

SURVEILLANCE REPORT

Botulism

Annual Epidemiological Report for 2018

Key facts

- In 2018, 30 EU/EEA countries reported 122 cases of botulism, 96 of which (78.7%) were confirmed.
- Thirteen 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=26). Denmark presented the highest notification rate (0.19 cases per 100 000 population).

Methods

This report is based on data for 2018 retrieved from The European Surveillance System (TESSy) on 17 September 2019. 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.

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Table 1. Distribution of confirmed botulism cases and rates per 100 000 population, by country and year, EU/EEA, 2014–2018

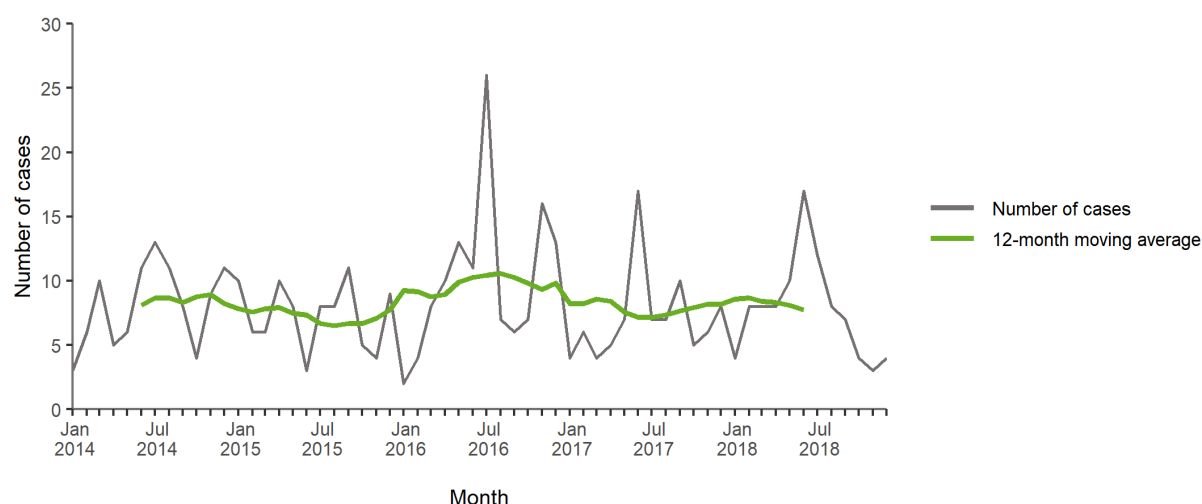
Country	2014		2015		2016		2017		2018			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	1	0.01	4	0.05	3	0.03	4	0.05	1	0.01	0.01	1
Belgium	1	NR	2	0.02	0	0.00	0	0.00	0	0.00	0.00	0
Bulgaria	3	0.04	2	0.03	0	0.00	0	0.00	0	0.00	0.00	0
Croatia	0	0.00	5	0.12	1	0.02	0	0.00	1	0.02	0.02	1
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Czechia	1	0.01	0	0.00	0	0.00	1	0.01	0	0.00	0.00	0
Denmark	0	0.00	2	0.04	0	0.00	2	0.03	11	0.19	0.17	11
Estonia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	3
Finland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
France	6	0.01	15	0.02	18	0.03	4	0.01	7	0.01	0.01	11
Germany	5	0.01	3	0.00	14	0.02	3	0.00	7	0.01	0.01	9
Greece	0	0.00	0	0.00	0	0.00	2	0.02	0	0.00	0.00	0
Hungary	12	0.12	3	0.03	5	0.05	5	0.05	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	1	0.02	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Italy	12	0.02	20	0.03	37	0.06	21	0.03	26	0.04	0.04	26
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	3	0.10	2	0.07	0	0.00	2	0.07	1	0.04	0.04	1
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	2	0.01	0	0.00	0	0.00	0.00	0
Norway	4	0.08	13	0.25	1	0.02	2	0.04	1	0.02	0.02	1
Poland	17	0.04	18	0.05	18	0.05	14	0.04	14	0.04	0.04	22
Portugal	1	0.01	6	0.06	3	0.03	3	0.03	0	0.00	0.00	0
Romania	31	0.16	0	0.00	15	0.08	13	0.07	15	0.08	0.07	15
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	1	0.05	0.05	1
Spain	2	0.00	2	0.00	6	0.01	6	0.01	3	0.01	0.01	9
Sweden	1	0.01	0	0.00	1	0.01	4	0.04	1	0.01	0.01	1
United Kingdom	0	0.00	15	0.02	1	0.00	1	0.00	2	0.00	0.00	5
EU/EEA	101	0.02	112	0.02	125	0.02	87	0.02	96	0.02	0.02	122

Source: country reports

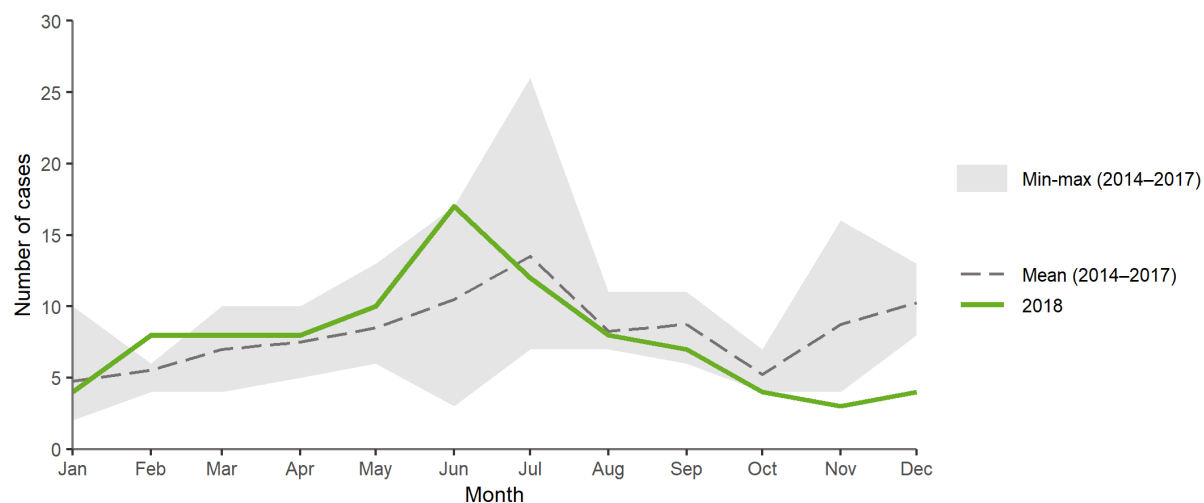
ASR: age-standardised rate

NR: no rate calculated

ND: no data reported.

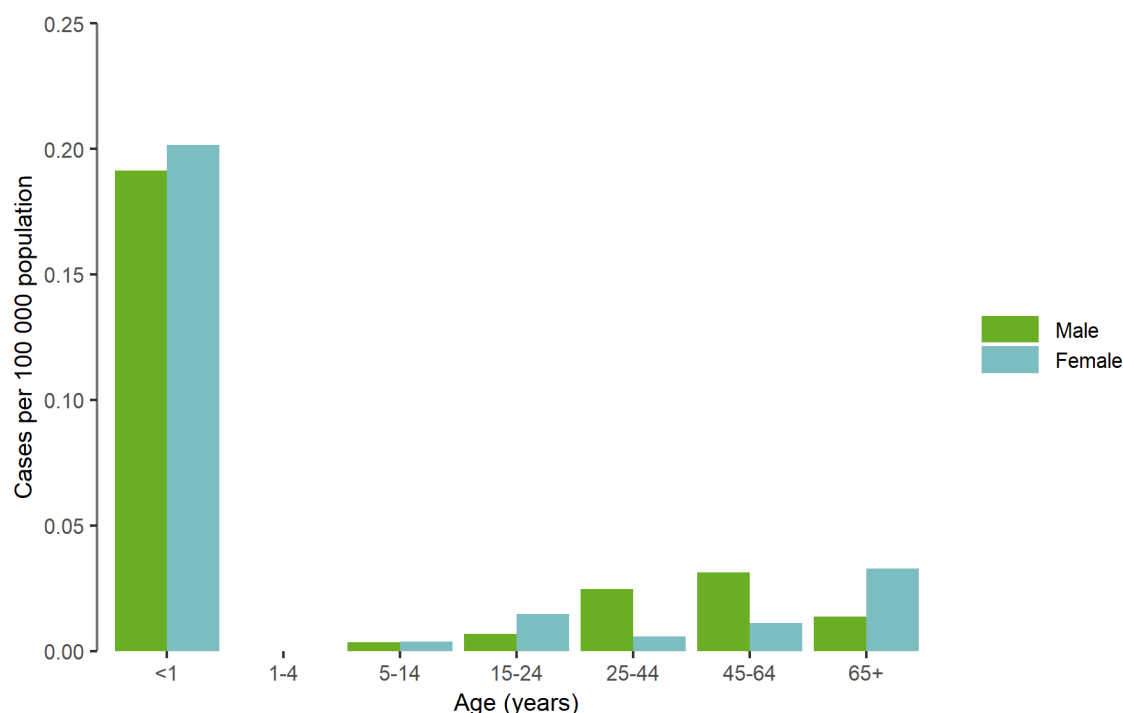
Figure 1. Distribution of confirmed botulism cases by month, EU/EEA, 2014–2018

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, 2018 and 2014–2017

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 3. Distribution of confirmed botulism cases per 100 000 population, by age and gender, EU/EEA, 2018



Outbreaks and other threats

Between 1 January and 31 December 2018, ECDC monitored four botulism threats. In June, nine persons became infected with botulism in an outbreak in Denmark. The source of infection was a home-made jelly ring with jarred lumpfish roe [4]. A neurotoxin type E botulism intoxication of one person was associated with a home-made dried fish product. The third event was related to botulism clusters reported in people who inject drugs (PWID), and the fourth was a suspected neurotoxin type B botulism case linked to travel in the EU.

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 [5].

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 [6]. 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 2018.

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; 2018. Available at: <http://ecdc.europa.eu/annual-epidemiological-reports/methods>
2. European Centre for Disease Prevention and Control (ECDC). Surveillance systems overview for 2018. Stockholm: ECDC; 2018. Available at: [surveillance-systems-overview-2018.xlsx \(live.com\)](#)
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4. Statens Serum Institut (SSI). Infections in Denmark in 2018. Copenhagen: SSI News; 7 February 2019. Available at: [Infections in Denmark in 2018 \(ssi.dk\)](#).
5. 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>
6. 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>