Annual epidemiological report

Listeriosis

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

Suggested citation: European Centre for Disease Prevention and Control. Annual Epidemiological Report 2016 – Listeriosis. [Internet]. Stockholm: ECDC; 2016 [cited YYYY Month DD]. Available from: http://ecdc.europa.eu/en/healthtopics/listeriosis/Pages/Annual-epidemiological-report-2016.aspx

Download PowerPoint presentation with all graphics

Key facts

- 2 194 confirmed listeriosis cases were reported in 2014 in EU/EEA countries.
- The EU/EEA case rate was 0.6 per 100 000.
- The highest rates were detected in infants below one year of age (2.8 per 100 000 population) and among elderly people over 64 years of age (1.9 per 100 000 populatio n).
- The rate increased steadily during 2010–2014 in EU/EEA countries.

Methods

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

In 2014, 29 EU/EEA Member States reported listeriosis data, two of which had only a partial population coverage. Ten of the 29 Member States used the EU case definition from 2012, twelve used the one from 2008, four used another case definition, and three did not specify which case definition was used. The majority of Member States (25 of 29) conducted passive surveillance; in 21 countries, cases were reported by both laboratories and physicians and/or hospitals. Twenty-eight of the 29 Member States reported case-based data.

In addition to case-based TESSy surveillance, ECDC coordinates molecular typing-enhanced surveillance of listeriosis through isolate-based data collection. A typing-based multi-country cluster of *L. monocytogenes* is currently defined as at least two different countries reporting at least one isolate each with matching pulsotypes (both *Apa*I and *Asc*I restriction enzymes), with the reports a maximum of 16 weeks apart.

Epidemiology

In 2014, 2 194 confirmed cases of listeriosis were reported by 28 EU/EEA countries, with an overall rate of 0.6 per 100 000 population (Table 1). Germany and France had the highest numbers of reported cases (597 and 374, respectively), corresponding to 44.3% of all cases reported in the EU/EEA. The highest age-standardised incidence rates were observed in Denmark (1.5/100 000), Iceland (1.5/100 000), Sweden (1.2/100 000), Finland (1.1/100 000) and Spain (1.1/100 000). Figure 1 illustrates the country-specific age-standardised rates per 100 000 population.

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

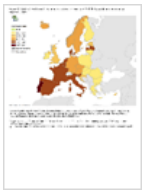
Download Excel version

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	34	0.4	26	0.3	36	0.4	36	0.4	Y	C	49	49	0.6	0.5
Belgium	40	0.4	70	-	83	0.7	66	0.6	Y	C	84	84	0.7	0.7
Bulgaria	4	0.1	4	0.1	10	0.1	3	0.0	Y	A	10	10	0.1	0.1
Croatia	.	.	.	.	0	0.0	0	0.0	Y	C	5	4	0.1	0.1
Cyprus	1	0.1	2	0.2	1	0.1	1	0.1	Y	C	0	0	0.0	0.0
Czech Republic	26	0.2	35	0.3	32	0.3	36	0.3	Y	C	38	38	0.4	0.3
Denmark	62	1.1	49	0.9	50	0.9	51	0.9	Y	C	92	92	1.6	1.5
Estonia	5	0.4	3	0.2	3	0.2	2	0.2	Y	C	1	1	0.1	0.1
Finland	71	1.3	43	0.8	61	1.1	61	1.1	Y	C	65	65	1.2	1.1
France	312	0.5	282	0.4	348	0.5	369	0.6	Y	C	374	374	0.6	0.5
Germany	377	0.5	331	0.4	414	0.5	463	0.6	Y	C	609	597	0.7	0.6
Greece	10	0.1	10	0.1	11	0.1	10	0.1	Y	C	10	10	0.1	0.1
Hungary	20	0.2	11	0.1	13	0.1	24	0.2	Y	C	39	39	0.4	0.4
Iceland	1	0.3	2	0.6	4	1.3	1	0.3	Y	C	4	4	1.2	1.5
Ireland	10	0.2	7	0.2	11	0.2	8	0.2	Y	C	15	15	0.3	0.3
Italy*	157	0.3	129	0.2	112	0.2	128	0.2	N	C	52	52	-	-
Latvia	7	0.3	7	0.3	6	0.3	5	0.2	Y	C	3	3	0.1	0.1
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	5	0.2	6	0.2	8	0.3	6	0.2	Y	C	7	7	0.2	0.2
Luxembourg	0	0.0	2	0.4	2	0.4	2	0.4	Y	C	5	5	0.9	1.1
Malta	1	0.2	2	0.5	1	0.2	1	0.2	Y	C	1	1	0.2	0.2

Netherlands	72	0.4	87	0.5	73	0.4	72	0.4	Y	C	90	90	0.5	0.5
Norway	22	0.5	21	0.4	30	0.6	21	0.4	Y	C	29	29	0.6	0.6
Poland	59	0.2	62	0.2	54	0.1	58	0.2	Y	C	86	86	0.2	0.2
Portugal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Romania	6	0.0	1	0.0	11	0.1	9	0.0	Y	C	5	5	0.0	0.0
Slovakia	5	0.1	31	0.6	11	0.2	16	0.3	Y	C	29	29	0.5	0.5
Slovenia	11	0.5	5	0.2	7	0.3	16	0.8	Y	C	18	18	0.9	0.8
Spain	129	1.1	91	0.8	109	0.9	140	1.0	30%	C	161	161	1.2	1.1
Sweden	63	0.7	56	0.6	72	0.8	93	1.0	Y	C	125	125	1.3	1.2
United Kingdom	176	0.3	164	0.3	183	0.3	192	0.3	Y	C	201	201	0.3	0.3
EU/EEA	**1686**	**0.4**	**1539**	**0.4**	**1756**	**0.4**	**1890**	**0.4**	**.**	**C**	**2207**	**2194**	**0.6**	**0.5**

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

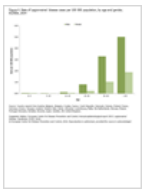
Figure 1. Reported confirmed listeriosis cases: age-standardised rate per 100 000 population, EU/EEA, 2014



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

The gender distribution of confirmed listeriosis cases for which information was provided (N=2 193), was 54.1% males and 45.9% females in the EU and EEA countries, corresponding to a male-to-female ratio of 1.2:1. The most affected age groups were under 1-year-olds (4.6%, 99 cases, 2.8 per 100 000 population) and over 64-year-olds (62.4%, 1 358 cases, 1.9 per 100 000 population). In addition, 455 (20.9%) cases belonged to the age group 45-64 years, 204 (9.4%) to the age group 25-44 years, 39 (1.8%) to the age group 15-24 years, 11 (0.5%) to the age group 5-14 years and 9 (0.4%) to the age group 0-4 years (age unknown for 19 cases).

Figure 2. Reported confirmed listeriosis cases: rate per 100 000 population, 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, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

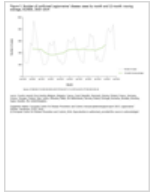
In 2014, cases of listeriosis showed a seasonal pattern similar to the previous years (Figure 3). The highest numbers of cases were reported in January and from July to September.

Listeriosis cases at the EU/EEA level show an increasing trend (Figure 4). In 2014, eighteen countries notified higher rates per 100 000 population compared with the previous year, while lower numbers were observed in three countries.

Figure 3. Seasonal distribution of reported confirmed listeriosis cases in EU/EEA, 2014 compared with 2010−2013

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

Figure 4. Number of reported confirmed listeriosis cases, in EU/EEA by month, 2010−2014



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

Molecular typing-enhanced surveillance

In 2014, eleven countries submitted *L. monocytogenes* typing data to TESSy, based on which 12 molecular typing cluster investigations were initiated in ECDC's Epidemic

Intelligence information System. In addition, there was one persistent pulsotype affecting eight Member States (TESSy reference types *ApaI.0142/0147* and *AscI.0026*), where 21 new isolates were reported during 2014 and a total of 36 isolates was reached by the end of 2014.

Threats description for 2014

No listeriosis-related threats were reported in 2014.

Discussion

The EU/EEA surveillance of listeriosis focuses on severe, invasive forms of the disease, for which the risk groups are mainly elderly and immunocompromised persons as well as pregnant women and infants. In 2014, the majority of listeriosis cases were reported in persons over 64 years of age, especially males. Listeriosis case rate has been steadily increasing in EU/EEA in the past years. Almost all (98.9%) listeriosis cases in the EU were hospitalised in 2014 and 210 cases were fatal [1]. Listeriosis can also manifest in milder forms causing gastrointestinal symptoms, but these cases are usually not surveyed at country-level and are also not in the scope of the EU/EEA-level surveillance.

Only two Member States did not report listeriosis data, Liechtenstein and Portugal. In Portugal listeriosis has been a notifiable disease since April 2014, and a retrospective study covering 90% of the population was conducted. It led to the detection of an outbreak associated with fresh cheese from 2009 to 2012 [2]. During this same time period, a listeriosis outbreak involving another serotype occurred in Basque country, Spain, but this strain was not found in the suspected food product (cooked ham) [3]. This paper also reported a second listeriosis outbreak in Northern Spain in 2013-2014, associated with foie gras. In 2013, Scotland experienced their first listeriosis community outbreak since the start of the surveillance in 1996 [4].

Based on pulsed-field gel electrophoresis (PFGE) types of human *L. monocytogenes* isolates submitted to TESSy as part of the molecular typing-enhanced surveillance, more than one fifth of the pulsotypes circulating in the EU/EEA are reported by more than one country, which indicates that targeted investigations are needed at the EU/EEA level. ECDC, the European Food Safety Authority and EU reference laboratory for *L. monocytogenes* have set up a joint database enabling upload of human, food, animal and environmental isolates from public heath institutes as well as food safety and veterinary authorities [5], and are defining processes for joint analysis of the data. Compared to PFGE, whole genome sequencing-based methods have demonstrated an improved discriminatory power in listeriosis outbreak investigations [6].

Public health conclusions

The increasing trend in the number of listeriosis cases in EU/EEA is worrying and calls for more attention to the prevention and control of the disease. Raising awareness on listeriosis and risky foods in risk groups is important, currently especially among the elderly, where the majority of cases occur. In addition, supranational cross-sectorial collaboration is essential for addressing the occurrence of persistent *L. monocytogenes* strains in humans.

References

1. European Food Safety Authority and European Centre for Disease Prevention and Control. The European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2014. EFSA Journal 2015; 13(12):4329. Available from: http://ecdc.europa.eu/en/publications/Publications/zoonoses-trends-sources-EU-summary-report-2014.pdf.

2. Magalhaes R, Almeida G, Ferreira V, Santos I, Silva J, Mendes MM, et al. Cheese-related listeriosis outbreak, Portugal, March 2009 to February 2012. Euro Surveill. 2015;20(17).

3. Perez-Trallero E, Zigorraga C, Artieda J, Alkorta M, Marimon JM. Two outbreaks of *Listeria monocytogenes* infection, Northern Spain. Emerg Infect Dis. 2014;20(12):2155-7.

4. Okpo E, Leith J, Smith-Palmer A, Bell J, Parks D, Browning F, et al. An outbreak of an unusual strain of *Listeria monocytogenes* infection in North-East Scotland. J Infect Public Health. 2015 Nov-Dec;8(6):612-8.

5. Felix B, Danan C, Van Walle I, Lailler R, Texier T, Lombard B, et al. Building a molecular *Listeria monocytogenes* database to centralize and share PFGE typing data from food, environmental and animal strains throughout Europe. J Microbiol Methods. 2014;104:1-8.

6. Schmid D, Allerberger F, Huhulescu S, Pietzka A, Amar C, Kleta S, et al. Whole genome sequencing as a tool to investigate a cluster of seven cases of listeriosis in Austria and Germany, 2011–2013. Clin Microbiol Infect. 2014 May;20(5):431-6.

Additional information

ECDC Surveillance Atlas of Infectious Diseases

European Centre for Disease Prevention and Control. Surveillance of seven priority food- and waterborne diseases in the EU/EEA. Stockholm: ECDC; 2015. Available from: http://ecdc.europa.eu/en/publications/Publications/food-and-waterborne-diseases-surveillance-report-2015.pdf.

Annex

Table. Listeriosis, surveillance systems overview, 2014

Download Excel version

_____

* 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.

PREVIOUS ANNUAL EPIDEMIOLOGICAL REPORTS

See the archive of previous Annual Epidemiological Reports