

# Botulism

## Annual Epidemiological Report for 2016

### Key facts

- In 2016, 30 EU/EEA countries reported 152 cases of botulism of which 128 (84.2%) were confirmed.
- Sixteen 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=37).
- Romania presented the highest notification rate (0.08 cases per 100 000 population).

### 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 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, 2012–2016**

Country	2012		2013		2014		2015		2016			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	0	0.00	1	0.01	1	0.01	4	0.05	3	0.03	0.04	3
Belgium	0	0.00	0	0.00	1	0.01	2	0.02	0	0.00	0.00	0
Bulgaria	2	0.03	1	0.01	3	0.04	2	0.03	0	0.00	0.00	3
Croatia	NR	NR	0	0.00	0	0.00	5	0.12	1	0.02	0.03	2
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Czechia	0	0.00	4	0.04	1	0.01	0	0.00	0	0.00	0.00	0
Denmark	2	0.04	0	0.00	0	0.00	2	0.04	0	0.00	0.00	0
Estonia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Finland	0	0.00	1	0.02	0	0.00	0	0.00	0	0.00	0.00	1
France	6	0.01	15	0.02	6	0.01	15	0.02	18	0.03	0.03	21
Germany	0	0.00	6	0.01	5	0.01	3	0.00	14	0.02	0.02	14
Greece	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Hungary	4	0.04	2	0.02	12	0.12	3	0.03	5	0.05	0.05	5
Iceland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Ireland	0	0.00	1	0.02	1	0.02	0	0.00	0	0.00	0.00	0
Italy	34	0.06	40	0.07	12	0.02	20	0.03	37	0.06	0.06	37
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	1	0.03	4	0.13	3	0.10	2	0.07	0	0.00	0.00	0
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	1	0.01	0	0.00	0	0.00	0	0.00	2	0.01	0.01	2
Norway	0	0.00	8	0.16	4	0.08	13	0.25	1	0.02	0.02	1
Poland	9	0.02	8	0.02	17	0.04	18	0.05	18	0.05	0.05	26
Portugal	0	0.00	1	0.01	1	0.01	6	0.06	3	0.03	0.03	3
Romania	15	0.07	25	0.12	31	0.16	0	0.00	15	0.08	0.07	17
Slovakia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Slovenia	2	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Spain	5	0.01	1	0.00	2	0.00	2	0.00	6	0.01	0.01	9
Sweden	2	0.02	2	0.02	1	0.01	0	0.00	1	0.01	0.01	1
United Kingdom	3	0.00	0	0.00	0	0.00	15	0.02	4	0.01	0.01	7
<b>EU/EEA</b>	<b>86</b>	<b>0.02</b>	<b>120</b>	<b>0.02</b>	<b>101</b>	<b>0.02</b>	<b>112</b>	<b>0.02</b>	<b>128</b>	<b>0.02</b>	<b>0.03</b>	<b>152</b>

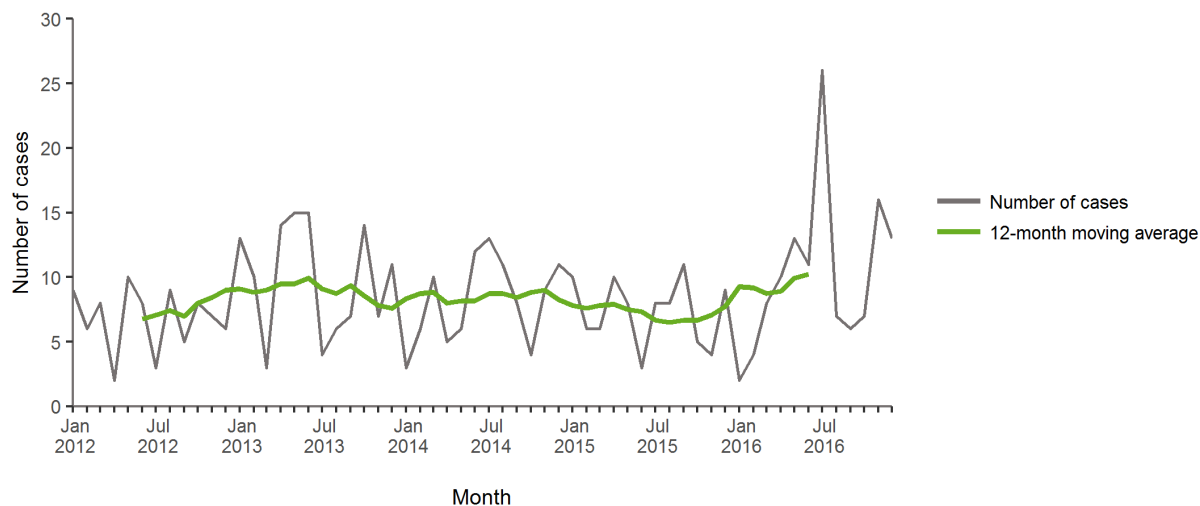
Source: country reports

ASR: age-standardised rate

NR: no rate calculated

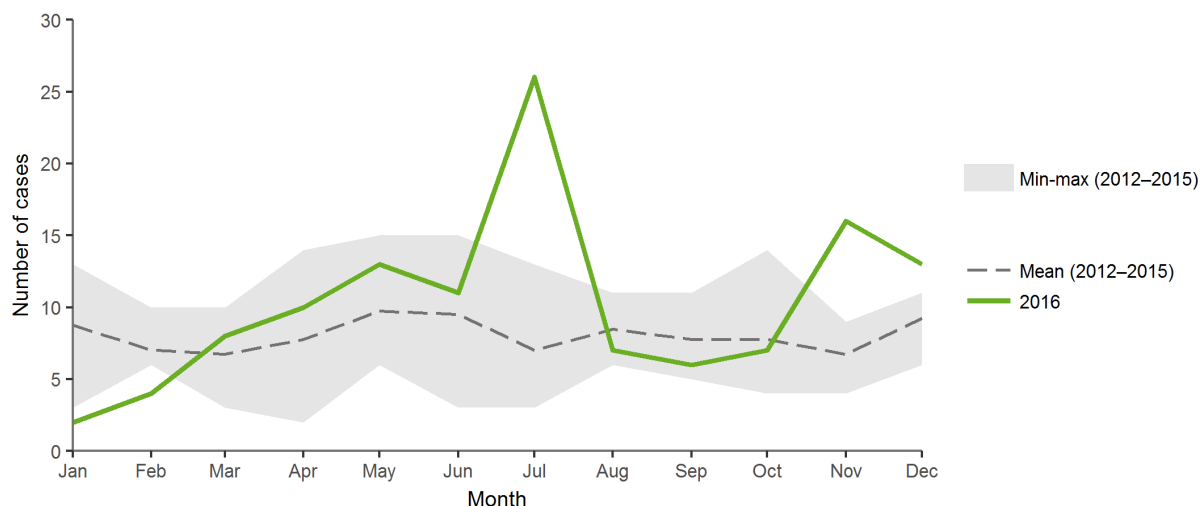
ND: no data reported.

**Figure 1. Distribution of confirmed botulism cases by month, EU/EEA, 2012–2016**



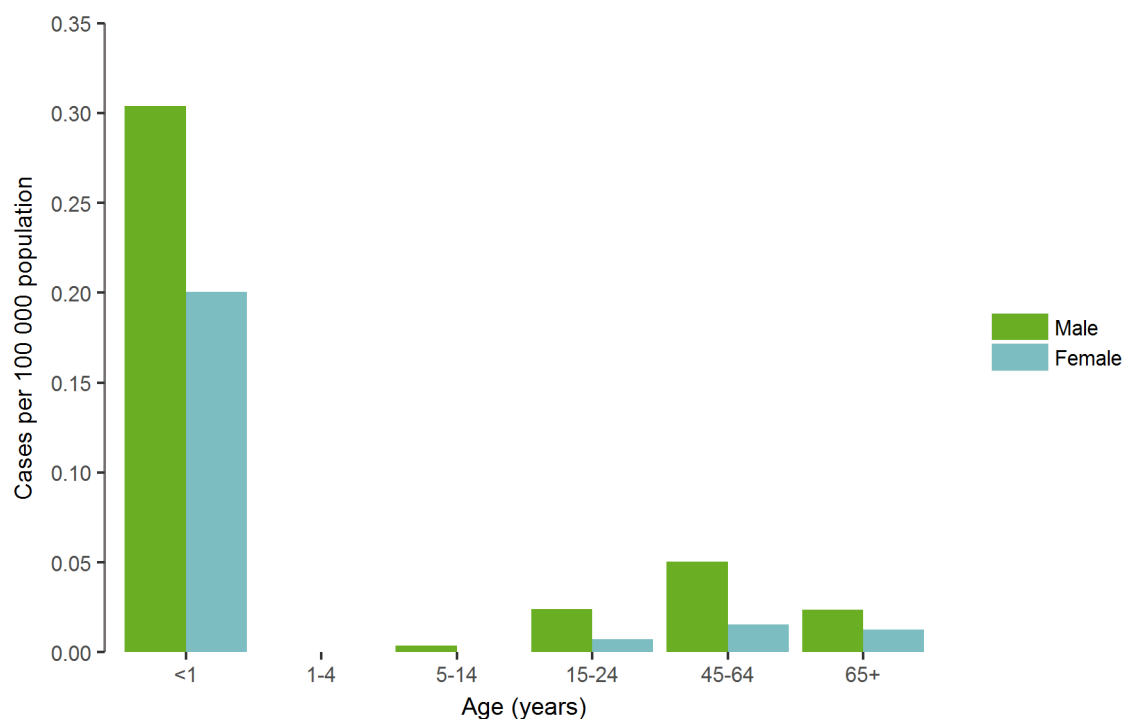
Source: Country reports from Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

**Figure 2. Distribution of confirmed botulism cases by month, EU/EEA, 2016 and 2012–2015**



Source: Country reports from Austria, Belgium, Bulgaria, 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 United Kingdom.

**Figure 3. Distribution of confirmed botulism cases per 100 000 population, by age and gender, EU/EEA, 2016**



## Outbreaks and other threats

Between 1 January and 31 December 2016, ECDC monitored two botulism threats. One type E cross-border botulism outbreak was associated with dried fish products leading to five intoxications in two countries [4]. The other event was related to botulism clusters reported in people who inject drugs (PWID) [5].

## 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 to remove spore-forming bacteria may open a new way to reduce the incidence of infections in this risk group [6].

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 [7]. Preparedness for the treatment of type F botulism with heptavalent antitoxin is approved in the EU/EEA. One case of botulism caused by neurotoxin type F was recorded in EU/EEA in 2016.

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; 2016. Available at: <http://ecdc.europa.eu/annual-epidemiological-reports/methods>
2. European Centre for Disease Prevention and Control (ECDC). Surveillance systems overview for 2016. Stockholm: ECDC; 2016. Available at: [Surveillance systems overview for 2016 \(europa.eu\)](http://ecdc.europa.eu/en/surveillance-systems-overview)
3. European Centre for Disease Prevention and Control (ECDC). Surveillance Atlas of Infectious Diseases. Stockholm: ECDC; 2016. Available at: <https://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=7>
4. European Centre for Disease Prevention Control (ECDC) and European Food Safety Authority (EFSA). Type E botulism associated with fish product consumption – Germany and Spain. Stockholm/Parma: ECDC/EFSA; 20 December 2016. Available at: <https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/01-12-2016-RRA-Botulism-Germany%2C%20Spain.pdf>.
5. European Centre for Disease Prevention and Control (ECDC). Communicable diseases threats report, 24–30 July 2016, week 30. Stockholm: ECDC; 2016. Available at: <https://ecdc.europa.eu/en/publications-data/communicable-disease-threats-report-24-30-july-2016-week-30>.
6. 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>
7. 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>