



## SURVEILLANCE REPORT

### Annual Epidemiological Report for 2015

# Giardiasis

#### Key facts

- In 2015, 18 031 confirmed giardiasis cases were reported in the EU/EEA, an increase of 4.4% over 2014.
- The notification rate was 5.3 confirmed cases per 100 000 population.
- The highest notification rate was observed in the age group 0–4 years (16.8 for males and 14.1 for females).
- The trend for the period 2011–2015 remained stable.

#### Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 30 September 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].

Twenty-four countries reported giardiasis cases in the EU/EEA in 2015. Three of these countries had only partial population coverage. Twelve countries used the EU case definition from 2012, eight the one from 2008, and one country used the 2002 case definition; one country reported using another case definition, and two did not specify which case definition was used. The majority of the countries (21 of 24) undertook passive surveillance. In 15 countries, cases were reported by both laboratories and physicians and/or hospitals. Nineteen of the countries who reported data used a case-based format.

Notification rates and age-standardised rates were not calculated for Belgium, Romania and Spain because their national surveillance systems are sentinel systems and do not cover the whole population.

#### Epidemiology

In 2015, 18 031 confirmed giardiasis cases were reported by 24 countries in the EU/EEA; the overall rate was 5.3 cases per 100 000 population (Table 1). Malta reported zero cases. The highest number of confirmed cases

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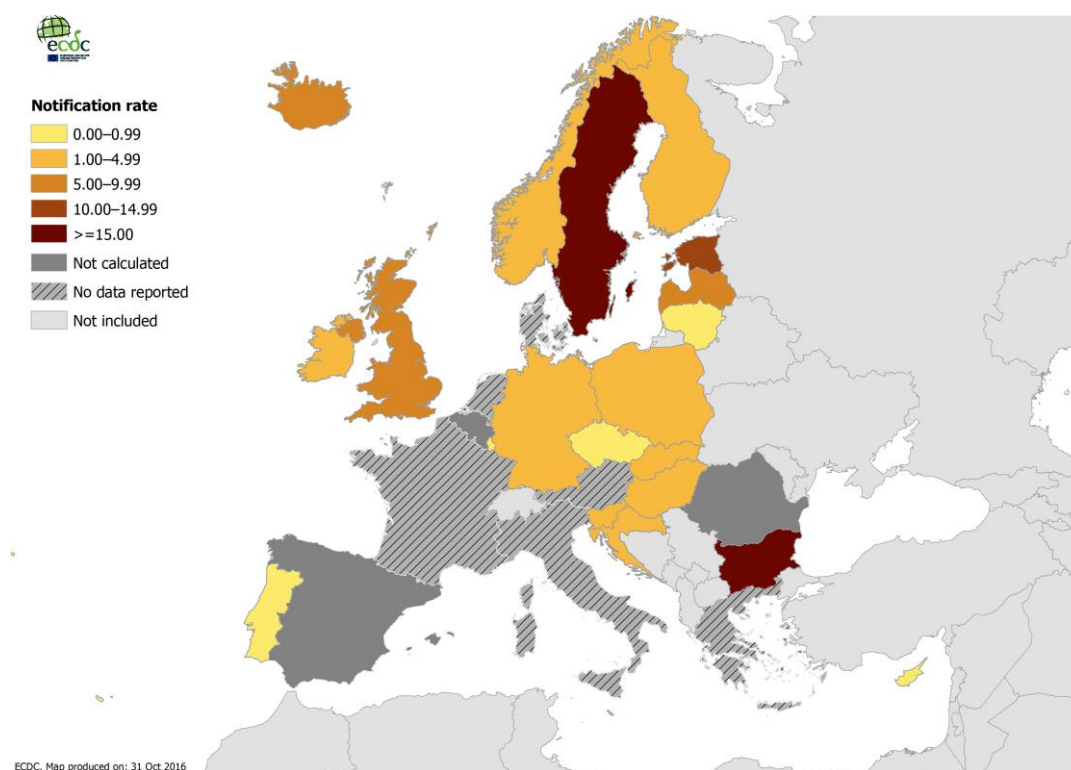
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was reported by the United Kingdom (N=4 536), followed by Germany (N=3 583); these two countries accounted for 45% of all cases in the EU/EEA in 2015. Bulgaria had the highest rate: 17.3 cases per 100 000 population (Figure 1)

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

Country	2011		2012		2013		2014		National coverage	Reported cases	2015		
	Confirmed cases Number	Rate	Confirmed cases Number	Rate	Confirmed cases Number	Rate	Confirmed cases Number	Rate			Confirmed cases Number	Rate	ASR
Austria	.	.	.	.	.	.	.	.	.	.	.	.	.
Belgium	1383	-	1244	-	1220	-	1144	-	N	1270	1270	-	-
Bulgaria	1959	26.6	1560	21.3	1873	25.7	1731	23.9	Y	1245	1245	17.3	19.6
Croatia	.	.	69	1.6	0	0.0	80	1.9	Y	93	93	2.2	2.3
Cyprus	2	0.2	4	0.5	3	0.3	3	0.3	Y	6	6	0.7	0.7
Czech Republic	45	0.4	49	0.5	46	0.4	42	0.4	Y	33	33	0.3	0.3
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	245	18.4	254	19.2	195	14.8	221	16.8	Y	181	181	13.8	13.9
Finland	404	7.5	394	7.3	336	6.2	287	5.3	Y	259	259	4.7	4.9
France	.	.	.	.	.	.	.	.	.	.	.	.	.
Germany	4235	5.3	4216	5.2	4107	5.1	4013	5.0	Y	3602	3583	4.4	4.7
Greece	.	.	.	.	.	.	.	.	.	.	.	.	.
Hungary	85	0.9	81	0.8	59	0.6	59	0.6	Y	130	130	1.3	1.4
Ireland	56	1.2	54	1.2	44	1.0	71	1.5	Y	145	145	3.1	3.0
Italy	.	.	.	.	.	.	.	.	.	.	.	.	.
Latvia	15	0.7	17	0.8	37	1.8	73	3.6	Y	184	184	9.3	9.5
Lithuania	8	0.3	13	0.4	13	0.4	13	0.4	Y	9	9	0.3	0.3
Luxembourg	0	0.0	2	0.4	1	0.2	3	0.5	Y	2	2	0.4	0.3
Malta	10	2.4	1	0.2	0	0.0	2	0.5	Y	0	0	0.0	0.0
Netherlands	.	.	.	.	.	.	.	.	.	.	.	.	.
Poland	1670	4.4	1622	4.3	1830	4.8	1871	4.9	Y	1746	1740	4.6	-
Portugal	.	.	.	.	.	.	.	.	Y	26	26	0.3	0.3
Romania	315	-	260	-	328	-	796	-	N	959	959	-	-
Slovakia	162	3.0	243	4.5	180	3.3	166	3.1	Y	228	228	4.2	4.2
Slovenia	31	1.5	35	1.7	42	2.0	38	1.8	Y	30	30	1.5	1.6
Spain	530	-	859	-	885	-	1487	-	N	1627	1627	-	-
Sweden	1045	11.1	1081	11.4	1253	13.1	1260	13.1	Y	1473	1473	15.1	15.1
United Kingdom	3938	6.2	4137	6.5	3840	6.0	3628	5.6	Y	4536	4536	7.0	7.1
EU	16138	5.7	16195	5.6	16292	5.6	16988	5.4	Y	17784	17759	5.3	5.7
Iceland	34	10.7	22	6.9	20	6.2	22	6.8	Y	25	25	7.6	6.9
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	234	4.8	179	3.6	227	4.5	264	5.2	Y	247	247	4.8	4.8
EU/EEA	16406	5.7	16396	5.5	16539	5.5	17274	5.4	.	18056	18031	5.3	5.6

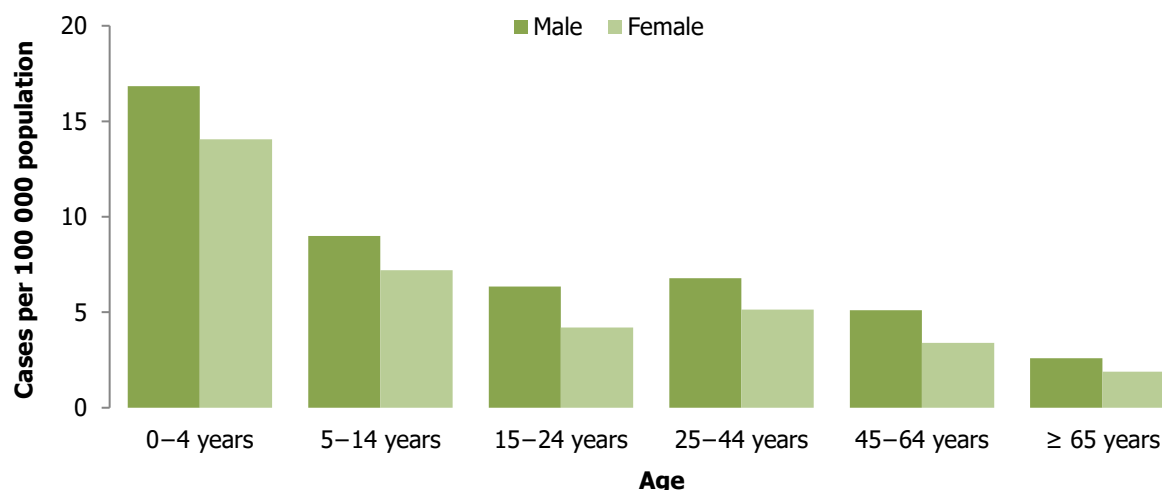
Source: Country reports. Legend: Y = yes, N = no, C = case based, A = aggregated, . = no data reported, ASR: age-standardised rate, - = no report

**Figure 1. Distribution of confirmed giardiasis cases per 100 000 population, 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, Slovakia, Slovenia, Sweden, the United Kingdom.

## Age and gender distribution

Of 15 274 confirmed cases with information on gender, 8 712 (57%) were male. The male-to-female ratio was 1.3:1. The highest rate was detected in 0–4-year-olds (15.8 cases per 100 000 population); this age group accounted 2 722 of the 18 031 cases for whom information on age was available (Figure 2).

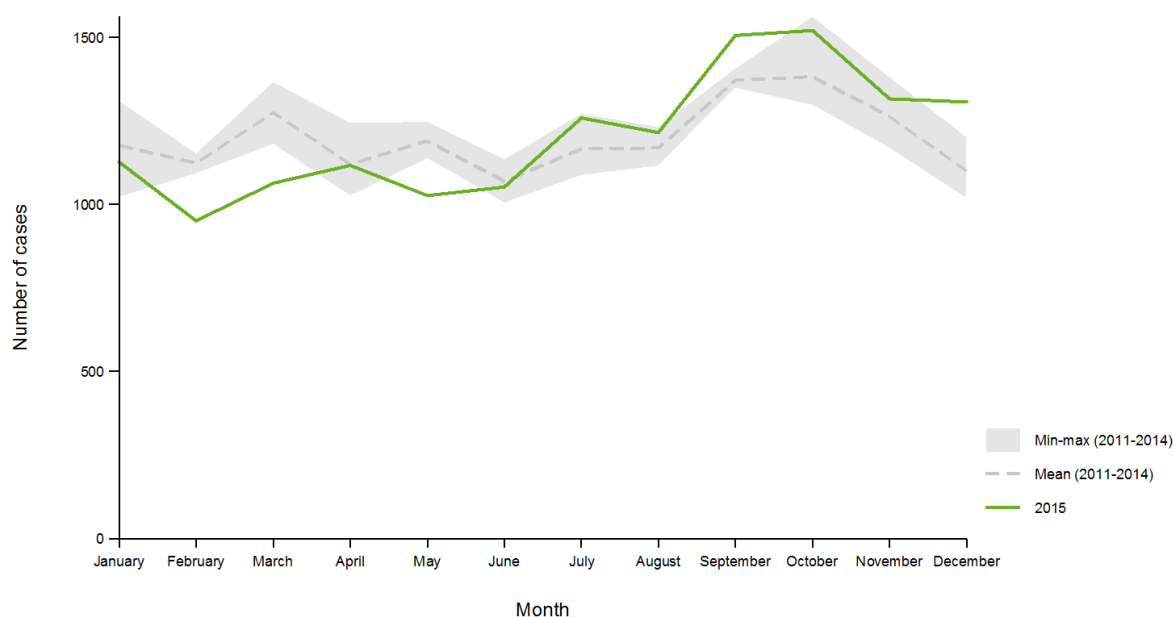
**Figure 2. Distribution of confirmed giardiasis cases per 100 000 population, by age and gender, EU/EEA, 2015**

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

## Seasonal distribution

In 2015, cases of giardiasis did not show a clear seasonal pattern (Figure 3). A higher number of cases were reported between August and November.

**Figure 3. Distribution of confirmed giardiasis cases by month, EU/EEA, 2015, compared with 2011–2014**

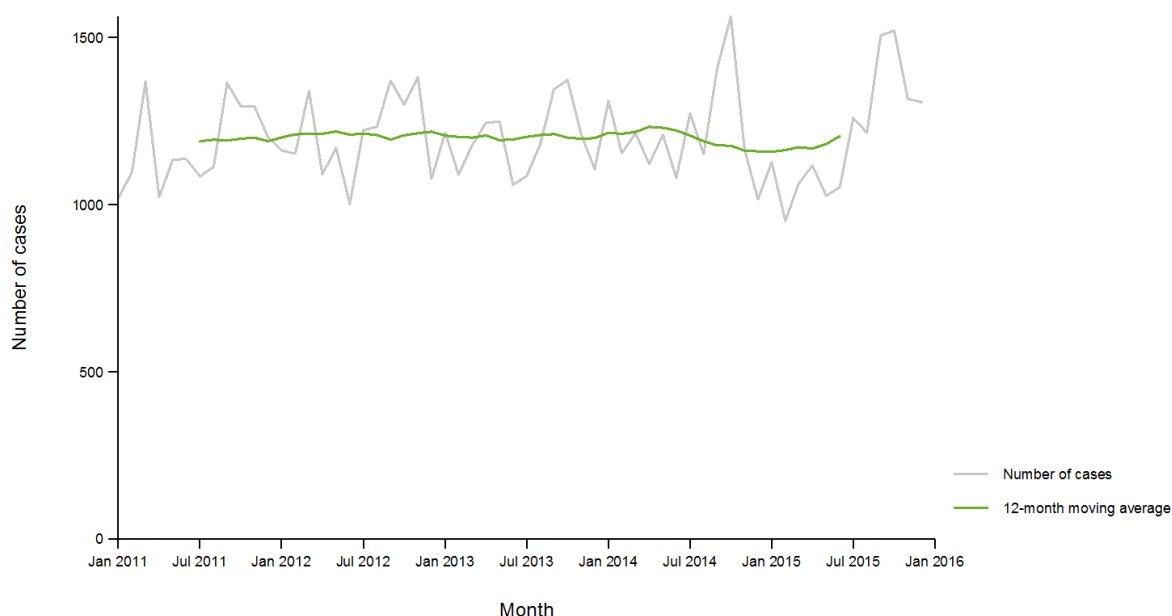


Source: Country reports from Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

## Multiannual trend

Between 2011 and 2015, the number of giardiasis cases remained stable at the EU/EEA level (Figure 4).

**Figure 4. Distribution of confirmed giardiasis cases by month and 12-month moving average, 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, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom

## Threats description for 2014

No public health threats related to giardiasis were reported to, or detected by, ECDC in 2015.

## Discussion

Giardiasis is a common parasitic infection and occurs worldwide. It is caused by the protozoan *Giardia lamblia* (syn. *G. duodenalis*, *G. intestinalis*) [4]. *G. lamblia* organisms have been subclassified by molecular typing into eight genetic assemblages (designated A–H), only two of which (A and B) have been found to infect humans [5]. Recent studies found assemblage-specific risk factors and routes of transmission [6,7]. Infection occurs most frequently via ingestion of contaminated food or water (including recreational water exposure [7,8]). Person-to-person transmission, e.g. through sexual transmission [9] or poor hygiene practices [7], may also occur. The disease may be asymptomatic and self-limiting or be characterised by fatigue, bloating, acute diarrhoea or chronic gastrointestinal symptoms [10]. An increasing amount of evidence suggests that giardiasis may elicit very long-term sequelae [11,12].

The multiannual trend of reported giardiasis in the EU/EEA is stable, however the notification rates remain high, in particular in young children (0–4 years) and in eastern and southern Europe. Considering the likely degree of underreporting and under-ascertainment [10], this infection is of public health concern because of the occurrence of drug resistance [14] and the potential spread due to climate change [15].

## Public health implications

Giardiasis remains a common parasitic disease in the EU/EEA. More studies are needed to understand the epidemiology and determinants of this disease [16] and its long-term outcomes [12,17], in particular for early-life giardiasis [18]. Advances in the molecular characterisation of giardiasis diagnostics should be harnessed to determine whether the large genetic differences within assemblages of *G. lamblia* strengthen the argument that the assemblages represent different *Giardia* species [19]. The respective case definitions for data reporting could be updated accordingly to allow for better data collection. These improved data could then inform public health decisions.

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