

Michał Czerwiński, Mirosław P Czarkowski, Barbara Kondej

FOODBORNE BOTULISM IN POLAND IN 2012

Department of Epidemiology, National Institute of Public Health
- National Institute of Hygiene in Warsaw

ABSTRACT

OBJECTIVES. The main objective of this article is to assess the epidemiology of foodborne botulism in Poland in 2012 compared to previous years, using national surveillance data.

MATERIALS AND METHODS. We reviewed surveillance data published in the annual bulletin “Infectious diseases and poisonings in Poland in 2012” and in previous publications, and botulism case reports for 2012 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations.

RESULTS. In 2012, a total of 22 foodborne botulism cases (including 9 laboratory confirmed cases) was reported, corresponding to the lowest annual incidence rate (0.06 per 100 000 population) since the introduction of botulism as mandatory notifiable disease. The highest incidence in the country was reported in Lubelskie (0.23) and Wielkopolskie (0.20). Incidence in rural areas (0.07 per 100 000 population) was slightly higher than the incidence in urban areas (0.05). Men, had more than 2 times higher incidence than women; the highest incidence rate (0.20 per 100 000 population) was observed among men in the age group of 30-39 years. Most cases were associated with consumption of different types of commercially canned meat. Commercially canned fish was also a common vehicle. All cases were hospitalized. One death related to the disease was reported.

CONCLUSIONS. In 2012, in Poland a downward trend in the incidence of foodborne botulism was maintained. From the point of view of national surveillance, it is necessary to increase the percentage of cases investigated with laboratory tests.

Keywords: *botulism, food poisoning, epidemiology, Poland, 2012*

INTRODUCTION

Despite decreasing trend in reported numbers of cases in the past decade, in Poland foodborne botulism remains relevant public health problem. According to data from the European Centre for Disease Prevention and Control (ECDC), yet in 2010, laboratory-confirmed cases of foodborne botulism in Poland, Romania, Italy and France accounted for 80% of all the confirmed cases reported in EU countries.

The aim of this article is to assess the epidemiology of foodborne botulism in Poland in 2012 compared to previous years, using national surveillance data.

MATERIALS AND METHODS

We reviewed surveillance data from the following sources:

- annual bulletin “Infectious diseases and poisonings in Poland” for the years 2006-2012 (NIPH-NIH, GIS, Warsaw);
- botulism case reports for 2012 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations.

In the EU countries cases of foodborne botulism are classified as “confirmed” or “probable” based on definitions published in Commission Decision 2008/426/EC laying down case definitions for reporting communicable diseases in EU. However, given limited laboratory capacity, Poland also permits use of case category “possible” for the cases reported by physicians based on clinical symptoms (with no laboratory confirmation). Definitions used in the routine surveillance in 2012 are available on the website of the National Institute of Public Health - National Institute of Hygiene http://www.pzh.gov.pl/oldpage/epimeld/inne/Def_PL2_2a.pdf.

RESULTS

In 2012, in Poland, the downward trend of foodborne botulism remained unchanged - a total of 22 cases were reported (13 less than in 2011, and about 24 less than the median annual number of cases for years 2006 to 2010 (tab I.). Annual incidence - 0.06 per 100 000 population - was the lowest since the introduction of botulism as mandatory notifiable disease in Poland (Fig. 1).

Cases of foodborne botulism in 2012 were reported in 10 provinces (Tab. I). The highest incidence in the

of reported cases – in 6 patients was detected toxin B, whereas in 3 patients both toxin B and toxin E. Only one case was reported on the basis of clinical evidence and epidemiological link (exposure from the same source as laboratory-confirmed case) and classified as “probable”.

In 2012, as in previous years, majority of cases were sporadic. Only two small outbreaks - involving 2 people - have been reported (Tab. II.)

In recent years, due to decline in the number of cases reported annually, typical seasonal pattern of illness seems to disappear. In 2012, no cases of foodborne

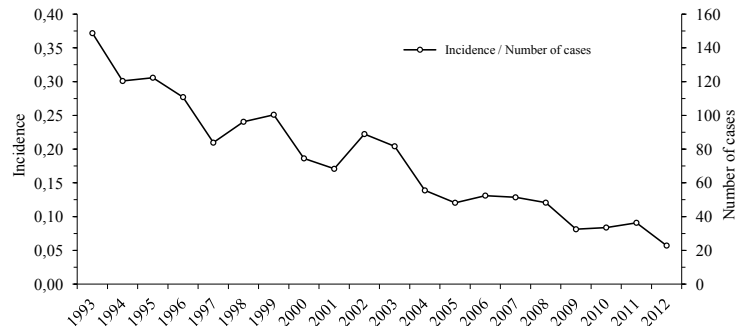


Fig. 1. Foodborne botulism in Poland. Number of cases and incidence (per 100 000 population), 1993-2012

country was reported in Lubelskie (0.23 per 100 000 population) and Wielkopolskie (0.20) - regions with the highest incidence of cases in the last decade (Fig. 2). In six provinces - Dolnośląskie, Lubuskie, Łódzkie, Śląskie, Świętokrzyskie and Zachodniopomorskie - no foodborne botulism cases have been reported in 2012.

Most cases (about 55%) were reported by physicians based on clinical symptoms and information about consumption before onset of symptoms potentially improperly canned / pasteurized products and classified as ‘possible’ (12). Laboratory-confirmed cases (detection of botulinum toxin in a clinical specimen taken from the patient) accounted for only 41% of the total number

botulism were reported during warmer months (June-July), when previously illness was the most common.

The incidence of botulism in rural areas (0.07 per 100 000) was about half higher, than in urban areas (0.05) - a relatively small difference in comparison to the past (e.g. more than 8 - fold difference in 2010). Higher incidence in rural areas was particularly pronounced among older age group.

Foodborne botulism affects men more often than women – the incidence among men (0.08) was 2 times higher than among women (0.04); the highest incidence rate (0.20 per 100 000 population) was noted among men from age group 30 -39 years (Tab. III).

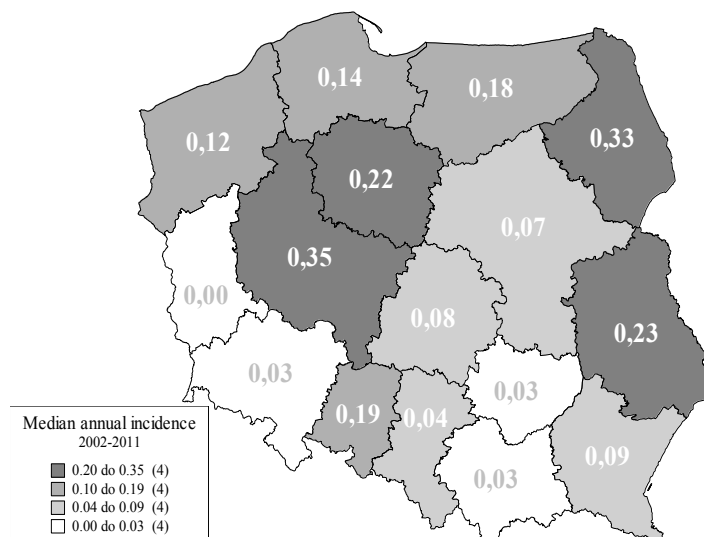


Fig. 2. Foodborne botulism in Poland in 2002-2011. Median annual incidence per 100 000 population by voivodeship

Table I. Foodborne botulism in Poland. Number of cases and incidence (per 100 000 population) by province, 2006-2012

Province	Median 2006-2010		2011		2012	
	number of cases	incidence	number of cases	incidence	number of cases	incidence
POLAND	46	0.12	35	0.09	22	0.06
1. Dolnośląskie	-	-	1	0.03	-	-
2. Kujawsko-pomorskie	2	0.10	2	0.10	1	0.05
3. Lubelskie	5	0.23	7	0.32	5	0.23
4. Lubuskie	-	-	-	-	-	-
5. Łódzkie	-	-	2	0.08	-	-
6. Małopolskie	2	0.08	-	-	1	0.03
7. Mazowieckie	2	0.04	5	0.09	2	0.04
8. Opolskie	-	-	-	-	1	0.10
9. Podkarpackie	-	-	2	0.09	1	0.05
10. Podlaskie	4	0.34	1	0.08	2	0.17
11. Pomorskie	3	0.13	3	0.13	1	0.04
12. Śląskie	2	0.04	-	-	-	-
13. Świętokrzyskie	1	0.08	-	-	1	0.08
14. Warmińsko-mazurskie	2	0.14	5	0.34	-	-
15. Wielkopolskie	14	0.41	5	0.14	7	0.20
16. Zachodniopomorskie	2	0.12	2	0.12	-	-

Data source: Infectious diseases and poisonings in Poland (annual report). NIPH-NIH, CSI, Warsaw, 2006-2012

Table II. Foodborne botulism in Poland. Number of sporadic and cluster associated cases by location (urban/rural), 2012

Cases	Urban			Rural			Total		
	number of clusters	number of cases	% of cases	number of clusters	number of cases	% of cases	number of clusters	number of cases	% of cases
Sporadic	x	9	81.8	x	9	81.8	x	18	81.8
Cluster associated	1	2	18.2	1	2	18.2	2	4	18.2
Total	1	11	100.0	1	11	100.0	2	22	100.0

Data source: botulism case reports for 2012 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations

Table III. Foodborne botulism in Poland. Number of cases, incidence (per 100 000 population), and percentage of cases by age, gender and location (urban/rural), 2012

Age	Gender						Location						Total		
	men			women			urban			rural					
	number of cases	incidence	%	number of cases	incidence	%	number of cases	incidence	%	number of cases	incidence	%	number of cases	incidence	%
0 - 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15 - 19	-	-	-	1	0.09	12.5	1	0.08	9.1	-	-	-	1	0.04	4.5
20 - 24	-	-	-	1	0.07	12.5	1	0.06	9.1	-	-	-	1	0.04	4.5
25 - 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 - 39	6	0.20	42.9	1	0.03	12.5	4	0.11	36.4	3	0.13	27.3	7	0.12	31.8
40 - 49	1	0.04	7.1	2	0.08	25.0	-	-	-	3	0.15	27.3	3	0.06	13.6
50 - 59	5	0.18	35.7	1	0.03	12.5	2	0.06	18.2	4	0.19	36.4	6	0.11	27.3
60 +	2	0.06	14.3	2	0.04	25.0	3	0.06	27.3	1	0.04	9.1	4	0.05	18.2
Total	14	0.08	100.0	8	0.04	100.0	11	0.05	100.0	11	0.07	100.0	22	0.06	100.0

Data source: botulism case reports for 2012 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations

There were no reports of foodborne botulism in children and adolescents. The age of patients ranged from 19 to 71 years (median 43 years), but cases occurs predominately in age group 30-39 years.

Most cases were associated with consumption of commercially or home canned meats, including pork. Commercially canned fish was also commonly implicated vehicle (about 20% of reported cases) (Tab. IV). It should be noted, that food vehicles were determined based on the information about consumption potentially improperly canned / pasteurized products before onset

of the symptoms. In no case, laboratory evidence have been found in food samples.

The most commonly reported symptoms were blurred vision (86%), dry mouth (82%), difficulty swallowing (73%) and dropping eyelids (46%); gastrointestinal symptoms including constipation (68%), vomiting (46%) and diarrhea (27%) were also common.

Approximately 70% (14 patients) of cases with information on clinical course of illness had a clinical course described from mild to moderate; the rest of patients (6) had severe / sub-severe course of illness.

Table IV. Foodborne botulism in Poland. Number and percentage of cases by food vehicle and location (urban/rural), 2012

Suspected food vehicle		Urban		Rural		Total	
		n	%	n	%	n	%
Canned pork	commercial	1	9.1	-	-	1	4.5
	homemade	1	9.1	1	9.1	2	9.1
Different types of canned meat	commercial	4	36.4	1	9.1	5	22.7
	homemade	2	18.2	2	18.2	4	18.2
Canned fish	commercial	2	18.2	2	18.2	4	18.2
	homemade	-	-	-	-	-	-
Canned meat and vegetables	commercial	-	-	1	9.1	1	4.5
	homemade	-	-	2	18.2	2	9.1
Canned mushrooms, fruits and vegetables		-	-	-	-	-	-
Different kinds of commercial or home-canned foods		1	9.1	1	9.1	2	9.1
Sausages and cured meat products	commercial	-	-	-	-	-	-
	homemade	-	-	1	9.1	1	4.5
Meat dishes		-	-	-	-	-	-
Total		11	100.0	11	100.0	22	100.0

Data source: botulism case reports from 2012 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations

All patients required hospitalization, the duration of hospitalization ranged from 4 to 46 days (median 10 days). According to the data of State Sanitary Inspection, there was one death (male, 57 years old, living in urban areas) related to the disease.

SUMMARY AND CONCLUSIONS

Despite the downward trend in numbers of reported cases, epidemiology of foodborne botulism in Poland (apart from incidence) remains stable with similar features and trends observed over the past few years. From epidemiological surveillance point of view draws attention large group of cases reported by physicians

on the basis of clinical symptoms (without laboratory or epidemiological evidence). This speaks for the need to maintain in national surveillance category of “possible case” what also corresponds to previous practice in Poland, and thus allows to maintain comparability of data over time.

Received: 24.03.2014

Accepted for publication: 28.03.2014

Address for correspondence:

Michał Czerwiński
Department of Epidemiology,
National Institute of Public Health – NIH
24 Chocimska, 00-791 Warsaw
e-mail: mczerwinski@pzh.gov.pl