



HUMAN EMERGING RESPIRATORY PATHOGENS BULLETIN

MONTHLY SITUATIONAL ANALYSIS OF EMERGING RESPIRATORY DISEASES AFFECTING HUMANS

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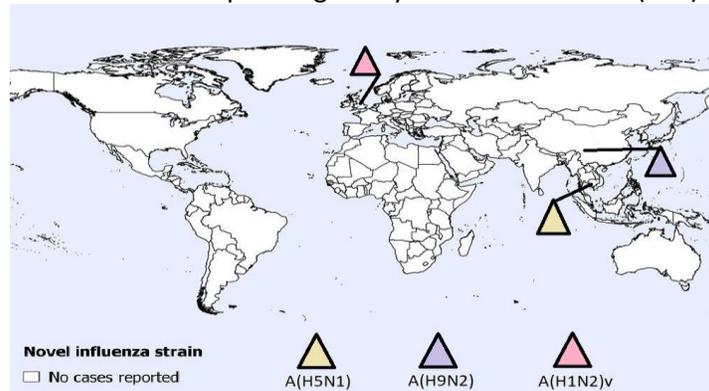
The Human Emerging Respiratory Pathogens (HERP) Bulletin is a monthly publication developed by the Public Health Agency of Canada (PHAC)'s Centre for Emerging and Respiratory Infections and Pandemic Preparedness (CERIPP). The HERP Bulletin serves as a mechanism for information sharing on summary surveillance 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 November 2023, the following human cases have been reported:

- Two new human cases of avian influenza [A\(H5N1\)](#)
- One new human case of avian influenza [A\(H9N2\)](#)
- One new human case of swine origin influenza [A\(H1N2\)v](#)

Figure 1. Spatial distribution of human cases of avian and swine influenza reported globally in November 2023 (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 November 30, 2023.

UPDATE ON HUMAN EMERGING RESPIRATORY PATHOGEN PUBLIC HEALTH EVENTS (AS OF NOVEMBER 30, 2023)¹

NOVEL INFLUENZA ¹	[N CUMULATIVE CASES ² (DEATHS), CFR% ³]	DATE OF LAST REPORT ⁴
Avian Influenza		
A(H1N2) ⁵	[2 (0), 0%]	January 2019
A(H3N8)	[3 (1), 33%]	August 2023
A(H5N1)	[900 (467), 52%]	October 2023
A(H5N6)	[88 (33), 38%]	August 2023
A(H5N8)	[7 (0), 0%]	February 2021
A(H7N4)	[1 (0), 0%]	February 2018
A(H7N9)	[1,568 (615), 39%]	April 2019
A(H9N2)	[120 (2), 2%]	August 2023
A(H10N3)	[2 (0), 0%]	September 2022
Swine Influenza		
A(H1N1)v	[45 (1), 2%]	June 2023
A(H1N2)v	[51 (0), 0%]	August 2023
A(H3NX)v ⁶	[1 (0), 0%]	August 2023
A(H3N2)v	[446 (1), <1%]	November 2022
A(H1NX)v ⁷	[1 (1), 100%]	November 2021
Eurasian avian-like A(H1N1)v	[11 (0), 0%]	September 2023
MERS-CoV¹		
Global Case Count ⁸	[2,605 (937), 36%]	August 2023
- Within Saudi Arabia ⁹	[2,196 (856), 39%]	August 2023

¹**Date of 1st 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.

²**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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Canada

³**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.

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

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

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

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

⁸**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).

⁹**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 A(H5N1) were reported in November 2023 from Cambodia.

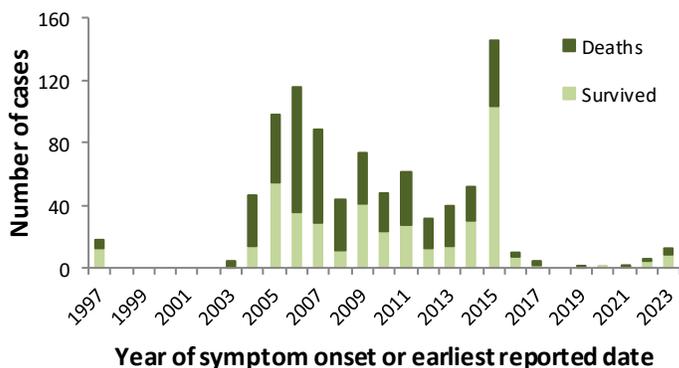
Both cases were living in Kampot Province, which is located in southwestern Cambodia. The first case was a 21-year-old female who developed respiratory symptoms on November 19, 2023. She was treated with antivirals, hospitalized in intensive care on November 23, 2023, and died on November 27, 2023. Prior to illness onset, dead chickens were found at her home and in her village. The second case was a 4-year-old female who lived in the house next to the first case. She developed respiratory symptoms on November 23, 2023. As of the time of last report (November 28, 2023), the case was treated with antivirals and admitted to hospital in intensive care on November 25, 2023. Prior to illness onset, she had contact with dead backyard chickens and within the past month, sick and dead chickens were present in the family's backyard.

According to the WHO, there does not appear to be human-to-human transmission between these 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 2023, 13 human cases of avian influenza A(H5N1) have been detected worldwide. This case count for 2023 represents an increase compared to the 6 reported human cases from January 2022 to November 2022. Since 2022, 19 human cases of A(H5N1) have been reported worldwide (2022: n=6, 2023: n=13) in Cambodia (6), Chile (1), China (2), Ecuador (1), Spain (2), United Kingdom (5), United States (1), Vietnam (1). Of these cases, 13 belonged to clade 2.3.4.4b and 6 belonged to clade 2.3.2.1c (Cambodia). Since the emergence of A(H5N1) in humans in 1997, 900 human cases of A(H5N1) have been reported globally, with a CFR of 52%.

In Canada, A(H5N1) detections associated with the current 2021-2023 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 November 30, 2023 (n=900).



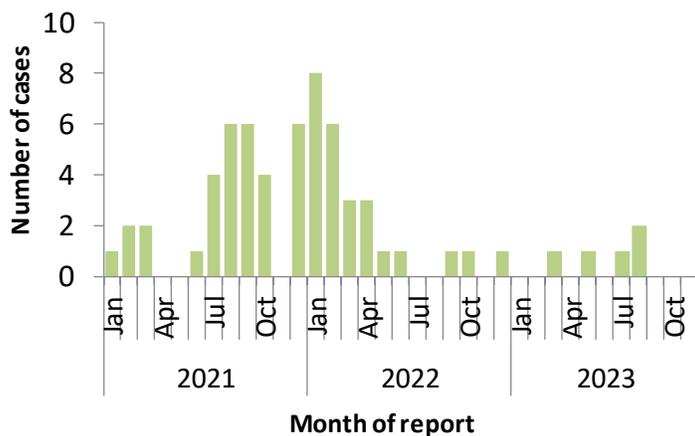
Note: Graph was prepared by CERIPP using data from the WHO EIS postings, the US CDC's Health Alert Network (HAN), and WHO cumulative case counts. This graph reflects data available as of November 30, 2023.

AVIAN INFLUENZA A(H5N6)

The most recent human cases of avian influenza A(H5N6) were reported in August 2023 from China.

In 2023, 5 human cases of avian influenza A(H5N6) have been detected, all in China. This case count for 2023 represents a decrease compared to the 24 reported human cases from January 2022 to November 2022. Since January 2021, 62 cases of avian influenza A(H5N6) have been reported globally (32 cases were reported in 2021, 25 cases in 2022 and 5 cases in 2023) (Figure 4); the majority of cases (61) 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 88 laboratory-confirmed human cases of avian influenza A(H5N6), including at least 33 deaths, have been reported globally (CFR: 38%). 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 November 30, 2023 (n=62).



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 November 30, 2023.

Figure 4. Spatial distribution of human cases of A(H5N6) influenza reported in China and Lao PDR from January 1, 2021, to November 30, 2023 (n=62).



A(H5N6) Human Cases January 1, 2021 - November 30, 2023

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 November 30, 2023.

AVIAN INFLUENZA A(H9N2)

One new human case of avian influenza A(H9N2) was reported in November 2023 from China.

The case was a 55-year-old male who works as a farmer in Sichuan Province, which is located in the southwest of China. He developed respiratory symptoms on October 1, 2023 and was hospitalized with severe pneumonia on October 5, 2023. The case had exposure to a live poultry market and to backyard poultry prior to illness onset. As of the time of last report (November 14, 2023), the final outcome of this case is unknown.

In 2023, a total of 13 human cases of avian influenza A(H9N2) have been reported globally, all in China. This case count for 2023 represents a decrease compared to the 18 reported human cases from January 2022 to November 2022. Since the emergence of this virus in the human population in 1998, 120 cases have been reported worldwide, with a CFR of 2%. No cases have been reported 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 June 2023 from Brazil.

There have been 4 human A(H1N1)v cases reported worldwide in 2023 in Brazil (1), China (2), and Spain (1). This case count for 2023 is the same as the 4 reported human cases from January 2022 to November 2022. A total of 45 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

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

The case was a male over 65 years of age, living in North Yorkshire, England. The case had an illness onset date of November 5, 2023, and experienced mild illness from which he fully recovered. He was not exposed to swine, pets, or farms, and reported no occupational exposure to animals prior to illness onset. However, pig farms are located within a few miles of where the case lives. One household and one health care contact reported mild symptoms, but were not tested during their symptomatic period. Both symptomatic contacts recovered. One additional close contact is under follow-up.

This case is the first detection of swine origin influenza A(H1N2)v clade (1b.1.1) in a human in the UK. The clade (1b.1.1) is different from the clade of the recent human cases of influenza A(H1N2)v elsewhere in the world, but is similar to the clade of viruses in UK swine.

There have been 4 human swine origin influenza A(H1N2)v cases reported worldwide in 2023 in Taiwan (1), the UK (1), and the United States (2). This case count for 2023 represents a decrease compared to the 7 reported human cases from January 2022 to November 2022. 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.

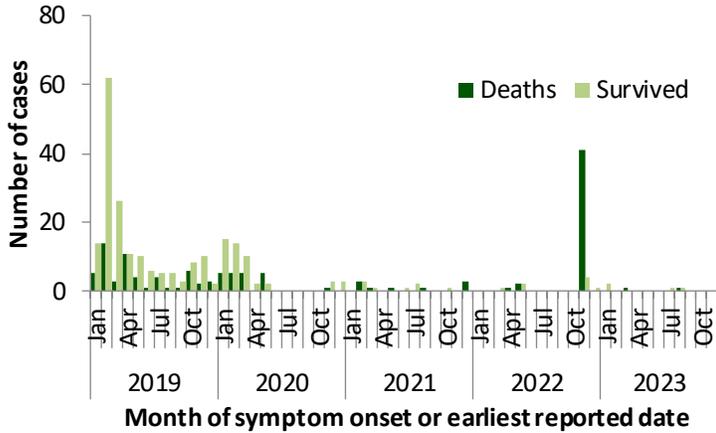
Excluding the reported case of A(H3NX)v, no cases of swine origin influenza A(H3N2)v have been detected in 2023. In 2023, one human case of swine origin influenza A(H3NX)v was detected in the United States (1). This case count for 2023 represents a decrease compared to the 5 reported human cases from January 2022 to November 2022. 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 August 2023 from Saudi Arabia.

In 2023, 7 cases of MERS-CoV were reported in Oman (1), Saudi Arabia (5), and the United Arab Emirates (1). This case count for 2023 represents an increase compared to the 6 reported human cases from January 2022 to November 2022. According to the WHO, 2,605 laboratory-confirmed cases of MERS-CoV, including 937 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 November 30, 2023 (n=326).



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 November 30, 2023. 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.