Feidhmeannacht na Seirbhíse Sláinte
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Annual Report on Campylobacteriosis in Ireland, 2004

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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 on 1.1.2004 under the Amendment to the Infectious Diseases Regulations.[1]

Data for this report were extracted and analysed from the CIDR system.

Results

Incidence

In total, 1711 notifications of human campylobacteriosis were notified in 2004 in Ireland. This gives a crude incidence rate (CIR) of 43.7 cases per 100,000 population (table 1). This compared with a CIR of 39.9 cases per 100,000 in 2003. The annual number of cases by year since 1999 is shown in Figure 1.

Table 1: **Number of cases and CIR per 100,000 population of human campylobacteriosis in Ireland by health board, 2004**.

Health Board	No. of cases	CIR - (incl. 95% C.I.)
ERHA	591	42.2 [38.8 - 45.6]
MHB	134	59.5 [49.4 - 69.6]
MWHB	107	31.5 [25.5 - 37.5]
NEHB	113	32.8 [26.8 - 38.8]
NWHB	92	41.5 [33.0 - 50.0]
SEHB	194	45.8 [39.4 - 52.2]
SHB	240	41.4 [36.2 - 46.6]
WHB	240	63.1 [55.1 - 71.1]
Total	**1711**	**43.7 [41.6 - 45.8]**

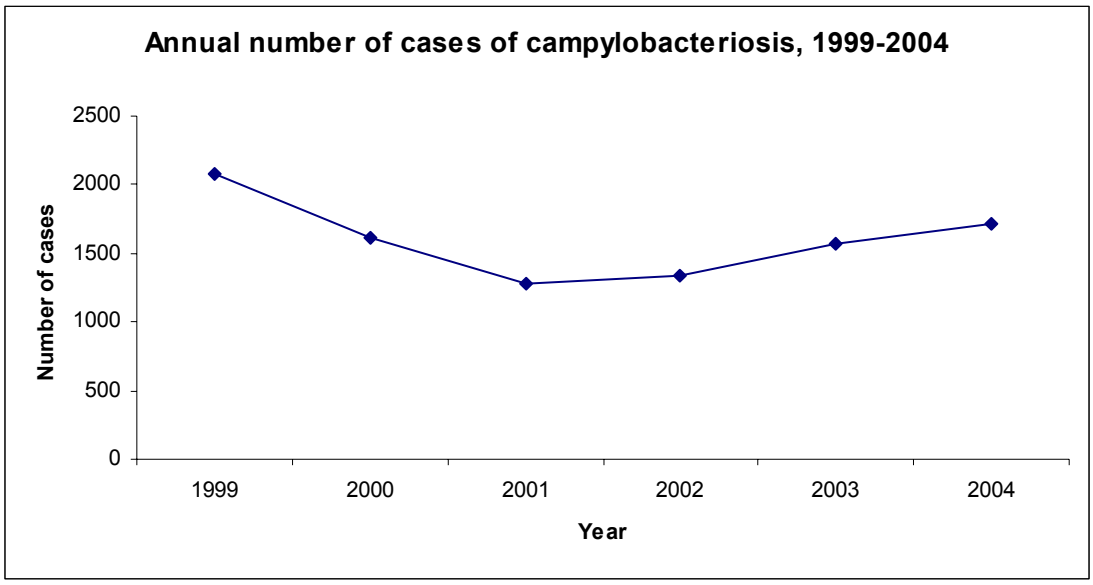

Figure 1. Annual number of cases of campylobacteriosis in Ireland, 1999-2004 (2004 data from CIDR)

Age standardised rates were calculated to allow comparisons to be made between health board regions without the confounding effects of age (Figure 2). In 2004, the highest incidence was reported from the Western health board region followed by Midland health board. The lowest rate was reported from the Mid-Western region.

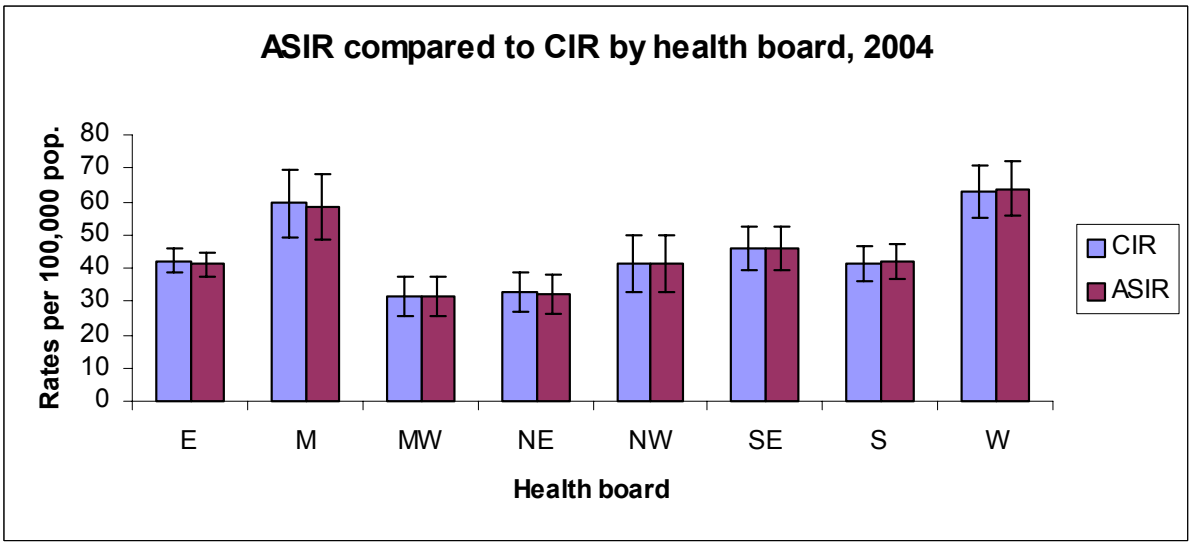

Figure 2: Age standardised incidence rates (ASIR) of human campylobacteriosis in Ireland, compared to crude incidence rates (CIR) in each health board, 2004.

Seasonal distribution

Analysis of the data by week of notification is shown in Figure 3. A peak in cases is evident in week 24 and again in week 38.

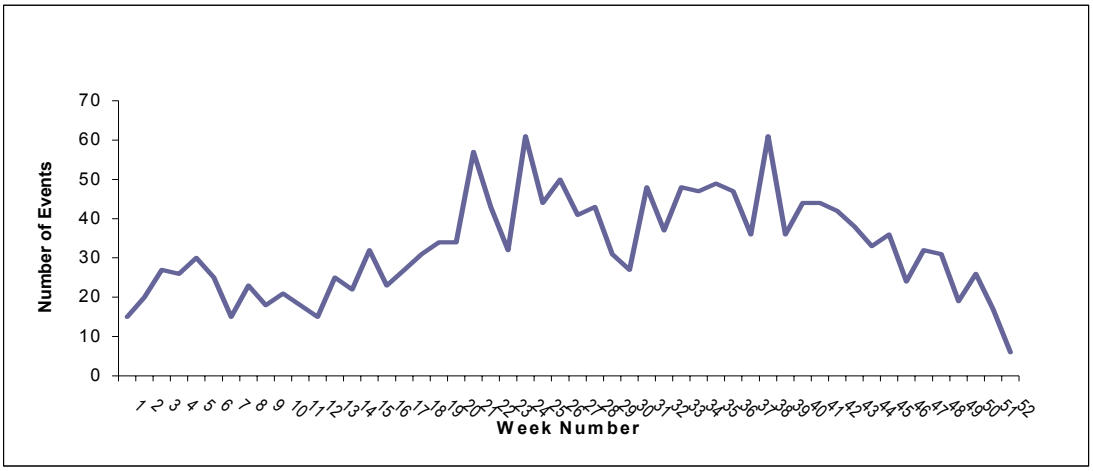

Figure 3: **Total cases of campylobacteriosis events by week, 2004 (data from CIDR)**

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 the illness worldwide.

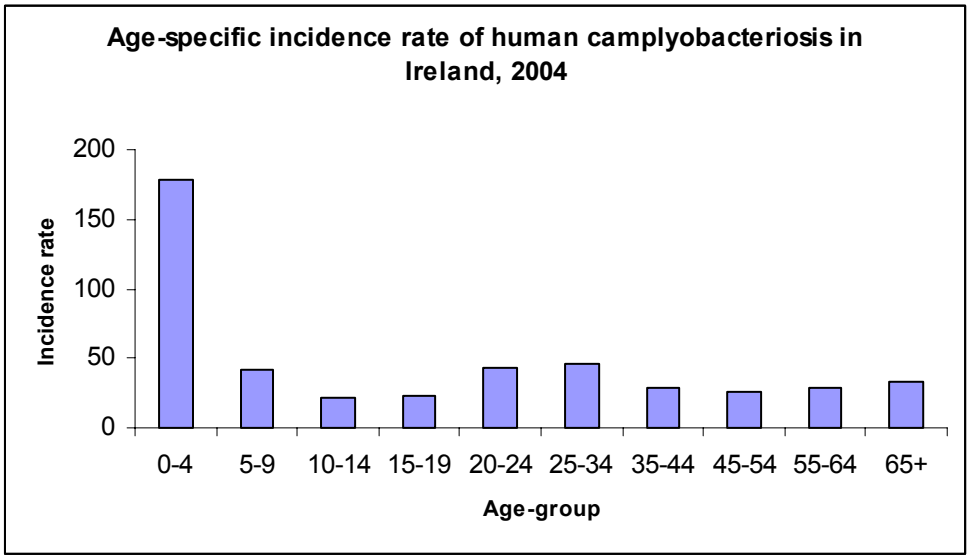

Figure 4**:** Age specific incidence rates for campylobacteriosis in Ireland, 2004 (data from CIDR)

Gender distribution

The variance in gender distribution that has been noted since 1999 was again evident from analysis of the data in 2004, with males accounting for 54.1% of cases and females 45.5% (0.5% unknown) (see Table 2). This is clearly evident in figure 5 when the data are adjusted for age and sex. In almost all age-groups there is a predominance of male cases.

Table 2. Gender distribution of campylobacter cases by health board region, 2004.

	Female	Male	Unknown	Total

ERHA	279	311	1	591
MHB	71	63	0	134
MWHB	45	62	0	107
NEHB	42	70	1	113
NWHB	42	49	1	92
SEHB	84	110	0	194
SHB	110	128	2	240
WHB	105	133	2	240
Total	**778**	**926**	**7**	**1711**

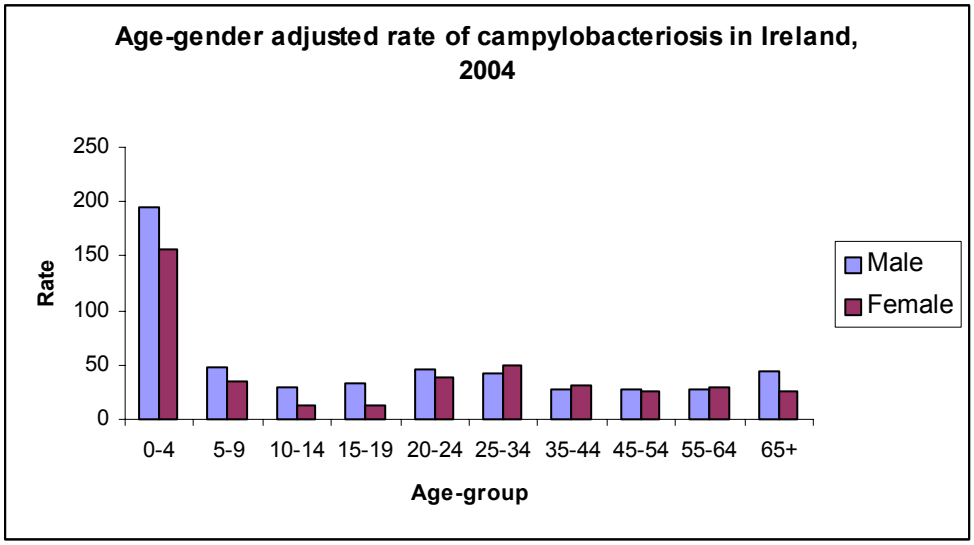

***Figure 5*: Age-gender adjusted incidence of campylobacteriosis according to age-group in 2004.**

Outbreak data

There was one small family outbreak of campylobacteriosis involving two persons notified in 2004. The mode of transmission was suspected to be foodborne.

Discussion

In 2004, human campylobacter infections became statutorily notifiable for the first time under the Amendment to the Infectious Diseases Regulations.[1]
Therefore in 2004, the data on campylobacteriosis was 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 2004 data reveals that campylobacteriosis still remains the most common cause of bacterial gastroenteric infection in Ireland (with over four times the number of salmonellosis cases reported in 2004).
The crude incidence rate (CIR) of campylobacteriosis increased in Ireland in 2004 (43.7 cases/100,000 persons) compared to 2003 (39.9/100,000). This was in fact the highest rate reported in Ireland since the year 1999. In most regions, an increase was seen in 2004, especially in the NWHB region.

For the same period, a slightly higher rate was noted for Northern Ireland[2] (49.6/100,000), but similar to 2003, much higher rates were observed for England and Wales[3] (79.5/100,000) and Scotland[4] (86.0/100,000) (*provisional data*).

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.

To try to address some of these questions, the first Irish case-control study was conducted in 2004 aiming to examine the risk factors that exist for campylobacter infection in the Irish population and help to unravel the aetiology of this disease in Ireland. The study took place on an all-island basis in the ERHA region in the ROI and in all four Health and Social Services Boards (HSSB) in NI. The study was completed in 2005. Preliminary 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.[5]

An important conference entitled "*Campylobacter* Surveillance and Research in Ireland – The Way Ahead?" was held in UCD in June 2005. This conference and accompanying workshop, involving international experts, was convened to highlight current knowledge gaps and views on the best way forward for research on *Campylobacter* in Ireland. It is hoped that the findings, due to be published shortly, will prioritise future strategies for *Campylobacter* prevention, control, surveillance and help to elucidate some of the complexities of this zoonotic agent.

International research in recent years has indicated that the number of clinically significant *Campylobacter* spp. is being grossly underestimated, with newly emerging strains of *Campylobacter* spp .having an important link to human gastrointestinal illness, and food and environmental samples playing a role in their transmission. The lack of routine typing of clinical isolates in Ireland up until now has limited detailed tracking of these strains through the food chain. A three year European Commission Research Project entitled 'CampyCheck' involving international collaborators (including Ireland) is aiming to examine ways of improving the recovery and identification of emerging *Campylobacteraceae* in the food and water chain.[6] It is hoped to extend this work to clinical isolates in Ireland in the near future. A recent conference (February 2006) organised by Teagasc (Irish Agriculture and Food Development Authority) presented the findings to date from this project.

References

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5. Di Renzi M., Danis K., O'Neill F., Smyth B., McKeown P., Devine M., and Tohani V. Good food hygiene practices are needed to prevent sporadic

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6. European Commission. Improved physiological, immunological and molecular tools for the recovery and identification of emerging Campylobacteraceae (CAMPYCHECK). Available at http://www.campycheck.org/.

Acknowledgements

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