

Zoonotic influenza

Annual Epidemiological Report for 2020

Key facts

- No human cases of avian influenza were reported in the EU/EEA for 2020.
- Sporadic human cases of avian influenza A(H5N1), A(H5N6), A(H5N8) and A(H9N2) infection were reported.
- In 2020, outbreaks and detections of highly pathogenic avian influenza viruses, mainly A(H5) of clade 2.3.4.4, continued to affect poultry, wild and captured birds worldwide.
- Influenza virus A(H1N1)v, A(H1N2)v and A(H3N2)v of swine origin caused sporadic human cases in Brazil, Canada, China, Germany, the Netherlands, and the United States. Slightly more human cases were identified, probably due to greater awareness, combined with more targeted testing in those with respiratory symptoms during the ongoing COVID-19 pandemic.

Methods

This report is based on data for 2020, retrieved on 2 June 2021.

This report includes 2020 events and data and does not cover the entire winter-season pattern.

Since September 2017, ECDC, together with EFSA and the EU reference laboratory for avian influenza, have been publishing quarterly updates on the avian influenza situation (see [link](#)) [1]. All avian influenza detections in humans and birds for 2020 listed below have been published in the avian influenza situation reports [2-6].

Epidemiology

Avian and swine influenza in humans

Avian influenza virus A(H5N1)

In 2020, one human case infected with avian influenza A(H5N1) was reported from Laos [7,8]. Between 2003 and 2020, WHO reported 862 human cases due to influenza A(H5N1), including 455 deaths[7,9].

Avian influenza virus A(H5N6)

In 2020, China reported five human cases, all women, infected with avian influenza A(H5N6) virus with the probable source of infection being exposure to poultry [8,10-12]. Overall, 29 laboratory-confirmed cases were reported between 2014 and December 2020¹.

Avian influenza virus A(H5N8)

In 2020, seven poultry workers tested positive following exposure during an outbreak of highly pathogenic avian influenza (HPAI) A(H5N8) virus on a poultry farm in southern Russia. All seven human cases were reported to be mild or asymptomatic and no human-to-human transmission was observed [7,13]

Avian influenza virus A(H7N9)

No human cases of A(H7N9) were reported in 2020[10-12]. After the identification of a novel reassortant low pathogenic avian influenza virus A(H7N9) in China in March 2013 which mutated into a highly pathogenic form for poultry, overall 1 568 human cases, including 615 deaths, were reported from mainland China, the Hong Kong Special Administrative Region (SAR) and Taiwan. Canada and Malaysia also reported travel-related cases [7].

Avian influenza virus A(H9N2)

In 2020, eight human cases of avian influenza A(H9N2) virus were reported by China[10-12]. Cases reported exposure to poultry, backyard poultry, live poultry market or a contaminated environment before onset of symptoms.

Swine influenza virus A(H1N1)v

China reported five cases [14,15] and the United States reported one human case of swine-origin influenza A(H1N1)v [16,17]; Germany reported one case in a two-year-old child and the Netherlands reported one case in a 43-year old farmer [10-12,15,18].

Swine influenza virus A(H1N2)v

Brazil reported two cases, a four-year-old girl and a young female adult worker in a slaughterhouse, and Canada reported one case [8,10-12,18].

Swine influenza virus A(H3N2)v

The United States reported one human case of swine-origin influenza A(H3N2)v [10-12,16].

Avian influenza detections in birds

Highly pathogenic avian influenza A(H5)

Highly pathogenic avian influenza A(H5) viruses without N-type determination have been reported from Africa (Nigeria, Senegal) Asia (China, India, Laos, and Vietnam), and Europe (Belgium, France, Germany, Italy, the Netherlands, Russia, and Ukraine) and Asia (Kazakhstan and Taiwan) [19].

Highly pathogenic avian influenza A(H5N1)

Highly pathogenic avian influenza A(H5N1) virus continued to cause outbreaks and was detected in and affected poultry and wild birds in several countries in Africa (Nigeria, Senegal) Asia (China, India, Laos, and Vietnam), and Europe (Germany, Italy, the Netherlands and the United Kingdom (UK)) [19].

Highly pathogenic avian influenza A(H5N3)

In 2020, detections of avian influenza A(H5N3) virus were reported from Germany [19].

Highly pathogenic avian influenza A(H5N5)

Avian influenza A(H5N5) viruses were detected in Europe (Belgium, Denmark, France, Germany, Italy, the Netherlands, Russia, Slovenia, Sweden and the UK) and Asia (Taiwan) [19].

Highly pathogenic avian influenza A(H5N6)

In 2020, outbreaks related to highly pathogenic avian influenza A(H5N6) viruses were reported from China, the Philippines and Vietnam [19].

Highly pathogenic avian influenza A(H5N8)

In 2020, large outbreaks in wild birds and poultry were mainly reported from Europe (Belgium, Bulgaria, Croatia, Czechia, Denmark, France, Germany, Hungary, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden and the UK), but also Africa (South Africa); Asia (China, India, Japan, Kazakhstan, the Republic of Korea); and the Middle East (Israel, Iraq, Iran, Kuwait, Saudi Arabia) [19].

¹ For more information, see: <https://www.ecdc.europa.eu/en/publications-data/avian-influenza-overview-february-may-2021> and <https://www.ecdc.europa.eu/en/publications-data/avian-influenza-overview-december-2020-february-2021>

Low pathogenic avian influenza viruses of subtype A(H5)

A(H5) viruses without N-typing have been reported from Belgium, Italy, the Netherlands, the Republic of Korea and South Africa. The Republic of Korea reported outbreaks due to A(H5N3) and A(H5N9) virus and Germany and the Republic of Korea reported outbreaks due to A(H5N8) virus [19].

High and low pathogenic avian influenza viruses of subtype A(H7)

In 2020, South Africa reported outbreaks of low pathogenic avian influenza (LPAI) A(H7) viruses (no N-type), Italy reported outbreaks of LPAI A(H7N1) viruses, the United States reported LPAI (H7N3) detections and Australia reported LPAI A(H7N6) and HPAI A(H7N7) outbreaks. China reported one LPAI A(H7N9) virus detection [19].

Discussion

In 2020, a high number of outbreaks of highly pathogenic avian influenza virus, mostly A(H5N8), were reported in wild birds and at poultry holdings in EU/EEA countries, with the first human case reported from Russia. Additional human cases of avian influenza A(H5N1), A(H5N6), A(H7N9), and A(H9N2) were reported from countries outside the EU/EEA. Several human infections with influenza virus of swine origin were reported from European countries, Brazil, Canada, China and the United States, probably due to the ongoing COVID-19 pandemic and an increase in testing of people with respiratory symptoms. Viruses of animal origin continue to evolve genetically and reassort with influenza viruses better adapted to, and transmissible among humans. These emerging avian influenza viruses have the potential to infect humans and cause severe disease.

Public health implications

Zoonotic influenza viruses remain a concern for human health in Europe. Therefore rigorous surveillance is needed among animals. Reassortment events relating to swine, avian and human viruses should be monitored carefully, and any transmission to humans should be identified as early as possible to prevent further human-to-human spread. To be better prepared for a new pandemic possibly arising from any of these new strains, WHO has published a list of candidate vaccines [7].

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