

This weekly bulletin provides updates on threats monitored by ECDC.

## NEWS

### Start of West Nile fever seasonal monitoring 2018

From this week (week 22, ending on 3 June 2018), ECDC will be reporting on the seasonal monitoring of human and equine cases of West Nile fever occurring in the European Union/European Economic Area and neighbouring countries. Every Friday, ECDC will provide the following information: (1) a summary of the epidemiological situation, (2) a table detailing the number of human and equine cases by country and nomenclature of territorial units for statistical (NUTS 3) and administrative levels (click on the [table](#) at the bottom of the ECDC Surveillance Atlas), and (3) maps with human West Nile fever cases; equine West Nile fever cases; and human and equine West Nile fever cases combined.

Deferral or testing of prospective donors applies to blood donors leaving areas with one or more autochthonous human West Nile virus cases. The information provided aims to support EU/EEA Member States in implementing preventive measures.

The weekly updates will be provided through the CDTR and maps are available through ECDC's [Surveillance Atlas of Infectious Diseases](#).

### Start of monitoring of *Vibrio* growth in the Baltic Sea

ECDC epidemic intelligence team will monitor *Vibrio* growth in the Baltic Sea during the summer, starting this week (week 22, ending on 3 June 2018). Weekly updates will be sent to the national focal points and published in the CDTR when the risk of *Vibrio* growth is determined as medium or above.

The [Vibrio viewer](#) can also be used for monitoring and is available on the E3 Geoportal. This is a near real-time model that uses daily updated remote sensing data to examine worldwide environmental conditions, such as sea surface temperature and salinity for *Vibrio spp.*. Please note that the model used for the *Vibrio* viewer has been calibrated to the Baltic Region in Northern Europe and might not apply to other worldwide settings prior to validation.

Infections caused by *Vibrio* species other than *V. cholerae* can be serious, particularly for immunocompromised persons. However, the overall occurrence is low despite an increase having recently been observed in northern Europe.

## I. Executive summary

## EU Threats

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### **New! Salmonella Agona – the UK – 2018**

Opening date: 30 May 2018

Latest update: 1 June 2018

A multi-country *S. Agona* outbreak has been ongoing in the EU since 2014 affecting 134 cases in four EU Member States. The outbreak was detected in the United Kingdom through whole genome sequencing (WGS). The EU investigation is ongoing.

### **Dengue – France, Réunion – 2018**

Opening date: 13 March 2018

Latest update: 1 June 2018

Since the beginning of 2018, the island of Réunion, a French department in the Indian Ocean, has seen a significant increase in dengue cases.

→Update of the week

Since the previous report on 22 May 2018 and as of 29 May, Réunion has reported 297 dengue cases.

### **Monitoring environmental suitability of Vibrio growth in the Baltic Sea – Summer 2018**

Opening date: 24 May 2018

Latest update: 1 June 2018

Elevated sea surface temperature in marine environments with low salt content are optimal environmental growth conditions for certain *Vibrio* species. These conditions can be found during the summer months in estuaries and enclosed water bodies with moderate salinity.

ECDC has developed a model to map the environmental suitability for *Vibrio* growth in the Baltic Sea ([ECDC E3 Geoportal](#)). Please note that this model has been calibrated to the Baltic Region in northern Europe and that it might not apply to other settings without further validation.

→Update of the week

As of 1 June 2018, the environmental suitability for *Vibrio* growth in the Baltic Sea for the next five days is considered to be very low to low, except in Curonian Lagoon Klaipeda county in Lithuania, Gdansk Bay, Poland, Southern coast of the Strelasund, Germany and Aalborg Bay, Denmark, where the risk is medium to high.

## Non EU Threats

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### **New! West Nile virus - Multistate (Europe) - Monitoring season 2018**

Opening date: 30 May 2018

Latest update: 1 June 2018

During the West Nile virus transmission season (June to November), ECDC monitors the occurrence of cases of West Nile fever in EU/EEA Member States and neighbouring countries on a weekly basis in order to inform blood safety authorities about areas with ongoing virus transmission.

During the 2017 transmission season, 288 human cases were reported in the EU and neighbouring countries. EU Member States reported 127 equine cases.

→Update of the week

No human or equine cases have been reported so far in 2018.

### **New! Rapid emergence of resistance to new antibiotic. $\beta$ -lactamase inhibitor combination Ceftazidime-Avibactam – Europe and United States - 2017-2018**

Opening date: 30 May 2018

Latest update: 1 June 2018

Two scientific articles report the emergence of resistance of carbapenem-resistant *Klebsiella pneumoniae* to CAZ-AVI while receiving CAZ-AVI for treatment of infections. These articles should serve as an alert to the scientific community about the rapid emergence of resistance to CAZ-AVI in CRE isolates. The emergence of resistance compromises the use and effectiveness of a promising and long-awaited antibiotic with a novel spectrum of therapy.

## Yellow fever – Brazil – 2017 - 2018

Opening date: 16 January 2017

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

→Update of the week

No epidemiological update. This threat will be closed. ECDC will report again if relevant epidemiological updates are available.

## Ebola virus disease - Democratic Republic of the Congo - 2018

Opening date: 8 May 2018

Latest update: 1 June 2018

On 8 May 2018, the Ministry of Health of the Democratic Republic of the Congo declared an outbreak of Ebola virus disease (EVD) in Bikoro Health Zone, Equateur Province. This is the ninth outbreak of Ebola virus disease over the last four decades in the country, with the most recent one occurring in May 2017. The outbreak is currently affecting three health districts of the Equateur Province which is bordering the Congo River and the Republic of Congo.

→Update of the week

As of 31 May 2018, the [Ministry of Health](#) of DRC has reported 50 cases, including 25 deaths. Of these cases, 37 cases are confirmed and 13 are probable cases. So far, all cases have been reported from three health zones: Bikoro (21), Iboko (25) and Wangata (4) in Equateur Province.

## Nipah virus disease – India – 2018

Opening date: 25 May 2018

Latest update: 1 June 2018

Human Nipah virus (NiV) infection is an emerging zoonotic disease of public health importance in Southern and South-Eastern Asia Region. In May 2018, India reported an outbreak of NiV, which is the third outbreak reported in the country. Previous two outbreaks were reported in 2001 and in 2007. Fruit bats of the *Pteropus* genus are the natural reservoir of NiV. In India, NiV transmission occurred through direct or indirect contact with bats; human-to-human transmission in hospital settings has also been reported. There is no specific treatment, nor vaccination; NiV infection is usually associated with a high case-fatality rate.

→Update of the week

As of 31 May, the Kerala State regional health authorities reported 17 confirmed and nine suspected cases of Nipah virus infection. Among the confirmed cases, 15 have died (CFR: 88.2%).

## Cholera – Multistate (World) – Monitoring global outbreaks

Opening date: 20 April 2006

Latest update: 1 June 2018

Several countries in Africa, Asia and the Americas are reporting [cholera](#) outbreaks. Currently, major outbreaks are reported in Yemen, Haiti, the Democratic Republic of Congo (DRC), Uganda, Kenya, Tanzania, Nigeria and Zambia.

→Update of the week

Since the last CDTR update on 27 April 2018, the countries reporting most cases are: Yemen with 10 627 cases and 19 deaths, DR Congo with 2 376 cases and 78 deaths, Kenya with 1 379 cases, Nigeria with 1 006 cases and 28 deaths and Haiti with 692 cases and 10 deaths.

Additionally, a new outbreak of cholera has been reported in Cameroon, in a district bordering Nigeria.

## II. Detailed reports

### New! **Salmonella Agona – the UK – 2018**

Opening date: 30 May 2018

Latest update: 1 June 2018

#### Epidemiological summary

On 22 May 2018, the United Kingdom (Public Health England – PHE) reported a cluster of 115 cases of *Salmonella* Agona, with isolates being closely related by whole genome sequencing (WGS)-based analysis. All isolates fall into a 5 single nucleotide polymorphism (SNP) single linkage microbiological cluster. The majority of the reported cases had sampling dates in 2018 (53) and 2017 (37), but the earliest case in the cluster was reported in April 2014. The temporal pattern appears relatively consistent with a peak in reporting in April and May each year. Outbreak cases are nationally distributed.

In addition to the UK, 19 *S. Agona* cases identified between 2015 and 2018, with isolates closely related to the UK WGS-cluster, have been reported by Denmark (2), Finland (16) and Ireland (1). While the Danish and the Finnish cases are not travel-associated, the Irish patient reported a travel history to the United Kingdom in the days prior onset of disease.

More than 60% of the overall reported cases are females. The median age of the 129 cases with available information is 39 years (interquartile range 21-65 years).

The investigation on the vehicle and on the source of infection is underway.

Other EU/EEA countries have also provided information on this event:

Sweden report an increase of *S. Agona* cases in 2017 compared to previous years; however, the investigation did not identify a common suspected vehicle of infection. In 2018, four domestic cases have been so far reported.

Belgium, Germany and Spain report no increase in *S. Agona* notifications reported so far in 2018.

Estonia, Greece, Luxembourg, Norway and Slovenia report no isolates closely related to the outbreak strain or no *S. Agona* notifications at all in 2018.

#### ECDC assessment

A multi-country *S. Agona* outbreak has been ongoing in the EU since 2014 with more pronounced peaks of cases reported in April and May each year. Close genetic relatedness of human isolates is suggestive of a common source of infection. The distribution of confirmed cases over different years indicates a continuous common source outbreak. The detection of confirmed cases without a travel history in different EU countries indicates that the vehicle of infection is possibly distributed to different EU countries. The seasonal peak in notifications in April and May might indicate that the vehicle of infection is distributed mostly in these months. Further investigations at the European level are necessary to confirm this assessment.

#### Actions

ECDC has prepared an EU outbreak case definition and collected case-based information from the affected countries on a linelist through EPIS-FWD platform. All WGS data is collected at ECDC for a centralised analysis.

### **Dengue – France, Réunion – 2018**

Opening date: 13 March 2018

Latest update: 1 June 2018

#### Epidemiological summary

In 2018 and as of 29 May, authorities reported 3 756 autochthonous cases of dengue on the island. The main affected areas are on the western part of the island. The most prevalent serotype is DENV-2.

The main vector of infection implicated in the outbreak is *Aedes albopictus*.

On 27 March 2018, authorities decided to raise the level of the emergency plan [ORSEC](#) to 3. Control activities are currently in place and include active reinforced vector control, enhanced surveillance, blood safety measures and social mobilisation.

**Sources:** [ARS](#), [Sante publique France](#)

### ECDC assessment

The current outbreak is a significant event as the number of cases already exceeds the yearly number of cases reported since 2010. Based on previous *Aedes* mosquito-borne outbreaks on the island, further transmission is expected up to the beginning of the austral winter (lasting from July to September) when temperatures will be lower.

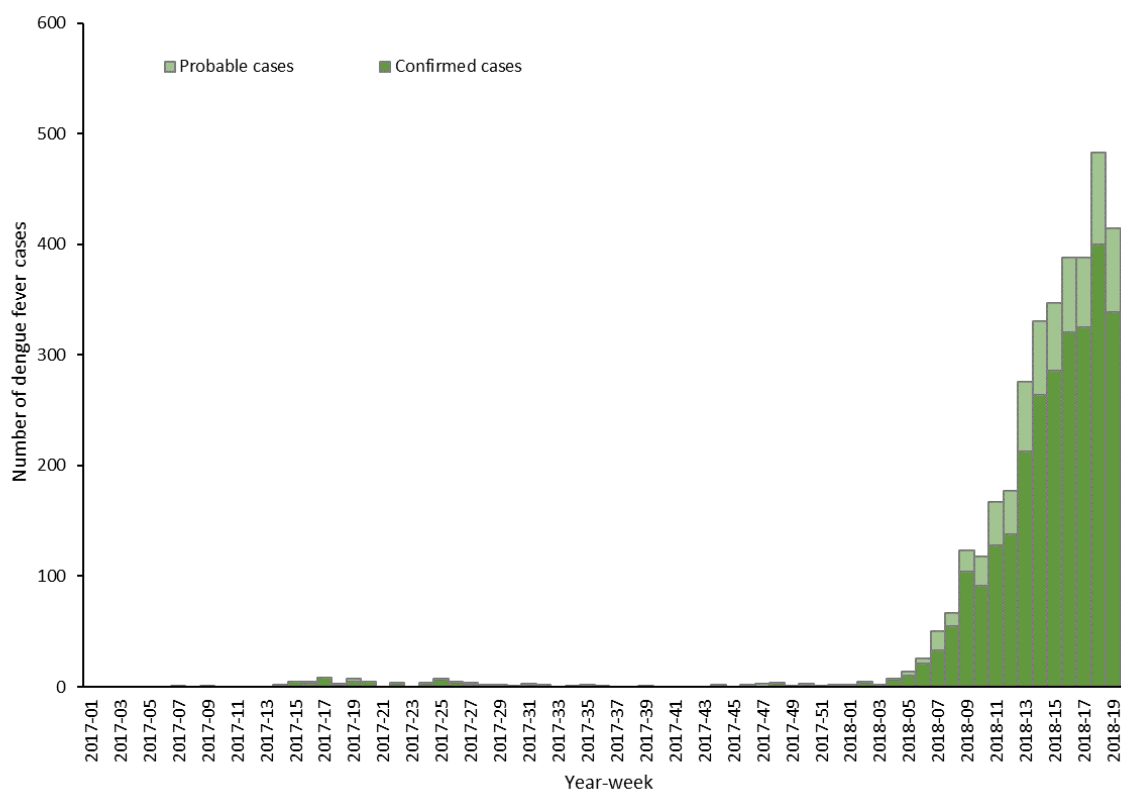
The risk for onward transmission of dengue fever in Europe is linked to importation of virus by viraemic travellers into receptive areas with established and active competent vectors (i.e. *Aedes albopictus* in mainland Europe, primarily around the Mediterranean, and *Aedes aegypti* on Madeira). Environmental conditions in Europe are now favourable to the growth of mosquito populations, which could lead to a high vector abundance in early summer. Apart from seasonal high vector abundance, there is a low likelihood of sustained autochthonous dengue virus transmission in continental Europe associated with virus introduction by returning travellers from Réunion or other areas with active DENV transmission.

### Actions

ECDC is closely monitoring the situation and produced a rapid risk assessment entitled '[Denque outbreak in Réunion, France](#)', which was published on 16 April 2018. ECDC reports monthly dengue outbreaks detected through epidemic intelligence in the CDTR.

## Distribution of dengue cases by week of onset, week 1-2017 to week 20-2018, Réunion

Adapted from the MoH bulletin "Surveillance de la dengue à la Réunion. Point épidémiologique au 29 mai 2018"



## Monitoring environmental suitability of *Vibrio* growth in the Baltic Sea – Summer 2018

Opening date: 24 May 2018

Latest update: 1 June 2018

### Epidemiological summary

In 2016, three EU countries reported one case of *Vibrio* infection: Norway reported one case of *Vibrio parahaemolyticus* infection associated with bathing in the Oslo Fjord, Germany reported a case of *Vibrio vulnificus* acquired on Swinoujscie beach (Baltic Sea, Poland), and the Netherlands reported a case that was infected in Zeeland (North Sea).

Sea surface temperatures (SST) in the Baltic Sea: [http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/anim\\_full.html](http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/anim_full.html)

*Vibrio* suitability tool available on the E3 Geoportal:

<https://e3geoportal.ecdc.europa.eu/SitePages/Vibrio%20Map%20Viewer.aspx>

Please note that this model has been calibrated to the Baltic Region in northern Europe and might not apply to other settings prior to validation. For the Baltic Sea, the following model parameters should be used in the map: number colour bands: 20, scale method: linear, legend range: min. value (0) and max. value (28).

## ECDC assessment

Elevated sea surface temperature in marine environments with low salt content are ideal environmental growth conditions for certain *Vibrio* species. These conditions can be found during the summer months in estuaries and enclosed water bodies with moderate salinity. In contrast, open ocean environments do not offer appropriate growth conditions for these bacteria due to the high salt content, low temperature and limited nutrient content.

These vibrio species can cause vibriosis infections, particularly *V. parahaemolyticus*, *V. vulnificus* and non-toxigenic *V. cholera*. Vibriosis in humans caused by these species in the Baltic region have occurred in the past during hot summer months particularly when the sea surface temperature has been elevated (above 20 Celcius degree). The most common clinical manifestations are gastroenteritis with nausea, vomiting, and diarrhoea, wound infections when a cut has been exposed, wound or abrasion to contaminated seawater, primary septicaemia, and otitis externa. Risk factors for illness, apart from contact with natural bodies of waters, especially marine or estuarine waters, also include consumption of shellfish, particularly raw oysters.

## Actions

ECDC is monitoring this threat on a weekly basis during the summer of 2018 and reports on increased environmental suitability for the growth of *Vibrio* bacteria.

## New! West Nile virus - Multistate (Europe) - Monitoring season 2018

Opening date: 30 May 2018

Latest update: 1 June 2018

## Epidemiological summary

Since the beginning of the 2018 transmission season and as of 1 June 2018, no human or equine cases of West Nile fever have been reported in EU Member States and neighbouring countries.

**ECDC link:** [ECDC West Nile fever web page](#) | [ECDC: equine West Nile fever web page](#) | [ECDC atlas](#)

**Sources:** [TESSy](#) and [ADNS](#)

## ECDC assessment

No human cases have been notified at this early stage of the transmission season.

In accordance with [Commission Directive 2014/110/EU](#), prospective donors should be deferred for 28 days after leaving a risk area for locally-acquired West Nile virus unless the results of an individual nucleic acid test (NAT) are negative.

## Actions

During the transmission season, ECDC will be publishing three types of West Nile fever maps, displaying: 1) human West Nile fever cases, 2) equine West Nile fever cases, 3) combined human and equine West Nile fever cases. Human cases are collected through The European Surveillance System ([TESSy](#)) and equine cases are collected through the Animal Disease Notification System ([ADNS](#)) of the European Commission. While the reporting of human cases covers EU/EEA countries and neighbouring countries, reporting of equine cases covers only EU/EEA countries. Following a One Health approach, the new maps aim to highlight areas, at the NUTS3 level, where West Nile virus circulates in incidental hosts. Currently, deferral or testing of prospective donors applies to blood donors for 28 days after leaving areas with one or more autochthonous human West Nile virus cases. This set of maps aims to provide better information for EU Member States so that they can implement preventive measures.

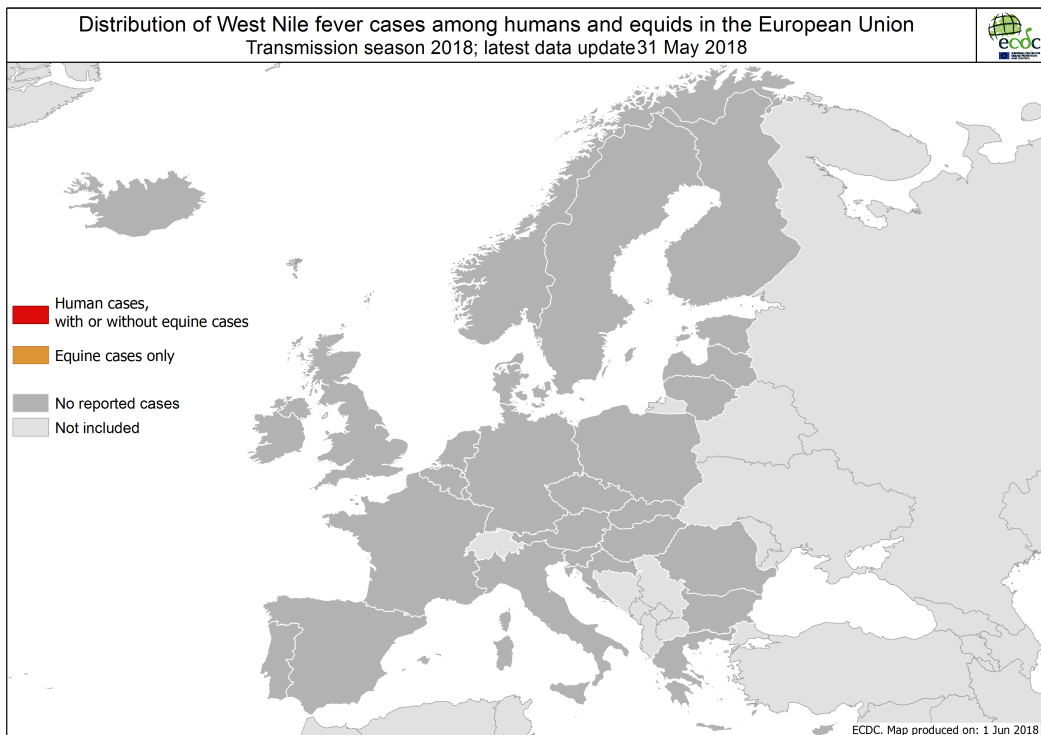
Distribution of human West Nile fever cases by affected areas as of 31 May.

ECDC



Distribution of West Nile fever cases among humans and equids in the EU as of 31 May

TESSy and ADNS



Distribution of West Nile fever cases among equids in the EU as of 31 May

ADNS





## New! Rapid emergence of resistance to new antibiotic. $\beta$ -lactamase inhibitor combination Ceftazidime-Avibactam – Europe and United States - 2017-2018

Opening date: 30 May 2018

Latest update: 1 June 2018

### Epidemiological summary

The new antibiotic/  $\beta$ -lactamase inhibitor combination ceftazidime-avibactam (CAZ-AVI) was approved by the US Food and Drug Administration (FDA) in February 2015 and launched for use in the USA in April 2015. CAZ-AVI is active against extended-spectrum  $\beta$ -lactamases (ESBLs), some carbapenem-resistant *Enterobacteriaceae* (CRE), i.e. KPC-producing and OXA-48-producing CRE, but not NDM-producing and VIM-producing CRE. The ability of CAZ-AVI to inhibit KPC-producing CRE is of great importance because these are the most prevalent carbapenemases in Europe and worldwide. CAZ-AVI is a long-awaited, effective option to treat patients when they are infected with multidrug-resistant Gram-negative bacteria.

Two articles, by Giddens et al. and Gaibani et al., report the emergence of resistance of carbapenem-resistant *Klebsiella pneumoniae* to CAZ-AVI while receiving CAZ-AVI for treatment of infections. These articles should serve as an alert to the scientific community about the rapid emergence of resistance to CAZ-AVI in CRE isolates.

**Source:** [American Society for Microbiology](#), [Journal of Antimicrobial Chemotherapy](#)

### ECDC assessment

Ceftazidime-avibactam was approved by the FDA in February 2015 and launched for use in the USA in April 2015 for patients 18 years or older, under the trade name Avycaz. In Europe, CAZ-AVI was approved by the European Medicines Agency (EMA) in 2015, and received marketing authorisation in the European Union (EU) under the trade name Zavicefta in April 2016. CAZ-AVI was launched in Germany and the UK in March 2017 and is being rolled out in countries outside of the USA (these include EU Member States where CRE are responsible for a large fraction of healthcare-associated infections). These reports by Giddens et al. and Gaibani et al. constitute a warning sign that resistance may and will continue to emerge, especially with the increasing use of this antibiotic. Since it is likely that CAZ-AVI resistance will emerge in the EU as rapidly as it did in the USA there is a need to raise awareness in European hospitals and other healthcare facilities about the possibility of emergence and/or presence of resistance of CRE to CAZ-AVI, which translates into risk for patient safety.

### Actions

ECDC will prepare a Rapid Risk Assessment to be published on 7 June 2018.

## Yellow fever – Brazil – 2017 - 2018

Opening date: 16 January 2017

### Epidemiological summary

Between July 2017 and week 19-2018, the Ministry of Health in Brazil reported 1 266 confirmed human cases of yellow fever, including 415 deaths. The cases occurred in São Paulo (516), Minas Gerais (520), Rio de Janeiro (223), Espírito Santo (6) and Distrito Federal (1).

During the same time period, the Ministry of Health reported 752 confirmed epizootics in non-human primates. Of those, 603 were reported in São Paulo state, 103 in Minas Gerais, 39 in Rio de Janeiro state, four in Tocantins, two in Espírito Santo and one in Mato Grosso.

### Cases among returning travellers

Since the beginning of 2018, unvaccinated travellers from the Czech Republic (1), France (1), the Netherlands (1), Romania (1), Switzerland (1) and Germany (three confirmed cases, one of whom was reported by the United Kingdom) have contracted yellow fever in Brazil.

### Vaccination recommendations

[WHO](#) determined that, in addition to the areas listed in previous updates, the entire states of Paraná, Santa Catarina and Rio Grande do Sul should be considered at risk for yellow fever transmission. Consequently, vaccination against yellow fever is recommended for international travellers visiting these states.

The [Ministry of Health, Brazil](#) announced a progressive extension of the standard vaccination recommendations for yellow fever to the whole of Brazil, to be expanded gradually until 2019.

**Sources:** [MoH](#) | [WHO](#)

### ECDC assessment

The outbreak is currently showing a decreasing trend and as the vector activity season in the southern part of Brazil is coming to an end, the risk for European travellers to these areas is expected to decrease. Brazilian authorities are conducting vaccination campaigns. European citizens travelling to any yellow fever risk area should seek medical advice before their trip and should receive the yellow fever vaccine at least 10 days before travelling (unless vaccination is contraindicated). They should also follow measures to avoid mosquito bites and be aware of yellow fever symptoms and signs.

The probability of local yellow fever transmission in continental Europe following introduction of the virus by a viraemic traveller is currently considered low as *Aedes aegypti* is not present, and vector competency of *Aedes albopictus*, which is present in the southern part of Europe, is limited.

### Actions





ECDC published updates of its rapid risk assessment 'Outbreak of yellow fever in Brazil' on [13 April 2017](#) and [18 January 2018](#). On 16 March 2018, ECDC published the third update of the RRA on its [website](#).

## Yellow fever distribution and areas of risk in Brazil, as of 16 May 2018

ECDC



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

-  States with confirmed locally-acquired cases since July 2017
-  Area at risk for yellow fever transmission
-  Area considered at no risk for yellow fever transmission
-  Federal state



ECDC. Map produced on: 23 May 2018  
 ECDC map maker: <https://emma.ecdc.europa.eu>

## Ebola virus disease - Democratic Republic of the Congo - 2018

Opening date: 8 May 2018

Latest update: 1 June 2018

### Epidemiological summary

As of 31 May 2018, the Ministry of Health of DRC has reported 50 cases, including 25 deaths. Of these cases, 37 cases are confirmed and 13 are probable cases. So far, all cases have been reported from three health zones: Bikoro (21), Iboko (25) and Wangata (4) in Equateur Province.

#### Response activities

Under the coordination of the DRC ministry of health, the EVD outbreak response is being implemented, with the support of UN agencies and international partners. The European Union Civil Protection Mechanism has been activated, following a request for assistance received from WHO.

The main strategic activities for the prevention and control of this EVD outbreak include: coordination of the response, enhanced epidemiological surveillance for early case detection and contact tracing, increased laboratory capacity, appropriate case management, reinforcement of infection prevention and control (IPC), ensuring safe and dignified burials, social mobilisation and community engagement. WHO also supports Ebola vaccination of high-risk populations in the DRC. Health workers operating in

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affected areas are being vaccinated, and community outreach programmes were initiated to prepare for ring vaccinations.

A mobile laboratory was deployed to the Bikoro reference hospital on 12 May 2018 (operational on 16 May 2018) and a second mobile laboratory was deployed in Mbandaka port city. Médecins Sans Frontières set up two Ebola Treatment Centres (ETCs) in Mbandaka and Bikoro, with 20 beds each. In addition, more than 7 500 doses of the rVSV-ZEBOV Ebola vaccine have been deployed to support the ring vaccination strategy that are part of the EVD outbreak responses activities.

According to the Emergency Committee under the International Health Regulation (2005) (IHR) held on 18 May 2018, this event does not meet the criteria of a public health event of international concern.

## ECDC assessment

The identification of EVD cases in the urban area of Mbandaka city and around Tumba Lake (both areas are connected to the Congo River) increases the risk of regional spread to other provinces of DRC and neighbouring countries (namely the Republic of the Congo and the Central African Republic). According to WHO's third external situation report dated 18 May 2018 and based on the latest WHO risk assessment, the public health risk associated with this event is estimated to be **very high at the national level, high at regional level, and low at the international level.**

Visitors and residents in EVD-affected areas face a **low risk** of becoming infected in the community if the following precautions are strictly followed:

- avoiding contact with symptomatic patients and their bodily fluids;
- avoiding contact with corpses and/or bodily fluids from deceased patients;
- avoiding contact with wild animals (including primates, forest antelopes, rodents and bats), both alive and dead, and avoiding consumption of 'bush meat';
- washing hands regularly with soap or antiseptics.

In addition, the following generic precautions are advisable:

- wash and peel fruit and vegetables before consumption;
- practice 'safe sex'.

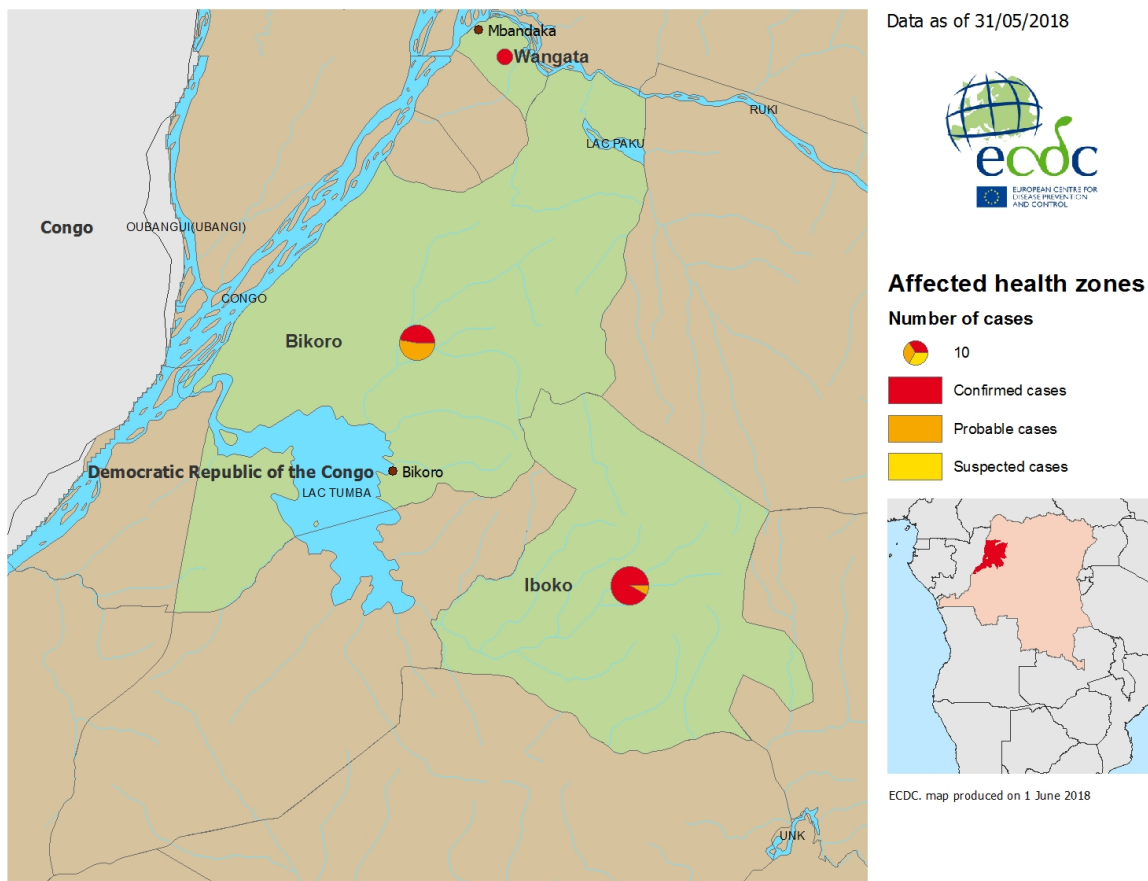
For the European Union/European Economic Area (EU/EEA) citizens living in, or travelling through, areas of DRC not known to have EVD cases, the **risk of exposure is very low**, provided they adhere to the recommended precautions. **The overall risk of introduction and further spread of Ebola virus within the EU/EEA is currently considered to be very low.**

## Actions

ECDC published an updated version of its [rapid risk assessment](#) on 25 May 2018.

## Geographical distribution of confirmed, probable and suspected cases of Ebola virus disease, Equateur Province, The Republic Democratic of Congo, as of 31 May 2018

ECDC



## Nipah virus disease – India – 2018

Opening date: 25 May 2018

Latest update: 1 June 2018

### Epidemiological summary

On 19 May 2018, the Kerala State regional health authorities reported three deaths due to Nipah virus (NiV) infection in the Kozhikode district, south Indian State of Kerala. The three deaths occurred in a family cluster; the death of healthcare worker caring for the family was subsequently reported. Three of the four NiV cases were laboratory confirmed by real-time reverse transcription polymerase chain reaction (rt RT-PCR) and IgM Elisa.

As a result of the outbreak investigation and contact tracing activities, 17 laboratory confirmed and nine suspected cases were detected in Kozhikode and Malappuram Districts in Kerala State, as of 31 May 2018. Among the confirmed cases, 15 deaths were reported (CFR: 88.2%).

**Background:** NiV is a highly pathogenic virus of the family *Paramyxoviridae*, genus Henipavirus. It was first isolated and identified in 1999 during an outbreak in Malaysia and Singapore. Since then several outbreaks of NiV infection in Southern and

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South-Eastern Asia were reported, most cases being reported from Bangladesh. Prior to this outbreak, India experienced two NiV infection outbreaks in 2001 and in 2007, both outbreaks occurred in the eastern state of West Bengal, bordering Bangladesh. The World Health Organization considers NiV as a priority emerging threat. It is most commonly transmitted from fruit bats which is natural reservoir, through direct or indirect contact with secretion or excretion of the bats. Human-to-human transmission in hospital setting has occurred. In addition, pigs may be infected; in Malaysia and Singapore NiV infection among humans was associated with a close contact with infected pigs.

The case-fatality rate is usually high, ranging from 9 to 75%. Treatment is limited to supportive care, and vaccine is not available.

Source: [WHO](#) | [Directorate of health services in Kerala](#) | [Nipah virus guidelines](#) |

### ECDC assessment

According to WHO, India has experience in containing NiV infection outbreaks. The country has an adequate capacity for rapid response and laboratory testing of NiV. At the moment, the outbreak is localised. The risk of spread at the national level and international level is low.

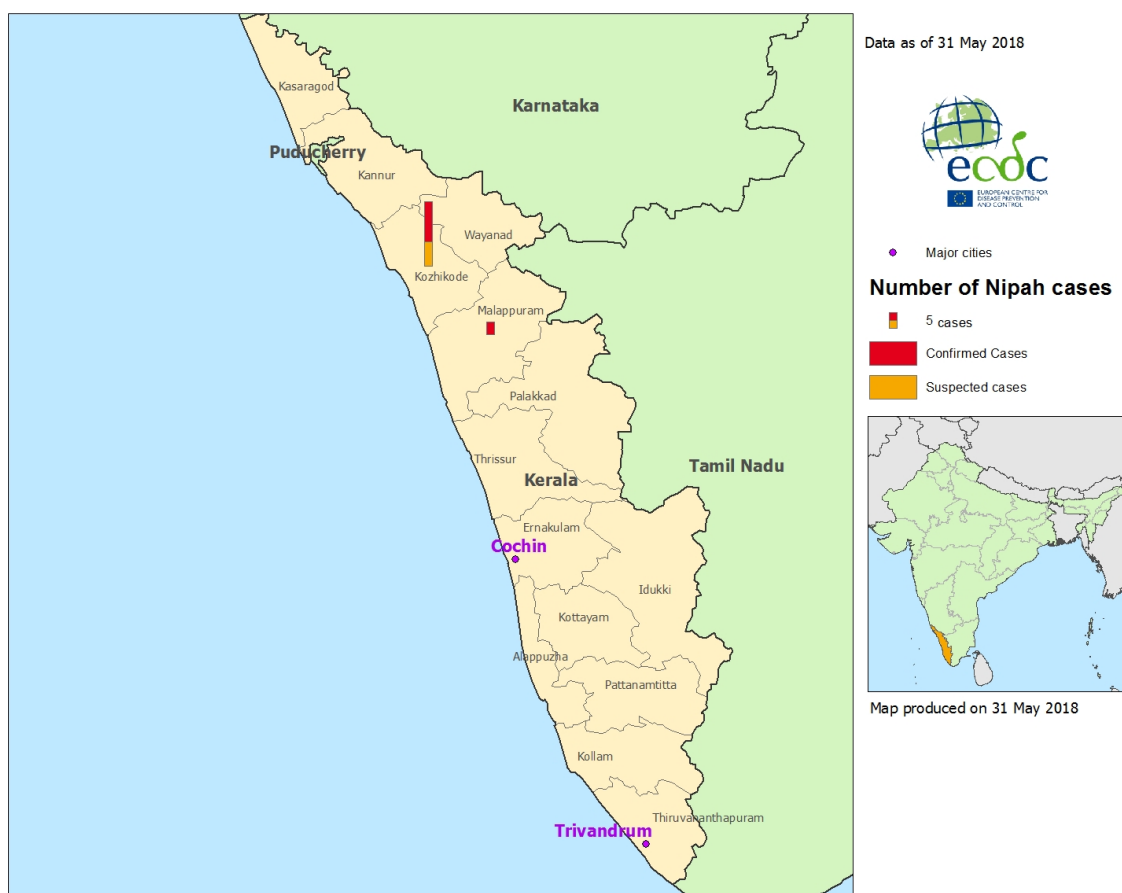
ECDC assessment: The risk for EU/EEA citizens travelling to or living in the affected areas is very low. Travellers should avoid direct and indirect exposure to (sick) pigs and bats in endemic and epidemic areas. Travellers should avoid drinking raw date palm sap as it is known to be possibly contaminated with NiV.

### Actions

ECDC monitors this event through epidemic intelligence.

## Distribution of Nipah virus cases, Kerala State, India, as of 31 May 2018

ECDC



## Cholera – Multistate (World) – Monitoring global outbreaks

Opening date: 20 April 2006

Latest update: 1 June 2018

## Epidemiological summary

**Americas**

**Dominican Republic:** In 2018 and as of 12 May, the Dominican Republic reported 17 cholera cases and no fatalities. This represents an increase of three cases since our previous report on 27 April 2018. During the same period in 2017, the Dominican Republic reported 69 cholera cases.

**Haiti:** In 2018 and as of 19 May, Haiti reported 1 855 cases including 21 deaths (CFR: 1.1%). This represents an increase by 692 cases and ten deaths since the previous update on 27 April 2018. In 2017, Haiti reported 13 681 cholera cases including 159 deaths (CFR: 1.2%). Since the beginning of the outbreak in 2010 and as of 14 April 2018, Haiti has reported 817 855 suspected cholera cases including 9 769 deaths (CFR: 1.2%).

**Africa**

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**Angola:** As of 8 April 2018, Angola reports 895 cases and 15 deaths (CFR: 1.7%) since December 2017. Cases are reported from Uige and Cabinda provinces.

**Cameroon:** As of 24 May 2018, a new cholera outbreak has been reported in Cameroon, in two border health areas with Nigeria. So far, three cases including one confirmed case have been reported in Mayo Oulo's.

**DR Congo:** Since January 2017 as of 15 April 2018, DR Congo reported 70 829 suspected cholera cases, including 1 551 deaths (CFR: 2.2%). This represents an increase by 2 376 cases and 78 deaths since the previous report on 27 April 2018.

**Kenya:** As of 7 May 2018 and since the beginning of the outbreak in January 2017, Kenya has reported 8 010 cases. This represents an increase by 1 397 cholera cases since our previous report on 27 April 2018. Only in 2018, 72 deaths related to this outbreak were reported.

**Malawi:** In 2018, as of 29 April, Malawi reported 929 cases and 30 deaths (CFR: 3.2%). This represents an increase by 40 cases since the update on 27 April 2018.

**Nigeria:** In 2018, as of 27 May, Nigeria reported 1 874 suspected cholera cases including 47 deaths (CFR: 2.5%) nationwide. Most of these cases are reported in Borno, Adamawa and Yobe States. This represents an increase by 1 006 cases and 28 deaths since the update on 27 April 2018. In all 2017, Nigeria reported 4 221 suspected cholera cases including 107 deaths (CFR: 2.5%).

**Somalia:** On 13 May 2018, the Somali Ministry of Health reported 3 280 suspected cholera and acute watery diarrhoea cases (AWD) including 21 deaths (CFR: 0.6%) since December 2017. The areas affected for these outbreaks are: Beletweyne, Banadir, Kismayo, Jowhar, Bulo barde and Afgoye.

**Tanzania:** In 2018, as of 20 May, Tanzania reported 2 105 cholera cases including 44 deaths (CFR: 2%). This is an increase by 509 cases and 16 deaths since the previous update on 27 April 2018. The last case reported in Zanzibar was on 11 July 2017.

**Uganda:** On 15 February 2018, a new cholera outbreak was declared in Uganda, mainly among the displaced population from DR Congo in refugee settlements in Hoima district. As of 30 April 2018, 2 169 suspected cholera cases including 46 deaths have been reported (CFR: 2.1%). This represents an increase of 61 cases and two deaths since the previous update on 27 April 2018. The first outbreak reported was mainly localised in newly arrived refugees from DR Congo, and the outbreak was contained in Hoima district. However, on 1 May 2018, a new outbreak of cholera was declared in Amudat district. The index case of this new outbreak had travel history to Kenya.

**Zambia:** Since 4 October 2017 and as of 15 April 2018, Zambia reported 5 721 cholera cases including 113 deaths (CFR: 2%). This is an increase by 86 cases and two deaths since the previous update on 27 April 2018. The outbreak has spread from Lusaka City to other regions in the country, however Lusaka city is accounting for the majority of the cases.

**Zimbabwe:** On 7 April 2018 a new cholera outbreak was reported in Stoneridge, a suburb from the capital city of Harare. Since then and as of 16 May 2018, 62 cases including three deaths (CFR: 4.8%) are being reported. This represents an increase of 26 cases since the previous update on 27 April 2018. The index case of the ongoing outbreak had no travel history to the areas affected by the previous cholera outbreak that was declared over on 24 March 2018.

## **Asia**

**Yemen:** Since the beginning of the outbreak in October 2016 and as of 25 May 2018, Yemen reported 1 101 915 suspected cholera cases and 2 294 deaths (CFR: 0.2%). This represents an increase by 10 627 cases and 19 deaths since the last update on 27 April 2018. Some of the most affected governorates are Amanat Al Asima, Al Hudaydah, Hajjah, Amran and Dhamar.

## **ECDC assessment**

There has been an unusual increase in the number of cholera cases in the Horn of Africa and in the Gulf of Aden in recent years. Cholera outbreaks have been notified mainly in DR Congo, Kenya, Tanzania, Uganda and in the southern part of Africa (Zimbabwe, Zambia, Mozambique and Angola). Despite the number of cholera outbreaks reported worldwide, very few cases are reported each year among returning EU/EEA travellers.

According to the World Health Organization, vaccination should be considered for travellers at higher risk, such as emergency/relief workers who are likely to be directly exposed. Vaccination is generally not recommended for other travellers.

Travellers to cholera-endemic areas should seek advice from travel health clinics to assess their personal risk and apply precautionary sanitary and hygiene measures to prevent infection. These can include drinking bottled water or water treated with chlorine, carefully washing fruit and vegetables with bottled or chlorinated water before consumption, regularly washing their hands with soap, eating thoroughly cooked food, and avoiding consumption of raw seafood products.



## Actions

ECDC monitors cholera outbreaks globally through its epidemic intelligence activities in order to identify significant changes in epidemiology and to inform public health authorities. Reports are published on a monthly basis.

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