



HUMAN EMERGING RESPIRATORY PATHOGENS BULLETIN

MONTHLY SITUATIONAL ANALYSIS OF EMERGING RESPIRATORY DISEASES AFFECTING HUMANS

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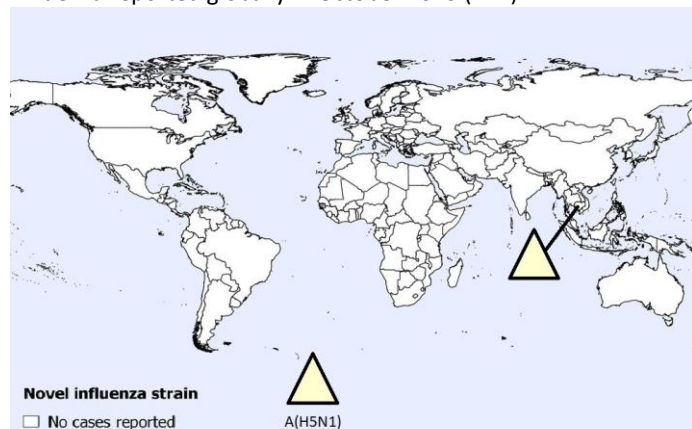
The Human Emerging Respiratory Pathogens (HERP) Bulletin is a monthly publication developed by the Public Health Agency of Canada (PHAC)'s Centre for Emerging and Respiratory Infections and Pandemic Preparedness (CERIPP). The HERP Bulletin serves as a mechanism for information sharing on summary surveillance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

- Two new human cases of avian influenza [A\(H5N1\)](#)

Figure 1. Spatial distribution of human cases of avian and swine influenza reported globally in October 2023 (n=2).



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 October 31, 2023.

UPDATE ON HUMAN EMERGING RESPIRATORY PATHOGEN PUBLIC HEALTH EVENTS (AS OF OCTOBER 31, 2023)¹

NOVEL INFLUENZA ¹	[N CUMULATIVE CASES ² (DEATHS), CFR% ³]
Avian Influenza	
A(H1N2) ⁴	[2 (0), 0%]
A(H3N8)	[3 (1), 33%]
A(H5N1)	[898 (466), 52%]
A(H5N6)	[88 (33), 38%]
A(H5N8)	[7 (0), 0%]
A(H7N4)	[1 (0), 0%]
A(H7N9)	[1,568 (615), 39%]
A(H9N2)	[119 (2), 2%]
A(H10N3)	[2 (0), 0%]
Swine Influenza	
A(H1N1)v	[45 (1), 2%]
A(H1N2)v	[50 (0), 0%]
A(H3NX)v ⁵	[1 (0), 0%]
A(H3N2)v	[446 (1), <1%]
A(H1NX)v ⁶	[1 (1), 100%]
Eurasian avian-like A(H1N1)v	[11 (0), 0%]
MERS-CoV¹	
Global Case Count ⁷	[2,605 (937), 36%]
- Within Saudi Arabia ⁸	[2,196 (856), 39%]

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).

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

⁵**A(H3NX)v:** virus is a novel influenza A(H3) virus with pending, inconclusive, or undetermined neuraminidase results.

⁶**A(H1NX)v:** virus is a novel influenza A(H1) virus with pending, inconclusive, or undetermined neuraminidase results.

⁷**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).

⁸**Saudi Arabia:** cumulative case count and deaths due to MERS-CoV in Saudi Arabia reflect retrospective updates provided in the WHO DON.



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AVIAN INFLUENZA UPDATES

AVIAN INFLUENZA A(H5N1)

Two (2) new human cases of A(H5N1) were reported in October 2023, both from Cambodia.

The first case is a 50-year-old male from Svay Rieng province, which is located in the southeast of Cambodia, bordering Vietnam. Symptom onset was October 3, 2023, and died on October 7, 2023. The case had exposure to dead and sick birds prior to illness onset and had consumed a previously sick bird.

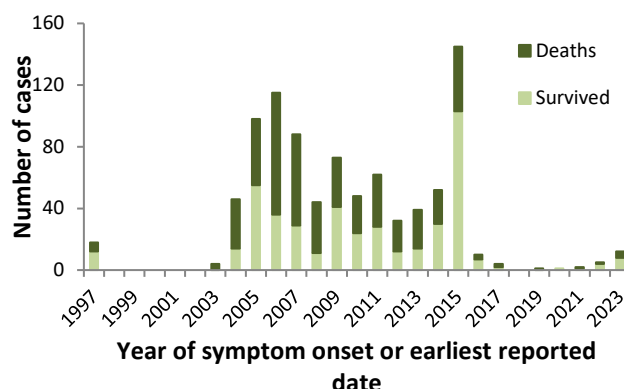
The second case is a 2-year-old female from Prey Veng province, also located in the southeast, adjacent to Svay Rieng. Symptom onset was October 3, 2023. The case was hospitalized on October 5, 2023, and died on October 6, 2023. Sick and dead chickens were found in the village and the case's house. The family had handled and cooked sick and dead poultry.

While the two cases reside in neighboring provinces, no common source of exposure has been identified. No epidemiological link exists between these two cases. No secondary cases have been identified among close contacts. 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).

Since 2022, including these 2 new cases, 17 human cases of A(H5N1) have been reported worldwide (2022 n=5, 2023 n=12) in Cambodia (4), Chile (1), China (2), Ecuador (1), Spain (2), United Kingdom (5), United States (1), Vietnam (1). Of these cases, the vast majority (13/17) belonged to clade 2.3.4.4b but only the four cases detected in Cambodia belonged to clade 2.3.2.1c. Since the emergence of A(H5N1) in humans in 1997, 898 human cases of A(H5N1) have been reported globally, with a case fatality rate (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 worldwide. No domestically acquired human A(H5N1) infections have ever been reported in Canada. In 2014, Canada (Alberta) reported a single fatal case of A(H5N1) in a resident returning from travel to China.

Figure 2. Temporal distribution of human cases of A(H5N1) influenza reported globally, by year, January 1, 1997, to October 31, 2023 (n=898).



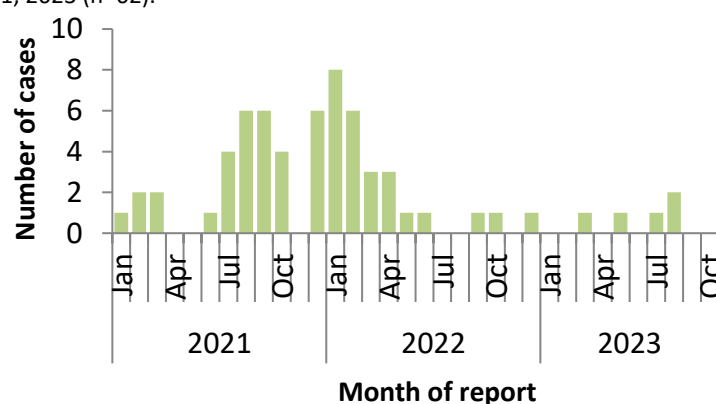
Note: Graph was prepared by CERIPP using data from the WHO EIS postings, the US CDC's Health Alert Network (HAN), and WHO cumulative case counts. This graph reflects data available as of October 31, 2023.

AVIAN INFLUENZA A(H5N6)

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

In 2023, five human cases of avian influenza A(H5N6) have been detected. A total of 88 laboratory-confirmed human cases of avian influenza A(H5N6), including at least 33 deaths (CFR: 38%) have been reported globally since 2014. 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 five cases in 2023) (Figure 3); the majority of cases (61) were reported from China and one case was reported from Lao PDR (Figure 4). 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 October 31, 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 October 31, 2023.

Figure 4. Spatial distribution of human cases of A(H5N6) influenza reported in China and Lao PDR from January 1, 2021, to October 31, 2023 (n=62).



A(H5N6) Human Cases ■ January 1, 2021 - October 31, 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 October 31, 2023.

AVIAN INFLUENZA A(H9N2)

The most recent human case of avian influenza A(H9N2) was reported in August 2023 from China.

In 2023, a total of 12 human cases of avian influenza A(H9N2) have been reported globally. Since the emergence of this virus in the human population in 1998, 119 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 in Brazil.

There have been four human A(H1N1)v cases reported worldwide in 2023. 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

The most recent case of swine origin influenza A(H1N2)v was reported in September 2023 from the United States.

There have been three human swine origin influenza A(H1N2)v cases reported worldwide in 2023. 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.

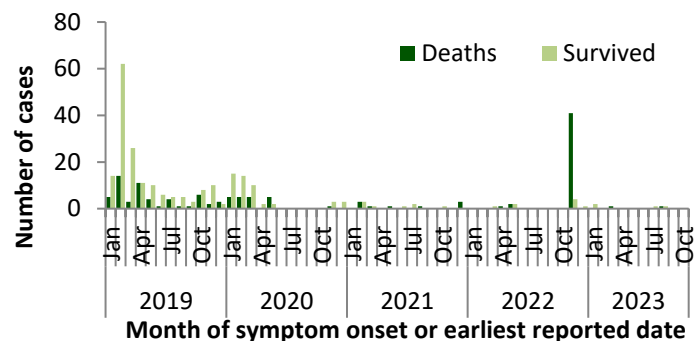
Excluding the reported case of A(H3NX)v, no cases of swine origin influenza A(H3N2)v have been detected in 2023. Globally, 446 swine origin influenza A(H3N2)v cases have been reported since 2005, with <1% CFR. Two swine origin influenza A(H3N2)v detections have been reported in Canadian residents since 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, seven cases of MERS-CoV were reported. 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 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 October 31, 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 October 31, 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](#).