Human infection with avian influenza A(H5) viruses

Human infection with avian influenza A(H5N1) virus
Between 10 December and 16 December 2021, no new cases of human infection with avian influenza A(H5N1) virus were reported to WHO in the Western Pacific Region.

As of 16 December 2021, a total of 239 cases of human infection with avian influenza A(H5N1) virus have been reported from four countries within the Western Pacific Region since January 2003 (Table 1). Of these cases, 134 were fatal, resulting in a case fatality rate (CFR) of 56%. The last case was reported from Lao PDR, with an onset date of 13 October 2020 (one case, no death).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Cambodia</td>
<td>9</td>
<td>7</td>
<td>47</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>China</td>
<td>38</td>
<td>25</td>
<td>9</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>112</td>
<td>57</td>
<td>15</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>91</td>
<td>71</td>
<td>42</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Globally, from January 2003 to 16 December 2021, there were 863 cases of human infection with avian influenza A(H5N1) virus reported from 18 countries. Of these 863 cases, 456 were fatal (CFR of 53%). The last case was reported from India in July 2021 (source).

Human infection with avian influenza A(H5N6) virus
Between 10 December and 16 December 2021, four new cases of human infection with avian influenza A(H5N6) virus were notified to WHO in the Western Pacific Region. All four cases were sporadic and have no epidemiological link to each other.

The first case is a 3-year-old male from Nanning City, Guangxi Province with onset of illness on 15 November 2021 and was hospitalized on 16 November. The second case is a 49-year-old male from Hengyang, Hunan Province with onset of illness on 22 November 2021 and was hospitalized on 25 November. The third case is a 72-year-old male farmer from Yongzhou, Hunan Province with onset of illness on 24 November 2021 and was hospitalized on 29 November. The fourth case is a 58-year-old male farmer from Hengyang, Hunan Province with onset of illness on 4 December 2021. He was in a mild condition at the time of reporting. All the cases had history of exposure to poultry prior to onset of illness and no additional individuals among their respective family members have developed symptoms at the time of reporting.

To date, a total of 57 laboratory-confirmed cases of human infection with influenza A(H5N6) virus including 27 deaths have been reported to WHO in the Western Pacific Region since 2014. The last case was reported from China with onset date of 4 December 2021.

Public health risk assessment for human infection with avian influenza A(H5) viruses
Whenever avian influenza viruses are circulating in poultry, there is a risk for sporadic infection and small clusters of human cases due to exposure to infected poultry or contaminated environments. Therefore, sporadic human cases are not unexpected.
The rise in numbers of reported human cases of A(H5N6) infection may reflect the continued circulation of the virus in birds, and enhanced surveillance system and diagnostic capacity as a direct outcome from the response to the COVID-19 pandemic. The zoonotic threat remains elevated due to the spread of the viruses among birds. However, the overall pandemic risk associated with A(H5) is considered not significantly changed in comparison to previous years. WHO recommends Member States to remain vigilant and consider mitigation steps to reduce human exposure to potentially infected birds to reduce risk of additional zoonotic infections.

For information on risk assessments on Avian Influenza, visit:

Assessment of risk associated with highly pathogenic avian influenza A(H5N6) virus

Human infection with avian influenza A(H7N4) virus in China

Between 10 December and 16 December 2021, no new cases of human infection with avian influenza A(H7N4) virus were reported to WHO in the Western Pacific Region. To date, only one laboratory-confirmed case of human infection with influenza A(H7N4) virus has been reported to WHO. This case was reported from China on 14 February 2018.

Human infection with avian influenza A(H7N9) virus in China

Between 10 December and 16 December 2021, no new cases of human infection with avian influenza A(H7N9) virus were reported to WHO in the Western Pacific Region. To date, a total of 1,568 laboratory-confirmed human infections with avian influenza A(H7N9) virus including 616 fatal cases (CFR: 39%) have been reported to WHO since early 2013. The last case of human infection with avian influenza A(H7N9) reported to WHO in the Western Pacific Region was on 14 February 2017.

Of the 1,568 human infections with avian influenza A(H7N9), 33 have reported mutations in the hemagglutinin gene indicating a change to high pathogenicity in poultry. These 33 cases were from Taiwan, China (one case had travel history to Guangdong), Guangxi, Guangdong, Hunan, Shaanxi, Hebei, Henan, Fujian, Yunnan, and Inner Mongolia. No increased transmissibility or virulence of the virus within human cases has been detected related to the HPAI A(H7N9) virus (source).

WHO is continuing to assess the epidemiological situation and will conduct further risk assessments as new information becomes available. The number and geographical distribution of human infections with avian influenza A(H7N9) viruses in the fifth epidemic wave (1 October 2016 to 30 September 2017) were greater than previous waves and the subsequent waves.

Further sporadic human cases of avian influenza A(H7N9) virus infection are expected in affected and possibly neighbouring areas. Should human cases from affected areas travel internationally, their infection may be detected in another country during or after arrival. However, if this were to occur, community level spread is considered unlikely as the virus does not have the ability to transmit easily among humans.

To date, there is no evidence of sustained human-to-human transmission of avian influenza A(H7N9) virus. Human infections with the A(H7N9) virus are unusual and need to be monitored closely in order to identify changes in the virus and transmission behaviour to humans as this may have serious public health impacts.

Human infection with avian influenza A(H9N2) virus

Between 10 December and 16 December 2021, one new case of human infection with avian influenza A(H9N2) was reported from China to WHO in the Western Pacific Region.
The case is a 7-year-old male from Heyuan City, Guangdong Province with onset of illness on 28 November 2021. The case was in a mild condition and was not hospitalized. Prior to onset of illness, the case had exposure to a live poultry market and no further cases were suspected among family members at the time of reporting.

To date, 19 cases of avian influenza A(H9N2) have been reported to WHO from China in 2021, and a total of 60 cases of human infection with avian influenza A(H9N2) including two deaths (both with underlying conditions) have been reported to WHO in the Western Pacific Region since December 2015. The last case was reported from China with onset date of 28 November 2021.

**Human infection with avian influenza A(H10N3) virus**

Between 10 December and 16 December 2021, **no new cases** of human infection with avian influenza A(H10N3) virus were reported to WHO in the Western Pacific Region. To date, one case of avian influenza A(H10N3) virus has been reported globally.

Most previously reported human infections with avian influenza viruses were due to exposure to infected poultry or contaminated environments. Since avian influenza viruses, including avian influenza A(H10N3) viruses, continue to be detected in poultry populations, further sporadic human cases could be detected in the future. Currently available epidemiologic information suggests that the avian influenza A(H10N3) virus has not acquired the ability for sustained human-to-human transmission, thus the likelihood of spread among human is low (source 1, 2).

**Animal infection with avian influenza virus**

Between 10 December and 16 December 2021, **13 new outbreaks** of avian influenza were reported to OIE from the Western Pacific Region. (source)

On 15 December 2021, the Republic of Korea has reported to OIE nine outbreaks of Avian Influenza A(H5N1) among non-poultry including wild birds in nine different locations (Haenam, Suncheon, and Naju of Jeollanam-do Province; Eumseong and Seosan of Chungcheongnam-do Province; Saha, Busan Metropolitan City; Iksan, Jeollabuk-do Province; Icheon, Gyeonggi-do Province; and Goryeong, Gyeongsangbuk-do Province. A total of nine confirmed cases among non-poultry birds were reported among these nine locations. (source)

On 14 December 2021, Japan has reported to OIE one outbreak of Avian Influenza A(H5N1) among poultry in Misato Town, Saitama Prefecture. A total of 20 confirmed cases leading to 20 deaths were reported among 17,000 susceptible birds. The remaining 16,980 birds were culled. (source)

On 14 December 2021, Japan has reported to OIE one outbreak of Avian Influenza A(H5N1) among poultry in Fukuyama City, Hiroshima Prefecture. A total of 100 confirmed cases leading to 100 deaths were reported among 30,000 susceptible birds. The remaining 29,900 birds were culled. (source)

On 14 December 2021, the Republic of Korea has reported to OIE one outbreak of Avian Influenza A(H5N1) among poultry in Cheonan, Chungcheongnam-do Province. A total of 15 confirmed cases leading to 15 deaths were reported among 54,000 susceptible birds. The remaining 53,985 birds were culled. (source)

On 13 December 2021, Japan has reported to OIE one outbreak of Avian Influenza A(H5N8) among poultry in Izumi City, Kagoshima Prefecture. A total of 3 confirmed cases leading to 3 deaths were reported among 11,000 susceptible birds. The remaining 10,997 birds were culled. (source)
For more information on animal infection with avian influenza viruses with potential public health impact, visit:

- World Organization for Animal Health (OIE) web page: Weekly disease information and Latest report on Avian Influenza
- Food and Agriculture Organization of the UN (FAO) webpage: Avian Influenza
- Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES)
- FAO Global Animal Disease Information System (EMPRES-i)

Other updates

- Influenza at the human-animal interface summary and assessment, 1 October 2021
  - Risk assessment summary: 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.
- Recommended composition of influenza virus vaccines for use in the 2021 southern hemisphere influenza season (who.int) 24 September 2021
- WHO SAGE Seasonal Influenza Vaccination Recommendations during the COVID-19 Pandemic Interim guidance, 20 September 2020
- Recommended composition of influenza virus vaccines for use in the 2021-2022 northern hemisphere influenza season (who.int) 26 February 2021
- WHO Consultation on the Composition of Influenza Virus Vaccines for Use in the 2022 Southern Hemisphere Influenza Season 13 – 30 September 2021
- WHO Information Meeting on the Composition of Influenza Virus Vaccines for Use in the 2021-22 Northern Hemisphere Influenza Season, 26 February 2021
- Zoonotic influenza: candidate vaccine viruses and potency testing reagents.