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## Annual epidemiological report

### Campylobacteriosis

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

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#### Key facts

- 240 379 confirmed cases were reported in 2014.
- In 2014, the crude notification rate of campylobacteriosis was 59.8 cases per 100 000 population in the EU/EEA, representing a 13% increase compared with the previous year.
- Human campylobacteriosis was more common in children below five years of age
- In 2014, the notification rate was slightly higher for males than females across all age groups in 2014.
- Campylobacteriosis shows a clear seasonality, with a sharp peak of cases in July.

#### Methods

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

- In 2014, 28 EU/EEA countries reported data.
- Twelve countries reported using the EU-2008 case definition, ten countries used the one from 2012, and four countries used a case definition described as 'other'. Belgium and Finland did not specify which case definition they used.
- A total of 22 countries had a compulsory system, five countries relied on a voluntary system, and one country described its surveillance system as 'other'.

Surveillance was comprehensive in 24 countries, three countries used sentinel surveillance, and one country reported its national coverage as 'other' (Annex 1).

#### Epidemiology

##### Number of cases

In 2014, 240 379 confirmed cases of campylobacteriosis were reported by 26 EU and two EEA countries. Over the past five years, three countries (Germany, the United Kingdom and the Czech Republic) have had the highest yearly number of cases. In 2014, the cases from Germany (70 530), the United Kingdom (66 790), the Czech Republic (20 750) and Spain (11 481) represented 71% of all reported confirmed cases. The overall rate of 59.8 cases per 100 000 population in the EU/EEA (range 1.3 to 197.4 by countries) was higher than in previous years, with an increase of 13% in comparison with 2013 (Table 1). The countries with the highest notification rates were the Czech Republic, Luxembourg, Slovakia and the United Kingdom with 197, 159, 125 and 104 cases per 100 000 population, respectively (Table 1). Compared to the previous year, cases increased in 25 countries in 2014; a decrease was reported in only three countries (Belgium, Estonia, and Cyprus).

Table 1. Reported, confirmed campylobacteriosis cases: number and rate per 100 000 population, 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	Confirmed cases	Rate	ASR
Austria	4404	52.7	5129	61.2	4710	56.0	5731	67.8	Y	C	6514	6514	76.6	78.4
Belgium	6047	-	7716	-	6607	-	8148	-	N	C	8098	8098	-	-
Bulgaria	6	0.1	73	1.0	97	1.3	124	1.7	Y	A	144	144	2.0	2.1
Croatia	.	.	.	.	0	0.0	0	0.0	Y	A	1647	1647	38.8	40.4
Cyprus	55	6.7	62	7.4	68	7.9	56	6.5	Y	C	40	40	4.7	4.6
Czech Republic	21075	201.4	18743	178.7	18287	174.1	18267	173.7	Y	C	20902	20750	197.4	204.6
Denmark	4037	72.9	4060	73.0	3720	66.7	3772	67.3	Y	C	3773	3773	67.0	67.8
Estonia	197	14.8	214	16.1	268	20.2	382	28.9	Y	C	308	285	21.7	21.9
Finland	3944	73.7	4267	79.4	4251	78.7	4066	74.9	Y	C	4889	4889	89.7	93.1
France	4324	33.4	5538	42.6	5079	38.9	5198	39.6	20%	C	5958	5958	45.2	44.3
Germany	65108	79.6	70812	86.6	62504	76.4	63271	77.1	Y	C	70972	70530	87.3	89.1
Greece	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hungary	7180	71.7	6121	61.3	6367	64.1	7247	73.1	Y	C	8490	8444	85.5	91.0
Iceland	55	17.3	123	38.6	60	18.8	101	31.4	Y	C	142	142	43.6	44.0
Ireland	1660	36.5	2433	53.2	2391	52.2	2288	49.8	Y	C	2595	2593	56.3	54.3
Italy	457	0.8	468	0.8	774	1.3	1178	2.0	Y	C	1252	1252	2.1	2.2
Latvia	1	0.0	7	0.3	8	0.4	9	0.4	Y	C	38	37	1.8	1.9
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lithuania	1095	34.9	1124	36.8	917	30.5	1139	38.3	Y	C	1184	1184	40.2	41.7
Luxembourg	600	119.5	704	137.5	581	110.7	675	125.7	Y	C	873	873	158.8	158.0
Malta	204	49.3	220	53.0	220	52.7	246	58.4	Y	C	288	288	67.7	68.9
Netherlands	4322	50.1	4408	50.9	4248	48.8	3702	42.4	52%	C	4159	4159	47.5	-
Norway	2682	55.2	3005	61.1	2933	58.8	3291	65.2	Y	C	3386	3386	66.3	66.8
Poland	367	1.0	354	0.9	431	1.1	552	1.5	Y	C	652	650	1.7	1.7
Portugal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Romania	175	0.9	149	0.7	92	0.5	218	1.1	Y	C	256	256	1.3	1.4
Slovakia	4476	83.0	4565	84.7	5704	105.5	5845	108.0	Y	C	6867	6744	124.5	124.9
Slovenia	1022	49.9	998	48.7	983	47.8	1027	49.9	Y	C	1184	1184	57.4	59.5
Spain	6340	54.6	5469	46.9	5548	47.4	7064	50.4	30%	C	11481	11481	82.3	85.7
Sweden	8001	85.7	8214	87.2	7901	83.3	8114	84.9	Y	C	8288	8288	85.9	87.1

United Kingdom	70298	112.5	72150	114.5	72560	114.3	66465	104.0	Y	C	66790	66790	103.9	103.4
<b>EU/EEA</b>	<b>218132</b>	<b>53.5</b>	<b>227126</b>	<b>55.4</b>	<b>217309</b>	<b>52.6</b>	<b>218176</b>	<b>52.3</b>	.	C	<b>241170</b>	<b>240379</b>	<b>59.8</b>	<b>60.6</b>

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

#### Geographical distribution

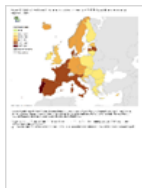
The highest burden in terms of number of cases was reported by Germany and the United Kingdom (Figure 1). When adjusting to the population size, Czech Republic and Luxembourg had highest rates of reported confirmed cases per 100 000 population (Figure 2).

Figure 1. Reported confirmed campylobacteriosis cases: distribution of by country, EU/EEA, 2014



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

Figure 2. Reported confirmed campylobacteriosis cases: rates per 100 000, EU/EEA, 2014

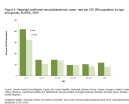


Source: Country reports from Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

#### Age and gender distribution

Information on gender and age was provided for 239 314 confirmed cases in EU/EEA countries. The male-to-female ratio was 1.19:1 in 2014 (range by countries from 0.61 to 1.48). Overall, 13.0% of all reported cases were children below five years (range by countries from 2.0 to 79.3%), and the rate of infection was 188.5 cases per 100 000 population per year in this age group. Higher rates in males than females were seen across all age groups (Figure 3).

Figure 3. Reported confirmed campylobacteriosis cases: rate per 100 000 population by age and gender, EU/EEA, 2014



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

#### Seasonality

In 2014, Bulgaria and Croatia were not included in the seasonality and trend analysis due to the lack of information on the monthly distribution of reported cases. Human cases of campylobacteriosis follow a clear seasonality, with most cases reported in June, July and August (Figure 4), similar to previous years (Figure 5).

Figure 4. Reported confirmed campylobacteriosis cases: seasonal distribution, EU/EEA, 2014 compared with 2010–2013



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

Figure 5. Reported confirmed campylobacteriosis cases: trend and number, EU/EEA, 2010–2014



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

#### Threats description for 2014

There were no threats reported in 2014 that were related to campylobacteriosis.

#### Discussion

The campylobacteriosis notification rate has increased by 13% from 52.7 per 100 000 population in 2013 to 59.8 cases per 100 000 population in 2014. The geographical distribution was similar to the previous years, with the majority of the cases (71%) reported from Germany, the United Kingdom, the Czech Republic and Spain. In spite of comprehensive reporting by 28 countries and with national coverage in 22 countries, the reported cases represent only a small proportion of *Campylobacter* infections occurring in the EU/EEA population [1]. A serology-based methodology has been developed to estimate the incidence of infection from cross-sectional serum samples [2]. ECDC has funded a project to validate this novel methodology for *Campylobacter* infections, which resulted in the publication of a seroincidence calculator tool that enables the estimation of the

annual 'force of infection' in a sampled population [3]. A retrospective longitudinal study in a Danish population, using the seroincidence calculator, revealed that there were no differences in *Campylobacter* seroincidence over an eight-year period while the reported rate increased twofold within the same time period [4].

Children under five years of age are the most affected population in the majority of countries, both for males and females, with an overall notification rate of 187 cases per 100 000 population in 2014 for this age group (range by countries from 5.0 to 968.2 cases per 100 000 population per year).

Similarly to human infections, the colonisation of broiler flocks by *Campylobacter* shows a clear seasonality, with an increased risk during summer [5].

### Public health conclusions

Human campylobacteriosis has been the most frequently reported gastrointestinal disease in Europe since 2005 [6]. In most countries, the most common foodborne source of human campylobacteriosis is poultry meat [6,7]. Handling, preparation and consumption of broiler meat is estimated to account for 20 to 30% of the human cases [8], and proper kitchen hygiene is required to avoid cross-contamination. The poultry reservoir as a whole, including also environmental transmission and direct animal contact in addition to consumption and preparation of poultry meat, has been estimated to account for up to 80% of cases [9]. Additional identified sources are undisinfected drinking water, urban pigeons, pets, and the environment [10]. Several studies have used multi-locus sequence typing to attribute the sources of human campylobacter infections. For example, most campylobacter cases in Luxembourg were attributed to poultry (61%) and ruminants (33%) [11]. In Italy, chicken was the main reservoir (70%), followed by cattle (8%), the environment (6%), wild birds (7%), small ruminants (5%) and pork (3%) [12].

The elimination of *Campylobacter* in poultry production is challenging, requiring a combination of different strategies in the food chain to reduce the risk of infection in humans [13].

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### 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. Campylobacteriosis, 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.

### ANNUAL SURVEILLANCE REPORT ON ZOOSES

### ECDC/EFSA AMR REPORT



The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2012  
Scientific Publication - Feb 2014



The European Union Summary Report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2012  
Scientific Publication - Mar 2014

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[See chapter 4. on Campylobacter](#)

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