

SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

Tick-borne encephalitis

Key facts

- In 2015, 1 949 cases of tick-borne encephalitis were reported; 1 908 (98.4%) of these cases were confirmed.
- The notification rate in 2015 was 0.4 cases per 100 000 population.
- Age and gender distribution shows a predominance of cases in over 45-year-olds and in males.
- Most cases of tick-borne encephalitis occurred between July and November.

Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 4 September 2017 and additional information from epidemic intelligence. 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 [1].

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

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

Twenty-four EU/EEA countries reported data on tick-borne encephalitis (TBE), five countries reported zero cases (Greece, Ireland, Romania, Spain and the United Kingdom).

Eighteen countries used the EU case definition, two countries (Germany and Italy) indicated to use another case definition, and four countries did not specify which case definition was used (Croatia, Finland, Luxembourg and Poland).

Nineteen reporting countries operate a comprehensive disease surveillance system. Reporting is compulsory in 18 countries, voluntary in four (Belgium, France, Luxembourg and United Kingdom) and 'not specified' in two countries (Croatia and Poland). Surveillance is mostly passive except in the Czech Republic, Slovakia and the United Kingdom. The disease surveillance method is not specified for three countries (Annex 1). Data reporting is case-based (except in Bulgaria and Croatia) and done at the national level.

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Epidemiology

Tick-borne encephalitis became notifiable at the EU level in 2012. In 2015, 1 949 cases were reported to TESSy, 1 908 (98.4%) of which were confirmed (0.4 cases per 100 000 population). Five cases were fatal (CFR: 0.2%). The highest rates were observed in the Baltic States. TBE was predominantly reported among males over 45 years of age.

The notification rate in 2015 was similar to that in 2014 in most reporting countries, except in Estonia, Finland and Sweden, where the rate was slightly increased. The notification rate decreased in the Czech Republic, Slovakia and Slovenia.

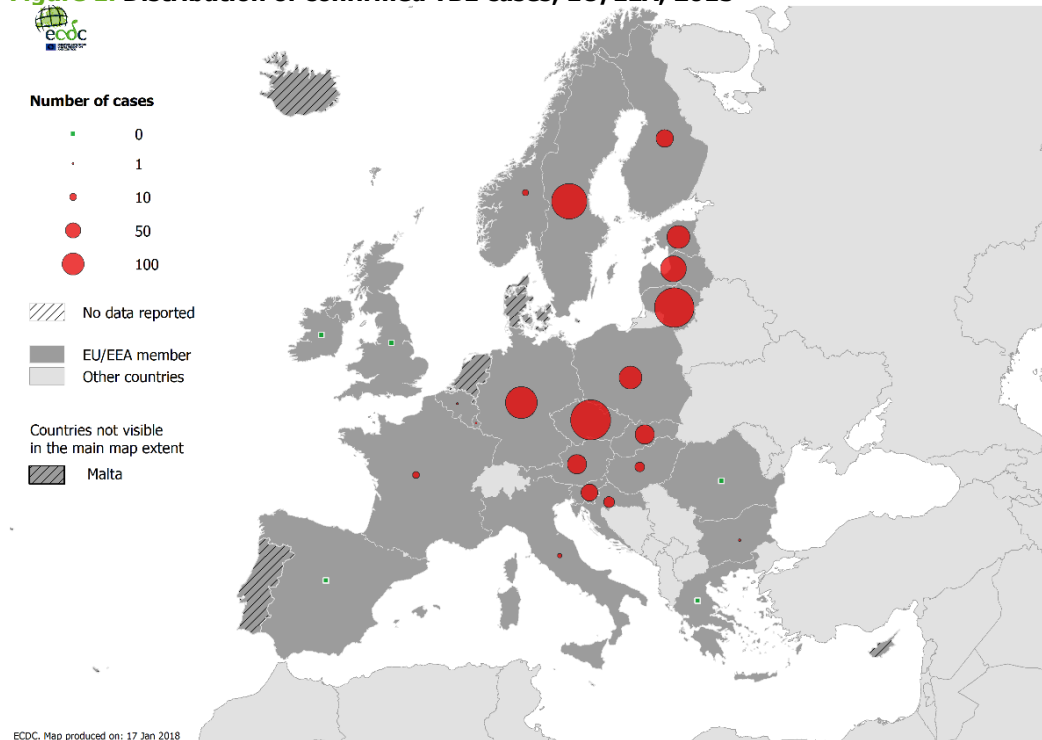
The notification rate was the highest in Lithuania (11.5 cases per 100 000 population), followed by Estonia (8.7 cases per 100 000 population) and Latvia (7.1 cases per 100 000 population) (Figure 2). In Slovenia the notification rate was 1.6 times lower than in 2014 and 2.7 times lower than in 2012. As for 2015, the highest number of confirmed cases was seen in the Czech Republic (n=349) and Lithuania (n=336) (Table 1).

Table 1. Distribution of confirmed cases of confirmed TBE cases, EU/EEA, 2011–2015

Country	2011		2012		2013		2014		National coverage	Reported cases	2015		
	Confirmed cases		Confirmed cases		Confirmed cases		Confirmed cases				Confirmed cases		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate			Number	Rate	ASR
Austria	.	.	38	0.5	100	1.2	81	1.0	Y	79	79	0.9	0.9
Belgium	.	.	2	0.0	3	0.0	0	0.0	Y	1	1	0.0	0.0
Bulgaria	0	0.0	Y	2	2	0.0	0.0
Croatia	.	.	45	1.1	44	1.0	23	0.5	Y	26	26	0.6	0.6
Cyprus
Czech Republic	.	.	573	5.5	625	5.9	410	3.9	Y	349	349	3.3	3.3
Denmark
Estonia	.	.	178	13.4	114	8.6	82	6.2	Y	116	115	8.7	8.7
Finland	.	-	39	0.7	38	0.7	47	0.9	Y	68	68	1.2	1.2
France	.	.	1	0.0	1	0.0	9	0.0	Y	10	10	0.0	0.0
Germany	.	-	195	0.2	419	0.5	264	0.3	Y	219	219	0.3	0.3
Greece	.	-	0	0.0	0	0.0	1	0.0	Y	0	0	0.0	0.0
Hungary	.	.	42	0.4	27	0.3	26	0.3	Y	24	22	0.2	0.2
Ireland	.	.	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Italy	0	0.0	0	0.0	Y	5	5	0.0	0.0
Latvia	.	.	72	3.5	230	11.4	149	7.4	Y	141	141	7.1	6.8
Lithuania	.	.	351	11.7	487	16.4	353	12.0	Y	336	336	11.5	11.2
Luxembourg	0	0.0	Y	1	1	0.2	0.2
Malta
Netherlands
Poland	.	.	119	0.3	136	0.4	131	0.3	Y	149	115	0.3	0.3
Portugal
Romania	.	.	3	0.0	3	0.0	1	0.0	Y	0	0	0.0	0.0
Slovakia	.	.	31	0.6	157	2.9	115	2.1	Y	84	80	1.5	1.5
Slovenia	.	.	164	8.0	307	14.9	100	4.9	Y	62	62	3.0	3.0
Spain	.	.	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Sweden	.	.	287	3.0	209	2.2	178	1.8	Y	268	268	2.7	2.7
United Kingdom	.	.	3	0.0	0	0.0	2	0.0	Y	0	0	0.0	0.0
EU	.	-	2143	0.5	2900	0.6	1972	0.4	.	1940	1899	0.4	0.4
Iceland
Liechtenstein
Norway	.	.	7	0.1	6	0.1	13	0.3	Y	9	9	0.2	0.2
EU/EEA	.	-	2150	0.5	2906	0.6	1985	0.4	.	1949	1908	0.4	0.4

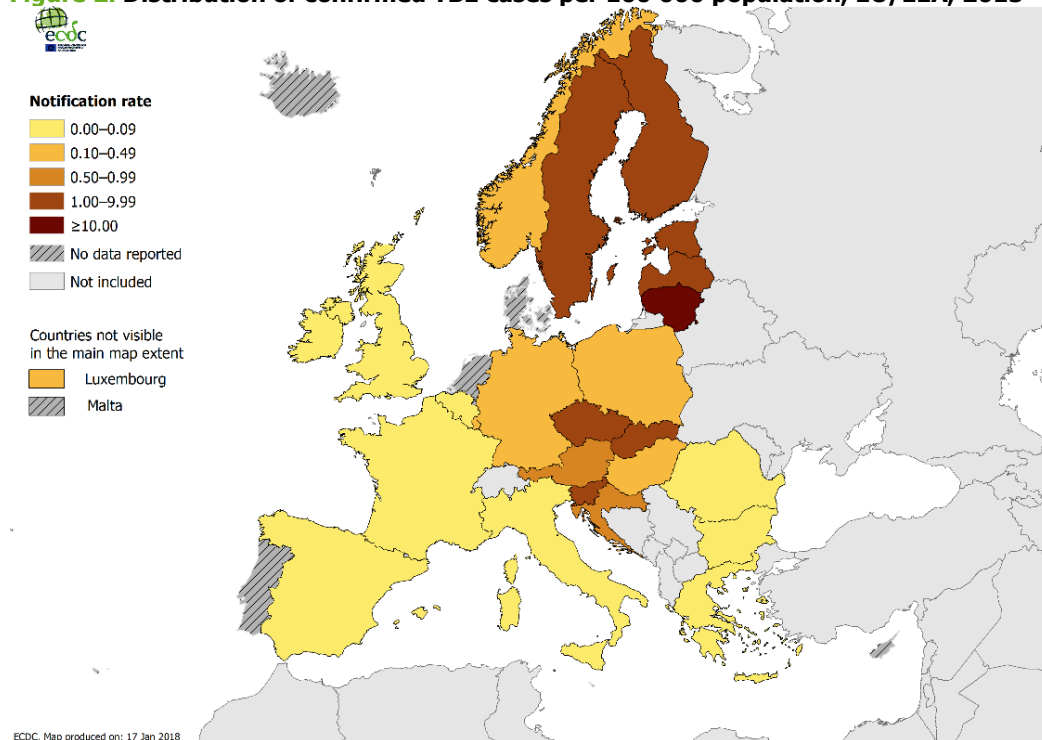
Source: Country reports. Legend: Y = yes, . = no data reported, ASR = age-standardised rate, - = no notification rate calculated

Figure 1. Distribution of confirmed TBE cases, EU/EEA, 2015



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

Figure 2. Distribution of confirmed TBE cases per 100 000 population, EU/EEA, 2015

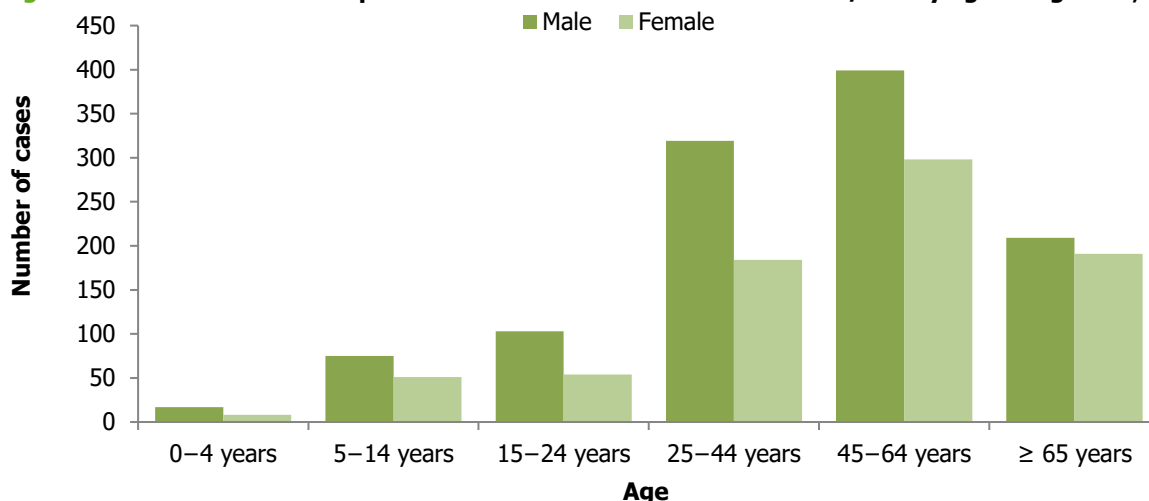


Source: Country reports from Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Age and gender distribution

The proportion of confirmed TBEs cases was higher in men (58.8%), with a male-to-female ratio of 1.4:1. The majority of cases belonged to the age group 45–64 years ($n=697$, 36.5%), regardless of gender. The rate was highest in the age group 45–64 years (0.5 cases per 100 000 population), followed by the age groups 25–44 and over 65 years (0.4 cases per 100 000 population for both). The lowest rates were observed in children.

Figure 3. Distribution of rates per 100 000 of confirmed TBE cases in EU/EEA by age and gender, 2015

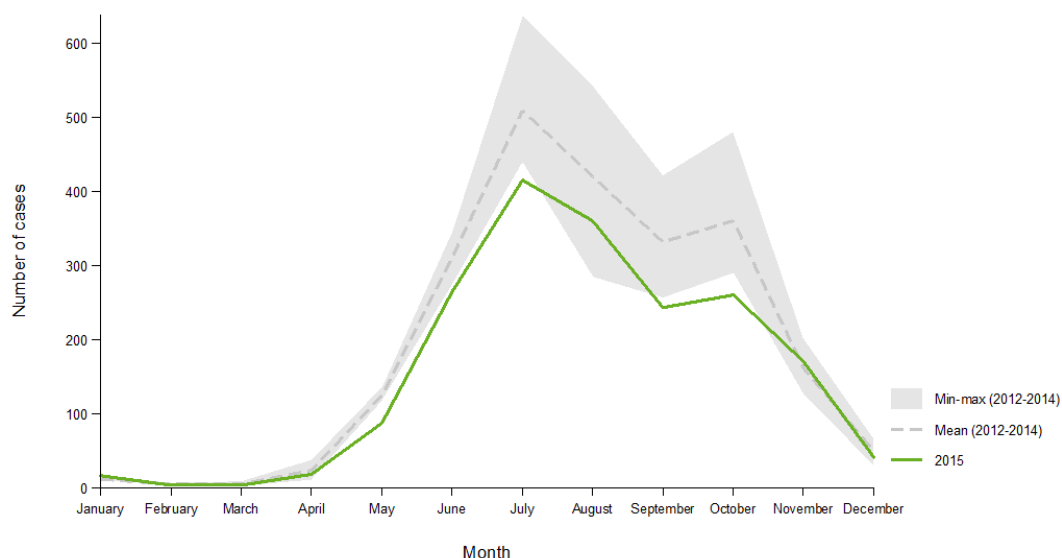


Source: Country reports from Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Estonia, Finland, France, Greece, Germany, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Seasonality

Most TBE cases were reported during the warm season from May to October with a peak in July–August. However, there were still a few cases reported in December (Figure 4). It is unclear whether these cases are a result of late reporting or whether they refer to the day of diagnosis or the onset of symptoms. It is, however, entirely possible to be exposed to ticks – and to get bitten by them – in early winter, even in northern countries.

Figure 4. Seasonal distribution of confirmed TBE cases, EU/EEA, 2015 compared with 2012–2014



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

Imported cases

Importation status was available for 1 795 confirmed cases, 2% (n=36) of which were travel associated. Germany reported 11 imported cases, Sweden 10 cases, and eight other countries reported between one and three cases. Imported cases originated mainly in Austria (seven cases), Sweden (five cases), the Czech Republic (four cases) and Finland (two cases). One case each was reported from the following countries: Germany, Italy, Latvia, Russia and the United Kingdom. The country of importation was missing for 13 cases.

Immunisation

Of the 951 confirmed cases for which information about immunisation status was available, 927 cases (97.5%) were reported as not vaccinated, and 24 (2.5%) had a history of previous immunisation. Of these 24 cases with history of previous immunisation, 13 had two doses or more.

Trend

The number of confirmed cases in countries which provided data since 2012 was 1 680 in 2015, lower than in the previous years (1 721 in 2014, 2 487 in 2013, and 1 955 in 2012).

Discussion

Tick-borne encephalitis became notifiable in the EU in 2012. The number of countries reporting to TESSy, including those reporting zero cases, has increased from 19 in 2012 to 24 in 2014 but decreased to 23 in 2015. During the 2012–2014 period, the annual number of cases reported through routine surveillance was comparable with an ECDC estimate based on an ad-hoc survey [4]. The three countries with the highest notification rates are still Lithuania, Estonia and Latvia.

As previously reported, males and older age groups have higher notification rates, possibly due to higher exposure in relation to outdoors activities (e.g. mushroom or berry picking) [4].

The seasonality pattern was similar to that of the previous years, with a defined peak in summer [5,6].

Public health implications

People in regions where tick-borne encephalitis is endemic should be aware of the risks related to tick bites, protect themselves against tick bites and consider immunisation prior to exposure, which offers the most effective protection. The collected data support the efficacy of vaccination: only 2.5% of infected people had a history of immunisation.

References

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