

SURVEILLANCE REPORT

Annual Epidemiological Report for 2016

Shigellosis

Key facts

- Shigellosis is a relatively uncommon disease in the EU/EEA, but remains of concern in some countries and for some population groups.
- In 2016, 29 EU/EEA countries reported 5 631 confirmed shigellosis cases.
- The overall notification rate was 1.5 cases per 100 000 population in 2016, slightly below the rates observed for the period 2012–2015.
- The highest notification rate was noted in children under five years of age, followed by adults aged 24–44 years.
- Sexual transmission of shigellosis among men who have sex with men (MSM) increased in several European countries in recent years.

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].

Thirty countries reported data for 2016. Iceland reported no cases. Twenty-four countries reported data using the current EU case definition for shigellosis published in 2008 and 2012. Denmark, France, Germany and Italy used a case definition described as 'other' and Belgium and Finland did not specify which definition they used [2].

Twenty-five countries had a compulsory notification system. Belgium, France, Italy and Luxembourg used a voluntary system 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. The Czech Republic and

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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 dimension was collected through the Epidemic Intelligence Information System for Food and Waterborne Diseases (EPIS-FWD).

Epidemiology

In 2016, 29 countries reported 5 631 confirmed cases of shigellosis (Table 1). Four countries accounted for 62.7% of confirmed cases: Germany, France, the Netherlands and the UK, with the UK alone accounting for 32.9% of confirmed cases. The overall EU/EEA notification rate for confirmed shigellosis cases was 1.5 cases per 100 000 population in 2016, the lowest notification rate reported from 2012–2016. Bulgaria continued to report the highest notification rate of all EU/EEA countries with 4.1 cases per 100 000 population, followed by Denmark with 3.7, Belgium with 3.1 and France and the UK both with 2.8 cases per 100 000 population (Table 1, Figure 1). The notification rate in Bulgaria decreased by 42.2% from 2014–2016.

Travel information was available for 60.8% of the confirmed cases and, of these, 53.9% were related to travel, mostly to India and Morocco. The proportion of confirmed cases associated with travel was available for 20 countries [3].

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

Country	2012		2013		2014		2015		2016			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	57	0.7	70	0.8	75	0.9	96	1.1	62	0.7	0.8	62
Belgium	340	3.1	323	2.9	403	3.6	391	3.5	353	3.1	3.1	353
Bulgaria	777	10.6	486	6.7	512	7.1	410	5.7	291	4.1	4.4	291
Croatia	26	0.6	19	0.4	0	0.0	12	0.3	6	0.1	0.1	6
Cyprus	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0.1	1
Czech Republic	266	2.5	247	2.3	92	0.9	88	0.8	68	0.6	0.6	70
Denmark	105	1.9	109	1.9	110	2.0	170	3.0	212	3.7	3.9	212
Estonia	34	2.6	12	0.9	10	0.8	12	0.9	17	1.3	1.3	17
Finland	88	1.6	111	2.0	89	1.6	86	1.6	59	1.1	1.1	66
France	686	2.4	662	2.3	873	3.0	822	2.8	828	2.8	2.9	828
Germany	523	0.7	562	0.7	509	0.6	553	0.7	418	0.5	0.5	426
Greece	89	0.8	112	1.0	90	0.8	78	0.7	72	0.7	0.7	72
Hungary	32	0.3	39	0.4	7	0.1	65	0.7	23	0.2	0.3	23
Iceland	1	0.3	0	0.0	2	0.6	1	0.3	0	0.0	0.0	0
Ireland	29	0.6	45	1.0	53	1.2	88	1.9	84	1.8	1.8	84
Italy	30	-	19	-	24	-	26	-	20	-	-	20
Latvia	3	0.1	2	0.1	8	0.4	12	0.6	3	0.2	0.2	3
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	52	1.7	32	1.1	21	0.7	24	0.8	13	0.5	0.5	13
Luxembourg	14	2.7	23	4.3	12	2.2	3	0.5	1	0.2	0.2	1
Malta	0	0.0	2	0.5	0	0.0	1	0.2	2	0.5	0.5	2
Netherlands	450	2.7	382	2.3	335	2.0	444	2.6	428	2.5	2.6	440
Norway	77	1.5	104	2.1	93	1.8	85	1.6	83	1.6	1.6	83
Poland	13	0.0	19	0.0	41	0.1	18	0.0	15	0.0	0.0	15
Portugal	10	0.1	2	0.0	5	0.0	33	0.3	13	0.1	0.1	18
Romania	354	1.8	156	0.8	147	0.7	168	0.8	129	0.7	0.7	130
Slovakia	449	8.3	256	4.7	222	4.1	191	3.5	145	2.7	2.7	150
Slovenia	25	1.2	10	0.5	18	0.9	34	1.6	17	0.8	0.9	17
Spain	264	0.6	141	0.3	230	0.5	293	0.6	180	0.4	0.4	208
Sweden	328	3.5	335	3.5	324	3.4	311	3.2	232	2.4	2.4	232
United Kingdom	2 021	3.2	2 076	3.2	2 226	3.5	2 208	3.4	1 856	2.8	2.9	1 856
EU/EEA	7 143	1.8	6 356	1.6	6 531	1.7	6 723	1.7	5 631	1.5	1.5	5 699

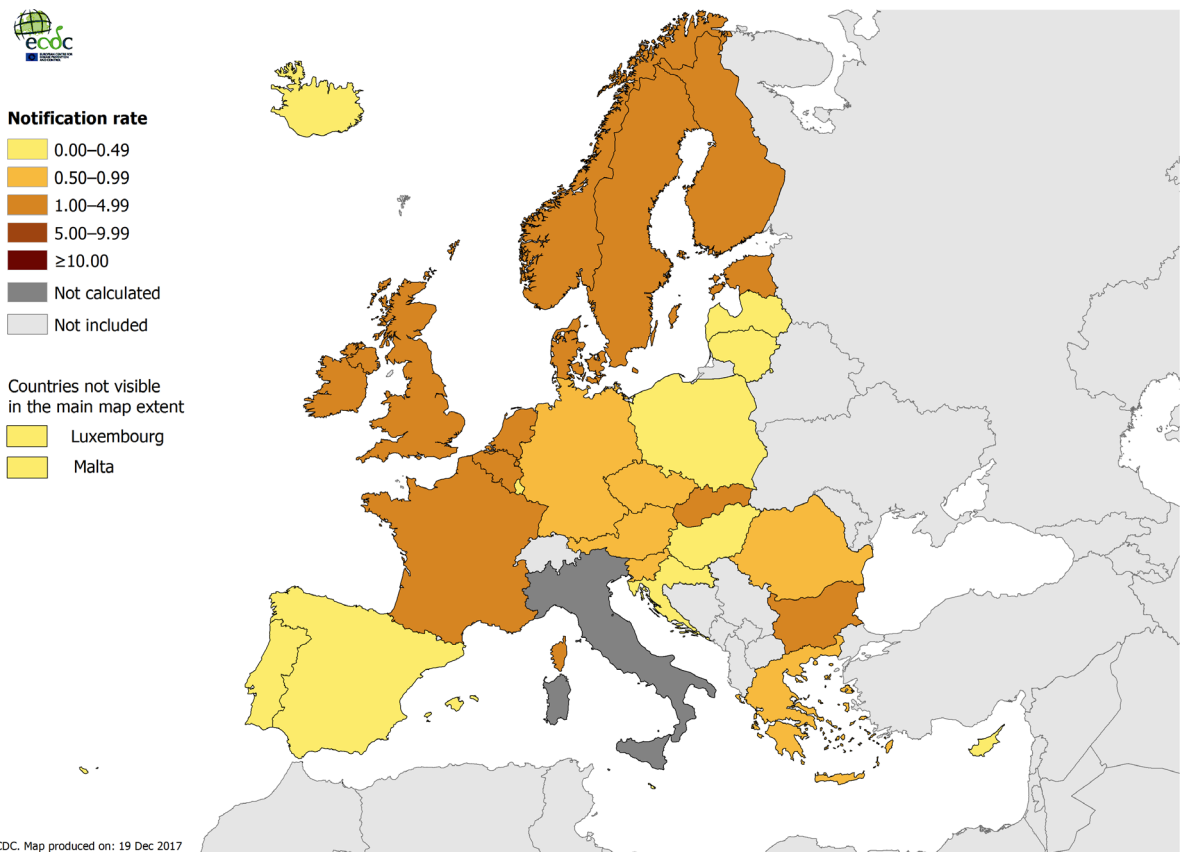
Source: country reports.

ASR: age-standardised rate

-.: no rate calculated

..: no data reported.

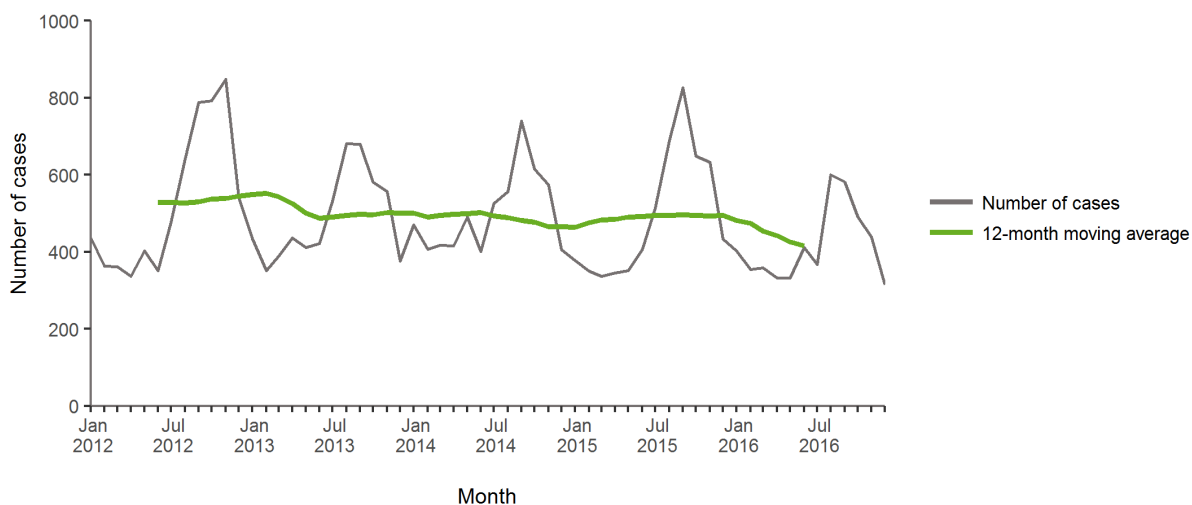
Figure 1. Distribution of confirmed shigellosis cases per 100 000 population by country, EU/EEA, 2016



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK. No rate calculated for Italy, which has a sentinel surveillance system without national coverage.

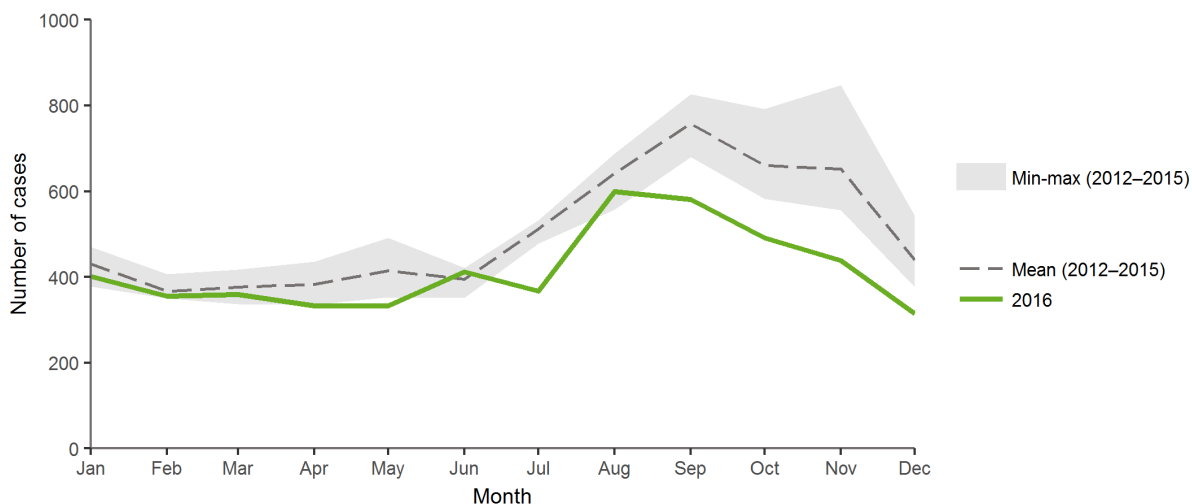
Shigellosis in the EU/EEA follows a seasonal pattern, with peaks in late summer/early autumn. In 2016, the late summer/early autumn peak was earlier and less pronounced than in previous years (Figure 3). The number of cases reported between September and December 2016 was slightly below the minimum number of cases reported for the same months of the previous four years (Figure 3). For the period 2012–2016, no clear trend can be detected in the annual number of reported shigellosis cases (Figure 2).

Figure 2. Distribution of confirmed shigellosis cases by month, EU/EEA, 2012–2016



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

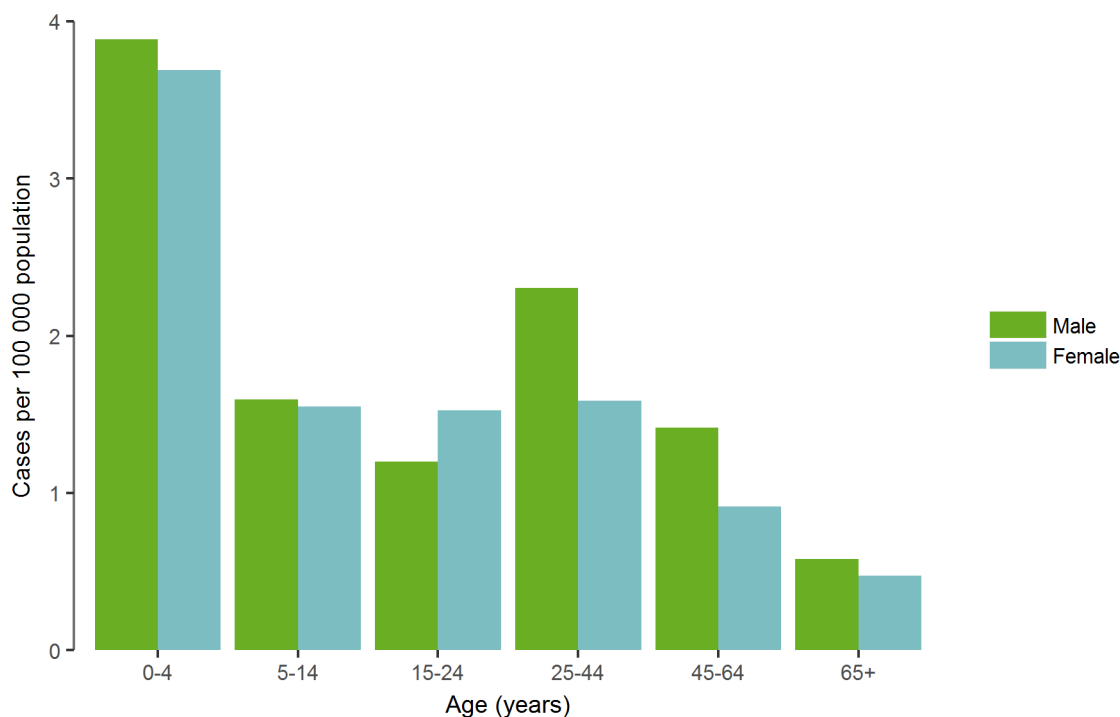
Figure 3. Distribution of confirmed shigellosis cases by month, EU/EEA, 2012–2015 and 2016



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

In 2016, the highest case rate of shigellosis was observed in children under five years: 3.8 cases per 100 000 population (Figure 4). Male cases aged 25–44 years had the second-highest overall notification rate at 2.3 cases per 100 000 population. Notification rates in the age group 0–4 years were highest in Bulgaria and Slovakia, with 40.1 and 25.8 cases per 100 000 population respectively. The overall male-to-female ratio was 1.2:1 and 1.5:1 in the age group 25–44 years.

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



Outbreaks and other threats

There were no threats reported in 2016 related to shigellosis.

Discussion

Shigellosis, although relatively uncommon in the EU/EEA, remains of concern in certain countries and population groups. Despite the marked decrease in the notification rate from 2012-2016, Bulgaria continued to report high rates of infection among young children. The proportion of confirmed cases associated with travel was not available for all countries. In Nordic countries, confirmed cases were mainly associated with foreign travel, predominantly to countries outside the EU/EEA. Shigellosis is endemic in most developing countries and *Shigella* was identified as the second-leading cause of global diarrhoea deaths in 2016 [4].

Several food-borne outbreaks of shigellosis in recent years have been attributed to fresh vegetables or herbs imported from outside the EU/EEA [5].

Sexual transmission of shigellosis among MSM increased among domestically acquired cases in several European countries in recent years, particularly in the UK [6]. This could be an explanation for the overrepresentation of male cases in the 24–44- and 45–64-year age groups. Oral-anal contact was often reported and many cases were immunocompromised due to other infections (e.g. HIV) [7]. 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 [7,8].

Sporadic cases in migrants, refugees and asylum seekers have been reported in recent years and these populations may be at increased risk due to reception and transit centre conditions [9]. 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 ingestion of contaminated food or water [8]. Prevention of infection and control of outbreaks relies on good personal and environmental hygiene practices to prevent faecal-oral transmission. As well as resistance to azithromycin, increasing resistance of *Shigella* spp. isolates from Asia and Africa to ciprofloxacin has been reported [8].

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

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