

Leptospirosis

Annual Epidemiological Report for 2019

Key facts

- For 2019, 24 EU/EEA countries reported 1 049 confirmed cases of leptospirosis, the highest number in the period from 2015–2019, possibly because of environmental conditions favourable to hosts, and/or increase of activities at risk for infection.
- The notification rate was 0.21 confirmed cases per 100 000 population in the EU/EEA.
- There was no obvious long-term trend, as a similar notification rate was observed in 2014.
- Human leptospirosis was more common in adults, and notification rates were higher for males than females in all age groups.
- Avoiding contact with water contaminated with animal urine, vaccination of animal carriers and rodent control may prevent a significant proportion of leptospirosis cases.

Introduction

Leptospirosis is a widespread zoonotic disease caused by spirochetes bacteria of the genus *Leptospira*, which live in the kidneys of their natural hosts, such as rodents. Humans are infected by contact with the carrier's urine or urine-contaminated environment [1]. Clinical presentation ranges from mild flu-like illness to severe disease with possible fatal outcome.

Methods

This report is based on data for 2019 retrieved from The European Surveillance System (TESSy) on 19 January 2022. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of the methods used to produce this report, please refer to the 'Methods' chapter in the 'Introduction to the Annual Epidemiological Report' [2].

An overview of the national surveillance systems is available online [3].

A subset of the data used for this report is available through ECDC's online *Surveillance Atlas of Infectious Diseases* [4].

For 2019, 29 EU/EEA countries (apart from Norway and Liechtenstein) reported data. Five countries (Cyprus, Finland, Iceland, Lithuania and Luxembourg) reported zero cases. All countries reported case-based data, except for Belgium and Bulgaria. All reporting countries had comprehensive surveillance systems.

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Epidemiology

For 2019, 24 EU/EEA countries reported 1 545 leptospirosis cases of which 1 049 (68%) were classified as confirmed. The remaining 496 (32%) cases were reported as probable (Table 1). Most countries reported a large majority of confirmed cases except France, which accounted for 95% of all probable cases (470/496).

The notification rate was 0.21 confirmed cases per 100 000 population, the highest since 2015. There was no discernible geographical pattern in the distribution of cases (Figure 1). Five countries (Croatia, Malta, the Netherlands, Portugal and Slovenia) had a notification rate above 0.50 confirmed cases per 100 000 population, with Slovenia peaking at 2.8 cases per 100 000 population. Age-standardised notification rates did not differ substantially from crude rates.

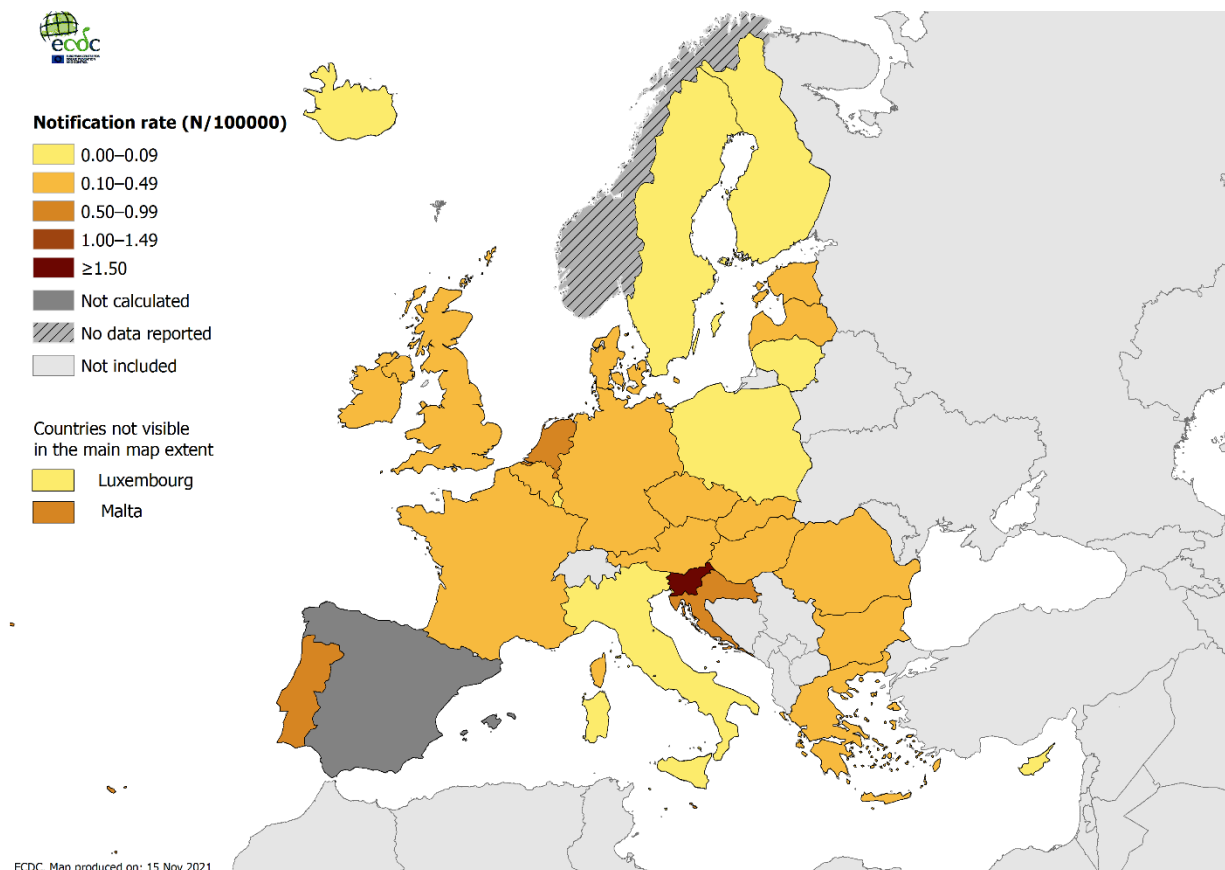
Table 1. Distribution of confirmed leptospirosis cases and rates per 100 000 population by country and year, EU/EEA, 2015–2019

Country	2015		2016		2017		2018		2019		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR
Austria	12	0.14	14	0.16	68	0.78	24	0.27	24	0.27	0.27
Belgium	16	0.14	19	0.17	17	0.15	20	0.18	18	0.16	-
Bulgaria	14	0.19	9	0.13	5	0.07	15	0.21	7	0.10	0.09
Croatia	36	0.85	11	0.26	24	0.58	7	0.17	22	0.54	0.49
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00
Czechia	17	0.16	18	0.17	21	0.20	10	0.09	24	0.23	0.22
Denmark	8	0.14	15	0.26	22	0.38	19	0.33	13	0.22	0.24
Estonia	2	0.15	3	0.23	5	0.38	6	0.45	5	0.38	0.35
Finland	2	0.04	1	0.02	0	0.00	0	0.00	0	0.00	0.00
France	58	0.09	79	0.12	134	0.20	129	0.19	201	0.30	0.31
Germany	87	0.11	91	0.11	129	0.16	117	0.14	160	0.19	0.21
Greece	35	0.32	19	0.18	24	0.22	18	0.17	27	0.25	0.23
Hungary	10	0.10	15	0.15	14	0.14	19	0.19	14	0.14	0.14
Iceland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00
Ireland	16	0.34	26	0.55	19	0.40	19	0.39	17	0.35	0.35
Italy	38	0.06	54	0.09	32	0.05	41	0.07	34	0.06	0.05
Latvia	2	0.10	5	0.25	8	0.41	4	0.21	4	0.21	0.20
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.
Lithuania	10	0.34	18	0.62	16	0.56	3	0.11	0	0.00	0.00
Luxembourg	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00
Malta	2	0.45	1	0.22	2	0.43	2	0.42	4	0.81	0.77
Netherlands	86	0.51	95	0.56	77	0.45	45	0.26	111	0.64	0.66
Norway	.	.	.	.	.	.	.	.	.	.	.
Poland	4	0.01	4	0.01	2	0.01	7	0.02	4	0.01	0.01
Portugal	44	0.42	101	0.98	117	1.13	69	0.67	82	0.80	0.77
Romania	37	0.19	65	0.33	44	0.22	51	0.26	66	0.34	0.33
Slovakia	7	0.13	10	0.18	7	0.13	3	0.06	5	0.09	0.09
Slovenia	11	0.53	17	0.82	24	1.16	18	0.87	59	2.84	2.69
Spain	3	-	16	-	19	-	65	-	49	-	-
Sweden	3	0.03	1	0.01	4	0.04	3	0.03	7	0.07	0.08
United Kingdom	67	0.10	76	0.12	98	0.15	88	0.13	92	0.14	0.14
EU-EEA	627	0.13	783	0.17	932	0.20	802	0.16	1049	0.21	0.21

Source: Country reports
ASR: age-standardised rate

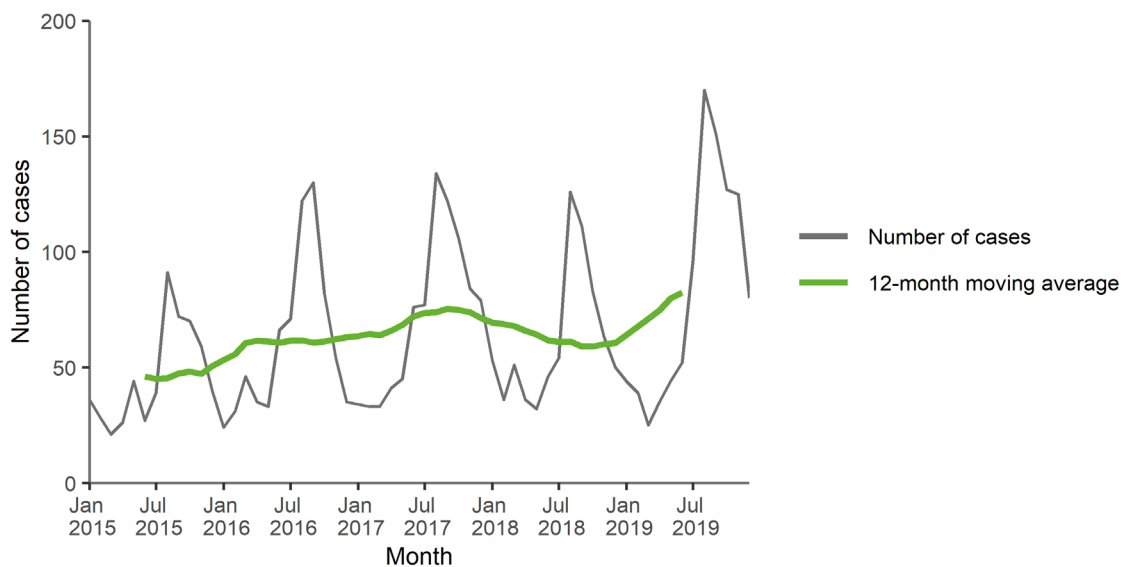
:: no data reported
 -: no rate calculated

Figure 1. Distribution of confirmed leptospirosis cases per 100 000 population by country, EU/EEA, 2019



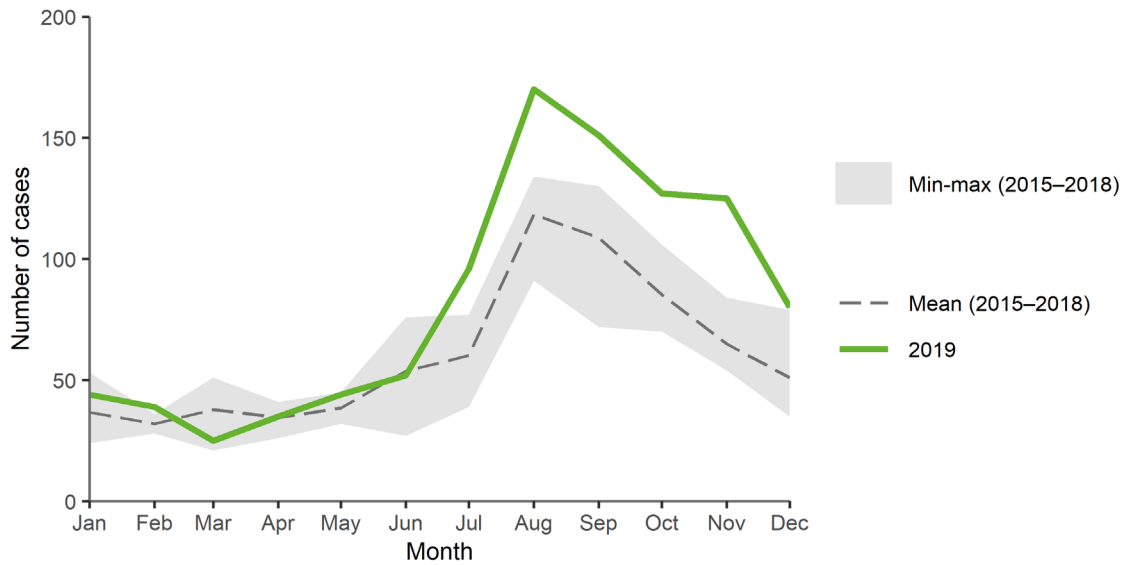
For 2019, the distribution of cases by the month of reporting shows that the majority of cases occurred around the European summer time, similar to previous years with 61% of the cases reported between June and October (Figure 3). The highest peak was in August.

Figure 2. Distribution of confirmed leptospirosis cases by month, EU/EEA, 2015–2019



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

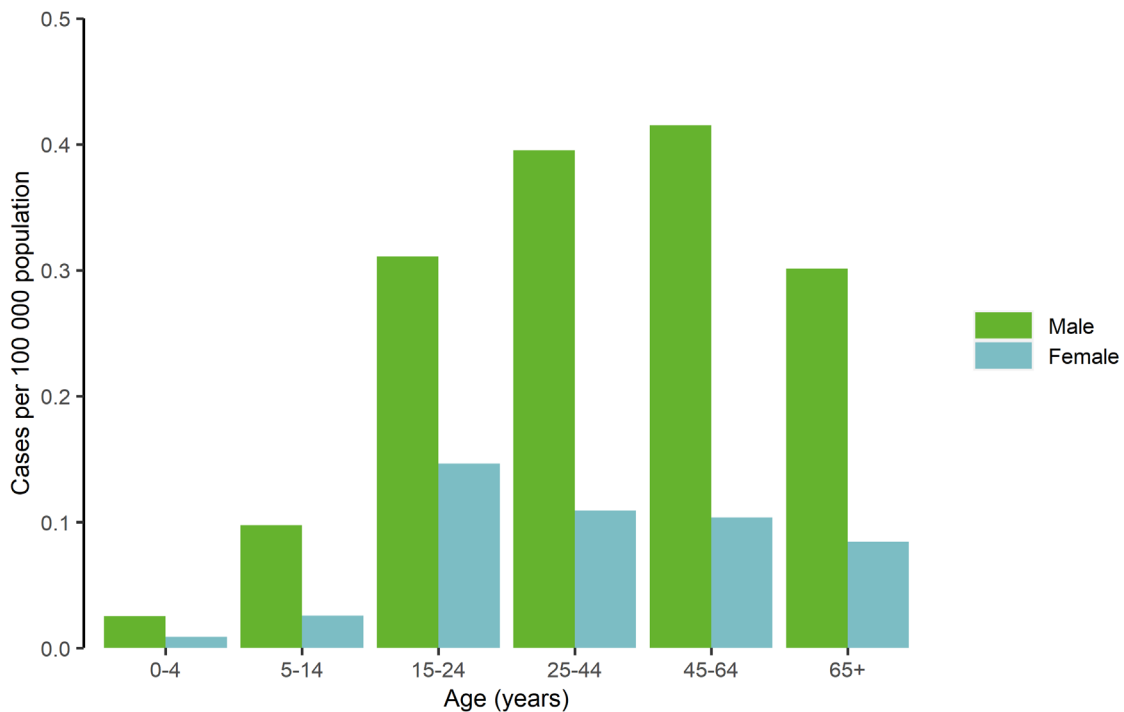
Figure 3. Distribution of confirmed leptospirosis cases by month, EU/EEA, 2019 and 2015–2018



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

For 2019, people aged 25–64 years accounted for 693 (67%) of 1 031 confirmed cases with known age. In males, the notification rate increased with age, peaking at 0.42 cases per 100 000 population in males aged 45–64 years, and then decreased in people aged 65 years and above (Figure 4). In females, the notification rate peaked at 0.15 cases per 100 000 population in females aged 15–24 years. The overall male-to-female rate ratio was 3.2:1.

Figure 4. Distribution of confirmed leptospirosis cases per 100 000 population, by age and gender, EU/EEA, 2019



Outbreaks and other threats

In 2019, no threats related to leptospirosis were reported.

Discussion

Leptospirosis remains a relatively uncommon disease with low case rates in EU/EEA countries. Most cases occur during the summer period – the seasonality probably driven by a combination of environmental factors (e.g. rainfall and high temperatures) and human behaviours (e.g. outdoor activities) [5]. The 2019 notification rate was the highest observed in the 2015–2019 period but comparable to the rate observed in 2014 [6]. The high case numbers of leptospirosis reported for 2019 remain to be fully explained but are possibly associated with environmental conditions favourable to hosts and increase of activities at risk for infection.

For 2019 and as in previous years, most confirmed cases were males between 25 and 64 years of age. This population is more likely to be engaged in activities or occupations associated with an increased leptospirosis risk, such as work with exposure to rodents or livestock (e.g. sewer or field worker), or recreational activities in water [5].

Public health implications

Prevention of leptospirosis needs to take into account its complex and dynamic epidemiology, including environmental aspects (e.g. climate), presence of carriers (e.g. rodents), and human behaviours [1].

Prevention of leptospirosis in humans starts by reducing the risk of exposure by avoiding contact with water contaminated with animal urine either by not wading or swimming in contaminated water, or wearing protective clothes for those running an occupational risk of exposure to contaminated water.

Treatment and/or vaccination of animal carriers (e.g. dogs) and control of rodents can also help reduce the risk of leptospirosis in humans [1].

Early diagnosis and adequate treatment of cases have been shown to decrease both morbidity and mortality of leptospirosis [1].

References

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