

SURVEILLANCE REPORT

Q fever

Annual Epidemiological Report for 2019

Key facts

- For 2019, 1 069 cases of Q fever were reported in the European Union/European Economic Area (EU/EEA), 958 (90%) of which were confirmed.
- The EU/EEA notification rate for 2019 was 0.2 cases per 100 000 population.
- Similar to previous years, a seasonal pattern of cases rising during the spring and summer months was observed in 2019.
- The rate of reported Q fever cases increased in those up to 64 years and was higher among men than women in age groups above 14 years.

Introduction

Q fever is a zoonosis caused by the bacterium *Coxiella burnetii*. Natural reservoirs include several domestic and wild animals, most of which show no signs of disease (although infection can cause abortions). Due to the high resilience in the environment of *Coxiella*, humans are most often infected by inhalation of aerosols produced in contaminated locations, but other modes of infection have been documented (including food-borne and tick-borne). After an incubation period of, usually, two to three weeks, disease symptoms may appear but more frequently the infections remain asymptomatic. A serious clinical picture can suddenly emerge characterised by high fever, eye infection, respiratory tract infection, and severe headache. Occasionally, the infection takes a chronic course, leading to infection of the heart valves, hepatitis and other organ involvement.

Methods

This report is based on data for 2019 retrieved from The European Surveillance System (TESSy) on 9 October 2020. 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].

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For 2019, 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-five countries used the EU case definition and four countries used an alternative case definition (Denmark, France, Germany and Italy). Reporting was compulsory in 27 countries and voluntary in France and the UK. Surveillance was comprehensive in all reporting countries and mostly passive.

Epidemiology

For 2019, 23 countries reported 1 069 cases, 958 (90%) 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). Six countries reported zero confirmed cases, compared with nine in 2018, ten in 2017 and nine in 2016.

The number of notifications per 100 000 inhabitants in the EU/EEA was 0.2 for 2019, the same as the previous four years. The highest notification rate (0.7 cases per 100 000 population) was observed in Spain, followed by Romania (0.6), Bulgaria (0.5) and Hungary (0.5) (Table 1).

Table 1. Distribution of confirmed Q fever 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	.	.	.	.	.	.	.	.	.	.	.
Belgium	8	0.1	16	0.1	7	0.1	6	0.1	10	0.1	0.1
Bulgaria	15	0.2	17	0.2	28	0.4	45	0.6	36	0.5	0.5
Croatia	14	0.3	8	0.2	23	0.6	11	0.3	8	0.2	0.2
Cyprus	4	0.5	2	0.2	3	0.4	0	0.0	1	0.1	0.1
Czechia	1	0.0	2	0.0	0	0.0	1	0.0	1	0.0	0.0
Denmark	0	0.0	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
Finland	3	0.1	2	0.0	4	0.1	2	0.0	2	0.0	0.0
France	250	0.4	251	0.4	194	0.3	172	0.3	155	0.2	0.2
Germany	310	0.4	270	0.3	107	0.1	90	0.1	148	0.2	0.2
Greece	10	0.1	9	0.1	4	0.0	13	0.1	14	0.1	0.1
Hungary	35	0.4	39	0.4	29	0.3	28	0.3	47	0.5	0.5
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Ireland	4	0.1	6	0.1	2	0.0	0	0.0	2	0.0	0.0
Italy	.	.	3	0.0	7	0.0	1	0.0	6	0.0	0.0
Latvia	1	0.1	0	0.0	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
Luxembourg	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Malta	0	0.0	0	0.0	0	0.0	2	0.4	1	0.2	0.2
Netherlands	20	0.1	14	0.1	22	0.1	18	0.1	16	0.1	0.1
Norway	1	0.0	2	0.0	4	0.1	5	0.1	8	0.2	0.1
Poland	0	0.0	0	0.0	0	0.0	0	0.0	4	0.0	0.0
Portugal	20	0.2	17	0.2	48	0.5	36	0.3	32	0.3	0.3
Romania	3	0.0	32	0.2	46	0.2	22	0.1	109	0.6	0.6
Slovakia	0	0.0	0	0.0	0	0.0	2	0.0	1	0.0	0.0
Slovenia	1	0.0	1	0.0	3	0.1	1	0.0	6	0.3	0.3
Spain	97	.	249	0.5	333	0.7	313	0.7	332	0.7	0.7
Sweden	4	0.0	3	0.0	1	0.0	7	0.1	10	0.1	0.1
United Kingdom	21	0.0	34	0.1	21	0.0	19	0.0	9	0.0	0.0
EU-EEA	823	0.2	977	0.2	886	0.2	794	0.2	958	0.2	0.2

Source: Country reports.

ASR: age-standardised rate

..: no data reported

-.: no rate calculated.

Figure 2. Distribution of confirmed Q fever cases by country, EU/EEA, 2019

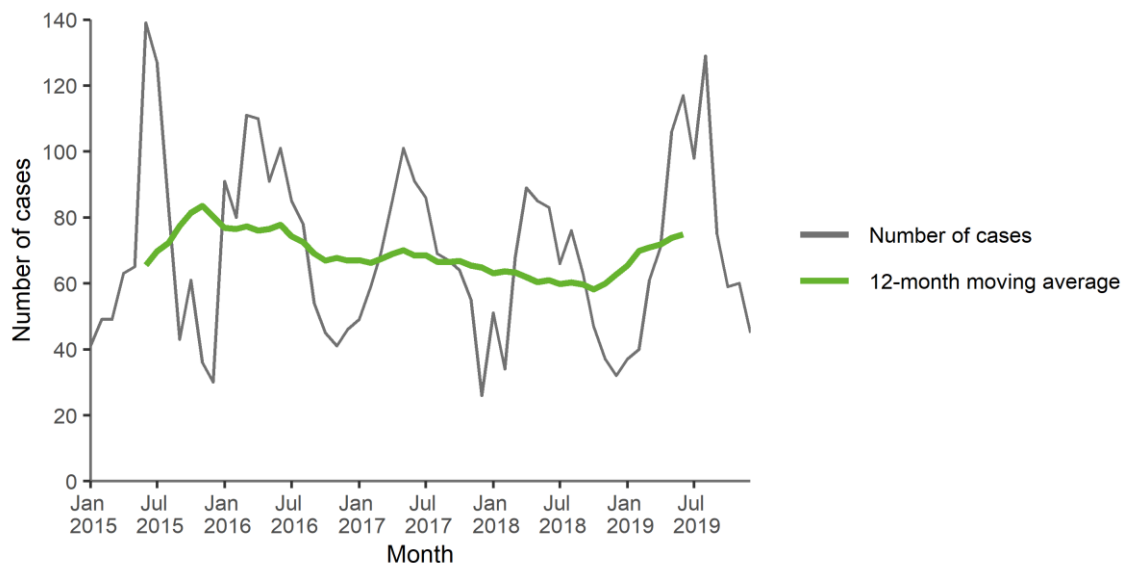
Source: Country reports from Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

The majority of confirmed Q fever cases in the EU/EEA were locally acquired. Of the 49 travel-associated cases reported, 11 were acquired in other EU/EEA countries.

Four deaths due to Q fever were reported in Spain, resulting in an EU/EEA case fatality of 0.6% among the 643 confirmed cases with reported outcome.

The trend for the number of cases in countries consistently reporting in the past five years has remained stable over the 2015-2019 period (Figure 2).

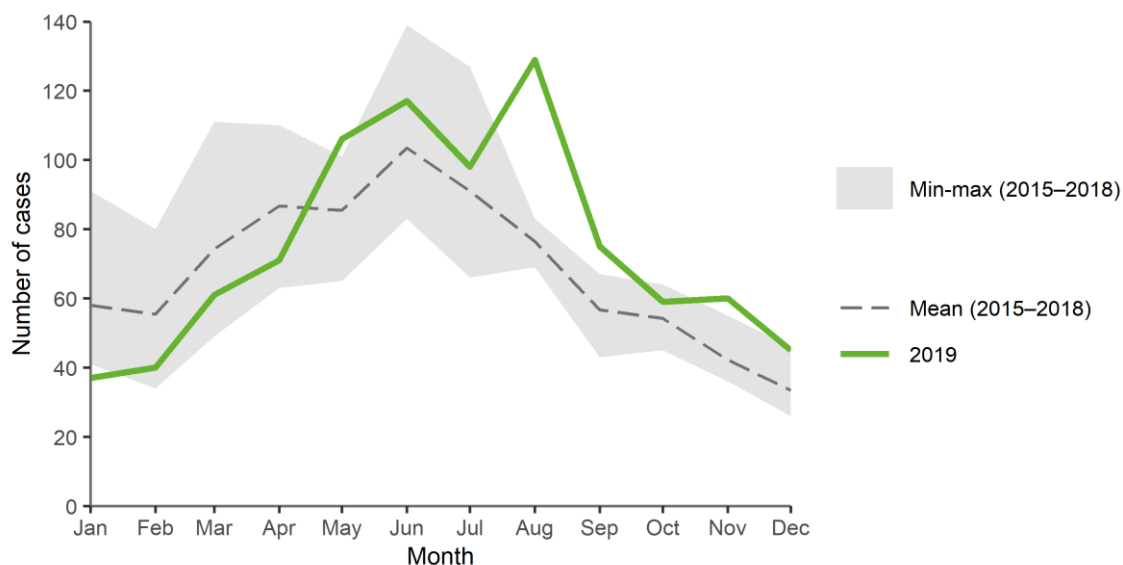
Figure 2. Distribution of confirmed Q fever cases by month, EU/EEA, 2015–2019



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

Cases occurred year-round (Figure 3). The distribution of confirmed cases by month for 2019 followed a similar seasonality as in previous years, although after the usual peak in June a drop was observed in July followed by a second peak in August. Most cases were reported from April to September. Spain reported cases spread over all months with a peak in June, while France reported its highest number of cases from April-July and Germany reported its highest case numbers in August.

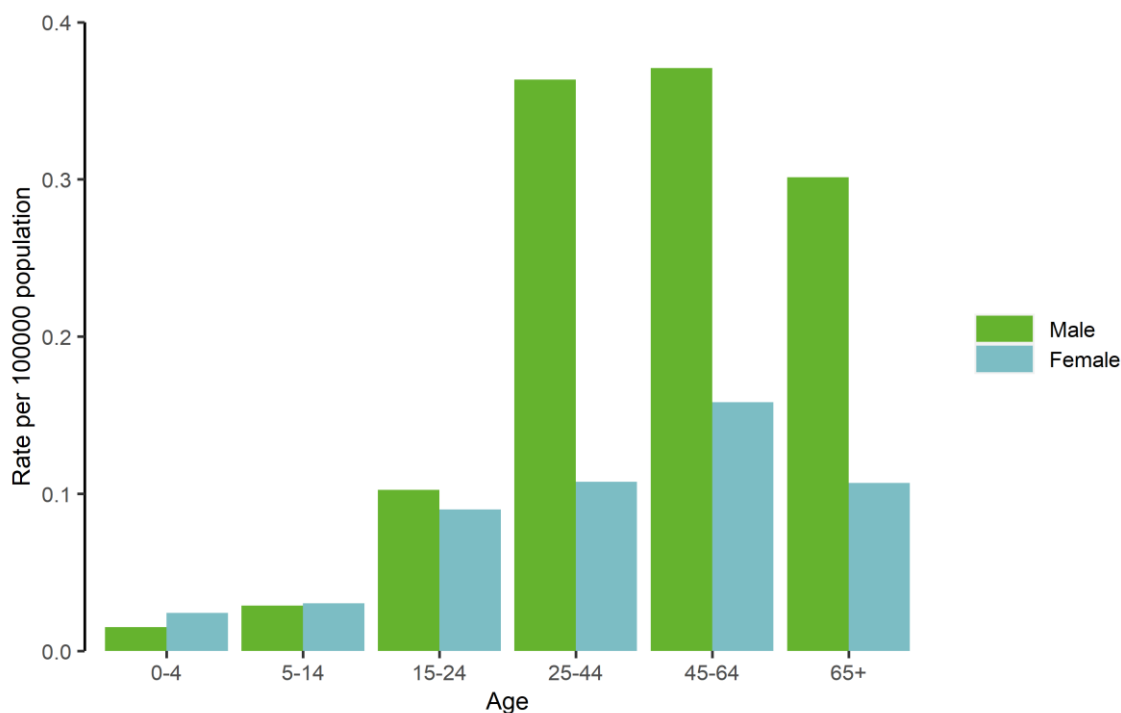
Figure 3. Distribution of confirmed Q fever cases by month, EU/EEA, 2019 and 2015–2018



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

In 2018, children below 14 years of age accounted for 21 (2%) of 955 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 below 15 years of age (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 0.2 cases per 100 000 population, respectively), followed by the age group 25–44 years (0.4 and 0.1 per 100 000, respectively).

Figure 4. Distribution of confirmed Q fever rate per 100 000 population, by age and gender, EU/EEA, 2019



Discussion

Numbers of confirmed Q fever cases in the EU/EEA remained stable from 2012–2016. While France and Germany reported the majority of confirmed cases until 2016, Spain has reported the highest number of cases annually since 2017. The increase in the number of human cases reported by Spain is most likely explained by a change in their reporting system from voluntary to mandatory. In 2019, Spain accounted for more than a third of the overall number of cases. The overall case fatality increased from 2016–2018 but decreased in 2019.

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

Public health implications

Good hygiene practices in premises dealing with 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 can prevent infection via this route. Severe disease has been reported in foetuses and newborn babies; pregnant women and infants should therefore avoid contact with farm animals. Furthermore, transmission has occurred through so-called 'fresh cell therapy' [6]. Countries may consider regulating such practices and establishing national systems to monitor xenotransplantation. In 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 timely and correct removal of ticks.

References

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