

OVERSEAS EMERGING RESPIRATORY VIRUS INTELLIGENCE

Major content updates as of 05 June 2025 since the previous report are highlighted in green. The next scheduled update of this report is on 3 July 2025.

Highly Pathogenic Avian Influenza A(H5NX)

The joint FAO/WHO/WOAH assessment on the recent influenza A(H5N1) virus situation in animals and people was updated on 17 April 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 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.[1, 2] 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.[1, 3]

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.[4, 5] Influenza A(H5N1) has been detected in 1,072 dairy herds in 17 states. In the past 30 days (to 3 June 2025), there have been detections in 22 herds in 2 states, with the majority in Idaho (21/22).[6]

As of 2 June 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.[3] 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.[7]

Between 2024 and 2 June 2025, the CDC has reported 24 confirmed cases of influenza A(H5) in poultry farm workers .[3] Genotypes B3.13, D1.1 and D1.3 have been detected among these cases [8] Two cases have also been detected in owners of infected backyard poultry flocks [9]. Eight states have reported outbreaks in commercial or backyard poultry flocks in the past 30 days (as of 3 June).[10]

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

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.[11, 12]

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.[13-16] 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.[17] 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.[18] 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.[19, 20] 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.[21] 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.[22] 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).[23] 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.[24] 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.[25] 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.[26] 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. [27]

In 2025, Cambodia has reported three fatal cases of influenza A(H5N1).[28] All three cases were exposed to sick poultry prior to illness onset. The clade has been confirmed as 2.3.2.1e in two cases. Since February 2023, 19 cases of A(H5N1) have been reported in Cambodia, of which all cases with known clade were clade 2.3.2.1e [29]

Clade 2.3.2.1a

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.[30]

In early April 2025, a fatal human case of infection with influenza A(H5N1) was reported in India.[31] The child consumed raw chicken prior to illness onset. No additional cases have been reported. On 21 April, the virus was confirmed as clade 2.3.2.1a, which has recently been reported in poultry and felines in India however surveillance found no evidence of A(H5N1) circulation in avian populations near the case.[32, 33] This is the third reported human case of A(H5N1) acquired in India.

On 4 May 2025, the WHO was notified of a human case of infection with influenza A(H5N1) clade 2.3.2.1a in a child in Bangladesh.[34] The case recovered. A poultry outbreak of influenza A(H5N1) was reported in the same district as the case resides in March 2025. On 27 May, the WHO was notified of a second human case, retrospectively detected in a sample collected from a child in February 2025. The case had recovered.

Clade unknown

On 14 November 2024, a human case of infection with A(H5) was reported in Vietnam.[35] 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 18 April 2025, Vietnam reported a human case of infection with A(H5N1).[36] The child had an underlying health condition and developed encephalitis. They had contact with sick birds two weeks before illness onset.

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.[34] 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 23 April to 27 May, there were eight human cases of infection with influenza A(H9N2), and one human case of infection with influenza A(H10N3). [34]

The eight cases of influenza A(H9N2) were detected in four regions of China, all with symptom onset in April 2025. Seven cases were children. All but one case reported mild illness, and all cases recovered. All but one case had known exposure to poultry prior to illness onset. No cases have been detected among contacts.

The case of influenza A(H10N3) was reported in an adult in China. The case was hospitalised and is recovering. The case had exposure to backyard poultry prior to illness onset, although environmental samples tested negative for influenza A(H10) virus. No additional cases have been detected.

Australia is responding to outbreaks of HPAI H7N8 in four commercial poultry flocks in Victoria.[37] In 2024, Australia responded to outbreaks of HPAI H7 viruses in 16 commercial and domestic poultry flocks; eight in Victoria, six in New South Wales and two in the ACT. There has been no associated human illness.

WHO risk assessment for influenza at the human-animal interface

As at 27 May 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.[38]

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 12 May), all in Saudi Arabia. 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.

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