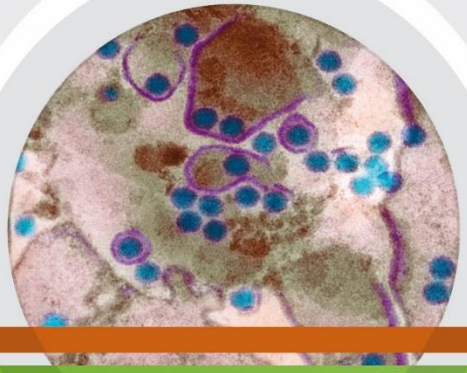


SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

Dengue fever

Key facts

- 2 209 cases of dengue fever were reported in TESSy in 2015, of which 1 924 (87.1%) were confirmed.
- Notification rate in 2015 was 0.5 cases per 100 000 population.
- Of the 2 101 cases with known importation status, 2 095 were imported (99.7%).
- Six cases were locally acquired in mainland France.
- The number of cases was lower compared with 2013, but higher than in 2011, 2012 and 2014.
- The highest rates were reported in men and women 25–44 years of age.
- The number of cases increased during the Easter and summer holidays, most probably reflecting travel patterns of EU populations.
- 20% of the cases were imported from Thailand.

Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 4 July 2017. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of methods used to produce this report, please refer to the *Methods* chapter [1].

An overview of the national surveillance systems is available online [2].

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [3].

Twenty-six EU/EEA countries reported data on dengue fever. Three of these countries reported zero cases (the Czech Republic, Iceland and Luxembourg). No data were reported by Bulgaria, Croatia, Cyprus, Denmark, and Liechtenstein.

Reported data for dengue are heterogeneous as no specific case definition is available. Fifteen countries referred to the EU's generic case definition for viral haemorrhagic fevers, five countries did not specify which case definition was used (Belgium, Finland, France, Greece and Latvia), and six countries used other case definitions (the Czech Republic, Germany, the Netherlands, Poland, Portugal and the United Kingdom).

All reporting countries except the Netherlands have a comprehensive surveillance system. In Greece, there is no information about the comprehensiveness of the surveillance system. Reporting is compulsory in 22 countries, voluntary in two (Belgium and the United Kingdom), and unspecified in Latvia and in Greece [2]. Data reporting is case-based except in Belgium.

Suggested citation: European Centre for Disease Prevention and Control. Dengue fever. In: ECDC. Annual epidemiological report for 2015. Stockholm: ECDC; 2018.

Stockholm, January 2018

Epidemiology

In 2015, 2 209 cases of dengue fever were reported, of which 1 924 (87.1%) were confirmed.

The notification rate in 2015 was 0.5 cases per 100 000 population, slightly higher than in 2014 when it was at 0.4 cases per 100 000 population. The highest rates were observed in the age groups 15–24 and 25–44 years with 0.7 and 0.8 cases per 100 000 population, respectively.

In 2015 the number of cases was lower than in 2013, but still higher than in 2011, 2012 and 2014. Germany reported the highest number of cases (n=722), followed by the United Kingdom (423), Spain (168), France (167) and Sweden (159) (Table 1, Figure 1). Spain has reported cases of dengue for the first time since 2009.

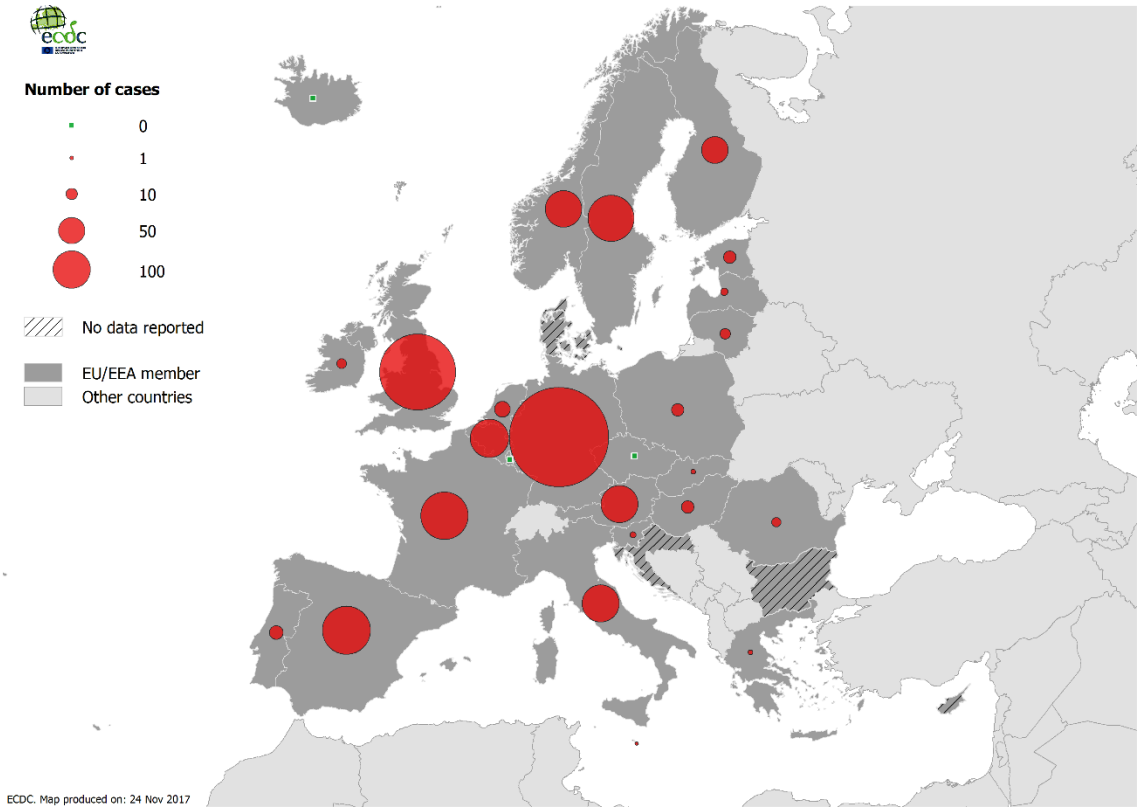
Six autochthonous cases were reported in mainland France.

Table 1. Distribution of reported cases of dengue fever, EU/EEA, 2011–2015

Country	2011		2012		2013		2014		2015				
	Reported cases		Reported cases		Reported cases		Reported cases		National coverage	Reported cases			Confirmed cases
	Number	Rate	Number	Rate	Number	Rate	Number	Rate		Number	Rate	ASR	
Austria	0	0.0	2	0.0	89	1.1	91	1.1	Y	103	1.2	1.2	103
Belgium	41	0.4	73	0.7	139	1.2	110	1.0	Y	108	1.0	1.0	108
Bulgaria	.	.	.	.	.	.	.	.	.	.	.	.	.
Croatia	.	.	1	0.0	3	0.1	2	0.0	.	.	.	.	.
Cyprus	.	.	.	.	.	.	.	.	.	.	.	.	.
Czech Republic	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	0
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	9	0.7	Y	12	0.9	0.9	12
Finland	45	0.8	90	1.7	80	1.5	38	0.7	Y	54	1.0	1.1	54
France	55	0.1	110	0.2	271	0.4	212	0.3	Y	167	0.3	0.3	76
Germany	288	0.4	616	0.8	877	1.1	626	0.8	Y	722	0.9	1.0	722
Greece	0	0.0	0	0.0	1	0.0	4	0.0	Y	2	0.0	0.0	1
Hungary	2	0.0	3	0.0	10	0.1	6	0.1	Y	12	0.1	0.1	10
Ireland	0	0.0	7	0.2	15	0.3	21	0.5	Y	8	0.2	0.2	8
Italy	44	0.1	74	0.1	142	0.2	79	0.1	Y	103	0.2	0.2	103
Latvia	2	0.1	7	0.3	7	0.3	1	0.0	Y	4	0.2	0.2	4
Lithuania	1	0.0	0	0.0	1	0.0	3	0.1	Y	9	0.3	0.3	9
Luxembourg	1	0.2	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	0
Malta	0	0.0	0	0.0	0	0.0	0	0.0	Y	1	0.2	0.2	1
Netherlands	.	.	.	.	.	.	3	-	N	18	-	-	0
Poland	5	0.0	5	0.0	13	0.0	15	0.0	Y	12	0.0	0.0	6
Portugal	.	.	.	.	.	.	.	.	Y	14	0.1	0.1	10
Romania	2	0.0	3	0.0	6	0.0	6	0.0	Y	7	0.0	0.0	6
Slovakia	0	0.0	3	0.1	4	0.1	0	0.0	Y	2	0.0	0.0	1
Slovenia	8	0.4	10	0.5	8	0.4	2	0.1	Y	3	0.1	0.2	3
Spain	0	0.0	0	0.0	0	0.0	0	0.0	Y	168	0.4	0.3	161
Sweden	103	1.1	175	1.8	220	2.3	119	1.2	Y	159	1.6	1.7	159
United Kingdom	13	0.0	0	0.0	571	0.9	376	0.6	Y	423	0.7	0.7	269
EU	610	0.1	1179	0.3	2457	0.5	1723	0.4	.	2111	0.4	0.5	1826
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	.	.	30	0.6	57	1.1	73	1.4	Y	98	1.9	2.0	98
EU/EEA	610	0.1	1209	0.3	2514	0.5	1796	0.4	.	2209	0.5	0.5	1924

Source: Country reports. Legend: A = aggregated, Y = yes, N = no, C = case based, · = no report, ASR = age-standardised rate

Figure 1. Number of reported dengue cases, EU/EEA, 2015

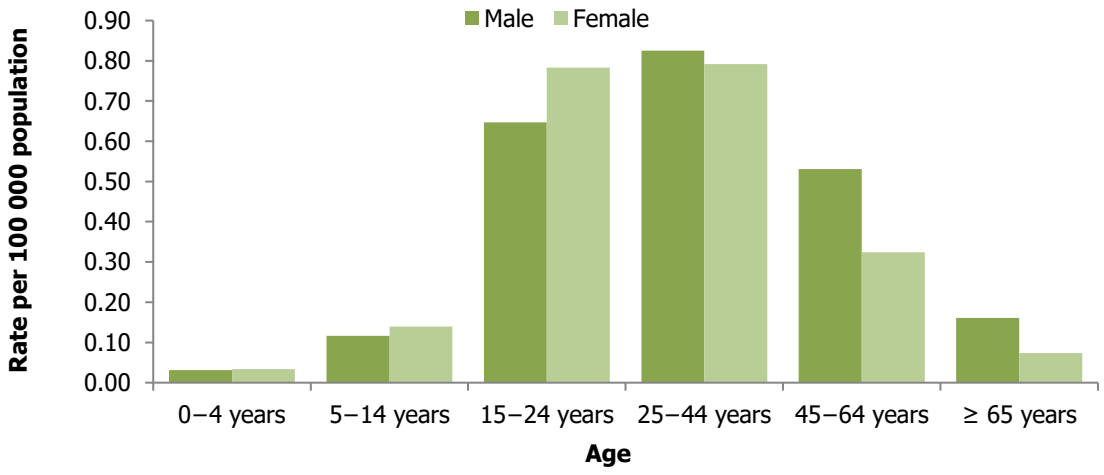


Country reports from Austria, Belgium, the Czech Republic, Germany, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Age and gender distribution

In 2015, 52.9% of cases were males, with a male-to-female ratio of 1.1:1. The majority of cases were 25–44 years of age (n=1 057, 47.8%), with a similar age distribution in both genders.

Figure 2. Dengue fever cases in the EU/EEA, by age and gender, 2015

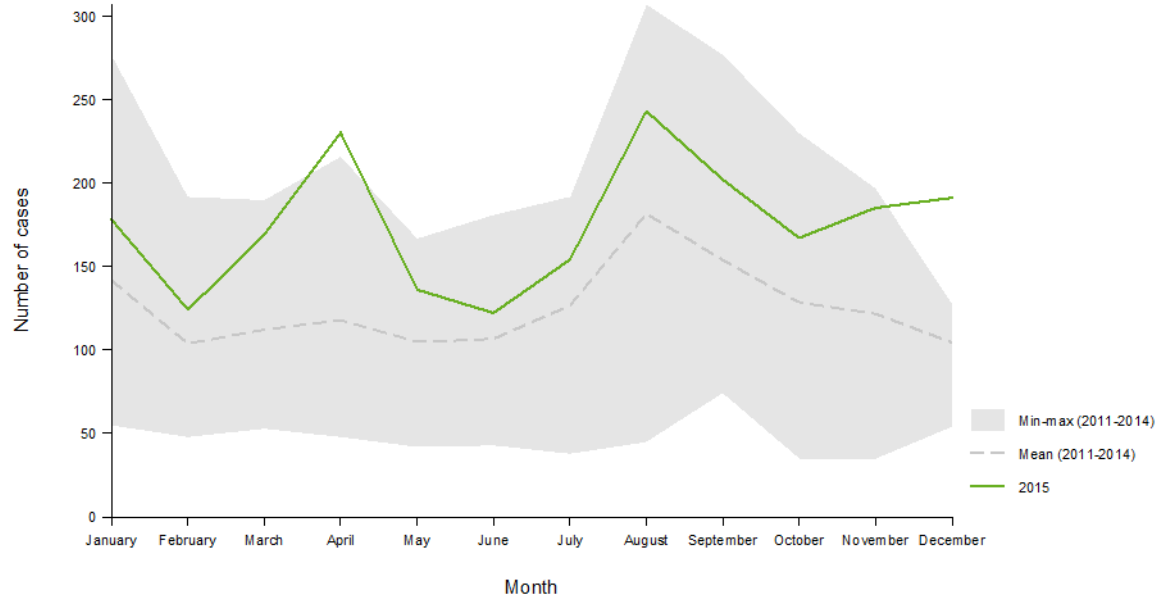


Country reports from Austria, Belgium, the Czech Republic, Germany, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Seasonality

Dengue cases fluctuated during the year, with two peaks of cases in April (230 reported cases) and August (243 reported cases). These two peaks possibly relate to the Easter and summer holiday periods. The seasonal pattern of reported cases is very similar to what was observed for the years 2011–2014 (Figure 3).

Figure 3. Seasonal distribution of reported dengue cases, EU/EEA, 2015 compared with 2011–2015



Source: Country reports from Austria, Belgium, the Czech Republic, Germany, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Place of infection

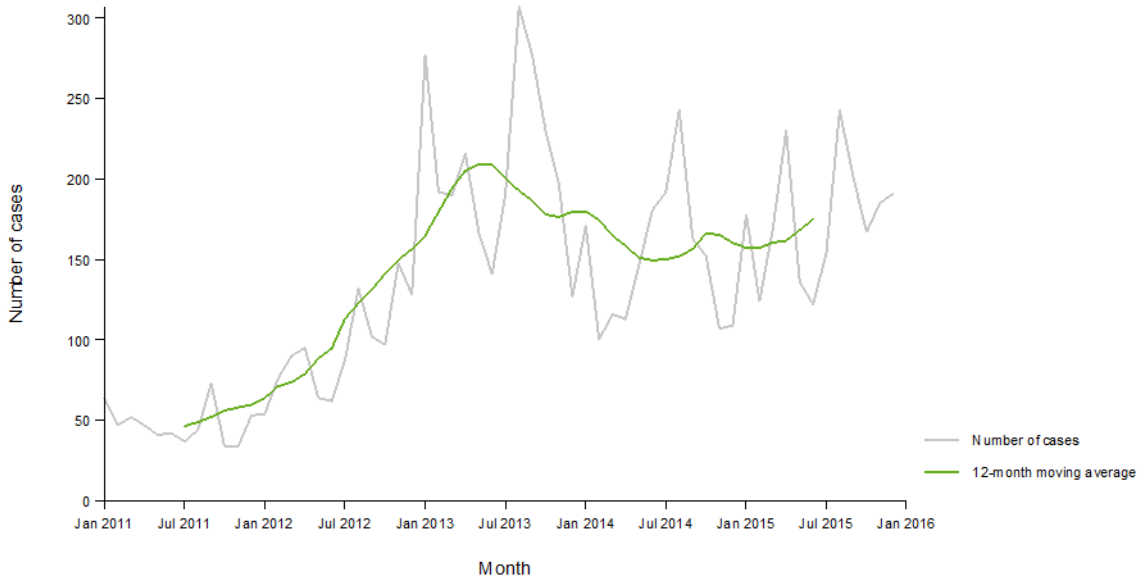
Information on importation status was available for 2 101 cases. For six of the cases, the infection occurred in mainland France (Nîmes, Gard district). The remaining 2 095 cases were infected outside the EU/EEA.

In 2015, most of the 1 082 cases for which the probable place of infection was known were infected in Thailand (n=225, 20.8%), India (n=130, 12.0%) and Indonesia (n=118, 10.9%).

Trend

After a peak in cases in 2013 and a decrease in 2014, the number of cases increased again in 2015 (Figure 4). Due to the varying number of reporting countries from reporting year to reporting year, a more precise analysis is not possible.

Figure 4. Trend and number of reported dengue cases, EU/EEA, 2011–2015



Source: Country reports from Austria, Belgium, the Czech Republic, Germany, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Discussion

Travel-related cases of dengue fever in the EU reflect the evolution of the dengue situation in tropical regions where the disease is endemic. The number of cases increased again in 2015, which probably reflects the occurrence of dengue outbreaks in tropical countries.

Patterns in the occurrence of dengue cases, e.g. by age and gender, most likely reflect population travel patterns rather than other risk factors. Also, the difference in seasonality between countries most likely reflects national travel patterns.

South-east Asia and Latin America reported an increasing numbers of cases [4-5]. The number of cases reported in the Americas doubled in 2015 compared with 2014 [5]. Similarly, the number of imported cases returning from south-east Asia and Latin America increased in 2015 compared with 2014. As in previous years, the most frequently reported suspected places of infection were in south-east Asia.

For the third consecutive year, France reported autochthonous dengue cases following an introduction of the virus [6]. In 2014, four locally acquired cases were identified: two cases in the Var district and two cases in the Bouches-du-Rhône district [7]. In 2013, one autochthonous case was reported in the Bouches-du-Rhône district [8]. These recurrent events highlight the risk of local transmission of dengue virus in countries or regions where the competent mosquito vectors *Aedes albopictus* and/or *Aedes aegypti* are established and where conditions are suitable for transmission, e.g. many Mediterranean EU countries and in the EU outermost regions, for example Madeira [9].

Public health implications

Vigilance regarding imported cases of dengue and other diseases transmitted by *Aedes* mosquitoes remains essential. Awareness should be raised among clinicians and travel clinic specialists in the EU, especially in areas where competent mosquito vectors are present and environmental conditions are suitable for transmission [6].

Preparedness plans to contain and/or mitigate the spread of dengue in the EU should address the following aspects:

- Strengthening of surveillance systems, including the adoption of a specific case definition and the rapid detection and notification of cases at local, national and international levels
- Regular reviews of contingency plans for mosquito-borne outbreaks
- Education and engagement of the general public in the control of mosquito breeding sites
- Strengthening vector surveillance systems and rapid implementation of vector control measures around each case
- Considering the adoption of blood safety measures in affected areas. Measures should be aligned with the ones for West Nile virus infection.

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