

Shigellosis

Annual Epidemiological Report for 2017

Key facts

- Shigellosis is a relatively uncommon disease in the European Union/European Economic Area (EU/EEA), but remains of concern in some countries and for some population groups.
- For 2017, 30 EU/EEA countries reported 6 337 confirmed shigellosis cases.
- The overall notification rate was 1.7 cases per 100 000 population, slightly higher than in 2016.
- The highest notification rate was observed in children below five years of age, followed by male adults aged 25–44 years. Sexual transmission of shigellosis among men who have sex with men (MSM) is thought to have contributed to the gender imbalance in the latter group.

Methods

This report is based on data for 2017 retrieved from The European Surveillance System (TESSy) on 11 September 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 from ECDC's webpage [2].

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [3].

For 2017, 30 countries reported data, of which 24 used the EU case definition for shigellosis from 2008 or 2012 (which are identical). Denmark, France, Germany and Italy used a case definition described as 'other' and Belgium and Finland did not specify the definitions they used [2].

Twenty-five countries had a compulsory notification system. France, Italy and Luxembourg used a voluntary system and Belgium and the United Kingdom (UK) used another type of surveillance system. All countries had comprehensive surveillance of shigellosis except Italy, which used a sentinel system. In France, shigellosis surveillance is estimated to cover only 44% of the population, and this coverage was used when calculating the notification rate. Czechia and Slovakia used active surveillance systems, while all other countries used passive systems. Twenty-one countries had surveillance systems that integrate laboratory and epidemiological data from physicians or hospitals.

In addition to TESSy records, information from event-based surveillance for shigellosis clusters and outbreaks with a potential EU/EEA dimension was collected through the Epidemic Intelligence Information System for Food- and Waterborne Diseases (EPIS-FWD).

Suggested citation: European Centre for Disease Prevention and Control. Shigellosis. In: ECDC. Annual epidemiological report for 2017. Stockholm: ECDC; 2020.

Stockholm, September 2020

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Epidemiology

For 2017, 30 countries reported 6 425 cases of shigellosis (Table 1), 6 337 of which were confirmed. Four countries accounted for 61.3% of confirmed cases: Germany, France, the Netherlands and the UK, with the UK alone accounting for 32.2% of confirmed cases. The overall EU/EEA notification rate for shigellosis cases was 1.7 cases per 100 000 population in 2017. Slovakia reported the highest notification rate of all EU/EEA countries with 4.7 cases per 100 000 population, an increase of 74.1% compared with 2016, followed by Bulgaria with 4.3, France with 3.4, and Belgium and the UK both with 3.1 cases per 100 000 population (Table 1, Figure 1).

Travel information was available for 64.0% of the confirmed cases and, of these, 42.9% were related to travel, mostly to India and Morocco. The proportion of confirmed cases associated with travel was available for 23 countries [3].

Table 1. Distribution of confirmed shigellosis cases by year and country, EU/EEA, 2013–2017

Country	2013		2014		2015		2016		2017			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	70	0.8	75	0.9	96	1.1	62	0.7	54	0.6	0.6	54
Belgium	323	-	403	-	391	3.5	353	3.1	353	3.1	3.1	353
Bulgaria	486	6.7	512	7.1	410	5.7	291	4.1	308	4.3	4.8	308
Croatia	19	0.4	0	0.0	12	0.3	6	0.1	1	0.0	0.0	1
Cyprus	0	0.0	0	0.0	0	0.0	1	0.1	1	0.1	0.0	1
Czechia	247	2.3	92	0.9	88	0.8	68	0.6	166	1.6	1.7	168
Denmark	109	1.9	110	2.0	170	3.0	212	3.7	137	2.4	2.4	137
Estonia	12	0.9	10	0.8	12	0.9	17	1.3	16	1.2	1.3	16
Finland	111	2.0	89	1.6	86	1.6	59	1.1	85	1.5	1.6	91
France	662	2.3*	873	3.0*	822	2.8*	828	2.8*	997	3.4*	3.5*	997
Germany	562	0.7	509	0.6	553	0.7	419	0.5	436	0.5	0.6	437
Greece	112	1.0	90	0.8	78	0.7	72	0.7	81	0.8	0.8	81
Hungary	39	0.4	7	0.1	65	0.7	23	0.2	18	0.2	0.2	20
Iceland	0	0.0	2	0.6	1	0.3	0	0.0	6	1.8	1.7	6
Ireland	45	1.0	53	1.1	88	1.9	84	1.8	97	2.0	2.0	107
Italy	19	-	24	-	26	-	20	-	17	-	-	17
Latvia	2	0.1	8	0.4	12	0.6	3	0.2	3	0.2	0.2	3
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	32	1.1	21	0.7	24	0.8	13	0.5	9	0.3	0.3	9
Luxembourg	23	4.3	12	2.2	3	0.5	1	0.2	9	1.5	1.5	9
Malta	2	0.5	0	0.0	1	0.2	2	0.4	2	0.4	0.4	2
Netherlands	382	2.3	335	2.0	444	2.6	428	2.5	410	2.4	2.5	421
Norway	104	2.1	93	1.8	85	1.6	83	1.6	115	2.2	2.2	115
Poland	19	0.0	41	0.1	18	0.0	15	0.0	31	0.1	0.1	44
Portugal	2	0.0	5	0.0	33	0.3	13	0.1	12	0.1	0.1	12
Romania	156	0.8	147	0.7	168	0.8	129	0.7	122	0.6	0.6	128
Slovakia	256	4.7	222	4.1	191	3.5	145	2.7	257	4.7	4.9	276
Slovenia	10	0.5	18	0.9	34	1.6	17	0.8	16	0.8	0.9	16
Spain	141	0.3	230	0.5	293	0.6	180	0.4	325	0.7	0.7	343
Sweden	335	3.5	324	3.4	311	3.2	232	2.4	213	2.1	2.2	213
UK	2 076	3.2	2 226	3.5	2 208	3.4	1 856	2.8	2 040	3.1	3.2	2 040
EU/EEA	6 356	1.6	6 531	1.6	6 723	1.7	5 632	1.5	6 337	1.7	1.7	6 425

* Less than 100% of population covered; see under 'Methods'.

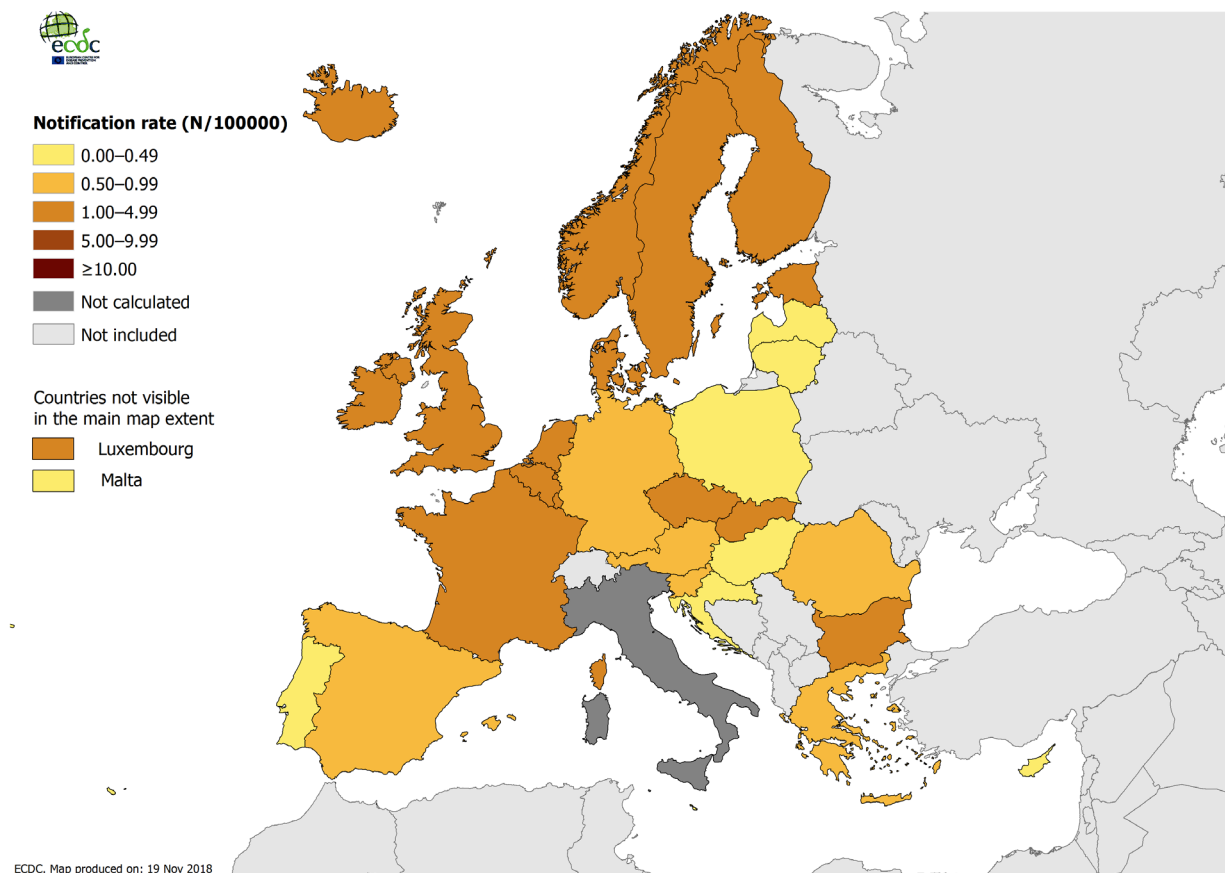
Sources: country reports.

ASR: age-standardised rate

∴ no data reported

-∴ no rate calculated

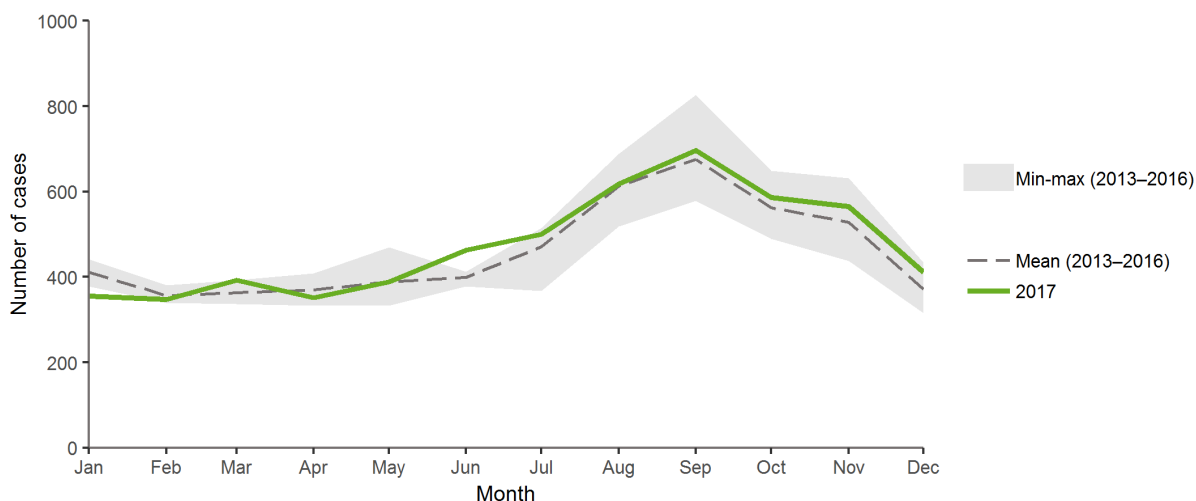
Figure 1. Distribution of confirmed shigellosis cases per 100 000 population by country, EU/EEA, 2017



Sources: country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the UK. No rate calculated for Italy.

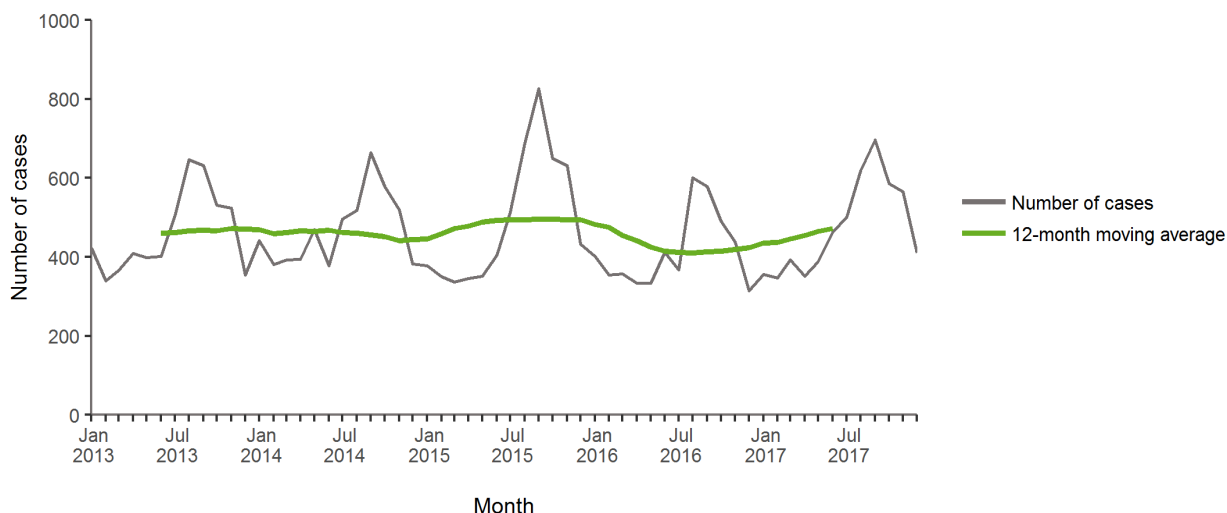
As in previous years, confirmed cases followed a characteristic seasonal trend, with peaks in late summer/autumn (Figure 2). For 2017, the number of cases reported in June was slightly higher than in previous years. No clear trend can be detected in the annual number of confirmed cases between 2013 and 2017 (Figure 3).

Figure 2. Distribution of confirmed shigellosis cases by month, EU/EEA, 2017 and 2013–2016



Sources: country reports from Austria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the UK.

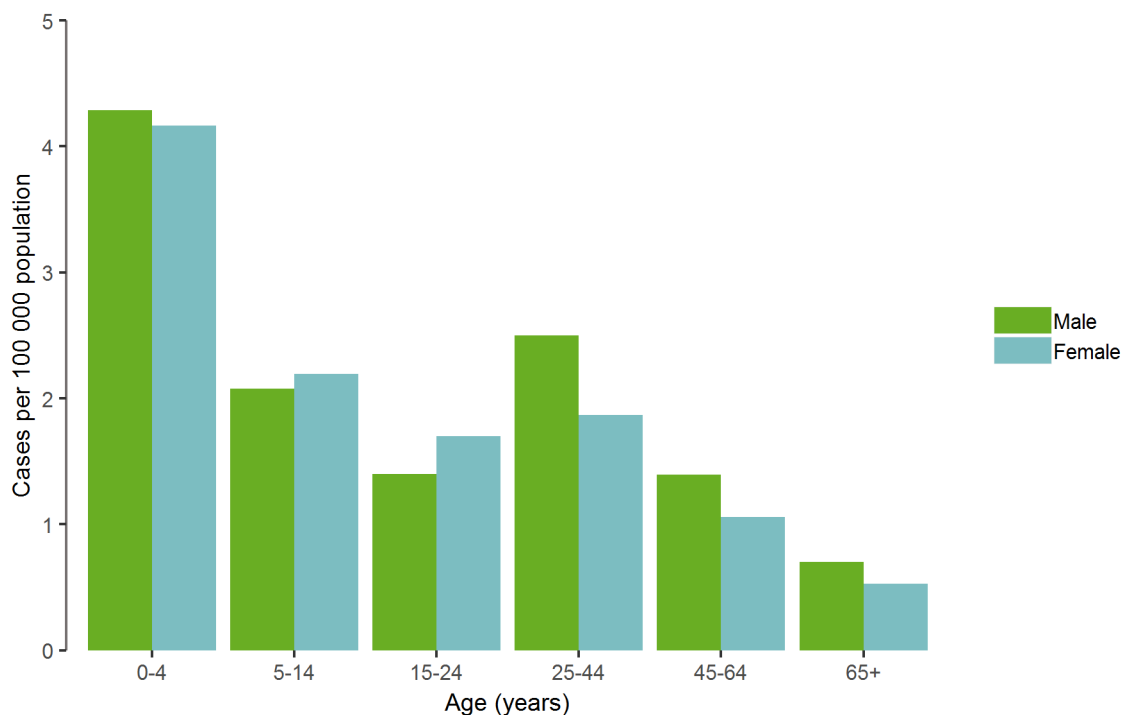
Figure 3. Distribution of confirmed shigellosis cases by month, EU/EEA, 2013–2017



Sources: country reports from Austria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the UK.

For 2017, the highest notification rate of shigellosis was observed in children below the age of five years: 4.3 cases per 100 000 population (Figure 4). Male cases aged 25–44 years had the second-highest overall notification rate at 2.5 cases per 100 000 population. Notification rates in the age group 0–4 years were highest in Bulgaria and Slovakia, with 34.5 and 39.4 cases per 100 000 population respectively. The overall male-to-female ratio was 1.2:1 and, in the age group 25–44 years, 1.4:1.

Figure 4. Distribution of confirmed shigellosis cases per 100 000 population, by age and gender, EU/EEA, 2017



Outbreaks and other threats

Ireland reported two shigellosis-related threats through EPIS-FWD in 2017. One was a cluster of ciprofloxacin-resistant *Shigella flexneri* 2a among MSM [4] and the other a suspected food-borne outbreak of *Shigella sonnei*.

Discussion

Shigellosis, although relatively uncommon in the EU/EEA, remains of concern in certain countries and population groups. Slovakia reported the highest notification rate of all EU/EEA countries for 2017, with high rates among young children. Despite a marked decrease in the notification rate between 2013 and 2017, Bulgaria continued to report high rates of infection among young children. The proportion of confirmed cases associated with travel was available for 23 countries, with 14 countries reporting cases as primarily domestically acquired. For the other nine countries, confirmed cases were mainly associated with foreign travel, predominantly to countries outside the EU/EEA. Young children living in low- and middle-income countries are most affected by shigellosis and *Shigella* is the second leading cause of global diarrhoea deaths [5]. Several food-borne outbreaks of shigellosis in recent years have been attributed to fresh vegetables or herbs imported from outside the EU/EEA [6]. Sexual transmission of shigellosis among MSM increased among domestically acquired cases in several European countries in recent years, particularly in the UK [7]. This could be an explanation for the overrepresentation of male cases in adults over the age of 24 years. Cases may be immunocompromised due to other infections. In England, a sustained increase in the national rate of shigellosis in MSM with HIV was observed during the period 2004–2015 [8].

The spread of a multidrug-resistant lineage of *S. flexneri* serotype 3a, which has been described among the MSM population globally, is of concern due to high-level resistance to azithromycin [4]. Italy reported the first case of locally-acquired, multidrug-resistant *S. flexneri* [9].

Sporadic cases in migrants, refugees and asylum-seekers have been reported in recent years, and these populations may be at increased risk of infection due to conditions in transit and reception centres. In Germany, it was reported that importation of *Shigella* by asylum-seekers was negligible and had no impact on the incidence of notified *Shigella* infections [10].

Public health implications

Humans are the only primary reservoir for *Shigella* species, with transmission occurring either through person-to-person contact or the ingestion of contaminated food or water [5]. Prevention of infection and control of outbreaks rely on good personal and environmental hygiene practices to prevent faecal-oral transmission. In addition to resistance to azithromycin, increasing resistance of *Shigella* spp. isolates from Asia to ciprofloxacin and third-generation cephalosporins has been reported [5].

Travellers to endemic areas benefit from adhering to common advice on how to avoid food- and water-borne infections when travelling. In developed countries, sexual transmission of shigellosis, particularly among MSM, is becoming more common than transmission due to poor hygiene and sanitation deficiencies. Targeted information campaigns to increase awareness of shigellosis could help reduce the spread of infection among risk groups.

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