

## SURVEILLANCE REPORT

### Annual Epidemiological Report for 2016

# Brucellosis

#### Key facts

- In 2016, 534 confirmed brucellosis cases were reported in the EU/EEA.
- The notification rate in the EU/EEA was 0.10 cases per 100 000 population.
- The highest rate was observed in 45–64-year-old people (0.17 in males and 0.12 in females).
- The notification rate in the EU/EEA was stable during the period 2012–2016.
- The highest rates were reported in southern EU Member States (Greece, Portugal and Italy).

#### Methods

This report is based on data for 2016 retrieved from The European Surveillance System (TESSy) on 21 February 2018. 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, please 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].

In 2016, 29 EU/EEA Member States (27 EU Member States plus Iceland and Norway) reported brucellosis data, all of them with national coverage. Twelve of the 29 Member States used the [EU case definition from 2012](#) [4], 12 applied the one from 2008, one used the 2002 case definition, two Member States reported using another case definition, and two Member States did not specify which case definition they used. The majority of the Member States (26 of 29) undertook passive surveillance, and in 17 countries, both laboratory and physicians and/or hospitals reported cases. Twenty-seven of the 29 Member States reported case-based data.

#### Epidemiology

In 2016, 534 confirmed cases of brucellosis were reported by 20 EU and EEA countries with an overall rate of 0.10 per 100 000 population. Nine Member States reported zero cases. Italy and Greece reported the highest numbers of confirmed cases; 211 and 119 cases, respectively, corresponding to 61.8% of all cases reported in EU and EEA.

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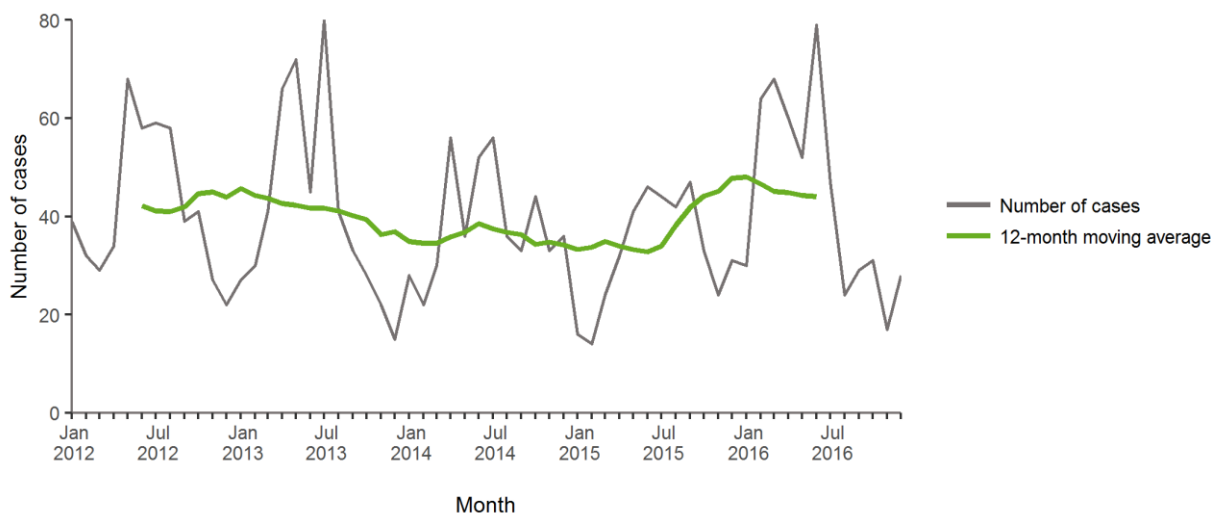
Stockholm, August 2018

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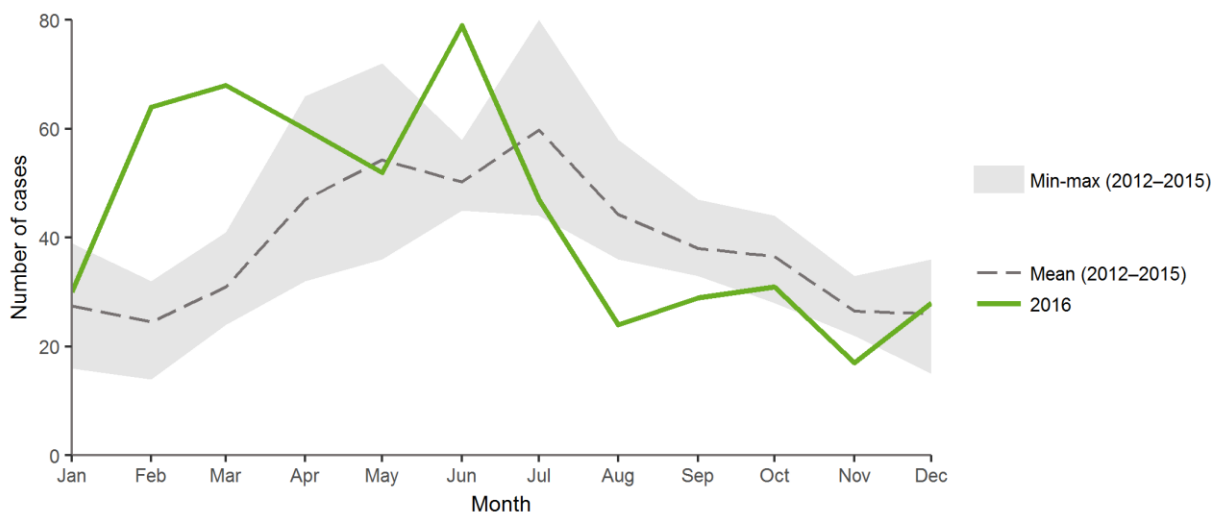
Greece had the highest rate, 1.10 per 100 000 population, followed by Portugal and Italy, 0.48 and 0.35 per 100 000 population, respectively. Majority (71.8%) of 150 brucellosis cases with known information were hospitalised. One case had fatal outcome, resulting in a case fatality rate of 0.8%.

**Table 1. Distribution of confirmed brucellosis cases, EU/EEA, 2012–2016**

Country	2012		2013		2014		2015		2016			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	2	0.02	7	0.08	1	0.01	1	0.01	4	0.05	0.05	4
Belgium	4	0.04	0	0.00	2	0.02	9	0.08	4	0.04	-	4
Bulgaria	1	0.01	0	0.00	2	0.03	36	0.50	0	0.00	0.00	0
Croatia	0	0.00	0	0.00	1	0.02	0	0.00	2	0.05	0.05	2
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Czech Republic	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01	0.01	1
Denmark	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Finland	1	0.02	0	0.00	1	0.02	0	0.00	0	0.00	0.00	0
France	28	0.04	19	0.03	14	0.02	17	0.03	19	0.03	0.03	22
Germany	28	0.03	26	0.03	45	0.06	44	0.05	36	0.04	0.05	36
Greece	123	1.11	159	1.44	135	1.24	109	1.00	119	1.10	1.10	122
Hungary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Iceland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Ireland	2	0.04	1	0.02	3	0.07	0	0.00	2	0.04	0.05	2
Italy	184	0.31	141	0.24	121	0.20	105	0.17	211	0.35	0.35	211
Latvia	0	0.00	1	0.05	0	0.00	0	0.00	0	0.00	0.00	0
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	0	0.00	2	0.07	0	0.00	0	0.00	0	0.00	0.00	0
Luxembourg	0	0.00	0	0.00	0	0.00	0	0.00	1	0.17	0.17	1
Malta	0	0.00	1	0.24	0	0.00	0	0.00	0	0.00	0.00	0
Netherlands	3	0.02	5	0.03	1	0.01	7	0.04	5	0.03	0.03	5
Norway	4	0.08	2	0.04	2	0.04	2	0.04	4	0.08	0.08	4
Poland	0	0.00	1	0.00	1	0.00	4	0.01	3	0.01	0.01	3
Portugal	37	0.35	22	0.21	50	0.48	46	0.44	50	0.48	0.46	50
Romania	0	0.00	0	0.00	2	0.01	0	0.00	1	0.01	0.00	1
Slovakia	1	0.02	1	0.02	0	0.00	1	0.02	1	0.02	0.02	1
Slovenia	0	0.00	0	0.00	0	0.00	0	0.00	1	0.05	0.05	1
Spain	62	0.13	87	0.19	56	0.12	33	0.07	37	0.08	0.08	46
Sweden	13	0.14	10	0.10	16	0.17	13	0.13	19	0.19	0.21	19
United Kingdom	14	0.02	15	0.02	11	0.02	12	0.02	14	0.02	0.02	14
<b>EU/EEA</b>	<b>507</b>	<b>0.10</b>	<b>500</b>	<b>0.10</b>	<b>464</b>	<b>0.09</b>	<b>439</b>	<b>0.09</b>	<b>534</b>	<b>0.10</b>	<b>0.10</b>	<b>549</b>

**Figure 1. Distribution of confirmed brucellosis cases by month, EU/EEA, 2012–2016**

Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, 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.

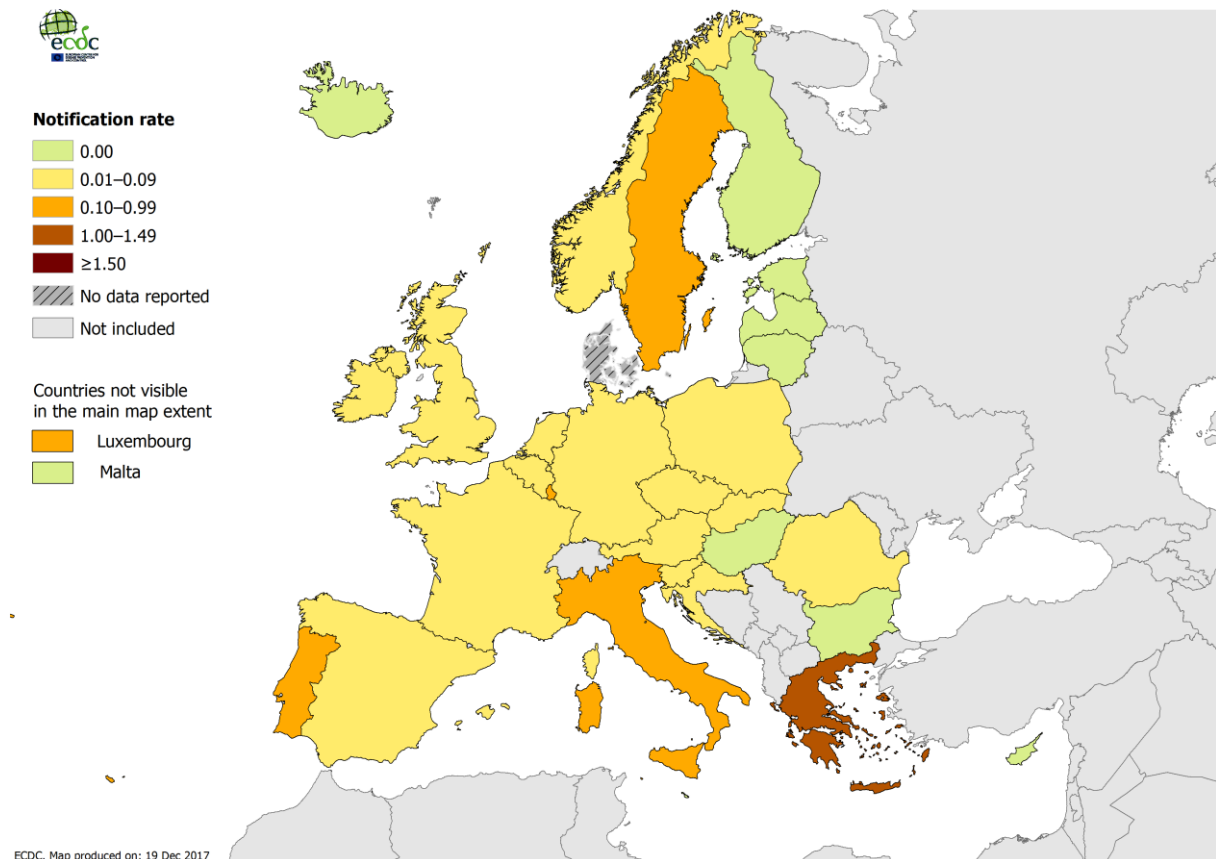
**Figure 2. Distribution of confirmed brucellosis cases by month, EU/EEA, 2016 and 2012–2015**

Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, 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 number of brucellosis cases decreased over the 2012–2015 at the EU/EEA level, but increased in 2016 (Figure 1). Most cases (74.8%) were reported between February and June in 2016. This was mainly due to a sharp increase of cases in one country (Italy), which accounted for 48.1% of the notified cases in that period in 2016.

In 2016, the usual seasonal pattern occurred one-two months earlier than on average in previous years 2012–2015 (Figure 2).

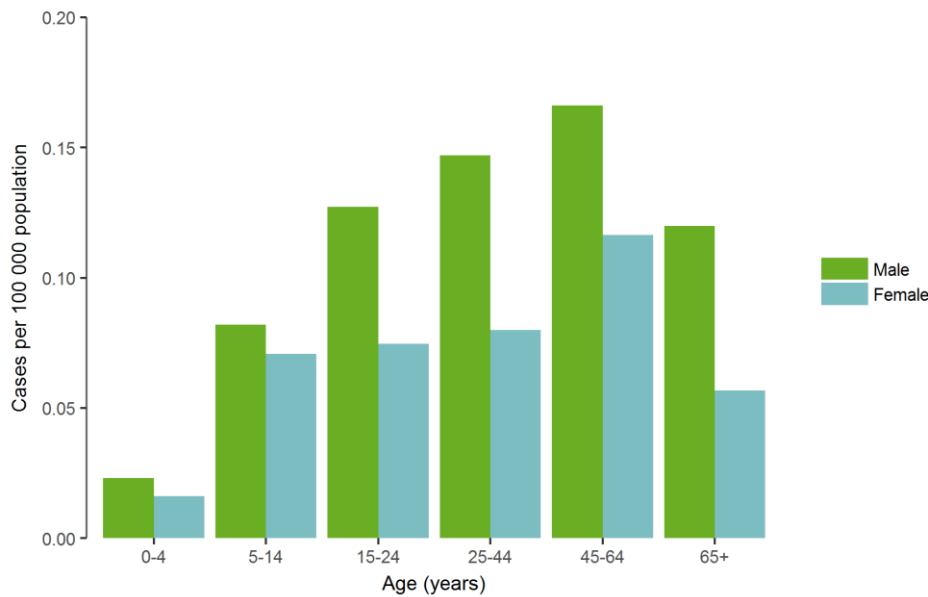
**Figure 3. Distribution of confirmed brucellosis cases per 100 000 population by country, EU/EEA, 2016**



*Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, 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 gender distribution of confirmed brucellosis cases for which information was provided (N=528), was 61.0% for males and 39.2% for females in the EU/EEA countries, corresponding to a male-to-female ratio of 1.5:1. The notification rate increased with age, from  $\leq 0.02$  per 100 000 population in those under 5 years of age to 0.14 in persons aged up to 64 years. The highest rate was detected in both genders in age-group 45–64-years (0.17 per 100 000 in males and 0.12 in females).

**Figure 4. Distribution of confirmed brucellosis cases per 100 000 population, by age and gender, EU/EEA, 2016**



## Outbreaks and other threats

No brucellosis-related multi-country threats were reported in 2016.

## Discussion

Brucellosis remains a rare, though severe disease in the EU, with the majority of the cases hospitalised. During 2016, the number of reported brucellosis cases increased in EU/EEA, mainly due to the increase of cases in one country (Italy), which had been reported the highest number of sporadic brucellosis cases since the beginning of EU level surveillance in 2007. No food-borne brucellosis outbreaks were reported in 2016 [5].

As in previous years, the highest rates of the domestically acquired cases in 2016 were reported by Greece, Portugal and Italy. These countries have not yet obtained the status of officially free from bovine brucellosis- and ovine and caprine brucellosis [5]. Italy and Greece accounted the majority of the brucellosis cases in the EU/EEA. In Italy, cases more than doubled compared with 2015, whereas in Greece and Portugal the rate remained at a high but stable level compared with the previous years. A possible contributory factor in the increase of the number of cases reported in Italy seems to be due to an increased awareness among clinicians and to an increase of notifications in some of the Italian regions (following a joint communication from the National Focal Point for FWD and the National Coordinator). A large proportion of the cases occurred in working-age males, possibly indicating an occupational exposure. Persons working with farm animals (e.g. farmers, livestock breeders, butchers, abattoir workers and veterinarians) are known to be at increased risk of brucellosis [6].

In animals, bovine brucellosis and ovine and caprine brucellosis have been widely eradicated by most EU MS. As a result, brucellosis has become quite rare in Northern and Western Europe, where the majority of cases are travel-associated. Food-borne exposure is normally limited to persons consuming unpasteurized milk and dairy products and is often the result of consumption of food products from countries where brucellosis in animals is endemic [7]. Imported cases are mainly in travellers, although an increased disease incidence may occur in recently arrived migrants [7,8]. Since 2014, a significant increase of imported infections caused by *B. melitensis* have been observed in Germany. Patients predominantly originated from Middle East, including Turkey and Syria [8,9]. The human *B. melitensis* -cases that occurred in Sweden during the period 2008–2012 revealed different genotypes of East Mediterranean and Africa lineages by MLVA-16 genotyping. This reflects the migration to Sweden of persons from Iraq, Afghanistan and Somalia [10].

## Public health implications

In the Member States that are not free from ovine, caprine or bovine brucellosis, the partly EU co-funded national brucellosis eradication programmes are important for reduction of the brucellosis rate at the EU/EEA-level. Besides efforts to control brucellosis in animals, organised prevention efforts and raised awareness are needed within an occupational health framework. Migration of persons from endemic areas can cause an increase in the number of cases in the countries, where brucellosis was not previously prevalent. Physicians and diagnosing laboratories should be aware about the possibility of this disease, caused by highly pathogenic bacteria [9]. Information on occupational and travel history should be consistently collected as a part of the surveillance of brucellosis in humans.

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