



# HUMAN EMERGING RESPIRATORY PATHOGENS BULLETIN

## MONTHLY SITUATIONAL ANALYSIS OF EMERGING RESPIRATORY DISEASES AFFECTING HUMANS

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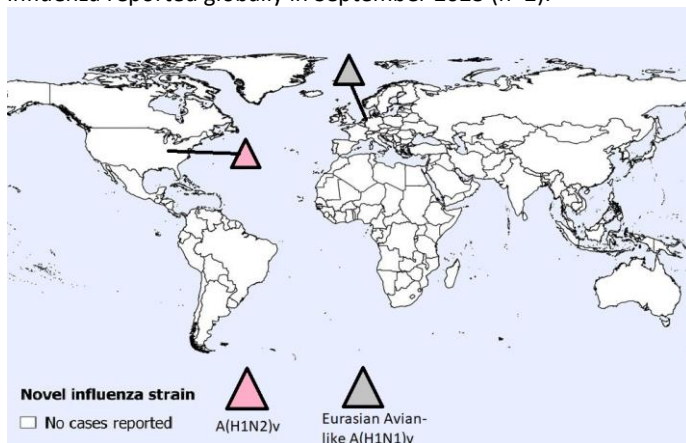
The Human Emerging Respiratory Pathogens (HERP) Bulletin is a monthly publication developed by the Public Health Agency of Canada (PHAC)'s Centre for Emerging and Respiratory Infections and Pandemic Preparedness (CERIPP). The HERP Bulletin serves as a mechanism for information sharing on summary surveillance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

- One new human case of swine origin influenza [A\(H1N2\)v](#)
- One new human case of swine-origin Eurasian avian-like [A\(H1N1\)v](#)
- One previously reported human case of avian influenza A(H9NX) confirmed as [A\(H9N2\)](#)

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

### UPDATE ON HUMAN EMERGING RESPIRATORY PATHOGEN PUBLIC HEALTH EVENTS (AS OF SEPTEMBER 30, 2023)<sup>1</sup>

#### NOVEL INFLUENZA<sup>1</sup>

[N CUMULATIVE CASES<sup>2</sup> (DEATHS), CFR%<sup>3</sup>]

##### Avian Influenza

A(H1N2) <sup>4</sup>	[2 (0), 0%]
A(H3N8)	[3 (1), 33%]
A(H5N1)	[896 (464), 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 <sup>5</sup>	[1 (0), 0%]
A(H3N2)v	[446 (1), <1%]
A(H1NX)v <sup>6</sup>	[1 (1), 100%]
Eurasian avian-like A(H1N1)v	[11 (0), 0%]

#### MERS-CoV<sup>1</sup>

Global Case Count <sup>7</sup>	[2,605 (937), 36%]
- Within Saudi Arabia <sup>8</sup>	[2,196 (856), 39%]

<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.

<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).

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

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

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

<sup>7</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>8</sup>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)

The most recent human cases of avian influenza A(H5N1) were reported in July 2023 from the United Kingdom.

Since 2022, 15 human cases of A(H5N1) have been reported worldwide (2022 n=5, 2023 n=10) in Cambodia (2), 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 two belonged to clade 2.3.2.1c (both from Cambodia). Since the emergence of A(H5N1) in humans in 1997, 896 human cases of A(H5N1) have been reported globally, with a CFR of 52%.

In Canada, a significant number of 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 ever been reported in Canada. In 2014, Canada (Alberta) reported a single fatal case of A(H5N1) in a resident returning from travel in China.

### 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 2); the majority of cases (61) were reported from China and one case was reported from Lao PDR (Figure 3). No cases have been reported in Canada.

### AVIAN INFLUENZA A(H9N2)

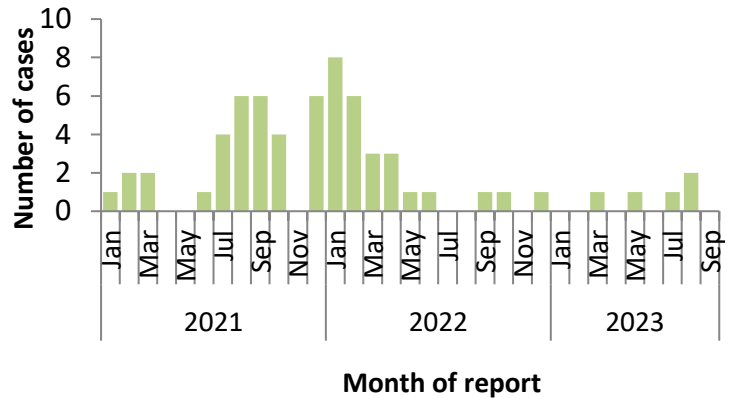
The human infection of avian influenza A(H9NX) reported in August 2023 in China was confirmed to be A(H9N2) in September 2023.

The case was a 4-year-old female from Sichuan Province, with an illness onset date of August 7, 2023. The case had mild symptoms, was not hospitalized and has since recovered. The case had exposure to a live poultry market. Samples were collected from close contacts and the surrounding environment, and the environmental samples tested positive for H9. No family members have developed symptoms at the time of last report.

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.

**Figure 2.** Temporal distribution of human cases of A(H5N6) influenza reported globally, by month, January 1, 2021, to September 30, 2023 (n=62).



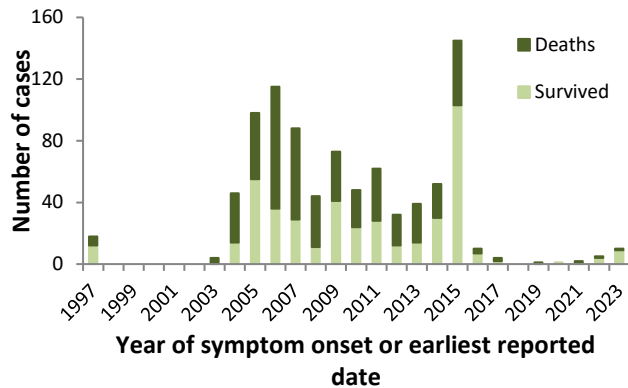
Note: Graph was prepared by CERIPP using data from the WHO EIS postings and the Hong Kong Centre for Health Protection (CHP) press releases. This graph reflects data available as of September 30, 2023.

**Figure 3.** Spatial distribution of human cases of A(H5N6) influenza reported in China and Lao PDR from January 1, 2021, to September 30, 2023 (n=62).



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

**Figure 4.** Temporal distribution of human cases of A(H5N1) influenza reported globally, by year, January 1, 1997, to September 30, 2023 (n=896).



**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 September 30, 2023.

## 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 #52](#)).

### SWINE ORIGIN INFLUENZA A(H1N2)v

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

The case was under 18 years old from Montana and had attended an agricultural fair. The case was not hospitalized. No additional case details are available at this time.

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 #46](#)), the second case was reported in Manitoba in April 2021 (see [HERP Bulletin #52](#)) and the latest case in Canada was reported in November 2021 in Manitoba (see [HERP Bulletin #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. No additional case details are available at this time.

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 #54](#)).

### SWINE-ORIGIN EURASIAN AVIAN-LIKE INFLUENZA A(H1N1)v

One human case of Eurasian avian-like influenza A(H1N1)v was reported September 2023 from the Netherlands.

The case was an adult from North Brabant province and was detected as part of a participatory surveillance program for acute respiratory infections. The case developed symptoms of chills, sneezing, cough, headache, generalized weakness and headache on August 20, 2023. The case had no underlying disease and has since recovered. The source of infection is currently unknown. The case did not work at a farm or another business that required close contact with pigs and did not work in healthcare. Whole genome sequencing revealed that this virus, A/Netherlands/10534/2023, is an A(H1N1)v Eurasian avian-like clade 1C.2.2 swine influenza virus.

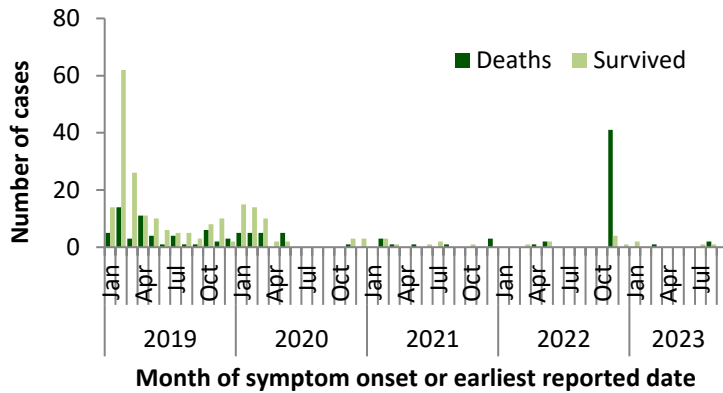
This is the first case of swine-origin Eurasian avian-like influenza A(H1N1)v detected worldwide in 2023. Since 1986, a total of 11 human cases of Eurasian avian-like influenza A(H1N1)v have been reported globally with a 0% CFR. No cases have ever been reported in Canada.

## 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 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 September 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 September 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 #79.