

This weekly bulletin provides updates on threats monitored by ECDC.

### News: outbreak of typhoid fever following a large gathering

On 10 September 2017, French authorities reported to the European Centre for Disease Prevention and Control (ECDC) three cases of typhoid fever linked to the European Rainbow gathering that took place in Tramonti di Sopra, Friuli-Venezia Giulia region, Italy, from 23 July to 21 August 2017. On 12 September, German authorities reported a case linked to this Rainbow gathering. Additional cases associated with this event may have not been reported yet. Typhoid fever is an infection caused by *Salmonella* Typhi that is endemic in many parts of the world, causing approximately 21 million cases and 222 000 deaths annually. The disease is rarely reported in Europe. The infection is usually associated with poor sanitation, food contamination and lack of clean drinking water. Severe forms of the disease can be lethal, especially without adequate treatment. Typhoid fever incubation period is usually one to two weeks but can be up to 60 days. Some individuals can become chronic carriers with the possibility to further transmit the disease to their close contacts without presenting with symptoms. The risk of further transmission is increased in the case of a chronic carrier involved in food handling activities. Therefore, infected participants returning home from Rainbow events may further transmit the disease. It is important to note that typhoid fever is not the same disease as typhus fever. Further information on typhoid fever symptoms is available on [ECDC Facts about typhoid fever](#).

Preventive measures include regular hand washing with soap, scrupulous food handling hygiene, eating thoroughly cooked food, and avoiding use of unsafe water without boiling it first. In natural circumstances, latrines should be located at a site distant from water sources. Typhoid fever vaccine is a safe vaccine with a moderate protective effect that can be considered for travellers to endemic areas, or people at increased risk for infection. People presenting with fever and/or gastrointestinal symptoms after a potential exposure to persons infected with *Salmonella* Typhi should seek medical advice without delay.

More information about typhoid fever:

ECDC: <https://ecdc.europa.eu/en/typhoid-and-paratyphoid-fever/facts>

WHO: <http://www.who.int/immunization/diseases/typhoid/en/>

CDC: <https://www.cdc.gov/typhoid-fever/index.html>

## I. Executive summary

### EU Threats

#### **New! Typhoid fever outbreak - mass gathering - Italy - 2017**

Opening date: 11 September 2017

Latest update: 15 September 2017

On 8 September 2017, France reported several cases of typhoid fever among unvaccinated participants of a mass gathering event called 'Rainbow' gathering that took place in Tramonti di Sopra, Friuli-Venezia Giulia region, Italy, from 23 July to 21 August 2017 and hosted around 3 000 participants.

ECDC published a news item related to this event.

## New! Malaria - Europe - 2017

Opening date: 11 September 2017

Latest update: 15 September 2017

In 2017, several EU Member States reported separate events clustered in time of locally-acquired malaria cases due to *Plasmodium falciparum* or *Plasmodium vivax*.

Most of the events occurred in July and August 2017, except for the the event related to malaria cases with *P. vivax* in Greece that started in May 2017.

## Chikungunya - France - 2017

Opening date: 11 August 2017

Latest update: 15 September 2017

On 11 August 2017, France notified an autochthonous case of chikungunya virus infection, diagnosed in the Var department (Provence-Alpes-Côte d'Azur region) of south-eastern France through the Early Warning and Alert System (EWRS). As of 13 September, authorities reported seven confirmed cases and two probable cases.

→Update of the week

On 13 September, the Regional Health Agency of Provence-Alpes-Côte-d'Azur (ARS PACA) reported one additional confirmed case and one additional probable case.

## Chikungunya - Italy - 2017

Opening date: 8 September 2017

Latest update: 15 September 2017

Between 8 and 11 September 2017, Two related clusters involving autochthonous transmission of chikungunya virus have been detected in the cities of Anzio and Rome, two areas located 60 km apart in the Lazio region of Italy. Seventeen confirmed cases have been reported to date, but more cases are likely to be detected as the investigation progresses.

→Update of the week

On 7 September 2017, Italy notified -- through the Early Warning and Response System (EWRS) -- a cluster of three cases of chikungunya in the city of Anzio. None of the three cases reported travel to chikungunya-endemic countries during the two weeks prior to the onset of disease. Therefore, cases are considered as acquired in Anzio through local transmission. The three cases had onset of symptoms on 5, 11 and 25 August 2017. Three additional cases were identified in a family in Rome on 14 September that has no history of travel abroad or to the city of Anzio. The event points toward a second cluster of local transmission. As of 13 September, the Lazio regional authorities reported 17 confirmed cases, six in Rome, 10 in Anzio, and one for which the location was not determined.

## West Nile virus – Multistate (Europe) – Monitoring season 2017

Opening date: 30 May 2017

Latest update: 15 September 2017

During the West Nile virus transmission season, from June to November, ECDC monitors the occurrence of cases of West Nile fever in EU Member States and neighbouring countries in order to inform the blood safety authorities about areas with ongoing virus transmission. In 2016, 225 human cases of West Nile fever were reported in EU Member States and 267 cases were reported in the neighbouring countries.

→Update of the week

Between 7 and 14 September 2017, Serbia reported nine cases and Hungary reported one case. All cases were reported in previously affected areas. Greece reported one death due to West Nile fever in a previously reported case. In addition, Italy has reported eight West Nile fever equine cases, and Hungary and Greece both reported one equine case through the Animal Disease Notification System (ADNS) of the European Commission.

## Measles – Multistate (EU) – Monitoring European outbreaks

Opening date: 9 February 2011

Latest update: 15 September 2017

Measles outbreaks continue to occur in a number of EU/EEA countries, with a risk of spread and sustained transmission in areas with susceptible populations.

Since 15 September 2017, ECDC has been reporting EU and global outbreaks of measles in the CDTR on a monthly basis. If there are critical events, additional reports are published.

→Update of the week

Updates for EU/EEA countries are provided for Italy and Romania. Updates outside the EU/EEA are provided for Switzerland, Ukraine, DR Congo, Liberia, Nigeria, Somalia, South Africa, South Sudan, Syria, Thailand, Australia and the USA.

## Rubella – Multistate (EU) – Monitoring European outbreaks

Opening date: 7 March 2012

Rubella, caused by the rubella virus and commonly known as German measles, is usually a mild and self-limiting disease which often passes unnoticed. The main reason for immunising against rubella is the high risk of congenital malformations associated with rubella infection during pregnancy. All EU Member States recommend vaccination against rubella with at least two doses of vaccine for both boys and girls. The vaccine is given at the same intervals as the measles vaccine as part of the MMR vaccine. No new outbreaks have been detected in the EU since March 2017.

ECDC reports global outbreaks of rubella in the CDTR on a monthly basis or if there is a critical event.

→Update of the week

No new outbreaks have been detected since March 2017.

## Non EU Threats

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

Opening date: 10 November 2016

Latest update: 15 September 2017

In October 2016, ECDC had observed an increase in the number of cases of Legionnaires' disease associated with travel (TALD) to Dubai, United Arab Emirates (UAE). TALD cases associated with travel to Dubai have returned to baseline values observed during 2012 through 2016.

→Update of the week

No epidemiological update since the previous CDTR.

### Malaria – Cape Verde- 2017

Opening date: 10 August 2017

Latest update: 15 September 2017

In July 2017, Cape Verde reported a sudden increase in the number of malaria cases. According to WHO, Cape Verde is categorised as a 'very limited risk of malaria transmission area', with limited local transmission from September to November, coinciding with the rainy season.

→Update of the week

Since the last report on 3 September 2017, Cape Verde has reported 34 cases. In 2017, as of 10 September, 201 cases have been reported. One death of an imported case has been reported. The epicentre of the outbreak is located in the capital city of Praia in Santiago Island.

### Communicable disease risks – Hurricane Irma – 2017

Opening date: 7 September 2017

Latest update: 15 September 2017

On 29 August 2017, the US National Hurricane Center (NHC) reported that Hurricane Irma was forming in the Atlantic Ocean. In the days that followed, Irma gained in intensity, and on 4 September it was classified as a Category 5 storm, the highest level for hurricanes. Irma is one of the strongest hurricanes ever recorded in the Atlantic. In the past, floods resulting from hurricanes have been associated with outbreaks of infectious diseases (e.g. tetanus, leptospirosis and vector-borne diseases.) ECDC is assessing these risks in the epidemiological context of the Caribbean.

→Update of the week

As of 11 September 2017, the USA National Oceanic and Atmospheric Administration (NOAA) has categorised hurricane Irma as a tropical depression with wind speeds below 63 km/h. News media reported at least 68 deaths across all the affected areas. Severe devastation was reported in Anguilla, Barbuda, the British Virgin Islands, St. Martin/St. Maarten, the US Virgin Islands, and Turks and Caicos.

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

Opening date: 20 April 2006

Latest update: 15 September 2017

Several countries in Africa, Asia and the Americas are reporting [cholera](#) outbreaks. The current situation in Yemen, Somalia, Ethiopia, South Sudan and the Democratic Republic of the Congo is of particular concern as cholera outbreaks are occurring during a large-scale humanitarian crises.

→Update of the week

Since the beginning of 2017, the Gulf of Aden and the Horn of Africa region have been the mainly affected areas, with Yemen, Somalia, Ethiopia, South Sudan and the Democratic Republic of the Congo reporting the majority of the cases. Since the last update, the news media have reported four cholera cases in Ukraine.

## II. Detailed reports

### New! Typhoid fever outbreak - mass gathering - Italy - 2017

Opening date: 11 September 2017

Latest update: 15 September 2017

#### Epidemiological summary

On 8 September 2017, France reported three confirmed cases of typhoid fever among unvaccinated participants at a gathering that took place in Tramonti di Sopra, Friuli-Venezia Giulia region, Italy, from 23 July to 21 August 2017. The three patients are aged three, 24 and 26 years. Symptom onset ranged from 10 August to 28 August, and cases were laboratory-confirmed between 31 August and 2 September. Case interviews revealed poor hygiene conditions during the event. The event may have gathered up to 3 000 participants, and involved bathing in a river and using collective toilets dug in the ground. Communications through social networks suggest that more than ten cases of typhoid fever might have occurred in citizens from different EU countries.

On 12 September 2017, Germany reported one case of typhoid fever in a 23-year-old male who attended the Rainbow gathering in Italy in August. The patient experienced onset of symptoms on 23 August.

Finland, Hungary, Norway, Slovenia, Sweden report no typhoid fever cases associated with this event or no cases at all in 2017.

**TESSy data:** Each year, 600 to 700 cases of typhoid fever are reported in the EU/EEA by 25 countries. The UK, France and Italy account respectively for 34%, 21% and 17% of the cases. Travel information was available for 53% cases in 2012-2016 and of these, the majority (87%) were reported as associated to travel. India and Pakistan accounted for 60% of the travel associated cases. Thirty-five percent of the cases were 25-44 years old and male cases were slightly more common than female, particularly in this age group.

**Sources:** [ECDC typhoid and paratyphoid page](#) | [European Rainbow gathering calendar](#) |

#### ECDC assessment

Additional typhoid fever cases associated with mass gathering events of this type is not unexpected as the gathering lasted for four weeks and many participants were probably not immunised. The incubation period for typhoid fever is usually 8 to 14 days but can last up to 60 days. While humans are the only reservoir for the causative agent *Salmonella* Typhi, 2-5% of middle-aged infected individuals can become chronic carriers, with the possibility to transmit the disease without experiencing symptoms. Typhoid fever vaccination is not recommended for European residents unless they travel to endemic countries. Vaccine effectiveness is moderate and protection does not last long. Also, vaccination is often not accepted by certain target groups.

Rainbow gatherings are often connected to specific communities and target audiences. [Rainbow gatherings](#) are held in southern Italy, the Czech Republic, in the south-east of England, Bulgaria, Hungary, and the Spanish Pyrenees. Countries hosting Rainbow gatherings should consider increasing awareness with regard to the risk of contracting typhoid fever, especially if there are non-immunised participants who just returned from endemic countries, and make recommendations for sanitation, hand washing, food handling hygiene and vaccination campaigns among participants. There is a low risk for further spread to the general population in the EU/EEA. The risk is mostly associated with food handling by carriers. In addition to emphasising hand washing as a routine precautionary measure and scrupulous cleanliness when handling food, testing of food handlers at recent Rainbow gatherings could be considered.

#### Actions

ECDC is monitoring this outbreak through EPIS FWD and through epidemic intelligence.

### New! Malaria - Europe - 2017

Opening date: 11 September 2017

Latest update: 15 September 2017

#### Epidemiological summary

##### Greece

As of 17 August 2017, Greece reported five autochthonous cases of *P. vivax* malaria acquired via vector-borne transmission following a likely exposure in the regions of Dytiki Ellada in West Greece for four cases and Sterea Ellada in Central Greece for one case [6]. Greece reports that these cases resulted from a local transmission following recent introduction of *P. vivax* in the

area (introduced cases). The dates of onset of the cases range between 2 May and 22 July 2017. In addition, Greece reported one locally acquired case of *P. falciparum* in the region of Ipeiros, in north-west Greece, with date of onset of symptoms between 17 and 23 July 2017. The case, who has no travel history to a malaria-endemic area, was hospitalised for a non-infectious medical condition in a ward where another patient was treated for *P. falciparum* malaria. The most likely place of exposure for this particular case was a healthcare facility but it was not possible to determine the exact mode of transmission (mosquito vector or of iatrogenic origin). The investigation excluded transmission through blood transfusion, but instead suggested a nosocomial transmission, either mosquito-borne within the healthcare facility or of iatrogenic origin. No locally acquired malaria cases were reported in the area.

### Italy

On 5 September, Italy reported a fatal case of malaria [33]. The case was a four-year-old girl with no travel history to a malaria-endemic country. She was admitted on 13 August 2017 to a hospital in the Veneto region and diagnosed with diabetes mellitus. After returning from the Veneto region, she was admitted to a Trento hospital for her diabetes (16 to 21 August) and later consulted a pharyngitis on 31 August 2017.

On 2 September, she was admitted to hospital again and diagnosed with *P. falciparum* malaria. She was subsequently transferred to the tropical diseases reference centre in Brescia where she died on 4 September. Epidemiological investigations showed that two patients infected with *P. falciparum* were hospitalised in the same ward during her stay in the Trento hospital. An investigation in the Trento hospital did not identify any breaches of medical procedures that could result in an iatrogenic transmission. Entomological investigations in the Trento area did not reveal the presence of *Anopheles* mosquitoes. Entomological surveys in Bibione, where the girl spent her holidays, were conducted. Molecular sequencing of the *Plasmodium* strain from the girl and from the two children hospitalised concomitantly is ongoing.

### France

On 7 September, France reported two locally-acquired cases of malaria in the department of Allier in the Auvergne-Rhône-Alpes region of central France. Both cases attended a wedding that took place between 11 and 16 August 2017 in Moulins, Allier department, France. On 30 August 2017, the first case was diagnosed after admission to hospital in the southwest of France for fever, chills and sweats evolving since 26 August. The patient did not travel abroad and had no risk factors for induced malaria. The only recent trip was to Moulins and its surrounding for attending the wedding.

On 1 September, a second case who attended the same wedding was diagnosed upon returning home. The case had onset of symptoms on 26 August 2017 and had neither exposure to induced malaria nor a recent travel history to a malaria-endemic area. The Regional Health Agency of Auvergne-Rhône-Alpes implemented active case finding in the neighbouring laboratories and hospitals. None of the wedding attendees reported a recent travel history to a malaria-endemic country or symptoms compatible with malaria. However, an imported case of *P. falciparum* malaria from Burkina Faso was identified to have stayed in Moulins and its surroundings for several days within the two weeks before the wedding. Entomological investigations conducted in the areas visited by the imported case and autochthonous cases did not find evidence of the presence *Anopheles plumbeus*, a potential competent vector of *P. falciparum*. The French National Reference Centre for Malaria is gathering samples for molecular typing to assess the link between the imported and the two autochthonous cases.

### The United Kingdom ex. the northern part of Cyprus

On 8 September, the United Kingdom reported (through the Early Warning and Response System) three cases of *P. vivax* malaria in travellers returning from Esentepe, the northern part of Cyprus. Two of the cases were siblings aged twelve years that travelled independently from the third case. The three cases stayed in the northern part of Cyprus for two to three weeks in August and developed symptoms on 29 August. They were laboratory confirmed upon returning to the UK.

**ECDC link:** [ECDC malaria factsheet](#)

**Sources:** [Italian blood safety authorities](#) | [Hellenic public health agency](#)

### ECDC assessment

In the EU/EEA countries, 31 966 cases of malaria were reported between 2012 and 2016, corresponding to a yearly average of around 6 400 cases (range: 5 272 cases in 2012 – 7 147 cases in 2016). Infection occurred in malaria-endemic countries for 99.8% of the cases (importation data available for 31 237 cases). The notification rate between 2012 and 2016 remained stable, from 0.8 (2012-2013) to 1.0 (2014-2016) cases per 100 000 population.

In 2016, according to European Surveillance System (TESSy), 12 cases were locally acquired: eight cases in Greece, two in France, one in Spain and one in Lithuania. All these cases are considered to be sporadic cases of introduced malaria or airport-acquired infections. No sustainable transmission of malaria was reported in the EU/EEA in 2016.

Locally acquired cases of malaria have been occurring in Greece since 2009, with the highest numbers reported in 2011. Since 2012, local malaria transmission has been ongoing, but fewer cases were reported. In 2011, ECDC published a rapid risk assessment on the situation in Greece.

Nosocomial transmissions of *P. falciparum* in healthcare settings have been documented in the EU but remain rare events. Healthcare providers should be aware of the risk of nosocomial transmission of malaria and the correct application of standard

precautions should be ensured when patients with malaria are hospitalised. The suspicion of nosocomial transmission should trigger an investigation of infection control practices related to transmission of blood-borne pathogens (contact with blood, needle and sharp disposal, intravenous administration of treatment). As mosquito-borne transmission in a healthcare setting is possible, entomological investigations should be conducted when transmission of malaria occurs in such settings and adequate control measures applied. The risk for spread of malaria in the EU following these events remains very low.

## Actions

ECDC monitors this event through epidemic intelligence.

## Chikungunya - France - 2017

Opening date: 11 August 2017

Latest update: 15 September 2017

### Epidemiological summary

On 11 August 2017, France notified an autochthonous case of chikungunya virus infection detected in the Var department in southern France through EWRS. In the following weeks, five more confirmed cases and one probable case were reported. On 13 September, the Regional Health Agency of Provence-Alpes-Côte-d'Azur (ARS PACA) reported one additional confirmed case and one additional probable case.

As of 13 September, authorities have reported seven confirmed cases and two probable cases involved in this cluster. The cases are seven men and two women between 33 and 77 years of age. Among these nine cases, eight are living in Cannet-des-Maures. The other case lives in a neighbouring city, Brignoles, but he stayed in Cannet-des-Maures during his incubation period. As of 13 September, seven additional suspected cases are under investigation.

**ECDC links:** [Chikungunya factsheet](#) | [VectorNet map](#) | [rapid risk assessment 'Cluster of autochthonous chikungunya cases in France'](#) | [epidemiological update 1 September 2017](#)

**Sources:** EWRS | [France](#) | [ARS PACA](#)

### ECDC assessment

*Aedes albopictus* is established in the southern part of France and in regions of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Italy, the former Yugoslav Republic of Macedonia, Malta, Montenegro, Romania, Slovenia, Spain and Switzerland (see [VectorNet map](#)).

The report of clusters of autochthonous chikungunya cases in areas of Europe where *Aedes albopictus* is established is not unexpected during the summer months when environmental conditions are favourable for mosquitoes. In previous years, France detected several autochthonous clusters of chikungunya and dengue and has acquired experience in managing such clusters.

The latest cluster is currently limited to cases infected within a 200-metre radius over a period of three weeks. The identification of additional cases associated with this cluster through active surveillance is possible. However, further transmission in the area is unlikely due to vector control measures implemented in the affected area. The risk that the transmission will spread to a larger area is very low.

The conclusions of the latest ECDC rapid risk assessment published on 24 August 2017 on the '[Cluster of autochthonous chikungunya cases in France](#)' remain valid.

## Actions

ECDC published a rapid risk assessment entitled '[Cluster of autochthonous chikungunya cases in France](#)' on 24 August 2017; an [epidemiological update](#) was released on 1 September 2017.

## Chikungunya - Italy - 2017

Opening date: 8 September 2017

Latest update: 15 September 2017

### Epidemiological summary

On 7 September 2017, Italy notified -- through the Early Warning and Response System (EWRS) -- a cluster of three cases of chikungunya in the city of Anzio. None of the three cases reported travel to chikungunya-endemic countries during the two weeks prior to the onset of disease. Therefore, cases are considered as acquired in Anzio through local transmission. The three cases had onset of symptoms on 5, 11 and 25 August 2017. Three additional cases were identified in a family in Rome on 14 September that has no history of travel abroad or to the city of Anzio. The event points toward a second cluster of local transmission. As of 13 September, the Lazio regional authorities reported 17 confirmed cases, six in Rome, 10 in Anzio, and one for which the location was not determined.

The cluster in Anzio is currently limited to cases possibly infected within a radius of 300m. Epidemiological investigations are ongoing for the second cluster in Rome. Additional suspected cases with symptoms compatible with chikungunya virus disease are under investigation in Anzio and Rome. To date, the investigations have not identified the primary case who could have introduced the virus to the area in Anzio. Sequencing of the viral strain is ongoing.

Italian authorities immediately launched epidemiological and entomological investigations around the clusters of chikungunya cases in both areas. The implemented measures include active case finding, entomological investigations around potential place of exposure of cases, and vector control activities. In addition, blood safety preventive measures have been implemented and will be adjusted according to the epidemiological investigations.

Sources: EWRS | [Istituto Superiore di Sanita'](#) | [Lazio Region](#)

ECDC links: [Rapid risk assessment "Clusters of autochthonous cases of chikungunya in Italy"](#) | [chikungunya factsheet](#)

### ECDC assessment

The establishment of local transmission in areas where *Aedes albopictus* mosquitoes are established at a time when environmental conditions are suitable for increased mosquito abundance and mosquito activity is not unexpected. This event represents the second introduction of chikungunya local transmission in Italy resulting in an outbreak, following a previous outbreak in 2007 in Emilia-Romagna, Italy.

Several facts suggest that local transmission is spreading: the first transmission event is estimated to have taken place around mid-July 2017, cases were reported in two separate foci, and several additional symptomatic cases were recorded (still under investigation). More cases are expected in the near future. Due to suitable environmental conditions, the likelihood of further transmission in the Lazio region is high.

### Actions

ECDC is closely monitoring this event and published a risk assessment entitled '[Clusters of autochthonous cases of chikungunya in Italy](#)' on 14 September 2017.

## West Nile virus – Multistate (Europe) – Monitoring season 2017

Opening date: 30 May 2017

Latest update: 15 September 2017

### Epidemiological summary

Since the beginning of the 2017 transmission season and as of 14 September 2017, Greece has reported 40 human cases, Italy has reported 27 cases, Romania 22 cases, Hungary 10 cases and Austria has reported two cases. In addition, Serbia has reported 28 cases, and Israel has reported nine cases.

In equids, Member States reported 68 West Nile fever cases through ADNS: 55 in Italy, 11 in Greece and two in Hungary.

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

Source: [ADNS](#)

ECDC reports on this threat on a weekly basis during the West Nile season.

### ECDC assessment

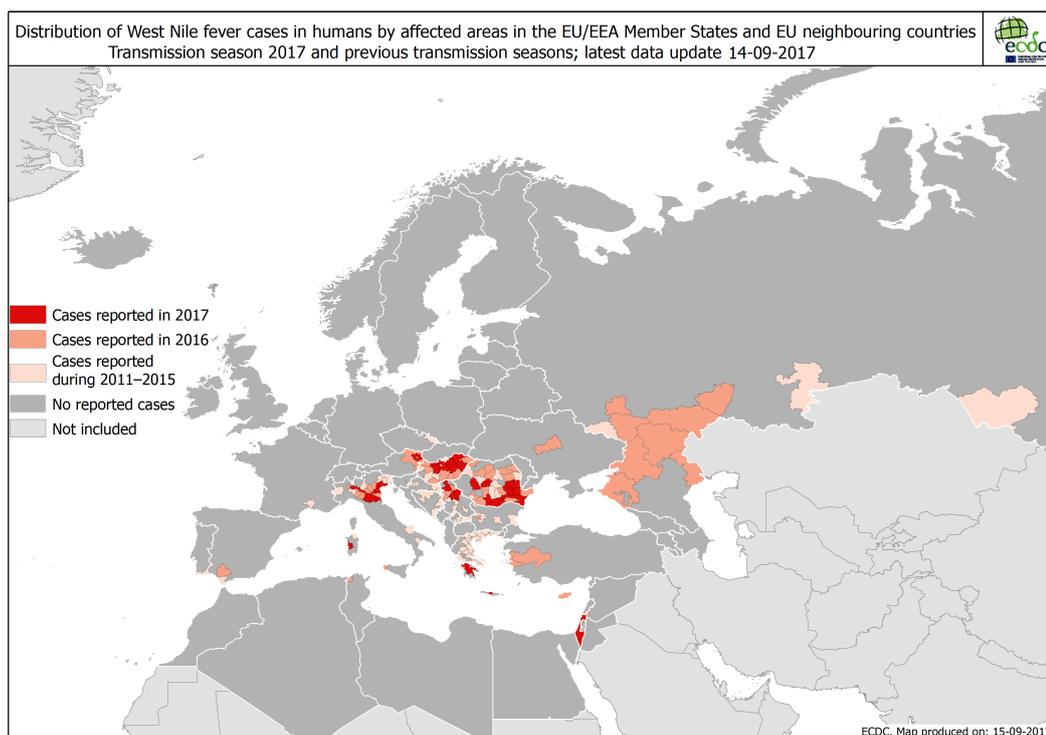
The current West Nile fever epidemiological situation is consistent with observations of seasonal virus transmission from previous years. According to the [Commission Directive 2014/110/EU](#), prospective donors should be deferred for 28 days after leaving a risk area of locally-acquired West Nile virus unless an individual nucleic acid test (NAT) is negative.

## Actions

Since 2011, ECDC has been producing weekly maps displaying the areas (NUTS 3 level) where human West Nile fever cases are detected during the transmission season. The aim of these maps is to inform blood safety authorities of West Nile fever-affected areas to support the implementation of the blood safety directive.

## Distribution of human West Nile fever cases by affected areas as of 14 September.

ECDC



## Measles – Multistate (EU) – Monitoring European outbreaks

Opening date: 9 February 2011

Latest update: 15 September 2017

### Epidemiological summary

Updates are provided for Italy and Romania. According to national public health authorities, measles has caused 43 deaths in EU countries in 2016 and 2017. In 2016, 12 deaths occurred in Romania and one in the UK. In 2017, 30 deaths were reported from Romania (22), Italy (3), Bulgaria (1), Germany (1), Portugal (1), France (1) and Spain (1). All EU/EEA countries have reported measles cases this year, except for Latvia, Liechtenstein, Malta and Norway.

Updates outside EU/EEA countries are provided for Switzerland, Ukraine, DR Congo, Liberia, Nigeria, Somalia, South Africa, South Sudan, Syria, Thailand, Australia and the US.

Epidemiological summary for EU/EEA countries, with updates since last week

**Italy** has reported 43 cases since the previous report on 8 September 2017. In 2017, as of 13 September, Italy has reported 4 487 cases, including three deaths. Of these cases, 297 are healthcare workers. The median age is 27 years; 88% of the cases were not vaccinated, and 7% received only one dose of vaccine. In 2016, Italy reported 861 cases.

**Romania** has reported 122 cases and one additional death since the previous report on 8 September 2017. Since 1 January 2016 and as of 8 September 2017, Romania has reported 9 104 cases, including 34 deaths. Of these, 1 969 cases were reported in 2016, and 7 135 cases were reported in 2017.

### Epidemiological summary for countries outside EU/EEA since last month

**Switzerland:** In 2017, as of 4 September, Switzerland has reported 76 cases of measles. In the same period in 2016, 42 cases

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were reported.

**Ukraine:** In 2017, as of the end of July, Ukraine has reported 1 386 cases of measles, compared to 10 cases in the same period in 2016. Most cases of measles were reported in the Ivano-Frankivsk (637) and Odessa regions (526).

**DR Congo:** In 2017, as of 22 August, DR Congo has reported 30 211 suspected measles cases, including 370 deaths. This is an increase of 5 366 since the previous report on 25 August. The incidence has declined since the peak of the current outbreak in early 2017.

**Liberia:** In 2017, as of 27 August, Liberia has reported 1 048 suspected measles cases, an increase of 21 cases since the previous report on 25 August. Of the suspected cases, 884 were tested with 147 positive, 691 negative and 46 equivocal. One hundred sixty-four of the suspected cases were compatible with measles and had an epidemiological link. Of the 737 equivocal and negative cases, 708 samples have been tested for rubella, 312 of which were positive.

**Nigeria:** In 2017, as of 20 August, Nigeria has reported 16 833 suspected measles cases, including 101 deaths. During the same time period in 2016, 21 604 suspected cases and 86 deaths were reported.

**Somalia:** In 2017, as of 31 August, Somalia has reported almost 16 000 suspected cases. This is almost three times the number of cases reported in 2016 (5 657 cases).

**South Africa:** In 2017, as of 18 August, South Africa has reported 133 cases of measles. Most cases were reported from an ongoing outbreak in Gauteng province (68 cases) and from an outbreak in Western Cape province (31 cases). In KwaZulu-Natal Province, a measles outbreak has been declared with 19 confirmed or probable cases in three districts: Ethekwini (12), Umgungundlovu (5), and Ilembe (2).

**South Sudan:** In August 2017, South Sudan reported six additional cases of measles. In 2017, as of 31 August, South Sudan has reported 1 025 measles cases and 24 deaths.

**Syria:** Between 30 July and 5 August 2017, Syria has reported 45 suspected measles cases, with most cases reported from Dar'a (9), Damascus (8) and Ar-Raqqa (8). In 2017, as of end of June, Syria has reported 352 confirmed measles cases. Most of the cases were reported in April (92 cases).

**Thailand:** In 2017, as of 2 September, Thailand has reported 2 231 cases from 72 provinces. No deaths were reported.

**Australia:** On 30 August 2017, Australia reported one additional case since the previous report on 25 August. Since the beginning of August 2017 and as of 30 August, Australia has reported four measles cases in a [school in Perth](#), in Western Australia. In 2017, as of end of August, Australia has reported 58 cases. In the same time period in 2016, 63 cases were reported.

**USA:** In 2017, as of 12 August, 118 cases were reported from 14 states (California, Florida, Kansas, Maine, Maryland, Michigan, Minnesota, Nebraska, New Jersey, New York, Pennsylvania, Utah, and Washington). In 2016, 70 measles cases were reported from 16 states.

ECDC links: [Measles web page](#) | [ECDC Communicable Disease Threats Reports \(CDTR\)](#) | [ECDC rapid risk assessment ongoing outbreak of measles in Romania, risk of spread and epidemiological situation in EU/EEA countries, 3 March 2017](#)

**Sources:** National Public Health Institutes | Ministries of Health | media

## ECDC assessment

Measles outbreaks continue to occur in a number of EU/EEA countries. There is a risk of spread and sustained transmission in areas with susceptible populations. Vaccination with at least two doses remains the most effective measure. 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 [sixth meeting of the RVC](#) for Measles and Rubella in June 2017, of 53 countries in the WHO European Region, 33 (22 of which are in the EU/EEA) were declared to have reached the elimination goal for measles, and nine countries (four in the EU/EEA) were deemed to have interrupted endemic transmission for between 12 and 36 months, meaning they are on their way to achieving the elimination goal. However, four EU/EEA countries were judged to still have endemic transmission: Belgium, France, Italy and Romania.

ECDC link: [Measles page](#).

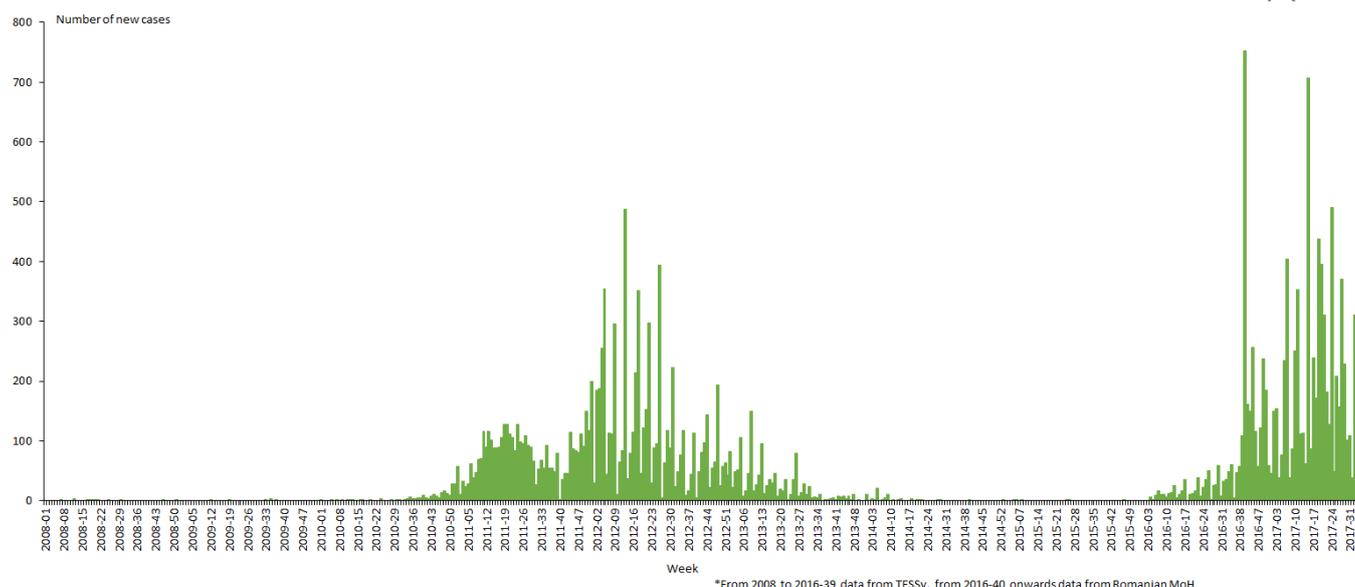
ECDC published a [rapid risk assessment](#) on measles on 6 March 2017.

## Actions

All EU/EEA countries report measles cases through TESSy on a monthly basis to ECDC; data are published every month. ECDC also monitors EU/EEA and worldwide outbreaks on a monthly basis through epidemic intelligence activities.

## New measles cases per week of reporting, week 2008-1 to 2017-36, Romania

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



## Rubella – Multistate (EU) – Monitoring European outbreaks

Opening date: 7 March 2012

### Epidemiological summary

No new outbreaks have been detected in the EU since March 2017.

**Web sources:** [ECDC measles and rubella monitoring](#) | [ECDC rubella factsheet](#) | [WHO epidemiological brief summary tables](#) | [WHO epidemiological briefs](#) | [Progress report on measles and rubella elimination](#)

### ECDC assessment

The World Health Organization (WHO) has targeted the elimination of measles and rubella in the 53 Member States of the WHO European Region. The progress towards elimination of rubella 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 rubella. At the sixth meeting of the RVC for Measles and Rubella in June 2017, of 53 countries in the WHO European Region, 33 (21 of which are in the EU/EEA) were declared to have reached the elimination goal for rubella, and four countries (two in the EU/EEA) were deemed to have interrupted endemic transmission for between 12 and 36 months, meaning they are on their way to achieving the elimination goal. However, seven EU/EEA countries were judged to still have endemic transmission: Belgium, Denmark, France, Germany, Italy, Poland and Romania.

**Web source:** [European Regional Verification Commission for Measles and Rubella Elimination \(RVC\) \(2017\)](#)

## Actions

ECDC closely monitors rubella transmission in Europe by analysing the cases reported to The European Surveillance System and through its epidemic intelligence activities. Twenty-eight EU/EEA countries contribute to the enhanced rubella surveillance. The purpose of the enhanced rubella surveillance is to provide regular and timely updates on the rubella situation in Europe in support of effective disease control, increased public awareness, and achieving the target of rubella and congenital rubella elimination.

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

Opening date: 10 November 2016

Latest update: 15 September 2017

### Epidemiological summary

No epidemiological update since the previous CDTR.

As of 13 September 2017, 13 EU/EFTA Member States have reported 74 TALD cases with onset of symptoms since 1 October 2016 and with a travel history to Dubai within two to ten days prior to illness. Cases were reported by the UK (35), Sweden (8), the Netherlands (7), Germany (7), Denmark (4), France (6), Austria (1), Belgium (1), the Czech Republic (1), Hungary (1), Ireland (1), Spain (1) and Switzerland (1). Sixty-six cases are associated with commercial accommodation sites and eight with private accommodation sites. Sixteen cases spent time in another location in the UAE or in a country other than their home country during their incubation period. Two cases were fatal.

All cases are laboratory confirmed. Nine cases had their infection further characterised through sequence base typing: five strains were identified as *Legionella pneumophila* serogroup 1, sequence type 616, and one as *Legionella pneumophila* serogroup 1, sequence 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. Sequence type 2382 is a new sequence type closely-related to type 616 (personal communication, ELDSNet network). One strain has been characterised as *Legionella pneumophila* serogroup 2-14, sequence type 1327, and two strains have been characterised as *Legionella pneumophila* serogroup 13, sequence type 1327.

**ECDC links:** [Legionnaires' disease web page](#) | [rapid risk assessment Increase of cases of Legionnaires' disease in EU travellers returning from Dubai, October December 2016](#)

### ECDC assessment

ECDC observed a significant increase in the number of cases of TALD in EU travellers returning from Dubai over the period October 2016 to May 2017 that could not be accounted for by the increase in travel patterns from the EU. The return to the baseline level of TALD in the most recent two months suggests that the measures implemented by the UAE were effective in containing this outbreak. However, the months of October and November were associated with the highest numbers of TALD notifications over the last few years, particularly in 2016, and additional cases are expected in the coming months.

The assessment published in the [rapid risk assessment](#) of 23 December 2016 is in the process of being updated to reflect the return to a baseline level of reported cases.

## Actions

ECDC is monitoring this event through ELDSNet. ECDC is in contact with EU Member States, the ELDSNet network, World Health Organization and the United Arab Emirates to share information. ECDC published a [rapid risk assessment](#) on 23 December 2016. The conclusions of the rapid risk assessment remain valid. ECDC also posted an [epidemiological update](#) on 3 August 2017. ECDC is preparing an update of the rapid risk assessment.

## Malaria – Cape Verde- 2017

Opening date: 10 August 2017

Latest update: 15 September 2017

### Epidemiological summary

Since the last report on 3 September 2017, Cape Verde has reported 34 cases. In 2017, as of 10 September, 201 cases have been reported. One death of an imported case has been reported. The epicentre of the outbreak is located in the capital city of Praia in Santiago Island. According to WHO, the causative agent is *Plasmodium falciparum*.

In July 2017, Cape Verde reported a sudden increase in the number of malaria cases. According to WHO, Cape Verde is categorised as a 'very limited risk of malaria transmission area', with limited local transmission from September to November, coinciding with the rainy season. In 2017, as of 10 September, 201 cases have been reported. The epicentre of the outbreak is located in the capital city of Praia in Santiago Island. The UK National Travel Health Network and Centre (NaTHNaC) updated the travel recommendation on 5 September, stating that there is a 'very low' risk of malaria on the Island of Santiago (Sao Tiago) except in the city of Praia where the risk has risen to 'low'. For all travellers awareness of risk and bite avoidance is recommended. For travellers to the city of Praia who are at higher risk of malaria, such as long-term travellers, or those who are at risk of severe complications from malaria, e.g. pregnant women, infants and young children, the elderly, and travellers who do not have a functioning spleen, should consider taking chemoprophylaxis with atovaquone-proguanil, doxycycline or mefloquine.

**Background:** The risk of malaria for Cape Verde is considered as type A (very limited risk of malaria transmission) according to WHO. The most recent major outbreak was reported in 1999 (140 cases) and 2001 (95 cases). In the last 10 years, autochthonous cases in Praia have not exceeded 30 cases.

**ECDC link:** [ECDC malaria web page](#)

**Sources:** [Cape Verde Ministry of Health](#) | [WHO](#) | [NaTHNaC](#) | [Portugal](#)

## ECDC assessment

The increase of autochthonous malaria cases in Cape Verde at the beginning of the rainy season (August to November) is of concern. More cases are likely to be reported in the coming weeks. Member States should consider to reinforce malaria prevention measures for travellers.

## Actions

ECDC is monitoring this event through epidemic intelligence.

## Communicable disease risks – Hurricane Irma – 2017

Opening date: 7 September 2017

Latest update: 15 September 2017

### Epidemiological summary

On 29 August 2017, the US National Hurricane Center (NHC) reported that Hurricane Irma was forming in the Atlantic Ocean. In the days that followed, the hurricane gained in intensity and was classified as a Category 3 storm on 31 August and a Category 5 storm on 4 September, on a scale from 1 to 5 according to the Saffir-Simpson hurricane wind scale. Category 5 is defined as winds above 252 km/h; the ensuing damage may include a high percentage of destroyed homes, fallen trees and power outages that could last for weeks or months.

On 6 September, Irma hit several islands in the Caribbean, in particular Antigua, Barbuda, Saint Barthelemy and Saint Martin. According to media reports, some of the affected islands were severely affected by the winds and flooding, leaving these territories barely habitable. Several fatalities were reported from the islands.

Irma was predicted (7 September) to hit the Dominican Republic, Haiti, Cuba, the Turks and Caicos, the south-eastern area of the Bahamas and the US State of Florida.

On 7 September, the National Hurricane Centre identified another Category-3 hurricane named Jose which threatened the same territories.

On 11 September 2017, the USA National Oceanic and Atmospheric Administration (NOAA) categorized hurricane Irma as a tropical depression with wind speed below 63 km/h. The US states of Kentucky and Tennessee were affected on 13 September.

News media reported at least 68 deaths across all the affected areas and severe devastation in Anguilla, Barbuda, the British Virgin Islands, St. Martin/St. Maarten, the US Virgin Islands and Turks and Caicos. Several fatalities were linked to the hurricane, with at least eight deaths in Florida.

As of 14 September 2017, no outbreaks of communicable diseases have been detected in the affected area.

**Sources:** [ECHO](#) | [National Hurricane Center](#)

## ECDC assessment

As a result of the hurricane, there is an increased risk of multiple disease outbreaks, including outbreaks of acute watery diarrhoea, vaccine-preventable diseases, leptospirosis, vector-borne diseases and food-related outbreaks. The situation is particularly critical in areas with low vaccination coverage and where displaced populations face basic living conditions due to flooding and heavy rains. In addition, access to basic healthcare has been disrupted in some of the affected areas.

## Actions

ECDC circulated a [rapid risk assessment](#) to Member States and the European Commission on 8 September 2017.

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

Opening date: 20 April 2006

Latest update: 15 September 2017

### Epidemiological summary

#### **Europe**

**Ukraine:** As of 19 August 2017, the news media in Ukraine have reported four confirmed cases of cholera. The region affected is Zaporozhye.

#### **Americas**

**Haiti:** In 2017, as of 19 August, Haiti has reported 8 611 cholera cases in all ten departments, including 104 deaths (CFR: 1.21%). This represents an increase by 386 cases since the previous report on 12 August 2017.

#### **Africa**

**Nigeria:** In 2017, as of 25 August 2017, Nigeria has reported 1 978 suspected cases, including 26 confirmed cases and 35 deaths (CFR: 1.8%). The ongoing outbreak is affecting the Kwara, Zamfara, Lagos and Borno states.

**DR Congo:** In 2017, as of 31 August 2017, DR Congo has reported 20 928 suspected cholera cases, including 406 deaths (CFR: 1.9%). In June 2017, 3 865 cases were reported, with around 900 cases notified every week. This represents an increase by 6 239 cases since the previous report on 12 August 2017.

**Burundi:** On 28 August 2017, Burundi reported 25 cholera cases in Nyanza-Lac Health District (24) and Cibitoke (1). Since the beginning of the outbreak, 212 cases have been reported.

**Kenya:** In 2017, as of 29 August 2017, Kenya reported 2 440 cases, including 40 deaths (CFR 1.6%). Of these, 527 were confirmed. Seven counties are reporting active outbreaks: Garrissa, Nairobi, Nakuru, Machakos, Siaya, Turkana and Kilifi.

**Somalia:** In 2017, as of 20 August, Somalia reported 92 848 cases, including 1 663 deaths (CFR: 1.8%). The most affected regions are Banadir, Togdheer, Awdal, Mjjeex and Lower Jubba.

**South Sudan:** Since the beginning of the outbreak in June 2016, as of 13 August 2017, South Sudan has reported 19 815 suspected cases, including 355 deaths (CFR: 1.8%).

**Sudan:** Since the beginning of the outbreak in August 2016 and as of 10 September 2017, Sudan has reported 24 039 cases. Sudanese news media reported 18 deaths in Darfur and Blue Nile states. In addition, 109 suspected cases were recorded in these states.

**Ethiopia:** In 2017, as of 29 August, Ethiopia has reported 43 015 acute watery diarrhoea (AWD) cases, including 838 deaths (CFR: 1.95%). This represents an increase by 3 671 cases since the previous report on 12 August 2017. The number of new cases has increased compared to the previous month.

**Chad:** Since the beginning of the outbreak on 14 August 2017 and as of 30 August 2017, Chad reported 152 cholera suspected, including 23 deaths among (CFR: 15.1%).

**Malawi:** On 31 August 2017, UNICEF reported two new cases in week 2017-33 and 11 cases in week 2017-34. No deaths have been reported. In 2017, as of 31 August, Malawi has reported 103 cases, including one death (CFR: 0.97%).

#### **Asia**

**India:** According to news reports on 19 August, over 500 cholera cases occurred in Nagaland State, in the eastern part of India.

**Yemen:** Since the beginning of the outbreak in April 2017 and as of 10 September, Yemen has reported to WHO 652 089 suspected cholera cases and 2 066 deaths (CFR: 0.32%). In week 35, Yemen reported 32 364 cases with 12 associated deaths. The outbreak has spread across 22 of the 23 governorates and 301 of 333 districts. The five most affected governorates are Amanat Al Asima, Al Hudaydah, Hajjah, Amran and Dhamar.

**Pakistan:** News media quoting the National Institute of Health on 16 August 2017 reported four confirmed cholera cases. In addition, four suspected cases are under investigation.

**Saudi Arabia:** News media quoting the Directorate of Health Affairs in Jazan region on 12 September 2017 reported 11 confirmed cholera cases. According to the news media, all cases were imported and detected in the border region of Jazan, close to Yemen.

### ECDC assessment

There has been an unusual increase in the number of cases of cholera in the Horn of Africa and the Gulf of Aden in recent years. Despite the large number of travellers from the EU/EEA who visit countries in the Horn of Africa and the Gulf of Aden every year, particularly Ethiopia, Kenya and Tanzania, only very few cases are reported among returning EU/EEA travellers. The risk of cholera infection in travellers visiting these countries remains low, even though the likelihood of sporadic importation of cases may increase in the EU/EEA.

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 fruits and vegetables with bottled or chlorinated water before consumption, regularly hand washing with soap, eating thoroughly cooked food, and avoiding consumption of raw seafood products.

### Actions

ECDC continues to monitor cholera outbreaks globally through its epidemic intelligence activities in order to identify significant changes in epidemiology and to facilitate the proper updates to 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.