

Overseas Emerging Respiratory Virus Intelligence

Major content updates as of 31 July 2025 since the previous report are highlighted in green. The next scheduled update of this report is on 28 August 2025.

Highly Pathogenic Avian Influenza A(H5NX)

The joint FAO/WHO/WOAH assessment on the influenza A(H5N1) virus situation in animals and people was updated on 28 July 2025.[1] The assessment concludes that the global public health risk of influenza A(H5N1) remains low, and the risk for occupationally exposed persons remains low to moderate, depending on risk mitigation and hygiene measures in place and the local avian influenza epidemiological situation. Additional human infections in those exposed to infected animals or contaminated environments are likely to occur, however the public health impact of these infections remains minor at the global level.

Clade 2.3.4.4b

Avian influenza A(H5N1) clade 2.3.4.4b has spread throughout poultry and wild birds across Africa, Asia, Europe and the Americas, and was detected on Antarctica's mainland in February 2024.[2, 3] It has never been detected in New Zealand, Australia or Pacific Island Countries or Territories.

Since January 2022, 86 human cases of avian influenza H5N1 clade 2.3.4.4b have been reported in Europe (8 cases), Asia (3 cases) and the Americas (75 cases¹). Eighty-two cases had direct or indirect exposure to sick poultry/birds (41 cases) or dairy cattle (41 cases) before illness onset, while three cases have no immediately known animal exposure. There is no evidence of sustained human-to-human transmission.[2, 4]

United States

There have been three known spillover events of influenza A(H5N1) clade 2.3.4.4b from birds into dairy cattle in the US. Genotype B3.13 was first detected in cattle on 25 March 2024, and two spillovers of genotype D1.1, the predominant strain circulating in migratory wild birds in the US, were detected in February 2025.[5, 6] Influenza A(H5N1) has been detected in 1,077 dairy herds in 17 states. In the past 30 days (to 21 July 2025), there have been detections in 3 herds in 1 state.[7]

As of 1 July 2025, the US Centers for Disease Control and Prevention (CDC) has reported 41 human cases of infection with influenza A(H5) among dairy farms workers, mostly in California.[4] The most recently detected case was reported in February 2025. The majority of cases have been due to genotype B3.13, have had mild illnesses and recovered. There is no evidence of human-to-human transmission. Studies have demonstrated that seroprevalence to HPAI A(H5N1), even among workers with known exposures, is low reflecting the generally poor ability of this virus to transmit to humans.[8]

¹ This includes H5 cases linked to outbreaks of A(H5N1) clade 2.3.4.4b but not further typed.

Between 2024 and 25 July 2025, the CDC has reported 24 confirmed cases of influenza A(H5) in poultry farm workers.[4, 9] Genotypes B3.13, D1.1 and D1.3 have been detected among these cases [10] Two cases have also been detected in owners of infected backyard poultry flocks [11]. One state has reported an outbreak in a commercial poultry flock in the past 30 days (as of 30 July).[12]

There have been three severe cases of influenza A(H5N1) infection in the US (one death, two hospitalisations), all associated with poultry and all due to genotype D1.1.[13, 14]

The US have confirmed three human cases of infection with influenza A(H5N1) where the source of infection is unknown; one in Missouri and two in California.[15-18] There is no evidence of human-to-human transmission in any of these cases.

Influenza A(H5N1) was confirmed in two pigs on a non-commercial farm with infected poultry in late 2024.[19] The genotype was D1.2 and similar to virus isolated from migratory birds in the area. No detections in pigs have been reported since.

On 15 November 2024, the State of Hawaii Department of Health confirmed the first detection of influenza A(H5N1) in Hawaii in a backyard flock of various birds.[20] It is likely that the virus (genotype A3) arrived via wild birds on the Pacific flyway. It has been detected in wastewater on two other islands since.[21] No human cases have been detected in Hawaii.

Canada

On 13 November 2024, the Public Health Agency of Canada confirmed their first domestically acquired human case of infection with influenza A(H5N1) in British Columbia.[22] The case, a teenager, had no underlying conditions, was hospitalised in critical condition but has since recovered. The virus was clade 2.3.4.4b genotype D1.1, the same strain currently circulating in wild birds and poultry in British Columbia.[23] The source of infection was never identified.

United Kingdom

On 27 January 2025, the United Kingdom Health Security Agency (UKHSA) reported a human case of infection with influenza A(H5N1).[24] The case was a poultry farm worker exposed to birds infected with genotype D1.2. Prior to this, the UK has detected two cases in poultry workers involved in depopulation activities.

On 24 March 2025, the United Kingdom Department for Environment, Food & Rural Affairs reported the world's first detection of influenza A(H5N1) in sheep.[25] A single positive sheep was identified via routine surveillance on a farm with influenza A(H5N1)-infected captive birds. The only clinical sign was mastitis. Influenza A(H5N1) was detected in a milk sample and a blood sample was positive for influenza A(H5) antibodies.[26] There have been no additional detections among sheep or other mammals on the premises.

Mexico

On 2 April 2025, Mexico notified the WHO of a human case of infection with influenza A(H5N1), the first confirmed case reported in the country.[27] The case, a child, had no underlying conditions and died in hospital. The virus was confirmed as clade 2.3.4.4b genotype D1.1. The source of

infection remains under investigation. Influenza A(H5N1) has been detected in wild and captive birds in same state where the case resided in 2025. All contacts tested were negative for influenza A(H5N1).

Clade 2.3.2.1.e (previously classified as clade 2.3.2.1c)

A reassortment of A(H5N1), with surface genes from clade 2.3.2.1.c and internal genes from clade 2.3.4.4b has been circulating in the Greater Mekong subregion, including Cambodia and Vietnam, since 2023 and has caused human infections. [28]

In 2025, Cambodia has reported 14 cases of influenza A(H5N1).[29] The majority of cases were exposed to sick poultry prior to illness onset.[30] Since February 2023, Cambodia has reported 27 cases of influenza A(H5N1) have to the WHO (as of 1 July 2025), of which 12 were fatal (44%) and all cases with known clade were clade 2.3.2.1e.[30]

Cambodia reported nine influenza A(H5N1) cases in June and July, with five of these cases coming from the Siem Reap province.[28][29] All five cases had contact with sick and dead poultry. Poultry outbreaks near reported human cases have been reported to WOA. [1]

On 18 April 2025, Vietnam reported a human case of infection with A(H5N1) clade 2.3.2.1e.[31] The child had an underlying health condition and developed encephalitis. They had contact with sick birds two weeks before illness onset.

Clade 2.3.2.1a

On 31 May 2025, the WHO was notified by Bangladesh of a confirmed human case of infection with influenza A(H5N1).[32] The child was hospitalised and recovered. They were exposed to backyard poultry prior to illness onset. This is the third case of influenza A(H5N1) clade 2.3.2.1a reported in Bangladesh this year. The previous two cases, reported in May, both recovered.[33]

In May 2025, a fatal human case of infection with influenza A(H5N1) clade 2.3.2.1a was reported in India [32] Information on exposure history is not currently available. This is the second case reported in India this year, The previous case was reported in April and had no clear source of infection as there was no evidence of A(H5N1) circulation in avian populations near the case. There have been four reported human cases of influenza A(H5N1) acquired in India to date.[34]

On 22 May 2024, the Victorian Department of Health in Australia reported the retrospective identification of a human case of infection with influenza A(H5N1) clade 2.3.2.1a. The case was a child who acquired infection in India in March before returning to Australia and recovered following severe infection. There was no evidence of onwards human transmission. This clade has previously been detected among birds in India.[35]

Clade unknown

On 14 November 2024, a human case of infection with A(H5) was reported in Vietnam.[36] The N gene has not been reported for this case, although A(H5N1) detections in wild birds from the area were clade 2.3.2.1c. This case was exposed to sick poultry prior to illness onset and died from their infection.

On 10 May 2025, China notified the WHO of a human case of infection with influenza A(H5N1), The case was detected by routine screening on entry into the country from Vietnam.[33] The case was hospitalised and has since recovered. The most likely source of infection was domestic poultry.

ESR public health risk assessment for H5N1 in New Zealand

Given the current absence of infected animals in New Zealand, potentially high impact of the disease, very low likelihood of sustained human-to human transmission and very low likelihood of importation of a human case of influenza A(H5N1), the overall public health risk of avian influenza A(H5N1) to Aotearoa New Zealand is low. However, due to the pandemic potential of avian influenza viruses should there be a change in viral transmissibility, national preparedness activities led by the Ministry for Primary Industries, Health New Zealand and the Public Health Agency are ongoing.

Other human cases of avian and swine influenza

From 11 to 17 July 2025, two human cases of infections with influenza A(H9N2) virus were reported in China. Both cases recovered without hospitalization and had exposure to poultry prior to illness onset.[37]

From 28 May to 1 July 2025, three human cases of infection with influenza A(H9N2) and one human case of infection with influenza A(H10N3) were reported in China.[32] The three A(H9N2) cases were reported in separate provinces and had no epidemiological links. Two cases were hospitalised and recovered, while the remaining case was mild. All three cases had exposure to poultry prior to illness onset. No illness was reported among close contacts. The case of A(H10N3) was hospitalised and is in stable condition. The case has exposure to poultry prior to illness onset. All close contacts tested negative for influenza A.

Australia has responded to 20 outbreaks of HPAI H7 in commercial and domestic poultry flocks since 2024, and is now considered free of influenza H7 in poultry.[38] There have been no associated human cases.

WHO risk assessment for influenza at the human-animal interface

As at 1 July 2025, the WHO advises that the overall public health risk from currently known influenza viruses at the human-animal interface remains low. Sustained human-to-human transmission of these viruses is currently considered unlikely, however, infections with viruses of animal origin are not unexpected at the human-animal interface wherever these viruses circulate in animals.[32]

Middle East respiratory syndrome coronavirus (MERS-CoV)

Between 1 March and 21 April 2025, nine cases of MERS-CoV were reported in Saudi Arabia.[39] Two cases died. One case had indirect contact with camels. Seven cases were part of a cluster, including six healthcare workers who acquired infection while caring for one patient. Four of the six healthcare workers were asymptomatic and two showed mild, nonspecific signs. A total of 10 MERS-CoV cases with onset dates in 2025 have been reported (as of 2 July), all in Saudi Arabia.[40] As of 12 May 2025, the WHO's risk assessment remains moderate at the global and regional levels. The WHO expects additional cases of MERS-CoV to be reported from the Middle East and/or other countries where MERS-CoV is circulating in dromedaries.

References

1. FAO/WHO/WOAH. Updated joint FAO/WHO/WOAH public health assessment of recent influenza A(H5) virus events in animals and people. 28 July 2025. Available from: <https://cdn.who.int/media/docs/default-source/influenza/human-animal-interface-risk-assessments/fao-woah-who-joint-h5-assessment-july-2025.pdf>.
2. FAO/WHO/WOAH. Updated joint FAO/WHO/WOAH public health assessment of recent influenza A(H5) virus events in animals and people. 17 April 2025. Available from: <https://www.woah.org/app/uploads/2025/04/2025-04-17-fao-woah-who-h5n1-assessment.pdf>.
3. World Organization for Animal Health. Wildlife under threat as avian influenza reaches Antarctica. 13 March 2024. Available from: <https://www.woah.org/en/wildlife-under-threat-as-avian-influenza-reaches-antarctica/>. [Accessed 17 04 2024]
4. US Centers for Disease Control and Prevention. H5 Bird Flu: Current Situation. 01 July 2025. Available from: <https://www.cdc.gov/bird-flu/situation-summary/index.html>. [Accessed 02 07 2025]
5. US Department of Agriculture. The Occurrence of Another Highly Pathogenic Avian Influenza (HPAI) Spillover from Wild Birds into Dairy Cattle. February 2025. Available from: <https://www.aphis.usda.gov/sites/default/files/dairy-cattle-hpai-tech-brief.pdf>.
6. US Department of Agriculture. APHIS Identifies Third HPAI Spillover in Dairy Cattle. 14 February 2025. Available from: <https://www.aphis.usda.gov/news/program-update/aphis-identifies-third-hpai-spillover-dairy-cattle>.
7. US Department of Agriculture. HPAI Confirmed Cases in Livestock. 21 July 2025. Available from: <https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock>. [Accessed 31 07 2025]
8. US Centers for Disease Control and Prevention. Summary of H5N1 Seroprevalence Studies. 05 June 2024. Available from: <https://www.cdc.gov/ncird/whats-new/H5N1-seroprevalence-studies.html>. [Accessed 25 07 2024]
9. US Centers for Disease Control and Prevention. Weekly US Influenza Surveillance Report: Key Updates for Week 29, ending July 19, 2025. 25 July 2025. Available from: <https://www.cdc.gov/fluview/surveillance/2025-week-29.html>.

10. Garg S, Reinhart K, Couture A, Kniss K, Davis CT, Kirby MK, et al. Highly Pathogenic Avian Influenza A (H5N1) Virus Infections in Humans. *New England Journal of Medicine*. 2024.
11. US Centers for Disease Control and Prevention. CDC A(H5N1) Bird Flu Response Update. 26 February 2025. Available from: <https://www.cdc.gov/bird-flu/spotlights/h5n1-response-02262025.html>.
12. US Department of Agriculture. Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks. 1 July 2025. Available from: <https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/commercial-backyard-flocks>. [Accessed 02 07 2025]
13. US Centers for Disease Control and Prevention. First H5 Bird Flu Death Reported in United States. 6 January 2025. Available from: <https://www.cdc.gov/media/releases/2025/m0106-h5-birdflu-death.html>.
14. US Centers for Disease Control and Prevention. CDC A(H5N1) Bird Flu Response Update February 26, 2025. 26 February 2025. Available from: <https://www.cdc.gov/bird-flu/spotlights/h5n1-response-02262025.html>. [Accessed 01 05 2025]
15. US Centers for Disease Control and Prevention. Technical Update: Summary Analysis of the Genetic Sequence of a Highly Pathogenic Avian Influenza A(H5N1) Virus Identified in a Child in California. 10 December 2024. Available from: <https://www.cdc.gov/bird-flu/spotlights/h5n1-response-12092024.html>.
16. San Francisco Department of Public Health. Presumptive Bird Flu Case Identified In San Francisco Resident. 10 January 2025. Available from: <https://www.sf.gov/news--presumptive-bird-flu-case-identified-san-francisco-resident>. [Accessed 01 05 2025]
17. US Centers for Disease Control and Prevention. CDC Confirms Human H5 Bird Flu Case in Missouri. 06 September 2024. Available from: <https://www.cdc.gov/media/releases/2024/s0906-birdflu-case-missouri.html>. [Accessed 12 09 2024]
18. US Centers for Disease Control and Prevention. CDC Report on Missouri H5N1 Serology Testing. 24 October 2024. Available from: <https://www.cdc.gov/bird-flu/spotlights/missouri-h5n1-serology-testing.html>. [Accessed 31 10 2024]
19. US Department of Agriculture. USDA Animal and Plant Health Inspection Service Shares Update on H5N1 Detection in Oregon Swine, Bovine Vaccine Candidate Progression. 6 November 2024. Available from: <https://www.aphis.usda.gov/news/agency-announcements/usda-animal-plant-health-inspection-service-shares-update-h5n1-detection>.
20. State of Hawaii Department of Health. Avian influenza confirmed in backyard flock of birds. 15 November 2024. Available from: <https://health.hawaii.gov/news/newsroom/avian-influenza-confirmed-in-backyard-flock-of-birds/>. [Accessed 28 11 2024]
21. State of Hawaii Department of Agriculture. Avian Influenza. July 2025. Available from: https://health.hawaii.gov/docd/disease_listing/avian-influenza/.
22. Public Health Agency of Canada. Statement from the Public Health Agency of Canada: Update on Avian Influenza and Risk to Canadians. 13 November 2024. Available from:

<https://www.canada.ca/en/public-health/news/2024/11/update-on-avian-influenza-and-risk-to-canadians.html>. [Accessed 28 11 2024]

23. Government of British Columbia. Final update on human avian influenza case in B.C. 26 November 2024. Available from: <https://news.gov.bc.ca/releases/2024HLTH0155-001601>. [Accessed 28 11 2024]
24. UK Health Security Agency. Human case of avian flu detected in England. 27 January 2025. Available from: <https://www.gov.uk/government/news/human-case-of-avian-flu-detected-in-england>.
25. UK Department for Environment FRA. Influenza of avian origin confirmed in a sheep in Yorkshire. 24 March 2025. Available from: <https://www.gov.uk/government/news/influenza-of-avian-origin-confirmed-in-a-sheep-in-yorkshire>.
26. UK Department for Environment FRA. Confirmed findings of influenza of avian origin in captive mammals. 24 March 2025. Available from: <https://www.gov.uk/government/publications/bird-flu-avian-influenza-findings-in-captive-mammals/confirmed-findings-of-influenza-of-avian-origin-in-captive-mammals>.
27. World Health Organization. Avian Influenza A(H5N1) - Mexico. 17 April 2025. Available from: <https://www.who.int/emergencies/disease-outbreak-news/item/2025-DON564>. [Accessed 01 05 2025]
28. Center for Infectious Disease Research & Policy. Vietnam reports human H5 avian flu case. 5 December 2024. Available from: <https://www.cidrap.umn.edu/avian-influenza-bird-flu/vietnam-reports-human-h5-avian-flu-case>.
29. Center for Infectious Disease Research & Policy. H5N1 avian flu hospitalizes Cambodian man. 30 July 2025. Available from: <https://www.cidrap.umn.edu/avian-influenza-bird-flu/h5n1-avian-flu-hospitalizes-cambodian-man>.
30. World Health Organization. Avian Influenza A(H5N1) - Cambodia. 5 July 2025. Available from: <https://www.who.int/emergencies/disease-outbreak-news/item/2025-DON575>.
31. Center for Infectious Disease Research & Policy. Vietnam reports H5N1 avian flu case with encephalitis. 22 April 2025. Available from: <https://www.cidrap.umn.edu/avian-influenza-bird-flu/vietnam-reports-h5n1-avian-flu-case-encephalitis>. [Accessed 01 05 2025]
32. World Health Organization. Influenza at the human-animal interface summary and assessment. 1 July 2025. Available from: <https://www.who.int/publications/m/item/influenza-at-the-human-animal-interface-summary-and-assessment--1-july-2025>.
33. World Health Organization. Influenza at the human-animal interface summary and assessment. 27 May 2025. Available from: <https://www.who.int/publications/m/item/influenza-at-the-human-animal-interface-summary-and-assessment--27-may-2025>. [Accessed 04 06 2025]
34. GISAID. Data from India's recent fatal human H5N1 case released. 2025. Available from: <https://gisaid.org/>.

35. World Health Organization. Avian Influenza A (H5N1) - Australia. 07 June 2024. Available from: <https://www.who.int/emergencies/disease-outbreak-news/item/2024-DON519>. [Accessed 12 09 2024]
36. European Food Safety Authority, European Centre for Disease Prevention and Control, European Union Reference Laboratory for Avian Influenza, Alexakis L et al. Avian influenza overview September–December 2024 18 December 2024. Available from: <https://www.ecdc.europa.eu/en/publications-data/avian-influenza-overview-september-december-2024>.
37. World Health Organization Western Pacific Region. Avian Influenza Weekly Update Number 1006. 18 July 2025. Available from: https://cdn.who.int/media/docs/default-source/wpro---documents/emergency/surveillance/avian-influenza/ai_20250718.pdf?sfvrsn=495dcd9a_1&download=true.
38. Australian Government. H7 high pathogenicity avian influenza. 27 June 2025. Available from: <https://www.outbreak.gov.au/current-outbreaks/avian-influenza>. [Accessed 31 07 2025]
39. World Health Organization. Middle East respiratory syndrome coronavirus - Kingdom of Saudi Arabia. 12 May 2025. Available from: <https://www.who.int/emergencies/disease-outbreak-news/item/2025-DON569>.
40. European Centre for Disease Prevention and Control. Communicable disease threats report, 28 June - 4 July 2025, week 27. 4 July 2025. Available from: <https://www.ecdc.europa.eu/en/publications-data/communicable-disease-threats-report-28-june-4-july-2025-week-27>.