

Communicable disease threats to public health in the European Union

Annual Epidemiological Report for 2018

Introduction

This report covers the events and threats detected by the ECDC epidemic intelligence (EI) team in 2018 and the actions taken related to these findings. The objective of EI at ECDC is to rapidly detect and assess public health events of any origin to ensure EU health security as defined in ECDC's mandate. This report is based on EI screening and data from 2018 retrieved from the Epidemic Intelligence Information System (EPIS), the Early Warning and Response System (EWRS) and the ECDC threat tracking tool (TTT).

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1 Threat detection in 2018

1.1 Events originating from epidemic intelligence screening

In 2018, 377 events were monitored and discussed at the daily round table meetings. The EI team reported an average of seven events per week. Of the 377 events, 71 led to the opening and monitoring of a new threat. Of all events, 235 originated in the EU (62%; Figure 1). In 2017, 411 events were monitored, of which 69 led to the opening of a new threat. In 2017, 232 events (56%) originated in the EU.

Figure 1. Number of events detected through epidemic intelligence by geographical origin, 2018 (excluding already monitored and opened threats)

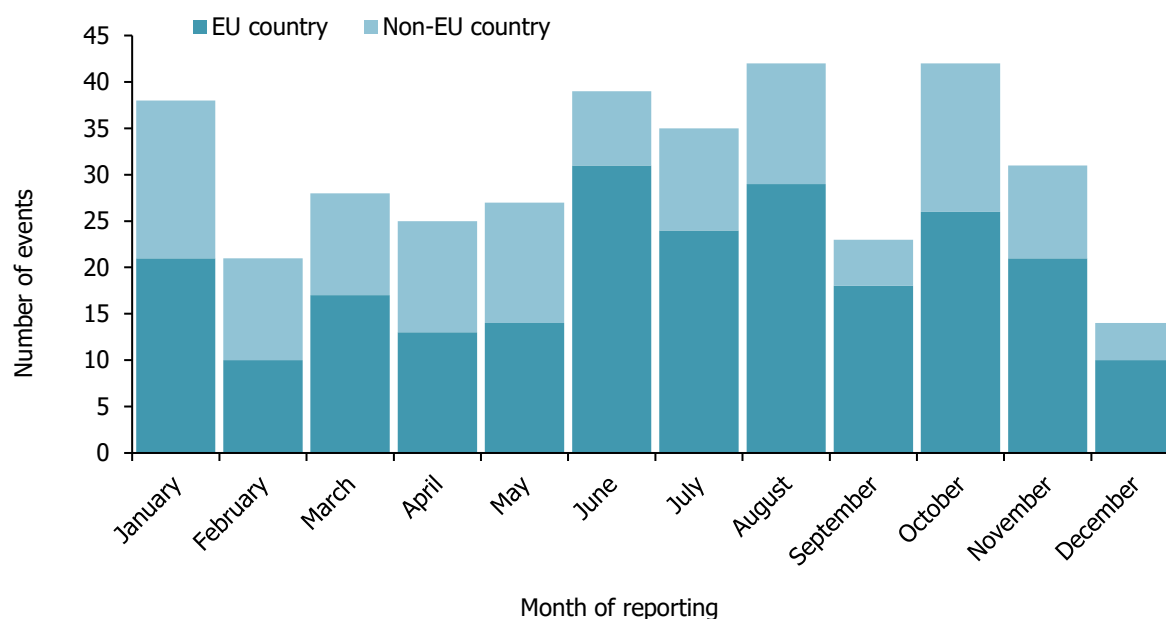
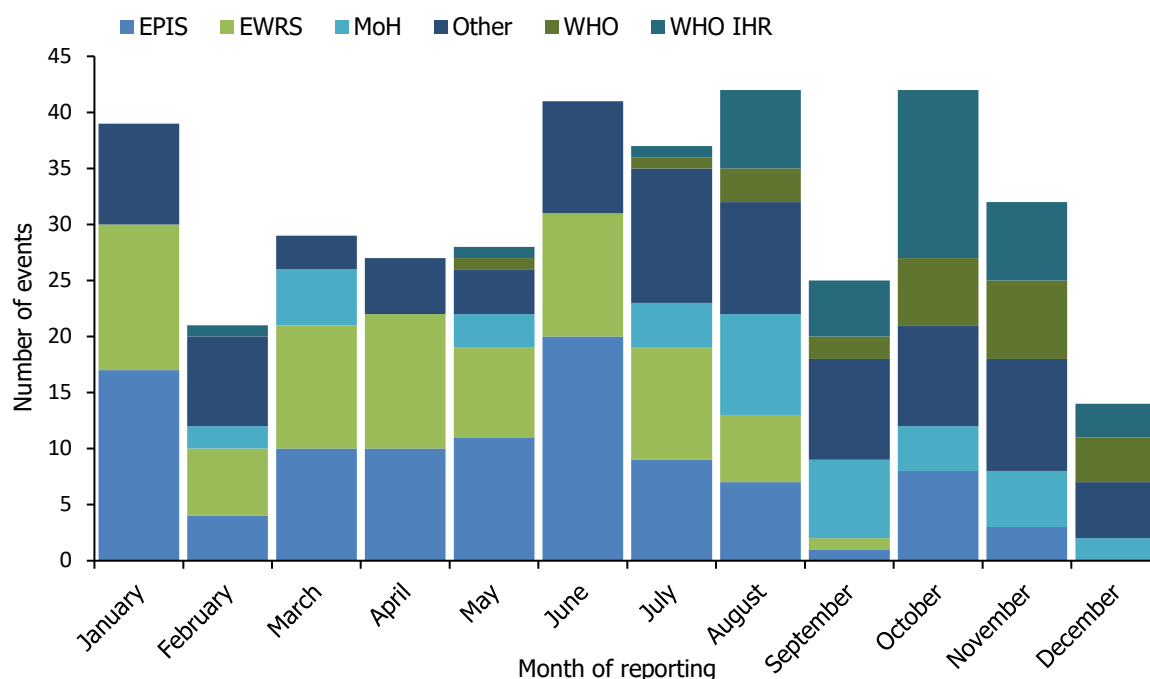


Figure 2. Number of events detected through epidemic intelligence by source, 2018 (excluding already monitored and opened threats)



Of the 377 events, 94 were reported through the Epidemic Intelligence Information System (EPIS), 81 through the Early Warning and Response System (EWRS) and 73 were received from WHO and the International Health Regulations (IHR) platform. For 31 events, the source of information was marked 'Ministry of Health'. These reports were most likely detected through other sources and later verified with information from the respective country's Ministry of Health websites. Other sources of information included ProMED, FluTrackers or media reports.

1.2. Events reported through Epidemic Intelligence Information System (EPIS)

Food- and waterborne diseases and zoonoses (EPIS-FWD)

In 2018, 77 urgent inquiries (UIs) were initiated by 18 participating countries (of a total of 52 network countries) or ECDC (one UI). Most frequently, UIs were related to salmonellosis (32), followed by listeriosis, verocytotoxin-producing *Escherichia coli* (VTEC) infection and hepatitis A (9 each). On average, seven countries replied to a UI and 35 replied to at least one.

During the year, in relation to EPIS-FWD, there were 12 confirmed verified multi-country events. Of these, ECDC produced three rapid risk assessments, six epidemiological updates, and five joint ECDC/European Food Safety Authority (EFSA) rapid outbreak assessments.

The participation in EPIS FWD has increased. The number of UIs launched in 2018 was the highest since the platform was launched and it was 54% higher than the average of urgent inquiries posted in the last five years. In previous years, there were approximately 50 UIs published on the platform (53 in 2017, 53 in 2016, 57 in 2015, 45 in 2014 and 42 in 2013).

Sexually transmitted infections (EPIS-STI)

In 2018, alerts were posted in EPIS STI by Malta and the United Kingdom. Malta informed about a first cluster of lymphogranuloma venereum (LGV) among men who have sex with men (MSM) detected in the country on a background of an overall increase of LGV diagnoses among MSM (event fully described by Donachie et al, 2018 [1]). The UK notified about the detection of an extensively drug-resistant *Neisseria gonorrhoeae* strain in a patient that contracted the infection abroad (Southeast Asia). This alert, which coincided with the detection of two more cases with a similar resistance profile in Australia, one of which was also travel-associated to Southeast Asia, triggered ECDC to produce a rapid risk assessment published in May 2018 [2]. The UK also posted two alerts on detection of multidrug-resistant *Shigella sonnei*, with most cases detected among MSM.

European Legionnaires' disease surveillance network (EPIS-ELDSNet)

Twenty-two EU/EEA and three non-EU/EEA countries reported 1 592 travel-associated Legionnaires' disease (TALD) cases with date of onset in 2018. In 2018, 179 new standard TALD clusters were detected in 37 countries (21 EU/EEA countries and 16 countries outside the EU/EEA) and on board ships (six clusters). ELDSNet shared 65 summary reports of type 1 (non-EU/EEA clusters) with tour operators and 34 of type 2 (rapidly evolving clusters, i.e. three or more cases associated within three months). Control measures were implemented in all but 14 clusters, with ELDSNet receiving feedback from a first-risk assessment within two weeks and a final assessment within six weeks. Fourteen affected accommodation site names were published on the ECDC website in 2018.

Vaccine-preventable diseases (EPIS-VPD)

In 2018, 14 enquiries were posted on EPIS-VPD, generating 71 follow-up postings. Topics discussed included mainly measles, meningococcal disease, vaccination for travellers and non-polio enteroviruses, but also general issues such as vaccine shortages, national legislation regarding mandatory immunisation, vaccine contraindications and schedules.

The items that raised the most follow-up postings included the use of the 3+1 versus 2+1 schedule for hexavalent vaccines (diphtheria, tetanus, pertussis, *Haemophilus influenzae*, poliomyelitis and hepatitis B), a reported increase of Echovirus 30 cases in several European countries in the summer 2018 and a discussion on whether the EU case definition for measles surveillance should be changed to include modified measles.

Antimicrobial resistance and healthcare-associated infections (EPIS-AMR-HAI)

In 2018, 10 new UIs were launched through EPIS-AMR-HAI. One referred to the cross-border spread of carbapenemase-producing *Klebsiella pneumoniae* by patient transfer or returning travellers. The UI resulted in multiple postings and an ECDC rapid risk assessment [3].

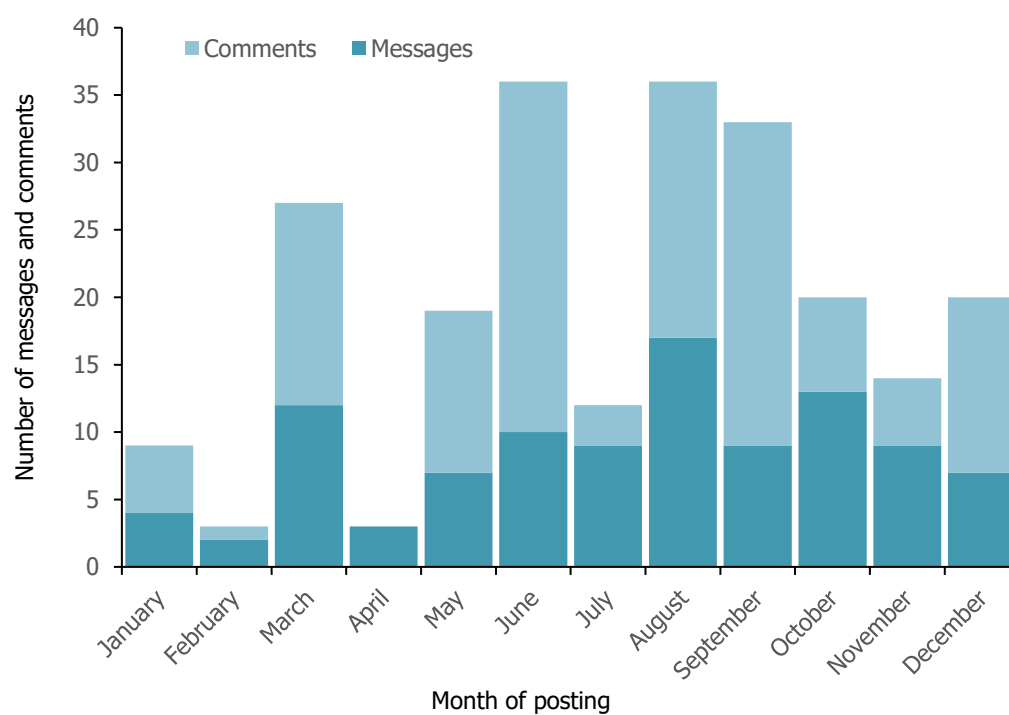
Five other inquiries were related to medical devices or products, including prosthetic valves, endoscopes, contaminated mouthwash and washing gloves. Two were reported with *Burkholderia cepacia* complex, one with *Serratia marcescens*, one with nontuberculous mycobacteria and one with mixed microorganisms. Furthermore, four of the UIs were posted for information by ECDC regarding the publication of rapid risk assessments for hospital-acquired malaria infections in the European Union [4] and the emergence of resistance to ceftazidime-avibactam in carbapenem-resistant Enterobacteriaceae [5].

1.3. Threats reported through EWRS

In 2018, 102 messages and 130 comments were posted on the EWRS platform (Figure 3). Of the messages, seven were classified as alert notifications and 95 as other information (outside the scope of Article 9 in Decision No 1082/2013/EU). From the messages, 17 resulted in opening a new threat, representing 24% of all threats opened in 2018. Of the 17 threats opened, seven resulted in rapid risk assessments (RRAs).

The number of messages and comments posted on EWRS has been stable over the past 12 years except in 2009, when 1 400 postings were made in relation to pandemic influenza. From January 2005 until the end of 2018, 5 306 messages and comments were posted in EWRS, 232 of them in 2018.

On 15 October 2018, the new EWRS platform was released.

Figure 3. Distribution of EWRS messages and comments by month of posting, 2018 (n=232)

2. Threat monitoring in 2018

In 2018, ECDC opened and monitored 71 new threats in the threat tracking tool (TTT) in addition to the 12 carried over from previous years (Table 1). This is comparable with the number of threats monitored in 2017, but more than the average number of 40 yearly threats monitored over the previous five years. Of the 71 threats opened and monitored in 2018, 79% affected European countries.

In 2018, emerging and vector-borne diseases represented the disease group for which most of the new threats were opened (20), followed by food- and waterborne diseases (Figure 4). Twenty rapidly evolving clusters were included in the TTT as separate threats (Table 2).

Table 1. Threats carried over from previous years

Long-term threats	Creation date
Poliomyelitis – multistate (world) – Monitoring global outbreaks	8 September 2005
Cholera – multistate (world) – Monitoring global outbreaks	20 March 2006
Measles – multistate (EU) – Monitoring European outbreaks	9 February 2011
Rubella – multistate (EU) – Monitoring European outbreaks	7 March 2012
Middle East respiratory syndrome coronavirus (MERS-CoV) – Multistate	24 September 2012
Influenza A(H7N9) – China – Monitoring human cases	31 March 2013
Chikungunya and dengue – Multistate (World) – Monitoring global outbreaks	27 January 2017
<i>Salmonella</i> Agona associated with infant formula - France - 2017	12 December 2017

Seasonal monitoring
West Nile virus - Multistate (Europe) - Seasonal monitoring
Monitoring environmental suitability of <i>Vibrio</i> growth in the Baltic Sea – Seasonal monitoring
Influenza – Multistate (Europe) – Seasonal monitoring
Yellow fever outbreak- multistate (world) - Monitoring global outbreaks

Figure 4. Distribution of threats by disease group and year, 2014–2018

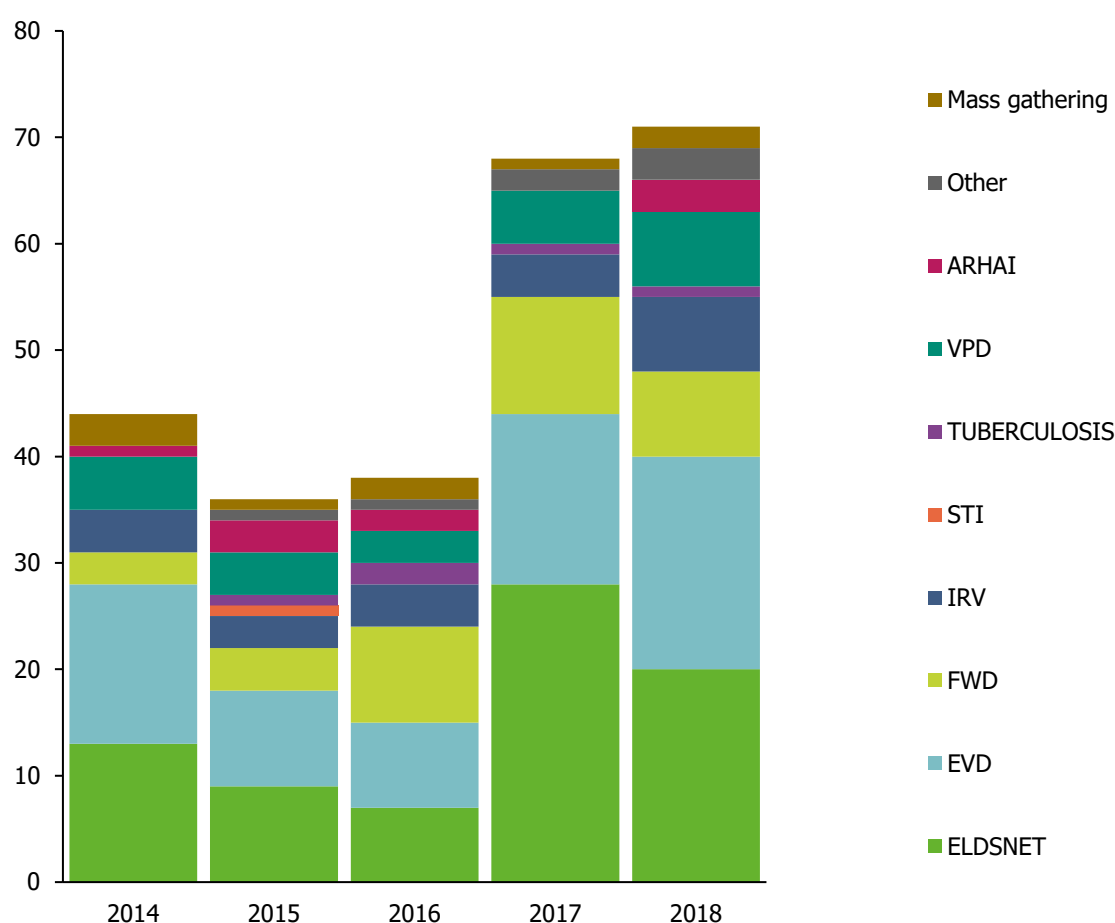


Table 2. Distribution of threats by disease group or health issue and year, 2014–2018

Disease group	2014	2015	2016	2017	2018
Legionnaires' disease	13	9	7	28	20
Food- and waterborne diseases	3	4	9	11	8
Emerging and vector-borne diseases	15	9	8	16	20
Vaccine-preventable diseases	5	4	3	5	7
Influenza and other respiratory viruses	4	3	4	4	7
Sexually transmitted infections	0	1	0	0	0
Tuberculosis	0	1	2	1	1
Antimicrobial resistance	1	3	2	0	3
Mass gathering	3	1	2	1	2
Other	0	1	1	2	3

3 Response to threats in 2018

3.1 Rapid risk assessments and epidemiological updates

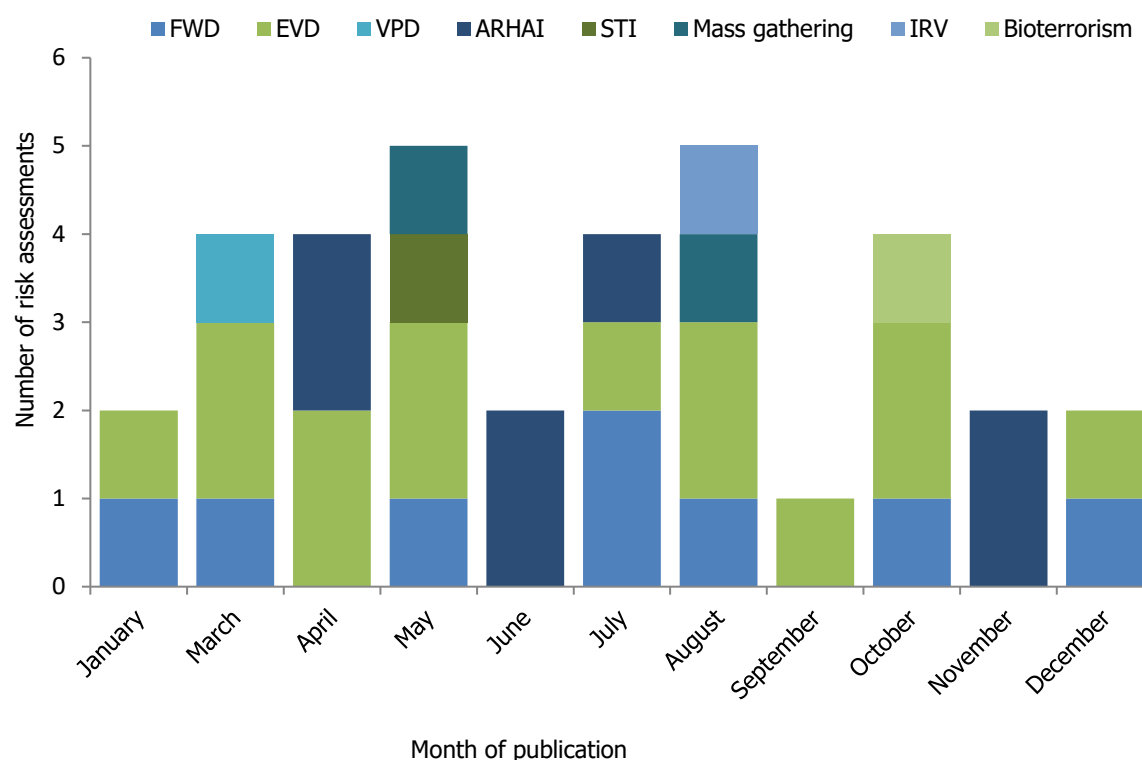
RRAs aim to support EU/EEA countries and the European Commission in their preparedness and response to a public health threat. They provide a timely summary and risk assessment of a public health threat for EU/EEA countries related to a specific event. They also include potential options for response. As outbreaks or public health events develop, ECDC may issue updated risk assessments. Developments in an outbreak that do not affect the overall assessment result in an epidemiological update.

In 2018, ECDC produced 35 RRAs, of which three were not published on the ECDC website, but only distributed in a restricted manner to the Member States and the European Commission (Annex 1). Eight of the assessments were produced on food- and waterborne diseases, five in conjunction with EFSA. The remaining were on emerging and vector-borne diseases (14), antimicrobial resistance and hospital-acquired infections (7), mass gathering events (2), influenza and other respiratory viruses (1), vaccine preventable diseases (1), sexually transmitted infections (1) and bioterrorism (1). Six of the assessments were updates of previous RRAs. In 2017, ECDC produced 38 risk assessments.

Table 3. List of ECDC risk assessments by disease-specific programme, January–December 2018

Subject	Number of risk assessments
Emerging and vector-borne diseases	14
Food and waterborne diseases	8
Antimicrobial resistance and hospital acquired infections (ARHAI)	7
Mass gathering	2
Vaccine-preventable diseases	1
Influenza and other respiratory viruses (IRV)	1
Sexually transmitted infections (STI)	1
Bioterrorism	1
Total	35

Figure 5. Rapid risk assessments produced in 2018 by month and topic (n=35), ECDC, 2018



Sixteen epidemiological updates were produced in 2018.

Table 4. List of published ECDC epidemiological updates by subject and number of publications, January–December 2018

Subject	Number of updates
Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo	3
West Nile virus transmission season in Europe, 2018	3
Hepatitis A outbreak in the EU/EEA mostly affecting men who have sex with men	2
Increase in Echovirus 30 detections in Denmark, Germany, the Netherlands, Norway and Sweden, June–July 2018	2
Multi-country outbreak of <i>Listeria monocytogenes</i> serogroup IVb, multi-locus sequence type 6 infections	2
<i>Salmonella</i> Agona outbreak associated with infant formula milk	1
World Youth Day 2019 information for travellers	1
Multi-country outbreak of <i>Salmonella</i> Enteritidis infections linked to Polish eggs	1
Dengue in Réunion	1
Total	16

3.2 Deployment of experts in 2018

In 2018, one ECDC expert was deployed in the field to provide technical support in the context of the Ebola epidemic in the Democratic Republic of the Congo. The senior expert was deployed in November and December 2018 under the umbrella of the DG ECHO to support the WHO and the Ministry of Health in North-Kivu and Ituri provinces.

4 Threats of particular interest in 2018

4.1 Autochthonous dengue cases in continental EU/EEA Member States

In 2018, 14 autochthonous dengue cases were reported in continental EU/EEA, in France (8) and Spain (6).

France

Between September and November 2018, French authorities detected eight autochthonous dengue cases: five from Provence-Alpes-Côte d'Azur Region (PACA) and three from Occitanie Region.

On 4 October 2018, French authorities confirmed a first autochthonous dengue case in Saint-Laurent-du-Var, PACA. The onset of symptoms was on 21 September 2018 and the case had no travel history outside the PACA region in the 15 days prior to onset of symptoms. Local transmission had not been reported in France since 2015. Following that case, French authorities carried out door-to-door case finding activities, which led to the diagnosis of four additional cases residing close to the home of the index case. Laboratory results revealed dengue serotype 2 (DENV-2) in all five cases.

On 10 October 2018, French authorities confirmed a new autochthonous dengue case in the Montpellier area in Occitanie. The onset of symptoms was on 27 September 2018 and the case had no travel history outside the Occitanie region in the 15 days prior to onset of symptoms. One more autochthonous case was subsequently reported in the same area in October 2018. Furthermore, on 5 November 2018, regional health authorities confirmed one additional autochthonous dengue case in Nîmes, Occitanie Region, the third confirmed autochthonous dengue case reported in the region in 2018. Later laboratory results revealed dengue serotype 1 (DENV-1) in all three cases. However, further investigations could not establish an epidemiological link between them.

Spain

From August–November 2018, Spanish authorities detected six autochthonous dengue cases.

In October 2018, Spanish authorities reported three confirmed autochthonous dengue cases in the country. All belonged to the same family and had onset of symptoms in late August 2018 after spending time together in the Regions of Cádiz and Murcia.

On 2 November 2018, two additional confirmed dengue cases were reported in the Region of Murcia.

All these five cases fully recovered and had no recent travel history to dengue-affected areas. Laboratory results showed that all cases shared the same dengue serotype.

On 16 November 2018, the Catalan Public Health Agency confirmed the first case of autochthonous dengue in Catalonia. This case was reported in the Barcelona metropolitan area and had no recent travel history outside Catalonia.

These six Spanish cases are the first documented autochthonous dengue transmission in the country since the end of the 19th century.

ECDC published a rapid risk assessment on local transmission of dengue fever in France and Spain on 22 October 2018 [6].

4.2 West Nile virus infection in Europe

During the West Nile virus infection transmission season expected to be between June and November, ECDC monitors the occurrence of West Nile virus infections in EU/EEA Member States and EU neighbouring countries [7].

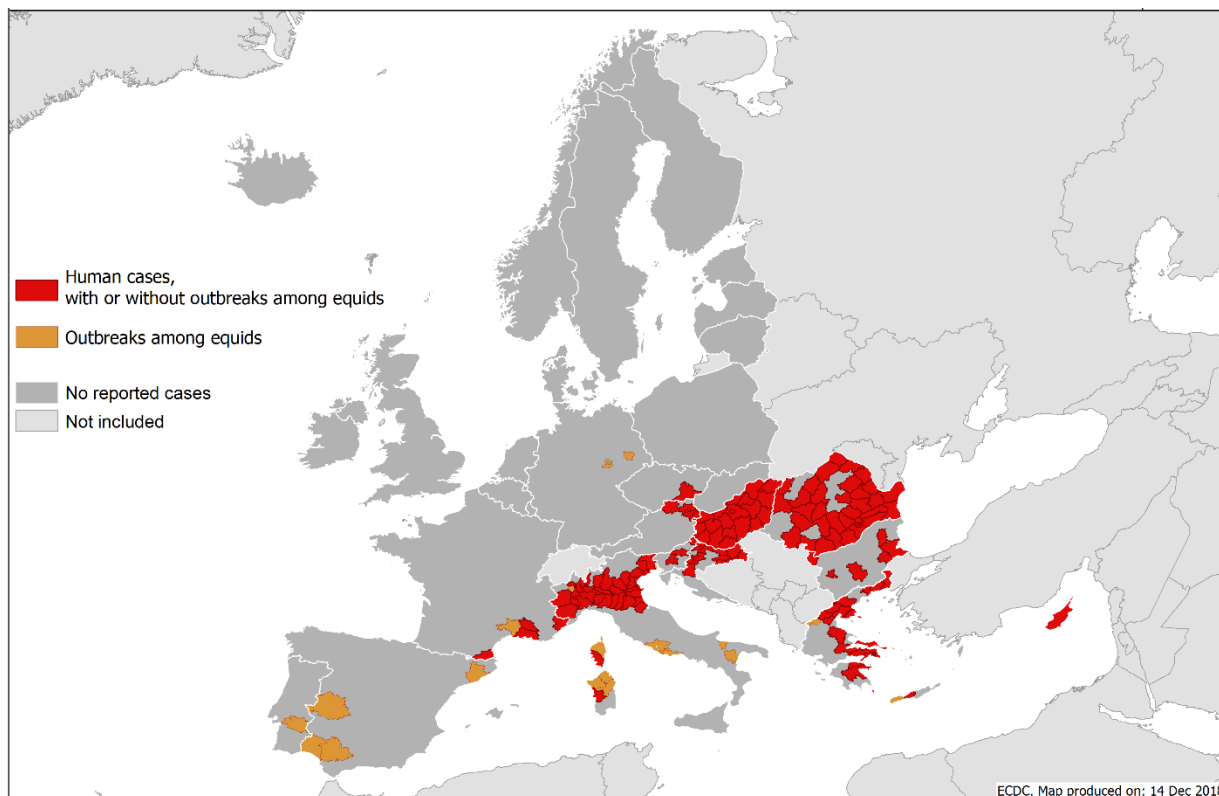
In 2018, the transmission season started earlier than usual and the number of cases was significantly higher than the previous years. All mosquito-borne autochthonous human cases were reported in previously affected countries. The latest date of onset was notified in week 46 of 2018 from 12–18 November 2018, which is unusually late compared with the previous years. During the former transmission seasons, the latest date of onset usually occurred between weeks 39–42.

During the 2018 transmission season, EU Member States reported 1 503 human cases, compared with 204 in 2017. Cases were detected in Italy (576), Greece (311), Romania (277), Hungary (215), Croatia (53), France (27), Austria (20), Bulgaria (15), the Czech Republic (5), Slovenia (3) and Cyprus (1). EU neighbouring countries

reported 580 human cases in Serbia (415), Israel (128), Turkey (23) and Kosovo*¹ (14). There were 181 deaths due to West Nile virus infection reported by Greece (47), Italy (46), Romania (43), Serbia (35), Kosovo*¹ (3), Turkey (3), Bulgaria (2), the Czech Republic (1) and Hungary (1).

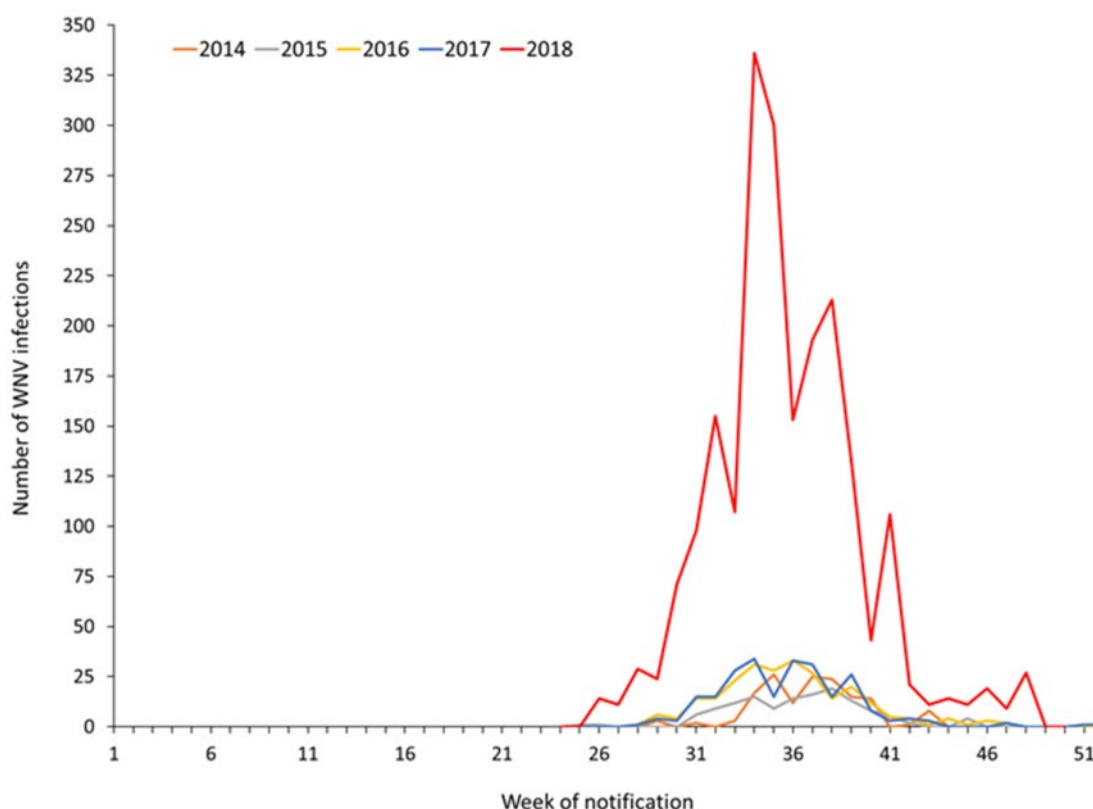
ECDC published a rapid risk assessment on the early large increase in West Nile virus infections in the EU/EEA and EU neighbouring countries [8] on 13 August 2018 and an end-of-season epidemiological update [9] on 14 December 2018. In addition, two peer-review articles were published in Eurosurveillance in August 2018 on the early start of the West Nile fever transmission season 2018 in Europe [10] and the added value of One Health surveillance in detecting early circulation and triggering timely response in Italy [11].

Figure 6. Distribution of West Nile virus infections among humans and outbreaks among equids in the EU for the 2018 transmission season, as of 13 December 2018



¹ *This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the International Court of Justice Opinion on the Kosovo Declaration of Independence.

Figure 7. Number of West Nile virus infections in EU/EEA and EU enlargement countries by epidemiological week of notification to national authorities or, if missing, week of notification to ECDC, 2014–2018



4.3 Monkeypox in United Kingdom

In September 2018, UK public health authorities [12] reported three individuals diagnosed with monkeypox virus. These are the first cases of monkeypox in humans reported in the EU.

The first case, a Nigerian citizen who travelled from Abuja to London on 2 September 2018, had onset of symptoms on 3 September 2018 and was confirmed for monkeypox on 6 September 2018. This case was notified to Public Health England (PHE) on 7 September 2018.

The second case, a UK citizen, returned from Nigeria to the UK through Paris on 4 September 2018. He had onset of symptoms in early September 2018 and was laboratory-confirmed for monkeypox on 11 September 2018. The patient reported contact with an individual with a monkeypox-like rash at a large family event and consumption of bushmeat during his visit to a rural area of Nigeria. The two cases were unrelated to one another.

The third case, a UK citizen, was involved in the care of case 2 at Blackpool Victoria Hospital before monkeypox was diagnosed.

Since 26 September 2018, no further cases of monkeypox have been diagnosed in the UK. All known close contacts were followed up after their last contact with the cases.

The notification of imported cases in Europe is not unexpected due to the circulation of monkeypox virus in Nigeria since September 2017. Between September 2017 and 13 December 2018, 311 cases were reported from 26 states in Nigeria. Of these, 132 were confirmed in 17 states, with seven deaths.

ECDC published a rapid risk assessment on 21 September 2018 [13] and a detailed publication is available in *Eurosurveillance* [14].

4.4 Ebola virus disease in Democratic Republic of the Congo

In 2018 and continuing into 2019, the Democratic Republic of the Congo has experienced its largest Ebola virus disease outbreak. On 1 August 2018, the Ministry of Health of the Democratic Republic of the Congo declared the 10th outbreak of Ebola virus disease in the country. The outbreak affects North Kivu and Ituri Provinces in the northeast of the country close to the border with Uganda.

North Kivu and Ituri are two of the most populated provinces in the Democratic Republic of the Congo. They are affected by intense insecurity and a worsening humanitarian context, with over 1 million internally displaced people [15]. Additionally, there is high mobility among the area's population and of refugees to neighbouring countries, including Burundi, Tanzania and Uganda.

Moreover, other infectious disease outbreaks are concurrently present in the country, with separate outbreaks of circulating vaccine-derived poliovirus type 2, measles, monkeypox and yellow fever. These outbreaks, along with the security situation in North Kivu and Ituri Provinces, create a challenging and dynamic environment to implement response activities.

As of 31 December 2018, there were 602 Ebola virus disease cases (554 confirmed, 48 probable) and 366 deaths (318 confirmed, 48 probable). Sixteen health zones reported cases in Beni (223), Biena (1), Butembo (41), Kalunguta (51), Katwa (82), Kyondo (8), Mabalako (102), Masereka (8), Musienene (5), Mutwanga (3), Oicha (17), Vuhovi (8) in North Kivu Province and Komanda (30), Mandima (20), Nyakunde (1) and Tchomia (2) in Ituri Province. The majority of cases occurred in Beni (37%), Mabalako (17%) and Katwa (14%). Of these cases, 54 were healthcare workers, of whom 18 died [16]. The outbreak is still continuing.

In relation to response activities, as of 26 December 2018, 53 610 people have been vaccinated, with vaccination rings opened around confirmed cases in Aloya,, Kansulinzuli, Keyshero, Matanda, Muchanga, Nyankunde, Vungi, Vutetse and Wanamahika. WHO has deployed 285 experts in various disciplines to support the emerging vector disease (EVD) outbreak response in the Democratic Republic of the Congo [15].

Figure 8. Geographical distribution of confirmed and probable cases of Ebola virus disease, North Kivu and Ituri Provinces, Democratic Republic of the Congo, as of 31 December 2018

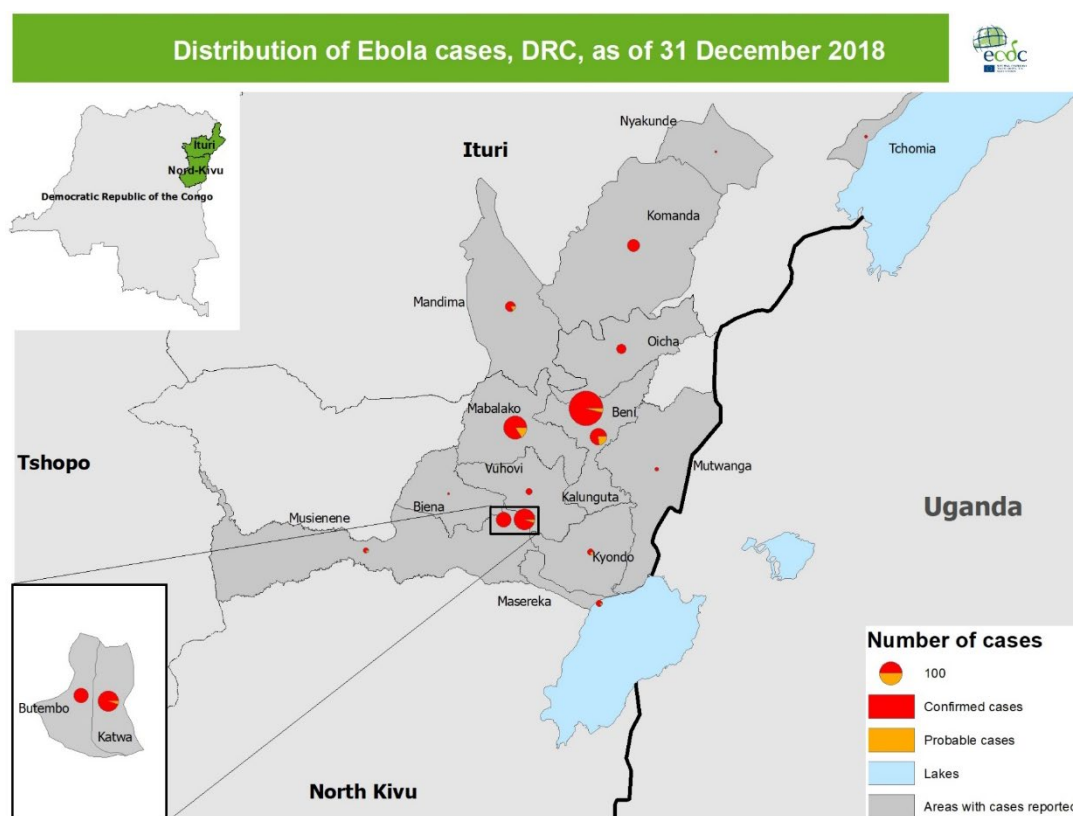
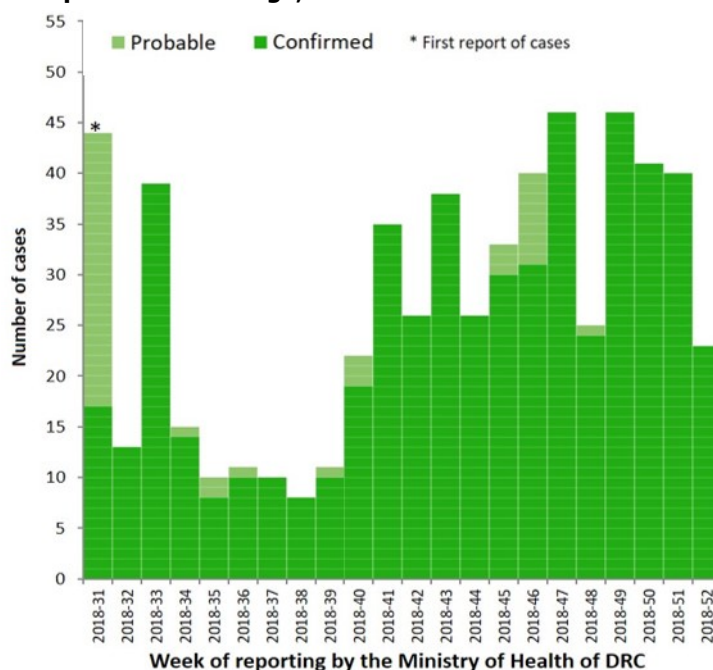


Figure 9. Distribution of confirmed and probable cases of Ebola virus disease, North Kivu and Ituri Provinces, Democratic Republic of the Congo, as of 31 December 2018



ECDC published a rapid risk assessment on the Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo on 9 August 2018. At the end of 2018, it published the second update of the risk assessment [17]. From August–December 2018, ECDC also produced three epidemiological updates on Ebola virus disease in the Democratic Republic of the Congo, monitored the situation daily and reported any updates in the restricted round table report. Weekly summaries and maps, showing the distribution of confirmed cases and the areas at risk in the Democratic Republic of the Congo were published in the Communicable Disease Threats Report (CDTR). In addition, ECDC deployed an expert epidemiologist in the field in November–December 2018.

4.5. Summary of mass gathering monitoring

During mass gathering events, routine EI activities are enhanced by increasing the number of monitored information sources using a targeted and systematic screening approach and tailored tools (e.g. MediSys). Events with potential risks for participants of the mass gatherings and participating countries are communicated through the round table reports and CDTR.

In 2018, the EI team closely monitored three large mass gathering events:

- 2018 Winter Olympics PyeongChang [18] from 9–25 February 2018 in South Korea
- 2018 FIFA World Cup [19] from 14 June–15 July 2018 in Russia; and
- Hajj (annual Islamic pilgrimage to Mecca) from 19–24 August 2018 in Saudi Arabia.

Two rapid risk assessments were published for the 2018 FIFA World Cup in Russia [20] and Hajj in Saudi Arabia [21]. During the active monitoring period (usually one week before, during and one week after the event) the EI team exchanged findings of the monitoring on a daily basis with partner organisations (WHO) and the health authority of the hosting country (South Korea).

No major events were detected during these mass gatherings. However, a norovirus infection outbreak occurred in the athletes' village during the Winter Olympics, resulting in 324 confirmed cases among employees. During the 2018 FIFA World Cup, 54 events were detected by the ECDC EI team that had a potential risk for the hosting country and/or the participating countries.

In addition, the EI team published six CDTR editorials providing a short overview of some of the gathering events and general advice for travellers before, during and after the event. The following CDTR editorials were published:

- Monitoring the Winter Olympics 2018 –19 January 2018
- Chinese New Year 2018 –26 January 2018
- Ramadan 2018 and Umrah, Mecca, Saudi Arabia –13 April 2018
- Recommendations for participants of outdoor festivals and other events during the summer –21 June 2018
- FIFA 2018 World Cup event-based surveillance – end of monitoring –20 July 2018; and
- World Youth Day in Panama 22–27 January 2019 – 14 December 2018.

Conclusions

In 2018, ECDC monitored 83 health threats, of which 21 originated outside the EU. Of the 102 EWRS messages posted in 2018, 17 resulted in opening a new threat and seven in producing an RRA. In all, 35 RRAs (including rapid outbreak assessments) were produced and shared with Member States and the European Commission.

There was a noticeable increase in the number of ARHAI, EVD and VPD threats in 2018. Almost half of the RRAs concerned the EVD-specific programme, with particular public attention on Ebola virus disease and West Nile virus infection. The 2018 transmission season for West Nile virus infections started earlier than usual and the number of cases was significantly larger than in previous years. Climate change will likely create favourable conditions for additional outbreaks of vector-borne diseases in the coming years.

The EI team has monitored the measles threat since 2011 and the epidemiological situation has not allowed for close the threat since then. A new increase in the number of cases has been seen in 2018 and will likely continue in 2019.

Annex 1. ECDC risk assessments by subject and month of publication, January–December 2018

Risk assessment title	Publication date
Joint rapid outbreak assessment: Multi-country outbreak of <i>Salmonella</i> Agona infections linked to infant formula – 17 January 2018	17 January 2018
Rapid risk assessment: Outbreak of yellow fever in Brazil – Second update, 18 January 2018	18 January 2018
Rapid risk assessment: Outbreak of yellow fever in Brazil – Third update, 16 March 2018	16 March 2018
Rapid risk assessment: Risk of measles transmission in the EU/EEA – 21 March 2018	21 March 2018
Joint ECDC-EFSA rapid outbreak assessment: Multi-country outbreak of <i>Listeria monocytogenes</i> serogroup IVb, multi-locus sequence type 6, infections probably linked to frozen corn – 22 March 2018	22 March 2018
Rapid risk assessment: Acute encephalitis associated with infection with Borna disease virus 1, Germany – 26 March 2018	26 March 2018
Rapid risk assessment: Dengue outbreak in Réunion, France – 16 April 2018	16 April 2018
Rapid risk assessment: <i>Candida auris</i> in healthcare settings – Europe – First update, 23 April 2018	23 April 2018
Rapid risk assessment: Hospital-acquired malaria infections in the European Union – 30 April 2018	30 April 2018
Rapid risk assessment: Extensively drug-resistant (XDR) <i>Neisseria gonorrhoeae</i> in the United Kingdom and Australia – 7 May 2018	7 May 2018
Rapid risk assessment: Ebola virus disease outbreak in Equateur Province, Democratic Republic of the Congo – 2018 – 15 May 2018	15 May 2018
Rapid risk assessment: Multi-country outbreak of hepatitis A virus genotype IA infections affecting EU countries in 2018 – 21 May 2018	21 May 2018
Rapid risk assessment: Ebola virus disease outbreak in Equateur Province, Democratic Republic of the Congo – First update, 25 May 2018	25 May 2018
Rapid risk assessment: Mass gathering event, FIFA World Cup, Russia 2018 – 28 May 2018	28 May 2018
Rapid risk assessment: Carbapenem-resistant Enterobacteriaceae – first update – 7 June 2018	7 June 2018
Rapid risk assessment: Emergence of resistance to ceftazidime-avibactam in carbapenem-resistant Enterobacteriaceae – 13 June 2018	13 June 2018
Joint ECDC-EFSA rapid outbreak assessment: Multi-country outbreak of <i>Listeria monocytogenes</i> serogroup IVb, multi-locus sequence type 6, infections linked to frozen corn and possibly to other frozen vegetables – first update – 3 July 2018	3 July 2018
Rapid risk assessment: Dengue outbreak in Réunion, France – First update, 6 July 2018	6 July 2018
Rapid risk assessment: Carbapenemase-producing (OXA-48) <i>Klebsiella pneumoniae</i> ST392 in travellers previously hospitalised in Gran Canaria, Spain – 11 July 2018	11 July 2018
Joint ECDC-EFSA Rapid Outbreak Assessment: Multi-country outbreak of <i>Salmonella</i> Agona infections possibly linked to ready-to-eat food – 26 July 2018	26 July 2018
Rapid risk assessment: Public health risks related to communicable diseases during the 2018 Hajj, Saudi Arabia, 19–24 August 2018 – 2 August 2018	2 August 2018
Rapid risk assessment: Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo – 9 August 2018	9 August 2018
Rapid risk assessment: Early large increase in West Nile virus infections reported in the EU/EEA and EU neighbouring countries – 13 August 2018	13 August 2018
Rapid risk assessment: Severe respiratory disease associated with Middle East respiratory syndrome coronavirus (MERS-CoV) – 22nd update, 29 August 2018	29 August 2018
Rapid risk assessment: Cholera outbreak in Algeria, 2018 – 7 September 2018	7 September 2018
Rapid risk assessment: Monkeypox cases in the UK imported by travellers returning from Nigeria, 2018 – 21 September 2018	21 September 2018
Rapid risk assessment: Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo – first update – 5 October 2018	5 October 2018
Rapid risk assessment: Local transmission of dengue fever in France and Spain – 2018 – 22 October 2018	22 October 2018
Joint ECDC-EFSA rapid outbreak assessment: Multi-country outbreak of <i>Listeria monocytogenes</i> sequence type 8 infections linked to consumption of salmon products – 25 October 2018	25 October 2018
Rapid risk assessment: Multidrug-resistant <i>Staphylococcus epidermidis</i> – 8 November 2018	8 November 2018
Rapid risk assessment: Influenza-associated invasive pulmonary aspergillosis, Europe – 30 November 2018	30 November 2018
Rapid risk assessment: Ebola virus disease outbreak in North Kivu and Ituri Provinces, Democratic Republic of the Congo – second update – 21 December 2018	21 December 2018

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