

## Q fever

Reporting on 2014 data retrieved from TESSy\* on 19 November 2015

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### Key facts

- 822 cases of Q fever were reported to TESSy in 2014; 782 of these cases were confirmed (95.1%).
- The notification rate in 2014 was 0.18 cases per 100 000 population.
- The frequency of reported cases of Q fever usually increases with age and is highest among males.
- Between 2010 and 2014, the highest number of cases was seen in 2010. Between 2010 and 2014, the epidemiological situation of Q fever in humans appeared to be unchanged.
- Cases are reported all year round, with an increase between April and July, and a peak in May.
- Small outbreaks still occur in Europe where areas with affected sheep and goat herds are considered at risk.

### Methods

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- In 2014, 27 EU/EEA countries provided information on Q fever in humans. Eight countries (the Czech Republic, Estonia, Finland, Iceland, Ireland, Lithuania, Luxembourg and Malta) reported no human cases.
- Twenty-two countries used the EU case definition except France, Germany and Romania which use another case definition. Belgium and Finland did not specify their case definition or it was unknown.
- In Spain, the surveillance system is entirely laboratory based and covers an estimated 30% of the population.

- Reporting is compulsory in 23 countries and voluntary in four (Belgium, France, Spain and the United Kingdom). A sentinel system is in place in Belgium and Spain. Disease surveillance is mostly passive except in Belgium, the Czech Republic and Slovakia (Annex). Data reporting is case based (except in Bulgaria and Croatia) and at the national level (except in Spain).

### Epidemiology

Twenty-seven EU/EEA countries provided information on Q fever in 2014. A total of 822 cases was reported to TESSy, 782 of which were confirmed (95.1%). Most of the confirmed cases were males (63.5%). Cases occurred all year round, with an increase observed between April and July, and a peak in May. In the period 2010–2014, the highest number of cases was observed in 2010. From 2011 onwards, the Q fever trend remained stable.

The notification rate was 0.18 cases per 100 000 population, slightly higher than in 2013 (0.15 cases per 100 000). In the period 2010–2014, the highest notification rate was seen in 2010, with 0.34 cases per 100 000 population. From 2011 to 2014, the notification rate was varying between 0.15 and 0.19 cases per 100 000 population. Eight countries reported zero cases in 2014 (as in 2013), and seven countries reported between one to three cases. Most of the cases were reported from Germany (262, 90.1% of which were confirmed) and from France (209, all confirmed).

**Table 1: Reported Q fever cases: number and rate per 100 000 population, EU/EEA, 2010–2014**

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Country	2010		2011		2012		2013		2014					
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	National data	Report type	Reported cases	Confirmed cases	Rate	ASR*
Austria	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Belgium	30	0.3	6	0.1	18	0.2	5	0.0	Y	C	16	4	0.0	-
Bulgaria	14	0.2	12	0.2	29	0.4	23	0.3	Y	A	17	15	0.2	-
Croatia	.	.	.	.	43	1.0	0	0.0	Y	A	21	21	0.5	0.5
Cyprus	4	0.5	5	0.6	4	0.5	3	0.3	Y	C	1	1	0.1	0.1
Czech Republic	0	0.0	1	0.0	1	0.0	0	0.0	Y	C	0	0	0.0	0.0
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0	0.0	0.0
Finland	5	0.1	4	0.1	0	0.0	5	0.1	Y	C	0	0	0.0	0.0
France	286	0.4	228	0.4	168	0.3	158	0.2	Y	C	209	209	0.3	0.3
Germany	326	0.4	285	0.3	198	0.2	114	0.1	Y	C	262	238	0.3	0.3
Greece	1	0.0	3	0.0	11	0.1	11	0.1	Y	C	15	15	0.1	0.1
Hungary	68	0.7	36	0.4	36	0.4	135	1.4	Y	C	59	59	0.6	0.6
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0	0.0	0.0
Ireland	9	0.2	4	0.1	5	0.1	0	0.0	Y	C	0	0	0.0	0.0
Italy	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Latvia	2	0.1	1	0.0	1	0.0	1	0.0	Y	C	3	3	0.1	0.2
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0	0.0	0.0
Luxembourg	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	0	0	0.0	0.0
Malta	0	0.0	0	0.0	0	0.0	2	0.5	Y	C	0	0	0.0	0.0
Netherlands	504	3.0	80	0.5	63	0.4	20	0.1	Y	C	26	26	0.2	0.2
Norway	0	0.0	0	0.0	0	0.0	4	0.1	Y	C	1	1	0.0	0.0
Poland	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	1	1	0.0	0.0
Portugal	13	0.1	5	0.0	26	0.2	21	0.2	Y	C	27	25	0.2	0.2
Romania	7	0.0	6	0.0	16	0.1	24	0.1	Y	C	21	21	0.1	0.1
Slovakia	0	0.0	0	0.0	0	0.0	0	0.0	Y	C	1	1	0.0	0.0
Slovenia	1	0.0	0	0.0	1	0.0	1	0.0	Y	C	3	3	0.1	0.2
Spain	69	-	33	-	58	-	75	-	N	C	77	77	-	-
Sweden	11	0.1	5	0.1	2	0.0	3	0.0	Y	C	2	2	0.0	0.0
United Kingdom	30	0.0	43	0.1	12	0.0	46	0.1	Y	C	60	60	0.1	0.1
<b>EU/EEA</b>	<b>1380</b>	<b>0.3</b>	<b>757</b>	<b>0.2</b>	<b>692</b>	<b>0.2</b>	<b>651</b>	<b>0.1</b>	.	<b>C</b>	<b>822</b>	<b>782</b>	<b>0.2</b>	<b>0.2</b>

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 (238 and 209, respectively) (Figure 1). France and Germany accounted for most of the confirmed cases reported in the last four years (2011–2014). The highest notification rate (0.60 cases per 100 000 population) was observed in Hungary, followed by Croatia (0.49 cases).

**Figure 1. Number of confirmed Q fever cases, EU/EEA, 2014**



**Figure 2. Confirmed Q fever cases per 100 000 population, EU/EEA, 2014**



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 2014, the rate of confirmed human Q fever cases was higher among men than women (0.23 cases compared to 0.13 cases per 100 000); the male-to-female ratio was 1.8:1. The highest notification rate was among males in the age group between 45 and 64 years (0.32 cases per 100 000), followed by those over 65 years of age (0.30 per 100 000). Among females, the highest notification rate was in the 45–64-year-old age group (0.18 cases per 100 000). Children under 15 years of age accounted for 4.0% of all cases (Figure 3).

**Figure 3. Confirmed Q fever cases per 100 000 population, by age and gender, EU/EEA, 2014**

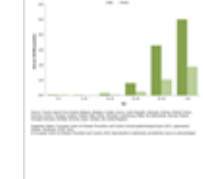


Source: Country reports from Belgium, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom.

### Seasonality

Cases occurred all year round, with an increase from April to July and a peak in May, probably associated with the start of the kidding (goats) and lambing (sheep) seasons. The curve for 2014 followed these general characteristics, but remained slightly below the average curve during the first six months of the year.

**Figure 4. Seasonal distribution of confirmed Q fever cases, EU/EEA, 2014 compared with 2010–2013**



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 2014

#### Travel-related cases

The large majority of Q fever cases in the EU were domestically acquired. Only Germany, Greece, Hungary, the Netherlands, Norway, Poland, Sweden and the United Kingdom reported travel-associated cases. The four cases in Poland, Sweden and Norway were travel related. Of the 36 travel-associated cases reported in the EU/EEA, 14 were acquired in other EU countries, including four in Spain and five in Turkey.

#### Case fatality rate

In 2014, Hungary reported one death due to Q fever. This resulted in an EU case fatality rate of 0.26% among the 380 confirmed cases with known outcome (51.2% of confirmed cases from countries with case-based reporting).

#### Trend

Between 2010 and 2014, the highest number of cases was observed in 2010. Starting in 2011, the Q fever trend in humans remained stable (Figure 5).

**Figure 5: Trend and number of confirmed Q fever cases, EU/EEA, 2010–2014**



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

Following a high number of cases in 2010, the Q fever situation returned to a stable state in 2011. However, trends are different across countries (see the online ECDC Surveillance Atlas of Infectious Diseases for country-specific trends). The high number of cases notified in 2010 was linked to a large outbreak in the Netherlands with more than 4 000 cases between 2007 and 2010 [1]. In spring and summer of 2013, an outbreak with 70 confirmed human cases was detected in southern Hungary [2]. France and Germany accounted for most of the confirmed cases reported in the last four years.

Q fever, or 'query fever', is a zoonotic disease caused by the bacterium *Coxiella burnetii*. Cattle, sheep and goats are the primary domestic animal reservoirs, and the bacteria are excreted in high numbers in birth products, milk, urine and faeces. The bacteria can survive for long periods in the environment and are very resistant to physical and chemical stress. Humans are considered accidental hosts. They are most often infected when inhaling contaminated dust. Infection by ingestion of contaminated milk is also possible. Six human cases of Q fever were associated with a so-called 'fresh cell therapy' performed in Germany in May 2014. An additional case was reported in Germany linked to the same practice in October 2014. These cases reconfirm the risk of infectious disease transmission through xenotransplantation [3].

### Public health conclusions

Good hygiene practices in premises dealing with animals – particularly with sheep, cattle 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 help prevent infection. 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 [4].

### References

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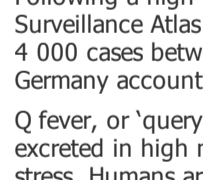
### Additional information

[ECDC Surveillance Atlas of Infectious Diseases](#)

### Annex

#### Table. Q fever, surveillance systems overview, 2014

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\* The European Surveillance System (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.