

Zoonotic influenza

Annual Epidemiological Report for 2019

Key facts

- No human cases of avian influenza were reported in the EU/EEA.
- One human A(H5N1) and another A(H7N9) infection were reported from mainland China.
- Sporadic human cases of avian influenza A(H5N6) and A(H9N2) were reported.
- In 2019, outbreaks and detections of highly pathogenic avian influenza viruses such as A(H5N1), A(H5N2), AH(H5N5), A(H5N6) or A(H5N8) continued to affect poultry, wild and captured birds worldwide.
- Influenza virus A(H1N1)v of swine origin caused two human cases, one in the United States and one in China.

Methods

This report is based on data for 2019 retrieved on 31 January 2020.

This report includes 2019 events and data and does not follow the entire winter season pattern.

Since September 2017, ECDC together with EFSA and the EU reference laboratory for avian influenza publish quarterly updates of the situation on avian influenza [1].

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Epidemiology

Avian and swine influenza in humans

Avian influenza virus A(H5N1)

In 2019, one human case infected with avian influenza A(H5N1) was observed in Nepal [2]. Between 2003 and 2019, WHO reported 861 human cases due to influenza A(H5N1), including 455 deaths [2,3].

Avian influenza virus A(H5N6)

In 2019, China reported one human case infected with avian influenza A(H5N6) virus with the likely source of infection being exposure to chilled meat [4]. Overall, 25 laboratory-confirmed cases have been reported since 2014.

Avian influenza virus A(H7N9)

After the identification of a novel reassortant low pathogenic avian influenza virus A(H7N9) in China in March 2013, and the mutation into a highly pathogenic form for poultry, overall 1 568 human cases including 615 deaths were reported from mainland China, Hong Kong Special Administrative Region (SAR), and Taiwan; Canada and Malaysia have previously reported travel-related cases. In 2019, WHO reported one laboratory-confirmed human case due to avian influenza A(H7N9) virus from China [5]. The main sources of infection were exposure to infected poultry or contaminated environments. No sustained human-to-human transmission has been recorded, although clusters of human cases were identified previously [6].

Avian influenza virus A(H9N2)

In 2019, seven human cases due to avian influenza A(H9N2) virus were reported by China (4), India (1), Oman (1) and Senegal (1). Cases reported exposure to poultry, backyard poultry, live poultry market or contaminated environment before onset of symptoms [2,5,7-11].

Swine influenza virus A(H1N1)v

The United States reported one human case of swine-origin influenza A(H1N1)v and one infection was reported in a 38-year old man from Hebei, China [11,12].

Avian influenza detections in birds

Highly pathogenic avian influenza A(H5N1)

Highly pathogenic avian influenza A(H5N1) virus caused continued outbreaks and was detected in poultry and wild birds and affected poultry and wild birds in several countries in Asia (Bhutan, China, India, Indonesia, Nepal, and Vietnam) [13-16]

Highly pathogenic avian influenza A(H5N2)

In 2019, detections of influenza A(H5N2) virus were reported from: Egypt and Taiwan [13-16].

Highly pathogenic avian influenza A(H5N5)

Avian influenza A(H5N5) viruses were detected in Taiwan [13-16].

Highly pathogenic avian influenza A(H5N6)

In 2019, continued circulation and outbreaks related to highly pathogenic avian influenza A(H5N6) viruses were reported from mainland Cambodia, China, Nigeria and Vietnam [13-16]

Reassortant influenza A(H5N6) viruses were detected in Denmark. These viruses are only distantly related to A(H5N6) viruses circulating in Asia and no transmission to humans has been reported for these viruses [13-16]

Highly pathogenic avian influenza A(H5N8)

In 2019, outbreaks were reported from Africa (Namibia, Nigeria, South Africa; Europe (Bulgaria and Poland); Middle East (Israel, Iraq, Iran, Kuwait); Asia (Pakistan) [13-16].

Highly pathogenic avian influenza A(H7N9)

In 2019, China, reported one outbreak due to highly pathogenic influenza A(H7N9) virus [13-16].

Low pathogenic avian influenza viruses of subtype A(H5)

The Dominican Republic reported low pathogenic A(H5N2) virus detections, Japan, the United Kingdom and the Republic of Korea notified outbreaks due to A(H5N3) virus and the Republic of Korea notified one outbreak due to A(H5N9) virus [13-16].

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

In 2019, South Africa notified about a low pathogenic avian influenza A(H7N2) outbreak, Mexico reported persistent outbreaks of highly pathogenic avian influenza A(H7N3) virus; Chile and the Republic of Korea reported low pathogenic A(H7N6) detections. Japan, Taiwan and the Republic of Korea notified low pathogenic avian influenza A(H7N7) virus outbreaks and the Republic of Korea about a finding of low pathogenic A(H7N9) in an environmental sample [16].

Discussion

In 2019, only a few outbreaks of highly pathogenic avian influenza virus in wild birds and poultry holdings in EU/EEA countries have been reported and no human case due to avian influenza were identified. However, human cases of avian influenza A(H5N1), A(H5N6), A(H7N9), and A(H9N2) were reported from countries outside the EU/EEA. One human infection with influenza virus of swine origin was reported from the United States. Viruses of animal origin continue to evolve genetically and reassort with influenza viruses better adapted to, and transmissible among humans. Such emerging new 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 among animals needs to be maintained. Reassortment events between 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 [17].

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