

Zoonotic influenza

Annual Epidemiological Report for 2018

Key facts

- No human cases of avian influenza were reported in the EU/EEA.
- Only two human A(H7N9) infections were reported from China, a significant decrease compared with 2017.
- Sporadic human cases of avian influenza A(H5N6) and A(H9N2) were reported from China.
- In 2018, 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 and wild and captured birds worldwide, but on a lower scale than in 2017.
- Influenza viruses A(H1N2)v and A(H3N2)v of swine origin caused human cases in Australia and the United States.

Methods

This report is based on data for 2018 retrieved on 3 April 2019.

This report includes 2018 events and data and does not follow the entire winter season. For a detailed description of methods used to produce this report, refer to the *Methods* chapter [1].

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Epidemiology

Avian and swine influenza in humans

Avian influenza virus A(H5N1)

In 2018, highly pathogenic avian influenza A(H5N1) virus caused continued outbreaks and was detected in poultry and wild birds [2]. No human cases were observed [3]. From 2003–2017, WHO reported 860 human cases due to influenza A(H5N1), including 454 deaths [3].

Avian influenza virus A(H5N6)

In 2018, China reported four human cases infected with avian influenza A(H5N6) virus, including two with fatal outcome, with exposure to infected poultry being the likely source of infection [4,5].

Avian influenza virus A(H7N9)

After the identification of a novel reassortant low pathogenic avian influenza A(H7N9) virus in China in March 2013 and the mutation into a highly pathogenic form for poultry, 1 567 human cases, including 615 deaths, were reported from China, the Hong Kong Special Administrative Region (SAR) and Taiwan, while Canada and Malaysia have previously reported travel-related cases [6,7]. In 2018, WHO reported two laboratory-confirmed human cases due to avian influenza A(H7N9) viruses [8,9]. 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 have been identified [10].

Avian influenza virus A(H9N2)

In 2018, five human cases of avian influenza A(H9N2) virus were reported by China, with two cases having been exposed to poultry or a contaminated environment before onset of symptoms [5,6,11–13].

Swine influenza virus A(H1N2)v

The United States reported 13 human cases of swine-origin influenza A(H1N2)v [5,14].

Swine influenza virus A(H3N2)v

Australia reported one human case infected with a swine-origin influenza A(H3N2)v virus after being exposed to animals at an agricultural event [11]. The United States also reported an infection in a child following exposure to pigs at an agricultural fair [8,14].

Avian influenza detections in birds

Highly pathogenic avian influenza A(H5N1)

Highly pathogenic avian influenza A(H5N1) viruses continued to circulate in 2018 and affected poultry and wild birds in several countries in Asia (Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Nepal, and Vietnam) and Africa (Togo) [2,15–20].

Highly pathogenic avian influenza A(H5N2)

In 2018, detections of influenza A(H5N2) viruses were reported from Egypt, Russia and Taiwan [2,15–20].

Highly pathogenic avian influenza A(H5N5)

Reassortant influenza A(H5N5) viruses related to the A(H5N8) virus detected in European outbreaks were detected in Croatia, the Czech Republic, Germany, Greece, the Netherlands, Poland, Serbia and Slovenia [2,15–20].

Highly pathogenic avian influenza A(H5N6)

In 2018, continued circulation of, and outbreaks related to, highly pathogenic avian influenza A(H5N6) viruses were reported from China, Hong Kong (SAR), Iran, Japan, South Korea and Vietnam [2,15–20].

During the influenza A(H5N8) outbreaks in Europe, reassortant influenza A(H5N6) viruses were detected in 2017. They continued to circulate in 2018 and were detected in Denmark, Finland, Germany, Ireland, the Netherlands, Slovakia, Sweden and the United Kingdom [2,15–20]. These viruses are only distantly related to A(H5N6) viruses circulating in Asia and no transmission to humans has been reported [2,17–20].

Highly pathogenic avian influenza A(H5N8)

In 2018, outbreaks affecting poultry and captured and wild birds continued on a lower level than in 2017, affecting countries on different continents. In the EU/EEA, only two countries reported avian influenza A(H5N8) outbreaks: Bulgaria and Italy [2,17–20]. Russia was also affected [2,15–20].

Previously affected countries in Asia (Pakistan and Taiwan) continued to report outbreaks. Other affected countries were in the Middle East (Iran, Iraq, Israel and Saudi Arabia) and Africa (Nigeria and South Africa) [2,15–20].

In addition to farmed poultry, influenza A(H5N8) virus was detected in migratory wild bird populations, but also domestic locally resident bird species. Public health measures applied during the outbreaks have been described and no transmission to humans has been reported in the EU/EEA [2,17–21]. However, a study from Russia reported antibodies to avian influenza A(H5N1) clade 2.3.2.1c and A(H5N8) clade 2.3.4.4. viruses in sera from people who had contact with infected or perished birds during the avian influenza outbreaks from November 2016–March 2017 [22].

Low and highly pathogenic avian influenza A(H7N9)

China reported continuous outbreaks in 2018 due to low and highly pathogenic influenza A(H7N9) viruses, but the number of outbreaks decreased significantly during the year [2,15–20].

Low pathogenic avian influenza viruses of subtype A(H5)

France reported detections of low pathogenic A(H5N1), A(H5N3) and A(H5N5) viruses. The Dominican Republic, France and the United States reported low pathogenic A(H5N2) virus detections and Taiwan notified outbreaks due to A(H5N6) virus [2,15–20].

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

In 2018, Mexico reported persistent outbreaks of highly pathogenic avian influenza A(H7N3) virus. The United States reported detections of low pathogenic avian influenza A(H7N3). Cambodia reported outbreaks of low pathogenic avian influenza A(H7N3) virus. Other low pathogenic avian influenza viruses of the A(H7) subtype were reported from Cambodia [A(H7N4)] and France [A(H7N7)] [2,15–20].

Low pathogenic avian influenza viruses of subtype A(H9N2)

Although not mandatorily notifiable, Ghana reported outbreaks of low pathogenic avian influenza A(H9N2) virus [16].

Discussion

In 2018, several outbreaks of highly pathogenic avian influenza virus in wild birds and poultry holdings in EU/EEA countries have been reported and no human cases due to avian influenza were identified. However, human cases of avian influenza A(H5N6), A(H7N9), and A(H9N2) were reported from countries outside the EU/EEA.

Human infections with influenza viruses of swine origin were reported from countries outside the EU/EEA, with several cases occurring in the United States and one in Australia. 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 due to sporadic zoonotic transmission and the potential for pandemic evolution. Therefore, rigorous surveillance among animals is needed. Reassortment events between swine, avian and human viruses should be carefully monitored and any transmission to humans should be identified as early as possible to prevent further human-to-human spread. To better prepare for a new pandemic possibly arising from any of these new strains, WHO has published a list of candidate vaccines [23].

Since September 2017, ECDC together with EFSA and the EU reference laboratory for avian influenza publish quarterly updates of the situation on avian influenza [24].

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