Annual epidemiological report

Campylobacteriosis

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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/EAA, 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/EAA 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/EAA (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/EAA, 2010–2014

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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

**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, 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

**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.

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

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.

Threats description for 2014

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

References

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