

Tularaemia

Annual Epidemiological Report for 2018

Key facts

- For 2018, 18 countries in the EU/EEA reported 441 cases of tularaemia, 358 (81%) of which were confirmed.
- The EU/EEA notification rate for 2018 was 0.07 cases per 100 000 population.
- The male-to-female ratio was 1.7:1. As in previous years, the notification rate among males was higher in most age groups except for the age groups between 5 and 24 years.
- Notification rates increased with age and peaked at 45–64 years.

Methods

This report is based on data for 2018 retrieved from The European Surveillance System (TESSy) on 6 September 2019. 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 2018, 29 EU/EEA countries reported data on tularaemia (Denmark and Liechtenstein did not report). Twenty-eight countries reported case-based data, 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.

Epidemiology

For 2018, 18 EU/EEA countries reported 441 cases of tularaemia, 358 (81%) of which were confirmed (Table 1, Figure 1). Two countries, Norway and Sweden, accounted for 45% of all reported cases. Eleven countries reported no cases.

The overall notification rate was 0.07 cases per 100 000 population.

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Stockholm, November 2019

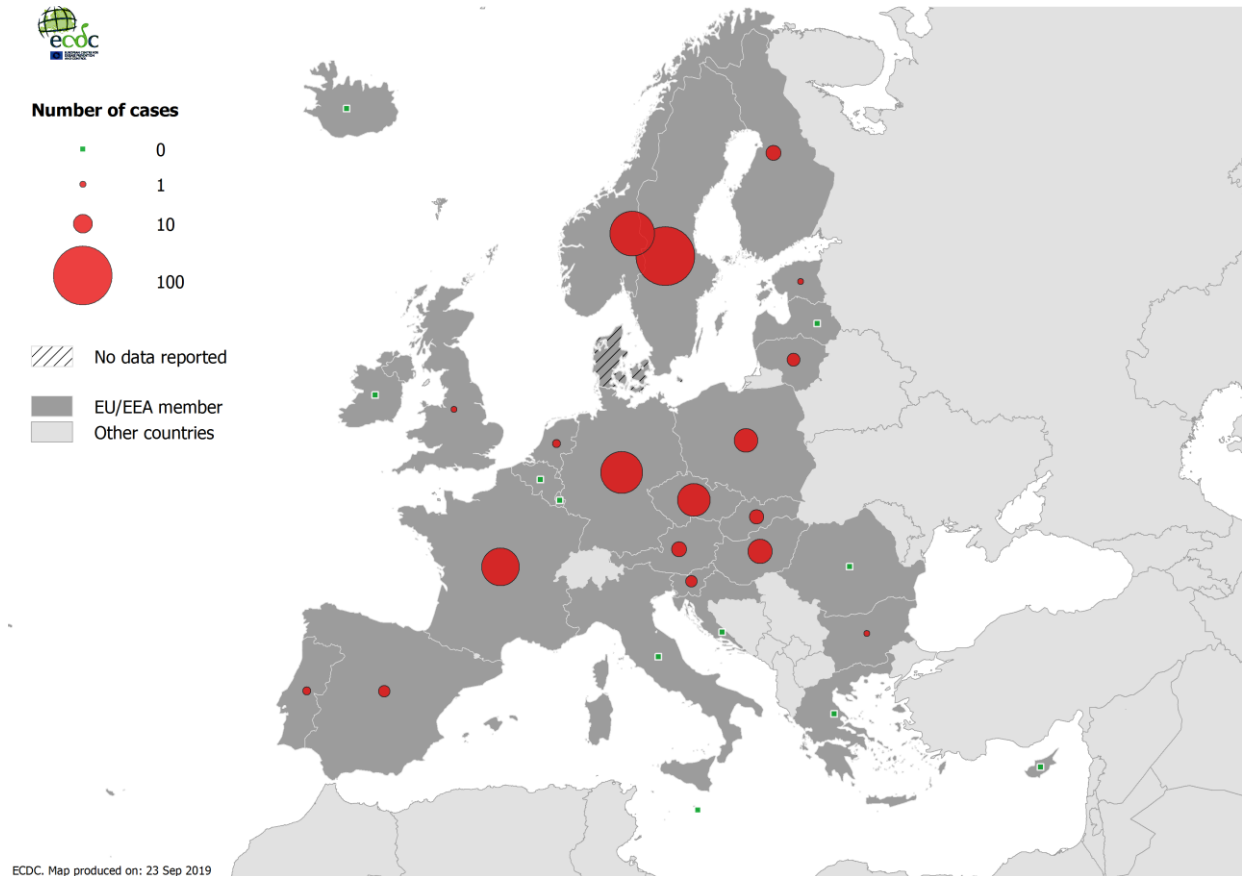
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Table 1. Distribution of confirmed tularaemia cases and rates per 100 000 population by country and year, EU/EEA, 2014–2018

Country	2014		2015		2016		2017		2018			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	0	0.0	4	0.0	9	0.1	13	0.1	7	0.1	0.1	7
Belgium	2	0.0	1	0.0	1	0.0	5	0.0	0	0.0	0.0	0
Bulgaria	1	0.0	17	0.2	2	0.0	1	0.0	1	0.0	0.0	1
Croatia	2	0.0	13	0.3	2	0.0	3	0.1	0	0.0	0.0	0
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Czech Republic	48	0.5	56	0.5	59	0.6	51	0.5	32	0.3	0.3	34
Denmark	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	1	0.1	0	0.0	1	0.1	0	0.0	1	0.1	0.1	1
Finland	9	0.2	104	1.9	699	12.7	32	0.6	7	0.1	0.1	7
France	19	0.0	28	0.0	47	0.1	19	0.0	41	0.1	0.1	114
Germany	21	0.0	34	0.0	41	0.0	52	0.1	52	0.1	0.1	54
Greece	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Hungary	140	1.4	35	0.4	22	0.2	11	0.1	17	0.2	0.2	17
Iceland	0	0.0	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	0.0	0
Italy	0	0.0	.	.	0	0.0	2	0.0	0	0.0	0.0	0
Latvia	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0.0	0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	4	0.1	4	0.1	2	0.1	5	0.2	5	0.2	0.2	5
Luxembourg	0	0.0	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	0.0	0
Netherlands	5	0.0	1	0.0	5	0.0	1	0.0	2	0.0	0.0	2
Norway	46	0.9	42	0.8	40	0.8	92	1.7	58	1.1	1.1	58
Poland	11	0.0	9	0.0	18	0.0	30	0.1	16	0.0	0.0	16
Portugal	-	-	0	0.0	0	0.0	0	0.0	2	0.0	0.0	2
Romania	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Slovakia	6	0.1	28	0.5	7	0.1	2	0.0	6	0.1	0.1	6
Slovenia	1	0.0	0	0.0	3	0.1	1	0.0	4	0.2	0.2	4
Spain	62	0.1	22	0.0	3	0.0	11	0.0	4	0.0	0.0	5
Sweden	150	1.6	722	7.4	134	1.4	84	0.8	102	1.0	1.0	107
United Kingdom	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0	0.0	1
EU/EEA	528	0.1	1122	0.3	1096	0.2	415	0.1	358	0.1	0.1	441

ASR: age-standardised rate
 .: no data reported.

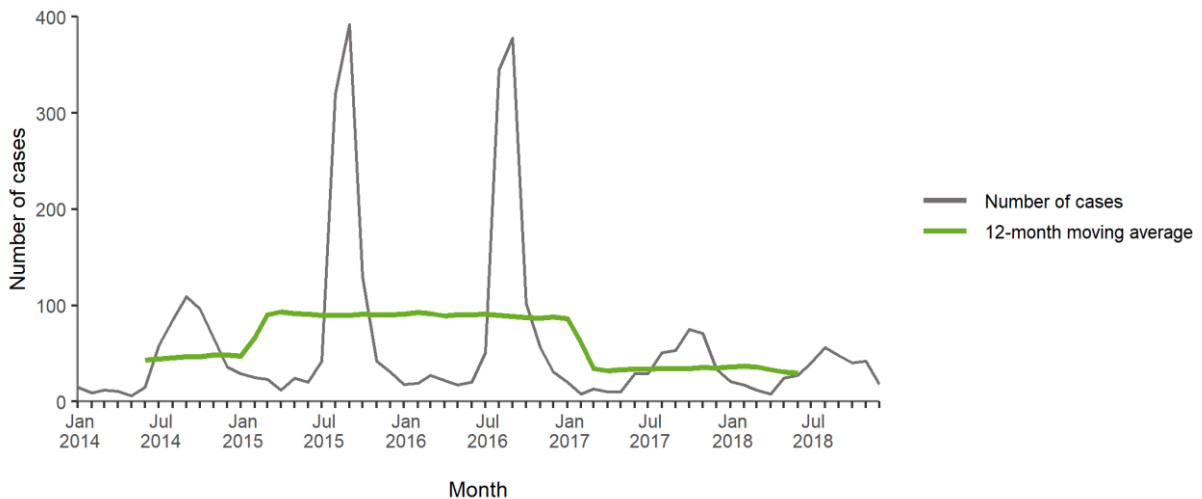
Figure 1. Distribution of confirmed tularaemia cases by country, EU/EEA, 2018



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.

In 2018, a decrease of the 12-month moving average was observed compared to previous years. Overall, the number of cases reported in 2018 was lower than in any of the years between 2014 and 2017. Higher numbers of cases reported previously were driven by notifications from Sweden (2015) and Finland (2016).

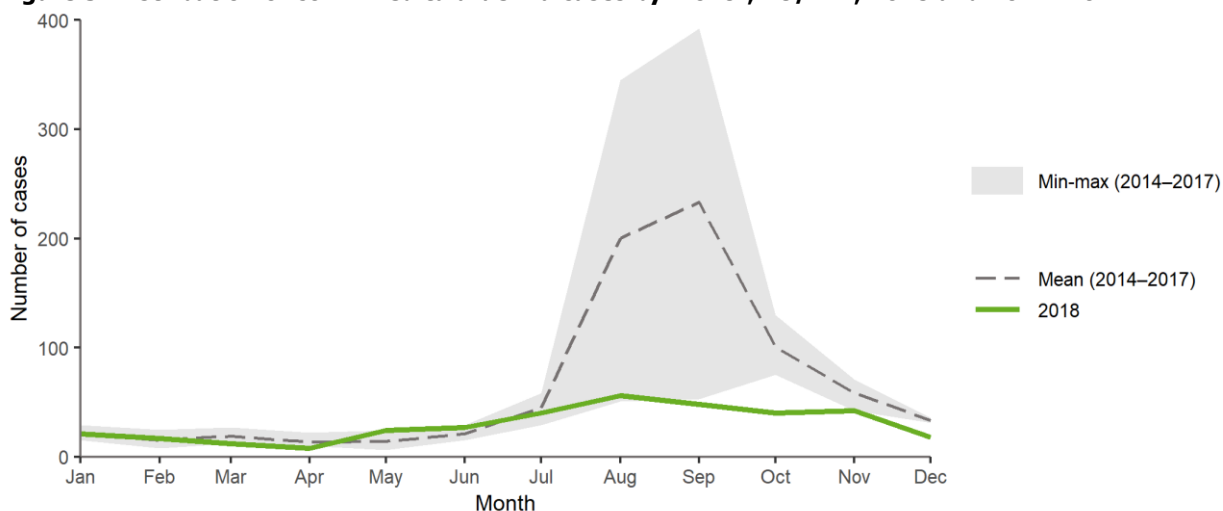
Figure 2. Distribution of confirmed tularaemia cases by month, EU/EEA, 2014–2018



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

Tularaemia shows a seasonal pattern, with most cases occurring from July to November. The 2018 peak of infections was in August, which is slightly earlier compared with the mean of the 2014–2017 period (Figure 3).

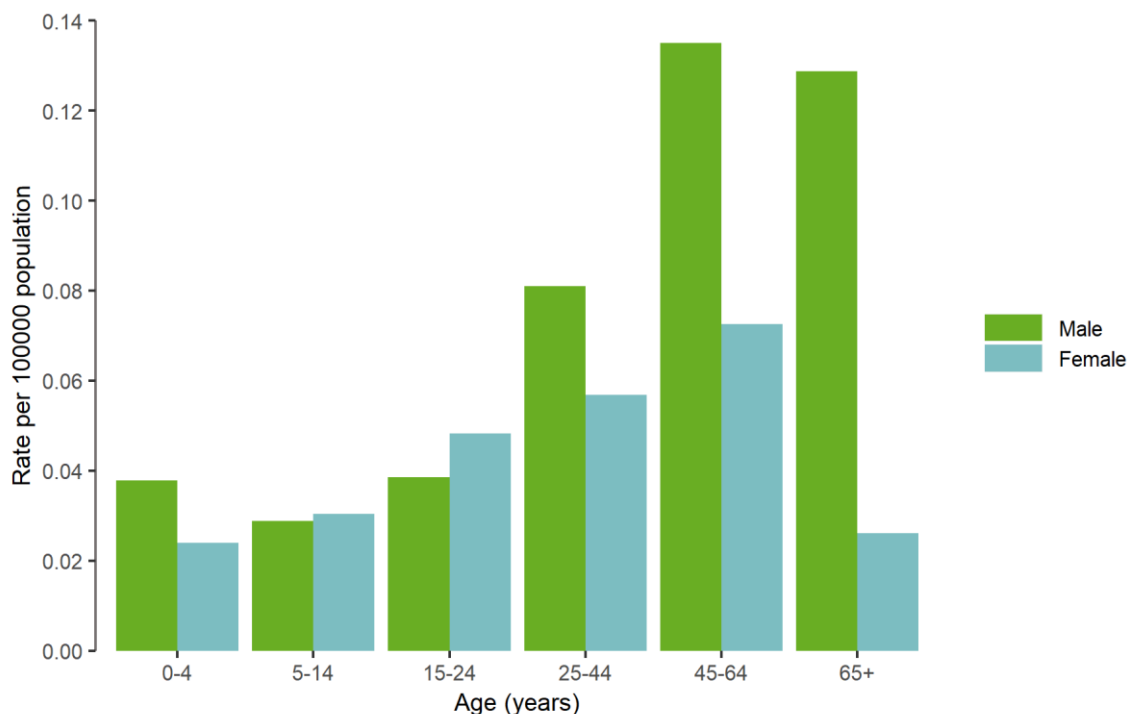
Figure 3. Distribution of confirmed tularaemia cases by month, EU/EEA, 2018 and 2014–2017



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

As in previous years, the proportion of male cases was higher in most age groups, except for those between 5 and 24 years of age (Figure 4). The male-to-female ratio in 2018 was 1.7:1. Except for boys below 5 years, notification rates in men and women increased with age, and peaked at 45–64 years (0.14 and 0.07 cases per 100 000 population, respectively).

Figure 4. Distribution of confirmed tularaemia cases per 100 000 population, by age and gender, EU/EEA, 2018



Discussion

Tularaemia is widely distributed throughout most of Europe. In the endemic regions of Scandinavian countries, tularaemia is typically transmitted by mosquito bites [4]. In certain countries, the ingestion of contaminated water is the main transmission route of the disease [5,6]. The disease shows a seasonal pattern in humans [7] that is consistent with a higher likelihood of exposure during the summer and autumn months due to recreational outdoor activities (notably hunting), exposure to contaminated water, and mosquito bites.

Notification rates of tularaemia vary among Member States and over time. Between 2014 and 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 were preceded by a peak in vole populations one year earlier [8]. Such an increase in voles was observed in 2015 and, coupled with climatic conditions in 2016 that contributed to an abundant mosquito population, could have favoured transmission to humans. In 2017, Norway and Sweden reported a higher numbers of cases, while the number of cases reported from Finland decreased compared with 2016. In 2018, a major outbreak occurred in western France, with the highest incidence reported in France since 2002. Continued surveillance is necessary to investigate whether this trend is a lasting trend or an isolated event [9]. Complex epidemiological features of *F. tularensis* infections in Europe were covered in recent review articles [7,10].

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 [11].

Public health implications

Tularaemia, caused by the *Francisella tularensis* bacteria, is a rare zoonotic disease not transmissible from human to human [6]. 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. The handling of biological samples potentially contaminated with *F. tularensis* should be carried out in biosafety level 3 laboratories [6]. Due to the various 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) [6] and consider tularaemia as a possible diagnosis in any case of culture-negative endocarditis.

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