

SURVEILLANCE REPORT

Annual Epidemiological Report for 2016

Yersiniosis

Key facts

- In 2016, 28 countries reported 6 918 confirmed yersiniosis cases in the EU/EEA.
- The overall notification rate was 1.8 per 100 000 population and remained stable from 2012–2016.
- The highest rate was detected in 0–4 year-old children (7.5 per 100 000 population).
- The highest rates were reported by Finland, the Czech Republic and Lithuania.

Methods

This report is based on the 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, 28 EU/EEA Member States reported yersiniosis data, three of which had partial population surveillance coverage. Thirteen of the 28 Member States used the 2012 EU case definition, nine countries used the 2008 definition, five Member States reported data based on another case definition and one country did not specify its case definition. The majority of Member States (25 of 28) undertook passive surveillance and 18 countries reported cases through both laboratory and physicians and/or hospitals. Twenty-four of the 28 Member States reported case-based data.

Epidemiology

In 2016, 6 918 confirmed cases of yersiniosis were reported by 26 EU/EEA countries with an overall rate of 1.8 cases per 100 000 population. As in previous years, Germany accounted for the highest number of cases in the EU/EEA (2 764 cases, 40.0% of all cases). Finland, the Czech Republic and Lithuania had the highest rates of 7.4, 5.8 and 5.4 cases per 100 000 population respectively.

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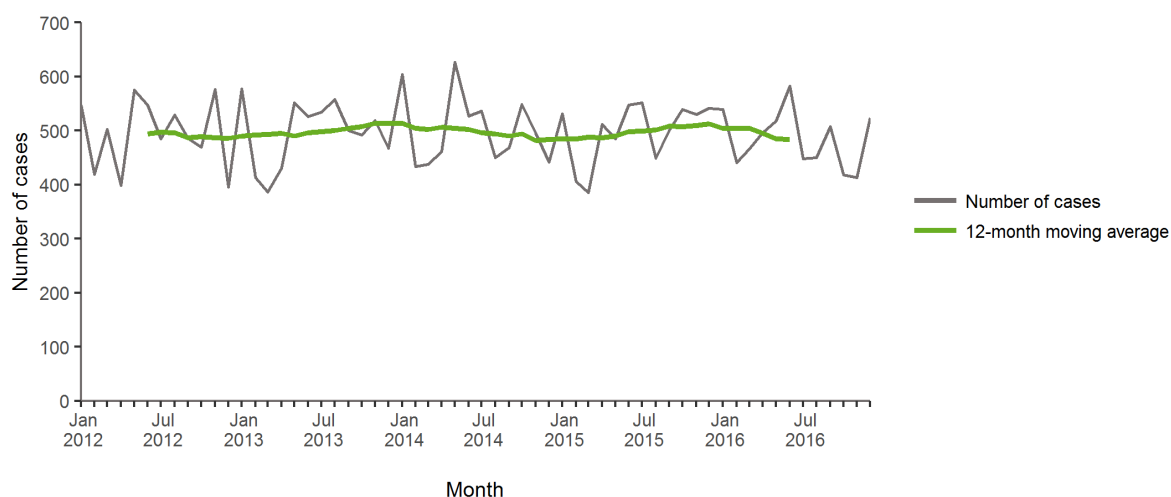
Table 1. Distribution of confirmed yersiniosis cases and rates per 100 000 population, EU/EEA, 2012–2016

Country	2012		2013		2014		2015		2016			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	130	1.5	158	1.9	107	1.3	118	1.4	86	1.0	1.1	86
Belgium	256	2.3	350	3.1	309	2.8	350	3.1	355	3.1	3.1	355
Bulgaria	11	0.2	22	0.3	20	0.3	12	0.2	10	0.1	0.2	10
Croatia	0	0.0	0	0.0	20	0.5	16	0.4	22	0.5	0.5	23
Cyprus	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0.0	0
Czech Republic	611	5.8	526	5.0	557	5.3	678	6.4	608	5.8	6.0	608
Denmark	182	3.3	225	4.0	250	4.4	273	4.8	278	4.9	5.0	278
Estonia	47	3.5	72	5.5	62	4.7	53	4.0	45	3.4	3.4	45
Finland	565	10.5	549	10.1	579	10.6	582	10.6	407	7.4	7.7	407
France	314	-	430	-	574	-	624	-	735	-	-	735
Germany	2 690	3.3	2 579	3.2	2 470	3.1	2 741	3.4	2 764	3.4	3.9	2 774
Greece	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	53	0.5	62	0.6	43	0.4	41	0.4	70	0.7	0.7	72
Iceland	-	-	0	0.0	3	0.9	1	0.3	1	0.3	0.3	1
Ireland	2	0.0	4	0.1	5	0.1	13	0.3	3	0.1	0.1	3
Italy	14	-	25	-	18	-	7	-	9	-	-	9
Latvia	28	1.4	25	1.2	28	1.4	64	3.2	47	2.4	2.5	51
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	276	9.2	262	8.8	197	6.7	165	5.6	155	5.4	5.5	155
Luxembourg	28	5.3	15	2.8	19	3.5	15	2.7	12	2.1	2.1	12
Malta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0
Netherlands	-	-	-	-	-	-	-	-	-	-	-	-
Norway	43	0.9	55	1.1	211	4.1	76	1.5	57	1.1	1.1	57
Poland	201	0.5	199	0.5	212	0.6	172	0.5	167	0.4	0.5	167
Portugal	-	-	-	-	-	-	24	0.2	14	0.1	0.2	14
Romania	26	0.1	43	0.2	32	0.2	25	0.1	40	0.2	0.2	40
Slovakia	181	3.3	164	3.0	172	3.2	224	4.1	200	3.7	3.7	201
Slovenia	22	1.1	26	1.3	19	0.9	10	0.5	31	1.5	1.7	31
Spain	221	-	243	-	436	-	432	-	485	-	-	514
Sweden	303	3.2	313	3.3	248	2.6	245	2.5	230	2.3	2.4	230
United Kingdom	54	0.1	59	0.1	58	0.1	44	0.1	87	0.1	0.1	87
EU/EEA	6 258	1.9	6 407	1.9	6 649	1.9	7 005	1.9	6 918	1.8	2.0	6 965

Source: country reports.

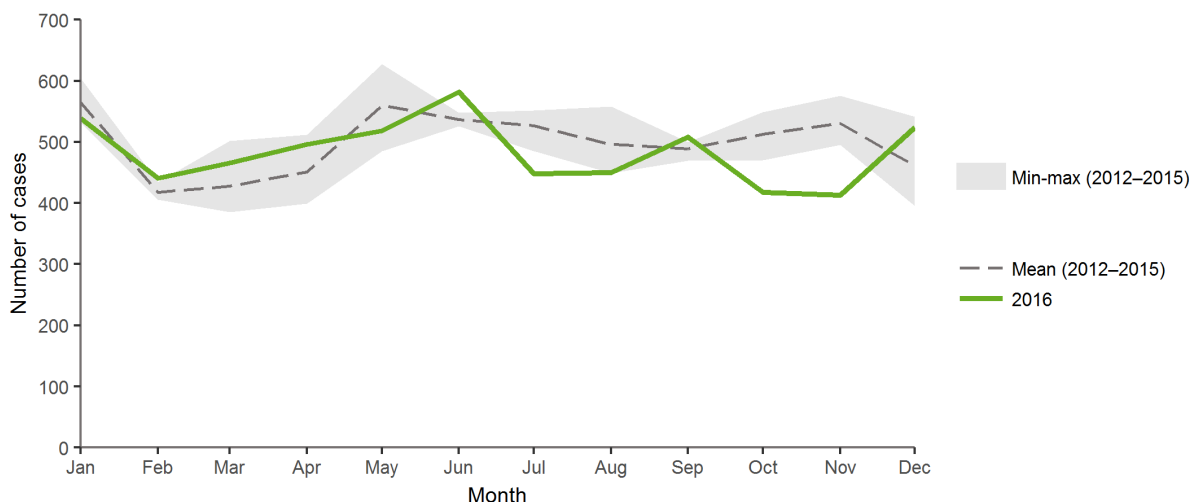
..: no data reported

-: no rate calculated.

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

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

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

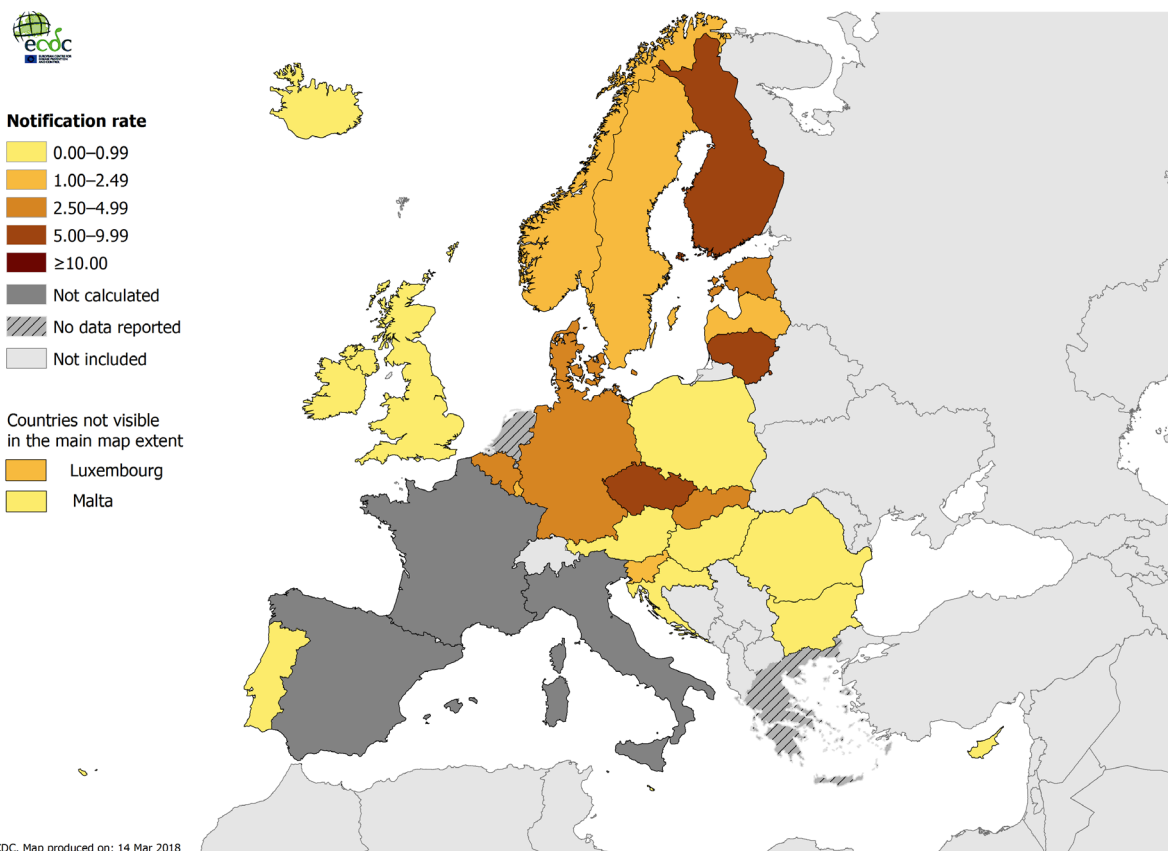


Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

From 2012–2016, the yersiniosis trend remained stable in the EU/EEA. Among 17 Member States with data available for the whole period of 2008–2016, the Czech Republic, Slovakia and Spain reported significantly increasing trends ($p < 0.01$), while Finland, Germany and Sweden reported decreasing trends ($p < 0.01$) [4].

As in previous years, no evident seasonality of yersiniosis cases was noted in the reported figures in 2016. The highest numbers of cases were reported in June and January.

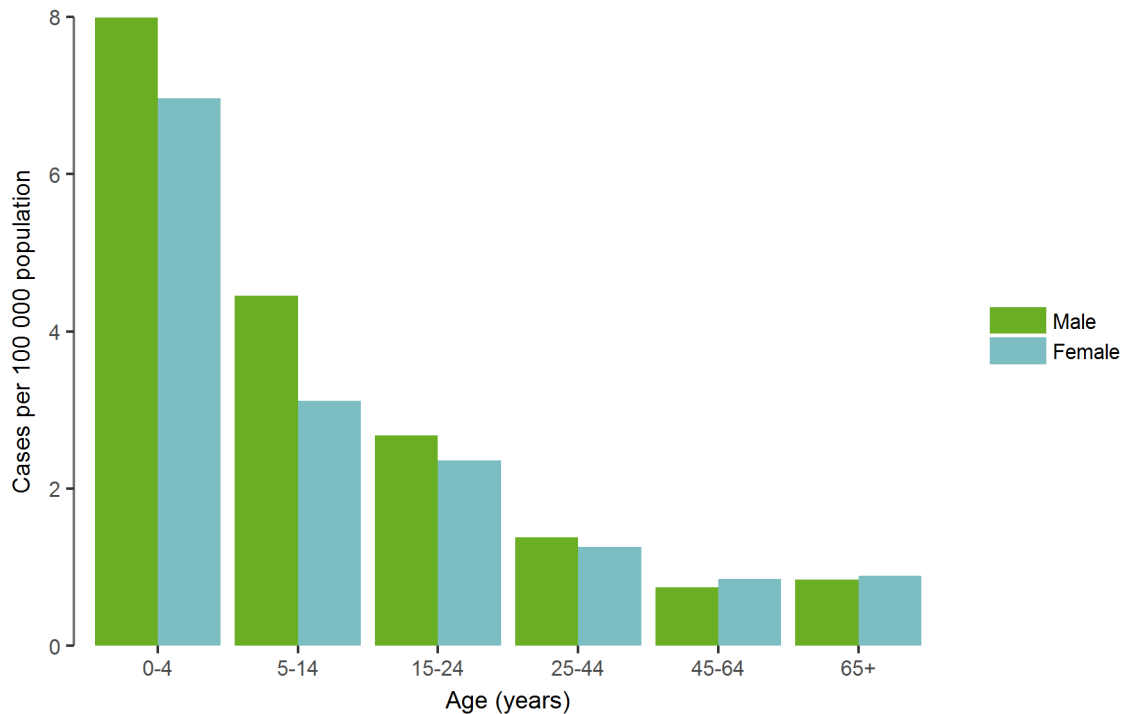
Figure 3. Distribution of confirmed yersiniosis cases per 100 000 population by country, EU/EEA, 2016



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

Among the confirmed cases for which gender was reported (N=6 894), 53.4% were males, with a male-to-female ratio of 1.1:1. The highest rates were detected in 0–4-year-old children, both in males and females (8.0 and 7.0 cases per 100 000 respectively). Overall, rates were higher in younger age groups (<25 years).

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



Outbreaks and other threats

No yersiniosis-related threats were reported in 2016.

Discussion

In 2016, yersiniosis was the third most commonly reported zoonosis in the EU [4]. *Yersinia enterocolitica* was the most common causative species of *Yersinia* reported in the EU (99.1% of confirmed cases), followed by *Y. pseudotuberculosis* (0.9% of confirmed cases). Notification of yersiniosis cases in humans is compulsory in the majority of EU/EEA Member States. However, the common use of non-sensitive culture-based detection methods may lead to under-reporting [5]. On the other hand, it is possible that apathogenic *Y. enterocolitica* biotype 1A strains have been reported to TESSy, which would lead to over-reporting of yersiniosis cases since EU/EEA-level surveillance should only include cases with pathogenic *Y. enterocolitica* isolates. The biotype, which is crucial for evaluating the pathogenicity of *Y. enterocolitica* isolates, was reported only for a fraction of these isolates (4.6% in 2016) [4] and only by five countries.

The main reservoir for *Y. enterocolitica* in Europe are pigs and cattle, while for *Y. pseudotuberculosis*, it is wild animals [5]. Within the annual zoonosis data reporting to the European Food Safety Authority in 2016, eight outbreaks caused by *Y. enterocolitica* (one strong-evidence outbreak and eight weak-evidence outbreaks) were reported by five Member States comprising 41 cases [4]. The strong-evidence outbreak was reported by Finland and associated with 'vegetables and juices and the products'. In addition, Finland reported one weak-evidence outbreak with an unknown vehicle, France reported three weak-evidence outbreaks with 'broiler meat and its products' and 'other foods' being incriminated and Latvia, the Netherlands, Norway and Slovakia each reported one weak-evidence outbreak of yersiniosis without a food vehicle suggested as the cause.

Public health implications

Pigs are the most important source of *Y. enterocolitica* infections [6,7] and many cases are considered to be related to the consumption of undercooked contaminated pork or cross-contamination of other food items during the handling and preparation of raw pork. Pork should be consumed only after adequate cooking, especially when it is given to young children. Proper kitchen hygiene is required to avoid cross-contamination.

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