

I. Executive summary

EU Threats

Measles – Multistate (EU) – Monitoring European outbreaks

Opening date: 9 February 2011

Latest update: 5 May 2017

A measles outbreak in Romania has been ongoing since February 2016. Cases continue to be reported despite ongoing response measures that have been implemented at national level through reinforced vaccination activities. Between 1 January 2016 and 28 April 2017, Romania reported 5 119 cases. In 2016, a number of additional EU/EEA countries reported measles outbreaks, and an increase in the number of cases continues to be observed in 2017. Some previous and ongoing measles outbreaks in other EU/EEA countries have been epidemiologically linked to the current outbreak in Romania.

→Update of the week

In addition to Romania, the following EU/EEA countries have reported measles cases in 2017: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Portugal, Slovakia, Spain and Sweden.

Influenza – Multistate (Europe) – Monitoring 2016/2017 season

Opening date: 13 October 2016

Latest update: 5 May 2017

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

→Update of the week

During week 2017-17 (24–30 April 2017), influenza activity across the region decreased further and all 40 reporting countries reported low influenza activity. The overall proportion of sentinel specimens testing positive for influenza viruses returned to the epidemic threshold value (10%). Type B viruses represented 95% of sentinel detections. However, the overall number of type B virus detections remained low.

Non EU Threats

Detection of pathogenic bacteria in CRISPR Kit – Multistate

Opening date: 11 April 2017

Latest update: 5 May 2017

A do-it-yourself genetic engineering kit, 'The CRISPR Cas 9 Bacterial Genomic Editing Kit,' from a company in the US has been found positive for unexpected pathogenic microorganisms. This product is available to the general public and is for sale on the internet.

→Update of the week

ECDC produced a [rapid risk assessment](#) which was published on its website on 2 May 2017.

Influenza A(H7N9) – China – Monitoring human cases

Opening date: 31 March 2013

Latest update: 5 May 2017

In March 2013, a novel avian influenza A(H7N9) virus was detected in patients in China. Since then and up to 4 May 2017, 1 439 cases have been reported to WHO, including at least 544 deaths. No autochthonous cases have been reported outside China. Most cases are isolated, and sporadic zoonotic transmission from poultry to humans is the most likely explanation for the outbreak. From week 41/2016, 641 cases have been reported, representing a significant increase compared to previous seasons.

→Update of the week

Since the last update, 17 additional cases, including two deaths, have been detected in [China](#) according to the health authorities in Hong Kong.

Yellow fever – South America – 2016/2017

Opening date: 16 January 2017

Latest update: 5 May 2017

[Yellow fever](#) is a mosquito-borne viral infection present in some tropical areas of Africa and South America. On 6 January 2017, Brazil reported an outbreak of yellow fever that started in December 2016 and is still ongoing. Bolivia, Colombia, Ecuador, Peru and Suriname have also reported cases of yellow fever in 2017.

→Update of the week

Between 20 and 27 April 2017, Brazil has reported 93 additional cases of yellow fever (59 suspected and 34 confirmed). The additional confirmed cases occurred in Espírito Santo (18), Minas Gerais (8), São Paulo (7) and Rio de Janeiro (1).

In Brazil, several media have reported vaccine shortages (for example in [Campinas](#)), but these claims have been dismissed by authorities. [Canada](#) and the [United States](#) have acknowledged a shortage of yellow fever vaccines due to the relocation of the American vaccine's production site to a new facility. As a result, once the current stockpile is exhausted, no additional product will be available until mid-2018. In Canada, the use of fractional dose has been temporarily recommended. In the US, the use of the European vaccine has been approved by the US Food and Drug Administration (FDA). Some [United Kingdom](#) travel clinics have also reported shortages of the European vaccine.

[Media](#) have reported that several monkeys have been killed by people scared by the propagation of yellow fever. This could put people at greater risk by hampering sentinel surveillance.

Middle East respiratory syndrome coronavirus (MERS-CoV) – Multistate

Opening date: 24 September 2012

Latest update: 5 May 2017

Since April 2012 and as of 4 May 2017, 1 956 cases of MERS-CoV, including 750 deaths, have been reported by health authorities worldwide. The source of the virus remains unknown, but the pattern of transmission and virological studies point towards dromedary camels in the Middle East as being a reservoir from which humans sporadically become infected through zoonotic transmission. Human-to-human transmission is amplified among household contacts and in healthcare settings.

→Update of the week

Since the last update of MERS-CoV on 30 March 2017, [Saudi Arabia](#) reported 18 cases, [United Arab Emirates](#) two cases and [Qatar](#) one case of MERS-CoV. Of the 21 cases reported during the past month, nine reported camel contact. In Saudi Arabia, five asymptomatic cases were detected, two were healthcare workers and three were household contacts. In the United Arab Emirates, the second case is an asymptomatic household contact.

Travel-associated Legionnaires' disease – Dubai, UAE – 2016/2017

Opening date: 10 November 2016

Latest update: 5 May 2017

The ECDC ELDSNet surveillance scheme on travel-associated Legionnaires' disease (TALD) has observed an increase in the number of cases of Legionnaires' disease associated with travel to Dubai, United Arab Emirates (UAE) since October 2016.

→Update of the week

On 3 May 2017, the Czech Republic reported a case of Legionnaires' disease associated with travel to Dubai. The case is a 51-year-old male who stayed at a hotel not previously associated with TALD cases. He stayed there throughout his incubation period and developed symptoms on 22 April. This is the first case reported by the Czech Republic with onset of symptoms since 1 October 2016.

II. Detailed reports

Measles – Multistate (EU) – Monitoring European outbreaks

Opening date: 9 February 2011

Latest update: 5 May 2017

Epidemiological summary

EU/EEA countries with updates since last week:

Austria: Since the beginning of 2017 and as of 28 April, Austria has reported 73 cases. This exceeds the cumulative number of cases reported in 2016.

Czech Republic: As of 3 May 2017, the Moravian-Silesian region has reported 78 measles cases, including 72 confirmed. Twelve confirmed cases have been reported among healthcare workers.

Germany: Since the beginning of 2017 and as of 16 April, Germany has reported 504 cases. This is an increase by 42 cases since the previous update. In the same period in 2016, Germany reported 33 cases.

Italy: Since the beginning of 2017 and as of 30 April, Italy has reported 1 920 cases in 18 of the 21 regions. Among these, 176 cases occurred among healthcare workers. Most of the cases are above the age of 15 years and 88% of the cases were not vaccinated.

Romania: Between 1 January 2016 and 28 April 2017, Romania has reported 5 119 cases, including 23 deaths. Cases are either laboratory-confirmed or have an epidemiological link to a laboratory-confirmed case. Infants and young children are the most affected group. Thirty-eight of the 42 districts have reported cases, Caras Severin (West part of the country, at the border with Serbia) being the most affected with 965 cases. Vaccination activities are ongoing in order to cover communities with suboptimal vaccination coverage.

On 2 May, [media](#) reported an additional death, bringing the number of deaths to 24.

Sweden: On 30 April, Sweden reported five cases in the Southern part of the country. Since the beginning of 2017 and as of 21 March, Sweden has reported 15 cases in Stockholm area, including three imported cases.

EU/EEA countries with no updates since last week:

Belgium: Since 20 December 2016 and as of 16 April 2017, Wallonia has reported 288 cases, of which 163 are confirmed, 81 probable and 44 clinical (ECDC 2012 definition). The outbreak affects all provinces of Wallonia, with the exception of the province of Luxembourg. Thirty-seven cases are among healthcare workers (31 confirmed, four probable and two possible). Of the 288 cases, 111 (38%) were hospitalised. Two of the cases had acute encephalitis. No deaths are reported. The index case of the outbreak in Wallonia travelled to Romania during the incubation period.

In Flanders, one isolated imported case was reported in January and another in March, with possible links to a cluster in Wallonia. In the Brussels Capital Region, one isolated imported case was reported in February and two cases were notified in March without known links to the outbreak in Wallonia. Both imported cases had a travel history to Romania during the incubation period, and the national reference centre for measles, mumps and rubella (WIV-ISP) identified genotype B3, which is the same strain found in Romania, Italy and Austria, at the end of 2016.

Bulgaria: Since mid-March 2017 and as of 24 April, media in Bulgaria have reported 65 cases, of which 37 are confirmed, in the city of Plovdiv. This represents an increase by four cases since the last report. On 9 April, Bulgaria reported a death in a 10-month-old unimmunised child.

Denmark: On 15 March 2017, Denmark reported an imported case in an unvaccinated adult who was infected during a holiday in Asia.

France: Since 1 January 2017 and as of 31 March, France has reported 134 cases, three times more than over the same period in 2016. The cases are mainly linked to an outbreak in Lorraine (60 cases). Two cases of encephalitis and 15 severe pneumopathies have been recorded since the beginning of the year.

Hungary: Between 21 February and 22 March 2017, Hungary has reported 54 cases. Health authorities have lifted the quarantine from the hospital in Mako, Southeast Hungary, as no new cases were detected in two weeks.

Iceland: On 31 March 2017, Iceland reported two cases in two 10-month-old unvaccinated twin siblings. The first case was

diagnosed 10 days before the second case. This is the first time in a quarter of a century that measles infection has occurred in Iceland.

Portugal: Since the beginning of 2017 and as of 2 May, Portugal has reported 25 confirmed cases, of which 16 (64%) are older than 18 years of age, 15 (60%) were unvaccinated, 12 (48%) are health professionals and 12 (48%) were hospitalised. One death has been reported.

Slovakia: On 24 April 2017, Slovakia reported an imported case in a 25-year-old, unvaccinated Italian who studies in Kosice. In Slovakia, the last endemic cases were reported in 1998 and the last imported cases in 2011 and 2012.

Spain: An outbreak started in the first week of January in Barcelona metropolitan area, due to an imported case from China. As of 7 April, 46 cases have been confirmed. Most of the cases are unvaccinated or incompletely-vaccinated adults. Four of the cases are children, and ten cases were hospitalised.

ECDC assessment

Measles outbreaks continue to occur in EU/EEA countries. There is a risk of spread and sustained transmission in areas with susceptible populations. The national vaccination coverage remains less than 95% for the second dose of MMR in the majority of EU/EEA countries. The progress towards elimination of measles in the WHO European Region is assessed by the European Regional Verification Commission for Measles and Rubella Elimination (RVC). Member States of the WHO European Region are making steady progress towards the elimination of measles. At the fifth meeting of the RVC for Measles and Rubella in October 2016, of 53 countries in the WHO European Region, 24 (15 of which are in the EU/EEA) were declared to have reached the elimination goal for measles, and 13 countries (nine in the EU/EEA) were concluded to have interrupted endemic transmission for between 12 and 36 months, meaning they are on their way to achieving the elimination goal. However, six EU/EEA countries were judged to still have endemic transmission: Belgium, France, Germany, Italy, Poland and Romania.

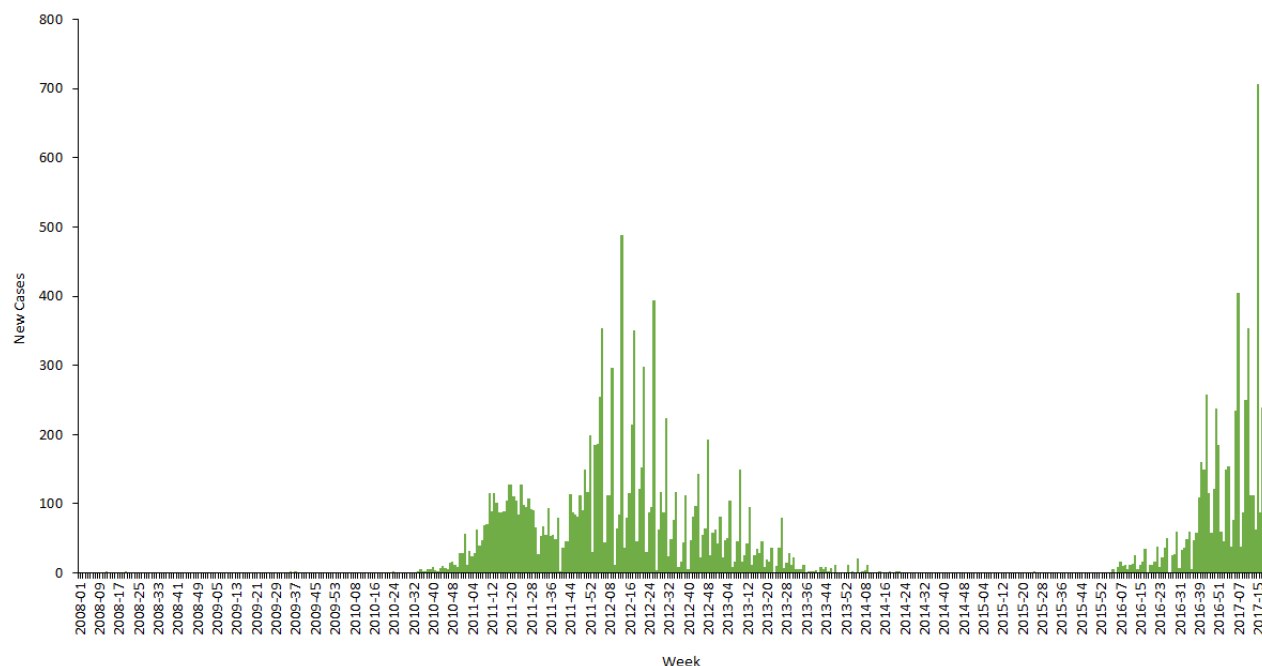
More information on strain sequences would allow further insight into the epidemiological investigation. All EU/EEA countries report measles cases on a monthly basis to ECDC and these data are published every month. Since 10 March 2017, ECDC has been reporting on measles outbreaks in Europe on a weekly basis through epidemic intelligence activities.

Actions

ECDC published a [rapid risk assessment](#) on 6 March. ECDC monitors measles transmission and outbreaks in the EU/EEA on weekly basis through enhanced surveillance and epidemic intelligence activities.

New measles cases per week of reporting, week 2008-01 to 2017-17, Romania

Data source: National Institute of Public Health Romania and TESSy (ECDC)



*From 2008 to 2016-39 data from TESSy, from 2016-40 onwards data from Romanian MoH

Influenza – Multistate (Europe) – Monitoring 2016/2017 season

Opening date: 13 October 2016

Latest update: 5 May 2017

Epidemiological summary

Influenza activity started early this season in week 2016-46, which is the earliest week that the overall influenza-positivity rate in sentinel specimens reached 10% since the emergence of A(H1N1)pdm09 viruses in 2009–2010.

ECDC assessment

The progression of the season confirms the conclusions of ECDC's [risk assessment](#) published on 25 January 2017.

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 [ECDC website](#) and on [WHO Regional Office for Europe website](#).

Detection of pathogenic bacteria in CRISPR Kit – Multistate

Opening date: 11 April 2017

Latest update: 5 May 2017

Epidemiological summary

In March 2017, Germany acknowledged the detection of pathogenic microorganisms in the DIY Bacterial Gene Engineering CRISPR Kit®, in addition to the non-pathogenic *E. coli* strain declared to be in the kit by the manufacturer. The kit is produced by a US-based company. Pathogenic microorganisms, some with an antibiotic resistance profile, were identified in the kit that is marketed as safe for home use. The kit is sold over the internet, targeting non-professional microbiology hobbyists. The detection of the pathogenic microorganisms was made as part of the control implemented by local health and food safety authorities. WHO Health Information Management teams in HQ, EURO and PAHO are closely monitoring the event.

On 24 March, [Bavarian health authorities](#) issued a press statement of the potential contamination through the use of these kits.

Source: [media](#), [media](#), [Bayern authorities](#), [German authorities](#)

ECDC assessment

The risk of infection by the contaminating strains in the kit is low for the users of the kit, assuming that they are healthy. The contribution of the kit to the burden of antimicrobial resistance in the EU/EEA population and environment is marginal and the risk associated with the kits is considered very low. At this stage, it is estimated that the distribution of such contaminated kits is very limited. The assessment of the risk associated with the DIY kits should be revised should the distribution of the kit appear to be extended.

Actions

ECDC published a [rapid risk assessment](#) on its website on 2 May 2017.

Influenza A(H7N9) – China – Monitoring human cases

Opening date: 31 March 2013

Latest update: 5 May 2017

Epidemiological summary

In March 2013, a novel avian influenza A(H7N9) virus was detected in patients in China. Since then and up to 4 May 2017, 1 439 cases have been reported to WHO, including at least 544 deaths. The A(H7N9) outbreak shows a seasonal pattern. The first wave in spring 2013 (weeks 2013-7 to 2013-40) included 135 cases, the second wave (weeks 2013-41 to 2014-40) 320 cases, the third wave (weeks 2014-41 to 2015-40) 224 cases, and the fourth wave (weeks 2015-41 to 2016-40) 119 cases. A fifth wave started in October 2016 (week 2016-41), with 641 cases as of 4 May 2017.

The 1 439 cases were reported from Zhejiang (306), Guangdong (258), Jiangsu (244), Fujian (106), Anhui (95), Hunan (90), Shanghai (56), Jiangxi (50), Guangxi (29), Hubei (28), Beijing (24), Henan (22), Sichuan (22), Hong Kong (21), Shandong (21), Guizhou (17), Xinjiang (10), Hebei (8), Taiwan (5), Chongqing (4), Liaoning (4), Gansu (3), Jilin (3), Tianjin (3), Tibet (3), Macau (2) and Yunnan (2), and three imported cases were reported in Canada (2) and Malaysia (1).

Sources: [Chinese CDC](#) | [WHO](#) | [WHO FAQ page](#) | [ECDC](#) | [Hong Kong CHP](#)

ECDC assessment

This is the fifth winter season in the northern hemisphere with human cases caused by A(H7N9) infections. During this wave, the number of human cases has been higher than in previous waves. This is most likely due to greater environmental contamination in live bird markets and increased circulation of the virus among poultry.

In February 2017, a new A(H7N9) virus with mutations in the haemagglutinin gene – indicating high pathogenicity in poultry – was detected in three cases related to Guangdong, as well as in environmental and poultry samples. It is unclear at the moment if the newly emerged, highly pathogenic avian influenza (HPAI) virus A(H7N9) will replace the low-pathogenic virus or if both will co-circulate in the bird population. Although the genetic changes in A(H7N9) may have implications for poultry in terms of pathogenicity, surveillance and control strategies, there is no evidence to date of increased transmissibility to humans or sustainable human-to-human transmission.

The continued transmission of A(H7N9) to humans in China poses the risk that sporadic imported cases may be detected in Europe. The following options for prevention and control of the infection should be considered:

- people travelling to China should avoid direct exposure to poultry and refrain from visiting live poultry markets or backyard farms
- travellers who have visited affected areas and develop respiratory symptoms and fever upon their return should consult a physician and mention their recent travel history to enable early diagnosis and treatment
- travellers who have visited affected areas should avoid entering farms for the entire duration of the 10-day incubation period (and during the symptomatic period in the event that they develop symptoms) in order to prevent a possible virus introduction to poultry in the EU.

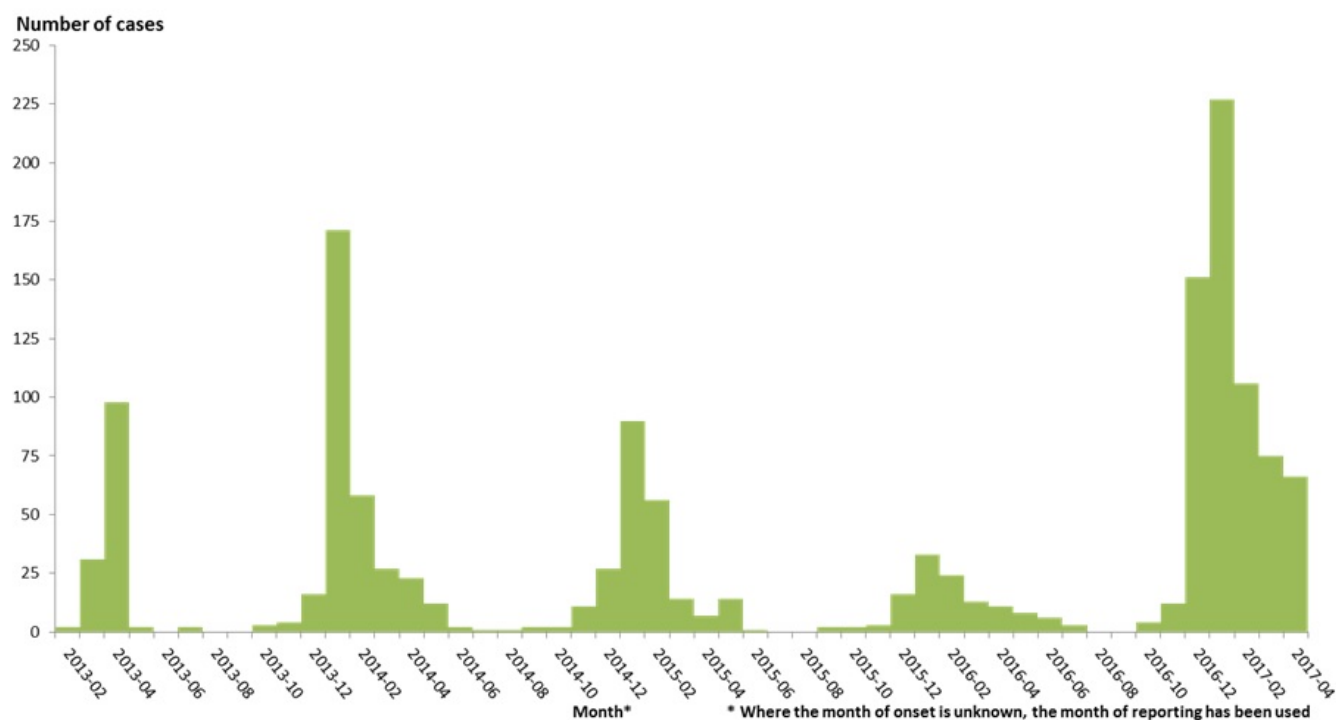
The possibility of humans infected with A(H7N9) returning to the EU/EEA cannot be excluded. However, the risk of the disease spreading within Europe via humans is still considered low, as there is no evidence of sustained human-to-human transmission.

Actions

ECDC published a sixth update of the [rapid risk assessment](#) on 9 March, addressing the genetic evolution of influenza A(H7N9) virus in China and the implications for public health.

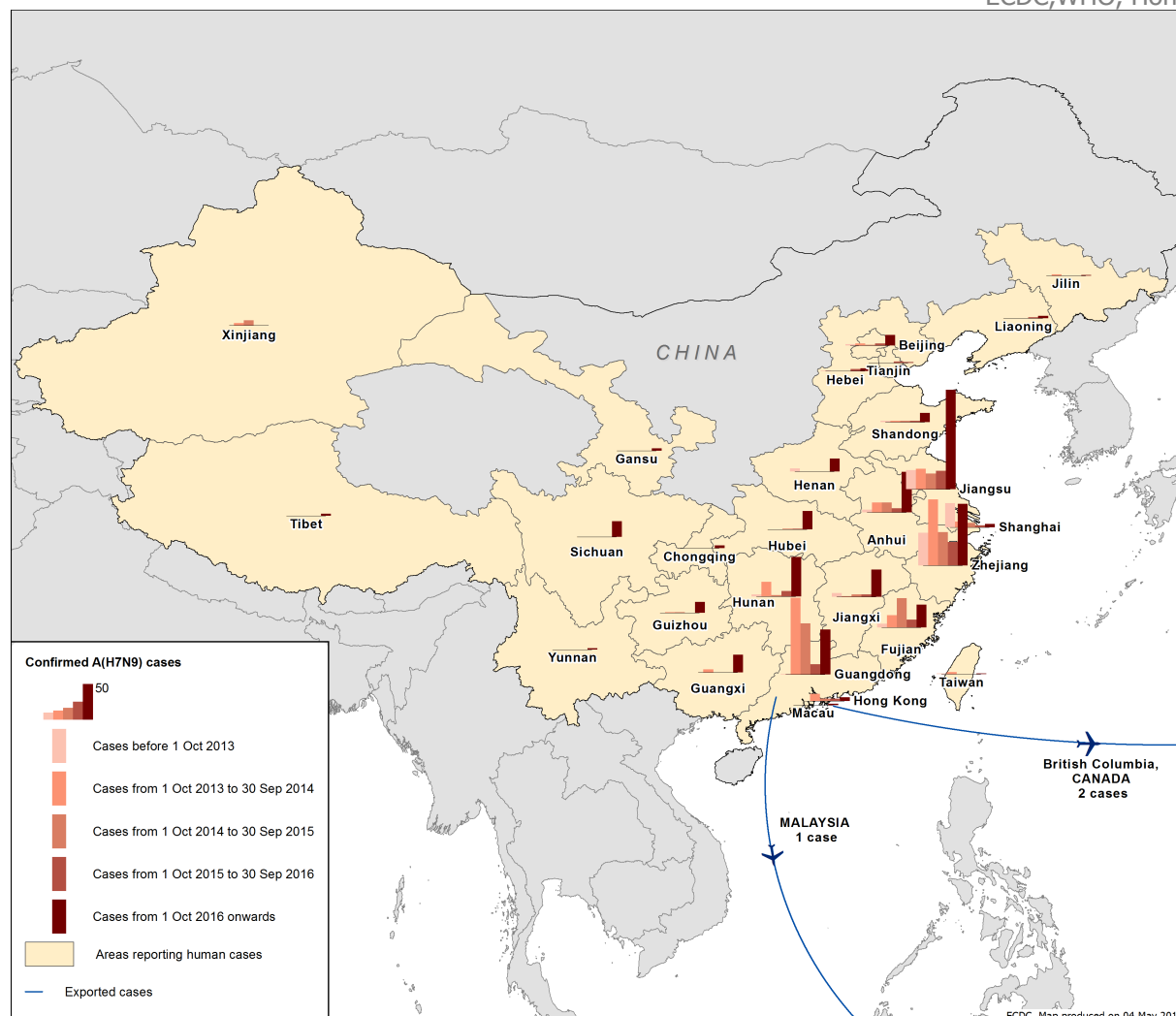
Distribution of confirmed cases of A(H7N9) by first available month, February 2013 to 30 April 2017

ECDC, WHO, Hong Kong



Distribution of confirmed cases of A(H7N9) by five periods (weeks 2013-7 to 2017-17)

ECDC,WHO, Hong Kong



Yellow fever – South America – 2016/2017

Opening date: 16 January 2017

Latest update: 5 May 2017

Epidemiological summary

Brazil:

Between 6 January and 27 April 2017, Brazil has reported 1 542 cases of yellow fever (827 suspected and 715 confirmed), including 279 deaths (39 suspected and 240 confirmed). The case-fatality rate is 18.1% overall and 33.6% among confirmed cases.

States reporting suspected and confirmed autochthonous cases:

- Minas Gerais has reported 707 cases (228 suspected and 479 confirmed), including 182 deaths (17 suspected and 165 confirmed).
- Espírito Santo has reported 541 cases (338 suspected and 203 confirmed), including 74 deaths (13 suspected and 61 confirmed).
- São Paulo has reported 152 cases (135 suspected and 17 confirmed), including nine deaths (two suspected and seven confirmed).

- Rio de Janeiro has reported 35 cases (24 suspected and 11 confirmed), including five deaths (two suspected and three confirmed).
- Pará has reported 17 cases (13 suspected and four confirmed), including four confirmed deaths.
- Tocantins has reported four cases (three suspected and one confirmed).

States reporting suspected autochthonous cases:

Fourteen states have reported 86 suspected cases: Goiás (25, including 2 fatal), Paraná (16, including 1 fatal), Bahia (10), Rio Grande do Sul (6), Rondônia (6), Santa Catarina (5), Distrito Federal (4, including 2 fatal), Mato Grosso (3), Amapá (2), Maranhão (2), Mato Grosso do Sul (2), Piauí (2), Amazonas (1), Ceará (1) and Paraíba (1).

Other countries in South America:

From the beginning of 2017 to 2 May, five other countries have reported suspected and/or confirmed cases of yellow fever: [Peru](#) (13), [Colombia](#) (2), [Bolivia](#) (1), [Ecuador](#) (1) and [Suriname](#) (1).

Sources: [Brazil MoH](#) | [PAHO](#) | [WHO vaccination recommendations](#)

ECDC assessment

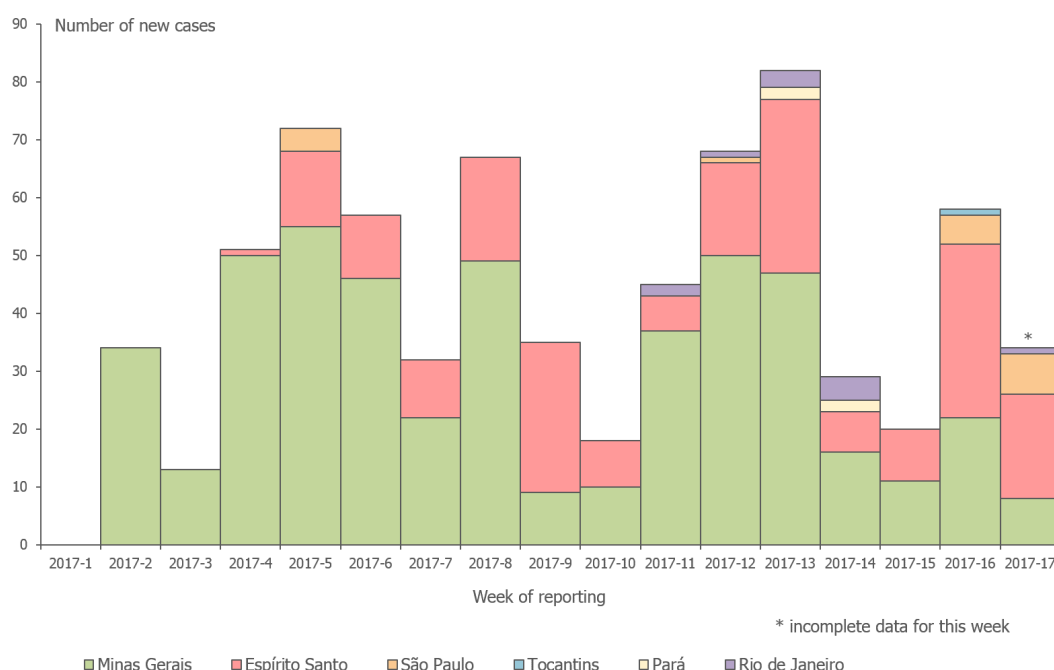
The ongoing outbreak should be carefully monitored, as the establishment of an urban cycle of yellow fever would have the potential to quickly affect a large number of people. EU/EEA citizens who travel to or live in areas where there is evidence of yellow fever virus transmission should check their vaccination status and obtain medical advice about getting vaccinated against yellow fever.

In Europe, *Aedes aegypti*, the primary vector of yellow fever in urban settings, is present in Madeira. Recent studies have shown that *Aedes albopictus* can potentially transmit the yellow fever virus. However, the risk of the virus being introduced into local competent vector populations in the EU through viraemic travellers from Brazil is considered to be very low, as the current weather conditions in Europe are not favourable for vector activity.

Actions

ECDC closely monitors this event in collaboration with the World Health Organization. ECDC updated its [rapid risk assessment](#) on 14 April 2017. ECDC is also producing [epidemiological updates](#) and a [map for travel advice](#).

Distribution of confirmed human cases of yellow fever in Brazil by week of reporting from 6 January to 27 April 2017



Middle East respiratory syndrome coronavirus (MERS-CoV) – Multistate

Opening date: 24 September 2012

Latest update: 5 May 2017

Epidemiological summary

Since April 2012 and as of 4 May 2017, 1 956 cases of MERS, including 750 deaths, have been reported by health authorities worldwide.

Web sources: [ECDC's latest rapid risk assessment](#) | [ECDC novel coronavirus webpage](#) | [WHO](#) | [WHO MERS updates](#) | [WHO travel health update](#) | [WHO Euro MERS updates](#) | [CDC MERS](#) | [Saudi Arabia MoH](#) | [ECDC factsheet for professionals](#)

ECDC assessment

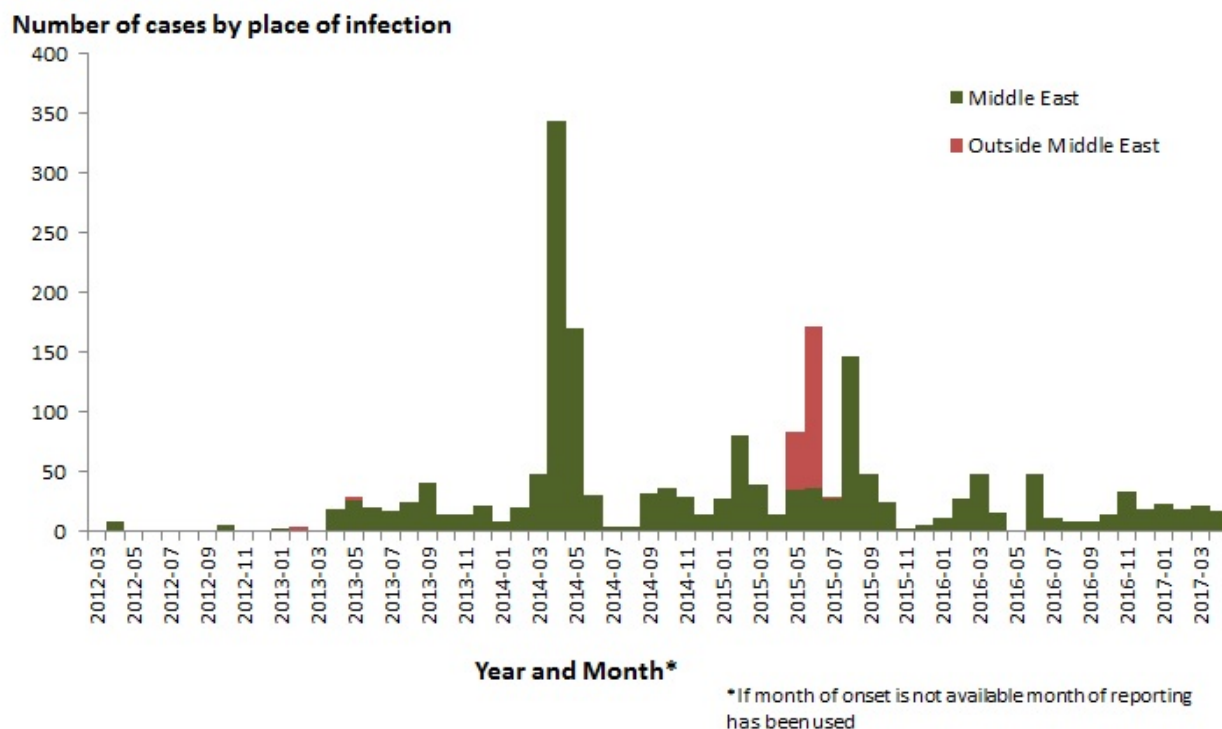
The risk of sustained human-to-human transmission in Europe remains very low. ECDC's conclusion continues to be that the MERS-CoV outbreak poses a low risk to the EU, as stated in a [rapid risk assessment](#) published on 21 October 2015, which provides details on the last case reported in Europe.

Actions

ECDC published the 21st update of its MERS-CoV [rapid risk assessment](#) on 21 October 2015.

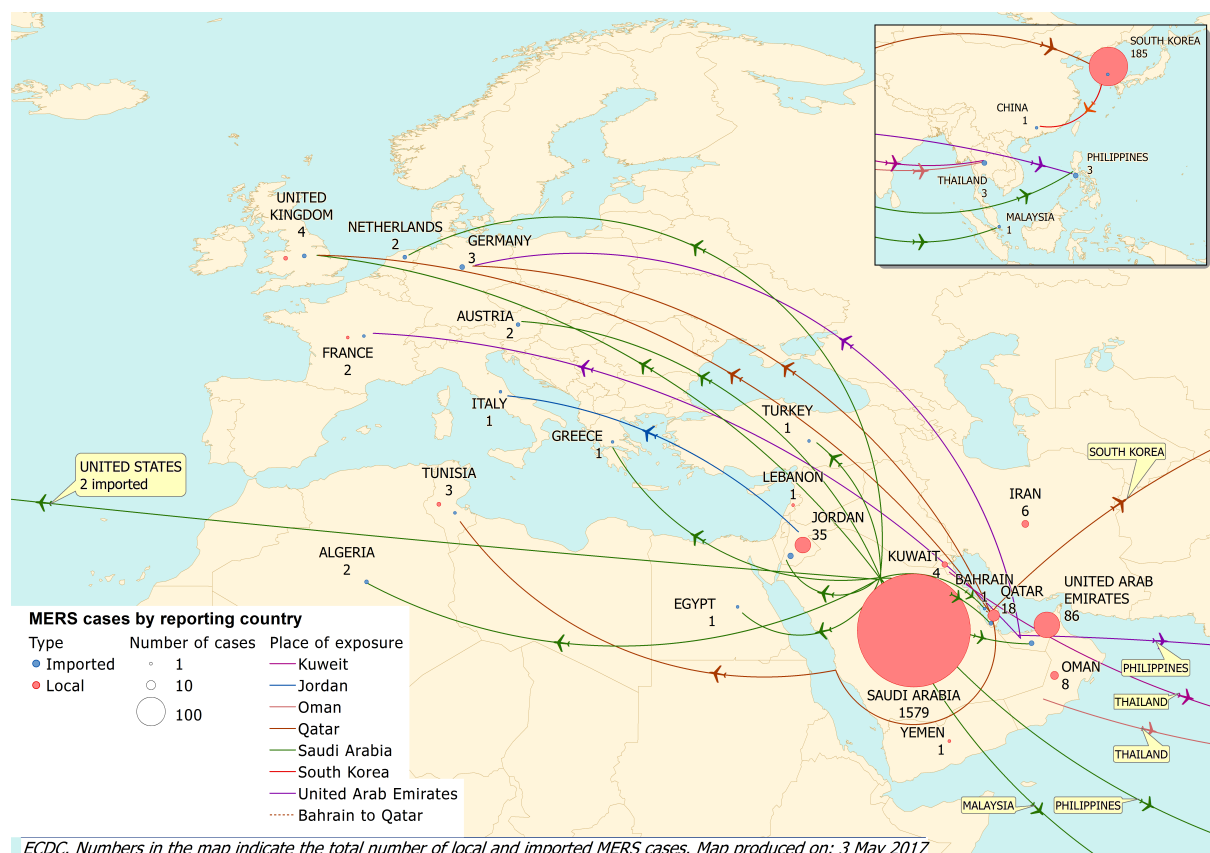
Distribution of confirmed cases of MERS-CoV by first available month and place of infection, March 2012 to 30 April 2017

ECDC



Distribution of confirmed cases of MERS-CoV by reporting country and place of probable infection, March 2012 - 4 May 2017

ECDC



Travel-associated Legionnaires' disease – Dubai, UAE – 2016/2017

Opening date: 10 November 2016

Latest update: 5 May 2017

Epidemiological summary

As of 4 May 2017, 12 EU Member States as well as Switzerland have reported 54 TALD cases with onset of symptoms since 1 October 2016 and with travel history to Dubai within two to ten days prior to illness. Cases were reported by the United Kingdom (24), Sweden (7), the Netherlands (6), Denmark (4), France (3), Germany (3), Austria (1), Belgium (1), the Czech Republic (1), Hungary (1), Ireland (1), Spain (1) and Switzerland (1). Forty-seven cases are associated with commercial accommodation sites and five with private accommodation sites. For two cases, the information was not available. Nine cases spent time in another location in UAE or in a country other than their home country during their incubation period. One case was reported as fatal.

All cases are laboratory confirmed. Three cases had their infection further characterised as *Legionella pneumophila* serogroup 1, sequence base type 616, and one as *Legionella pneumophila* serogroup 1, sequence base type 2382. Sequence base type 616 is uncommon in Europe and has been associated with other cases of Legionnaires' disease returning from Dubai in previous years.

12/14

Sequence base type 2382 is the first such identification worldwide and appears to be closely-related to type 616. UAE authorities have informed ECDC that no increase in cases of statutory notifiable pneumonia was observed in Dubai between October and December 2016.

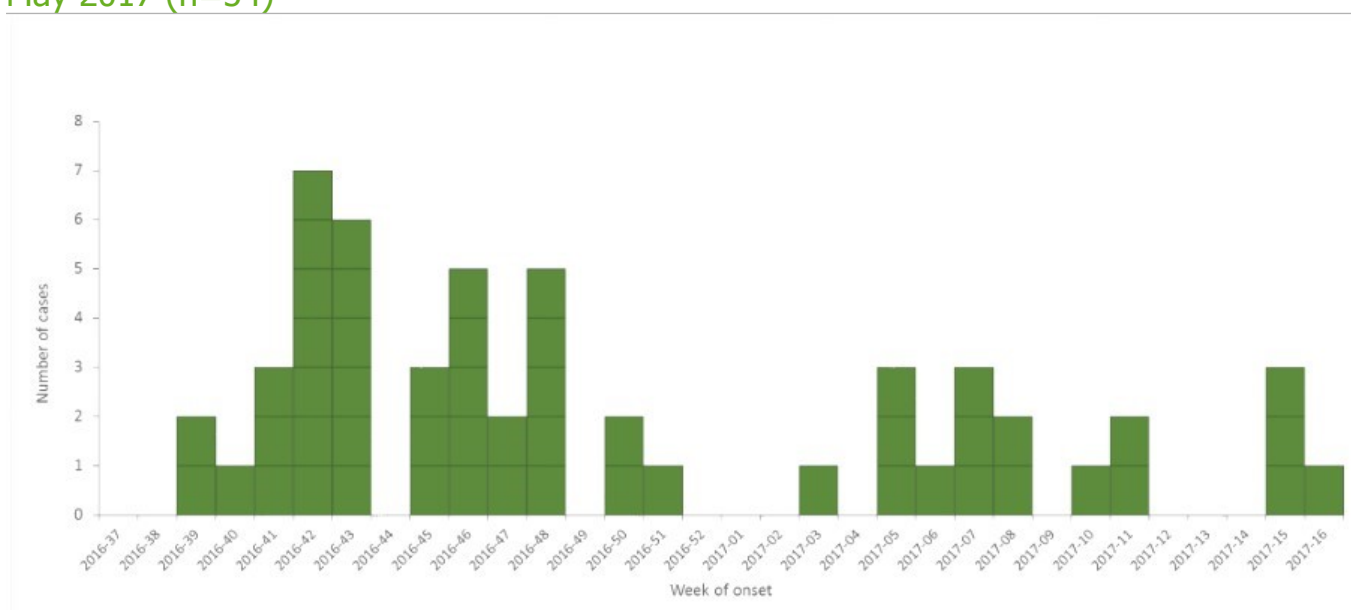
ECDC assessment

Cases continue to be reported with onset of symptoms in recent weeks, indicating that there is a persistent source of *Legionella* exposure common to travellers with travel history to Dubai. However, it cannot be ruled-out that some travellers may have acquired their infection elsewhere if their travel stay in Dubai was shorter than the range of the incubation period. The increase in cases observed between October 2016 and May 2017 is above that observed in previous years.

Actions

ECDC monitors this event through ELDSNet. ECDC is in contact with EU Member States, the ELDSNet network, the World Health Organization and UAE for information sharing. ECDC published a [rapid risk assessment](#) on its website on 23 December 2016 and shared an updated rapid risk assessment with the European Commission and EU Member States on 13 January 2017. The conclusions of the rapid risk assessment remain valid. ECDC also posted an [epidemiological update](#) on 7 April.

Distribution of travel-associated Legionnaires' disease cases with history of stay in Dubai by week of onset from week 2016/37 to week 2017/16, as reported to ELDSNet by 4 May 2017 (n=54)



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