

# 3.1 Campylobacter

## Summary

Number of cases: 2,388  
Crude incidence rate: 52.0/100,000

Campylobacteriosis became a notifiable disease in Ireland in 2004 under the Infectious Diseases regulations. Prior to this, data on laboratory-confirmed cases of *Campylobacter* infection in humans were collected nationally as part of the EU Zoonoses Regulations (while some cases were included in the former category of "Food Poisoning (bacterial other than *Salmonella*)"). It is an acute zoonotic bacterial disease characterised by diarrhoea, abdominal pain, malaise, fever, nausea and vomiting. Symptoms generally last for only a few days. Campylobacteriosis is the commonest bacterial cause of gastroenteritis in Ireland and Europe. In the EU it is estimated that 9.2 million cases occur annually, resulting in a public health impact of 0.35 million disability adjusted life years (DALYs) per year and an annual cost of approximately €2.4 billion.<sup>1</sup>

During 2008, a European Union-wide baseline survey of *Campylobacter* in broiler batches and broiler carcasses was carried out by The European Food Safety Authority (EFSA). This survey found that 75.8% of broiler carcasses sampled were contaminated with *Campylobacter* while 98% of Irish broiler carcasses sampled were positive for *Campylobacter*.<sup>2</sup> EFSA currently estimates that handling, preparation and consumption of broiler meat may account for 20-30% of human campylobacteriosis while 50-80% of cases may be attributed to the broiler reservoir as a whole.<sup>3</sup> The importance of poultry meat as a source of human *Campylobacter* infection was supported by the food-borne outbreak data reported to EFSA during 2011, where 56.7% of food-borne outbreaks of campylobacteriosis (with strong evidence and a specified food item) were poultry related.<sup>4</sup> In response to such evidence, the food Safety Authority of Ireland (FSAI) published "Recommendations for a Practical Control Programme for *Campylobacter* in the Poultry Production and Slaughter Chain" during 2011.<sup>5</sup>

Findings of an all-Ireland case control study that investigated risk factors for sporadic *Campylobacter* infections, showed that consuming chicken and lettuce, and eating in takeaways were important risk factors for

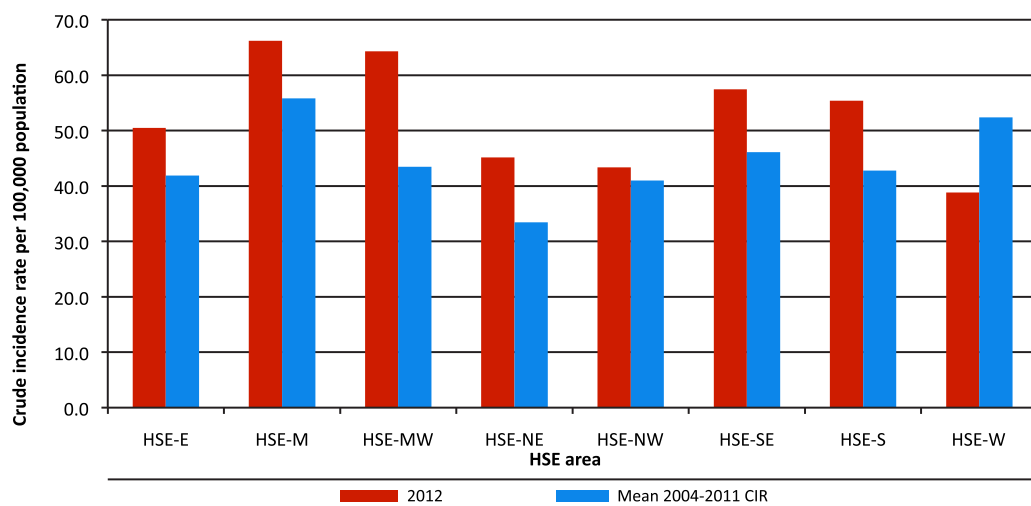


Figure 1: Campylobacteriosis 2012 CIR compared to 2004-2011 mean CIR by HSE area (CIR)

contracting the disease in Ireland. Contact with sheep, peptic ulcer, hiatus hernia and lower bowel problems were also independently associated with infection. However mains water supply showed protective effect from contracting the illness.<sup>6</sup>

During 2012, levels of campylobacteriosis remained elevated with 2,388 notifications reported to HPSC. This corresponded to a crude incidence rate of 52.0/100,000 population, which is comparable with the 2011 European crude incidence rate of 50.3 per 100,000 population.<sup>7</sup>

Historically, variation in campylobacteriosis crude incidence rates (CIRs) has been reported between HSE areas. During 2012, the highest CIRs occurred in HSE-M (66.2/100,000 population) and HSE-MW (64.3/100,000 population). The lowest CIR was reported by HSE-W (38.8/100,000 population), which was the only region during 2012 where the CIR decreased in comparison to the mean rate for 2004 to 2011. However it is important to note that due to resource constraints, University College Galway Hospital ceased testing for *Campylobacter* for between late June 2012 and mid-January 2012 which has likely affected rates in the western part of the country. Figure 1 compares the campylobacteriosis CIRs in 2012 with the mean campylobacteriosis incidence rates for 2004 to 2011 by HSE area.

Campylobacteriosis occurs in all age groups with the highest rate of notification reported in the 0-4 year age group. This preponderance in younger children is a well described characteristic of the disease and is also observed at European level. The highest European notification rate during 2010 was reported in males in the 0-4 year age group (155.5/100,000 population).<sup>7</sup>

In Ireland between 2004 and 2011, the highest mean ASIR occurred in the 0-4 year age group (155.8/100,000

population) followed by the 25-34 year age group (40.6/100,000 population) and the 5-14 year age group (38.8/100,000 population). A comparison of the mean age-specific incidence rate between 2004-2011 and the number of notifications in 2012 showed an increase of >40% in the 15-24 year age group (42.7%) and those aged 65 years and older (41.6%). Figure 2 compares the campylobacteriosis age specific rates (ASIR) for 2012 with the mean campylobacteriosis ASIR for 2004 to 2011.

During 2012, 44.8% of all cases were male, 55.2% of cases were female and sex was not reported for 0.2% of cases. Further analysis of the age-sex distribution of campylobacteriosis cases shows that the highest ASIRs for both males and females were observed in the 0-4 year and 20-24 year age groups.

Campylobacteriosis has a well documented seasonal distribution with a peak in summer. In Ireland, campylobacteriosis notifications typically peak during May to August. While there was the usual warm-season peak in campylobacteriosis notifications in 2012, large increases were also seen outside this period. A comparison of the mean monthly number of notifications between 2004 and 2011 and the monthly number of notifications in 2012 showed an increase of >50% in February (93.9%) and August (65.8%). Figure 3 compares the monthly number of campylobacteriosis notifications for 2012 to the mean monthly number of campylobacteriosis notifications between 2004 and 2011.

Of the cases notified in Ireland during 2011, 99.9% were laboratory confirmed. However, as there is currently no national reference facility for routine typing of *Campylobacter* isolates, information on *Campylobacter* species is strikingly incomplete. In 2012, 36.2% (n=864) of isolates were speciated. Of the 864 speciated isolates, 90.7% of isolates were *C. jejuni*, 8.9% were

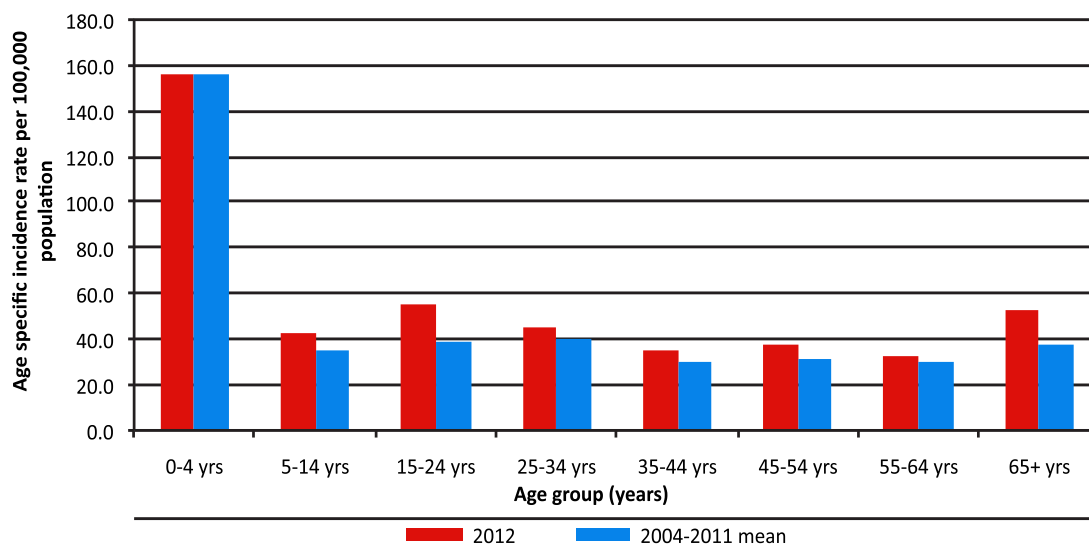


Figure 2: Campylobacteriosis ASIR 2012 compared to 2004-2011 mean ASIR (CIDR)

*C. coli* and 0.3% were *C. lari*. The remaining 63.8% (n=1,523) of *Campylobacter* isolates identified were not further speciated. This compares with 51.8% of *Campylobacter* isolates in Europe reported to ECDC during 2010 remaining unspciated.<sup>7</sup>

During 2012, there were four outbreaks of campylobacteriosis reported to HPSC with 13 associated cases of illness, one of whom was hospitalised. This is slightly lower than the average number of outbreaks per annum between 2004 and 2011. All four outbreaks were family outbreaks occurring in private houses, as is typical of previous years. Two reported mode of transmission as food-borne while mode of transmission was unknown for the remaining two outbreaks. During 2011, 16 European countries reported 596 food-borne outbreaks of campylobacteriosis which accounted for 10.6% of the total food-borne outbreaks reported to EFSA. These outbreaks comprised 1,205 associated cases of illness and 191 hospitalisations.<sup>4</sup>

**References:**

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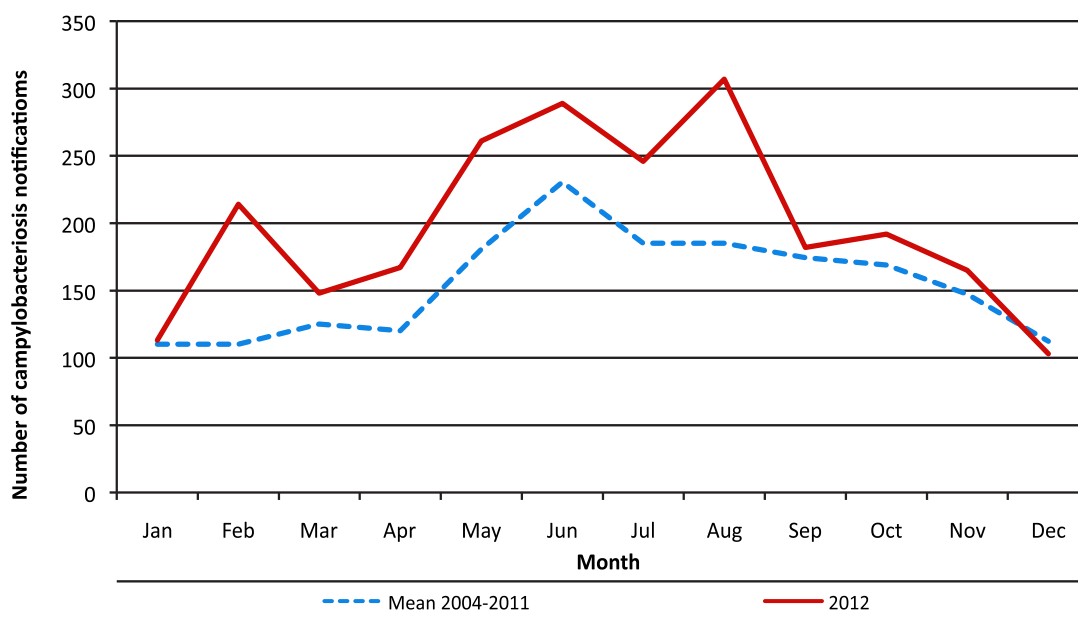


Figure 3: Campylobacteriosis notifications by month during 2012 compared to mean monthly notifications 2004-2011 (CIDR)

Table 1: Campylobacteriosis outbreaks summary, 2012 (CIDR)

Mode of transmission	Outbreak location	Number outbreaks	Number ill	Number hospitalised	Number dead
Food-borne	Private house	2	8	0	0
Unknown	Private house	2	5	1	0
<b>Total</b>		<b>4</b>	<b>13</b>	<b>1</b>	<b>0</b>