Annual epidemiological report

Botulism

Reporting on 2014 data retrieved from TESSy* on 19 November 2015

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Key facts

- In 2014, 123 cases of botulism were reported by 16 EU/EEA countries, including 91 cases reported as confirmed. Thirteen countries notified zero cases.
- The notification rate was 0.02 cases per 100 000 population.
- Romania notified the highest number of cases (N=31) and presented the highest rate (0.15 cases per 100 000 population).

Methods

Click here for a detailed description of the methods used to produce this annual report

• In 2014, 29 countries reported data, including 13 countries that reported zero cases.

• Nine countries reported in accordance with the 2012 EU case definition, 13 countries used the 2008 EU case definition, and the remaining seven countries used other case definitions.

• Botulism is a mandatorily notifiable disease in all reporting countries.

Epidemiology

In 2014, 123 cases were reported, including 91 confirmed cases, by a total of 16 EU/EEA countries. Thirteen countries had no cases. Italy and Liechtenstein had not reported data for 2014 at the time of the data extraction. The EU/EEA notification rate was 0.02 cases per 100 000 population (Table 1).

Romania (31 confirmed cases), Poland (17) and Hungary (12) were the countries accounting for most of the confirmed cases. Twelve countries reported between one and six confirmed cases each.

Romania (0.15 cases per 100 000), Hungary (0.12 cases per 100 000) and Lithuania (0.10 cases per 100 000) reported the highest rates in 2014 (Table 1).

Table 1. Reported confirmed botulism cases: number and rate per 100 000 population, EU/EEA, 2010–2014

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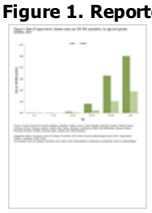
Country	2010		2011		2012		2013		2014					
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	National data	Report type	Reported cases	Confirmed cases	Rate	ASR
Austria	0	0.00	5	0.06	0	0.00	1	0.01	Y	C	1	1	0.01	0.01
Belgium	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	1	1	0.01	0.01
Bulgaria	1	0.01	2	0.03	2	0.03	1	0.01	Y	A	3	3	0.04	0.05
Croatia	.	.	.	.	.	.	0	0.00	Y	C	0	0	0.00	0.00
Cyprus	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Czech Republic	0	0.00	0	0.00	0	0.00	4	0.04	Y	C	1	1	0.01	0.01
Denmark	1	0.02	2	0.04	2	0.04	0	0.00	Y	C	0	0	0.00	0.00
Estonia	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Finland	0	0.00	2	0.04	0	0.00	1	0.02	Y	C	0	0	0.00	0.00
France	14	0.02	11	0.02	6	0.01	15	0.02	Y	C	11	6	0.01	0.01
Germany	3	0.00	7	0.01	0	0.00	6	0.01	Y	C	6	5	0.01	0.01
Greece	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	2	0	0.00	0.00
Hungary	3	0.03	5	0.05	4	0.04	2	0.02	Y	C	12	12	0.12	0.12
Iceland	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Ireland	0	0.00	1	0.02	0	0.00	1	0.02	Y	C	1	1	0.02	0.01
Italy	26	0.04	24	0.04	20	0.03	.	.	.	.	.	.	.	.
Latvia	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	2	0.06	3	0.10	1	0.03	4	0.13	Y	C	3	3	0.10	0.10
Luxembourg	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Malta	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00

Netherlands	0	0.00	0	0.00	1	0.01	0	0.00	Y	C	0	0	0.00	0.00
Norway	1	0.02	0	0.00	0	0.00	8	0.16	Y	C	4	4	0.08	0.07
Poland	22	0.06	21	0.06	9	0.02	8	0.02	Y	C	29	17	0.04	0.04
Portugal	0	0.00	1	0.01	0	0.00	1	0.01	Y	C	2	1	0.01	0.01
Romania	21	0.10	18	0.09	15	0.07	25	0.12	Y	C	32	31	0.16	0.15
Slovakia	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Slovenia	2	0.10	0	0.00	2	0.10	0	0.00	Y	C	0	0	0.00	0.00
Spain	4	0.01	7	0.01	5	0.01	1	0.00	Y	C	11	2	0.00	0.00
Sweden	0	0.00	0	0.00	2	0.02	2	0.02	Y	C	1	1	0.01	0.01
United Kingdom	0	0.00	6	0.01	3	0.00	2	0.00	Y	C	3	2	0.00	0.00
EU/EEA	**100**	**0.02**	**115**	**0.02**	**72**	**0.01**	**82**	**0.02**	**.**	**C**	**123**	**91**	**0.02**	**0.02**

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

Figure 1. Reported confirmed boltulism cases: rate by age and gender, EU/EEA, 2014



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

With 67 confirmed cases in males and 35 in females, the male-to-female ratio was 1.9:1 in 2014. The most affected age groups were 0–4- and 45–65-year-old males, and 0–4- and 25–44-year-old females (Figure 1).

While in 2014, the highest number of cases was reported in July, the data from previous years show no seasonality but irregular, random peaks (Figure 2). Figure 3 shows the secular trend for EU/EEA countries.

Figure 2. Seasonal distribution of reported confirmed botulism cases, EU/EEA, 2014 compared with 2010–2013

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

Figure 3. Reported confirmed botulism cases: trend and number by month, EU/EEA, 2010−2014

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

Threats description for 2014

An outbreak of botulism among injecting drug users in Norway and Scotland started in December 2014. By February 2015, 23 cases of botulism had been reported [1]. The source of the infection was assumed to be contaminated heroin.

Discussion

Figure 3 shows an ascending trend in the rate of botulism notifications in the EU/EEA after July 2012. This observation is based on a small number of cases and does not necessarily represent a real increase in incidence.

The randomly occurring peaks may be explained by small-scale outbreaks due to locally produced food. Botulism cases are often detected as sporadic cases which may belong to household clusters. Case reports and retrospective analyses of cases are useful and complement the mandatory surveillance systems [2,3].

Public health conclusions

While the case definition for surveillance at the EU level focuses on *C. botulinum* as the etiological agent, sporadic clusters and cases due to type F toxin produced by *C. baratii* have been reported in recent years [4,5]. These botulism cases due to F toxin type are a cause of concern because the antitoxin is not readily available in Europe, and the commonly used antitoxins may not effectively neutralise toxin F. Preparedness plans may need to consider the timely access to antitoxins in order to cover a broad range of different toxin types, including toxin F [4,5]. In addition, subtyping of botulism neurotoxins is important to monitor the evolution of strains and its implications for public health as exemplified by the recent characterisation of a novel botulism neurotoxin subtype (BoNT/A8) in Germany [6].

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Additional information

ECDC Surveillance Atlas of Infectious Diseases

Annex

Table. Botulism, surveillance systems overview, 2014

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* The European Surveillance System (TESSy) is a system for the collection, analysis and dissemination of data on communicable diseases. EU Member States and EEA countries contribute to the system by uploading their infectious disease surveillance data at regular intervals.