3.1 Campylobacteriosis

Summary

Number of cases, 2016: 2513
Crude incidence rate: 52.8/100,000

Campylobacteriosis is an acute zoonotic bacterial disease characterised by diarrhoea, abdominal pain, malaise, fever, nausea and vomiting. Symptoms generally last for only a few days. It is the commonest bacterial cause of gastroenteritis in Ireland and Europe.[1] Campylobacteriosis became a notifiable disease in Ireland in 2004 under the Infectious Diseases (Amendment) Regulations.

During 2016, 2513 cases were notified, an increase of 2.6% observed, compared with 2015. Among the 95% of notifications for which patient type was available, 27% of cases were hospital in-patients.

This corresponds to a crude incidence rate of 52.8/100,000 population, which is lower than the European crude incidence rate of 65.5 per 100,000 population.[1] This is sixth consecutive year for which campylobacteriosis levels were elevated compared with rates reported between 2004 and 2010 (Figure 1). Increasing use of PCR since 2013 as a primary diagnostic method may have impacted on ascertainment rates, however, this would seem not to explain the increase from 2011. During the period 2008-2015, 12 other EU MS (Austria, Estonia, France, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia and Spain) also reported significantly increasing trends.[1]

During 2016, the highest CIRs occurred in HSE-M (70/100,000), HSE-SE (67/100,000) and HSE-W (66/100,000); similar to last year, the lowest CIRs were reported by HSE-NW (36/100,000) and -NE (37/100,000) (Figure 2).

There was variation in the size of the increase in reported incidence in the last six years between HSE-areas, with the largest increase reported by HSE-SE (74% increase in annual mean number of cases between 2011-2016 compared with the period 2004-2010) compared with a more modest 12% increase in annual mean number of cases in the HSE-NW between 2011-2016 compared with the period 2004-2010.

Campylobacteriosis occurs in all age groups with the highest rate of notification reported in the 0-4 year age group. This elevated rate in younger children is a well described characteristic of the disease and is also observed at European level. A comparison of the age-specific rate in 2016 and the mean age-specific incidence rate between 2004-

1. Rates are calculated per 100,000 population

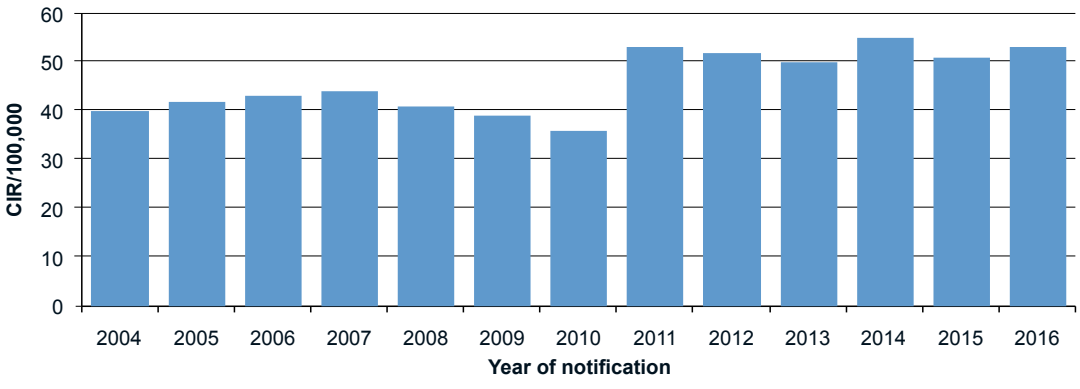

Figure 1. CIR per 100,000 population, Ireland 2004-2016

[1] Rates are calculated per 100,000 population

2010 (before the commencement of elevated rates in 2011) shows a marked increase in the CIRs among older people since 2010 (Figure 3); most notably, there has been a 2.5-fold increase in CIR in those aged 65 years and older in 2016 compared to the period 2004-2010.

Campylobacteriosis has a well-documented seasonal distribution with a peak in early summer. In Ireland, notifications typically peak during May to July. During 2016, notifications peaked between May and July (although more modest than observed in 2014 and 2015); there were elevated case numbers also in January 2016 (small January peaks have been observed since 2011 in the EU). A sharp peak in September 2016 coincided with a general outbreak in a CCF described below (Figure 4).

All *Campylobacter* cases notified in Ireland during 2016 were reported as laboratory confirmed. Formally, only culture confirmed *Campylobacter* cases are notifiable, however, there has been increasing implementation of culture independent methods for *Campylobacter* diagnosis since 2013 (i.e. PCR), and, although not all PCR-diagnosed cases have subsequently been culture confirmed, informally all laboratory diagnosed cases of *Campylobacter* have been accepted as notifications. Moreover, as there is currently no national reference facility for routine typing of *Campylobacter* isolates and only a small number of laboratories speciating isolates, information on *Campylobacter* species in the notification dataset is limited. In 2016, 17.9% (n=451) of isolates were speciated. Of the 451 speciated isolates, 93.1% (n=420) were *C. jejuni* and 6.0% (n=27) were *C. coli*.

Public health investigation of *Campylobacter* cases is not routine which limits data on the role of travel to the information which accompanied the specimen upon submission to the diagnosis laboratory. Travel is believed to be a relatively minor risk factor for campylobacteriosis in Ireland; in a case control study across the island of Ireland, 20% of cases reported travel outside of the island of Ireland during their potential incubation period.[2] Moreover, travel was not found to be significantly associated with infection after adjustment for other risk factors in the study. In the 2016 dataset, *country of infection* was completed for only 88 cases, of which eight were foreign-travel related (9%). Unascertainment of travel as a risk factor was reported previously in the United Kingdom for *campylobacter* laboratory surveillance data.[3]

During 2016, there were five notified outbreaks which included cases of campylobacteriosis (Table 1). Four were family outbreaks in private houses with a total of 9 persons ill (eight laboratory confirmed). There was one VTEC/ *Campylobacter* outbreak which included 32 confirmed campylobacter cases; the reported mode of transmission was foodborne and person-to-person spread. No food vehicles were implicated in any of three foodborne outbreaks, although chicken cooked at home was suspected for one family outbreak. Notification of outbreaks of *Campylobacter*

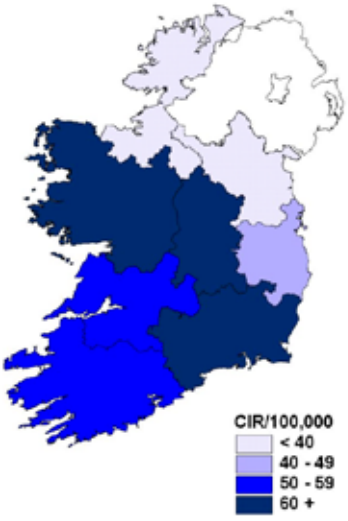

Figure 2. CIR by HSE-area, campylobacteriosis 2016

Table 1. Campylobacteriosis outbreaks summary, 2016 (CIDR)

Outbreak location	Mode of transmission	Number outbreaks	Number of confirmed campylobacter cases
Private house	P-P - Person-to-person	1	2
	Foodborne+-P-P	2	5
	Unknown	1	1
Childcare facility*	Foodborne and P-P	1	32
Total		5	40

**VTEC and Campylobacter outbreak*

are less common than for other bacterial gastrointestinal pathogens; increasingly this is being regarded as a reflection of our present ability to detect them as traditionally typing of *Campylobacter* strains has been of limited value. A recent Danish study using whole genome sequencing suggests that *Campylobacter* case clustering and even outbreaks appear to occur more often than previously assumed.[4]

References:

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3. Zenner D, Gillespie I. Travel-associated Salmonella and Campylobacter gastroenteritis in England: estimation of under-ascertainment through national laboratory surveillance. J Travel Med. 2011 Nov-Dec;18(6):414-7. doi: 10.1111/j.1708-8305.2011.00553.x. Epub 2011 Oct 12.
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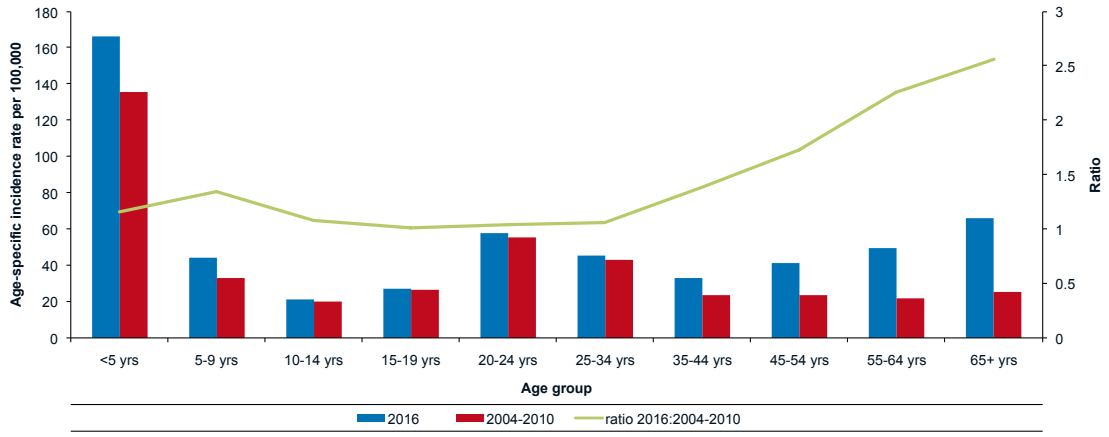

Figure 3. Age-specific incidence rate campylobacter 2016, mean age-specific incidence rate campylobacter 2004-2010, Ireland

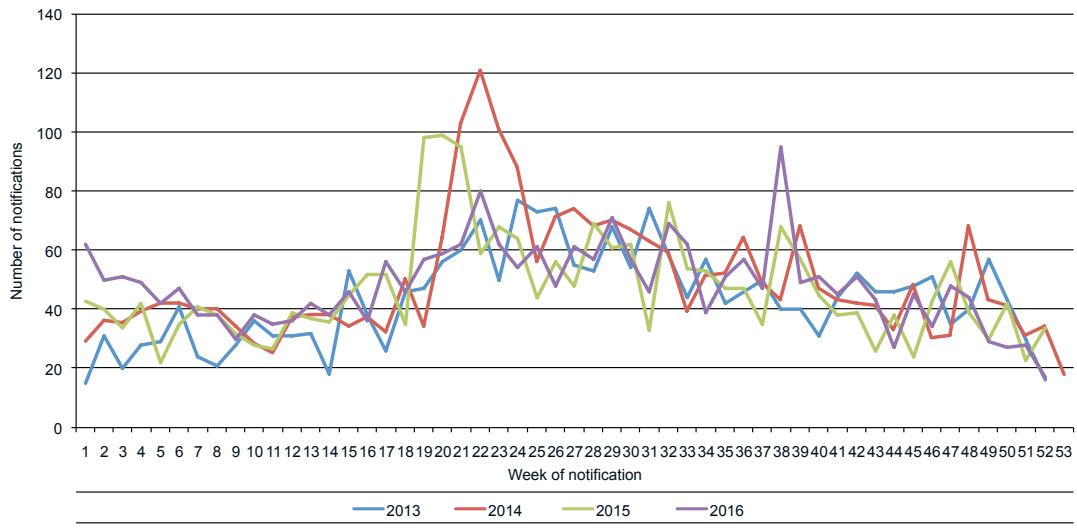

Figure 4. Weekly number of campylobacteriosis notifications in Ireland 2013-2016