

## Dengue fever

Reporting on 2014 data retrieved from TESSy\* on 19 November 2015

Suggested citation: European Centre for Disease Prevention and Control. Annual Epidemiological Report 2016 – Dengue fever. [Internet]. Stockholm: ECDC; 2016 [cited YYYY Month DD]. Available from: [http://ecdc.europa.eu/en/healthtopics/dengue\\_fever/Pages/Annual-epidemiological-report-2016.aspx](http://ecdc.europa.eu/en/healthtopics/dengue_fever/Pages/Annual-epidemiological-report-2016.aspx)

[Download PowerPoint presentation with all graphics](#)

### Key facts

- A total of 1 796 cases of dengue fever were reported in TESSy in 2014; 1 510 of these cases were confirmed.
- Notification rate in 2014 was 0.42 cases per 100 000 population.
- Almost all cases were travel related, four cases were locally acquired; for 76 cases, the place of infection was unknown.
- The number of cases was lower compared with 2013, but still higher than in the previous years.
- The highest rates were reported in men 25–44 years of age and in women 15–24 and 25–44 years of age.
- The number of cases increased during the summer holidays, most probably reflecting travel habits of EU populations in summer.

### Methods

[Click here for a detailed description of the methods used to produce this annual report](#)

• 25 EU/EEA countries reported data on dengue fever. Five of these countries reported zero cases (Czech Republic, Iceland, Luxembourg, Malta and Slovakia). No data were reported by Bulgaria, Cyprus, Denmark, Estonia, Liechtenstein, Portugal and Spain.

• Data for dengue reported within the EU/EEA are very heterogeneous as no specific case definition is available. Sixteen countries referred to the EU generic case definition for viral haemorrhagic fevers, three countries did not specify which case definition was used (Belgium, France and Germany), and five countries used other case definitions (Czech Republic, Germany, Italy, the Netherlands and the United Kingdom).

• All reporting countries except the Netherlands have a comprehensive surveillance system. Reporting is compulsory in 23 countries and voluntary in two (Belgium and the United Kingdom). Surveillance is mostly passive except in Belgium, the Czech Republic, Slovakia and the United Kingdom, where active systems are in place (Annex 1). Data reporting is case based (except in Croatia) and coverage is national (except in the Netherlands).

### Epidemiology

Most dengue cases were reported as travel-related cases. France reported four locally acquired cases in 2014. In 2013, two locally acquired cases were reported, one in France and one with a travel history to Madeira, where a large outbreak was reported in 2012–2013 [1].

The notification rate in 2014 was 0.42 cases per 100 000 population. The highest rates were observed in the age groups 15–24 and 25–44 years. The notification rate was higher among women between 15 and 24 years of age.

Case numbers increased during the summer months.

The number of cases in 2014 was lower than in 2013, but still higher than in the years before. Similarly, the notification rate in 2014 (0.42 cases per 100 000 population) was lower than in 2013 (0.53 cases per 100 000 population), but higher than between 2010 and 2012 (Table 1).

The highest number of reported cases in 2014 was observed in Germany (n=626), followed by the United Kingdom (n=376) and France (n=212) (Table 1, Figure 1). The countries that used to report most dengue cases (Germany, France, Sweden, the United Kingdom, Belgium, Italy and Finland) reported fewer cases in 2014 compared with 2013.

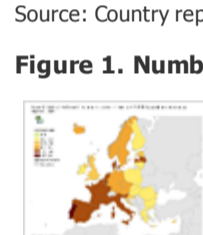
**Table 1. Reported dengue fever cases: number and rate per 100 000 population, EU/EEA, 2010–2014**

[Download Excel version](#)

Country	2010		2011		2012		2013		2014					
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	National data	Report type	Reported cases	Rate	ASR*	Confirmed cases
Austria	11	0.1	0	0.0	2	0.0	89	1.1	Y	C	91	1.1	1.1	91
Belgium	129	1.2	41	0.4	73	0.7	139	1.2	Y	C	110	1.0	1.0	110
Bulgaria	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Croatia	.	.	.	.	1	0.0	3	0.1	Y	A	2	0.0	0.0	2
Cyprus	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Czech Republic	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0.0	0.0	0
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	9	0.7	0.7	9
Finland	50	0.9	45	0.8	90	1.7	80	1.5	Y	C	38	0.7	0.8	38
France	596	0.9	55	0.1	110	0.2	271	0.4	Y	C	212	0.3	0.3	85
Germany	595	0.7	288	0.4	616	0.8	878	1.1	Y	C	626	0.8	0.8	626
Greece	0	0.0	0	0	0	0.0	1	0.0	Y	C	4	0.0	0.0	4
Hungary	7	0.1	2	0.0	3	0.0	10	0.1	Y	C	6	0.1	0.1	2
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0.0	0.0	0
Ireland	0	0.0	0	0.0	7	0.2	15	0.3	Y	C	21	0.5	0.5	21
Italy	51	0.1	44	0.1	74	0.1	142	0.2	Y	C	79	0.1	0.1	79
Latvia	8	0.4	2	0.1	7	0.3	7	0.3	Y	C	1	0.0	0.1	1
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	0	0.0	1	0.0	0	0.0	1	0.0	Y	C	3	0.1	0.1	3
Luxembourg	2	0.4	1	0.2	0	0.0	0	0.0	Y	C	0	0.0	0.0	0
Malta	1	0.2	0	0.0	0	0.0	0	0.0	Y	C	0	0.0	0.0	0
Netherlands	.	.	.	.	.	.	.	.	N	C	3	.	.	0
Norway	.	.	.	.	30	0.6	57	1.1	Y	C	73	1.4	1.5	73
Poland	6	0.0	5	0.0	5	0.0	13	0.0	Y	C	15	0.0	0.0	5
Portugal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Romania	0	0.0	2	0.0	3	0.0	6	0.0	Y	C	6	0.0	0.0	6
Slovakia	0	0.0	0	0.0	3	0.1	4	0.1	Y	C	0	0.0	0.0	0
Slovenia	8	0.4	8	0.4	10	0.5	8	0.4	Y	C	2	0.1	0.1	2
Spain	0	0.0	0	0.0	0	0.0	0	0.0	.	.	.	.	.	.
Sweden	151	1.6	103	1.1	175	1.8	220	2.3	Y	C	119	1.2	1.3	119
United Kingdom	7	0.0	13	0.0	0	0.0	571	0.9	Y	C	376	0.6	0.6	234
<b>EU/EEA</b>	<b>1622</b>	<b>0.4</b>	<b>610</b>	<b>0.1</b>	<b>1209</b>	<b>0.3</b>	<b>2515</b>	<b>0.5</b>	.	<b>C</b>	<b>1796</b>	<b>0.4</b>	<b>0.4</b>	<b>1510</b>

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, 2014**

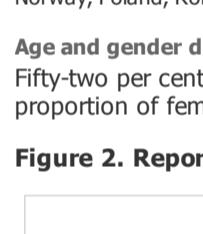


Source: Country reports from Austria, Belgium, Croatia, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Sweden, the United Kingdom.

### Age and gender distribution

Fifty-two per cent of cases were males, with a male-to-female ratio of 1.1:1. The majority of cases were 25–44 years old (n=876; 48.8%). In the age group 15–24 years, the proportion of females was markedly higher.

**Figure 2. Reported dengue fever cases: rate by age and gender, EU/EEA, 2014**

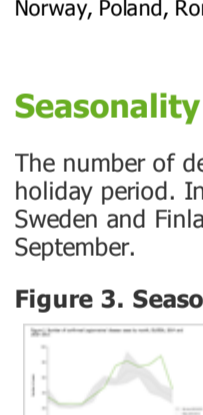


Source: Country reports from Austria, Belgium, Croatia, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Sweden, the United Kingdom.

### Seasonality

The number of dengue cases was highest during the summer months (June to August, with a peak in August). A smaller peak was seen in January, possibly related to the winter holiday period. In 2014, more cases were seen in June and July compared with the average number of cases in 2010–2013 (Figure 4) but this pattern varied by country. In Sweden and Finland, the peak was strongest at the beginning of the year (Jan–April), with a smaller peak in July, while France, Germany and Italy reported peaks in August–September.

**Figure 3. Seasonal distribution of reported dengue cases, EU/EEA, 2014 compared with 2010–2013**



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

### Enhanced surveillance in 2014

Information on importation status was available for 1 718 cases. Four cases (0.2%) were locally acquired in France. These autochthonous cases were reported in the Provence-Alpes-Côte-d'Azur region, two cases in Var district and two cases in Bouches-du-Rhône district [2]. In 2013, one autochthonous case was reported in Bouches-du-Rhône district [3].

In 2014, most of the 1 403 cases for which travel information was available were infected in Thailand (n=380, 27%), Indonesia (n=171), India (n=110), Malaysia (n=71), the Philippines (n=58) and Tanzania (n=80). Compared with the period 2010–2013, cases related to travel in Tanzania – mainly reported by the United Kingdom – showed the greatest increase.

In 2013, most of the 2 040 cases with travel information were infected in Thailand (n=722, 35%), Indonesia (n=180), India (n=166), Philippines (n=58), Brazil (n=58) and Barbados (n=68).

### Trend

After a high number of cases in 2013, the number of cases in 2014 decreased, but remained at a higher level than in the years before (Figure 6).

**Figure 4. Trend and number of reported dengue cases, EU/EEA, 2010–2014**



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

### Discussion

Travel-related dengue fever in the EU reflects the evolution of dengue situation in tropical regions where the disease is endemic. Although the case numbers returned to a lower level after 2010, the end of 2012 and 2013 were marked by a strong increase, which is probably related to several 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, differences in seasonality most likely reflect national travel patterns.

South-east Asia and Latin America reported an increasing number of cases. In Asia, Japan experienced an outbreak of dengue which lasted until mid-October 2014 [4]. The majority of cases was associated with visiting Yoyogi Park in Tokyo [5]. It seems that this was the first dengue epidemic in Japan since 1945. One imported case from Japan was detected in 2013 in Germany [6], and in 2014 an imported case from Japan was reported by the United Kingdom. In China, nearly 40 000 dengue cases were reported in southern provinces, where Guangxi Zhuang Autonomous Region and Guangdong Province were the most affected [7]. In Africa, dengue outbreaks were reported in Tanzania, in Mozambique in April, and in Sudan (North Darfur) in October. Dengue outbreaks were reported in several islands in the Pacific.

Recently reported autochthonous transmission of dengue fever in France and Japan highlights the risk of locally-acquired cases in countries where competent Aedes mosquito vectors are established and where conditions are suitable for transmission, like in many Mediterranean countries of the EU [8].

### Public health conclusions

Vigilance regarding imported cases of dengue and other diseases transmitted by Aedes mosquitoes and awareness among clinicians and travel clinic specialists should be raised in the EU, especially in areas where competent mosquito vectors are present and environmental conditions are suitable for transmission [8].

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

1. 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
2. Regular reviews of contingency plans for mosquito-borne outbreaks
3. Education and engagement of the general public in the control of mosquito breeding sites
4. Strengthening vector surveillance systems and rapid implementation of vector control measures around each case
5. Considering the adoption of blood safety measures in affected areas; measures should be aligned with the ones for West Nile virus infection.

### References

1. European Centre for Disease Prevention and Control. Dengue outbreak in Madeira, Portugal. [Internet]. 2013 [cited 2013 Mar 31]. Available from: <http://ecdc.europa.eu/en/publications/Publications/dengue-madeira-ECDC-mission-2013.pdf>
2. Septfonds A, Noël H, Leparç-Goffart I, Giron S, Delisle E, Chappert JL, et al. Surveillance du chikungunya et de la dengue en France métropolitaine. Bull Epidémiol Hebd. 2015;13-14:204-11.
3. Marchand E, Prat C, Jeannin C, Lafont E, Bergmann T, Flusin O, et al. Autochthonous case of dengue in France, October 2013. Euro Surveill. 2013;18(50):20661.
4. Seki N, Iwashita Y, Moto R, Kamiya N, Kurita M, Tahara N, et al. [An autochthonous outbreak of dengue type 1 in Tokyo, Japan 2014]. [Nihon koshu eisei zasshi] Japanese journal of public health. 2015;62(5):238-50.
5. Kojima G. Autochthonous dengue fever imported to England from Japan, 2014. Emerg Infect Dis. 2015 Jan;21(1):182-4.
6. Schmidt-Chanasi J, Emmerich P, Tappe D, Gunther S, Schmidt S, Wolff D, et al. Autochthonous dengue virus infection in Japan imported into Germany, September 2013. Euro Surveill. 2014;19(3).
7. Wang W, Yu B, Lin XD, Kong DG, Wang J, Tian JH, et al. Reemergence and autochthonous transmission of dengue virus, Eastern China, 2014. Emerg Infect Dis. 2015 Sep;21(9):1670-3.
8. European Centre for Disease Prevention and Control. Mosquito maps [Internet]. 2015 [cited 2015 Oct 1]. Available from: [http://ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET\\_maps.aspx](http://ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET_maps.aspx)

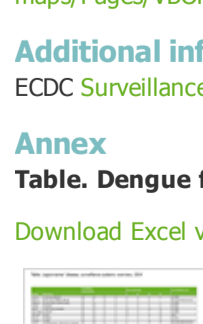
### Additional information

ECDC Surveillance Atlas of Infectious Diseases

### Annex

#### Table. Dengue fever, surveillance systems overview, 2014

[Download Excel version](#)



\* The European Surveillance System (TESSy) is a system for the collection, analysis and dissemination of data on communicable diseases. EU Member States and EEA countries contribute to the system by uploading their infectious disease surveillance data at regular intervals.