



## SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

# Shigellosis

### Key facts

- In 2015, 29 EU/EEA countries reported 6 722 confirmed shigellosis cases.
- The overall notification rate was 1.7 cases per 100 000 population in 2015.
- The highest notification rate was in young children <5 years of age, followed by adults aged 24–44 years.
- As in previous years, several outbreaks associated with sexual transmission among men who have sex with men (MSM) were reported in different EU countries.

### Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 16 November 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].

Thirty countries reported data for 2015. One country, Cyprus, reported zero cases. Twenty-five countries reported data using the current EU case definition for shigellosis as published in 2008 and 2012, four used a different case definition, and two did not specify the used definition [2]. The disease is under mandatory notification in 25 countries, notification is voluntary in four countries, and one country uses another type of surveillance system. All countries except Belgium and Italy have comprehensive surveillance of shigellosis; a sentinel system is used in Belgium and Italy. Three countries have active surveillance systems while the rest have passive systems. Twenty-nine countries have surveillance systems which 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).

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## Epidemiology

In 2015, 29 countries reported 6 864 cases of shigellosis (Table 1), 6 722 of which were confirmed. The overall EU/EEA notification rate for confirmed shigellosis cases was 1.7 cases per 100 000 population in 2015, which is slightly higher than in 2014. Bulgaria, with 5.7 cases per 100 000 population, continued to report the highest notification rate of all EU/EEA countries, followed by Slovakia, the UK, Sweden and Denmark with 3.5, 3.4, 3.2 and 3.0 cases per 100 000 population, respectively (Table 1, Figure 1).

Travel information was available for 3 620 (53.9%) of the confirmed cases, and of these, 52% were related to travel, mostly to India, Egypt and Morocco.

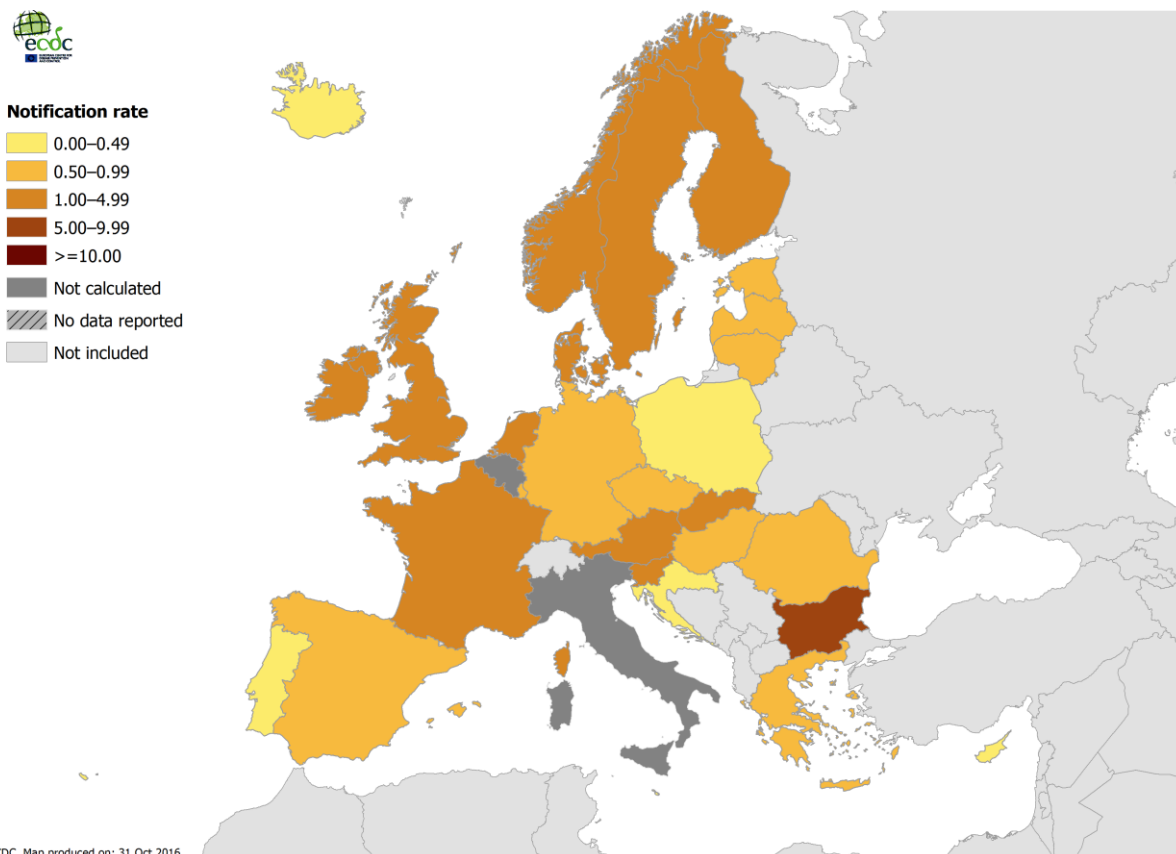
**Table 1. Distribution of confirmed cases of shigellosis per 100 000 population, EU/EEA, 2011–2015**

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	36	0.4	57	0.7	70	0.8	75	0.9	Y	96	96	1.1	1.2
Belgium	317	-	340	-	323	-	403	-	N	391	391	-	-
Bulgaria	798	10.8	777	10.6	486	6.7	512	7.1	Y	410	410	5.7	6.2
Croatia	.	.	26	0.6	19	0.4	0	0.0	Y	12	12	0.3	0.3
Cyprus	2	0.2	0	0.0	0	0.0	0	0.0	Y	0	0	0.0	0.0
Czech Republic	157	1.5	266	2.5	247	2.3	92	0.9	Y	88	88	0.8	0.9
Denmark	91	1.6	105	1.9	109	1.9	110	2.0	Y	170	170	3.0	3.1
Estonia	22	1.7	34	2.6	12	0.9	10	0.8	Y	12	12	0.9	0.9
Finland	126	2.3	88	1.6	111	2.0	89	1.6	Y	92	86	1.6	1.6
France	641	2.2	686	2.4	662	2.3	873	3.0	44%	822	822	2.8	2.9
Germany	665	0.8	523	0.7	562	0.7	511	0.6	Y	570	554	0.7	0.7
Greece	47	0.4	89	0.8	112	1.0	90	0.8	Y	79	78	0.7	0.8
Hungary	43	0.4	32	0.3	39	0.4	7	0.1	Y	137	65	0.7	0.6
Ireland	42	0.9	29	0.6	45	1.0	53	1.2	Y	91	88	1.9	1.8
Italy	.	.	30	-	19	-	24	-	N	26	26	-	-
Latvia	10	0.5	3	0.1	2	0.1	8	0.4	Y	12	12	0.6	0.6
Lithuania	40	1.3	52	1.7	32	1.1	21	0.7	Y	24	24	0.8	0.9
Luxembourg	17	3.3	14	2.7	23	4.3	12	2.2	Y	3	3	0.5	0.5
Malta	4	1.0	0	0.0	2	0.5	0	0.0	Y	1	1	0.2	-
Netherlands	397	2.4	450	2.7	382	2.3	335	2.0	Y	465	442	2.6	2.7
Poland	18	0.0	13	0.0	19	0.0	41	0.1	Y	18	18	0.0	0.0
Portugal	3	0.0	10	0.1	2	0.0	5	0.0	Y	33	33	0.3	0.3
Romania	371	1.8	354	1.8	156	0.8	147	0.7	Y	168	168	0.8	0.9
Slovakia	536	9.9	449	8.3	256	4.7	222	4.1	Y	199	191	3.5	3.6
Slovenia	18	0.9	25	1.2	10	0.5	18	0.9	Y	34	34	1.6	1.6
Spain	81	0.2	264	0.6	141	0.3	230	0.5	Y	306	293	0.6	0.6
Sweden	454	4.8	328	3.5	335	3.5	324	3.4	Y	311	311	3.2	3.3
United Kingdom	2070	3.3	2021	3.2	2076	3.2	2226	3.5	Y	2208	2208	3.4	3.5
EU	7006	1.8	7065	1.7	6252	1.6	6438	1.6	91%	6778	6636	1.7	1.7
Iceland	1	0.3	1	0.3	0	0.0	2	0.6	Y	1	1	0.3	0.3
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.
Norway	163	3.3	77	1.5	104	2.1	93	1.8	Y	85	85	1.6	1.6
EU/EEA	7170	1.8	7143	1.7	6356	1.6	6533	1.6	.	6864	6722	1.7	1.7

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

<sup>1</sup> Provisional data for 2015. Notification rates not calculated.

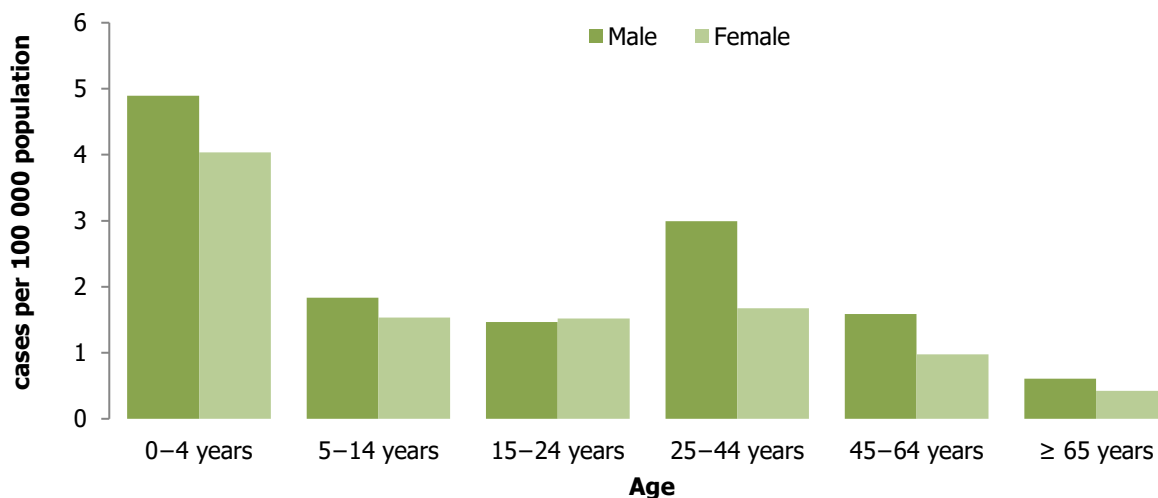
**Figure 1. Rate of confirmed shigellosis cases per 100 000 population by country, EU/EEA, 2015**



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

The highest case rate of shigellosis was observed in children below five years of age: 4.5 cases per 100 000 population (Figure 2). Notification rates in the age group 0–4 years was highest in Bulgaria and Slovakia, with 51.8 and 39.3 cases per 100 000 population, respectively. Male cases aged 25–44 years had the second highest overall notification rate: 3.0 cases per 100 000 population. The male-to-female ratio was 1.9:1 in adults (25–44 years old) and was higher than 3.0:1 in Ireland, Latvia, Poland, Spain and the UK.

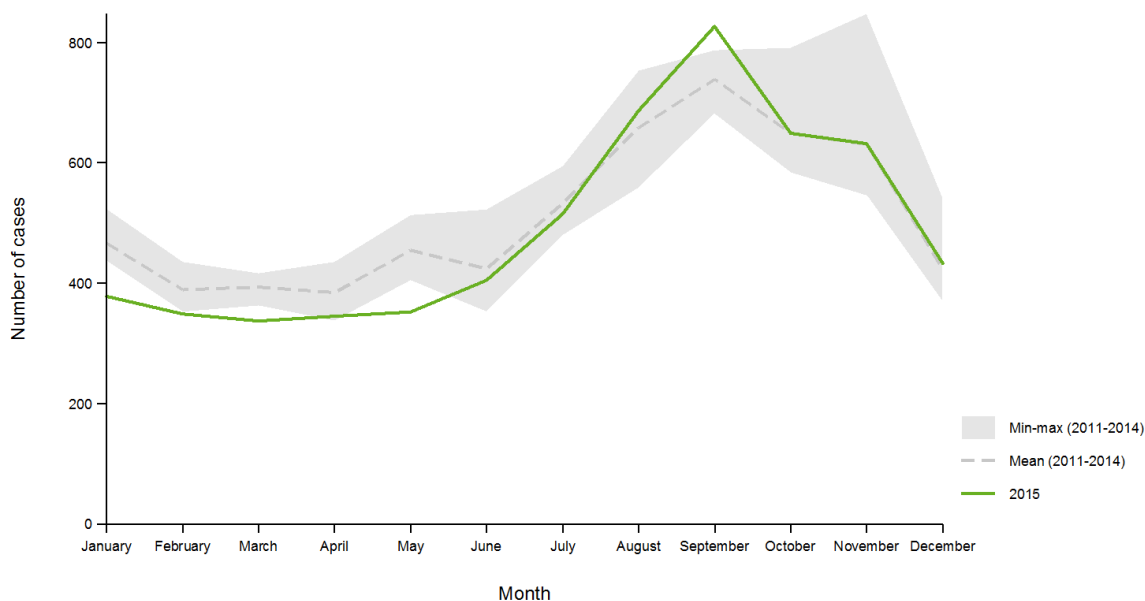
**Figure 2. Rate of confirmed shigellosis cases per 100 000 population, by age and gender, EU/EEA, 2015**



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

Shigellosis in the EU/EEA follows a seasonal pattern, with peaks in late summer/early autumn. In 2015, the September peak was slightly more pronounced, exceeding the maximum number of cases reported in the previous four years for this month (Figure 3). The number of cases reported between January and April 2015, however, was slightly below the minimum number of cases reported for the same months of the previous four years.

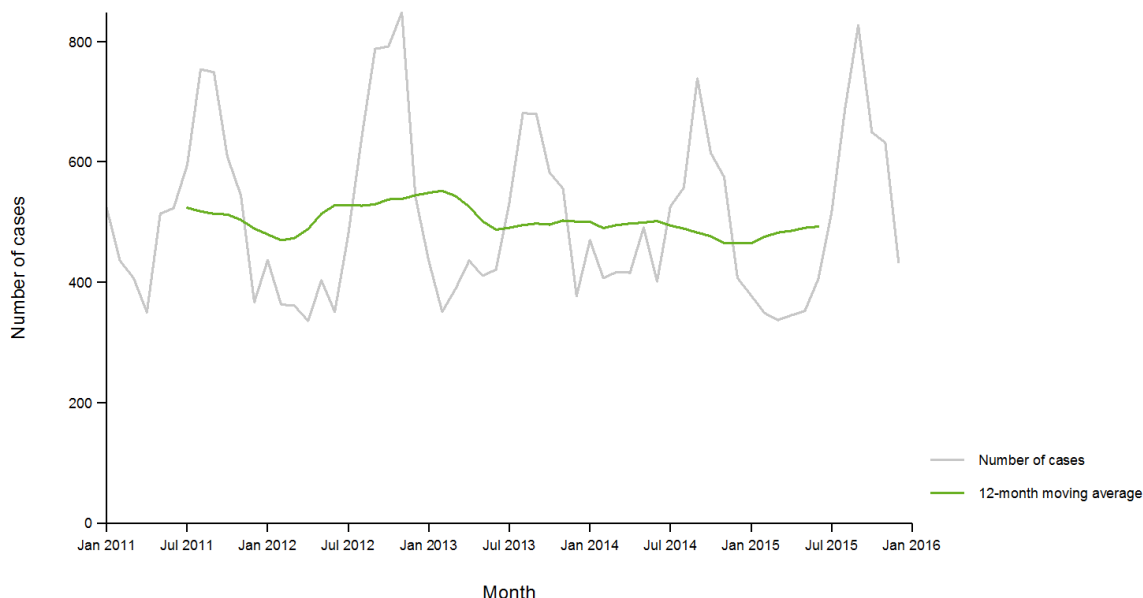
**Figure 3. Number of confirmed shigellosis cases by month, EU/EEA, 2011–2015**



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

When excluding the expected seasonal fluctuations, no clear trend can be detected in the annual number of reported shigellosis cases since 2011 (Figure 4).

**Figure 4. Number of reported confirmed shigellosis cases by month and 12-month moving average, 2011–2015, EU/EEA**



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

## Threats description for 2015

Ireland, the Netherlands, Sweden, the United Kingdom and ECDC reported five shigellosis-related threats in EPIS-FWD in 2015, all in November or December. Sweden reported a food-borne outbreak of *Shigella sonnei*, which was linked to contaminated coriander seeds. Ireland and the UK reported increases and clusters in shigellosis (*S. flexneri* and *S. sonnei* with different resistance profiles) among MSM [4]. The Netherlands reported a cluster in travellers returning from Peru. ECDC reported sporadic cases and clusters of shigellosis among migrants, refugees and asylum seekers who had recently arrived to the EU/EEA [5,6]. Apart from the event described by Sweden which was confirmed to Sweden, all other events had a suspected multinational dimension.

## Discussion

Shigellosis, although relatively uncommon in the EU/EEA, remains of concern in some countries and for some population groups. Bulgaria and Slovakia continue to report high rates of infection, particularly among young children. The disease burden in these countries is mostly due to cases not related to travel. By contrast, the Nordic countries mainly report cases associated with foreign travel, predominantly to countries outside the EU/EEA. Shigellosis is endemic in most developing countries and the most important cause of bloody diarrhoea worldwide [7].

In 2015, 11 Member States reported 22 food-borne *Shigella* outbreaks with a total of 134 cases, 20 of which were hospitalised [8]. As shigellosis is not a zoonosis, the sources were most likely infected food handlers or food contaminated by human faeces during production. Several foodborne outbreaks of shigellosis in recent years have been attributed to fresh vegetables or herbs imported from outside the EU/EEA [9-12].

Sexual transmission of shigellosis among men who have sex with men (MSM) increased among domestically acquired cases in several European countries in recent years, particularly in England, Wales and Ireland [10-12]. This could possibly explain the large overrepresentation of male cases in the age groups 24–44 and 45–64 years. Oral-anal contact was often reported, and many cases are immunocompromised due to other infections, e.g. HIV [13,14]. 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 [15].

A number of sporadic cases in migrants, refugees and asylum seekers were reported in 2015; several clusters were reported from reception centres affecting the same demographic group.

## Public health implications

Humans are the only primary reservoir for *Shigella* species. Prevention of infection and control of outbreaks therefore relies on good personal and environmental hygiene practices to prevent faecal–oral transmission. Since the disease is endemic in large parts of the world, travellers benefit from adhering to common advice on how to avoid food- and waterborne infections when travelling.

Sexual transmission of shigellosis, particularly among men who have sex with men, is becoming more common in developed countries as transmission through poor hygiene and sanitation is decreasing. Targeted information campaigns to increase the awareness of shigellosis could help reduce the spread of infection among risk groups.

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