

## SURVEILLANCE REPORT

### Annual Epidemiological Report for 2015

# Yersiniosis

#### Key facts

- In 2015, 26 countries reported 7 279 confirmed yersiniosis cases in the EU/EEA.
- The overall notification rate was 2.0 cases per 100 000 population.
- The highest rates were detected in 0–4-year-old children (9.4 cases per 100 000 population).
- The overall EU/EEA rate remained stable during 2011–2015 (2.0 per 100 000 population in 2015).
- The highest rates were reported by Finland, Denmark and the Czech Republic.

#### 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.

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 2015, 28 EU/EEA Member States reported yersiniosis data; four of these countries submitted data with disease surveillance coverage of only some parts of the national population. Twelve of the 28 Member States used the 2012 EU case definition, nine countries used the one from 2008, five Member States reported data based on another case definition, and two countries did not specify their case definition. The majority of Member States (24 of 28) undertook passive surveillance, and 19 countries reported cases notified through both laboratory and physicians and/or hospitals. Twenty-four of the 28 Member States reported case-based data.

#### Epidemiology

In 2015, 7 279 confirmed cases of yersiniosis were reported by 26 EU/EEA countries, with an overall rate of 2.0 cases per 100 000 population (Table 1). As in previous years, Germany accounted for the highest number of cases in the EU/EEA (2 739 cases, 37.6% of all cases). Finland, Denmark and the Czech Republic had the highest rates, reporting 10.6, 9.5, and 6.8 cases per 100 000 population, respectively. In Denmark, *Yersinia enterocolitica* biotype

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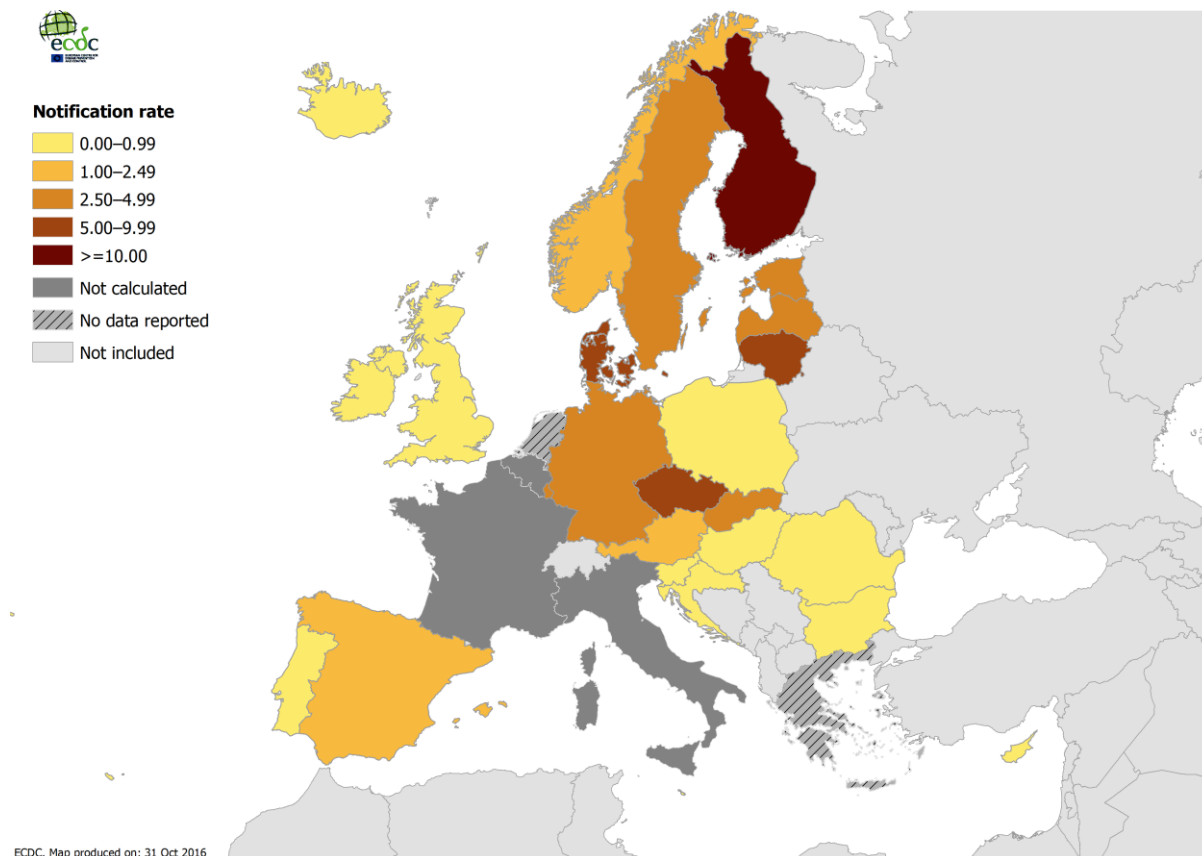
1A was the causative pathogen in 48% of the cases. Figure 1 illustrates the country-specific rates per 100 000 population.

**Table 1. Distribution of confirmed yersiniosis cases per 100 000 population, EU/EEA, 2011–2015**

Country	2011		2012		2013		2014		National coverage	Reported cases	2015		
	Confirmed cases		Confirmed cases		Confirmed cases		Confirmed cases				Number	Rate	ASR
	Number	Rate	Number	Rate	Number	Rate	Number	Rate					
Austria	119	1.4	130	1.5	158	1.9	107	1.3	Y	118	118	1.4	1.5
Belgium	214	-	256	-	350	-	309	-	N	350	350	-	-
Bulgaria	4	0.1	11	0.2	22	0.3	20	0.3	Y	12	12	0.2	0.2
Croatia	.	.	0	0.0	0	0.0	20	0.5	Y	16	16	0.4	0.4
Cyprus	0	0.0	0	0.0	1	0.1	0	0.0	Y	0	0	0.0	0.0
Czech Republic	460	4.4	611	5.8	526	5.0	557	5.3	Y	678	678	6.4	6.8
Denmark	225	4.0	291	5.2	345	6.2	434	7.7	Y	540	540	9.5	9.7
Estonia	69	5.2	47	3.5	72	5.5	62	4.7	Y	53	53	4.0	4.1
Finland	554	10.3	565	10.5	549	10.1	579	10.6	Y	582	582	10.6	10.8
France	294	-	314	-	430	-	574	-	N	624	624	-	-
Germany	3381	4.2	2690	3.3	2579	3.2	2470	3.1	Y	2752	2739	3.4	3.9
Greece	.	.	.	.	.	.	.	.	.	.	.	.	.
Hungary	93	0.9	53	0.5	62	0.6	43	0.4	Y	41	41	0.4	0.4
Ireland	6	0.1	2	0.0	4	0.1	5	0.1	Y	13	13	0.3	0.3
Italy	15	-	14	-	25	-	18	-	N	16	16	-	-
Latvia	28	1.3	28	1.4	25	1.2	28	1.4	Y	67	64	3.2	3.4
Lithuania	370	12.1	276	9.2	262	8.8	197	6.7	Y	165	165	5.6	5.8
Luxembourg	14	2.7	28	5.3	15	2.8	19	3.5	Y	15	15	2.7	2.6
Malta	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Netherlands	.	.	.	.	.	.	.	.	.	.	.	.	.
Poland	235	0.6	201	0.5	199	0.5	212	0.6	Y	172	172	0.5	0.5
Portugal	.	.	.	.	.	.	.	.	Y	24	24	0.2	0.3
Romania	47	0.2	26	0.1	43	0.2	32	0.2	Y	25	25	0.1	0.1
Slovakia	166	3.1	181	3.3	164	3.0	172	3.2	Y	226	224	4.1	4.2
Slovenia	16	0.8	22	1.1	26	1.3	19	0.9	Y	10	10	0.5	0.5
Spain	264	2.3	221	1.9	243	1.7	436	2.1	45%	475	432	2.1	2.2
Sweden	350	3.7	303	3.2	313	3.3	248	2.6	Y	245	245	2.5	2.5
United Kingdom	59	0.1	54	0.1	59	0.1	58	0.1	Y	44	44	0.1	0.1
EU	6983	2.2	6324	1.9	6472	1.9	6619	1.9	92%	7263	7202	2.0	2.1
Iceland	.	.	.	.	0	0.0	3	0.9	Y	1	1	0.3	0.3
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	60	1.2	43	0.9	55	1.1	211	4.1	Y	76	76	1.5	1.5
EU/EEA	7043	2.2	6367	1.9	6527	1.9	6833	1.9	.	7340	7279	2.0	2.1

Source: Country reports. Legend: Y = yes, N = no, C = case based, A = aggregated, \* = no data reported, ASR = age-standardised rate, - = no notification rate calculated.

**Figure 1. Distribution of confirmed yersiniosis cases per 100 000 population, EU/EEA, 2015**

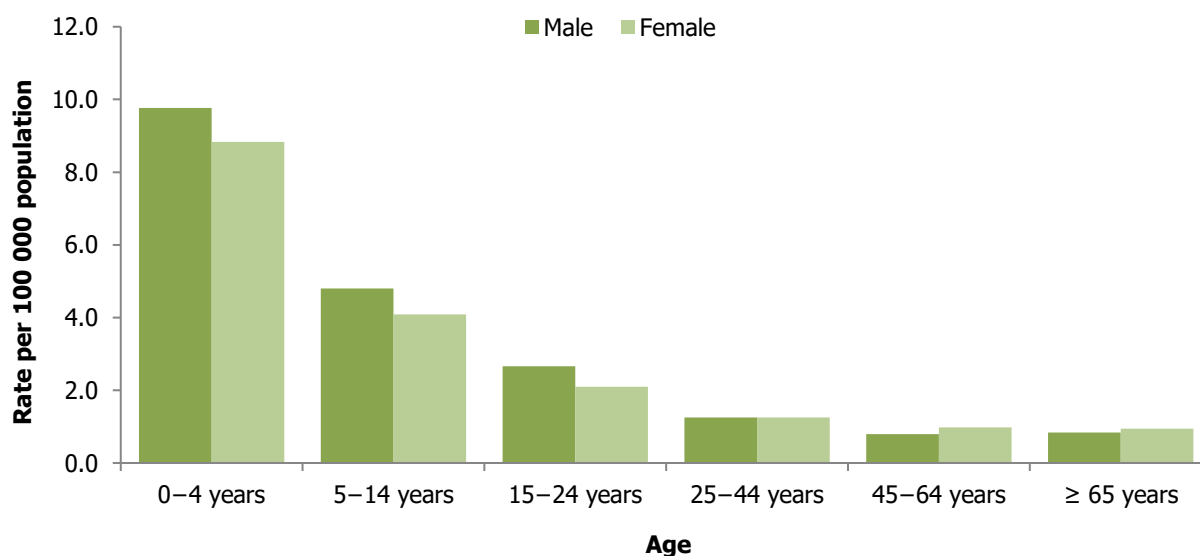


Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden,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

### Age and gender distribution

Among the confirmed cases for which gender was reported (N=7 255), 51.2% were males, with a male-to-female ratio of 1:1. The highest rates were detected in 0–4-year-old children, both in males and females (9.8 and 8.8 cases per 100 000, respectively) (Figure 2). Overall, the rates were higher in younger age groups (<25 years).

**Figure 2. Distribution of confirmed yersiniosis cases per 100 000 population, by age and gender, EU/EEA, 2015**



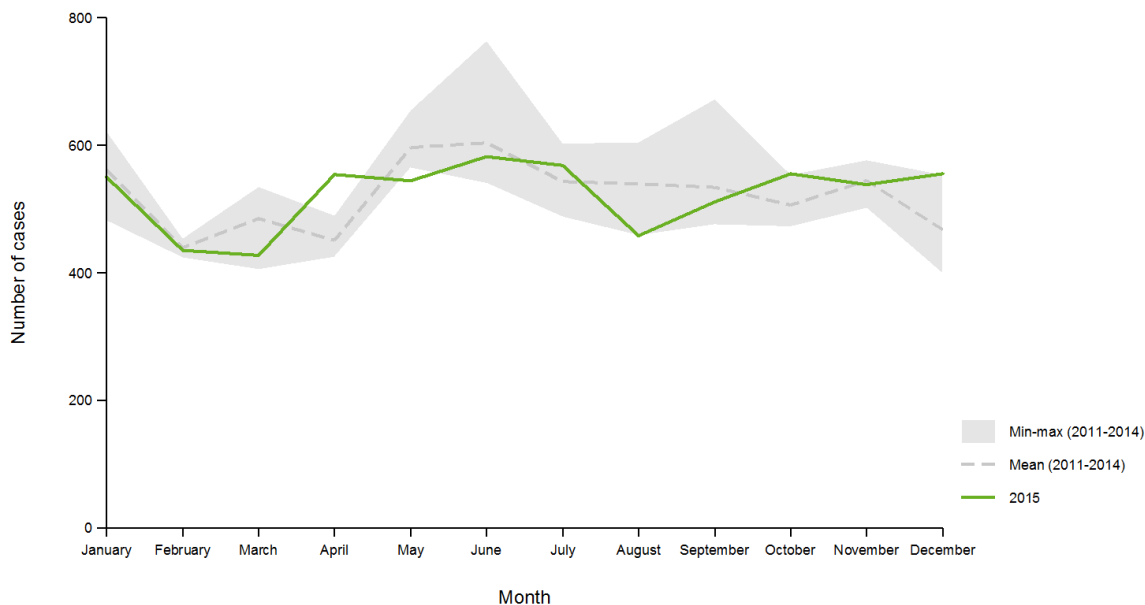
Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden,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

### Seasonal distribution and trend

As in previous years, no evident seasonality of yersiniosis cases was noted in the reported figures in 2015 (Figure 3).

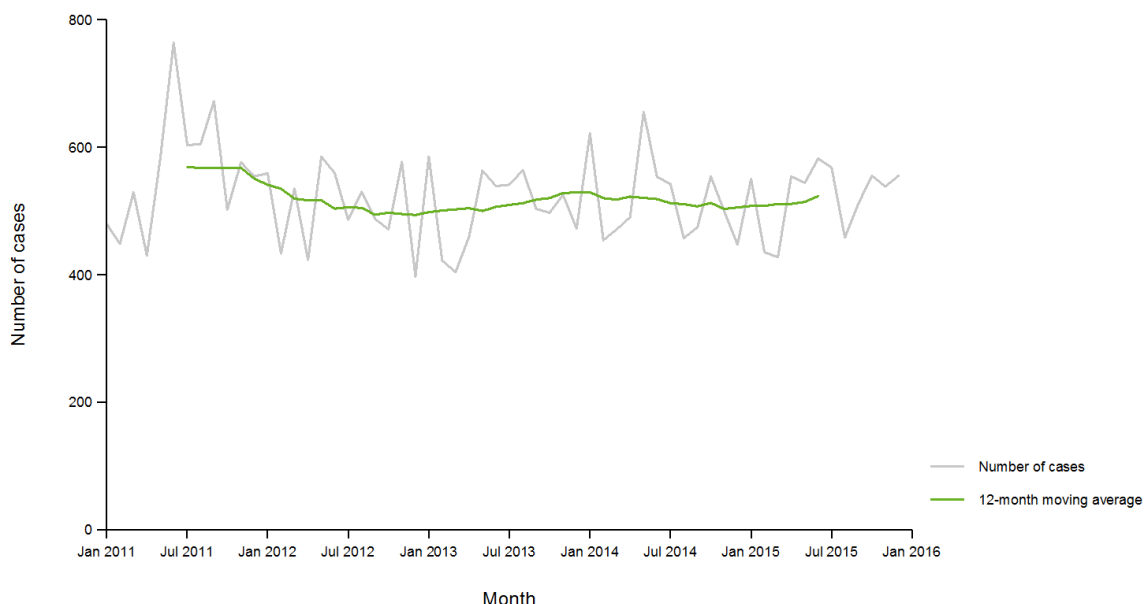
In the period 2011–2015, the yersiniosis trend remained stable in the EU/EEA (Figure 4). Among 18 Member States with data available for 2008–2015, the Czech Republic and Denmark reported increasing trends ( $p < 0.01$ ), while Germany and Sweden reported declining trends ( $p < 0.01$ ) [4].

**Figure 3. Distribution of confirmed yersiniosis cases by month, EU/EEA, 2011–2015**



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

**Figure 4. Distribution of confirmed yersiniosis cases by month and 12-month moving average, EU/EEA, 2011–2015**



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

## Threats description for 2015

No yersiniosis-related threats were reported in 2015.

## Discussion

In 2015, yersiniosis was the third most commonly reported zoonosis in the EU [4]. *Yersinia enterocolitica* was the most common causative species of yersiniosis reported in the EU (99.5% of confirmed cases), followed by *Y. pseudotuberculosis* (0.5% of confirmed cases). Children 0–4 years of age were the most affected age group, accounting for 24% of all confirmed cases in 2015. Previous studies from Germany and Sweden found that the main risk factor for *Y. enterocolitica* infection in young children was the consumption of raw pork products [5,6]. Differences in immunological response might explain why this age group is more susceptible to yersiniosis than older people [7]. In Norway, a case-control study covering all age groups showed that patients infected with *Y. enterocolitica* ate significantly more pork products than matched population controls [8]. Drinking untreated drinking water was the second most important risk factor. Varying yersiniosis rates between countries are probably partly explained by different food consumption patterns, especially in young children, and by differences in national disease surveillance systems.

In 2015, 13 outbreaks caused by *Y. enterocolitica* (one strong-evidence outbreak and 12 weak-evidence outbreaks) were reported by seven Member States, comprising altogether 54 cases [4]. The strong-evidence food-borne outbreak was reported by Lithuania and associated with the consumption of 'pig meat and products thereof'. Two weak-evidence outbreaks associated with the consumption of 'pig meat and products thereof' were reported by France and Lithuania (one outbreak each), and one weak-evidence outbreak reported by Belgium was associated with the consumption of 'turkey meat and products thereof'. The food vehicle was reported to be 'unknown' or 'other foods' for the remaining outbreaks.

## Public health implications

Pigs are the most important reservoir for *Y. enterocolitica* [6,8], and many cases are considered to be related to the consumption of undercooked contaminated pork or cross-contamination of other food items during handling and preparation of raw pork. Pork should be consumed only after adequate cooking, especially when given to young children. Proper kitchen hygiene is required to avoid cross-contamination.

## References

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