

Botulism

Annual Epidemiological Report for 2017

Key facts

- In 2017, 30 EU/EEA countries reported 107 cases of botulism, 86 of which (80.4%) were confirmed.
- Fourteen EU/EEA countries notified zero cases.
- The overall notification rate was 0.02 cases per 100 000 population.
- Italy notified the highest number of cases (N=21). Lithuania and Romania presented the highest notification rate (0.07 cases per 100 000 population).

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 the methods used to produce this report, please refer to the 'Methods' chapter in the 'Introduction to the Annual Epidemiological Report' [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].

Epidemiology

For the purpose of this report, only tables and figures have been presented. Please refer to the more recent annual epidemiological reports (such as 2020 and 2019) for the most up-to-date information regarding botulism.

Table 1. Distribution of confirmed botulism cases and rates per 100 000 population, by country and year, 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	1	0.01	1	0.01	4	0.05	3	0.03	4	0.05	0.04	4
Belgium	0	0.00	1	NR	2	0.02	0	0.00	0	0.00	0.00	0
Bulgaria	1	0.01	3	0.04	2	0.03	0	0.00	0	0.00	0.00	0
Croatia	0	0.00	0	0.00	5	0.12	1	0.02	0	0.00	0.00	0
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Czechia	4	0.04	1	0.01	0	0.00	0	0.00	1	0.01	0.01	1
Denmark	0	0.00	0	0.00	2	0.04	0	0.00	2	0.03	0.03	2
Estonia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Finland	1	0.02	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
France	15	0.02	6	0.01	15	0.02	18	0.03	4	0.01	0.01	5
Germany	6	0.01	5	0.01	3	0.00	14	0.02	3	0.00	0.00	3
Greece	0	0.00	0	0.00	0	0.00	0	0.00	2	0.02	0.02	2
Hungary	2	0.02	12	0.12	3	0.03	5	0.05	5	0.05	0.05	7
Iceland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Ireland	1	0.02	1	0.02	0	0.00	0	0.00	0	0.00	0.00	0
Italy	40	0.07	12	0.02	20	0.03	37	0.06	21	0.03	0.04	21
Latvia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Liechtenstein	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lithuania	4	0.13	3	0.10	2	0.07	0	0.00	2	0.07	0.07	2
Luxembourg	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Malta	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Netherlands	0	0.00	0	0.00	0	0.00	2	0.01	0	0.00	0.00	0
Norway	8	0.16	4	0.08	13	0.25	1	0.02	2	0.04	0.04	2
Poland	8	0.02	17	0.04	18	0.05	18	0.05	13	0.03	0.03	24
Portugal	1	0.01	1	0.01	6	0.06	3	0.03	3	0.03	0.03	6
Romania	25	0.12	31	0.16	0	0.00	15	0.08	13	0.07	0.07	14
Slovakia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Slovenia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	1
Spain	1	0.00	2	0.00	2	0.00	6	0.01	6	0.01	0.01	7
Sweden	2	0.02	1	0.01	0	0.00	1	0.01	4	0.04	0.04	4
United Kingdom	0	0.00	0	0.00	15	0.02	4	0.01	1	0.00	0.00	2
EU/EEA	120	0.02	101	0.02	112	0.02	128	0.02	86	0.02	0.02	107

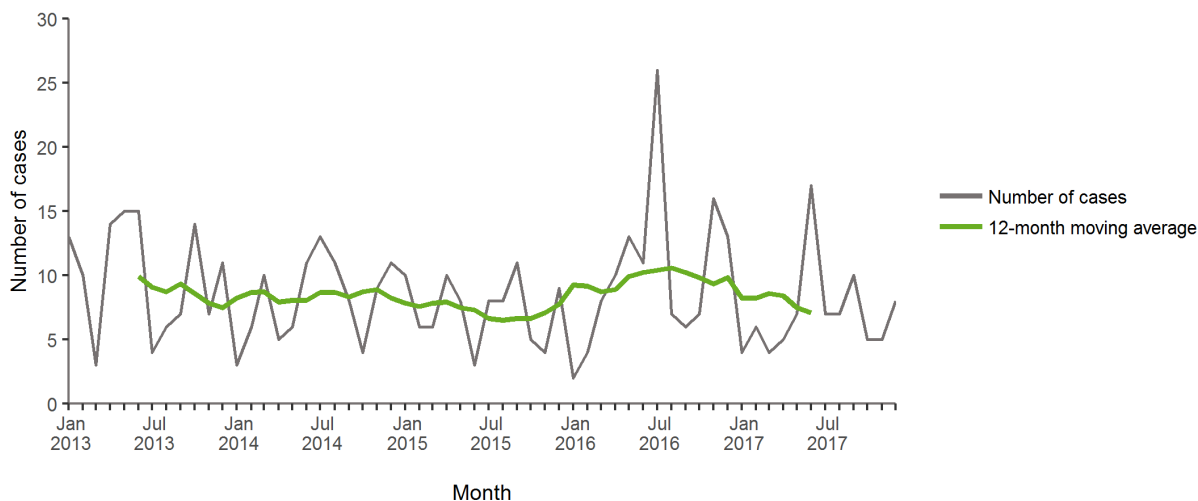
Source: country reports

ASR: age-standardised rate

NR: no rate calculated

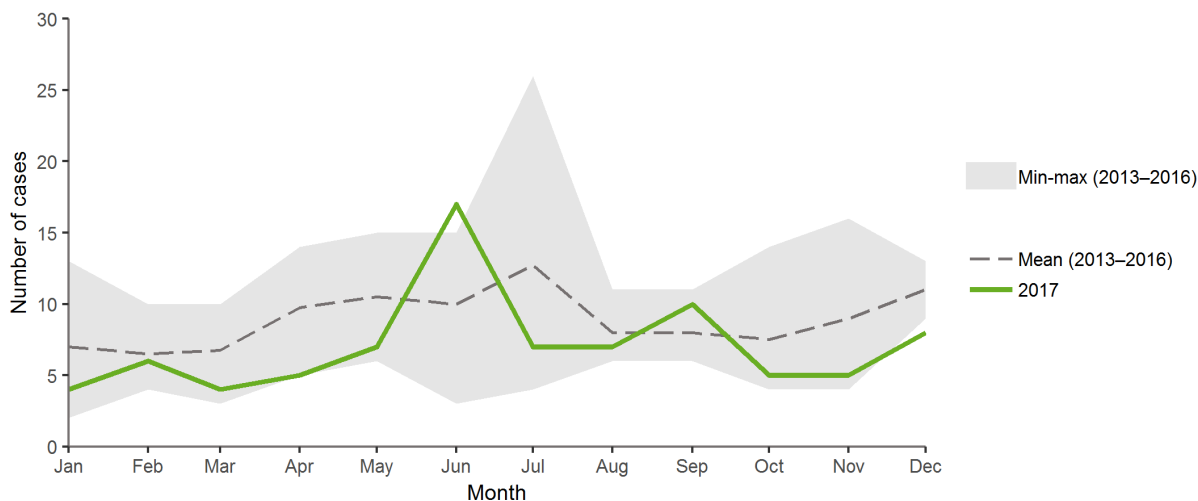
ND: no data reported.

Figure 1. Distribution of confirmed botulism cases by month, EU/EEA, 2013–2017



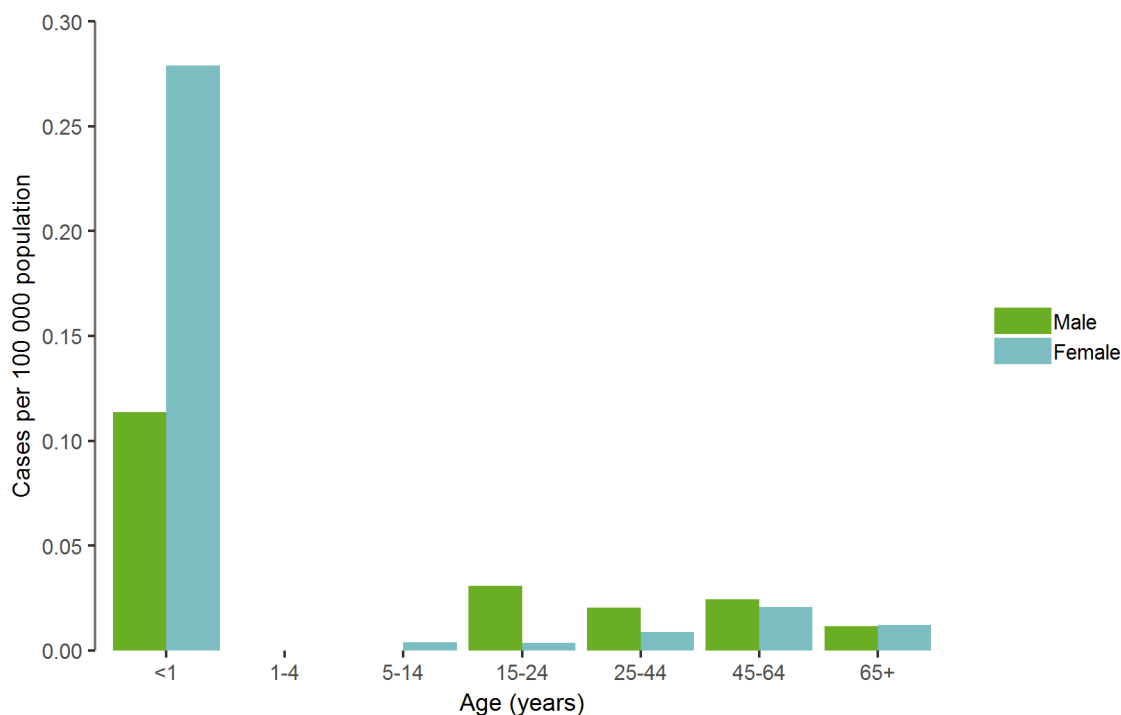
Source: Country reports from Austria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

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



Source: 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, and Sweden.

Figure 3. Distribution of confirmed botulism cases per 100 000 population, by age and gender, EU/EEA, 2017



Public health implications

There is no routine vaccination against botulism. In order to reduce the number of cases, preventive measures should be strengthened by adopting a multidisciplinary approach that takes into account all routes of intoxication. Care should be taken when canning food, either commercially or at home, to make sure *C. botulinum* spores are destroyed by sufficient heat treatment before storage and consumption. The development of filters for people who inject drugs (PWID) to remove spore-forming bacteria may open a new way to reduce the incidence of infections in this risk group [4].

Food-borne outbreaks due to botulinum neurotoxin type F are of concern because bivalent AB antitoxin and trivalent ABE antitoxins may lack the required effectiveness for the treatment of type F botulism, which may rapidly progress towards respiratory failure requiring ventilation support [5]. Preparedness for the treatment of type F botulism with heptavalent antitoxin is approved in the EU/EEA. No cases of botulism caused by neurotoxin type F were recorded in the EU/EEA in 2017.

Due to the extremely high potency of the toxin, botulism is included among potential bio-terrorism threats in preparedness and response activities.

References

1. European Centre for Disease Prevention and Control (ECDC). Introduction to the Annual Epidemiological Report. Stockholm: ECDC; 2017. Available at: <http://ecdc.europa.eu/annual-epidemiological-reports/methods>
2. European Centre for Disease Prevention and Control (ECDC). Surveillance systems overview for 2017. Stockholm: ECDC; 2017. Available at: [Surveillance systems overview for 2017 \(europa.eu\)](#)
3. European Centre for Disease Prevention and Control (ECDC). Surveillance Atlas of Infectious Diseases. Stockholm: ECDC; 2017. Available at: <https://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=7>
4. Alhusein N, Scott J, Kasprzyk-Hordern B, Bolhuis A. Development of a filter to prevent infections with spore-forming bacteria in injecting drug users. Harm Reduction Journal. 2016 Dec 1;13(1):33. Available at: <https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-016-0122-1>
5. Tréhard H, Poujol I, Mazuet C, Blanc Q, Gillet Y, Rossignol F, et al. A cluster of three cases of botulism due to *Clostridium baratii* type F, France, August 2015. Euro Surveill. 2016;21(4):pii=30117. Available at: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2016.21.4.30117>