

Trichinellosis

Reporting on 2014 data retrieved from TESSy* on 4 December 2015

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

Key facts

- In 2014, 320 confirmed cases of trichinellosis were reported in 28 EU/EEA countries.
- The overall notification rate was 0.07 cases per 100 000 population in 2014.
- Bulgaria and Romania accounted for 88% of confirmed cases, and notification rates have increased in these two countries since 2010.
- Consumption of undercooked meat from pigs raised under non-controlled housing conditions or from hunted wild boar constitute the highest risk for acquiring trichinellosis in the EU/EEA today.

Methods

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

The data used for this report were extracted from TESSy on 4 December 2015. Twenty-eight countries reported data for 2014, of which 17 reported zero cases. No surveillance system for trichinellosis exists in Denmark, and Italy did not report data for 2014. Eight countries reported data using the 2012 EU case definition for trichinellosis while 14 used the 2008 definition, which does not differ from the 2012 definition; three countries used another definition and two had not specified the definition used (Annex). The disease is under mandatory notification in 25 countries and voluntary in three. Belgium has sentinel surveillance with unknown population coverage. Three countries have active surveillance systems while the rest have passive systems. Eighteen countries have surveillance systems which integrate laboratory and epidemiological data.

Epidemiology

In 2014, 384 cases of trichinellosis, 320 of which were confirmed, were reported in the EU/EEA (Table 1). The EU/EEA notification rate was 0.07 cases per 100 000 population, which represents an increase of 40% compared with 2013 and the highest notification rate reported in the last five years. This was mainly due to an increased number of trichinellosis cases reported by Romania and Bulgaria that had, as in previous years, the highest notification rates (1.11 and 0.83 cases per 100 000, respectively) and accounted for 88% of confirmed cases reported in the EU/EEA (Table 1). In Romania, more than half of the cases (124 cases, 56%) were reported in January and February 2014. In Bulgaria, all 60 confirmed cases in 2014 were linked to five outbreaks, four from consumption of wild boar meat and one from pork from a backyard pig. In Belgium, a substantial increase with 16 cases was reported in December 2014. Wild boar meat was the suspected source of the outbreak.

Three cases of trichinellosis in Germany, Sweden and the United Kingdom were reported as travel-associated and were related to travel to another EU country. The remaining cases were either reported as domestically acquired or of unknown origin. Notification rates were generally higher in the eastern part of the EU/EEA (Figure 1).

Table 1. Confirmed cases of trichinellosis: number and rate per 100 000 population, EU/EEA, 2010–2014

[Download Excel version](#)

Country	2010		2011		2012		2013		2014					
	Case s	Rat e	Case s	Rat e	Case s	Rat e	Case s	Rat e	Nationa l data	Repor t type	Reporte d cases	Confirme d cases	Rat e	ASR
Austria	5	0.06	1	0.01	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Belgium	3	-	0	-	0	-	1	-	N	C	16	16	-	-
Bulgaria	14	0.19	27	0.37	30	0.41	36	0.49	Y	A	81	60	0.83	0.87
Croatia	.	.	.	.	.	.	0	0.00	Y	A	3	3	0.07	0.07
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	1	0.01	0	0.00	Y	C	2	0	0.00	0.00
Denmark	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
France	0	0.00	2	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Germany	3	0.00	3	0.00	2	0.00	14	0.02	Y	C	1	1	0.00	0.00
Greece	4	0.04	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Hungary	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Iceland	.	.	.	.	.	.	0	0.00	Y	C	0	0	0.00	0.00
Ireland	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Italy	0	0.00	6	0.01	33	0.06	.	.	.	.	.	.	.	.
Latvia	9	0.42	50	2.41	41	2.01	11	0.54	Y	C	5	5	0.25	0.23
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	77	2.45	29	0.95	28	0.93	6	0.20	Y	C	20	5	0.17	0.17
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	1	0.01	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Norway	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Poland	14	0.04	10	0.03	1	0.00	4	0.01	Y	C	32	6	0.02	0.01
Portugal	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	0	0	0.00	0.00
Romania	82	0.40	107	0.53	149	0.74	116	0.58	Y	C	221	221	1.11	1.11
Slovakia	2	0.04	13	0.24	5	0.09	5	0.09	Y	C	0	0	0.00	0.00
Slovenia	0	0.00	1	0.05	1	0.05	1	0.05	Y	C	0	0	0.00	0.00
Spain	10	0.02	18	0.04	10	0.02	23	0.05	Y	C	1	1	0.00	0.00
Sweden	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	1	1	0.01	0.01
United Kingdom	0	0.00	0	0.00	0	0.00	0	0.00	Y	C	1	1	0.00	0.00
EU/EEA	223	0.05	268	0.05	301	0.06	217	0.05	.	.	384	320	0.07	0.07

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 trichinellosis cases: rate per 100 000 population, EU/EEA, 2014

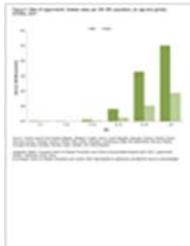


Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United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

The highest case rate of trichinellosis was observed among 25–44-year-olds, with 0.10 cases per 100 000 population, followed by 5–14-year-olds and 15–24-year-olds (0.9 cases per 100 000 population each) (Figure 2). Notification rates varied markedly by gender, with higher rates among male cases in the age groups 0–4, 15–24, 25–44 and 65 years and older, and among female cases in the age group 5–14 years old. The overall

male-to-female ratio was 1.2:1. Bulgaria and Romania were the only countries reporting cases among children and young teenagers (0–14 years of age).

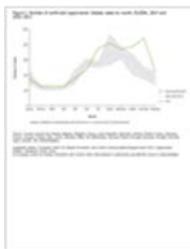
Figure 2. Reported confirmed trichinellosis cases: rate per 100 000 population, by age and gender, EU/EEA, 2014



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

Trichinellosis in the EU/EEA follows a seasonal pattern, with case numbers peaking in January and February (Figure 3). In 2014, this peak was particularly pronounced due to high case numbers reported from Romania in this period (Figures 3 and 4). Please note that cases from Bulgaria are not included in Figures 3 and 4, as only aggregated data were available.

Figure 3. Number of confirmed cases of trichinellosis by month in 2014, compared with 2009–2013, EU/EEA



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

Figure 4. Trend and number of confirmed cases of trichinellosis by month, and 12-month moving average, 2010–2014, EU/EEA



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

Threats description for 2014

An outbreak with 16 cases of trichinellosis was reported by Belgium in December 2014. Cases fell ill after consuming wild boar meat imported from Spain, which was served in restaurants in two Belgian cities during November [1].

Discussion

Trichinellosis is an uncommon but serious human disease that is still present in the EU, with most cases reported from a few Member States in the eastern part of Europe. Bulgaria and Romania account for the majority of cases, and their notification rates have been increasing since 2010.

In 2014, 17 food-borne outbreaks caused by *Trichinella* were reported in six Member States [2]. Pig meat was the identified food source in 11 of 15 strong-evidence outbreaks, and consumption of inadequately heat-treated meat or meat not controlled for *Trichinella* (e.g. meat from backyard pigs, wild boar or bear) were reported as the main causes. Commission Regulation (EC) No 2075/2005 with amendment 216/2014 requires tests for *Trichinella* in all slaughtered pigs, wild boar and horses from holdings not being officially recognised as applying controlled housing conditions. However, animals slaughtered for home consumption are not included in the Regulation, and national rules differ [2].

The recurring peak in trichinellosis cases in January and February may reflect the consumption of different pork products during Christmas as well as the end of the hunting season. *Trichinella* is commonly detected in wildlife [2] and cases related to hunting may account for the higher notification rates observed among adult males. A study in Greece suggests that the increase of *Trichinella* in farm animals is the result of an increasing demand for organically-produced meat from free-range pigs which are sometimes fed with carcasses or offal from hunted or dead wild animals [3].

Public health conclusions

Pig and wild boar meat and derived products remain the two most important sources of human trichinellosis in the EU. Consuming undercooked meat from backyard pigs or hunted wild boar which were not tested for *Trichinella* is a major risk factor for trichinellosis, and it is vital that this information reaches those who consume meat from these sources.

References

1. National Reference Laboratory for Food-borne outbreaks, 2015. Annual Report on food-borne outbreaks in Belgium 2014, Scientific Institute of Public Health. Depotnummer: D/2015/2505/45. (In Dutch). Available at: http://www.favv.be/professionelen/publicaties/thematisch/voedselvergiftigingen-belgie/_documents/2015-09-jaarverslagboekje_VTI2015_vfinal_nl.pdf
2. 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>
3. Boutsini S, Papatsiros VG, Stougiou D, Marucci G, Liandris E, Athanasiou LV, et al. Emerging *Trichinella britovi* infections in free ranging pigs of Greece. Vet Parasitol. 2014;199(3-4):278-82.

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 at: <http://ecdc.europa.eu/en/publications/Publications/food-and-waterborne-diseases-surveillance-report-2015.pdf>

Annex

Table. Trichinellosis, surveillance systems overview, 2014

[Download Excel version](#)

The image shows a screenshot of a data table from the European Surveillance System (TESSy). The table is organized into columns representing different categories of data, such as country, disease, and surveillance period. The text is small and difficult to read, but it appears to be a structured dataset of infectious disease surveillance information.

* 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.