SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

West Nile fever

Key facts

- In 2015, seven EU/EEA countries reported 122 locally acquired cases of West Nile fever, 104 of which (85.2%) were confirmed. Four travel-related cases were reported.
- The EU/EEA notification rate for locally acquired cases in 2015 was 0.02 cases per 100 000 population.
- Compared with 2014, the notification rates for locally acquired cases increased but were still below the high notification rates from 2012 and 2013.
- Two deaths were linked to West Nile fever in 2015, one reported by Bulgaria and one reported by Romania.

Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 12 December 2016. 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.

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].

Additional data on this disease are accessible from ECDC's online *Surveillance atlas of infectious diseases* [3].

This report is based on data collected through two complementary processes:

- A real-time data collection process used by the Member States to timely report cases during the period of high mosquito activity (June–November) supported by information collected by the Epidemic Intelligence section at ECDC.
- An annual data collection process. Countries which did not detect any cases during the year are asked to report 'zero cases'. All other countries are encouraged to report complementary data on detected cases if considered relevant.

Suggested citation: European Centre for Disease Prevention and Control. West Nile fever. In: ECDC. Annual epidemiological report for 2015. Stockholm: ECDC; 2017.

Stockholm, December 2017

In 2015, 27 EU/EEA Member States provided information on West Nile fever (WNF) in humans. Twenty-one countries used the EU case definition, four countries did not specify which case definition was used (Belgium, Finland, Italy and Latvia), and France and the United Kingdom used an alternative case definition.

Twenty-five reporting countries had a comprehensive surveillance system, Belgium had a sentinel system, and Austria used another disease surveillance system. Reporting is compulsory in 22 countries and voluntary in four (Austria, Belgium, France and the United Kingdom). Surveillance is passive, except in five countries (the Czech Republic, Greece, Portugal, Slovakia and the United Kingdom) [2]. Reporting is done at the national level (except Italy) and case based (except Croatia).

All tables, maps and graphs in this report are based on locally acquired WNF cases.

Epidemiology

In 2015, seven EU/EEA Member States reported 127 cases of WNF, 122 of which (96%) were locally acquired. Austria reported one case with an unknown place of infection; Hungary reported four imported cases, one imported from Italy and three imported from outside the EU/EEA (Brazil, Lebanon and Serbia).

The EU notification rate for locally acquired cases was 0.02 cases per 100 000 population, which is stable compared with 2014 (0.014 cases per 100 000 population). The fact that surveillance systems vary across countries makes direct comparisons difficult. The highest number of locally acquired WNF cases was observed in Italy (61) and Romania (32), followed by Hungary (18).

Among the 122 locally-acquired cases, 104 cases were reported as confirmed.

Two deaths linked to West Nile fever were reported in Bulgaria and Romania.

In 2015, 90 neuroinvasive cases, 17 non-neuroinvasive cases and 15 cases in blood donors were reported by the affected Member States. This is higher than in 2014 where 65 neuroinvasive, nine non-neuroinvasive infections and no cases in blood donors were reported.

Table 1. Locally acquired West Nile fever cases: number and rate per 100 000 population, EU/EEA, 2011–2015

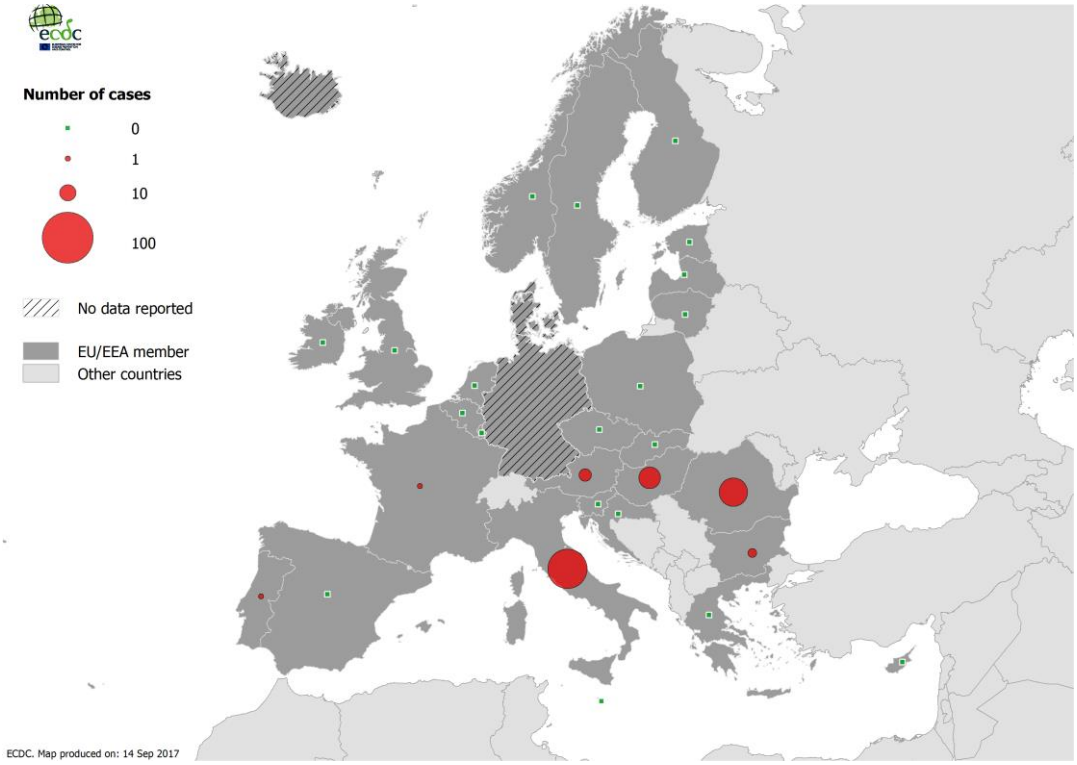
Country	2011		2012		2013		2014		2015				
	Reported cases		Reported cases		Reported cases		Reported cases		National coverage	Reported cases			Confirmed cases
	Number	Rate	Number	Rate	Number	Rate	Number	Rate		Number	Rate	ASR	
Austria	0	0.0	0	0.0	0	0.0	1	0.0	Y	6	0.1	0.1	7
Belgium	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Bulgaria	.	.	2	0.0	0	0.0	0	0.0	Y	3	0.0	0.0	.
Croatia	.	.	5	0.1	16	0.4	.	.	Y	0	0.0	0.0	.
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Czech Republic	0	0.0	0	0.0	1	0.0	0	0.0	Y	0	0.0	0.0	.
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Finland	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
France	0	0.0	0	0.0	0	0.0	0	0.0	Y	1	0.0	0.0	1
Germany	.	.	.	.	.	.	.	.	.	.	.	.	.
Greece	100	0.9	161	1.5	86	0.8	15	0.1	Y	0	0.0	0.0	.
Hungary	0	0.0	17	0.2	31	0.3	11	0.1	Y	18	0.2	0.2	15
Ireland	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Italy	14	0.0	50	0.1	69	0.1	24	-	N	61	-	-	61
Latvia	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Luxembourg	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Malta	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Netherlands	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Poland	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Portugal	.	.	.	.	.	.	.	.	Y	1	0.0	0.0	1
Romania	11	0.1	14	0.1	24	0.1	23	0.1	Y	32	0.2	0.2	19
Slovakia	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Slovenia	0	0.0	0	0.0	1	0.0	0	0.0	Y	0	0.0	0.0	.
Spain	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
Sweden	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.

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	
United Kingdom	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
EU	**125**	**0.03**	**249**	**0.06**	**228**	**0.06**	**74**	**0.01**	**.**	**122**	**0.02**	**0.02**	**104**
Iceland	.	.	.	.	.	.	.	.	.	.	.	.	.
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0.0	0.0	.
EU/EEA	**125**	**0.03**	**249**	**0.06**	**228**	**0.06**	**74**	**0.01**	**.**	**122**	**0.02**	**0.02**	**104**

Source: Country reports. Legend: Y = yes, N = no, C = case based, ' = no report, ASR: age-standardised rate
Detailed maps are available from: http://ecdc.europa.eu/en/healthtopics/west_nile_fever/West-Nile-fever-maps/Pages/index.aspx

In 2015, as in previous years, locally acquired West Nile fever cases were mostly reported from the south-east of the EU.

Figure 1. Number of locally acquired West Nile fever cases by country, EU/EEA, 2015

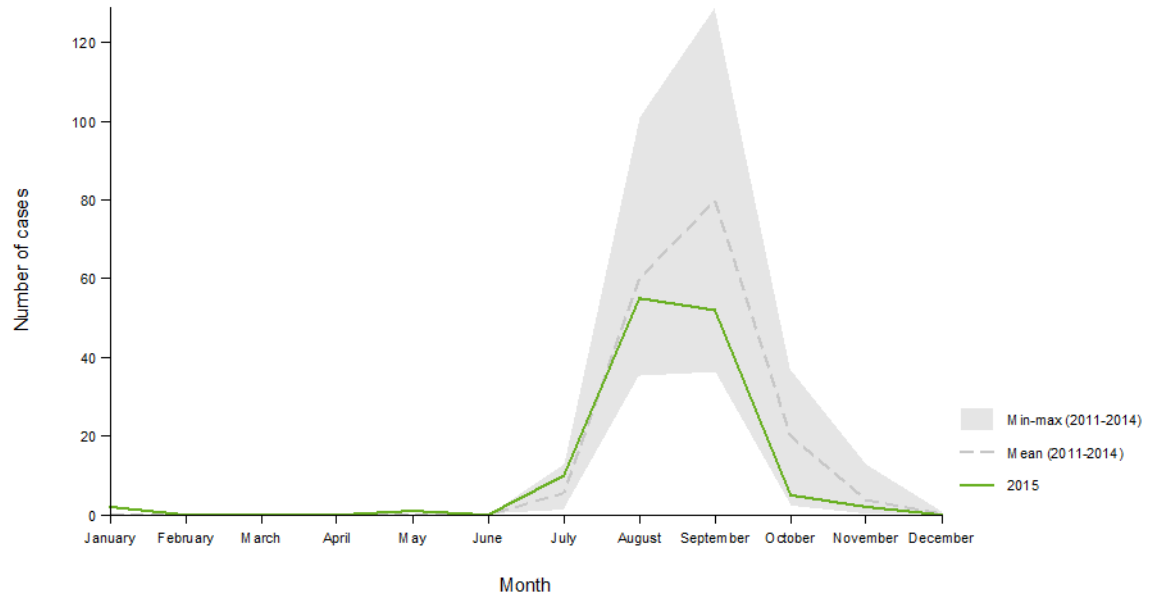


Source: Country reports from Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Seasonality

West Nile fever is a seasonal disease, with most cases in EU/EEA occurring during the summer. Between 2011 and 2015, the majority of the cases were reported between July and October which is the period when the mosquito vector is active in the EU/EEA. The peak of the season is between August and September.

Figure 3. Distribution of locally acquired West Nile fever cases by month, EU/EEA, 2015 compared with 2011-2015

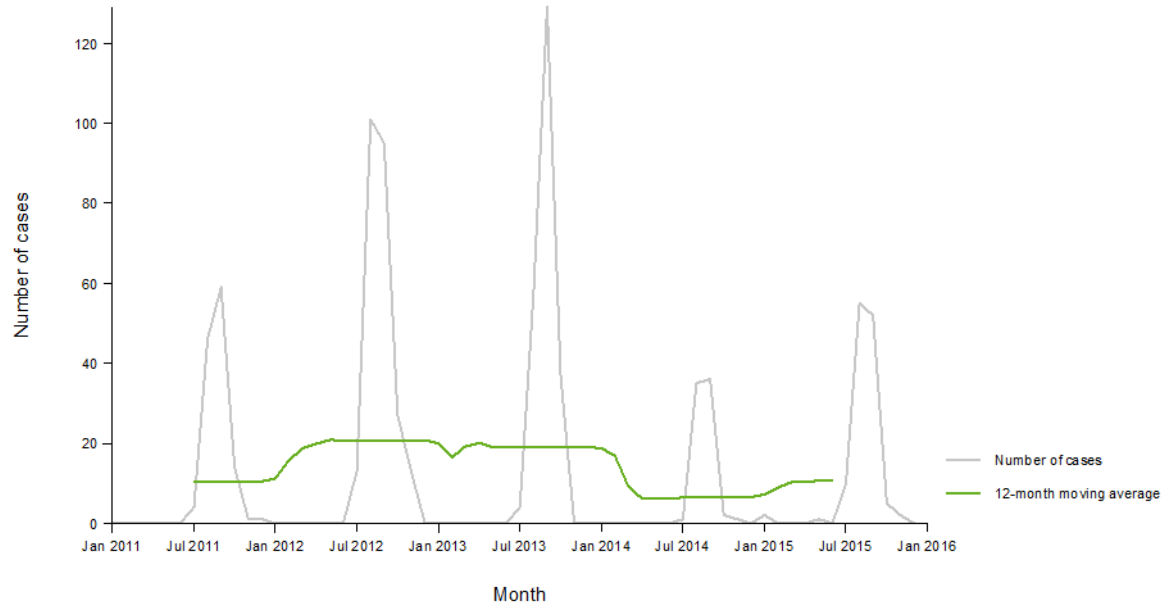


Source: Country reports from Austria, Belgium, Cyprus, the Czech Republic, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

Trend

West Nile fever has been notifiable at the EU level since 2008. The number of cases can vary substantially from year to year (Figure 4). In 2015, the number of cases increased compared to 2014, but were still below the high notification rates from 2012 and 2013.

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



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

Discussion

The notification rate of West Nile fever in humans in the EU/EEA increased compared with 2014 but did not return to the level observed in 2013 and 2012.

Italy experienced a 39% increase in cases compared with 2014 and accounted for the highest number of West Nile fever cases in 2015.

In 2015, a number of densely populated areas (e.g. Milan province in Italy, Vienna, Budapest, Bucharest and Sofia) were affected by West Nile fever.

According to Commission Directive 2014/110/EU, blood donors should be deferred for 28 days after leaving risk areas for locally acquired West Nile virus (WNV) unless an individual nucleic acid test (NAT) is negative. The deferral of blood donors has an impact on national blood supplies.

After a long period without reported cases, Portugal and France each reported one case: Portugal in the Algarve region and France in the Gard department. After almost 10 years of disease absence, WNV re-emerged in the south of France, demonstrating the suitability of this area for WNV [4]. In Portugal, the last WNV case was identified in 2010 and resulted in the initiation of vector surveillance in the affected area [5].

In France and Portugal, equidae cases were reported in areas adjacent to where human cases were detected. WNV is known to circulate in France and Portugal, with occasional horse cases and sporadic human cases [4,5]. In France, a strong network for equidae surveillance supports the early detection of WNF cases in equidae as well as the detection of human cases [4]. In Portugal, additional surveillance and control measures for susceptible species, especially horses, were implemented by the local health authorities [5].

Spain did not report any human cases in 2015, although several West Nile virus infections were reported in equidae in the south of Spain [6]. After a large outbreak in 2010 followed by a decrease in number of cases in 2013 and 2014, Greece did not report any human cases in 2015, but the continued circulation of the virus was confirmed by serological testing of birds in 2014 and in 2015 [7].

In 2015, the proportion of neuroinvasive infections decreased: 74% of the cases were neuroinvasive compared with 88% in 2014. Awareness of West Nile virus infection increases once West Nile virus circulation is confirmed, which results in an increase of reported non-neuroinvasive and asymptomatic cases [8].

Public health implications

Currently, no vaccine against West Nile virus infection in humans is available. The best method to reduce the rates of West Nile virus infection is mosquito control at the local level, ideally with the full engagement of the community, including companies that specialise in mosquito control. Possible interventions include reduction of mosquito populations by controlling the number of breeding sites such as standing pools of water (e.g. old tyres, buckets, unused swimming pools, basements, drainage channels).

Several countries are using veterinary West Nile fever data to support the early detection of the virus. For instance, in addition to surveillance of human infections, Italy conducts entomological monitoring and surveillance of infections in animals by targeting wild birds, horses and poultry (national integrated West Nile fever surveillance) [9]. Greece and Portugal have implemented mosquito surveillance schemes to monitor increased mosquito activity and focus on early virus detection [10,11]. France established an equidae surveillance system in 1999 that allows the early detection of West Nile virus infections [4].

The first West Nile viruses identified in Europe belonged to lineage 1. In Europe, lineage 2 viruses were first reported in 2003 in birds, and more recently in humans [13]. The emergence of new strains with potential increased virulence in Europe should be further investigated in order to better estimate the risk of spread in both affected and naive areas in Europe [14].

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