



# HUMAN EMERGING RESPIRATORY PATHOGENS BULLETIN

## MONTHLY SITUATIONAL ANALYSIS OF EMERGING RESPIRATORY DISEASES AFFECTING HUMANS

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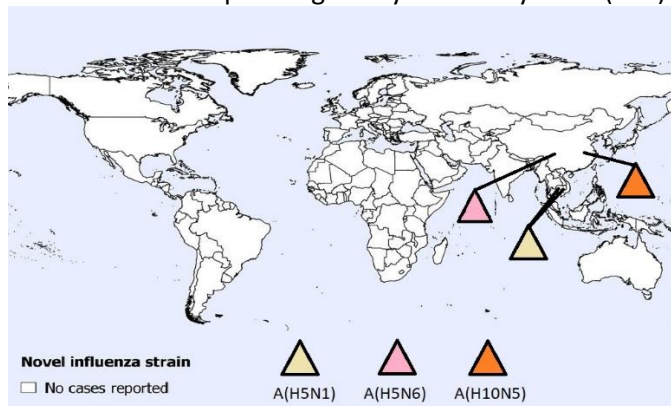
The Human Emerging Respiratory Pathogens (HERP) Bulletin is a monthly publication developed by the Public Health Agency of Canada (PHAC)'s Centre for Emerging and Respiratory Infections and Pandemic Preparedness (CERIPP). The HERP Bulletin serves as a mechanism for information sharing on summary surveillance indicators of global public health events affecting humans in the field of emerging respiratory pathogens. This includes pathogens such as novel influenzas (both avian and swine-origin), Middle East Respiratory Syndrome Coronavirus (MERS-CoV), and other ad-hoc emerging respiratory pathogens.

### MONTHLY HIGHLIGHTS

During the month of January 2024, the following human cases have been reported:

- Two new human cases of avian influenza [A\(H5N1\)](#)
- One new human case of avian influenza [A\(H5N6\)](#)
- One new human case of avian influenza [A\(H10N5\)](#) with seasonal influenza A(H3N2) co-infection

**Figure 1.** Spatial distribution of human cases of avian and swine influenza reported globally in January 2024 (n=4).



**Note:** Map was prepared by CERIPP using data from the latest WHO Event Information Site (EIS) postings. This map reflects data available through these publications as of January 31, 2024.

### UPDATE ON HUMAN EMERGING RESPIRATORY PATHOGEN PUBLIC HEALTH EVENTS (AS OF JANUARY 31, 2024)<sup>1</sup>

NOVEL INFLUENZA <sup>1</sup>	[N CUMULATIVE CASES <sup>2</sup> (DEATHS), CFR% <sup>3</sup> ]	DATE OF LAST REPORT <sup>4</sup>
<b>Avian Influenza</b>		
A(H1N2) <sup>5</sup>	[2 (0), 0%]	<a href="#">January 2019</a>
A(H3N8)	[3 (1), 33%]	<a href="#">August 2023</a>
A(H5N1)	[902 (467), 52%]	January 2024
A(H5N6)	[90 (35), 39%]	January 2024
A(H5N8)	[7 (0), 0%]	<a href="#">February 2021</a>
A(H7N4)	[1 (0), 0%]	February 2018
A(H7N9)	[1,568 (615), 39%]	<a href="#">April 2019</a>
A(H9N2)	[122 (2), 2%]	<a href="#">December 2023</a>
A(H10N3)	[2 (0), 0%]	<a href="#">September 2022</a>
A(H10N5)	[1 (1), 100%]	January 2024
<b>Swine Influenza</b>		
A(H1N1)v	[46 (1), 2%]	<a href="#">December 2023</a>
A(H1N2)v	[51 (0), 0%]	<a href="#">November 2023</a>
A(H3NX)v <sup>6</sup>	[1 (0), 0%]	<a href="#">August 2023</a>
A(H3N2)v	[446 (1), <1%]	<a href="#">November 2022</a>
A(H1NX)v <sup>7</sup>	[1 (1), 100%]	<a href="#">November 2021</a>
Eurasian avian-like A(H1N1)v	[11 (0), 0%]	<a href="#">September 2023</a>
<b>MERS-CoV<sup>1</sup></b>		
Global Case Count <sup>8</sup>	[2,608 (938), 36%]	<a href="#">December 2023</a>
- Within Saudi Arabia <sup>9</sup>	[2,199 (857), 39%]	<a href="#">December 2023</a>

<sup>1</sup>**Date of 1<sup>st</sup> Reported Case of Human Infection:** MERS-CoV: February 2013 (retrospective case finding September 2012). A(H7N9): March 2013. A(H5N1): 1997. A(H9N2): 1998. A(H5N6): 2014. A(H5N8): December 2020. A(H7N4): February 2018. A(H1N2): March 2018. A(H10N3): May 2021. A(H3N8): April 2022. A(H3N2)v with M gene from pH1N1: 2011. A(H1N2)v: 2005. A(H1N1)v: 2005. EA A(H1N1): 1986, but the above table counts cases from January 2021. A(H10N5): January 2024.

<sup>2</sup>**Cumulative Case Counts:** updated using data reported by the World Health Organization, and the United States Centers for Disease Control and Prevention (US CDC).



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<sup>3</sup>**Case Fatality Rate (CFR):** the proportion of cases that resulted in death. Note that this rate is dependent on accurately reported deaths. For events with active cases, this value may be updated retrospectively as final disposition of the cases is known.

<sup>4</sup>**Date of Last Report:** the month and year in which at least one human case of the corresponding pathogen was previously reported.

<sup>5</sup>**A(H1N2):** virus is a seasonal reassortant of the A(H1N1)pdm09 and A(H3N2) seasonal strains.

<sup>6</sup>**A(H3NX)v:** virus is a novel influenza A(H3) virus with pending, inconclusive, or undetermined neuraminidase results.

<sup>7</sup>**A(H1NX)v:** virus is a novel influenza A(H1) virus with pending, inconclusive, or undetermined neuraminidase results.

<sup>8</sup>**Global Case Count:** cumulative case count and deaths due to MERS-CoV reflect retrospective updates provided in the World Health Organization (WHO) Disease Outbreak News (DON).

<sup>9</sup>**Saudi Arabia:** cumulative case count and deaths due to MERS-CoV in Saudi Arabia reflect retrospective updates provided in the WHO DON.

## AVIAN INFLUENZA UPDATES

### AVIAN INFLUENZA A(H5N1)

Two new human cases of avian influenza A(H5N1) were reported in January 2024 from Cambodia.

The first case was a 3-year-old male from Prey Veng province, Cambodia, who developed symptoms of illness on January 13, 2024. He was admitted to the hospital on January 16, 2024 with symptoms of high fever, cough, and runny nose. Prior to illness onset, the case had exposure to dead backyard chickens that were found around the residence. All close contacts tested negative.

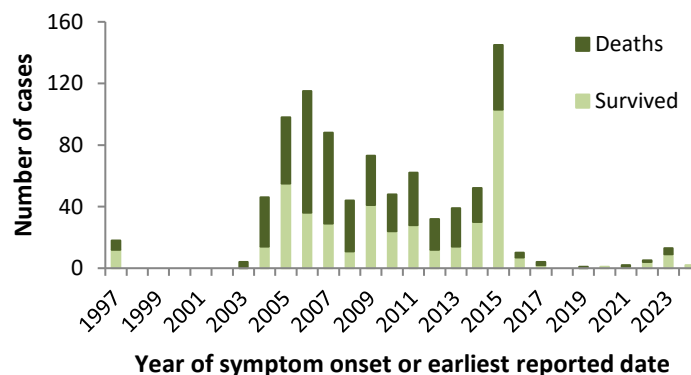
The second case was a 69-year-old male from Siem Reap province, Cambodia, who developed symptoms of illness on January 21, 2024. He was admitted to the hospital on January 23, 2024 with symptoms of high fever, cough, and difficulty breathing. This case also had existing hypertension as a comorbidity. Prior to illness onset, the case raised domestic poultry and fighting cocks, three of which tested positive. One close contact tested positive for influenza B/Victoria lineage.

According to the WHO, there does not appear to be any epidemiological link between the two cases. The clade for both cases was identified as 2.3.2.1c, which is the clade predominantly circulating in poultry in Cambodia. This clade is different from the clade currently circulating in Canada (2.3.4.4b).

In 2024, 2 human cases of avian influenza A(H5N1) have been detected worldwide. Since 2022, 21 human cases of A(H5N1) have been reported worldwide (2022: n=6, 2023: n=13, 2024: n=2) in Cambodia (8), Chile (1), China (2), Ecuador (1), Spain (2), United Kingdom (5), United States (1), Vietnam (1). Of these cases, 13 (including 1 death) belonged to clade 2.3.4.4b and 8 cases (including 4 deaths) all from Cambodia belonged to clade 2.3.2.1c. Since the emergence of A(H5N1) in humans in 1997, 902 human cases of A(H5N1) have been reported globally, with a CFR of 52%.

In Canada, A(H5N1) detections associated with the current 2021-2024 A(H5N1) clade 2.3.4.4b epizootic have been reported in domestic, backyard, and wild bird populations, as well as other animal species. No domestically acquired human A(H5N1) infections have been reported in Canada. In 2014, Canada (Alberta) reported a single fatal case of A(H5N1) in a resident returning from travel in China.

**Figure 2.** Temporal distribution of human cases of A(H5N1) influenza reported globally, by year, January 1, 1997, to January 31, 2024 (n=902).



**Note:** Graph was prepared by CERIPP using data from the WHO EIS postings, the US CDC's Health Alert Network (HAN), and WHO cumulative case counts. This graph reflects data available as of January 31, 2024.

### AVIAN INFLUENZA A(H5N6)

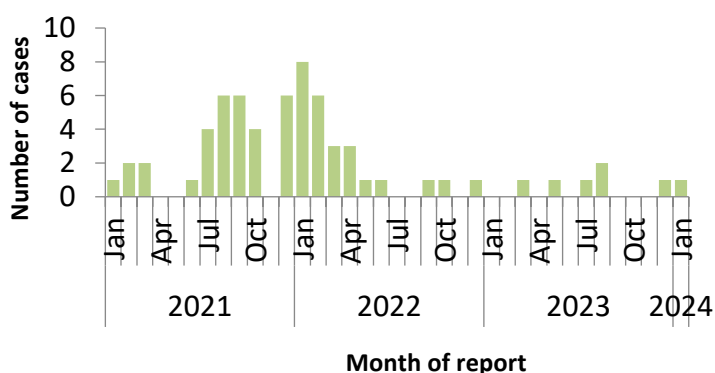
One new human case of avian influenza A(H5N6) was reported in January 2024 from China.

The case was a 59-year-old female farmer from Sichuan province who developed symptoms of illness on November 25, 2023. She was admitted to hospital with severe pneumonia on November 29, 2023. Prior to illness onset, the case had exposure to a live poultry market.

At the time of last report, no family members have developed symptoms and all close contacts tested negative for H5N6, H7, and H9. Environmental samples from the live poultry market tested positive for H5.

This is the first reported human case of avian influenza A(H5N6) in 2024. In 2023, 6 human cases of avian influenza A(H5N6) were detected, all in China. Since January 2021, 64 cases of avian influenza A(H5N6) have been reported globally (2021: n=32, 2022: n=25, 2023: n=5, 2024: n=1) (Figure 4); the majority of cases (63) were reported from China and one case was reported from Lao PDR (Figure 3). Since the emergence of this virus in 2014, a total of 90 laboratory-confirmed human cases of avian influenza A(H5N6), including at least 35 deaths, have been reported globally (CFR: 39%). No cases have been reported in Canada.

**Figure 3.** Temporal distribution of human cases of A(H5N6) influenza reported globally, by month, January 1, 2021, to January 31, 2024 (n=64).



**Note:** Graph was prepared by CERIPP using data from the WHO EIS postings and the Hong Kong Centre for Health Protection (CHP) press releases. This graph reflects data available as of January 31, 2024.

**Figure 4.** Spatial distribution of human cases of A(H5N6) influenza reported in China and Lao PDR from January 1, 2021, to January 31, 2024 (n=64).



**Note:** Map was prepared by CERIPP using data from the WHO EIS postings and the Hong Kong CHP press releases. This map reflects data available through these publications as of January 31, 2024.

### AVIAN INFLUENZA A(H9N2)

The most recent human cases of avian influenza A(H9N2) were reported in December 2023 from China.

To date, no human cases of avian influenza A(H9N2) have been reported worldwide in 2024. In 2023, a total of 15 human cases of avian influenza A(H9N2) were reported globally, all in China. Since the emergence of this virus in the human population in 1998, 122 cases have been reported worldwide, with a CFR of 2%. No cases have been reported in Canada.

### AVIAN INFLUENZA A(H10N5)

One new human case of avian influenza A(H10N5) was reported in January 2024 from China.

The case was a 63-year-old female from Anhui province, China, with an illness onset date of November 30, 2023. She was co-infected with A(H10N5) and seasonal influenza A(H3N2), and had underlying medical conditions. The case was admitted for medical treatment on December 2, 2023 and was subsequently hospitalized in Zhejiang province, China on December 7, 2023. She died on December 16, 2023. The case had been working away from home and kept no poultry or livestock at home. The case slaughtered one duck

she purchased on November 26, 2024. From the duck meat kept in her refrigerator, seven smear samples tested positive for H10N5, and two samples were positive for N5 (with no result for hemagglutinin). Prior to illness onset, she had no contact with pigs or other animals. None of the case's close contacts developed symptoms during the monitoring period.

This is the first reported human case of avian influenza A(H10N5) detected worldwide. Since this case is a co-infection, currently it is not known whether the case's death can be fully attributed to A(H10N5). No human infections with avian influenza A(H10N5) have been detected in Canada.

## SWINE INFLUENZA UPDATES

### SWINE ORIGIN INFLUENZA A(H1N1)v

The most recent human case of swine-origin influenza A(H1N1)v was reported in December 2023 from Switzerland.

To date, no human cases of swine origin influenza A(H1N1)v were reported worldwide in 2024. There have been 5 human A(H1N1)v cases reported worldwide in 2023 in Brazil (1), China (2), Spain (1) and Switzerland (1). A total of 46 human cases of A(H1N1)v have been reported globally since 2005, with a 2% CFR. Two A(H1N1)v detections have been reported in Canadian residents since reporting began in 2005, with the first case reported in Ontario in September 2012 and the second case reported in Manitoba in April 2021 (see [HERP Bulletin no 52](#)).

### SWINE ORIGIN INFLUENZA A(H1N2)v

The most recent human case of swine origin influenza A(H1N2)v was reported in November 2023 from the United Kingdom (UK).

To date, no human cases of swine origin influenza A(H1N2)v have been reported in 2024. In 2023, 4 human swine origin influenza A(H1N2)v cases were reported worldwide in Taiwan (1), the UK (1), and the United States (2). A total of 50 human cases of swine origin influenza A(H1N2)v have been reported globally since 2005, with a 0% CFR. Three swine origin influenza A(H1N2)v detections have been reported in Canadian residents since reporting began in 2005. The first case was reported in Alberta in October 2020 (see [HERP Bulletin no 46](#)), the second case was reported in Manitoba in April 2021 (see [HERP Bulletin no 52](#)) and the latest case in Canada was reported in November 2021 in Manitoba (see [HERP Bulletin no 59](#)).

## SWINE ORIGIN INFLUENZA A(H3N2/H3NX)v

The most recent human case of swine origin influenza A(H3N2)v was reported in November 2022 from the United States. The most recent human case of swine origin influenza A(H3NX)v was reported in August 2023 from the United States.

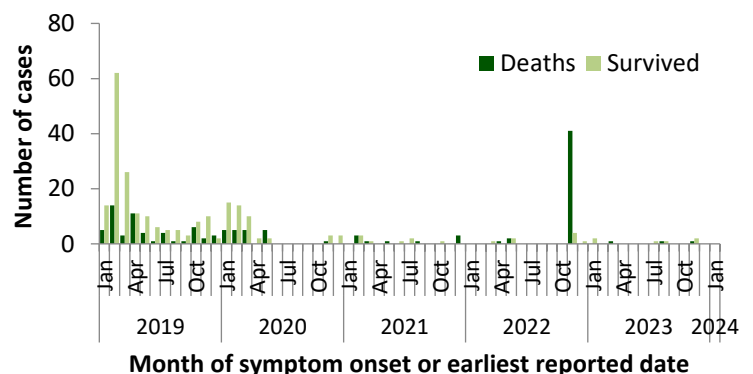
To date, no human cases of swine origin influenza A(H3N2)v have been reported worldwide in 2024. Excluding the reported case of A(H3NX)v in the United States (1), no cases of swine origin influenza A(H3N2)v were detected in 2023. Globally, 446 swine origin influenza A(H3N2)v cases have been reported since 2005, with <1% CFR. Two swine origin influenza A(H3N2)v detections have been reported in Canadian residents since reporting began in 2005, with the latest case reported in June 2021 (see [HERP Bulletin no 54](#)).

## MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV) UPDATE

The most recent human cases of MERS-CoV were reported in November 2023 from Saudi Arabia.

To date, no human cases of MERS-CoV have been reported in 2024. In 2023, 10 cases of MERS-CoV were reported in Oman (1), Saudi Arabia (8), and the United Arab Emirates (1). According to the WHO, 2,608 laboratory-confirmed cases of MERS-CoV, including 938 deaths, have been reported globally since reporting began in 2012 (CFR: 36%). No cases have ever been reported in Canada.

**Figure 5.** Temporal distribution of human cases of MERS-CoV reported to the WHO, globally, by month and year, January 1, 2019, to January 31, 2024 (n=329).



**Note:** Graph was prepared by CERIPP using data from the WHO Disease Outbreak News (DON) and Saudi Arabia's Ministry of Health. This graph reflects data available as of January 31, 2024. The data integrates CERIPP real-time reporting



with WHO DON retrospective reporting of MERS-CoV cases and deaths. In November 2022, the WHO published a DON article that updated their counts with retrospective cases and deaths, which resulted in an increase of an additional 5 cases and 41 deaths compared to their previous MERS-CoV-related DON. In August 2023, the WHO published a DON article with case information for three retrospective MERS-CoV cases and two deaths. These three cases and one death were already reflected in the cumulative case count of the DON article published in July 2023, as well as the case totals published in [HERP Bulletin no 79](#).