

Q fever

Annual Epidemiological Report for 2018

Key facts

- For 2018, 922 cases of Q fever were reported in the EU/EEA, 794 (86%) of which were confirmed.
- The EU/EEA notification rate for 2018 was 0.2 cases per 100 000 population.
- In 2018, a seasonal pattern was observed involving an increase in case numbers during the spring and summer months, similar to previous years.
- The rate of reported Q fever cases increased with age up to 64 years and was higher among men than women in the age groups above 14 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 Q fever data (Austria and Liechtenstein did not report). All data were case-based except for data from Belgium and Bulgaria. Twenty-three countries used the EU case definition, four countries used an alternative case definition (Denmark, France, Germany and Italy) and two countries did not specify the case definition they used (Belgium and Finland). Reporting was compulsory in 27 countries and voluntary in France and the UK. Surveillance was comprehensive in all reporting countries and was mostly passive.

Epidemiology

For 2018, 29 countries reported 922 cases, 794 (86%) of which were classified as confirmed (Table 1). As in previous years, the highest numbers of confirmed cases were reported by Spain, France and Germany (Table 1, Figure 1). Nine countries reported zero confirmed cases, compared with ten in 2017 and nine in 2016.

The number of notifications per 100 000 inhabitants in the EU/EEA was 0.2 for 2018, the same as the previous four years. The highest notification rate (0.7 cases per 100 000 population) was observed in Spain (Table 1).

Suggested citation: European Centre for Disease Prevention and Control. Q fever. In: ECDC. Annual epidemiological report for 2018. Stockholm: ECDC; 2019.

Stockholm, December 2019

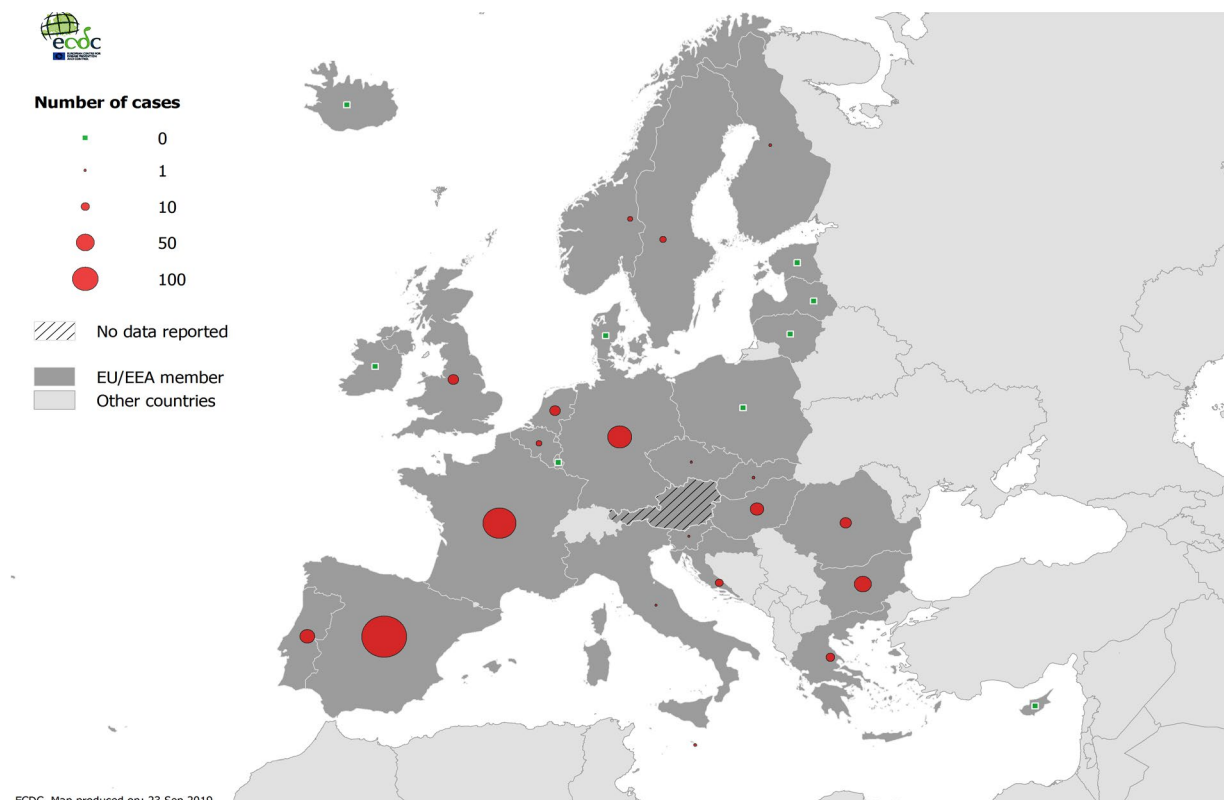
© European Centre for Disease Prevention and Control, 2019. Reproduction is authorised, provided the source is acknowledged.

Table 1. Distribution of confirmed Q fever 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	Reported cases	Rate	ASR	Confirmed cases
Austria	.	.	.	.	.	.	.	.	.	.	.	.
Belgium	3	0.0	8	0.1	16	0.1	7	0.1	18	0.1	0.1	6
Bulgaria	15	0.2	15	0.2	17	0.2	28	0.4	47	0.6	0.6	45
Croatia	21	0.5	14	0.3	8	0.2	23	0.6	16	0.3	0.3	11
Cyprus	1	0.1	4	0.5	2	0.2	3	0.4	1	0.0	0.0	0
Czech Republic	0	0.0	1	0.0	2	0.0	0	0.0	1	0.0	0.0	1
Denmark	.	-	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Finland	0	0.0	3	0.1	2	0.0	4	0.1	2	0.0	0.0	2
France	209	0.3	250	0.4	251	0.4	194	0.3	172	0.3	0.3	172
Germany	238	0.3	310	0.4	270	0.3	107	0.1	93	0.1	0.1	90
Greece	15	0.1	10	0.1	9	0.1	4	0.0	13	0.1	0.1	13
Hungary	59	0.6	35	0.4	39	0.4	29	0.3	28	0.3	0.3	28
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Ireland	0	0.0	4	0.1	6	0.1	2	0.0	0	0.0	0.0	0
Italy	.	-	-	-	3	0.0	7	0.0	1	0.0	0.0	1
Latvia	3	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0.0	0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Luxembourg	0	0.0	1	0.2	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	2	0.4	0.4	2
Netherlands	26	0.2	20	0.1	14	0.1	22	0.1	18	0.1	0.1	18
Norway	1	0.0	1	0.0	2	0.0	4	0.1	5	0.1	0.1	5
Poland	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Portugal	25	0.2	20	0.2	17	0.2	48	0.5	36	0.3	0.3	36
Romania	21	0.1	3	0.0	32	0.2	46	0.2	22	0.1	0.1	22
Slovakia	1	0.0	0	0.0	0	0.0	0	0.0	2	0.0	0.0	2
Slovenia	3	0.1	1	0.0	1	0.0	3	0.1	1	0.0	0.0	1
Spain	77	-	97	-	330	0.7	379	0.8	418	0.7	0.7	313
Sweden	2	0.0	4	0.0	3	0.0	1	0.0	7	0.1	0.1	7
United Kingdom	60	0.1	21	0.0	34	0.1	21	0.0	19	0.0	0.0	19
EU/EEA	781	0.2	823	0.2	1058	0.2	932	0.2	922	0.2	0.2	794

.: no data reported

-: no rate calculated.

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

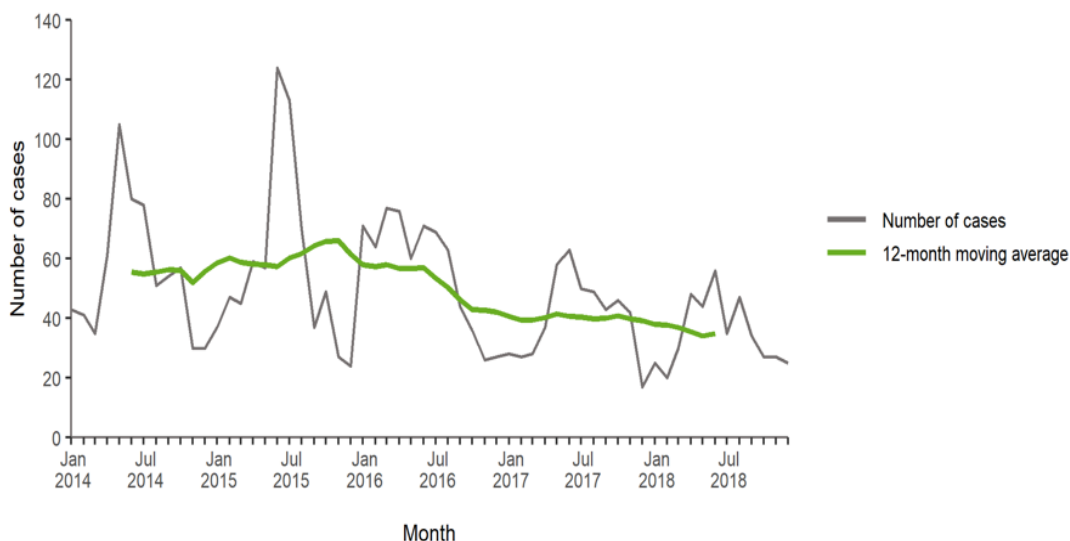
Source: Country reports from Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the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

The majority of Q fever cases in the EU/EEA were locally acquired. Of the 38 travel-associated cases reported, 20 were acquired in other EU/EEA countries.

Nine deaths due to Q fever were reported in Spain (5), Germany (2), Hungary (1) and Portugal (1), resulting in an EU/EEA case fatality of 1.9% among the 467 confirmed cases with reported outcome.

The number of reported cases increased during the period 2014–2016, but has been decreasing since 2017 (Table 1). The trend in the number of cases for countries reporting consistently over the past five years increased from 2014 to 2015 and then decreased from 2016 to 2018 (Figure 2).

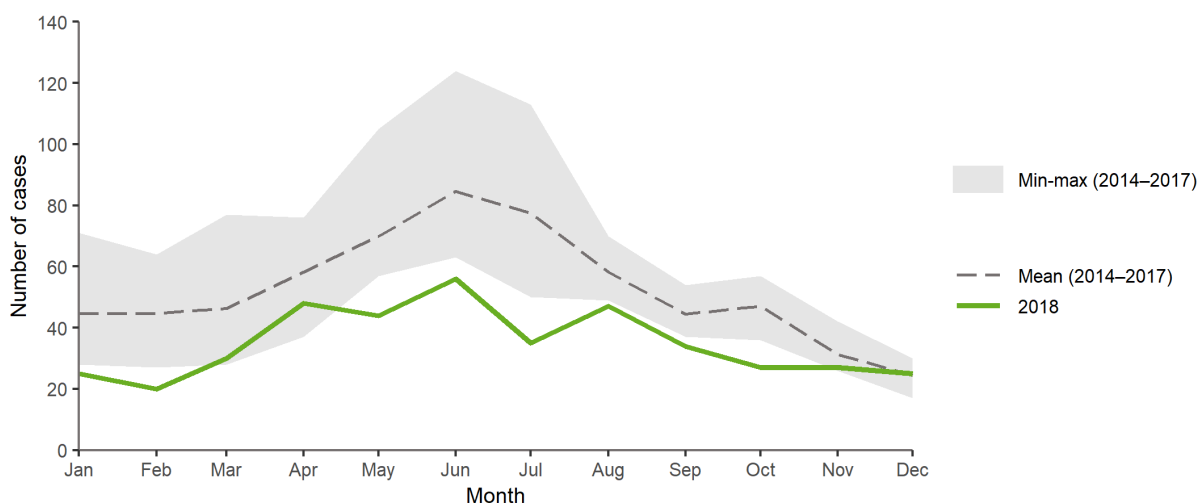
Figure 2. Distribution of confirmed Q fever cases by month, EU/EEA, 2014–2018



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

Cases occurred year-round (Figure 3). The distribution of confirmed cases by month for 2018 followed a similar seasonality to that in previous years, although a drop was observed in July and the number of cases by month was generally lower than during the 2014–2017 period. Higher case numbers were reported from April to August, with a peak in June. Spain reported its highest number of cases during the period March–May, while France reported its highest number of cases between April and June and Germany reported its highest case numbers in June.

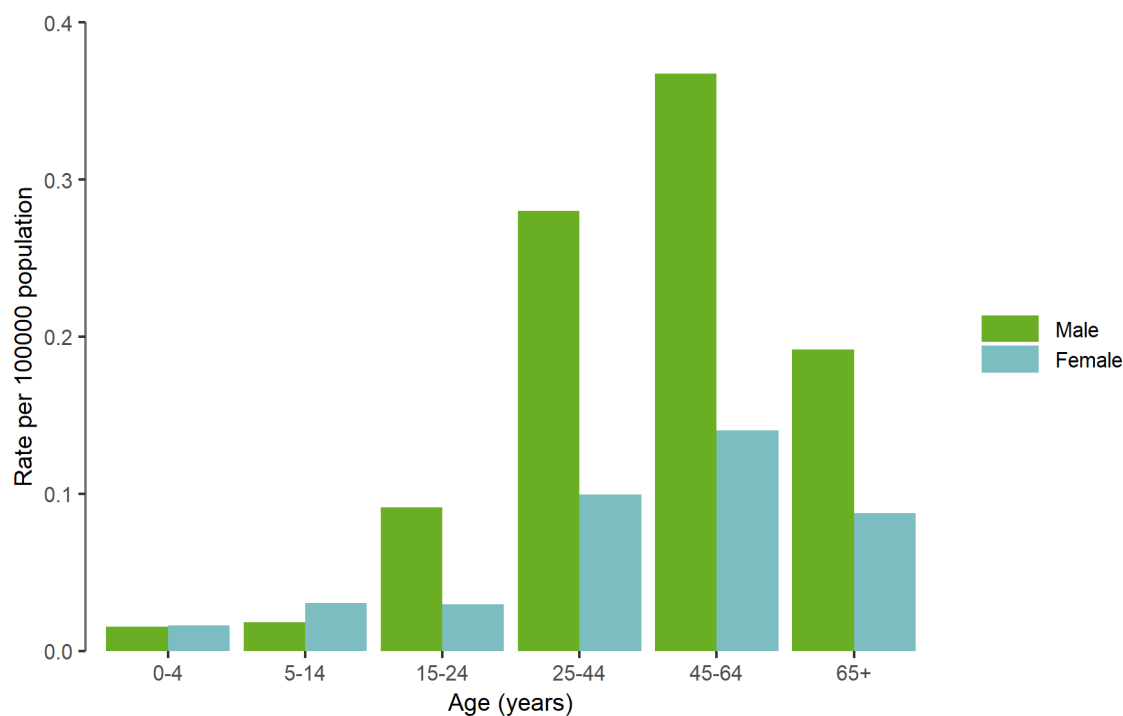
Figure 3. Distribution of confirmed Q fever cases by month, EU/EEA, 2018 and 2014–2017



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

In 2018, teenagers above 14 years and adults accounted for 789 (99%) of 793 cases with known age. The rate of confirmed human Q fever cases was higher among men than women in all age groups, except for those under 15 years (Figure 4). The male-to-female ratio was 2.4:1. Notification rates in men and women increased with age up to 64 years. The highest notification rate among men and women was in the age group 45–64 years (0.4 and 0.1 cases per 100 000 population, respectively), followed by the age group 25–44 years (0.3 and 0.1 per 100 000, respectively).

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



Discussion

Following an increasing trend in confirmed Q fever cases in the EU/EEA during the period 2012–2016, case numbers began to decrease from 2017. While France and Germany reported the majority of the confirmed cases until 2015, Spain has reported the highest number of cases annually since 2016. The increase in the number of human cases reported by Spain is most probably explained by a change in their reporting system from voluntary to mandatory. In 2018, Spain accounted for more than a third of the overall number of cases. The overall case fatality has been increasing since 2016, with the highest number of fatal cases reported in 2018.

Data on Q fever surveillance in animals in the EU/EEA are available in the EFSA/ECDC report on trends and sources of zoonoses, zoonotic agents and foodborne outbreaks [4].

Public health implications

Good hygiene practices at premises handling animals, particularly sheep and goats, help to prevent transmission of Q fever. Air-borne transmission plays a significant role in certain outbreak situations [5]. Since the disease can also be transmitted to humans through contaminated milk, the pasteurisation of milk and milk products prevents infection. Severe disease has been reported in foetuses and new-born babies; pregnant women and infants should therefore avoid contact with farm animals. Furthermore, transmission has occurred in connection with a therapy known as 'fresh cell therapy' [6]. Countries may consider regulating such practices and establishing national systems to monitor xenotransplantation. On rare occasions, transmission can also occur through the bites of infected ticks [7]. Exposure to infected ticks should be avoided or minimised by using tick repellents, wearing protective clothing and removing ticks quickly and correctly.

References

1. European Centre for Disease Prevention and Control. Introduction to the Annual Epidemiological Report Stockholm: ECDC; 2019. Available from: <https://ecdc.europa.eu/en/annual-epidemiological-reports/methods>
2. European Centre for Disease Prevention and Control. Surveillance systems overview [internet, downloadable spreadsheet]. Stockholm: ECDC; 2019. Available from: <https://www.ecdc.europa.eu/en/publications-data/surveillance-systems-overview-2018>
3. European Centre for Disease Prevention and Control. Surveillance atlas of infectious diseases [Internet]. Stockholm: ECDC; 2019 [18 Oct 2019]. Available from: <http://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=42>
4. EFSA and ECDC (European Food Safety Authority and European Centre for Disease Prevention and Control), 2018. The European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2017. *EFSA Journal* 2018;16(12):5500, 262. Available from <https://doi.org/10.2903/j.efsa.2018.5500>
5. Schneeberger PM, Wintenberger C, van der Hoek W, Stahl JP. Q fever in the Netherlands - 2007-2010: what we learned from the largest outbreak ever. *Med Mal Infect.* 2014 Aug;44(8):339-53.
6. George M, Reich A, Cussler K, Jehl H, Burckhardt F. Live Cell Therapy as Potential Risk Factor for Q Fever. *Emerging Infectious Diseases.* 2017 Jul;23(7):1210-2
7. Duron O, Sidi-Boumedine K, Rousset E, Moutailler S, Jourdain E. The Importance of Ticks in Q Fever Transmission: What Has (and Has Not) Been Demonstrated? *Trends Parasitol.* 2015 Nov;31(11):536-52.