



HUMAN EMERGING RESPIRATORY PATHOGENS BULLETIN

MONTHLY SITUATIONAL ANALYSIS OF EMERGING RESPIRATORY DISEASES AFFECTING HUMANS

Issue No 48 December 2020

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COVID-19 UPDATE

On December 31, 2019, cases of a pneumonia of unknown etiology were reported in Wuhan, China. These cases have since been determined to be due to a novel coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease 2019 (COVID-19). On January 30, 2020, the World Health Organization (WHO) first declared the outbreak a Public Health Emergency of International Concern (PHEIC). On March 11, 2020, the WHO characterized the outbreak as a global pandemic. The WHO Director-General convened the International Health Regulations (IHR) Emergency Committee (EC) on COVID-19 five times throughout 2020, continually assessing that COVID-19 constitutes a PHEIC.

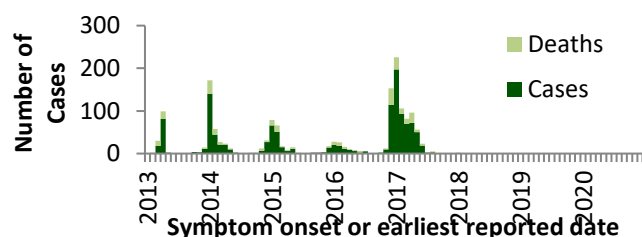
As of December 30, 2020, 572,982 COVID-19 cases and 15,472 deaths have been reported in Canada.

The Public Health Agency of Canada is monitoring the situation closely. For the most up-to-date information, please visit:

<https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>

AVIAN INFLUENZA UPDATES

Figure 1. Temporal distribution of human infection with avian influenza A(H7N9), globally, by month and year, January 1, 2013 to December 31, 2020 (n=1,568).



Note: Graph was prepared by the Centre for Immunization and Respiratory Infectious Diseases (CIRID) using data from the latest WHO Monthly Influenza at the Human-Animal Interface Risk Assessment. This graph reflects data available through these risk assessments as of December 31, 2020.

UPDATE ON HUMAN EMERGING RESPIRATORY PATHOGEN PUBLIC HEALTH EVENTS (AS OF DECEMBER 31, 2020)

NOVEL INFLUENZA¹ [N CUMULATIVE CASES² (DEATHS), CFR%³]

A(H7N9)	[1,568 (615), 39%]
A(H5N1)	[880 (461), 52%]
A(H9N2)	[66 (1), 2%]
A(H5N6)	[26 (8), 30%]
A(H7N4)	[1 (0), 0%]
A(H1N2)	[2 (0), 0%]
A(H3N2)v	[436 (1), <1%]
A(H1N2)v	[28 (0), 0%]
A(H1N1)v	[29 (0), 0%]

MERS-CoV¹

Global case count	[2,557 (872), 34%]
Saudi Arabia	[2,161 (794), 37%]

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(H7N4): February 2018. A(H3N2)v with M gene from pH1N1: 2011. A(H1N2)v: 2005. A(H1N1)v: 2005.

²**Cumulative Case Counts:** updated using data reported by the World Health Organization (avian and swine influenza, MERS CoV), and the United States Centers for Disease Control and Prevention (US CDC) (swine influenza).

³**Case Fatality Rate:** The proportion of cases that resulted in death.

AVIAN INFLUENZA A(H7N9)

No new H7N9 cases were reported to the WHO since April 2019. Two travel-related cases were reported in Canada in January 2015. Globally, 1,568 human cases of avian influenza A(H7N9), including at least 615 deaths, have been reported since 2013 (Figure 1).

AVIAN INFLUENZA A(H9N2)

On December 9, 2020, China retrospectively notified the WHO of six H9N2 cases, detected between July 2019 and December 2020 in five different reporting regions. There were no case clusters. No deaths were reported amongst the cases and all cases experienced mild illness. Most cases reported exposure to live poultry, although one case reported no specific exposures.

AVIAN INFLUENZA A(H5N6)

China reported two separate H5N6 cases to the WHO in December 2020. The first case was an 81-year-old female farmer from Jiangsu Province who had exposure to live poultry prior to illness onset on November 16, 2020. This case was admitted to the hospital with severe pneumonia on November 21, 2020, and subsequently died on November 27, 2020. The second case is a 54-year-old female farmer from Hunan Province with reported exposure to live poultry prior to illness onset. On December 13, 2020, she was admitted to the hospital with severe pneumonia and was later admitted to the ICU. On December 17, 2020, throat swab specimen were collected and tested positive for H5N6. An update of her outcome status was not reported. Twenty-six cases of H5N6 have been reported globally, all from China.

SWINE INFLUENZA UPDATES

SWINE ORIGIN INFLUENZA A(H3N2)v

The most recent case of swine origin influenza A(H3N2)v was reported in July 2020 in the United States. A total of 436 cases, including one death, has been reported globally since 2011. One locally acquired case of H3N2v was reported in Canada in December 2016.

SWINE ORIGIN INFLUENZA A(H1N2)v

One new H1N2v case was reported from Brazil in December 2020. The case is a 4-year-old female from Parana state who reported to the hospital after symptom onset. The case was treated with antivirals and has since recovered. This case marks the 3rd H1N2v case reported out of Brazil and the 28th case worldwide.

SWINE ORIGIN INFLUENZA A(H1N1)v

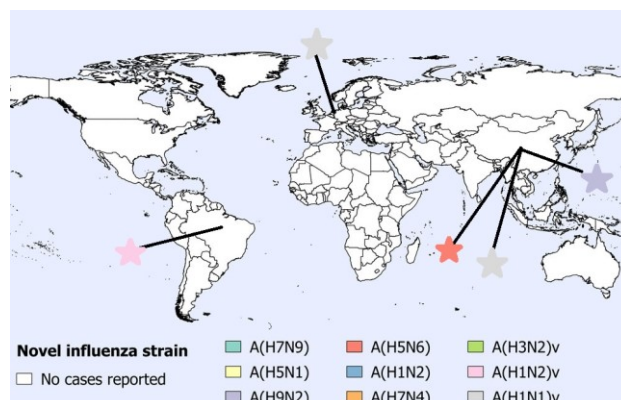
Three H1N1v cases were reported to the WHO in December 2020, two from the Netherlands and one from China.

The Netherlands retrospectively reported a swine influenza A(H1N1)v case from September 2019. The virus was detected in a 43-year-old male farmer who developed influenza-like illness (ILI) and has since recovered. The second H1N1v case was reported from the Netherlands to the WHO on December 17, 2020. This case is a young adult with an impaired immune system who was admitted to the hospital for a transplantation in September 2020. Before the transplantation, the patient tested negative for influenza A. The patient developed ILI seven days after the transplantation and tested positive for influenza A. The patient tested negative for influenza A 23 days after symptom onset. This case had no direct contact with pigs or other animals during the incubation period. Source and contact tracing are underway with no secondary detections so far.

In China, the reported H1N1v case is an 11-month-old male from Guangdong Province. He developed mild symptoms after which throat swab specimens were taken and he tested positive. No information is available on animal exposure prior to illness onset and no other cases were suspected in his family members at the time of reporting.

Twenty-nine cases of influenza A(H1N1)v has been reported worldwide, with no deaths reported to date. These cases are separate from infections of the A(H1N1)pdm09 virus, which caused the 2009 pandemic.

Figure 2. Spatial distribution of human cases of avian and swine influenza reported globally in December 2020 (n=12).

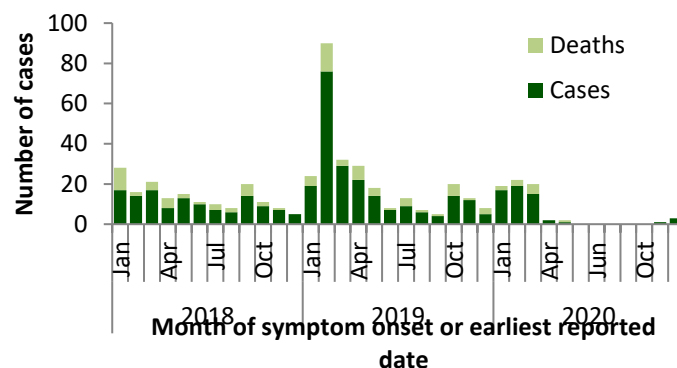


Note: Map was prepared by the Centre for Immunization and Respiratory Infectious Diseases (CIRID) using data from the latest WHO Monthly Influenza at the Human-Animal Interface Risk Assessment. This map reflects data available through these risk assessments as of December 31, 2020.

MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV) UPDATE

Three new cases of MERS-CoV were reported in December 2020, all from the Kingdom of Saudi Arabia (Figure 3). The first case, reported on December 1, 2020, is a 62-year-old male from Riyadh city in the Riyadh region with no reported camel contact. Cases two and three, both reported on December 12, 2020 with reported camel contact, are a 40-year-old male and 53-year-old male, respectively. Case two is from Alkhorma city in the Taif region and case three is from Alahsa city in the Alahsa region. All cases were classified as primary, meaning it is unlikely they contracted the virus from another case. No new deaths were reported. A total of 2,557 laboratory-confirmed cases of MERS-CoV, including 872 deaths, have been reported globally since 2012 by the WHO. No cases have been reported in Canada.

Figure 3. Temporal distribution of human cases of MERS-CoV reported to the WHO, globally, by month and year, January 1, 2018 to December 31, 2020 (n=402).



Note: Graph was prepared by the Centre for Immunization and Respiratory Infectious Diseases (CIRID) using data from the WHO Disease Outbreak News and Saudi Arabia's Ministry of Health. This graph reflects data available as of December 31, 2020.