SURVEILLANCE REPORT

Annual Epidemiological Report for 2016

Giardiasis (lambliasis)

Key facts

- In 2016, 18 985 confirmed giardiasis cases were reported in the EU/EEA, representing an increase of 5.3% from 2015.
- The notification rate was 5.8 confirmed cases per 100 000 population.
- The highest notification rate was observed in the age group 0–4 years (20.8 for males and 17.5 for females).
- The trend for the period from 2012 to 2016 remained stable.
- The highest notification rates were reported in Bulgaria and Belgium.

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, 24 EU/EEA Member States (22 EU Member States plus Iceland and Norway) reported giardiasis data, 22 of them with national coverage. Thirteen of the 24 Member States used the latest case definition (EU 2012), eight the one from 2008 and one from 2002, whereas one Member State reported using another case definition and one did not specify. The majority of the Member States (22 of 24) undertook passive surveillance and in 14 countries, cases were reported by both laboratory and physicians and/or hospitals. Nineteen of the 24 Member States reported case-based data.

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

Suggested citation: European Centre for Disease Prevention and Control. Giardiasis (lambliasis). In: ECDC. Annual epidemiological report for 2016. Stockholm: ECDC; 2018.

Stockholm, October 2018

Epidemiology

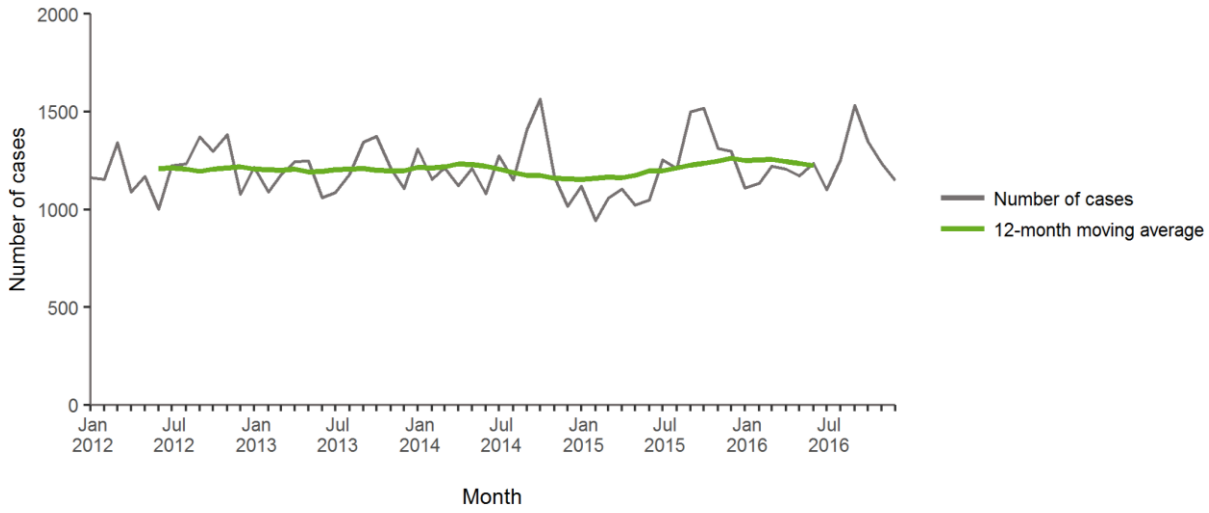
In 2016, 18 985 confirmed giardiasis cases were reported by 24 countries in the EU/EEA, with an overall rate of 5.8 per 100 000 population. Luxembourg reported no cases. The highest number of confirmed cases was reported by the United Kingdom (n=4 723), followed by Germany (n=3 473). These two countries accounted for 43% of all confirmed giardiasis cases in the EU/EEA. Bulgaria had the highest rate at 19.1 per 100 000 population, followed by Belgium (17.7 per 100 000 population). In both countries, there was increase in the notification rate compared with the previous year.

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

	2012		2013		2014		2015		2016			
Country	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	.	.	.	.	.	.	.	.	.	.	.	.
Belgium	1 244	11.2	1 220	11.0	1 144	10.2	1 270	11.3	1 998	17.7	17.6	1 998
Bulgaria	1 560	21.3	1 873	25.7	1 731	23.9	1245	17.3	1 367	19.1	21.5	1 367
Croatia	69	1.6	0	0.0	80	1.9	93	2.2	50	1.2	1.3	56
Cyprus	4	0.5	3	0.3	3	0.3	6	0.7	1	0.1	0.1	1
Czech Republic	49	0.5	46	0.4	42	0.4	33	0.3	45	0.4	0.4	45
Denmark	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	254	19.2	195	14.8	221	16.8	181	13.8	187	14.2	14.3	187
Finland	394	7.3	336	6.2	287	5.3	259	4.7	282	5.1	5.4	282
France	.	.	.	.	.	.	.	.	.	.	.	.
Germany	4 216	5.2	4 107	5.1	4 014	5.0	3 581	4.4	3 473	4.2	4.5	3 484
Greece	.	.	.	.	.	.	.	.	.	.	.	.
Hungary	81	0.8	59	0.6	59	0.6	130	1.3	108	1.1	1.1	108
Iceland	22	6.9	20	6.2	22	6.8	25	7.6	19	5.7	5.2	19
Ireland	54	1.2	44	1.0	71	1.5	145	3.1	202	4.3	4.3	202
Italy	.	.	.	.	.	.	.	.	.	.	.	.
Latvia	17	0.8	37	1.8	73	3.6	184	9.3	76	3.9	3.9	76
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	13	0.4	13	0.4	13	0.4	9	0.3	10	0.3	0.3	10
Luxembourg	2	0.4	1	0.2	3	0.5	2	0.4	0	0.0	0.0	0
Malta	1	0.2	0	0.0	2	0.5	0	0.0	4	0.9	1.1	4
Netherlands	.	.	.	.	.	.	.	.	.	.	.	.
Norway	179	3.6	227	4.5	264	5.2	247	4.8	343	6.6	6.7	343
Poland	1 622	4.3	1 830	4.8	1 871	4.9	1 687	4.4	1 445	3.8	-	1 446
Portugal	.	.	.	.	.	.	26	0.3	30	0.3	0.3	30
Romania	260	-	328	-	796	-	959	-	892	-	-	892
Slovakia	243	4.5	180	3.3	166	3.1	228	4.2	284	5.2	5.2	284
Slovenia	35	1.7	42	2.0	38	1.8	30	1.5	54	2.6	2.6	54
Spain	859	-	885	-	1 487	-	1 627	-	1 901	-	-	2 069
Sweden	1 081	11.4	1 253	13.1	1 260	13.1	1 473	15.1	1 491	15.1	15.3	1 491
United Kingdom	4 137	6.5	3 840	6.0	3 628	5.6	4 536	7.0	4 723	7.2	7.4	4 723
EU/EEA	**16 396**	**5.8**	**16 539**	**5.8**	**17 275**	**5.6**	**17 976**	**5.5**	**18 985**	**5.8**	**6.3**	**19 171**

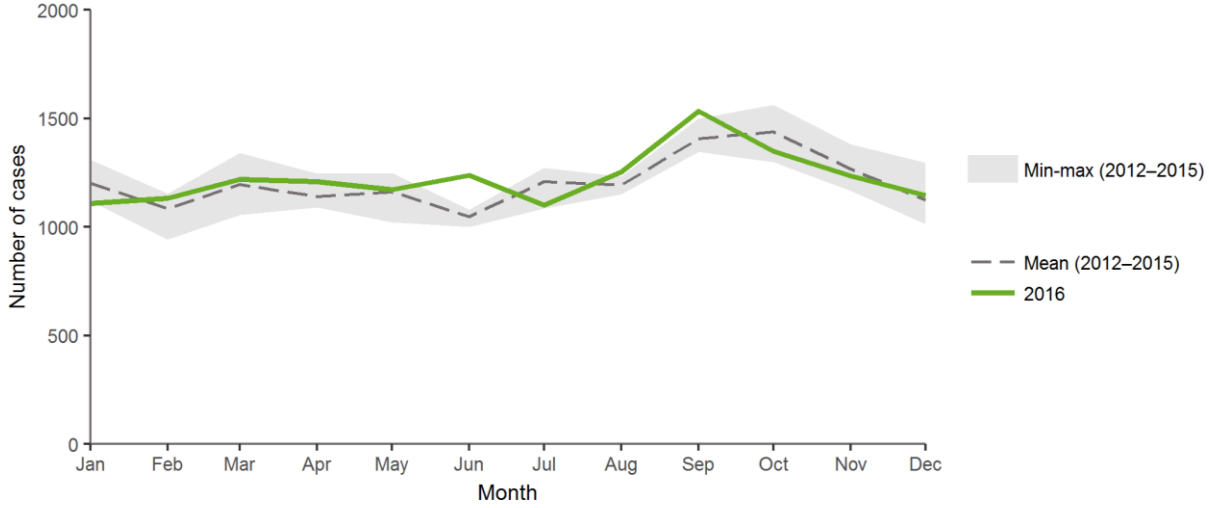
Source: Country reports.
ASR: Age-standardised rate
: No data reported
-: No rate calculated.

Figure 1. Distribution of confirmed giardiasis cases by month, EU/EEA, from 2012 to 2016



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

Figure 2. Distribution of confirmed giardiasis cases by month, EU/EEA, 2016 and from 2012 to 2015



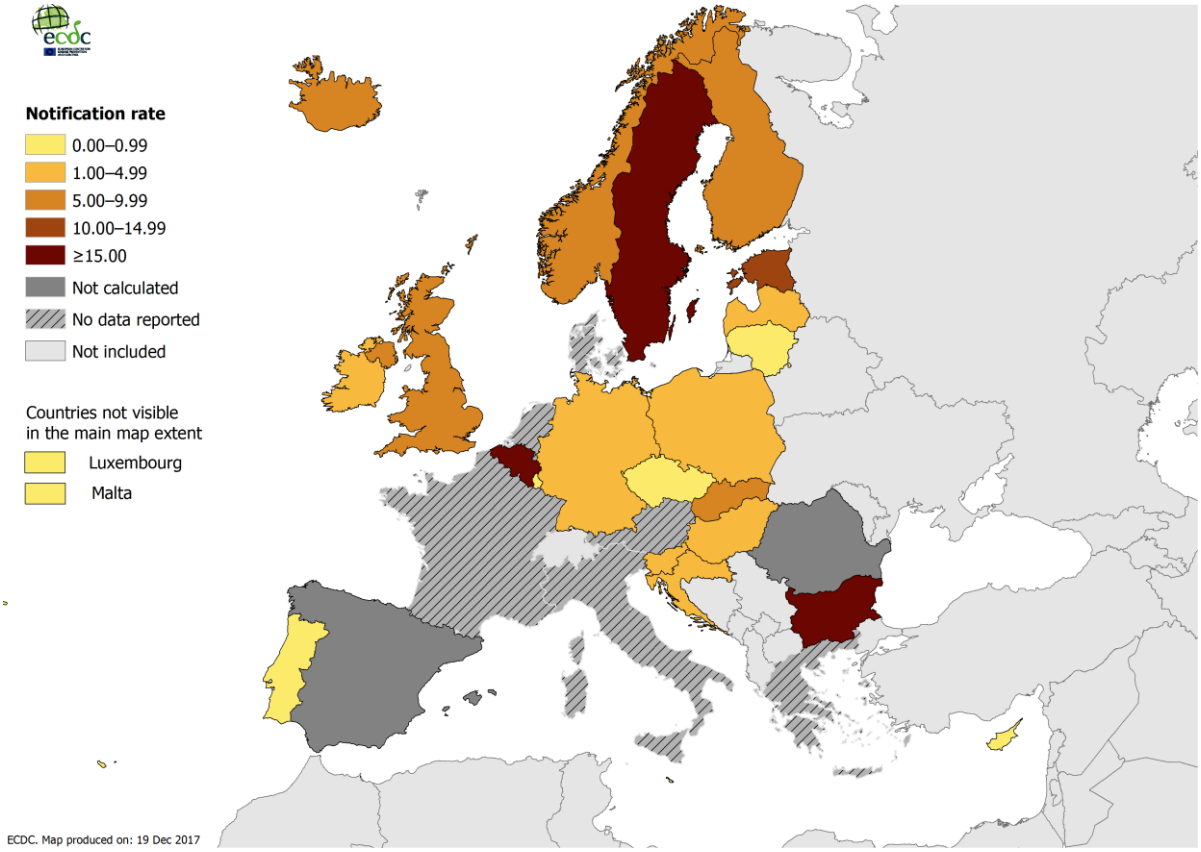
Source: Country reports from Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

The number of confirmed giardiasis cases remained stable at the EU/EEA level between 2012 and 2016 (Figure 1).

In 2016, cases of giardiasis did not show a clear seasonal pattern (Figure 2), although a higher number of cases were reported between August and October and peaking in September, which was a month earlier than in the previous four years (Figure 2).

The majority (60.1%) of giardiasis cases with known information in the EU/EEA were domestically acquired except in three Nordic countries (Iceland, Norway and Sweden), where from 71.0% to 82.8 % of the cases were travel-associated.

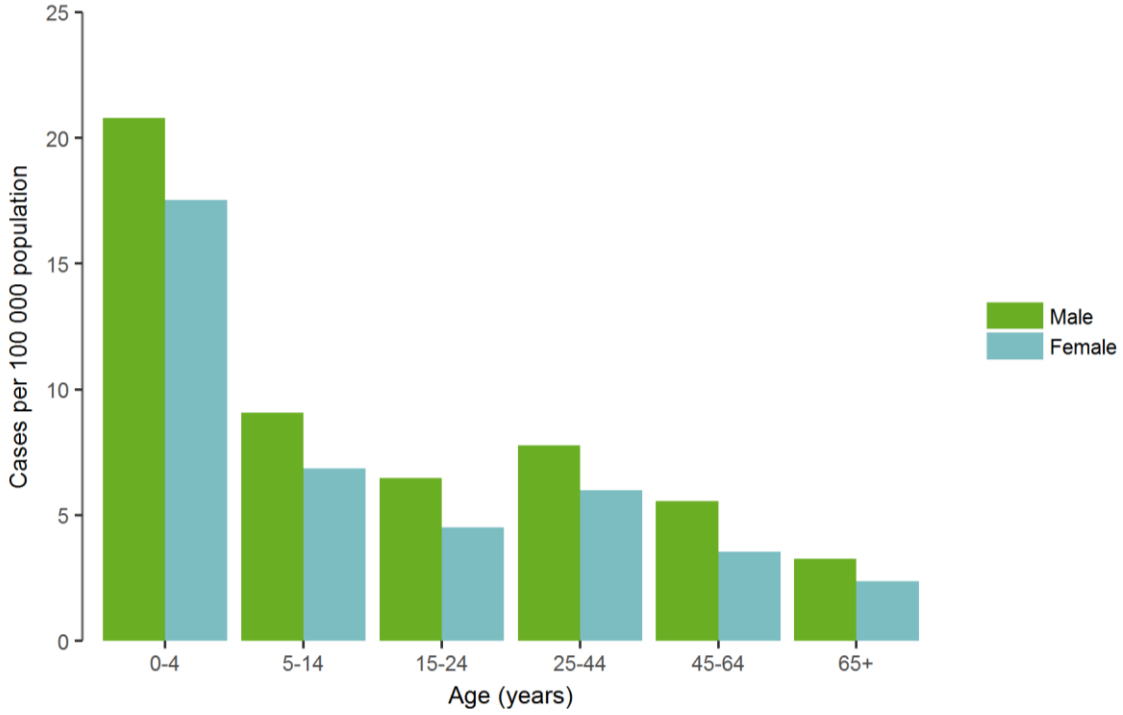
Figure 3. Distribution of confirmed giardiasis cases per 100 000 population by country, EU/EEA, 2016



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

Of 16 573 confirmed cases with information on gender, 57% were males and 43% were females, corresponding to a male-to-female ratio of 1.3:1. The highest notification rate was detected in the age group 0–4-years (19.4 per 100 000 population). This age group accounted for 3 038 of the 18 985 cases with information on age (16%). The notification rate decreased with age and was lowest in persons ≥ 65 years (3.3 per 100 000 population in males and 2.4 in females).

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



Outbreaks and other threats

No multi-country threats related to giardiasis were reported in 2016.

Discussion

Giardiasis is the most common parasitic infection in the EU/EEA among the five food- and waterborne parasitic diseases under mandatory EU surveillance. Surveillance of giardiasis covers the entire population in most EU/EEA countries. However, one-fourth of EU Member States do not have surveillance systems for giardiasis and do not report cases. In 2012 to 2016, the overall multi-annual trend of giardiasis cases remained stable. In 2016, Belgium reported the second-highest notification rate for giardiasis. This rate increase was mainly due to the additional involvement of a large laboratory in 2016. Excluding this new laboratory, no increase of giardiasis was observed in 2016 compared with 2015 (personal communication with Sofieke Klamer, Sciensano, 9 July 2017). Half of the giardiasis cases were reported with information about importation. In the majority of countries, cases were mainly domestically acquired. In three Nordic countries (Iceland, Norway and Sweden), cases were mostly associated with travel outside the EU. In Sweden, over 80% of the cases were infected abroad and the majority of these cases were immigrants/refugees.

Giardiasis is caused by the protozoan *Giardia lamblia* (syn. *G. duodenalis*, *G. intestinalis*). *G. lamblia* organisms have been sub-classified using molecular typing into eight genetic assemblages (designated A–H), only two of which (A and B) have been found to infect humans [4]. *G. lamblia* also infects other mammalian hosts and thus has zoonotic potential. Recent studies found assemblage-specific risk factors and routes of transmission [5]. Infection occurs most frequently via ingestion of contaminated food or water (including recreational water exposure [4,5]). Person-to-person transmission, e.g. through sexual transmission [6] or poor hygiene practices [5], may also occur.

Notification rates remain high, in particular in young children aged 0-4 years and in Eastern and Southern Europe. A recent review in 19 Eastern European countries assessed the significance of *Giardia* spp. infections in humans and animals, as well as in the environment. The review showed that *Giardia* spp. are common parasites of domestic animals, including pets, in Eastern Europe and importantly, genotypes pathogenic to humans, including *G. lamblia* assemblage A and B, are prevalent [7]. Some countries had discrepancies in the notification rates provided in the study and compared to the officially reported rates in the European Surveillance System, suggesting under-reporting throughout Eastern Europe [7]. Considering the likely degree of under-reporting and under-ascertainment [8], giardiasis is of public health concern because of the occurrence of drug resistance [9] and potential favourable spread due to climate change [10].

Public health implications

Giardiasis remains the most commonly reported food- and waterborne parasitic disease in the EU/EEA. More studies are needed to understand the epidemiology and determinants of this disease and its long-term outcomes. Parasites have complex lifecycles, often with long incubation periods and asymptomatic or sub-clinical manifestations, making diagnosis based on clinical symptoms alone challenging. Laboratories should have adequate techniques to confirm the suspected cases. While characterisation techniques in parasitology are not as well developed as those for bacteriology or virology, several studies have documented the added value of molecular techniques. Advances in the molecular characterisation of giardiasis diagnostics would improve more complex subtyping of the isolates with large genetic differences, particularly in outbreak situations.

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