

# Campylobacteriosis in Ireland, 2005

## Key Points

- **Campylobacter remains the commonest cause of gastroenteritis of bacterial aetiology in Ireland**
- **In 2005, there were 1803 cases of campylobacteriosis notified (CIR 46.0/10<sup>5</sup>) which is the highest number of cases reported since 1999 (2085 cases)**
- **The highest burden of illness was in children under 5 years of age**
- **In 2005, the highest incidence rate was reported from the Midlands health board region (69.2/ 10<sup>5</sup>)**

## Background

Campylobacteriosis is the commonest reported bacterial cause of infectious intestinal disease in Ireland. Two species account for the majority of infections: *C. jejuni* and *C. coli*. Illness is characterised by severe diarrhoea and abdominal pain. Symptoms may subside after a number of days or may persist for weeks. Rarely, more severe sequelae may develop such as reactive arthritis, Reiter's syndrome, or HUS and approximately 1 in every 1000 cases leads to a severe neurological disorder called Guillain-Barré Syndrome (GBS). Undercooked meat especially poultry is often associated with illness as is unpasteurised milk and untreated water. The majority of infections, however, remain largely unexplained by recognised risk factors for disease.

## Methods

Human campylobacter infection became a statutorily notifiable disease for the first time in January 2004 under the Amendment to the Infectious Diseases Regulations.<sup>1</sup> Data for this report were extracted and analysed from the CIDR system.

## Results

### Incidence

In total, 1803 notifications of human campylobacteriosis were notified in 2005 in Ireland. This gives a crude incidence rate (CIR) of 46 cases per 100,000 population (table 1). This compared with a CIR of 43.7 cases per 100,000 in 2004. The annual number of cases by year since 1999 is shown in Figure 1.

Age standardised rates were calculated to allow comparisons

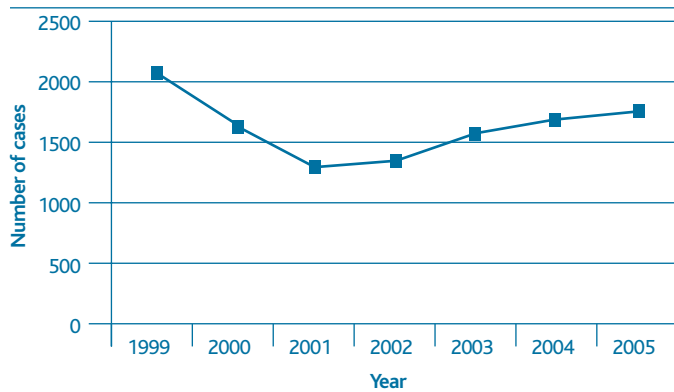


Figure 1. Annual number of cases of campylobacteriosis in Ireland, 1999-2005

Table 1: Number of cases and CIR per 100,000 population of human campylobacteriosis in Ireland by health board, 2005.

Health Board	No. of cases	CIR - (incl. 95% C.I.)
HSE-ER	612	43.7 [40.2 - 47.2]
HSE-M	156	69.2 [58.3 - 80.1]
HSE-MW	140	41.2 [34.4 - 48.0]
HSE-NE	113	32.8 [26.8 - 38.8]
HSE-NW	87	39.3 [31.3 - 47.5]
HSE-SE	230	54.3 [47.3 - 61.3]
HSE-S	271	46.7 [41.1 - 52.3]
HSE-W	194	51.0 [43.8 - 58.2]
<b>Total</b>	<b>1803</b>	<b>46.0 [43.9 - 48.1]</b>

to be made between health board regions without the confounding effects of age (Figure 2). In 2005, the highest incidence was reported from the Midlands region followed by the South Eastern region. The lowest rate was reported from the North Eastern region.

### Seasonal distribution

Analysis of the data by week of notification is shown in Figure 3. A peak in cases is evident in week 25 and 26.

### Age

When the distribution of cases for each age group is examined, it is evident that by far the highest burden of illness is seen in children less than five years (Figure 4). This was also noted in previous years and is a well-reported feature of campylobacteriosis.

### Gender distribution

Females accounted for 53.7 percent of all cases notified (males 45.8%; unknown 0.6%) (table 2). However the variance in gender distribution that has been noted since 1999 was again evident when the data was adjusted for age and sex. In almost all age - groups there is a predominance of male cases (figure 5).

### Outbreak data

There were eight family outbreaks of campylobacteriosis notified in 2005, affecting a total of 17 people. The suspected mode of transmission recorded was foodborne (5), person-to-person (2) and unknown (1).

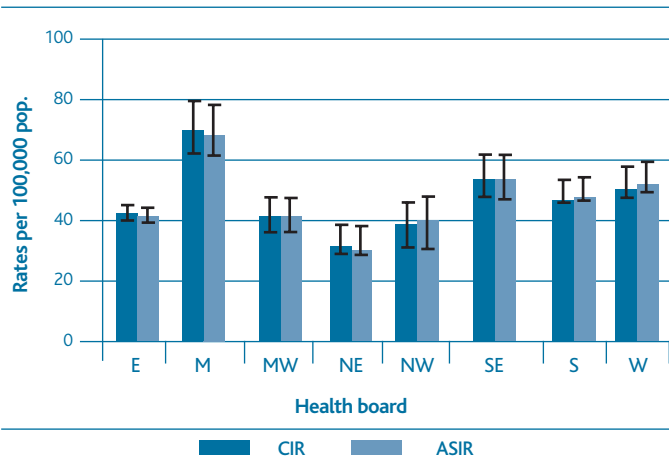


Figure 2: Age standardised incidence rates (ASIR) of human campylobacteriosis in Ireland, compared to crude incidence rates (CIR) in each health board, 2005.

Table 2: Gender distribution of campylobacter cases by health board region, 2005.

	Female	Male	Unknown	Total
HSE-ER	332	276	4	612
HSE-M	87	68	1	156
HSE-MW	78	62	0	140
HSE-NE	68	45	0	113
HSE-NW	48	38	1	87
HSE-SE	118	111	1	230
HSE-S	132	138	1	271
HSE-W	105	87	2	194
<b>Total</b>	<b>968</b>	<b>825</b>	<b>10</b>	<b>1803</b>

### Discussion

In 2004, human campylobacter infections became statutorily notifiable for the first time under the Amendment to the Infectious Diseases Regulations.<sup>1</sup>

Therefore since 2004, the data on campylobacteriosis has been collated directly from the notifiable disease data on CIDR and not as part of the Zoonoses Directive data collection (as had been the case since 1999).

Analysis of the 2005 data reveals that campylobacteriosis still remains the most common cause of bacterial gastroenteric infection in Ireland - with over five times the number of salmonellosis cases reported in 2005.

The crude incidence rate (CIR) of campylobacteriosis increased in Ireland in 2005 (46.0 cases/100,000 persons) compared to 2004 (43.7/100,000). This was in fact the highest rate reported in Ireland since the year 1999. In most regions, an increase was seen in 2005, especially in the HSE-M and HSE-MW regions, however the CIR for the Western region decreased from 63.1/10<sup>5</sup> in 2004 to 51/10<sup>5</sup> in 2005.

For the same period, higher rates were noted for Northern Ireland (51.6/100,000) [CDSC-NI, 25/08/06 - personal communication], England and Wales<sup>2,3</sup> (91.8/100,000) [calculated from provisional data, 28/09/06] and Scotland<sup>4</sup> (90.2/100,000).

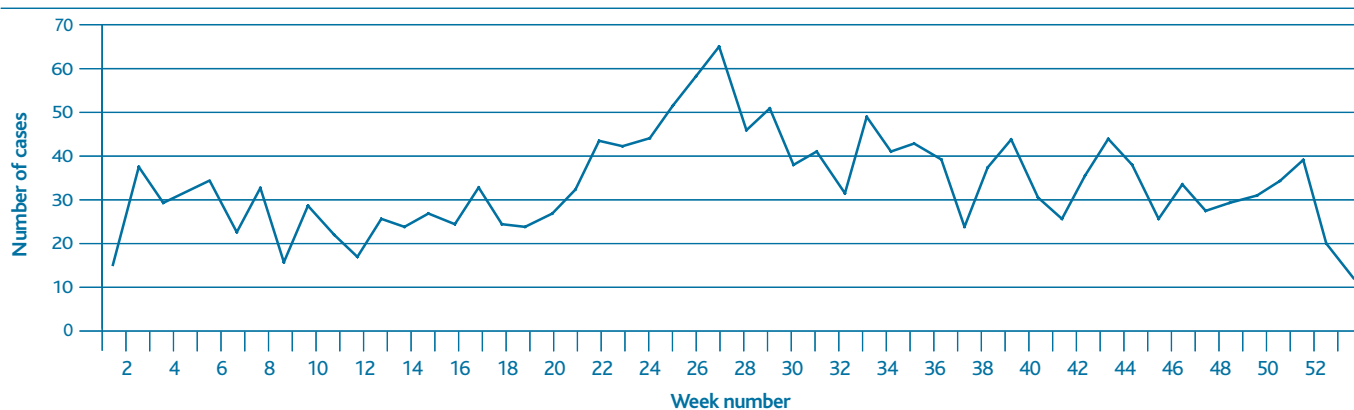


Figure 3: Total cases of campylobacteriosis events by week, 2005 (data from CIDR)

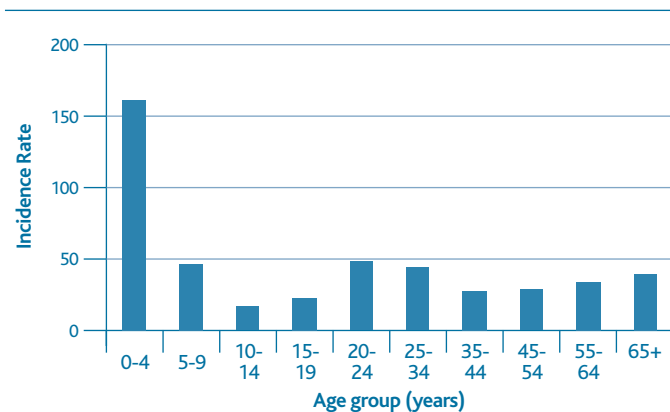


Figure 4: Age specific incidence rates for campylobacteriosis in Ireland, 2005 (data from CIDR)

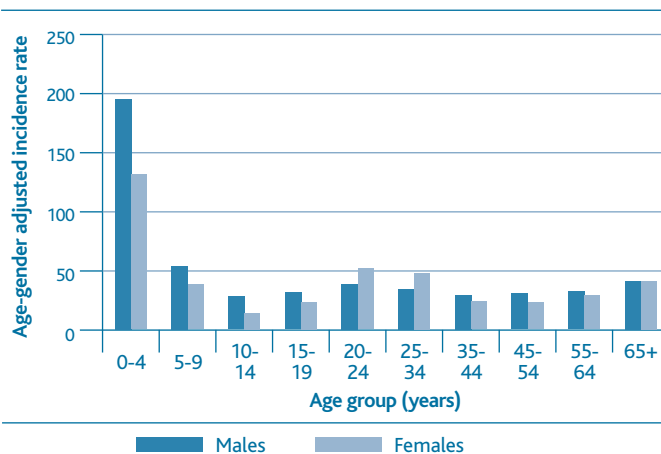


Figure 5: Age-gender adjusted incidence of campylobacteriosis according to age group in 2005.

As has been noted consistently since 1999, some interesting epidemiologic features of this pathogen have emerged in recent years. In particular, the higher incidence rate in young children and the bias towards male cases in almost all age groups.

The risk factors associated with Campylobacteriosis remain poorly understood and this area has been identified as a key research need in Ireland by an expert group at the conference *Campylobacter Surveillance and Research in Ireland – The Way Ahead?* which was held in UCD in June 2005.

Already significant strides have been made to expand our understanding of the complex epidemiology of this infection. An all-Ireland case-control study carried out by the HSE-ER region in the ROI and in all four Health and Social Services Boards (HSSB) in NI was completed in 2005. Findings from the study reveal that eating chicken, and lettuce, and eating out in restaurants/ takeaways are major risk factors for campylobacteriosis in Ireland, North and South.<sup>5</sup>

A three-year study, "The Sentinel surveillance of Campylobacter in Ireland", funded by **safe food**, commenced in 2005. This project will involve the collection of detailed clinical and microbiological information on cases of Campylobacter infection in order to generate hypotheses as to potential risk factors for infection. Food, animal and human sources of Campylobacter will be targeted. This project will bring together the Public Health Medical Practitioners,

Clinical/Food Laboratory Personnel, Veterinary Health Specialists and Food Safety research expertise to address the growing issue of campylobacteriosis in Ireland.<sup>6</sup>

As the most common cause of bacterial gastroenteritis in Ireland, Campylobacter continues to be significant public health issue, both in terms of personal suffering and economic costs. Through continued surveillance and targeted research our understanding of this disease will improve and more effective prevention and control strategies may be developed.

#### Acknowledgements

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