

Listeriosis

Annual Epidemiological Report for 2017

Key facts

- For 2017, 30 countries reported 2 502 confirmed listeriosis cases in the EU/EEA.
- The EU/EEA age-standardised notification rate was 0.42 cases per 100 000 population.
- The highest rate was detected among people over 64 years of age (1.7 cases per 100 000 population).
- The annual number of listeriosis cases in the EU/EEA shows an increasing trend.

Methods

This report is based on data for 2017 retrieved from The European Surveillance System (TESSy) on 11 September 2018. The European Surveillance System is a system for the collection, analysis and dissemination of data on communicable diseases. For a detailed description of methods used to produce this report, please refer to the Methods chapter [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].

For 2017, 30 EU/EEA Member States reported listeriosis data. Belgian data had 80% national coverage and Spanish data did not have national coverage. Thirteen of the 30 Member States used the EU case definition from 2012, ten used the one from 2008, five used another case definition, and two did not specify which case definition was used. The majority of Member States (26 of 30) conducted passive surveillance. In 21 countries, cases were reported by both laboratories and physicians and/or hospitals. Twenty-nine of the 30 Member States reported case-based data.

In addition to case-based routine surveillance, ECDC coordinated molecular typing-enhanced surveillance of listeriosis through isolate-based data in 2017. A typing-based multi-country cluster of *Listeria monocytogenes* was defined as at least two different countries reporting at least one isolate each with matching pulsotypes (both *ApaI* and *AscI* restriction enzymes), with the reports a maximum of 16 weeks apart.

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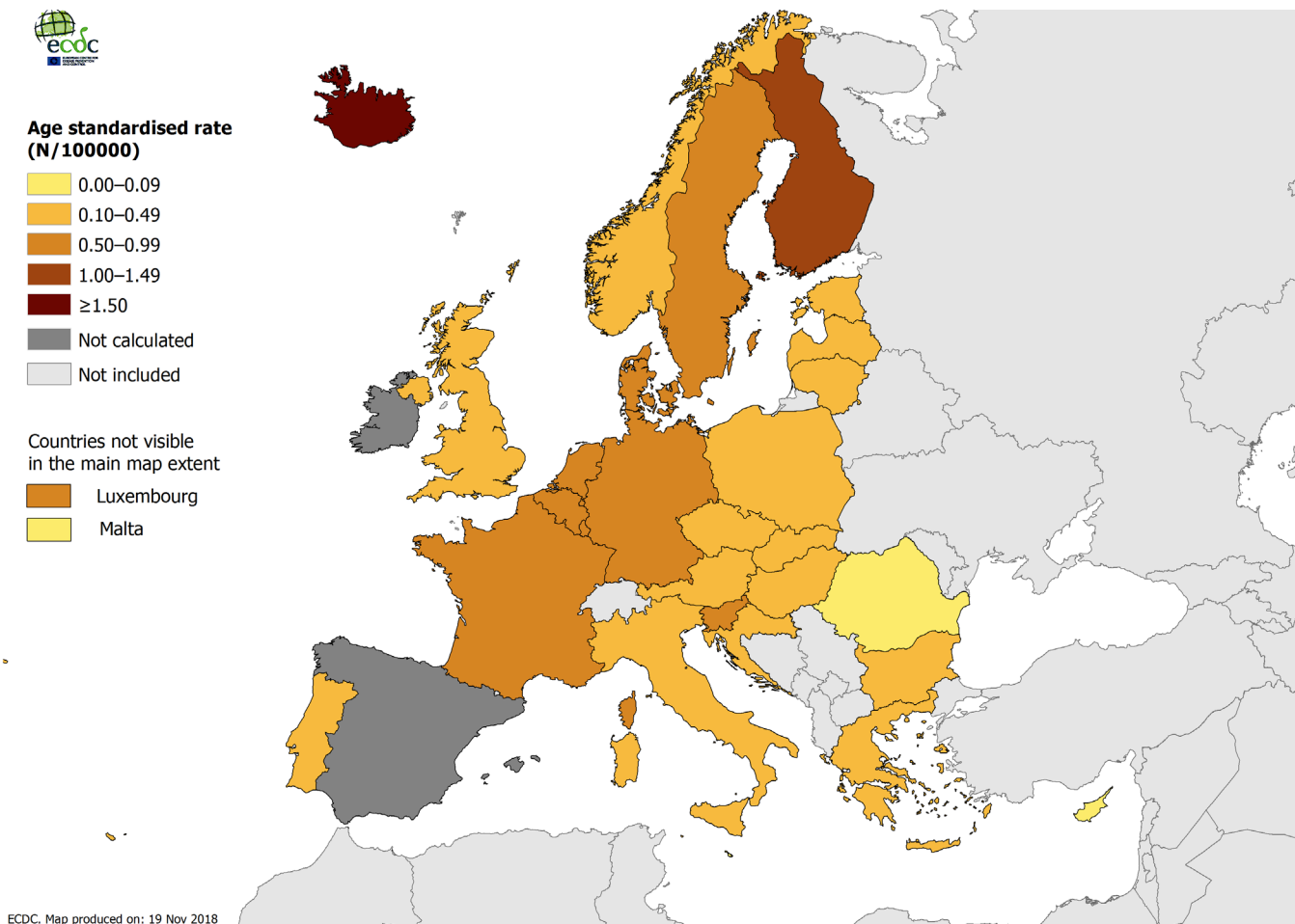
Epidemiology

For 2017, 2 502 confirmed cases of listeriosis were reported by 30 EU/EEA countries, with an age-standardised notification rate of 0.42 per 100 000 population. Germany and France had the highest numbers of confirmed cases, corresponding to 44% of all cases reported in the EU/EEA. The highest notification rates were observed in Iceland and Finland. Figure 1 illustrates the country-specific age-standardised rates per 100 000 population.

Table 1. Distribution of confirmed listeriosis cases and rates per 100 000 population by country, EU/EEA, 2013–2017

Country	2013		2014		2015		2016		2017			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Confirmed cases	Rate	ASR	Reported cases
Austria	36	0.43	49	0.58	38	0.44	46	0.53	32	0.36	0.33	32
Belgium	66	0.85	84	1.07	83	0.92	103	1.14	73	0.80	0.74	73
Bulgaria	3	0.04	10	0.14	5	0.07	5	0.07	13	0.18	0.20	13
Croatia	0	0.00	4	0.09	2	0.05	4	0.10	8	0.19	0.18	8
Cyprus	1	0.12	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
Czech Republic	36	0.34	38	0.36	36	0.34	47	0.45	30	0.28	0.26	30
Denmark	51	0.91	92	1.63	44	0.78	40	0.70	58	1.01	0.91	58
Estonia	2	0.15	1	0.08	11	0.84	9	0.68	4	0.30	0.26	4
Finland	61	1.12	65	1.19	46	0.84	67	1.22	89	1.62	1.36	90
France	369	0.56	373	0.57	412	0.62	375	0.56	370	0.55	0.51	370
Germany	463	0.57	573	0.71	557	0.69	670	0.82	726	0.88	0.72	739
Greece	10	0.09	10	0.09	31	0.29	20	0.19	20	0.19	0.16	20
Hungary	24	0.24	39	0.39	37	0.38	25	0.25	36	0.37	0.34	36
Iceland	1	0.31	4	1.23	0	0.00	0	0.00	6	1.77	2.01	6
Ireland	8	0.17	15	0.32	19	0.41	13	0.28	14	0.29	-	14
Italy	143	0.24	132	0.22	153	0.25	179	0.30	164	0.27	0.22	165
Latvia	5	0.25	3	0.15	8	0.40	6	0.30	3	0.15	0.13	3
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	6	0.20	7	0.24	5	0.17	10	0.35	9	0.32	0.27	9
Luxembourg	2	0.37	5	0.91	0	0.00	2	0.35	5	0.85	0.94	5
Malta	1	0.24	1	0.23	4	0.91	1	0.22	0	0.00	0.00	0
Netherlands	72	0.43	90	0.53	71	0.42	89	0.52	108	0.63	0.57	108
Norway	21	0.42	29	0.57	18	0.35	19	0.36	16	0.30	0.30	16
Poland	58	0.15	87	0.23	70	0.18	101	0.27	116	0.31	0.30	116
Portugal	-	-	-	-	28	0.27	31	0.30	42	0.41	0.34	42
Romania	9	0.04	5	0.03	12	0.06	9	0.05	10	0.05	0.05	10
Slovakia	16	0.30	29	0.54	18	0.33	10	0.18	12	0.22	0.23	12
Slovenia	16	0.78	18	0.87	13	0.63	15	0.73	13	0.63	0.55	13
Spain	140	-	161	-	206	-	362	-	284	-	-	287
Sweden	93	0.97	125	1.30	88	0.90	68	0.69	81	0.81	0.71	81
United Kingdom	192	0.30	201	0.31	186	0.29	201	0.31	160	0.24	0.24	160
EU/EEA	1 905	0.40	2 250	0.47	2 201	0.43	2 527	0.47	2 502	0.48	0.42	2 520

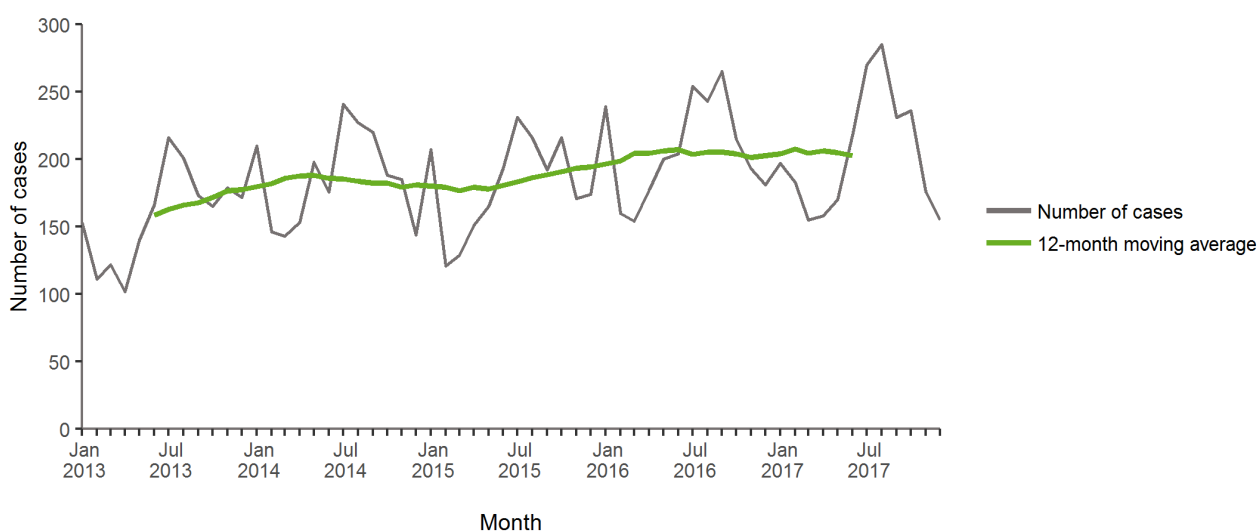
Figure 1. Distribution of confirmed listeriosis cases per 100 000 population by country, EU/EEA, 2017



Listeriosis cases from countries reporting consistently from 2013 to 2017 show an increasing trend during this period (Figure 2).

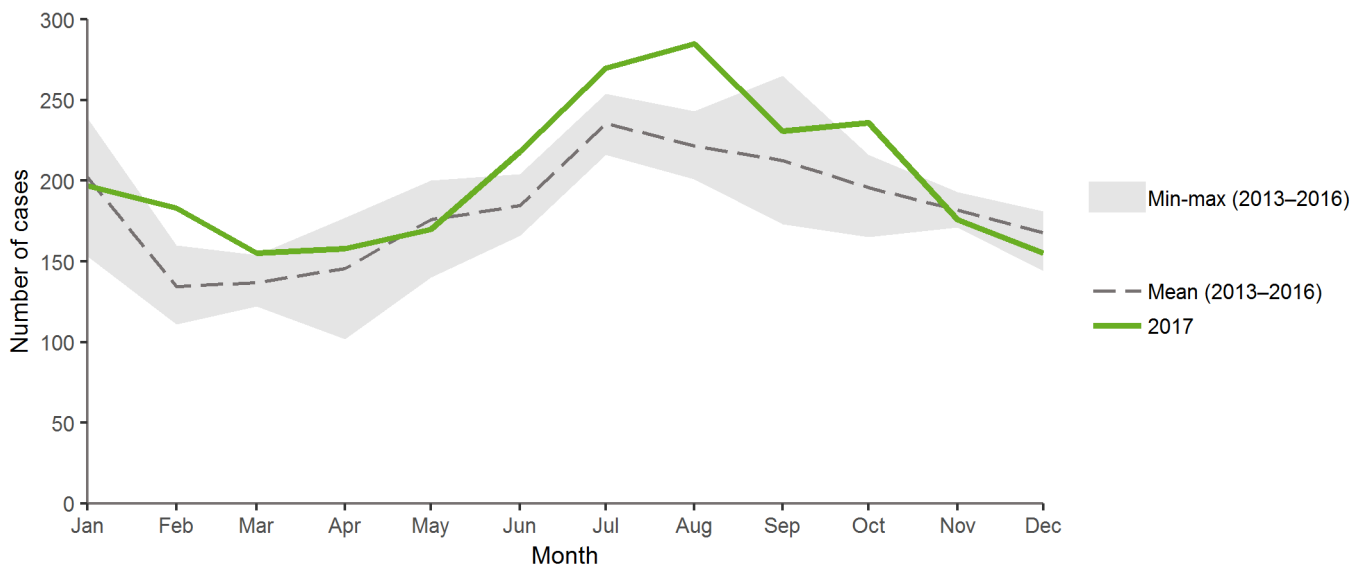
In 2017, cases of listeriosis followed their known seasonal pattern peaking during the summer but exceeding the maximum of previous years (Figure 3).

Figure 2. Distribution of confirmed listeriosis cases by month, EU/EEA, 2013–2017



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

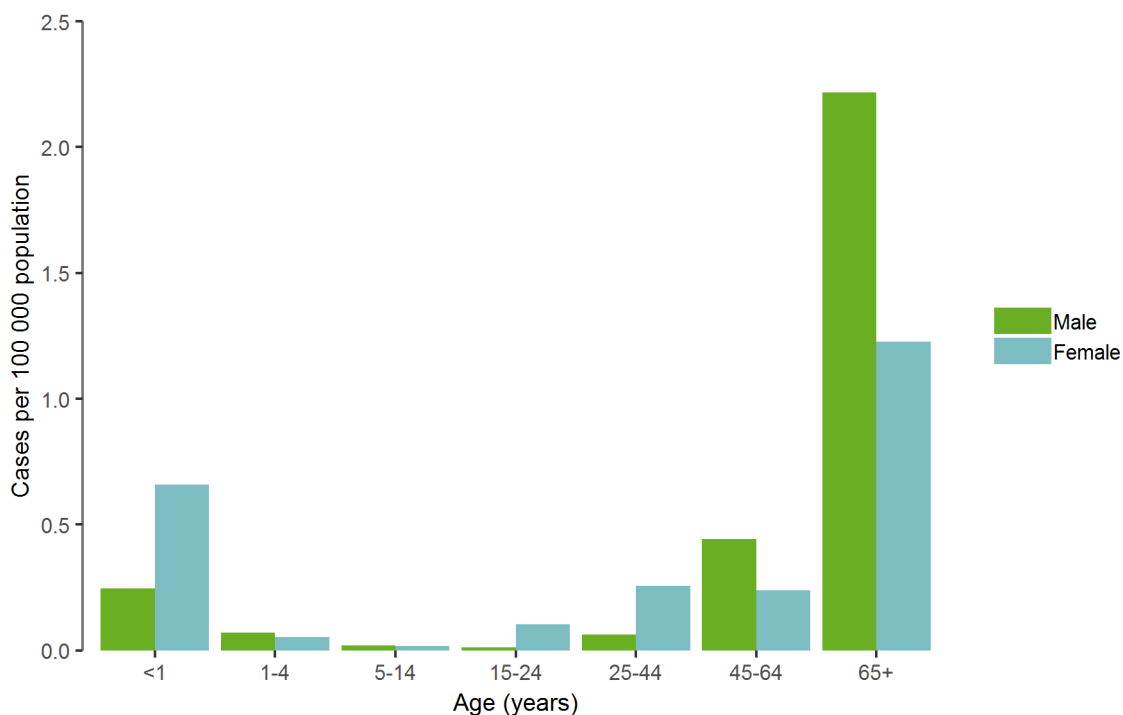
Figure 3. Distribution of confirmed listeriosis cases by month, EU/EEA, 2017 and 2013–2016



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

Of confirmed listeriosis cases with known sex (N=2 493), 55.2% were in males and 44.8% in females, corresponding to a male-to-female ratio of 1.2:1. The most affected age group were those over 64 years of age (1 667 cases; 67.1%, notification rate: 1.7 per 100 000 population).

Figure 4. Distribution of confirmed listeriosis cases per 100 000 population, by age and gender, EU/EEA, 2017



Molecular typing-enhanced surveillance

Four countries submitted *L. monocytogenes* pulsed-field gel electrophoresis (PFGE) data to TESSy for 2017. No multi-country clusters were detected.

Outbreaks and other threats

In 2017, seven urgent inquiries on listeriosis were launched by four different EU Member States and two non-EU/EEA countries. In three of these events, no multi-country aspect was identified. Four events involved three to five countries each, as confirmed by whole genome sequencing (WGS)-based methods and/or epidemiological data. Joint ECDC-EFSA rapid outbreak assessments (ROA) were published for three of these events. One outbreak involved three Member States and was associated with ready-to-eat cold-smoked salmon produced in Poland [4]. Frozen corn and possibly other frozen vegetables produced by a company in Hungary were the likely source of the second outbreak that involved forty-seven cases in at least five Member States and caused nine fatal outcomes [5]. A third prolonged multi-country outbreak of 22 listeriosis cases involving five Member States was associated with cold-smoked fish products from Estonia [6].

Discussion

Listeriosis is a relatively uncommon disease but typically causes a high proportion of severe cases and deaths in susceptible populations: elderly and immunocompromised persons as well as pregnant women and infants. Notification of listeriosis cases in humans is therefore compulsory in the vast majority of EU/EEA Member States. EU/EEA surveillance of listeriosis focuses on severe, invasive forms of the disease. Confirmed listeriosis cases reported from 2013 to 2017 in the EU/EEA show a statistically significant increasing trend during this period [7]. Five individual Member States reported significantly increasing trends (Germany, Italy, the Netherlands, Poland and Spain) during this period. None of the Member States observed significantly decreasing trends between 2013-2017. The EU/EEA-level increase is likely partly due to the absolute increased population size of the elderly susceptible population [8].

In 2017, a total of ten *L. monocytogenes* outbreaks were reported to the European Food Safety Agency (EFSA), comprising a total of 39 cases [7]. Four of these outbreaks were reported as strong-evidence outbreaks by Austria (2), Denmark (1) and Sweden (1). Implicated food categories were 'cheese', 'fish and fish products', 'meat and meat products' and 'vegetables and juices and other products thereof'. In addition, Denmark reported three weak-evidence outbreaks and Germany, Ireland and Italy reported one each.

The world's largest listeriosis outbreak known so far occurred in South Africa from January 2017 to July 2018 [9]. A total of 1 060 associated cases were reported, with an estimated case fatality from or with the infection of 30%. WGS and epidemiological data pointed to ready-to-eat processed meat products as the source of the outbreak. Listeriosis has since been added to the South African list of mandatorily notifiable diseases, and surveillance systems have been strengthened to facilitate prevention and early detection of future listeriosis outbreaks.

Compared to PFGE, WGS-based methods show a superior discriminatory power and have confirmed prolonged international transmission of several *L. monocytogenes* strains [10,11]. *L. monocytogenes* is one of the pathogens for which public health laboratories in the EU/EEA are rapidly transitioning from traditional to WGS-based typing methods [12].

Public health implications

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

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