EPI-INSIGHT

IONAD NAISIUNTA FAIRE GALAIR

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IN THE NEWS

Leptospirosis Outbreak

Six confirmed cases of leptospirosis were notified to the Department of Public Health, Eastern Regional Health Authority since November 2001. All were associated with canoeing on a particular stretch of the river Liffey in October 2001. Four of the six cases were hospitalised but all have recovered.

On notification of the outbreak the Department of Public Health undertook the following:

- Media alerts were issued to the general public and to canoeists in particular, especially those associated with a specific canoeing event on that particular stretch of the river. Information was provided on the symptoms and signs of leptospirosis and on the need to seek medical attention if one had suggestive symptoms of the disease. General advice on its prevention was also given.
- A list of those associated with the specific event was obtained. Data on illness and exposure details were obtained by questionnaire by public health personnel on as many as possible on the list. Advice to seek medical attention if concerned was also issued.
- An alert was issued to general practitioners and relevant hospital medical personnel.
- The canoeing clubs and organisations were contacted by environmental health officers (EHOs) and advised on preventive measures. The EHOs also arranged for additional information signs to be placed along the Liffey.

Leptospirosis is a zoonotic disease caused by spirochaetes of the genus *Leptospira*. Common features are a flu-like illness with fever, headache and muscle pains. Infection however, can range from being asymptomatic to a severe potentially fatal illness with hepatorenal failure. Transmission occurs through direct contact with infected animals or through exposure to fresh water or soil contaminated with infected animal urine. The illness mainly occurs in males and the peak incidence is in summer and early autumn. Occupational (vets, farmers and abattoir workers) and recreational exposure (swimmers, canoeists and wind surfers) is common.

The true incidence of leptospirosis in Ireland is unknown. There are on average 8 clinical notifications each year and 22 laboratory confirmed cases.[1] The majority of cases occur in adult males.

Dr G Sayers and Dr M Boland, Department of Public Health, ERHA

Acknowledgements

The support and cooperation of the canoeing clubs and organisations, general practitioners, hospital physicians and microbiologists was much appreciated during the management of this relatively unusual occurrence in a temperate climate.

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Toxigenic *Corynebacterium diphtheriae* var *mitis* isolated from a child from North West England.

In January 2001, a toxigenic strain of *Corynebacterium diphtheriae* var *mitis* was isolated from a throat swab from an 11 year-old boy from North West England.[1] The child developed a sore throat 6 days after returning from a holiday with his family in Israel. He was treated with a seven-day course of the antibiotic azithromycin and excluded from school until throat swabs were negative. He did not develop any signs or symptoms of diphtheria.

Close contacts of the child in England were identified. Throat swabs were taken and they were given a three-day prophylactic course of azithromycin. Child contacts were excluded from school until the prophylaxis was completed. All the family had received appropriate age specific vaccinations and were given a booster dose of diphtheria. All throat swabs were negative. The contacts in Israel were followed up with throat swabs and antibiotic prophylaxis.

A toxigenic strain of *Cornyebacterium diphtheriae* var *gravis* was isolated from a 2 year old child from North London who ha been admitted to hospital with febrile convulsions in February 2002. The child had been immunised and did not develop any signs or symptoms of diphtheria. There was no history of recent travel or contact with travellers returning to the UK in either the index case or any of the family. [2]

In November 2001, in Finland, a 3-month old baby died of diphtheria.[3] The child had not yet started his vaccination schedule, which commences at 3 months of age in Finland. A seven-year old sister of the child was identified as an asymptomatic carrier. Many contacts of the child before he became ill had recently visited Russia. DNA typing results indicated that the bacterial strain involved appeared similar to *C. diphtheriae* var *mitis* strains recently circulating in Russia. Eight cases of diphtheria were reported in Finland from 1995 to 2001. All had a link with Russia.

Diphtheria can readily be reintroduced into a population as shown by the re-emergence of diphtheria in Russia and the former Soviet Union in the 1990s. These incidents further emphasise the importance of maintaining high levels of vaccination in the population.

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National Disease Surveillance Centre,
Sir Patrick Dun's Hospital,
Lr. Grand Canal Street,
Dublin 2, Ireland
Tel: +353 (0)1 661 7346
Fax: +353 (0)1 661 7347
info@ndsc.ie
www.ndsc.ie

CAMPYLOBACTERIOSIS IN IRELAND, 2000

Introduction

Infections due to *Campylobacter spp* are the most commonly isolated bacterial cause of human gastrointestinal illness, and reports of campylobacteriosis in Ireland, the UK, and other countries with temperate climates have been increasing since the organism was first recognised as a human pathogen in 1972. *Campylobacter jejuni* is the predominant species associated with human illness, with the remainder mostly being *C. coli*.

Campylobacteriosis presents as a diarrhoeal illness. The diarrhoea is often bloody and is frequently associated with acute abdominal pain. Symptoms may subside after a number of days or may persist for weeks. Rarely, some long-term sequelae may develop such as arthritis and approximately one in every 1000 cases leads to a severe neurological disorder called Guillain-Barré syndrome.

In 2000, NDSC conducted the first national survey of the incidence of human campylobacteriosis in Ireland.[1] Valuable information was derived from that study regarding the epidemiology of laboratory-confirmed campylobacteriosis which supplemented further investigations in this field by the Food Safety Authority of Ireland and other partners in infectious disease surveillance and control. This review presents the data from the second year of this laboratory survey.

Methods

NDSC requested laboratories and/or public health doctors to provide disaggregated information on all laboratory-confirmed cases of campylobacteriosis diagnosed in 2000. The following minimum dataset was requested: identifier, date of birth/age, sex, address and date of onset/isolation/reporting. In regions where laboratory surveillance systems were in place, this information was requested from their databases. Duplicates were removed where detected. Data were assigned a health board and a county where address was supplied. Analyses were carried out using MS Excel and Access. Direct methods of standardisation were applied using the Irish population as the standard population. Population data were taken from the 1996 census. Species differentiation of isolates was not requested.

Results

Information on campylobacteriosis was obtained from all Health Boards. Information on age was missing in 11% of cases and information on sex was incomplete in 0.2% of cases. Data on age were not available on many cases in two health board areas (Midland, 40% and Western, 21%). Those without age were not presented in age standardised charts.

Incidence

In total, 1613 cases of laboratory-confirmed campylobacteriosis were reported in 2000 in Ireland, which gives a crude incidence rate (CIR) of 44.5 per 100,000 population. This compared with a CIR of 57.5 per 100,000 in 1999 (Table 1).

Table 1: Number of cases and CIR by health board in Ireland, 1999 and 2000.

	2000		1999	
Health Board	No of cases	CIR - (incl. 95% C.I.)	No of cases	CIR - (incl. 95% C.I.)
ERHA	472	36.4 [33.1-39.7]	591	45.6 [41.9-49.3]
Midland	63	30.7 [23.1-38.2]	83	40.4 [31.7-49.1]
Mid-Western	73	23.0 [17.7-28.3]	103	32.5 [26.2-38.8]
North Eastern	51	16.7 [12.1-21.2]	74	24.2 [18.7-29.7]
North Western	100	47.4 [38.1-56.7]	118	56.0 [45.9-66.1]
South Eastern	226	57.7 [50.2-65.3]	219	55.9 [48.5-63.3]
Southern	337	61.6 [55.1-68.2]	507	92.7 [84.7-101.0]
Western	291	82.6 [73.1-92.1]	390	110.7 [99.7-122.0]
IRELAND	**1613**	**44.5**	**2085**	**57.5**

Sex

Males accounted for 56% of cases and females 44%, where gender data were given. This showed an overall male: female ratio of 1.29:1. A very similar result was found in 1999, with a ratio of male: female of 1.28:1.

Seasonality

Campylobacteriosis has a well characterised seasonal distribution, with a peak in early summer seen each year and this is evident when the trend over time is examined. Figure 1 shows the occurrence of cases by week for Ireland in 2000. In 1999, a peak was seen in week 25. However, a sharp peak in week 23 is noted for 2000.

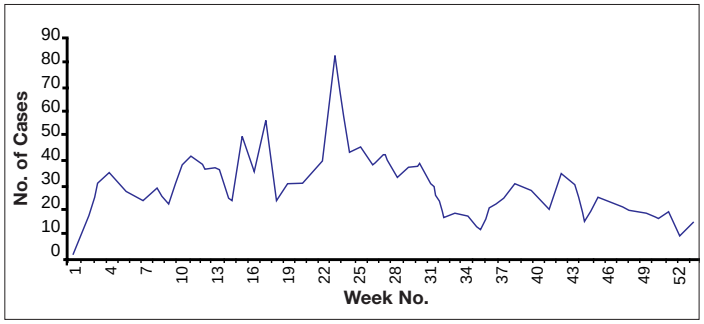

Figure 1: Total cases of campylobacteriosis by week (2000) in Ireland.

Age standardised incidence rates (ASIR) were then calculated to allow comparisons between areas to be made without the confounding effects of age (Figure 2). In 2000, the highest incidence was recorded in the Western region of the country, with the lowest incidence seen in the North Eastern region. A similar pattern was observed in 1999.

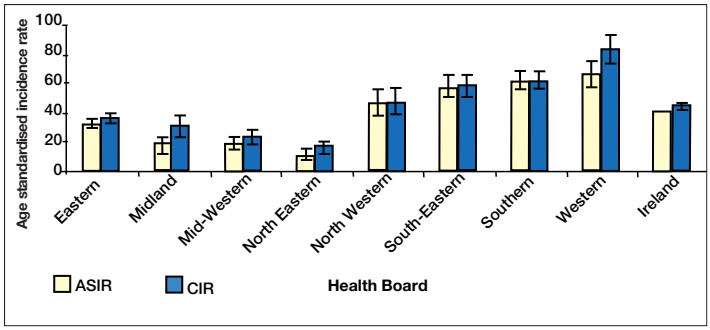

Figure 2: ASIR compared to CIR for Campylobacter enteritis in each health board, 2000 (95% confidence intervals included).

When we examine age specific incidence rates for each age group, it is evident that by far the highest burden of illness is seen in the 0-4 year age group (Figure 3). This was also reported in 1999, and has been documented as a feature of the illness worldwide.

Gender distribution

The variance in gender distribution that was first noted in 1999 was again evident from analysis of the data in 2000. In every age-group except 25-34 and 65+, there was a predominance of male cases. This is shown in Figure 3 when the data are adjusted for age and sex.

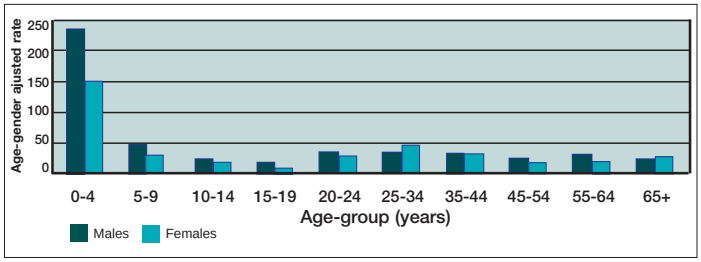

Figure 3: Age-gender adjusted incidence of campylobacteriosis according to age-group, in 2000.

Discussion

These data reveal a CIR of 44.5 cases per 100,000 persons in Ireland in 2000, compared with a rate of 57.5/100,000 seen in 1999. This compared with a rate of 59.8/100,000 in Northern Ireland, 101.7 in England and Wales and 126.7 in Scotland for the year 2000. Despite the decrease, campylobacteriosis remains the single biggest cause of bacterial gastroenteric infection in Ireland. It should be noted that these are laboratory-confirmed cases only and the real burden of illness is even higher. England and Wales also noted a decrease in the rate of campylobacteriosis from 1999 to 2000.

Most cases of *Campylobacter* infection are sporadic and suggested risk factors for infection have included ingestion of undercooked poultry meats and handling raw poultry, contact with pets, especially puppies, consumption of unpasteurised milk or dairy products and drinking water from contaminated/ untreated supplies. Recent evidence suggesting that *Campylobacter* has a low infectious dose, implies that cross-contamination of ready-to-eat foods by raw meats may be an important source of infection.

*C. jejun*i and *C. coli* can be isolated from the intestines of healthy farm animals, poultry, pets and wild birds. These organisms rarely cause disease in these animals and the carriage rate is believed to be quite high, particularly in poultry. On-farm control measures such as bio-security have not been as effective in controlling *Campylobacter* infections, compared to the success rate with *Salmonella*. Clear messages must be given that thorough cooking of meat and good personal hygiene will help to prevent illness in the home.

In this study, details of speciation and further sub-typing information were not available for many of the health board regions. In order to fully understand the epidemiology and virulence of this organism, it is necessary to be able to accurately identify the isolates that are causing illness in humans compared to animals.

Improved detection methods and developments in the area of molecular typing of isolates are also required. A national laboratory study on methodologies employed for detection of *Campylobacter* was carried out in 2001 as part of a larger European survey on *Campylobacter* surveillance and diagnostics. The findings of that study clearly demonstrated that there is a need for a European-wide *Campylobacter* surveillance network, possibly in combination with the EU-funded working group 'Campy-net'.

Much work is needed to help to reduce the burden of illness caused by this zoonotic agent. The Food Safety Authority of Ireland identified prevention and control of foodborne illness due to *Campylobacter* as a key priority and to this end, a multi-disciplinary group was established by FSAI to identify control measures to combat *Campylobacter* infections from farm to fork. The report from this working group is due to be published later this year.

Additional investigations are needed in Ireland to examine the epidemiology of this organism and attempt to provide answers to the questions that the data presented in this report pose, such as, the high incidence in very young children, the bias towards male cases and the geographical distribution of cases. A recent publication from Australia [3] describes a matched case-control study conducted to identify risk factors for *Campylobacter* infection in infants and young children. Ownership of pet puppies and pet chickens and consumption of mayonnaise were identified as being independently associated with illness.

Campylobacteriosis is a major cause of human gastrointestinal illness. Work towards its control must be a priority if the burden of human infectious intestinal disease is to be reduced.

Dr Barbara Foley and Dr Paul McKeown, NDSC

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Acknowledgements

NDSC sincerely thanks and acknowledges all those who provided information for the second year of this report on the epidemiology of campylobacteriosis in Ireland. As was the case last year, many medical microbiologists, public health doctors and medical laboratory scientists made special efforts to obtain their data for this period to allow NDSC complete an accurate and relatively complete database of laboratory-confirmed cases of campylobacteriosis.

We are particularly grateful for the availability of quality information from INFOSCAN (Southern, South Eastern and Mid-Western Health Boards) and LSS (Eastern Regional Health Authority) which made data collection very efficient.

THE STRATEGY FOR ANTIMICROBIAL RESISTANCE IN IRELAND (SARI): UPDATE

The Strategy for Antimicrobial Resistance in Ireland (SARI) was launched in June of last year. The strategy outlines the considerable scale of antimicrobial resistance in Ireland and recommends improved surveillance of antimicrobial resistance and antimicrobial usage, improved infection control services, strategies to encourage appropriate prescribing of antimicrobials and educational strategies for healthcare workers, patients and the general public.

The recommendations contained within SARI are ambitious, but similar recommendations have been successfully implemented in other countries. At present there is a shortage of appropriate healthcare staff needed to implement the recommendations at local, regional and national levels. Thus one of the first priorities for implementing the SARI recommendations is ensuring adequate staffing in infection control, surveillance, microbiology, public health and other relevant specialities across the healthcare system. This requirement has been recognised by the Department of Health and Children (DoHC). With the creation of NDSC, funds were made available at local and national levels to improve surveillance. Specific SARI funding was made available to each Health Board in July of last year with additional funds allocated for 2002. To date a total of €1.5m has been made available for SARI implementation. These funds should ensure that the shortfall in staffing for surveillance, infection control and other areas required to implement the SARI recommendations is corrected. A number of appointments have already been made at local and regional level, including surveillance scientists based at diagnostic laboratories and regional departments of public health.

The agreed structure for SARI encompasses local, regional and national tiers. Local laboratories, general practice surgeries etc. will be responsible for generating surveillance data. This data will be fed back to these participants to guide local initiatives to deal with antibiotic resistance. Each Health Board/Authority will have its own multidisciplinary regional SARI committee and a number of Health Boards already have their regional committees in place. These regional committees will be responsible for identifying problems with antibiotic resistance within their own region and determining regional funding priorities.

The national committee will be based at the DoHC and will include representatives from various professional bodies, similar to the committee that drew up the original SARI recommendations. The regional committees will also nominate representatives from various professional groups (Public Health, Microbiology, General Practice etc.). The national committee will be responsible for reviewing national surveillance data and setting national policies relating to antibiotic resistance. The policies and guidelines produced by the national committee will be adapted for local implementation by the regional committees.

A number of expert working groups are being set up to advise the national committee on policies and guidelines in relation to SARI. The areas that the five working groups will deal with are:

1. Antimicrobial resistance surveillance
2. Surveillance of antimicrobial utilisation
3. Community antibiotic stewardship
4. Hospital antibiotic stewardship
5. Infection control

These working groups are made up of representatives from relevant professional and other representative bodies. They are each led by relevant professionals (e.g. General Practitioners, in the case of the community antibiotic stewardship working group) and have a broad geographic and professional representation, to ensure that their recommendations reflect local needs and realities.

The surveillance of antimicrobial resistance and utilisation will most likely build on existing surveillance systems, such as the European Antimicrobial Resistance Surveillance System (EARSS) and current drug prescribing databases. Thus it is hoped that some expanded surveillance systems can be in place by the end of 2002. The introduction of the Computerised Infectious Disease Reporting system (CIDR) will greatly facilitate the collection of timely, relevant resistance data. Surveillance of antibiotic utilisation will be facilitated through the establishment of the European Surveillance of Antimicrobial Consumption (ESAC) project, which provides a framework for collecting data that can be compared between European countries.

With expanded surveillance systems in place and adequate relevant staffing at local, regional and national levels it is hoped that other SARI recommendations, such as improved prudent antibiotic use and infection control, can be implemented in the near future.

Dr. Robert Cunney, NDSC

WHO Influenza Vaccine Composition, 2002-2003

Each year the World Health Organisation (WHO) brings together international influenza experts to decide the composition of the influenza vaccine for the next year.[1] The recommendation for the 2002-2003 season in the Northern Hemisphere is as follows:

- A/New Caledonia/20/99(H1N1)-like virus
- A/Moscow/10/99(H3N2)-like virus*
- B/Hong Kong/330/2001-like virus

*The widely used vaccine strain is A/Panama/2007/99

In Ireland, vaccination is recommended for the following risk groups:

- those over 65 years of age.
- people in residential care regardless of age.
- people with chronic illnesses such as asthma, diabetes and heart disease.
- children and teenagers on long-term aspirin therapy because of the risk of Reyes Syndrome.
- healthcare workers and family members who have contact with any of the above.

References

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Salmonella Monthly Report (January 2002):

Strains are allocated to months based on the date of receipt of the isolate from the referring laboratory. These figures are provisional as work may not be finished on particular strains at the time of publication. Data are provided courtesy of Prof Martin Cormican and Dr Geraldine Corbett-Feeney, INSRL.

Health Board	E	M	MW	NE	NW	SE	S	W	Total
S.Typhimurium	1	0	3	0	0	2	1	1	8
S.Enteritidis	1	0	0	1	3	0	1	0	6
S.Bredeney	0	0	0	0	0	1	0	0	1
S.Dublin	0	0	0	0	0	0	0	1	1
S.Johannesburg	1	0	0	0	0	0	0	0	1
S.Kottbus	0	1	0	0	0	0	0	0	1
S.Othmnarschen	1	0	0	0	0	0	0	0	1
S.Virchow	0	0	0	0	0	1	0	0	1
Total	4	1	3	1	3	4	2	2	20