

Legionnaires' disease

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

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Key facts

- Legionnaires' disease remains an uncommon, mainly sporadic respiratory infection with low notification rates in EU/EEA countries (overall 1.4 per 100 000 inhabitants).
- Five countries (France, Germany, Italy, Portugal and Spain) accounted for 74% of notified cases.
- One outbreak involving more than 400 cases occurred in Vila Franca de Xira near Lisbon, Portugal.
- Regular checks for Legionella and appropriate control measures in man-made water systems may prevent a significant proportion of Legionnaires' disease cases.

Methods

[Click here for a detailed description of the methods used to produce this annual report](#)

This surveillance report is based on Legionnaires' disease (LD) surveillance data collected by the European Legionnaires' Disease Surveillance Network (ELDSNet) for 2014. ELDSNet involves 30 EU/EEA Member States (28 EU Member States plus Iceland and Norway).

The surveillance data were collected through two different schemes:

- Annual retrospective data collection of LD cases in EU Member States, Iceland and Norway.
- Near-real-time reporting of travel-associated cases of Legionnaires' disease (TALD), including reports from countries outside the EU/EEA. This scheme aims primarily at identifying clusters of cases that may otherwise not have been detected at the national level, which makes it possible to quickly investigate the reports and take control measures at the implicated accommodation sites to prevent further infections.

In 2014, disease surveillance can be summarised as follows:

All 30 EU/EEA Member States reported case-based LD data. Countries were asked to report cases in accordance with the 2012 EU/EEA case definition: probable cases with an epidemiological link only should no longer be reported.

Twenty-five EU/EEA countries and seven non-EU/EEA countries reported TALD cases. TALD cases are defined as travellers having stayed at a commercial or public accommodation site in the two to ten days before onset of disease. It does not include cases of LD among travellers who stayed with relatives or friends.

A single TALD case was defined as a person who stayed at an accommodation site not associated with LD cases in the previous two years. A TALD cluster was defined as two or more cases who stayed at the same accommodation site and whose dates of onset were within two years of each other.

A summary of national surveillance systems characteristics is available in the Annex.

Epidemiology

In 2014, 30 countries reported 6 943 cases, 6 412 (92.4%) of which were classified as confirmed. The remaining 531 (7.6%) cases were reported as probable (Table 1). The number of notifications per 100 000 inhabitants was 1.4 in 2014, which was the highest ever observed. Age-standardised notification rates did not differ substantially from crude rates. Of 5 505 cases with known outcome, 456 were reported to have died, giving a case fatality of 8%.

L. pneumophila serogroup 1 was the most commonly identified pathogen, accounting for 81% of culture-confirmed cases.

Five countries (France, Germany, Italy, Portugal and Spain) accounted for 74% of all notified cases (Table 1 and Figure 1). Notification rates ranged from less than 0.1 per 100 000 inhabitants in Bulgaria, Poland and Romania to 5.6 per 100 000 in Portugal (Table 1, Figure 2). The high rate in Portugal was mainly driven by the large community outbreak that occurred in Vila Franca de Xira near Lisbon in October and November 2014 [1].

As in previous years, most cases (69%) were community-acquired, while 20% were travel-associated. Eight per cent were associated with healthcare facilities, and 3% were associated with other settings.

Table 1. Number and rate of Legionnaires' disease cases per 100 000 population by country and year, EU/EEA, 2010–2014

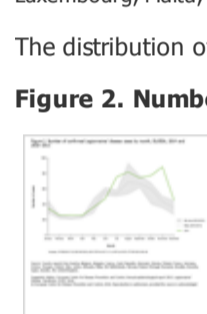
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Country	2010		2011		2012		2013		2014					
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	National data	Report type	Reported cases	Rate	ASR	Confirmed cases
Austria	80	1.0	101	1.2	104	1.2	100	1.2	Y	C	133	1.6	1.4	122
Belgium	89	0.8	79	0.7	84	0.8	155	1.4	Y	C	200	1.8	1.7	167
Bulgaria	1	0.0	0	0.0	0	0.0	1	0.0	Y	C	1	0.0	0.0	1
Croatia	-	-	-	-	-	-	16	0.4	Y	C	25	0.6	0.5	25
Cyprus	2	0.2	1	0.1	7	0.8	6	0.7	Y	C	6	0.7	0.8	6
Czech Republic	38	0.4	57	0.5	56	0.5	67	0.6	Y	C	110	1.0	1.0	108
Denmark	133	2.4	123	2.2	127	2.3	113	2.0	Y	C	158	2.8	2.6	116
Estonia	0	0.0	7	0.5	3	0.2	10	0.8	Y	C	8	0.6	0.6	7
Finland	24	0.4	9	0.2	10	0.2	15	0.3	Y	C	10	0.2	0.2	9
France	1540	2.4	1170	1.8	1298	2.0	1262	1.9	Y	C	1348	2.0	2.0	1325
Germany	688	0.8	637	0.8	628	0.8	811	1.0	Y	C	833	1.0	0.9	606
Greece	9	0.1	18	0.2	29	0.3	38	0.3	Y	C	27	0.2	0.2	26
Hungary	60	0.6	37	0.4	33	0.3	29	0.3	Y	C	32	0.3	0.3	31
Iceland	2	0.6	3	0.9	2	0.6	-	-	Y	C	4	1.2	1.3	2
Ireland	11	0.2	7	0.2	15	0.3	14	0.3	Y	C	8	0.2	0.2	8
Italy	1238	2.1	1021	1.7	1346	2.3	1363	2.3	Y	C	1476	2.4	2.1	1435
Latvia	6	0.3	49	2.4	48	2.3	34	1.7	Y	C	38	1.9	1.8	23
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	1	0.0	2	0.1	9	0.3	1	0.0	Y	C	8	0.3	0.3	6
Luxembourg	10	2.0	6	1.2	5	1.0	7	1.3	Y	C	5	0.9	0.9	4
Malta	6	1.4	9	2.2	4	1.0	2	0.5	Y	C	9	2.1	-	9
Netherlands	466	2.8	311	1.9	304	1.8	308	1.8	Y	C	348	2.1	2.0	327
Norway	48	1.0	33	0.7	25	0.5	40	0.8	Y	C	51	1.0	1.0	41
Poland	36	0.1	18	0.0	8	0.0	11	0.0	Y	C	12	0.0	0.0	10
Portugal	128	1.2	89	0.8	140	1.3	94	0.9	Y	C	588	5.6	5.2	557
Romania	1	0.0	1	0.0	3	0.0	1	0.0	Y	C	1	0.0	0.0	1
Slovakia	4	0.1	7	0.1	4	0.1	6	0.1	Y	C	14	0.3	0.2	14
Slovenia	58	2.8	44	2.1	81	3.9	77	3.7	Y	C	59	2.9	2.7	59
Spain	1150	2.5	706	1.5	972	2.1	815	1.7	Y	C	925	2.0	1.9	916
Sweden	100	1.1	127	1.3	102	1.1	122	1.3	Y	C	136	1.4	1.3	95
United Kingdom	376	0.6	251	0.4	401	0.6	331	0.5	Y	C	370	0.6	0.6	356
EU/EEA	6305	1.3	4923	1.0	5848	1.1	5849	1.1	-	C	6943	1.4	1.2	6412

ASR: age-standardised rate, C: case-based

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

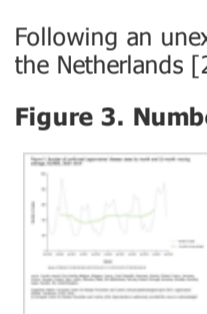
Figure 1. Rate of confirmed Legionnaires' disease cases per 100 000 population by country, EU/EEA, 2014



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

The distribution of cases by month of reporting peaked in August and November. Most cases (68.9%) had a date of onset between July and December (Figure 2).

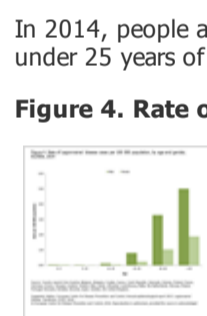
Figure 2. Number of confirmed Legionnaires' disease cases by month, EU/EEA, 2014 and 2010–2013



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

Following an unexpectedly high peak of LD in August 2010, which was mostly driven by unusually high numbers of community-acquired cases reported by France, Germany and the Netherlands [2], a slightly increasing trend was observed over the 2011–2014 period (Figure 3).

Figure 3. Number of confirmed Legionnaires' disease cases by month and 12-month moving average, EU/EEA, 2010–2014



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

In 2014, people aged 45 years and older accounted for 6 134 (88.4%) of 6 935 cases with known age. The notification rate increased with age, from ≤ 0.1 per 100 000 in those under 25 years of age to 3.3 in persons aged 65 years and above (5.0 per 100 000 in males and 1.9 in females) (Figure 4). The overall male-to-female ratio was 2.6:1.

Figure 4. Rate of Legionnaires' disease cases per 100 000 population, by age and gender, EU/EEA, 2014



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

Travel-associated Legionnaires' disease

For 2014, 953 travel-associated cases were reported through the near-real-time surveillance scheme, 21% more than in 2013. A total of 132 new travel-associated clusters were detected in 25 countries, compared to 110 in 2013 and 99 in 2012. In 2014, 55% of all detected clusters of travel-associated Legionnaires' disease associated with only one accommodation site involved cases from more than one country. These clusters would probably not have been detected had it not been for the international surveillance of the ELDSNet network.

Threats

Between 1 January and 31 December 2014, ECDC monitored 13 threats related to Legionnaires' disease. Twelve were rapidly evolving clusters (≥ 3 cases with onset within 3 months), and one was related to the previously mentioned community outbreak in Vila Franca de Xira, Portugal [1].

Discussion

With 6 943 cases reported, the notification rate of LD in the EU/EEA in 2014 was 1.4 cases per 100 000 population, the highest ever observed. This increase may be partly explained by the large community outbreak in Portugal and an increased number of travel-associated cases reported to the network in 2014. The reasons behind the increasing trend observed since 2011 should be explored further.

Many countries had a notification rate below 0.5, several even below 0.1 cases per 100 000, a situation unchanged over the past five years and unlikely to reflect the true incidence of LD in these countries.

The main characteristics of the cases reported in 2014 were very similar to those reported in previous years: most cases were sporadic and community acquired, and the disease affected mostly older males.

Public health conclusions

Legionnaires' disease remains an important cause of potentially preventable morbidity and mortality in Europe. Large outbreaks such as the one in Portugal remind us of the challenges in preventing and controlling Legionnaires' disease. Further review and sharing of best practice in cooling tower maintenance could help prevent large outbreaks in the future.

The priority for addressing the apparent gap in surveillance is to assist countries with notification rates below one per million inhabitants in order to improve both the diagnosis and the reporting of Legionnaires' disease.

Regular checks for the presence of Legionella bacteria and appropriate control measures applied to man-made water systems may prevent cases of Legionnaires' disease at tourist accommodations, in hospitals, in long-term healthcare facilities or other settings where sizeable populations at higher risk may be exposed [3].

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Additional information

ECDC Surveillance Atlas of Infectious Diseases

Previous reports

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Peer-reviewed articles by ECDC epidemiologists

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Annex

Table. Legionnaires' disease, 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.