



## SURVEILLANCE REPORT

### Annual Epidemiological Report for 2015

# Q fever

#### Key facts

- 851 cases of Q fever were reported to TESSy in 2015, 824 of which (96.2%) were confirmed.
- The notification rate in 2015 was 0.2 cases per 100 000 population.
- The age-specific rate of reported cases of Q fever increases with age – except for females aged above 65 years – and is higher among males than females.
- In most EU/EEA Member States the number of cases is relatively stable or has been declining since 2011. In France and Germany, case numbers have been increasing for the past three years, showing a clear trend upwards.
- Cases are reported all year round; numbers show an increase between April and October and a peak in June/July.
- Small to medium-size outbreaks occur in areas where there are affected sheep and goat herds.

#### Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 12 December 2016. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases. EU Member States and EEA countries contribute to the system by uploading their infectious disease surveillance data at regular intervals.

For a detailed description of methods used to produce this report, please refer to the *Methods* chapter [1].

An overview of the national surveillance systems is available online [2].

Additional data on this disease are accessible from ECDC's online *Surveillance atlas of infectious diseases* [3].

In 2015, 27 EU /EEA countries provided information on Q fever in humans. Six countries (Estonia, Iceland, Lithuania, Malta, Poland and Slovakia) reported no human cases.

Twenty-two countries used the EU case definition, whereas Belgium, Denmark, France, Germany and Romania use another case definition. Finland, Greece and Latvia did not specify its case definition.

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Reporting is compulsory in 24 countries and voluntary in three (Belgium, France and Spain). Austria did not provide information about their surveillance system and did not report Q fever cases. A sentinel system is in place in Belgium and Spain (where it entirely laboratory based and covers an estimated 30% of the population). Disease surveillance is mostly passive except in Belgium, the Czech Republic and Slovakia [5]. Data reporting is case based (except in Belgium, Bulgaria and Croatia) and at the national level (except in Spain).

## Epidemiology

Twenty-seven EU/EEA countries reported a total of 851 cases to TESSy, 824 of which were confirmed (96.2%) (Table 1). Six countries reported zero cases in 2015 compared with eight countries in 2014 and 2013. Seven countries reported between one and three cases, the same number as in 2014.

Most of the confirmed cases were males (69%).

The number of cases reported in 2015 is higher than during the years 2011 to 2014. The number of cases dropped in 2012 to increase again in the following years. Between 2012 and 2015, the number of confirmed cases increased by 56%.

In 2015, the notification rate was 0.19 cases per 100 000 population, which is similar than in 2011 but higher than in 2012, 2013 and 2014. From 2011 to 2015, the notification rate was varying between 0.12 and 0.19 cases per 100 000 population.

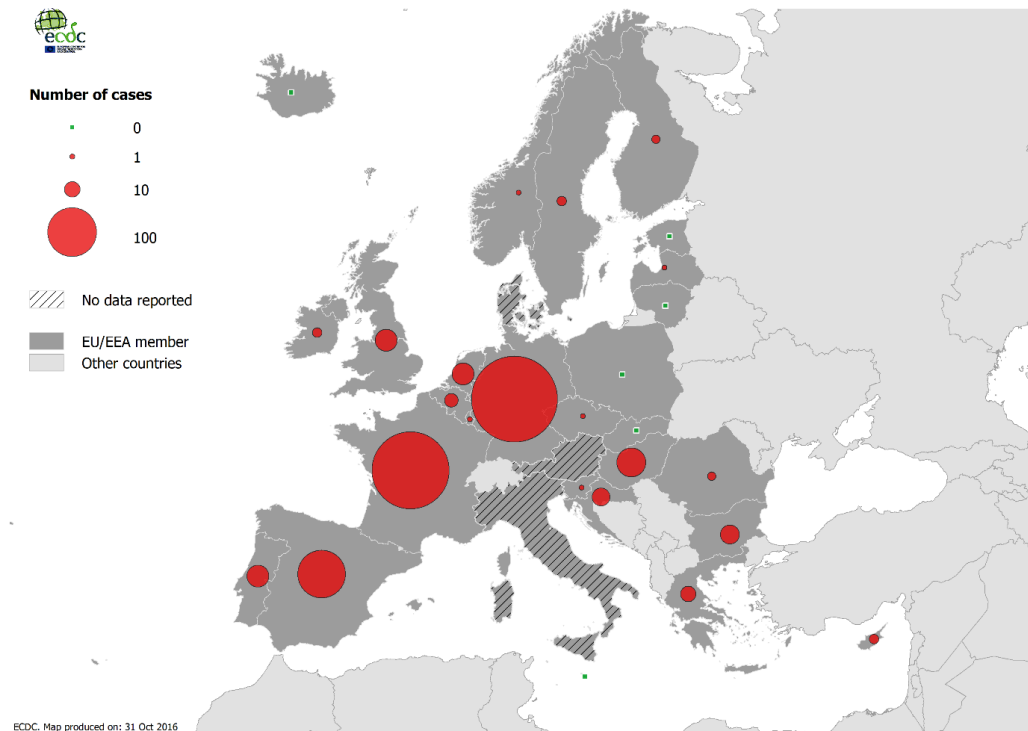
**Table 1. Number and rate per 100 000 of confirmed Q fever cases by country and year, EU/EEA, 2011–2015**

Country	2011		2012		2013		2014		National coverage	2015			
	Confirmed cases		Confirmed cases		Confirmed cases		Confirmed cases			Reported cases	Confirmed cases		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate			ASR		
Austria	.	.	.	.	.	.	.	.	.	.	.	.	.
Belgium	6	0.1	18	0.2	5	0.0	4	0.0	Y	20	8	0.1	0.1
Bulgaria	12	0.2	29	0.4	23	0.3	15	0.2	Y	18	15	0.2	0.2
Croatia	.	.	43	1.0	0	0.0	21	0.5	Y	14	14	0.3	0.3
Cyprus	5	0.6	4	0.5	3	0.3	1	0.1	Y	4	4	0.5	0.5
Czech Republic	1	0.0	1	0.0	0	0.0	0	0.0	Y	1	1	0.0	0.0
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Finland	4	0.1	0	0.0	5	0.1	0	0.0	Y	3	3	0.1	0.1
France	228	0.4	5	0.0	158	0.2	209	0.3	Y	250	250	0.4	0.4
Germany	285	0.4	198	0.2	114	0.1	238	0.3	Y	322	311	0.4	0.4
Greece	3	0.0	11	0.1	11	0.1	15	0.1	Y	11	10	0.1	0.1
Hungary	36	0.4	36	0.4	135	1.4	59	0.6	Y	35	35	0.4	0.3
Ireland	4	0.1	5	0.1	0	0.0	0	0.0	Y	4	4	0.1	0.1
Italy	.	.	.	.	.	.	.	.	.	.	.	.	.
Latvia	1	0.0	1	0.0	1	0.0	3	0.1	Y	1	1	0.1	0.1
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Luxembourg	0	0.0	0	0.0	0	0.0	0	0.0	Y	1	1	0.2	0.2
Malta	0	0.0	0	0.0	2	0.5	0	0.0	Y	0	0	0.0	0.0
Netherlands	80	0.5	63	0.4	20	0.1	26	0.2	Y	20	20	0.1	0.1
Poland	0	0.0	0	0.0	0	0.0	1	0.0	Y	0	0	0.0	0.0
Portugal	5	0.0	26	0.2	21	0.2	25	0.2	Y	20	20	0.2	0.2
Romania	6	0.0	16	0.1	24	0.1	21	0.1	Y	3	3	0.0	0.0
Slovakia	0	0.0	0	0.0	0	0.0	1	0.0	Y	0	0	0.0	0.0
Slovenia	0	0.0	1	0.0	1	0.0	3	0.1	Y	1	1	0.0	0.0
Spain	33	-	58	-	75	-	77	-	N	97	97	-	-
Sweden	5	0.1	2	0.0	3	0.0	2	0.0	Y	4	4	0.0	0.0
United Kingdom	43	0.1	12	0.0	46	0.1	60	0.1	Y	21	21	0.0	0.0
EU	757	0.2	529	0.1	647	0.1	781	0.2	.	850	823	0.2	0.2
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	0	0.0	0	0.0	4	0.1	1	0.0	Y	1	1	0.0	0.0
EU/EEA	757	0.2	529	0.1	651	0.1	782	0.2	.	851	824	0.2	0.2

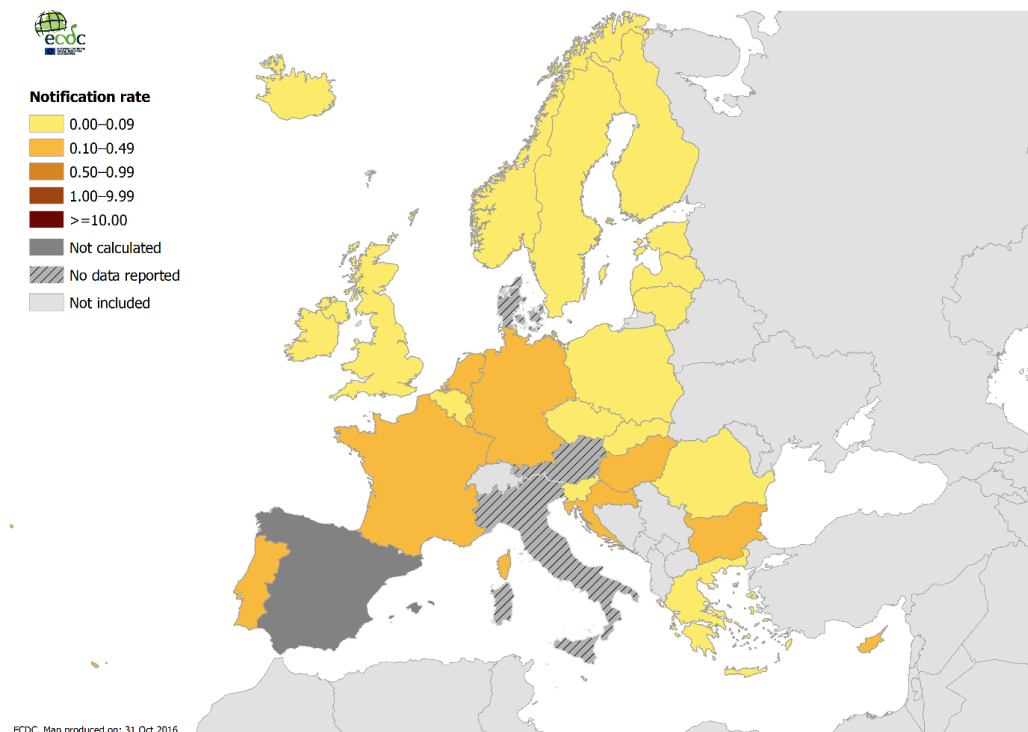
Source: Country reports. Legend: Y = yes, N = no, C = case based, . = no report, ASR: age-standardised rate

The highest numbers of confirmed cases were reported by Germany and France (311 and 250, respectively) (Figure 1). France and Germany accounted for most of the confirmed cases reported in the last five years (2011–2015). The highest notification rate (0.47 cases per 100 000 population) was observed in Cyprus, followed by France, Germany and Hungary (Figure 2).

**Figure 1. Distribution of confirmed Q fever cases by Member States, EU/EEA, 2015**



**Figure 2. Distribution of confirmed Q fever cases per 100 000 population by Member States, EU/EEA, 2015**

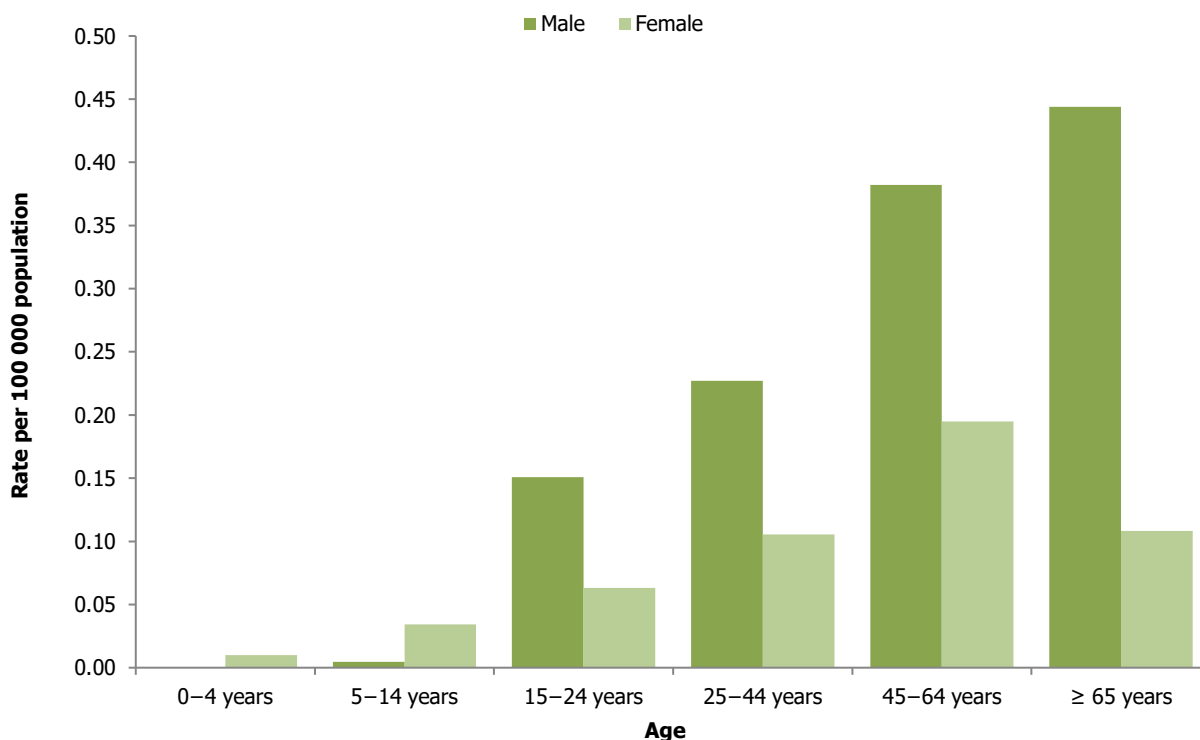


Source: Country reports from Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

## Age and gender distribution

In 2015, the rate of confirmed human Q fever cases was higher among men than women (0.26 cases compared with 0.12 cases per 100 000 population). The male-to-female ratio was 2.2:1. The highest notification rate was among males in the age group over 65 years of age (0.44 cases per 100 000 population), followed by those between 45 and 64 years (0.38 per 100 000). Among females, the highest notification rate was in the 45–64-year-old age group (0.20 per 100 000). Age was unknown for five cases. Teenagers above 15 years of age and adults accounted for 98.5% of the cases (Figure 3).

**Figure 3. Distribution of confirmed Q fever cases per 100 000 population, by age and gender, EU/EEA, 2015**

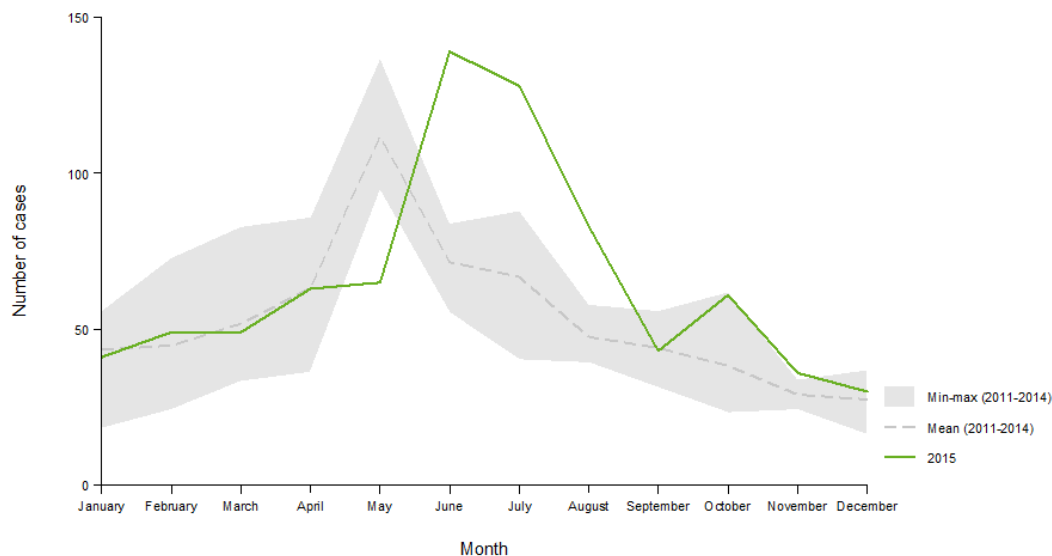


Source: Country reports from Belgium, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom.

## Seasonality

Cases occurred all year round, with an increase between April and October, and a peak in June/July.

The increase in June/July is mostly observed in Germany and in Spain. In France, the increase in numbers is slightly earlier, between April and June. The curve for 2015 followed the general trend but in 2015 the peak, which is usually observed in May, was delayed until June, and the number of cases was still high in July (Figure 4).

**Figure 4. Seasonal distribution of confirmed Q fever cases, EU/EEA, 2015 compared with 2011–2015**

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

## Enhanced surveillance in 2015

### Travel-related cases

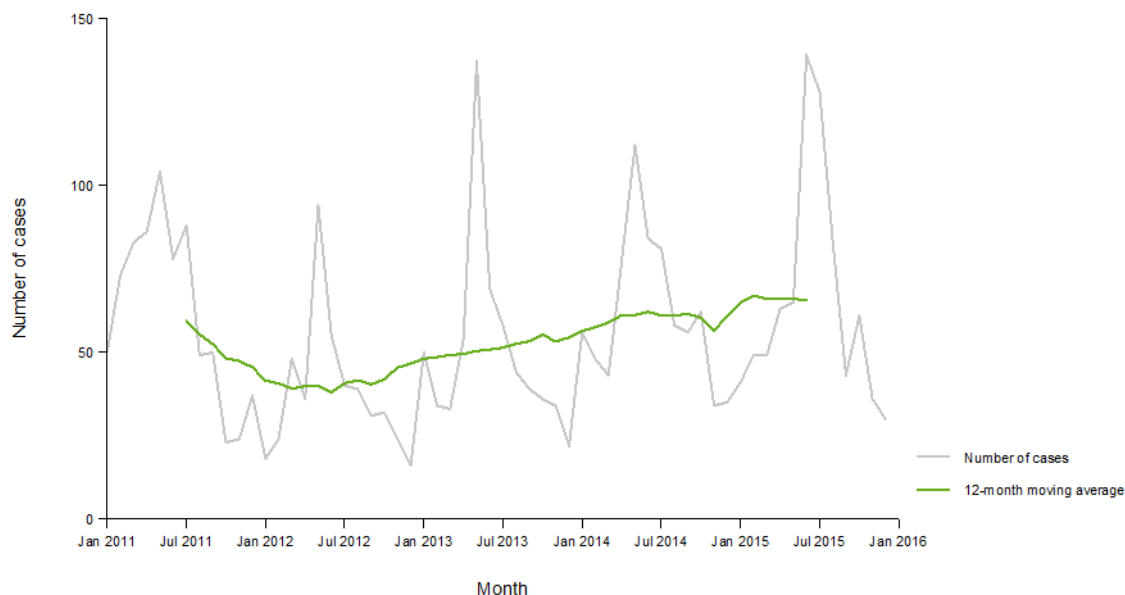
The large majority of Q fever cases in the EU was domestically acquired. Only Germany, the Netherlands and Sweden reported travel-associated cases. Of the 16 travel-associated cases reported, seven were acquired in other EU countries, including six in Spain and one in Austria.

### Case–fatality rate

Three deaths due to Q fever were reported in 2015 in the EU (one case in the Netherlands and two cases in Hungary), resulting in an EU case–fatality rate of 0.7% among the 398 confirmed cases with reported outcome.

## Trend

From 2011 to 2015, the overall Q fever trend in humans showed a decrease between 2011 and 2012, but a continuing increase in reported cases between 2012 and 2015 (Figure 5). Trends per country very widely: there is an increasing trend in France and Germany, while in other EU/EEA Member States trends are stable or decreasing.

**Figure 5. Trend and number of confirmed Q fever cases, EU/EEA, 2011–2015**

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

## Discussion

Between 2007 and 2010, the Netherlands experienced a large outbreak with more than 4 000 human cases [4]. The number of cases in the Netherlands returned to the pre-outbreak level in 2013 and has remained low since then. Between 2012 and 2015, the overall number of cases reported in the EU/EEA has continuously increased, mostly due to an increase in the number of cases reported in France and Germany. In other countries, the trend is stable or decreasing. There is no explanation for the increasing trends in France and Germany. One possible explanation may be the gradual relaxation of control measures, or an increase in exposure as farm tourism has become very popular. Another factor may be specific climatic conditions that favour the spread of the bacteria.

The seasonal increase corresponds to the kidding (goats) and lambing (sheep) which shows a peak during the summer months. In addition, climatic factors such as heat and drought during the summer may facilitate the spread of the bacteria and increase the risk of transmission.

In 2015, the peak in the number of cases was a couple of months later than in previous years. The seasonality of lambing and kidding is expected to remain similar every year, so this delay remains unexplained.

## Public health implications

Good hygiene practices in premises dealing with animals – particularly with sheep and goats – will help prevent transmission of Q fever. As the disease can be transmitted to humans through contaminated milk, pasteurisation of milk and milk products will prevent infection. Severe disease has been reported in fetuses and newborn babies, which is why pregnant women and newborn babies should avoid contact with farm animals.

Data on Q fever surveillance in animals in the European region are available in an ECDC/EFSA report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks [7].

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