in poultry in China.

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. 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 epidemiological 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 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 this virus has not acquired the ability to transmit easily among humans.

Swine Influenza Viruses

Current situation:
Influenza A(H3N2)v virus
Since the last update on 21 January 2019, one new laboratory-confirmed human case of influenza A(H3N2)v virus infection was reported.

On 1 February 2019, the Australian IHR National Focal Point (NFP) reported one case of human infection with an influenza A(H3N2)v virus. A 15-year-old girl developed mild illness on 5 September and a sample was collected during routine influenza surveillance 8 days after illness onset. The sample was processed at the WHO Collaborating Centre for Reference and Research, VIDRL, Melbourne. Genetic analysis of the virus indicated that all genes were similar to those of viruses that have been circulating and detected in swine in Australia in the past decade. The case was not hospitalized and had recovered. Investigation of sources of exposure revealed the case had participated in an agricultural event (including contact with live animals) the day prior to illness onset and had exposure to animals at school and home. No further cases were detected surrounding this event.
For more information on the A(H3N2)v virus from this case, please see the February 2019 report: Antigenic and genetic characteristics of zoonotic influenza viruses and candidate vaccine viruses developed for potential use in human vaccines.

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 virologic, 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 virologic surveillance and the follow-up of suspected human cases should remain high. New guidance on investigation of non-seasonal influenza and other emerging acute respiratory diseases has been published on the WHO website here: http://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

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6 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
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
- 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](http://www.offlu.net/index.html)