

# 3.1 Campylobacter

## Summary

Number of cases: 2,427  
 Crude incidence rate: 52.9/100,000

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 2010, where 63.0% 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 a national case control study conducted in Ireland that investigated risk factors for sporadic *Campylobacter* infections, showed that consuming chicken, lettuce and eating in takeaways were important risk factors for 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>

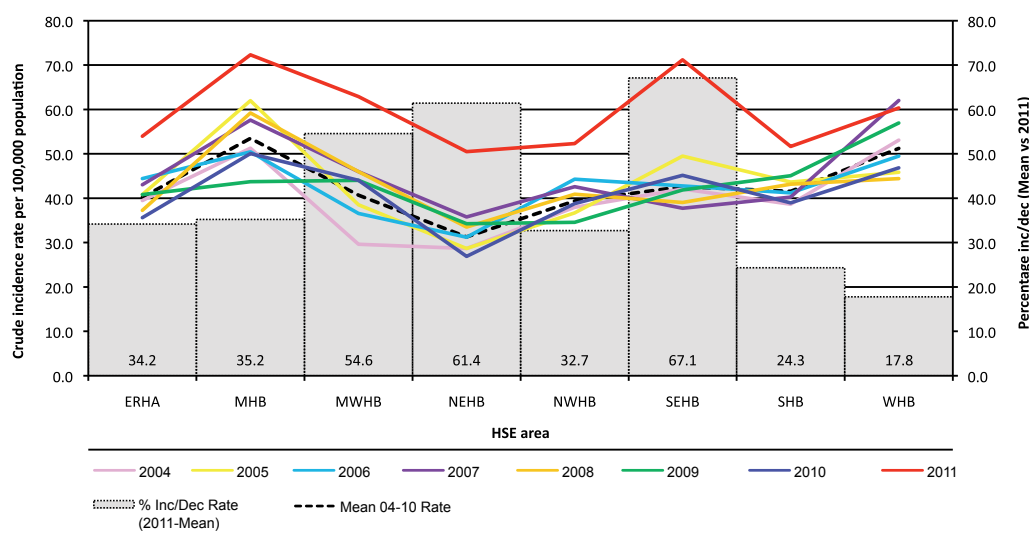


Figure 1: Campylobacteriosis crude incidence rates per 100,000 population by HSE area, 2004- 2011

During 2011, 2,427 campylobacteriosis notifications were reported to HPSC, corresponding to a crude incidence rate of 52.9/100,000 population. This rate represents an increase of 46.2% compared to 2010, and is comparable with the 2010 European crude incidence rate of 48.6 per 100,000 population.<sup>7</sup> Previously in Ireland, the annual percentage increase/decrease observed in campylobacteriosis notifications has ranged between -8.2% to +6.1%.

Historically, variation in campylobacteriosis crude incidence rates (CIRs) has been reported between HSE areas. Between 2004 and 2010, the highest CIRs have usually occurred in HSE-M and HSE-W. A comparison of the mean annual incidence rate of notifications in each HSE area between 2004 and 2010 and the incidence rate of notifications in 2011 showed an increase of >50% in HSE-MW, HSE-NE and HSE-SE. No HSE area showed a decrease in the number of notifications reported during 2011. Figure 1 compares the campylobacteriosis CIRs between 2004 and 2011 by HSE area with the mean campylobacteriosis incidence rates for 2004 to 2010. This figure also shows the associated percentage increase in campylobacteriosis CIRs during 2011 compared to the mean for 2004 to 2010.

Campylobacteriosis occurs in all age groups with the highest burden of illness experienced 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 2009 was reported in males in the 0-4 year age group (144.3/100,000 population) and in females of the same age (114.7/100,000 population).<sup>7</sup>

In Ireland between 2004 and 2010, the highest mean ASIR occurred in the 0-4 year age group (103.3/100,000 population) followed by the 25-34 year age group (23.8/100,000 population). However, a comparison of the mean age-specific incidence rate between 2004-

2010 and the number of notifications in 2011 showed an increase of >40% in the 5-14 year (41.0%), 15-24 year (47.6%) and the 55-64 year (40.4%) age groups. Figure 2 compares the campylobacteriosis age specific rates (ASIR) between 2004 and 2011 with the mean campylobacteriosis ASIR for 2004 to 2010. This figure also shows the associated percentage increase in campylobacteriosis ASIR during 2011 compared to the mean for 2004 to 2010.

In females, increases of >50% were seen in the 5-14 year (57.5%), 45-54 year (63.3%) and the 65+ years (53.3%) age groups. In males, increases of >50% were also seen in the 5-14 year (56.0%) and the 55-64 year (67.4%) age groups. Overall, the age groups with highest increases within the sexes were broadly similar to the age groups with the highest increases for all notifications.

During 2011, 46.1% of all cases were female, 53.6% 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 years age groups.

Campylobacteriosis has a well documented seasonal distribution with a peak in summer. In Ireland, campylobacteriosis notifications typically peak during June and July. While campylobacteriosis notifications did peak as usual during June 2011, large increases were also seen outside this period. A comparison of the mean monthly number of notifications between 2004 and 2010 and the monthly number of notifications in 2011 showed an increase of >50% in February (54.9%), March (72.8%), June (75.6%), August (50.5%) and November (52.1%).

Figure 3 compares the monthly number of campylobacteriosis notifications between 2004 and 2011 to the mean monthly number of

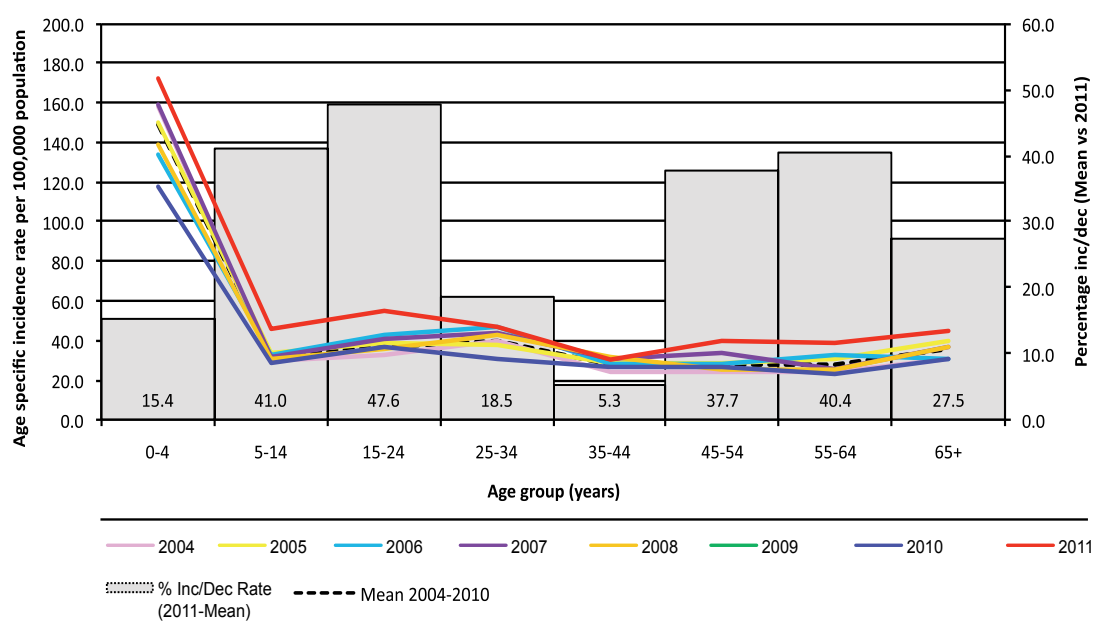


Figure 2: Campylobacteriosis age specific incidence rate per 100,000 population by age group (years), 2004-2011 (CIDR)

campylobacteriosis notifications between 2004 and 2010. This graph also shows the percentage increase in campylobacteriosis notifications by month observed during 2011 compared to the monthly mean 2004-2010.

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 2011, 34.0% (n=830) of isolates were speciated. Of the 830 speciated isolates, 93.1% of isolates were *C. jejuni*, 6.4% were *C. coli*, 0.2% were *C. fetus*, 0.1% were *C. lari* and 0.1% were *C. laridis*. The remaining 66.0% (n=1,610) of *Campylobacter* isolates identified were not further speciated. This compares with 51% of *Campylobacter* isolates in Europe reported to ECDC during 2009 remaining unspciated.<sup>7</sup>

During 2011, there were seven outbreaks of campylobacteriosis reported to HPSC with 16 associated cases of illness, one of whom was hospitalised. This is the same as the average number of outbreaks per annum between 2004 and 2010. All seven outbreaks were family outbreaks occurring in private houses. Three reported mode of transmission as person to person spread while mode of transmission was unknown for the remaining four outbreaks. During 2010, 19 European countries reported 470 food-borne outbreaks of campylobacteriosis which accounted for 9% of the total food-borne outbreaks reported to EFSA. These outbreaks comprised 1,789 associated cases of illness and 132 hospitalisations.<sup>4</sup>

**References:**

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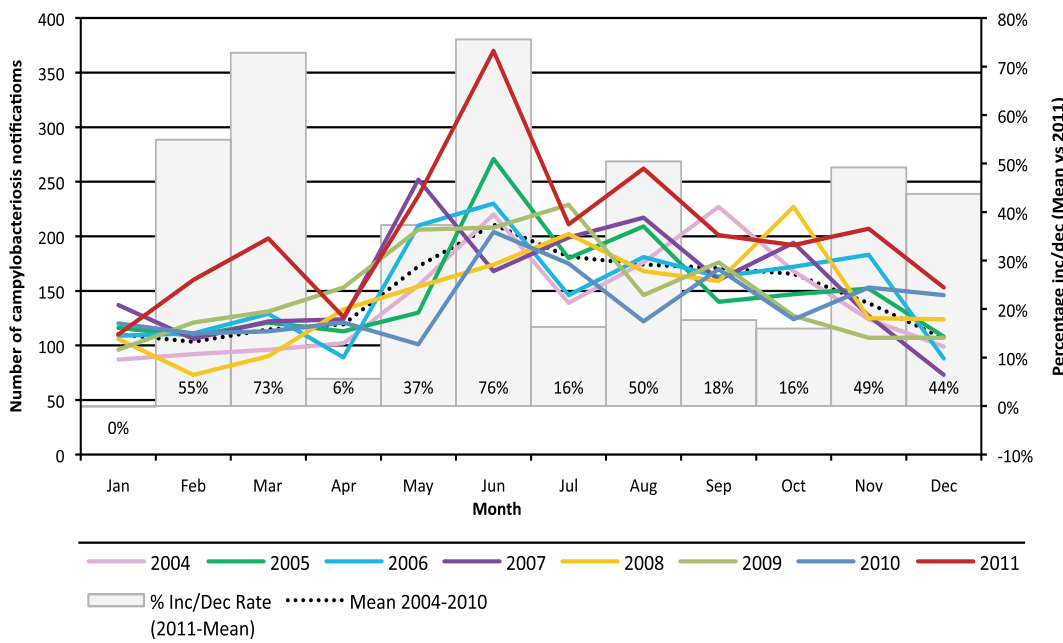


Figure 3: Number of campylobacteriosis notifications by month, 2004-2011

Table 1: Campylobacteriosis outbreaks summary, 2011 (CIDR)

Mode of transmission	Outbreak location	Number outbreaks	Number ill	Number hospitalised	Number dead
Person-to-person	Private house	3	8	0	0
Unknown	Private house	4	8	1	0
<b>Total</b>		<b>7</b>	<b>16</b>	<b>1</b>	<b>0</b>