

SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

Cryptosporidiosis

Key facts

- In 2015, 10 982 cryptosporidiosis cases were reported in the EU/EEA, of which 10 915 were confirmed.
- There were 41% more confirmed cases reported in 2015 than were reported in 2014.
- As in previous years, notifications peaked between late summer and autumn (August–October). The peak was larger in 2015 than it had been in 2011–2014.
- The notification rate was 3.1 confirmed cases per 100 000 population, which was 25% higher than the rate in 2014. Cases aged 0–4 years showed the highest notification rate, with 11.9 confirmed cases per 100 000 population.

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, cryptosporidiosis data were reported by 25 EU/EEA countries, of which five reported zero cases. The number of reporting countries has risen steadily since 2011 when only 20 countries were reporting data. Portugal reported data for the first time in 2015.

Of all reporting countries, 21 used the EU case definition for reporting cryptosporidiosis cases to TESSy, as published in 2008 and 2012. One country used the 2002 EU case definition for cryptosporidiosis, which excludes molecular detection methods, and three countries used other or unspecified case definitions.

Twenty-one countries have mandatory reporting of cryptosporidiosis cases at the national level, two countries have sentinel surveillance and two have other types of surveillance systems [2].

Suggested citation: European Centre for Disease Prevention and Control. Cryptosporidiosis. In: ECDC. Annual epidemiological report for 2015. Stockholm: ECDC; 2018.

Stockholm, January 2018

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Epidemiology

The number of confirmed cryptosporidiosis cases reported in EU/EEA countries in 2015 was 41% higher than in 2014 (N=10 915 vs N=7 768; Table 1). More than 99% of reported cases were confirmed. Three countries accounted for the majority (78%) of confirmed cases. These were the United Kingdom (54%), Germany (16%) and the Netherlands (8%) (Table 1, Figure 1). The United Kingdom reported 44% (n=1 799) more cases in 2015 than in 2014 (Table 1).

Notification rates

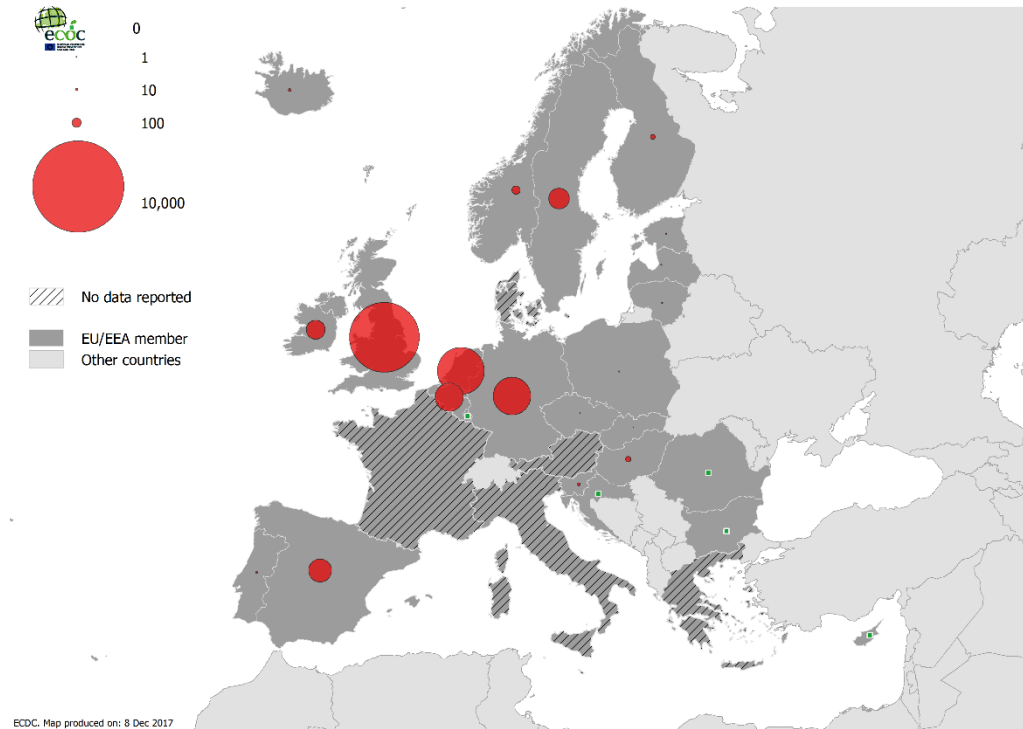
The notification rate in the EU/EEA in 2015 was 3.1 cases per 100 000 population, which is 29% higher than in 2014 (2.4 cases per 100 000 population). As in the previous year, the highest notification rate was observed in Ireland (9.4), followed by the United Kingdom (9.1) and Sweden (5.4) (Table 1, Figure 2). Belgium, the Netherlands and Spain were not included in these calculations since their cryptosporidiosis surveillance systems do not have national coverage (Table 1).

Table 1. Distribution of numbers and rate of confirmed cryptosporidiosis cases by country and year, EU/EEA, 2011–2015

Country	2011		2012		2013		2014		National coverage	Reported cases	2015		
	Confirmed cases		Confirmed cases		Confirmed cases		Confirmed cases				Confirmed cases		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate			Number	Rate	ASR
Austria	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	244	-	495	-	376	-	229	-	N	630	630	-	-
Bulgaria	0	0.0	4	0.1	0	0.0	3	0.0	Y	0	0	0.0	0.0
Croatia	-	-	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Czech Republic	0	0.0	4	0.0	2	0.0	1	0.0	Y	2	2	0.0	0.0
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	0	0.0	0	0.0	0	0.0	2	0.2	Y	4	4	0.3	0.3
Finland	22	0.4	50	0.9	24	0.4	31	0.6	Y	31	31	0.6	0.6
France	-	-	-	-	-	-	-	-	-	-	-	-	-
Germany	932	1.2	1 378	1.7	1538	1.9	1 718	2.1	Y	1 735	1 696	2.1	2.4
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	14	0.1	10	0.1	6	0.1	8	0.1	Y	64	41	0.4	0.5
Ireland	413	9.0	556	12.1	512	11.2	388	8.4	Y	438	433	9.4	7.2
Italy	-	-	-	-	-	-	-	-	-	-	-	-	-
Latvia	14	0.7	3	0.1	2	0.1	3	0.1	Y	3	3	0.2	0.1
Lithuania	1	0.0	1	0.0	2	0.1	1	0.0	Y	4	4	0.1	0.1
Luxembourg	1	0.2	0	0.0	0	0.0	1	0.2	Y	0	0	0.0	0.0
Malta	0	0.0	0	0.0	4	0.9	0	0.0	Y	1	1	0.2	-
Netherlands	-	-	-	-	479	-	464	-	N	872	872	-	-
Poland	1	0.0	2	0.0	1	0.0	5	0.0	Y	3	3	0.0	0.0
Portugal	-	-	-	-	-	-	-	-	Y	6	6	0.1	0.1
Romania	0	0.0	0	0.0	0	0.0	1	0.0	Y	0	0	0.0	0.0
Slovakia	0	0.0	1	0.0	12	0.2	1	0.0	Y	2	2	0.0	0.0
Slovenia	10	0.5	12	0.6	11	0.5	8	0.4	Y	15	15	0.7	0.7
Spain	79	-	291	-	107	-	326	-	N	646	646	-	-
Sweden	379	4.0	238	2.5	224	2.3	404	4.2	Y	527	527	5.4	5.6
United Kingdom	3 571	5.7	6 532	10.3	4 035	6.3	4 102	6.4	Y	5 901	5 901	9.1	9.1
EU	5 681	2.0	9 577	3.3	7 335	2.4	7 696	2.5	Y	10 884	10 817	3.1	3.1
Iceland	-	-	-	-	6	1.9	2	0.6	Y	12	12	3.6	3.5
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	-	-	4	0.1	31	0.6	70	1.4	Y	86	86	1.7	1.7
EU/EEA	5 681	2.0	9 581	3.2	7 372	2.3	7 768	2.4	-	10 982	10 915	3.1	3.1

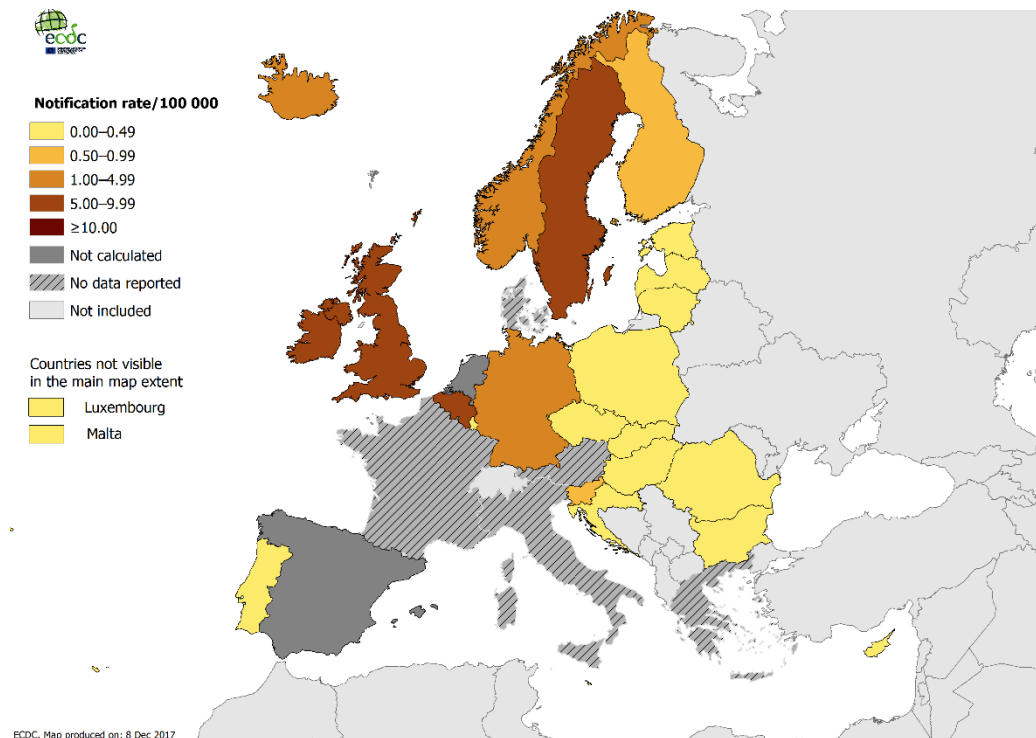
Source: Country reports. Legend: Y = yes, N = no, - = no data reported, ASR = age-standardised rate, - = no notification rate calculated.

Figure 1. Distribution of confirmed cryptosporidiosis cases by country, EU/EEA, 2015



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

Figure 2. Distribution of rates/100 000 population of confirmed cryptosporidiosis cases by country, EU/EEA, 2015



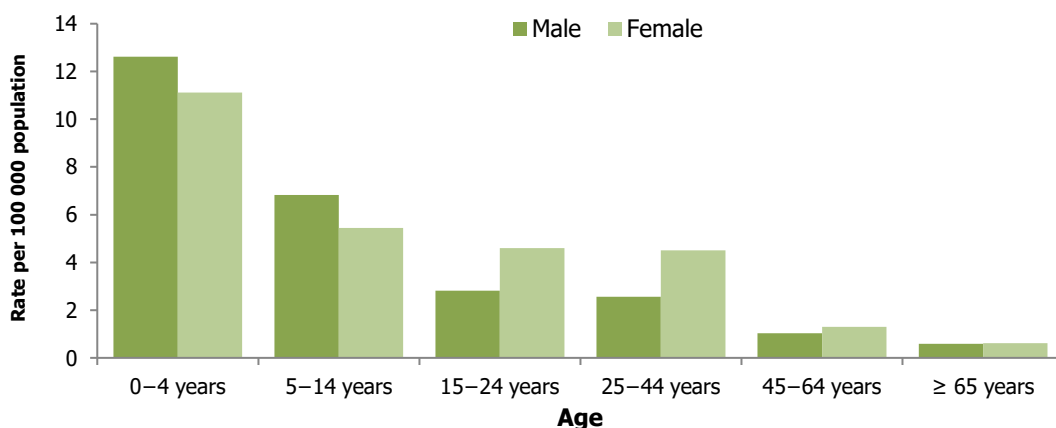
Source: Country reports from Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, the United Kingdom.

Age and gender distribution

Age and gender data were available for more than 99% of confirmed cryptosporidiosis cases. The highest notification rate for the EU/EEA was observed in the age group 0–4 years, with 12.6 confirmed cases per 100 000 males and 11.1 per 100 000 females (Figure 3). The highest notification rate in that age group was reported by Ireland (58.9 cases per 100 000 population), followed by the United Kingdom (29.6 cases per 100 000 population). Fourteen of the 21 countries that reported notification rates reported fewer than 1.5 cases per 100 000 population in this age group.

The overall male-to-female ratio was 0.9:1 and varied by age group (Figure 3).

Figure 3. Confirmed cryptosporidiosis cases by age and gender: rate per 100 000 population, EU/EEA, 2015

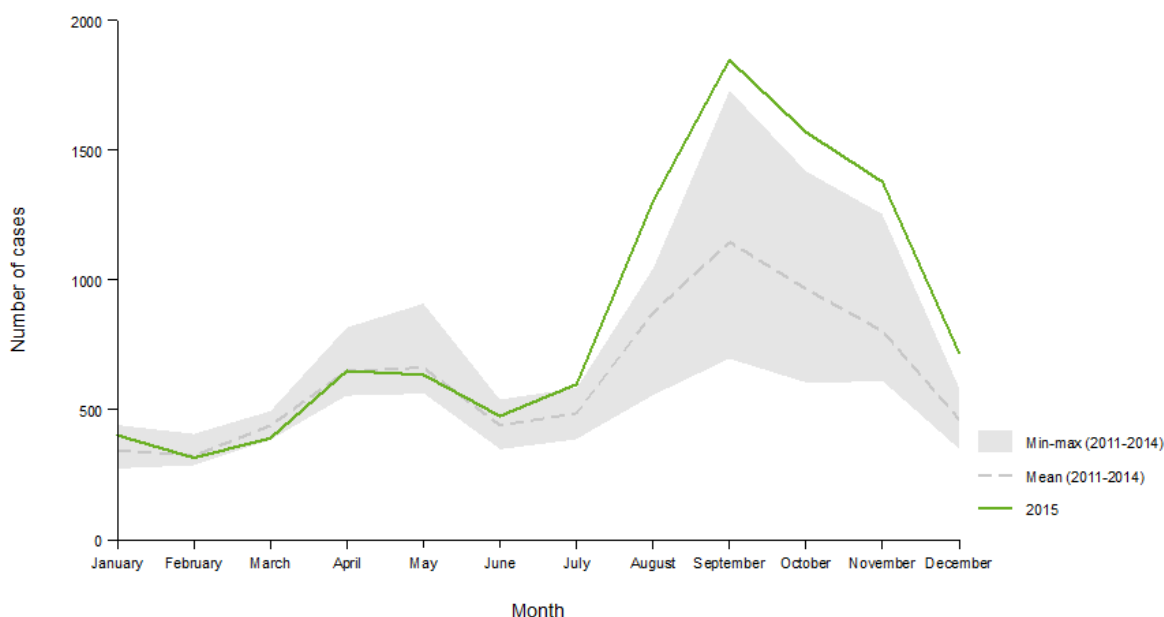


Source: Country reports from Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden and United Kingdom.

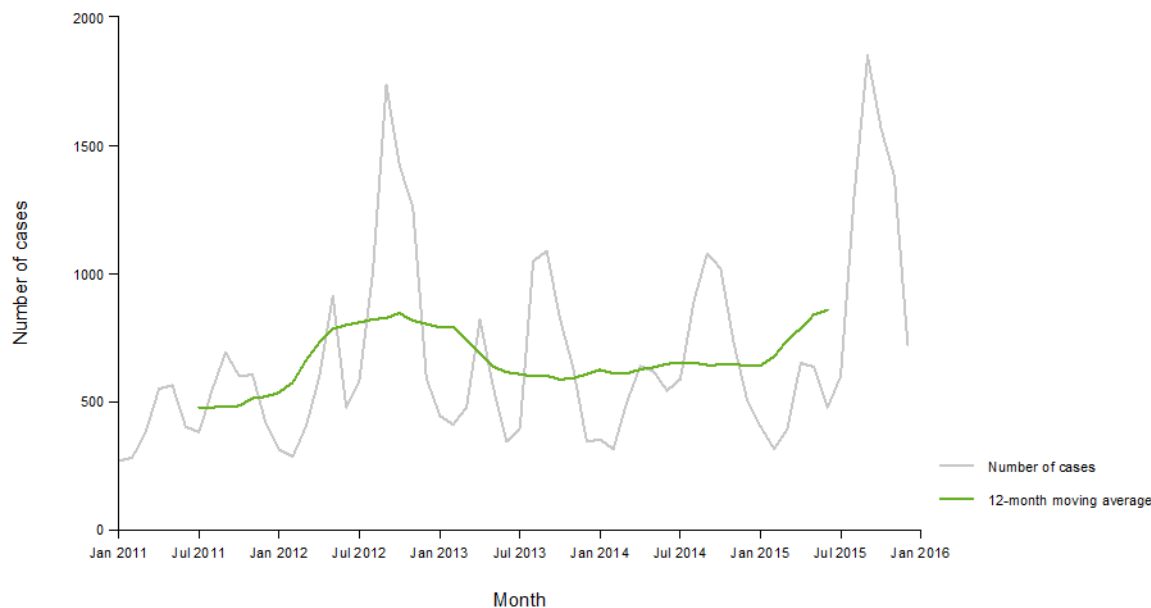
Seasonal distribution

In 2015, cryptosporidiosis case reports followed the same seasonal pattern as in previous years. Notably, the peak in notifications from late summer through the autumn was larger in 2015 than in 2011–2014 (Figures 4 and 5). Of the six countries that reported the most cases, only the United Kingdom reported a peak also in the spring.

Figure 4. Confirmed cryptosporidiosis cases by month: seasonal distribution, EU/EEA, 2015 compared with 2011–2014



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

Figure 5. Confirmed cryptosporidiosis cases by month: numbers and trend, EU/EEA, 2011–2015

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

Threats in 2015

No multi-country threats were reported to ECDC in 2015 in relation to unusual increases in cryptosporidiosis cases.

Discussion

Cryptosporidiosis remains a concern for human health and an important cause of severe gastrointestinal disease, especially in immunocompromised patients [4]. In 2013, *Cryptosporidium* spp. ranked fifth on a FAO/WHO list of globally important foodborne parasites for risk management [5].

Twenty-five EU/EEA Member States reported cryptosporidiosis to ECDC, but 13 countries reported just 25 cases in total, so it is likely that cryptosporidiosis is underreported in Europe. The notification rate of 3.1 cryptosporidiosis cases per 100 000 population in 2015 was essentially as high as the rate in 2012, with most of the excess number of cases reported during the typical late summer peak. The Netherlands, the United Kingdom and Germany experienced a particularly large and long summer peak, as they had done in 2012, following a summer of relatively heavy rainfall [6]. The United Kingdom reported more than half of all the EU/EEA cases in 2015 and reported far more cases than they had in 2014. The UK experienced several floods after heavy rainfall in 2015 and early 2016, which may have contributed to the high number of cases in the country. In the absence of known changes to their surveillance system, this increase in notifications in 2015 is unlikely to be a surveillance artefact.

ECDC is collecting species and subtype information on cryptosporidiosis, but reporting has been incomplete. Laboratory testing for cryptosporidiosis varies between countries, which also limits the knowledge of the epidemiology of this disease in the EU/EEA [7]. Clusters and outbreaks due to rare virulent subtypes continue to be reported in the EU/EEA [8-10], along with genetic recombination among genotypes [11].

Public health implications

Despite a relatively low EU/EEA notification rate, cryptosporidiosis is an important enteric disease to be monitored and controlled. The risk for *Cryptosporidium* infection is influenced by climate factors like heavy rainfalls and floods, increasing the risk particularly for children [12]. It is important to better understand the epidemiology of cryptosporidiosis in Europe also in terms of species and subtype distribution and trends. This requires increased laboratory testing for parasites, pathogen isolation, speciation and subtyping and more complete reporting.

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