

Tularaemia

Annual Epidemiological Report for 2017

Key facts

- For 2017, 447 cases of tularaemia were reported by 18 countries in the EU/EEA, 413 (92%) of which were confirmed.
- The EU/EEA notification rate for 2016 was 0.1 cases per 100 000 population.
- As in previous years, the proportion of cases among males was higher in all age groups, with a male-to-female ratio of 2.1:1. Notification rates in men and women increased with age (except for the age group ≥ 65 years). The highest rate was observed in men in the age group 45–64 years (0.2 cases per 100 000 population).

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].

For 2017, 29 EU/EEA countries reported data on tularaemia (Denmark and Liechtenstein did not report). Twenty-seven countries reported case-based data and two countries (Belgium and Bulgaria) reported aggregated data. Twenty-five countries used the EU case definition, two countries used an alternative case definition (Germany and Italy) and two countries did not specify the case definition they used (Finland and France). Reporting is compulsory in 28 countries and voluntary in the United Kingdom. Surveillance is comprehensive in all reporting countries and mostly passive (active in the Czech Republic, Portugal and Slovakia).

Epidemiology

For 2017, 18 countries reported 447 cases of tularaemia in the EU/EEA, 413 (92%) of which were confirmed (Table 1, Figure 1). Eleven countries (Cyprus, Estonia, Greece, Iceland, Ireland, Latvia, Luxembourg, Malta,

Portugal, Romania and the United Kingdom) reported no cases. Two countries, Norway and Sweden, accounted for 40% of all reported cases.

The overall notification rate was 0.1 cases per 100 000 population, a decrease compared with the previous year (0.2 cases per 100 000 population).

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

Country	2013		2014		2015		2016		2017		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	Reported cases
Austria	2	0.0	0	0.0	4	0.0	9	0.1	13	0.1	13
Belgium	1	0.0	2	0.0	1	0.0	1	0.0	5	0.0	5
Bulgaria	1	0.0	1	0.0	17	0.2	2	0.0	1	0.0	1
Croatia	2	0.0	2	0.0	13	0.3	2	0.0	3	0.1	3
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Czech Republic	36	0.3	48	0.5	56	0.5	59	0.6	51	0.5	51
Denmark	.	.	.	.	.	.	.	.	.	.	.
Estonia	1	0.1	1	0.1	0	0.0	1	0.1	0	0.0	0
Finland	15	0.3	9	0.2	104	1.9	699	12.7	32	0.6	32
France	21	0.0	19	0.0	28	0.0	47	0.1	19	0.0	48
Germany	20	0.0	21	0.0	34	0.0	41	0.0	50	0.1	50
Greece	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hungary	48	0.5	140	1.4	35	0.4	22	0.2	11	0.1	11
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Ireland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Italy	1	0.0	0	0.0	-	-	0	0.0	2	0.0	2
Latvia	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.
Lithuania	4	0.1	4	0.1	4	0.1	2	0.1	5	0.2	5
Luxembourg	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Malta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Netherlands	0	0.0	5	0.0	1	0.0	5	0.0	1	0.0	1
Norway	28	0.6	46	0.9	42	0.8	40	0.8	92	1.7	92
Poland	8	0.0	11	0.0	9	0.0	18	0.0	30	0.1	30
Portugal	.	.	.	.	0	0.0	0	0.0	0	0.0	0
Romania	1	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0
Slovakia	9	0.2	6	0.1	28	0.5	7	0.1	2	0.0	2
Slovenia	2	0.1	1	0.0	0	0.0	3	0.1	1	0.0	1
Spain	0	0.0	62	0.1	22	0.0	3	0.0	11	0.0	13
Sweden	108	1.1	150	1.6	722	7.4	134	1.4	84	0.8	87
United Kingdom	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0
EU/EEA	308	0.1	528	0.1	1 122	0.3	1 096	0.2	413	0.1	447

Source: country reports.

∴ no data reported.

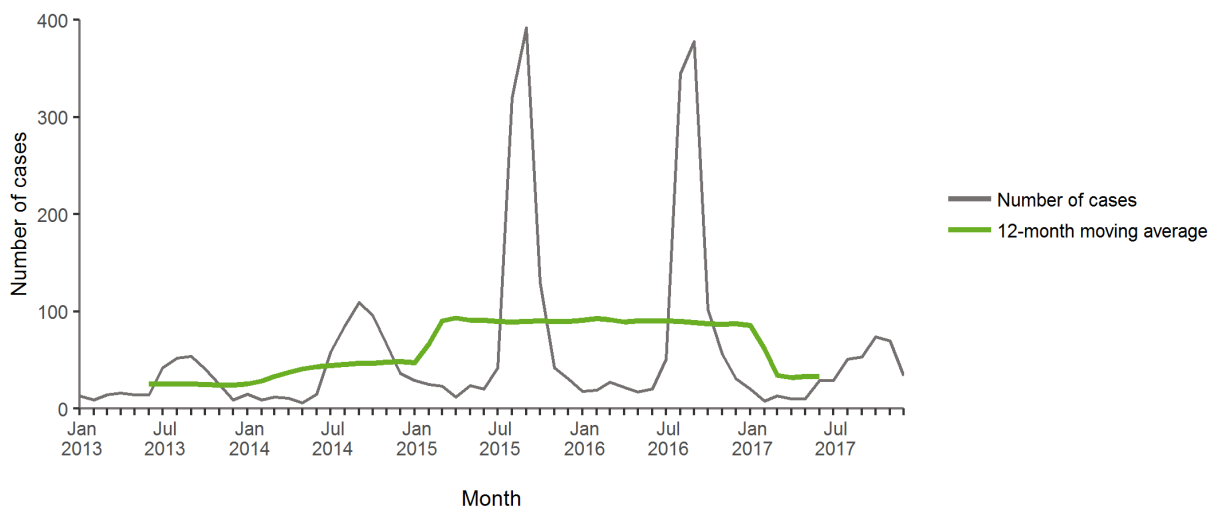
Figure 1. Distribution of confirmed tularaemia cases by country, EU/EEA, 2017



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

A decrease of the 12-month moving average trend in the number of reported cases was observed in 2017, with the number of cases similar to 2013 and 2014 levels. Overall, the number of cases reported in 2017 was lower than in 2015 and 2016. Higher numbers of cases reported previously were driven by notifications from Sweden (2015) and Finland (2016).

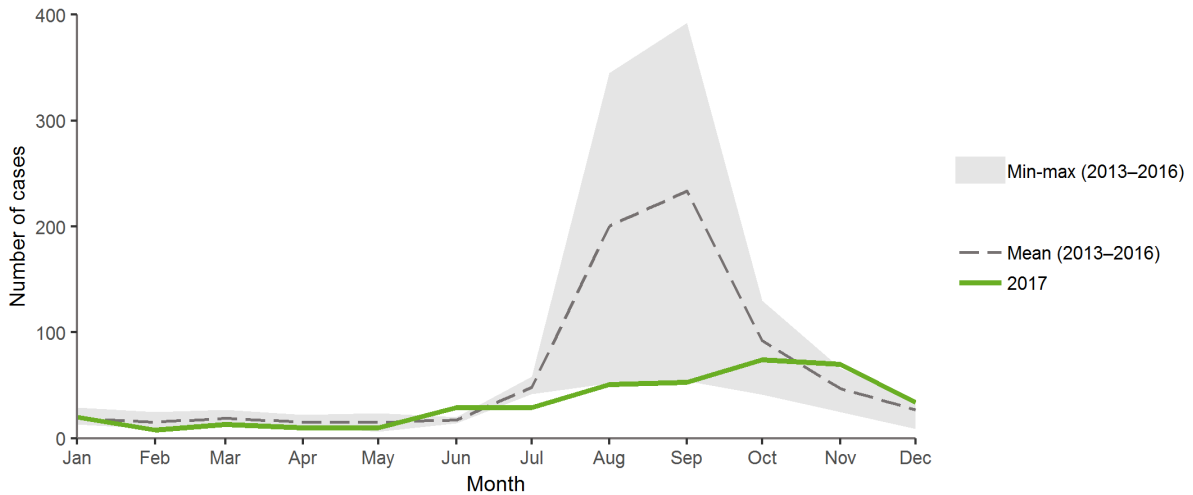
Figure 2. Distribution of confirmed tularaemia cases by month, EU/EEA, 2013–2017



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

Tularaemia shows a seasonal pattern, with most cases occurring from August–October, but some cases also occur in the winter. The 2017 peak of infections was in October–November, which represents a later occurrence compared with the 2013–2016 period (Figure 3).

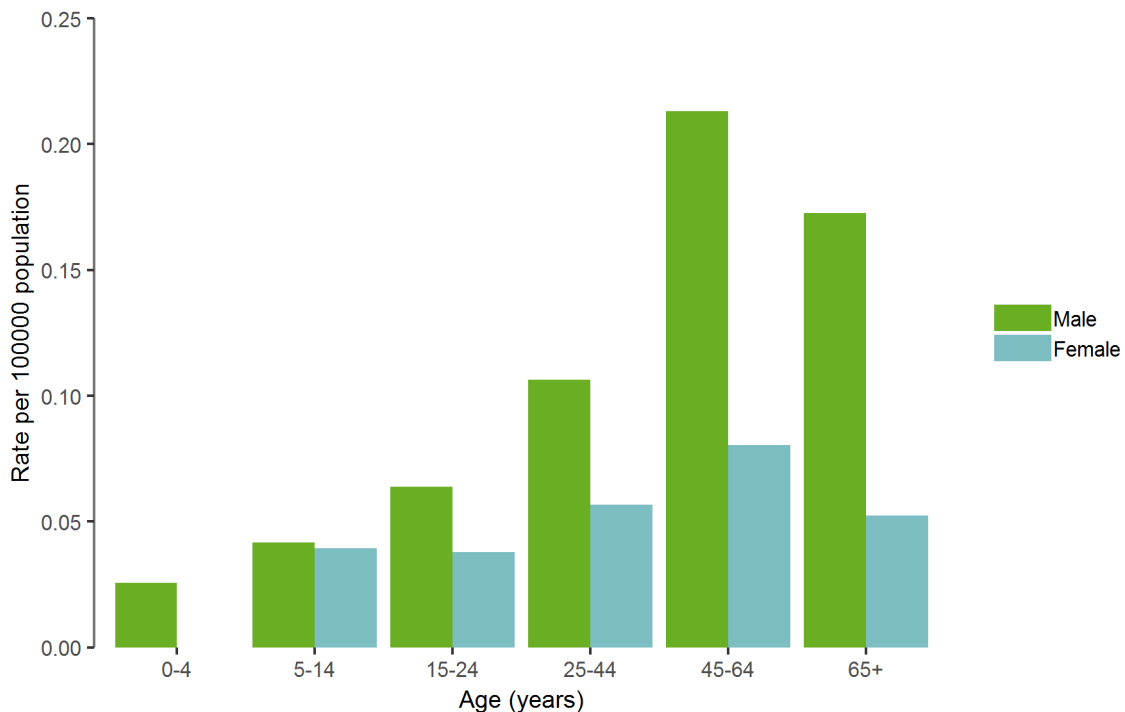
Figure 3. Distribution of confirmed tularaemia cases by month, EU/EEA, 2013–2016 and 2017



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

As in previous years, the proportion of male cases was higher in all age groups, with a male-to-female ratio of 2.1:1. Notification rates in men and women increased with age and were highest in the age group 45–64 years (0.2 and 0.1 cases per 100 000 population respectively).

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



Discussion

Tularaemia is widely distributed throughout most of Europe, where the ingestion of contaminated water is the main transmission route of the disease [4]. In the endemic regions of Scandinavian countries, tularaemia is typically transmitted by mosquito bites [5]. The disease shows a seasonal pattern in humans [6] consistent with higher likelihood of exposure during the summer and fall months potentially associated with recreational outdoors activities (notably hunting), exposure to contaminated water and mosquito bites.

Notification rates of tularaemia vary substantially among Member States and over time. From 2013–2015, Sweden had the highest notification rate. In 2016, Finland had the highest rate observed among Member States in the previous five years. Literature reports from Finland indicate that tularaemia outbreaks are preceded one year earlier by a peak in vole populations [7]. Such an increase in voles was observed in 2015 and coupled with climatic conditions in 2016 that contributed to an abundant mosquito population, favoured transmission to humans. In 2017, Norway and Sweden reported higher numbers of cases, while the number of cases reported from Finland decreased compared with 2016. Complex epidemiological features of *F. tularensis* infections in Europe are covered in recent review articles [6,8].

Data on tularaemia surveillance in animals in the European region are available in the annual ECDC/EFSA report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks [9].

Public health implications

Tularaemia is a zoonotic disease not transmissible from human to human [4]. Prevention measures include avoiding drinking untreated surface water, using insect repellent and clothes covering legs and arms to avoid tick and mosquito bites, avoiding contact with dead animals, not mowing over sick or dead animals and cooking game meat thoroughly before eating. In laboratory settings, the handling of biological samples potentially contaminated with *F. tularensis* should be carried out in biosafety level 3 laboratories [4]. Due to the variety of modes of transmission, several population groups are at potential risk of infection. Physicians should be aware of the various clinical presentations of tularaemia (oropharyngeal, glandular and ulcero-glandular, oculo-glandular, pneumonic and typhoid form) [4] and consider tularaemia as a possible diagnosis in any case of culture-negative endocarditis.

References

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