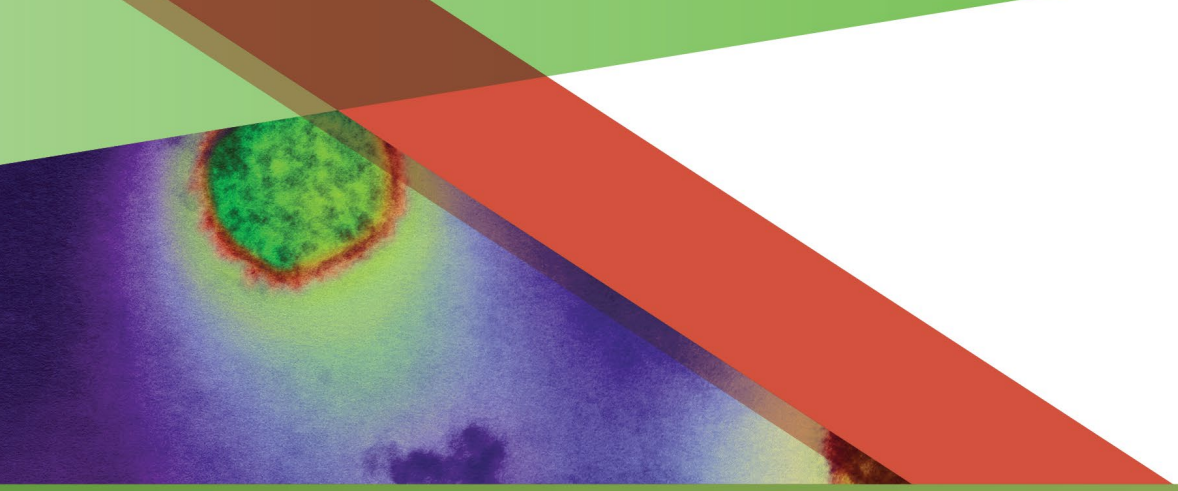


SURVEILLANCE REPORT

Hantavirus infection

Annual Epidemiological Report for 2017

Key facts

- In 2017, 21 countries reported 4 239 cases of hantavirus infection (0.8 cases per 100 000 population).
- The overall notification rate fluctuated from 0.4–0.8 cases per 100 000 population from 2013–2017.
- In 2017, two countries, Finland and Germany, accounted for 70.1% of all reported cases.
- In the absence of a licensed vaccine, prevention mainly relies on rodent control, avoidance of contact and properly cleaning and disinfecting areas contaminated by rodent excreta (urine, saliva or droppings).

Methods

This report is based on data for 2017 retrieved from The European Surveillance System (TESSy) on 11 December 2018. 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, 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].

In 2017, 28 EU/EEA countries reported data (Denmark, Iceland and Liechtenstein did not report). Eighteen countries used the EU case definition, five countries used an alternative case definition and five countries did not specify the definition used. Surveillance is comprehensive in all countries except in Belgium, which has a sentinel system. Belgium, the Czech Republic, Portugal, Slovakia and the United Kingdom conduct active disease surveillance.

Epidemiology

In 2017, 21 countries reported 4 239 cases, 4 168 (98.3%) of which were classified as confirmed (Table 1). Seven countries reported no cases. The number of cases reported in 2017 was the highest observed over the past five years, with a notification rate in 2017 of 0.8 per 100 000 inhabitants.

Suggested citation: European Centre for Disease Prevention and Control. Hantavirus infection. In: ECDC. Annual epidemiological report for 2017. Stockholm: ECDC; 2019.

Stockholm, July 2019

Two countries, Finland and Germany, accounted for 70.1% of all reported cases, with Germany accounting for 40.7% and Finland for 29.4% of all cases. Finland had the highest notification rate at 22.6 cases per 100 000 population.

From 2013–2017, the number of reported cases ranged from 2 157 in 2013 to 4 232 in 2017, with no evident trend. The highest peak was observed in January 2014, when countries reported 546 cases, of which 468 (85.7%) were reported by Finland. In 2017, EU/EEA countries reported hantavirus cases all year round with a peak in the number of cases from May–July, when 39.6% of all the cases with available information were reported. The seasonal peak was driven by Germany, accounting for 65.9% of reported cases, followed by Finland (15.9%) and France (7.3%).

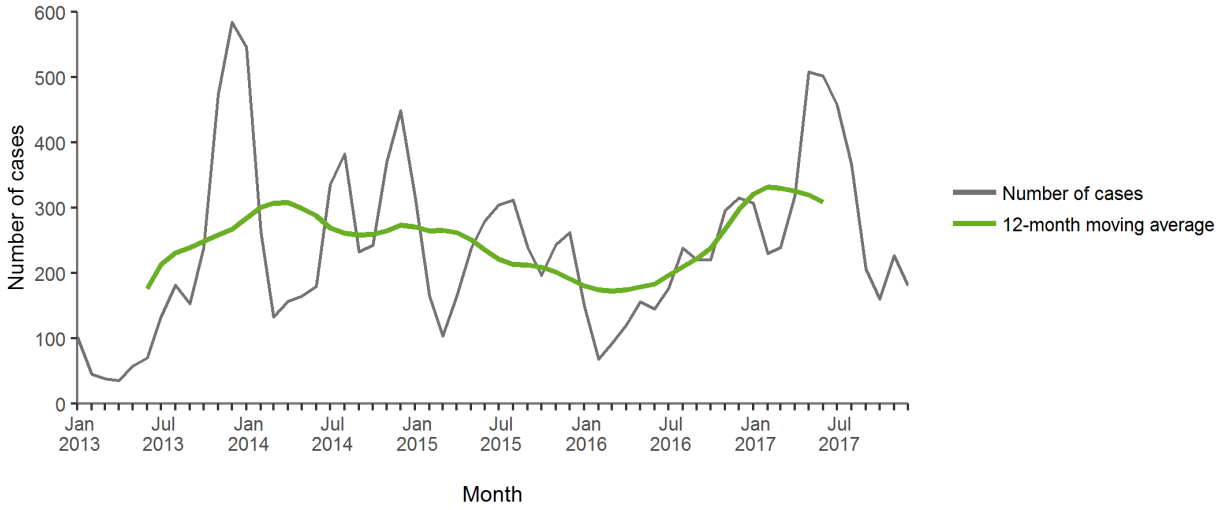
Puumala virus (PUUV) was the most commonly identified pathogen in 2017, accounting for 1 609 of 1 646 (97.8%) of laboratory-confirmed cases with available information. The causative pathogen also included Dobrava virus for 22 cases (10 in Slovenia, seven in Hungary, three in Austria, one in Luxembourg and one in Poland), Hantaan virus for 13 cases (11 in Slovakia, one in Luxembourg and one in Slovenia) and Saaremaa virus for two cases reported by the Netherlands.

Table 1. Distribution of hantavirus infection cases and rates per 100 000 population by country, EU/EEA, 2013–2017

Country	2013		2014		2015		2016		2017		
	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Confirmed cases
Austria	35	0.4	74	0.9	22	0.3	30	0.3	90	1.0	87
Belgium	21	0.2	74	0.7	44	0.4	38	0.3	123	1.1	123
Bulgaria	15	0.2	9	0.1	1	0.0	10	0.1	8	0.1	7
Croatia	6	0.1	209	4.9	10	0.2	31	0.7	389	9.4	338
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Czech Republic	12	0.1	3	0.0	7	0.1	10	0.1	17	0.2	17
Denmark	.	.	.	.	.	.	.	.	.	.	.
Estonia	19	1.4	26	2.0	14	1.1	11	0.8	26	2.0	26
Finland	1 685	31.1	2 089	38.3	1 463	26.7	1 663	30.3	1 246	2.6	1 246
France	15	0.0	105	0.2	142	0.2	58	0.1	233	0.3	233
Germany	161	0.2	574	0.7	829	1.0	282	0.3	1 724	2.1	1 717
Greece	2	0.0	2	0.0	1	0.0	1	0.0	2	0.0	2
Hungary	2	0.0	6	0.1	9	0.1	7	0.1	16	0.2	14
Iceland	.	.	.	.	.	.	.	.	.	.	.
Ireland	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Italy	0	0.0	0	0.0	.	.	0	0.0	0	0.0	0
Latvia	8	0.4	6	0.3	0	0.0	8	0.4	4	0.2	2
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Luxembourg	0	0.0	3	0.5	13	2.3	1	0.2	15	2.5	15
Malta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Netherlands	1	0.0	1	0.0	1	0.0	2	0.0	6	0.0	2
Norway	19	0.4	42	0.8	11	0.2	10	0.2	26	0.5	26
Poland	8	0.0	54	0.1	6	0.0	8	0.0	14	0.0	14
Portugal	.	.	.	.	0	0.0	0	0.0	0	0.0	0
Romania	4	0.0	14	0.1	6	0.0	0	0.0	12	0.1	12
Slovakia	14	0.3	14	0.3	21	0.4	6	0.1	53	1.0	53
Slovenia	6	0.3	25	1.2	8	0.4	12	0.6	76	3.7	76
Spain	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0
Sweden	119	1.2	418	4.3	285	2.9	92	0.9	158	1.6	158
United Kingdom	4	0.0	5	0.0	4	0.0	0	0.0	0	0.0	0
EU/EEA	**2 157**	**0.4**	**3 753**	**0.8**	**2 897**	**0.6**	**2 280**	**0.4**	**4 239**	**0.8**	**4 168**

Source: country reports.
.: no data reported.

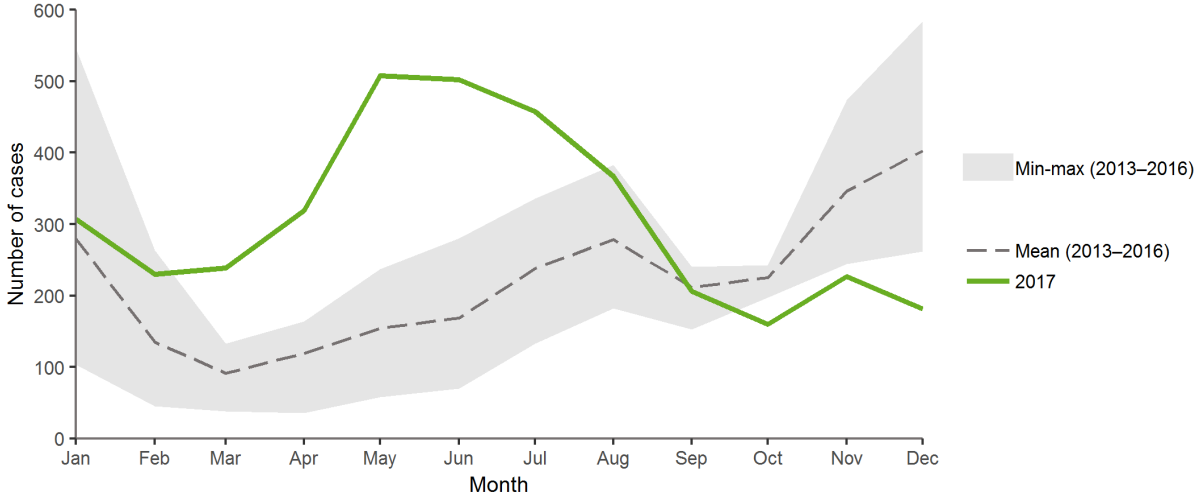
Figure 1. Distribution of hantavirus infection cases by month, EU/EEA, 2013–2017



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

Hantavirus infection cases do not follow clear seasonal patterns at the European level, with notification peaks varying across years (Figure 2). In 2017, the highest number of cases was observed from May–July.

Figure 2. Distribution of hantavirus infection cases by month, EU/EEA, 2013–2016 and 2017

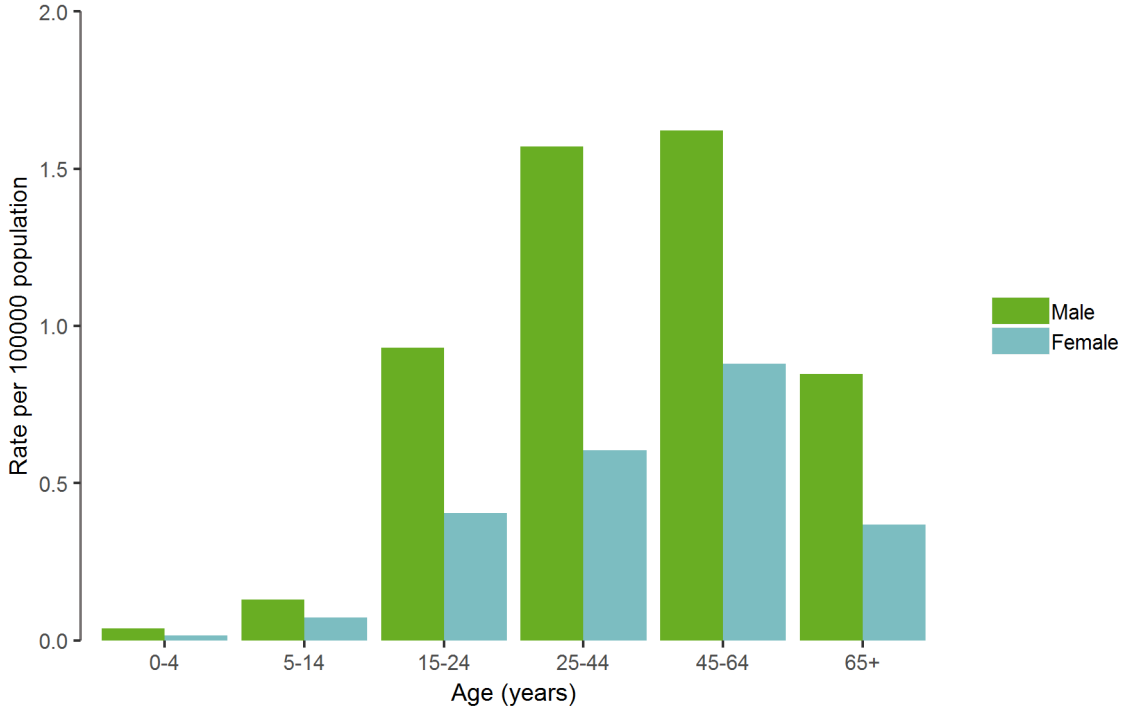


Source: Country reports from Austria, Cyprus, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

Figure 3. Distribution of hantavirus infection cases by country, EU/EEA, 2017

In 2017, individuals aged 25 years and older accounted for 3 799 (89.6%) of 4 239 cases with known age. The notification rate peaked in those aged 45–64 years at 1.2 cases per 100 000 population. Hantavirus infection was more common in males in all age groups, with an overall crude male-to-female case numbers ratio of 2.1:1.

Figure 4. Distribution of hantavirus infection cases per 100 000 population by age and gender, EU/EEA, 2017



Discussion

Hantaviruses circulating in Europe cause haemorrhagic fever with renal syndrome [4]. In most cases, humans are infected after direct contact with infected rodents or their excreta.

In 2017, the number of hantavirus infections in the EU/EEA was higher than in the previous five years. However, there was no evident trend from 2013–2017 period. Changing landscape attributes and climatic parameters determining food availability for rodents could explain fluctuations in virus circulation level and the yearly variation of hantavirus infection numbers [5]. Finland's data shaped the patterns observed from 2013–2016 period, while in 2017, Germany influenced the overall pattern observed.

The main characteristics of the cases reported in 2017 were very similar to those reported in previous years. Most cases were infected by PUUV and the disease mostly affected adults aged over 25 years.

Public health implications

Hantavirus infection is an important cause of potentially preventable morbidity in Europe, with 2 000–5 000 cases reported annually, mostly in Finland and Germany.

In the absence of a licensed vaccine in Europe, prevention mainly relies on rodent control, avoidance of contact and properly cleaning and disinfecting areas contaminated by rodent excreta (urine, saliva, or droppings) [4]. ECDC has published a report summarising preventive measures and communication strategies for hantavirus infection in Europe [6].

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