

This weekly bulletin provides updates on threats monitored by ECDC.

## NEWS

### Monitoring the Winter Olympics 2018

This year the Winter Olympics, [PyeongChang 2018](#), is held in South Korea between 9 and 25 February 2018, followed by Paralympics between 9 and 18 March 2018. Over one million tickets are planned to be sold and of these, 320 000 are reserved for foreigners. The [PyeongChang Olympic village](#) will house up to 3 894 athletes and team officials during the Games, while a second village in Gangneung will accommodate more than 2 900 people. The 2018 Winter Olympics will feature 102 events in 15 sport disciplines.

One week prior and one week after the event, ECDC epidemic intelligence team will enhance their monitoring activities related to the Olympic Games with focus on infectious disease that might pose a risk for the public health.

The winter season in South Korea poses an increased risk of respiratory and gastrointestinal infections. Additionally, an indoor crowding of visitors during the Winter Olympics could increase the risk of spread of infections via aerosols and direct human contact such as tuberculosis, meningococcal infection, measles, diphtheria, mumps and other vaccine preventable diseases. The mosquito and tick activity is very low or non-existent at the time, thus the risk of vector-borne diseases is considered low during the Winter Olympics and Paralympics.

Currently, [the Korea Centers for Disease Control and Prevention \(KCDC\)](#) report an increase of seasonal influenza with predominance of influenza type B (54%) and A(H3N2) (39%), mostly affecting children 7-18 years of age. Since 2017, several outbreaks of highly pathogenic avian influenza A(H5N6) have been detected in birds and poultry. Even though no human cases of A(H5N6) were detected during these outbreaks and the risk for human infection is considered very low, it is recommended to avoid contact with birds or visits to live poultry markets.

Travellers prior to their travel South Korea are advised to consult their healthcare providers regarding their vaccination, as there are currently multiple ongoing worldwide outbreaks of measles, diphtheria, and mumps. This in order to avoid importation of these infections to South Korea and bringing the infections back to their countries of residence. In case of need of medical help upon return, please inform your consulting healthcare provider about the travel to South Korea.

The risk of food and water borne outbreaks is, in general, increased during mass-gatherings when large numbers of people eat from commercial outlets, many of which may have been setup temporarily and some that may not meet food safety standards. Additionally, [travellers should follow good hygiene practices and recommendations](#) regarding the food- and waterborne diseases.

For more information about infectious diseases and healthcare management during the Winter Olympics and Paralympics in South Korea visit [KCDC](#). For information on current disease outbreaks impacting Europe, please see the [ECDC weekly communicable disease threat report](#).

## I. Executive summary

## EU Threats

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### Influenza – Multistate (Europe) – Monitoring season 2017 – 2018

Opening date: 11 October 2017

Latest update: 19 January 2018

Influenza transmission in Europe shows a seasonal pattern, with peak activity during the winter months.

→Update of the week

Influenza activity in week 2 of 2018 (8–14 January 2018) increased in countries in northern, southern and western Europe. The conclusions of the ECDC [Rapid Risk Assessment of seasonal influenza, EU/EEA, 2017–2018](#) published on 20 December 2017 remain valid.

### Salmonella Agona associated with infant formula - France - 2017

Opening date: 12 December 2017

Latest update: 19 January 2018

An outbreak of *Salmonella* Agona linked to the consumption of infant formula (powdered milk) has been ongoing in France since August 2017. As of 18 January 2018, the outbreak had affected 39 infants under one year: 37 in France, one in Spain confirmed by whole genome sequencing (WGS) and one in Greece, considered to be associated with this event based on the presence of a rare biochemical characteristic of the isolate. All cases but one (retrospectively identified in April 2017) occurred between mid-August 2017 and 2 December 2017.

→Update of the week

Since the previous CDTR, published on 12 January 2018, no additional cases have been reported related to this outbreak. On 17 January 2018, ECDC published a Joint Rapid Outbreak Assessment 'Multi-country outbreak of *Salmonella* Agona infections linked to infant formula' in collaboration with EFSA and the French authorities.

## Non EU Threats

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### New! Influenza A(H5N6) – China – Monitoring human cases

Opening date: 17 January 2018

Latest update: 19 January 2018

Animal influenza viruses that cross the animal–human divide to infect people are considered novel to humans and therefore have the potential to become pandemic threats. In 2014, a novel H5N6 reassortant causing a human infection was detected in China.

### Yellow fever – Brazil – 2017

Opening date: 16 January 2017

Latest update: 19 January 2018

[Yellow fever](#) is a mosquito-borne viral infection occurring in some tropical areas of Africa and South America. Brazil experienced a major outbreak of yellow fever in 2016–2017. An upsurge of confirmed cases has been reported since December 2017.

→Update of the week

Between 1 September 2017 and 14 January 2018, [Brazilian national authorities](#) reported 34 confirmed yellow fever cases. The confirmed cases were reported in the states of São Paulo (20 cases, including eleven deaths), Minas Gerais (eleven cases, including seven deaths), Rio de Janeiro (two cases, including one death) and in the Federal District (one fatal case).

On 17 January 2018, [Minas Gerais](#) reported 11 additional yellow fever cases. Since December 2017 and as of 17 January 2018, Minas Gerais has reported 22 yellow fever cases, 46 additional cases are under investigation.

On 15 January 2018, the Netherlands reported [one yellow fever case in an unvaccinated traveller](#) returning from Brazil. The person had visited Brazil between 19 December 2017 and 8 January 2018 and stayed in an area about 50 kilometres north of São Paulo.

## II. Detailed reports

### Influenza – Multistate (Europe) – Monitoring season 2017 – 2018

Opening date: 11 October 2017

Latest update: 19 January 2018

#### Epidemiological summary

Influenza activity increased in countries in northern, southern and western Europe. Forty-six per cent of the sampled patients presenting with influenza-like illness (ILI) or acute respiratory infection (ARI) in sentinel primary healthcare sites tested positive for influenza viruses, similar to the 42% in the previous week. Both influenza type B and A viruses were co-circulating and various patterns of circulation were observed across countries in the Region. For the Region overall, a higher proportion of type B viruses than type A viruses has been detected from sentinel sources. A(H1N1)pdm09 viruses have outnumbered A(H3N2) viruses among the A virus detections. A similar proportion of type B viruses compared to type A viruses has been detected from non-sentinel sources for the Region overall. A(H3N2) viruses have outnumbered A(H1N1)pdm09 viruses among the A virus detections. For type B viruses from both sentinel and non-sentinel sources, B/Yamagata lineage viruses have greatly outnumbered those of the B/Victoria lineage.

In Europe, countries are reporting different patterns for dominant virus type and subtype A. Of the low number of genetically characterised A(H3N2) viruses, 64% belong to clade 3C.2a, the virus clade described in the [WHO recommendations for vaccine composition for the northern hemisphere 2017–2018](#) and 36% belong to clade 3C.2a1. Both clades are antigenically similar.

An early [risk assessment](#) based on data from EU/EEA countries was published by ECDC on 20 December 2017. First detections indicated circulation of A(H3N2) and B/Yamagata viruses in the highest proportions. As the A(H3N2) subtype dominated last season, a high proportion of the population should be protected.

#### ECDC assessment

As expected for this time of year, influenza activity is increasing, putting pressure on healthcare systems and creating significant media attention. Vaccination programmes targeting the elderly, people with chronic diseases and healthcare workers should be continued and intensified in countries that have not reached the seasonal peak. Antiviral treatment with neuraminidase inhibitors should be advised for people with severe symptoms or rapid progression. Antiviral prophylaxis should be considered during the early phases of outbreaks in closed settings, such as nursing homes. Inter-personal distancing measures are also likely to provide protection for infants, the elderly and the frail.

#### Actions

ECDC monitors influenza activity in Europe during the winter season and publishes its weekly report on the [Flu News Europe website](#). Risk assessments for the season are available on the [ECDC](#) website and on the [World Health Organization's Regional Office for Europe](#) website.

### Salmonella Agona associated with infant formula - France - 2017

Opening date: 12 December 2017

Latest update: 19 January 2018

#### Epidemiological summary

On 2 December 2017, France reported 20 *Salmonella* Agona cases among infants under six months of age, most of whom had consumed different brands of infant formula processed in one production site. As of 12 January 2018, Santé Publique France reported 37 cases among infants under one year which occurred between mid-August 2017 and 2 December 2017. For most of these cases, consumption of infant formula could be confirmed. Eighteen of the cases were hospitalised and later discharged. No fatalities were reported. The first case was retrospectively identified in April 2017.

Based on epidemiological investigations, infant formula from a processing company in France was implicated as the vehicle of infection in this outbreak. As a precautionary measure, in December 2017 the producer withdrew and recalled all products, manufactured or processed at a single plant in France since 15 February 2017, including products other than infant formula.

As of 18 January 2018, according to RASFF, the implicated products had been distributed to 85 countries, including 19 EU Member States: Belgium, Bulgaria, Cyprus, The Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and the United Kingdom.

According to the Institut Pasteur, the outbreak strain displays atypical biochemical characteristics and, contrary to the majority of *Salmonella* populations, the strain did not produce hydrogen sulfide (H<sub>2</sub>S) and gas after 18 hours incubation on Kligler-Hajna media. This characteristic appears discriminatory enough to identify cases probably associated with this outbreak. This particular trait was found in all cases associated with the outbreak in France, one case in Spain and one case in Greece.

A joint whole genome sequencing (WGS) analysis confirmed that the Spanish case is associated with the ongoing outbreak in France and may provide further confirmation as to whether other possible cases from other countries are also associated with this outbreak.

In the UK, Scotland reported two infant cases of *S. Agona* with onset of symptoms in March and April 2017. Whole genome sequencing (WGS) comparative analysis of these two cases showed that the two Scottish cases are not linked to the current outbreak in France.

A previous outbreak of *Salmonella* Agona occurred in France in 2004 and 2005 and was associated with consumption of infant formula from the same producer.

### TESSy background

*Salmonella* Agona is the tenth most common *Salmonella* serotype in the EU/EEA. In 2012-2016, it was reported by 26 EU/EEA countries with between 400 and 581 cases annually. The United Kingdom, Germany and France accounted for the highest proportion of confirmed cases (30%, 16% and 14%, respectively) during this period. Cases were most frequently detected among adults in the age group 25-44 years (23%) and children under five years (22%). No major differences were observed in gender distribution. Travel information was available for 76% of the cases and of these, 65% were reported as domestic cases.

**Sources:** [Media](#) | [SANTE France](#) | [RASFF](#) | [Producer](#) | [Eurosurveillance](#) | [ROA](#)

### ECDC assessment

ECDC and EFSA threat assessment for the EU:

The recalled products associated with the outbreak of *Salmonella* Agona among infants had been distributed to 19 EU countries and 66 non-EU countries. Product tracing investigations are still ongoing.

Most of the batches involved in the investigation have not yet passed their expiry date. However, broad withdrawal and/or recall measures, export bans and a suspension of market distribution of these batches, implemented since the beginning of December 2017 by the French competent authority and processing company A, are likely to significantly reduce the risk of human infection. Nevertheless, new cases may be detected. Withdrawal, recall, and/or destruction of these batches has also been undertaken by some EU and third countries concerned.

The same manufacturer was linked to two consecutive *S. Agona* outbreaks in 2005. However, unlike the 2017 outbreak strains, the isolates from the 2005 outbreak did produce H<sub>2</sub>S and gas after 18 hours of incubation. WGS of the 2005 outbreak isolates is being performed in France. WGS analysis may confirm the relatedness of the three outbreaks and possibly help to identify weaknesses in the production process.

Infants and very young children are most at risk of infection and/or developing severe disease, which may require hospitalisation. Infant formula handlers (parents, relatives and children's caregivers) may also be at risk of infection, albeit with a lower risk of developing a severe disease, unless they are immunocompromised.

### Actions

ECDC is monitoring the event in EPIS-FWD and is actively engaged in communication with EU/EEA countries that are possibly affected. ECDC is offering whole genome sequencing services to countries that do not have the capacity or possibility to conduct timely analysis, with the comparison of sequences being carried out by the Institute Pasteur in France.

ECDC and the European Food Safety Agency (EFSA) published a [Joint Rapid Outbreak Assessment - Multi-country outbreak of \*Salmonella\* Agona infections linked to infant formula](#), on 17 January 2018.

## New! Influenza A(H5N6) – China – Monitoring human cases

Opening date: 17 January 2018

Latest update: 19 January 2018

### Epidemiological summary

Since 2014 and as of 17 January 2018, 19 human cases of A(H5N6) have been reported from China. The cases occurred in Anhui (1), Fujian (1), Guangdong (7), Guangxi (2), Hubei (1), Junan (4), Sichuan (1) and Yunnan (2). Of the 19 cases at least 13 have died. All cases had exposure to live poultry or live poultry markets, except for three cases where the exposure source was not reported. No clustering of cases was reported. The latest case had onset of symptoms in December 2017.

**Sources:** [ECDC avian influenza page](#) | [WHO avian influenza page](#) | [ECDC/EFSA joint report: Avian influenza overview September – November 2017](#)

### ECDC assessment

Influenza A(H5N6) has caused severe infection and fatalities in humans, but was restricted to China. However, human infections remain rare and no sustained human-to-human transmission has been reported. The characterisation of this virus is ongoing and its implication in the evolution and potential emergence of a pandemic strain is unknown. According to [WHO](#), the risk of international disease spread is considered to be low.

#### Assessment related to the ongoing outbreaks in poultry in Europe:

In January 2018, the UK Department for Environment, Food and Rural Affairs (DEFRA) published a risk assessment on HPAI A (H5N6) for the animal sector describing the current situation in relation to reassortant A(H5N6) viruses in Europe.

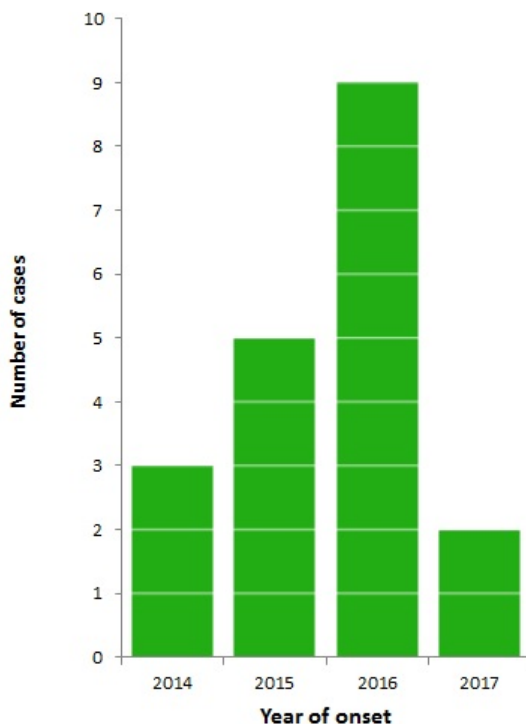
The OIE/FAO/EU reference laboratory for avian influenza at the APHA (Animal and Plant Health Agency) Weybridge has conducted a detailed genetic analysis of a small number of H5N6 HPAI viruses recently detected in both Europe and Asia. The European strains can be differentiated from those strains associated with zoonotic infection in Asia. Furthermore, they do not carry any virulence markers strongly associated with human infection risk. In addition, there have been no reported human infections with this particular genetic sublineage of H5N6 HPAI to date.

### Actions

On 22 December 2017, ECDC and EFSA published a joint report '[Avian influenza overview September – November 2017](#)'. ECDC monitors outbreaks of avian influenza in humans through epidemic intelligence.

### Distribution of confirmed human cases of A(H5N6) by year of onset 2014 – 2017 (n=19)

ECDC, WHO, Hong Kong



### Yellow fever – Brazil – 2017

Opening date: 16 January 2017

Latest update: 19 January 2018

## Epidemiological summary

Between 1 September 2017 and 14 January 2018, 34 laboratory-confirmed cases, including 20 deaths (CFR: 57%), were reported by the Brazilian national authorities. Four cases occurred between September and November 2017 and 30 cases in December 2017 and January 2018. The confirmed cases were reported in the states of São Paulo (20 cases, including eleven deaths), Minas Gerais (eleven cases, including seven deaths), Rio de Janeiro (two cases, including one death) and in the Federal District (one fatal case). The probable sites of infection of all the confirmed human cases are areas with documented cases in non-human primates.

On 17 January 2018, Minas Gerais reported 11 additional yellow fever cases. Since December 2017 and as of 17 January 2018, Minas Gerais reported 22 yellow fever cases, 46 additional cases are under investigation.

On 15 January 2018, the Netherlands reported one yellow fever case in an unvaccinated traveller returning from Brazil. The person had visited Brazil between 19 December 2017 and 8 January 2018 and stayed in an area about 50 kilometres north of São Paulo.

Between 1 July 2017 and 8 January 2018, 2 242 suspected yellow fever epizootics were reported among non-human primates (NHP), 411 of which were confirmed. Confirmed NHP epizootics were reported from the states of São Paulo (360), Minas Gerais (47), Rio de Janeiro (3) and Mato Grosso (1). The upsurge of epizootics among NHP has been observed since mid-September in São Paulo State. In December 2017 NHP infected with yellow fever were detected in urban parks in the Greater São Paulo. As a consequence, the authorities closed several parks in the area. In addition, media have reported the deaths of four monkeys near one of the access points to the urban Tijuca Forest, in the northern part of Rio de Janeiro city and these deaths are being investigated under the suspicion of yellow fever.

WHO has determined that, in addition to the areas listed in previous updates, the entire state of São Paulo should now be considered at risk of yellow fever transmission. Consequently, vaccination against yellow fever is recommended for international travellers visiting any area in the state of São Paulo.

Sources: [MoH](#) | [Minas Gerais](#) | [ProMED](#) | [WHO](#)

## ECDC assessment

The recent detection of confirmed yellow fever cases in the states of São Paulo, Rio de Janeiro and Minas Gerais and the detection of non-human primate cases in the vicinity of the metropolitan regions of São Paulo and Rio de Janeiro is of concern, particularly in light of the start of the mosquito activity season in December 2017 and the remaining sub-optimal vaccination coverage in some areas. There is an increased likelihood of peri-urban or urban cycles of yellow fever transmission, drastically increasing the size of the potentially exposed population. The Carnival, one of the largest international mass gatherings in Brazil, will take place from 9 to 14 February 2018. During the Carnival, the number of EU/EEA travellers to Brazil is expected to increase, hence the number of travel-related cases among unvaccinated travellers may possibly increase in the coming months. In this context, the city of São Paulo should be considered an at-risk area for European citizens travelling to Brazil.

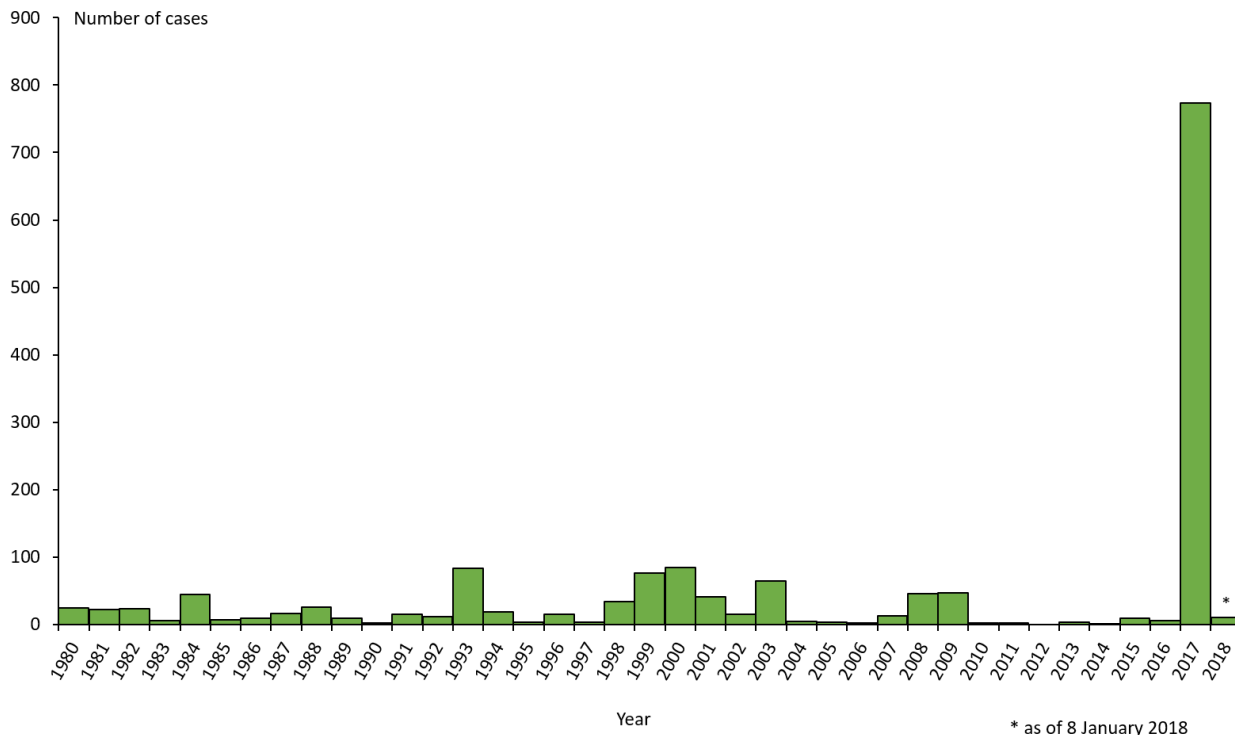
The risk of yellow fever introduction and subsequent transmission in continental EU/EEA is currently very low as it depends on the virus being introduced by viraemic travellers in an area with an established, competent and active mosquito vector population. In Europe, *Aedes aegypti*, the primary vector of yellow fever in urban settings, is present in Madeira, Portugal and Fuerteventura, Canary Islands, Spain. Recent studies have shown that *Aedes albopictus* can potentially transmit the yellow fever virus.

## Actions

ECDC published updates of its rapid risk assessment 'Outbreak of yellow fever in Brazil' on [13 April 2017](#) and 18 January 2018.

### Distribution of confirmed human cases of yellow fever by year, Brazil, 1980–2018

ECDC, adapted from Brazilian MoH



\* as of 8 January 2018

### Distribution of confirmed yellow fever cases by state, Brazil, 6 January 2017 - 16 January 2018

ECDC



Confirmed cases of locally-acquired yellow fever, as of 16 January 2018

- States with confirmed locally-acquired cases since 6 January 2017
- Area at risk for yellow fever transmission
- Area considered at no risk for yellow fever transmission
- Federal state
- State capital city



ECDC. Map produced on: 16 Jan 2018  
ECDC map maker: <https://emma.ecdc.europa.eu>

The Communicable Disease Threat Report may include unconfirmed information which may later prove to be unsubstantiated.