EPI-INSIGHT

IONAD NAISIUNTA FAIRE GALAIR

Disease Surveillance Report of NDSC, Ireland

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IN THE NEWS

Severe Acute Respiratory Syndrome (SARS)

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Background

In mid February 2003, the World Health Organisation (WHO) was notified by the Chinese Ministry of Health of an outbreak of acute respiratory syndrome in the Guangdong Province of China involving 300 cases and 5 deaths. The syndrome was described as an atypical pneumonia with flu-like symptoms including fever, headache, muscle pains and general weakness. *Chlamydia pneumoniae* was isolated from two of the cases but no cause was found for the other cases.[1]

Another outbreak occurred in a hospital in Hanoi, Vietnam.[2] The probable index case was an Asian-American businessman who was visiting Hanoi and who had previously stayed in the Metropole Hotel, Hong Kong. He was admitted to the hospital on 26th February with severe acute respiratory syndrome of unknown origin. Following his admission approximately 20 hospital staff who were involved in his care became ill with similar symptoms. The patient was transferred to an isolation facility in a Hong Kong hospital where he died on March 13th.

On 11th March, a third outbreak was reported in healthcare workers in another Hong Kong hospital.[2] The Hong Kong Department of Health identified the index case in this outbreak as a local Hong Kong resident who visited the Metropole Hotel, Hong Kong while an ill visitor from Guandong Province was staying there. They also determined that 12 other suspect or probable cases of SARS had stayed in the hotel –10 were there on the same day as the visitor from Guandong; and two patients stayed during the time that three other symptomatic patients stayed in the hotel. Epidemiological investigations have identified patients from this cluster as index patients in subsequent clusters in Hong Kong and other areas.

WHO issued a global alert about cases of atypical pneumonia on the 12th March 2003 and on 13th March initiated global surveillance of severe atypical pneumonia of unknown aetiology or Severe Acute Respiratory Syndrome (SARS). A Global Alert Response Network/WHO team was set up to assist national authorities in the investigation and control of the outbreaks, and provide epidemiological, laboratory and clinical support. Emergency travel guidance was issued for travellers and airlines on 15th March. The advice stated that there was no need to restrict travel to affected areas. However, travellers and airlines should be aware of the symptoms and signs of SARS and in the unlikely event of travellers or airline staff becoming ill, medical attention should be sought immediately and the case reported to the local public health department.

Case Definition

The current (dated 18th March 2003) WHO-recommended case definitions of SARS are:

Suspect case

A person presenting after 1st February 2003 with a history of:
High fever (>38ºC) **and**
One or more respiratory symptoms including cough, shortness of breath, difficulty breathing and one **or** more of the following:
Close contact* within 10 days of onset of symptoms with a person who has been diagnosed with SARS **or**
History of travel within 10 days of onset of symptoms to an area where there are reported foci of transmission of SARS (see table updated 31st March).

Country	Area
Canada	Toronto
China	Beijing, Guandong Province, Hong Kong, Shanxi, Taiwan
Singapore	Singapore
Viet Nam	Hanoi

Probable case

A suspect case with chest x-ray findings of pneumonia or Respiratory Distress Syndrome (RDS) or
A person with an unexplained respiratory illness resulting in death with an autopsy examination demonstrating the pathology of RDS without an identifiable cause.

***Close contact means having cared for, having lived with, or having had direct contact with respiratory secretions and body fluids of a person with SARS.**

In addition to fever and respiratory symptoms SARS may be associated with other symptoms including: headache, muscular stiffness, loss of appetite, malaise, confusion, rash, and diarrhoea. The majority (80-90%) of patients show improvements after 6 or 7 days. The rest progress to a more severe form of SARS, and may develop acute RDS requiring mechanical ventilation. The mortality in this latter group is very high and appears to be associated with pre-existing illness. Overall mortality is approximately 3-4%. Laboratory findings may include leukopaenia and thrombocytopaenia. The incubation period is usually 3 to 5 days with a range of 2 to 7 days.

Current Situation

As of 31st March 1,622 suspect or probable cases have been reported and 58 deaths from 13 countries across 3 continents. The large increase in figures recently is due to new data from China that reported 792 cases of atypical pneumonia and 31 deaths in an outbreak in Guandong Province from 16th November 2002 to 28th February 2003.

Continued on back page

Campylobacteriosis in Ireland, 2001

Introduction

Infections due to *Campylobacter spp* are the most commonly isolated bacterial cause of human gastrointestinal illness in Ireland, the UK and many countries globally with temperate climates. *Campylobacter jejuni* is the predominant species associated with human illness, with the remainder mostly being *C. coli*, and to a lesser extent *C. lari* and *C. upsaliensis*.

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 the severe neurological disorder called Guillain-Barré Syndrome (GBS).

This review presents data from the third year of the NDSC national survey of the incidence of human campylobacteriosis in Ireland. Valuable information has again been derived regarding the epidemiology of laboratory-confirmed campylobacteriosis which supplements further investigations in this field by the Food Safety Authority of Ireland and other partners in infectious disease surveillance and control.

Methods

NDSC requested Departments of Public Health and laboratories to provide disaggregated information on all laboratory-confirmed cases of campylobacteriosis diagnosed in 2001.

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 Access and SPSS. 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 *Campylobacter* was obtained from all health boards. Information on age was missing in 3% of cases and information on sex was incomplete in 1% of cases. Those data without age were not presented in age standardised charts.

Incidence

In total, 1286 cases of laboratory-confirmed campylo-bacteriosis were reported in 2001 in Ireland. This gives a crude incidence rate (CIR) of 35.5 per 100,000 population. This compared with a CIR of 44.5 per 100,000 in 2000 and 57.5 in 1999 (Table 1).

Table 1: Number of cases and CIR per 100,000 population of campylobacteriosis by health board in Ireland for 2001 and 2000.

Health Board	2001		2002	
	Number of cases	CIR - (incl. (95% C.I.)	Number of cases	CIR - (incl. (95% C.I.)
ERHA	481	37.1 [33.8-40.4]	472	36.4 [33.1-39.7]
Midland	65	31.6 [23.9-39.3]	63	30.7 [23.1-38.2]
Mid-Western	62	19.6 [14.7-24.4]	73	23.0 [17.7-28.3]
North Eastern	51	16.7 [12.1-21.2]	51	16.7 [12.1-21.2]
North Western	81	38.4 [30.0-46.8]	100	47.4 [38.1-56.7]
South Eastern	159	40.6 [34.3-46.9]	226	57.7 [50.2-65.3]
Southern	217	39.7 [34.4-45.0]	337	61.6 [55.1-68.2]
Western	170	48.2 [41.0-55.5]	291	82.6 [73.1-92.1]
IRELAND	**1286**	**35.5**	**1613**	**44.5**

Age standardised incidence rates were calculated to allow comparisons between areas to be made without the confounding effects of age (Figure 1). In 2001, the highest incidence was recorded in the Western region of the country, with the lowest incidence seen in the North Eastern region. These data are consistent with those observed in 1999 and 2000.

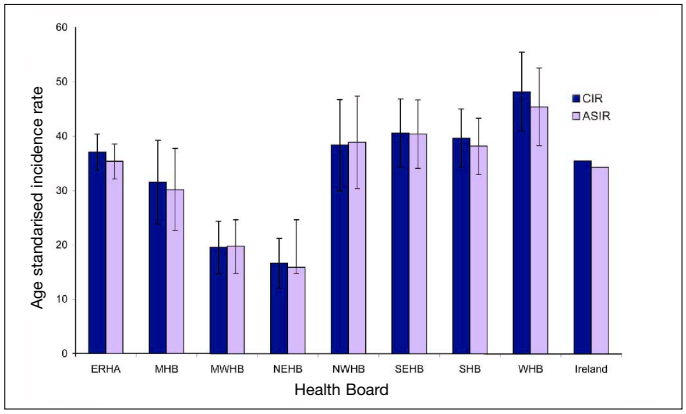

Figure 1: Age standardised incidence rates (ASIR) compared to crude incidence rates (CIR) per 100,000 population for campylobacteriosis in each health board, 2001.

Seasonality

Campylobacter is known to have a well characterised seasonal distribution, with a peak seen in late spring/early summer each year. In 2001, this seasonal pattern remains similar but the characteristic peak seen in previous years was not as pronounced. Figure 2 shows the occurrence of cases by week for Ireland in 2001.

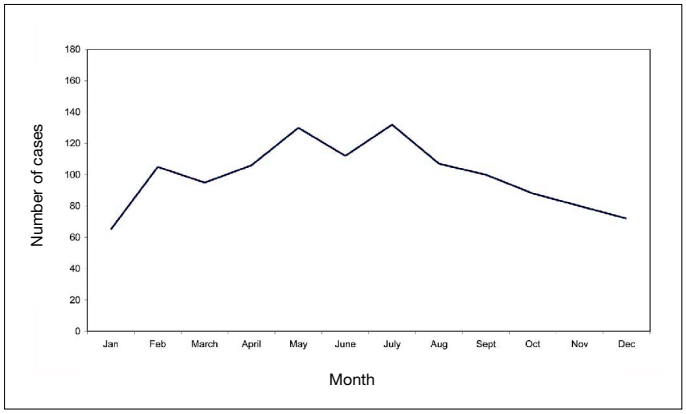

Figure 2: Total cases of campylobacteriosis by month of notification (2001) in Ireland.

Age

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 children in the 0-4 age-group (Figure 3). This was also reported in 1999 and 2000 and has been documented as a feature of the illness worldwide.

Gender distribution

The variance in gender distribution that was noted in 1999 and 2000 was again evident from analysis of the data in 2001, with males accounting for 55.7% of cases and females 43.2%, (1.2% missing).

In every age-group except 55-64 years there was a predominance of male cases. This is shown in Figure 4 when the data are adjusted for age and sex.

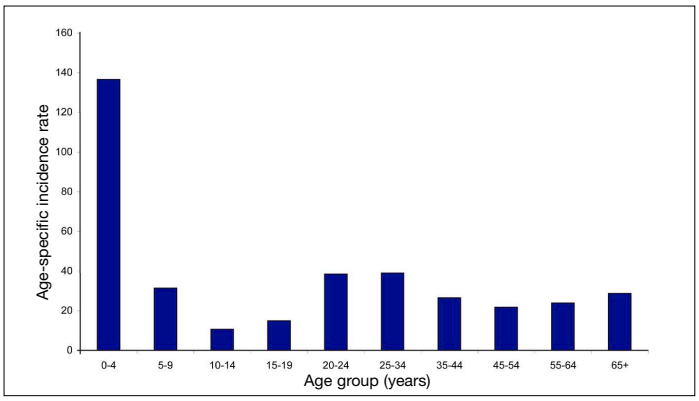

Figure 3. Age-specific incidence rates for campylobacteriosis in Ireland, 2001

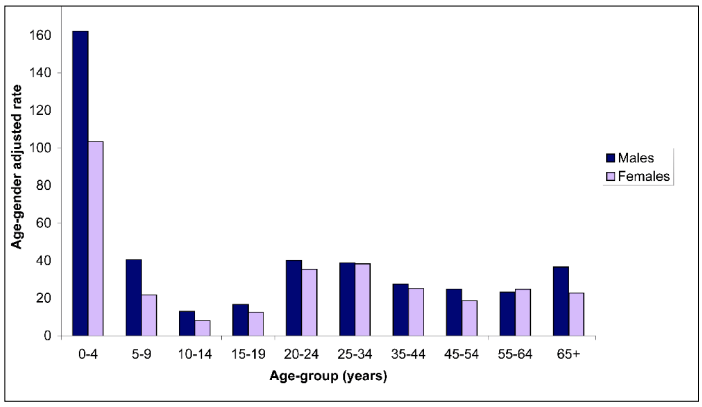

Figure 4. Age-gender adjusted incidence of campylobacteriosis according to age-group in 2001.

Discussion

This review presents data from the third year of the NDSC national survey of the incidence of human campylobacteriosis in Ireland. Valuable information has again been derived regarding the epidemiology of laboratory-confirmed campylobacteriosis.These data reveal a crude incidence rate (CIR) of 35.5 cases per 100,000 persons in Ireland in 2001. Overall a decrease was seen in Ireland when compared with 2000 (CIR 44.5/100,000). Despite the reduction in numbers however, campylobacteriosis remains the single biggest cause of bacterial gastroenteric infection in Ireland (almost three times the number of salmonellosis cases reported in 2001). It should also be noted that these are laboratory-confirmed cases and the real burden of illness is even higher.

The rates for the same period in Northern Ireland were (52.4/100,000), England and Wales (107.6/100,000) and Scotland (106.1/100,000). These data also represented a decrease from 2000 figures for Northern Ireland and Scotland. However, the rates in England and Wales increased for the year 2001.

The burden of human gastrointestinal illness due to *Campylobacter* in Ireland is evident from the data available from three years of this national study and work towards its control has been identified as a priority. To this end, a report was published in 2002 by the Food Safety Authority of Ireland entitled *"Control of Campylobacter species in the food chain"*.[1] This was the work of a multi-disciplinary expert group convened to examine existing knowledge regarding the control and prevention of human infection with *Campylobacter spp*, and also to recommend measures to reduce the risk of infection with this zoonotic organism throughout the food chain. A number of key recommendations have been made in this report including the need for more extensive epidemiological data on human cases of campylobacteriosis in Ireland.

It has been recognised that 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.

To address this, it is hoped to conduct a matched case-control study in Ireland later this year to examine risk factors for human cases of *Campylobacter* infection.

Most cases of campylobacteriosis are sporadic and it is thought that the primary mode of transmission is foodborne. Suggested risk factors for infection have included ingestion of undercooked poultry meats and handling raw poultry, but also contact with pets, especially puppies, consumption of unpasteurised milk or dairy products and drinking water from contaminated/untreated water supplies. In addition, the fact that *Campylobacter* has a low infectious dose (500 organisms or less), implies that cross-contamination of ready-to-eat foods by raw meats may be an important source of infection. The role of person-to-person transmission of campylobacteriosis is thought to be very low.

C. jejuni 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. The lack of sub-typing information in Ireland has meant that currently it is not possible to trace human cases of campylobacteriosis back through the food chain. One of the recommendations of the aforementioned FSAI Campylobacter report has been the establishment of a national Campylobacter Reference Laboratory.

The strong seasonal distribution of human cases of campylobacteriosis is another extremely interesting feature of this disease, with a peak seen in late spring/early summer each year. The WHO European Centre for Environment and Health (ECEH) is currently undertaking a European study to examine the effects of global climate change on a number of gastroenteric pathogens including *Campylobacter spp*. From examination of retrospective surveillance and meteorological data from a large number of countries, it is hoped to be able to extrapolate the mechanisms governing the impact of weather and climate on foodborne and waterborne illness.

Dr Barbara Foley, Dr Patricia Garvey and Dr Paul McKeown, NDSC

References

1. Food Safety Authority of Ireland. (2002): Control of Campylobacter species in the food chain. www.fsai.ie/publication_list_index.htm

Acknowledgements

NDSC sincerely thanks and acknowledges all those who provided information for the third year of this report on the epidemiology of campylobacteriosis in Ireland. As was the case last year, many public health doctors, surveillance scientists, medical microbiologists and medical scientists made special efforts to obtain their data for this period to allow NDSC compile 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) that made data collection very efficient.

Hepatitis B Surveillance in Southern Health Board Region 2000-2002

Introduction
Hepatitis B is a notifiable disease in Ireland. There has been a ten-fold increase nationally in the number of notifications between 1997 (n=31) and 2001 (n=343). The vast majority of those notified as positive are chronic carriers rather than newly infected cases.

Notification system in SHB
In addition to the national minimum dataset involving the collection of data on each case relating to demographics, occupation, date of onset and notification, the SHB has since 1998 been collecting further information on severity, probable source, vaccination status, foreign travel and other details in a comments section.

Epidemiology
There has been an increase in the number of hepatitis B notifications in the SHB in recent years from 46 in 2000 to 155 in 2002 (Figure 1). The cases were predominantly male (Figure 2). Most cases were aged 20 to 39 years – 82.6% in 2000, 64.2% in 2001 and 80.6% in 2002 (Figure 3). The mean age was 29 years. The percentage of hepatitis B cases that were reported from the asylum seeker population was 98% in 2000, 96% in 2001 and 95% in 2002.

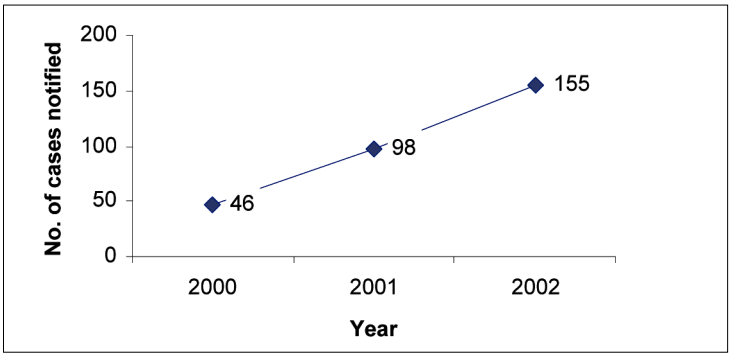

Figure 1. Number of hepatitis B notifications in SHB, 2000 - 2002

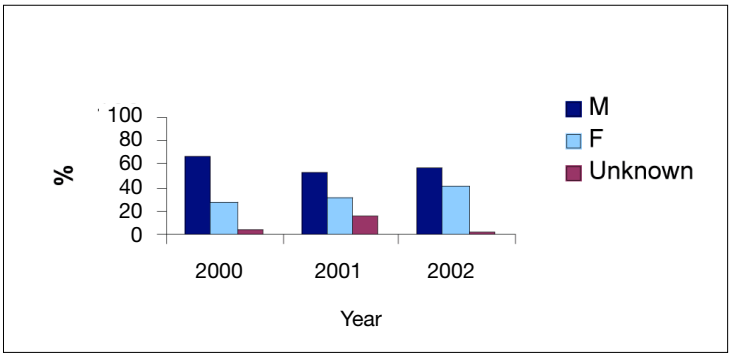

Figure 2. Percentage of hepatitis B notifications in SHB by sex, 2000 – 2002

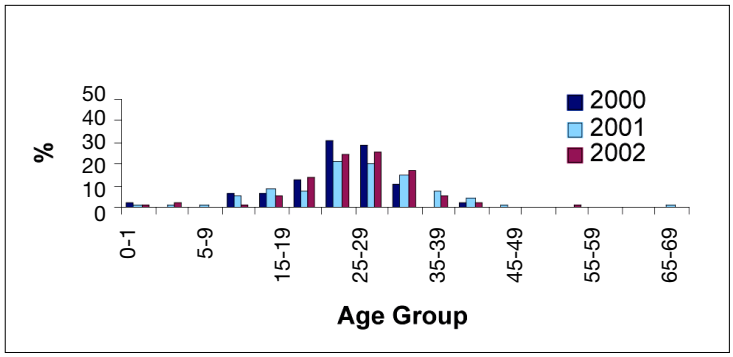

Figure 3. Percentage of hepatitis B notifications by age group, SHB, 2000 –2002

Increase in acute hepatitis B notifications
There have been 9 cases of acute hepatitis B virus (HBV) infection in Irish nationals notified in the SHB region since May 2002. Seven were hospitalised. Eight cases were male and the age profile ranged from 25 to 63 years. The mean age was 39 years. Having collected information on possible risk factors, a common exposure has not been identified. In the developed world sexual transmission is the major recognised mode of spread of HBV. Sexual transmission is brought about by the contact of fragile mucous membranes with seminal fluid, vaginal secretions and menstrual blood of HBV carriers. Unprotected anal intercourse appears to be a particularly high-risk behaviour for acquisition of HBV infection. In this outbreak, sexual contact (homosexual, bisexual or heterosexual) was identified as the risk behaviour in two-thirds of the cases. Three reported a history of foreign travel during the incubation period.

Enhanced surveillance
After reviewing the existing database, the Department of Public Health, SHB has decided on an enhanced surveillance system for hepatitis B. Past, chronic and acute infection are not differentiated in the current system. The need to collect information on the precise serology results and risk exposure category has been identified. In addition, data on the reason for testing of all cases would be useful. To this end, an enhanced surveillance dataset has been proposed with the plan to incorporate the design changes in the existing system early in 2003. This will include fields with drop down menus on patient status, laboratory results, risk category and reason for testing.

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Acknowledgements
We gratefully acknowledge the assistance of our colleagues in Microbiology and the Community Public Health Services.

SARS *(continued from front page)*

Two probable cases were investigated in Ireland, one in the Eastern Regional Health Authority and one in the Western Health Board. Both cases had recently returned from South East Asia. Both are now well.

Research is ongoing into the cause of SARS and into developing a diagnostic test. Two different viruses, a paramyxovirus and coronavirus have been identified in patient specimens. However, it is still too early to say how significant these findings are. Treatment is supportive. There is no evidence to date to support the use of specific antiviral agents. A number of therapies are under investigation.

The mode of transmission remains unclear but investigations to date suggest droplet and contact transmission, and possibly airborne transmission. Infection control measures, in particular **good hand washings procedures are the most important hygiene measures in preventing the spread of infection.**

As of 28th March 2003, the Department of Health and Children in Ireland has made SARS a notifiable disease. They also issued a travel alert, advising individuals not to undertake non-essential or elective travel to parts of China (Beijing, Guandong, Hong Kong, Shanxi, Taiwan), Singapore, Hanoi and Toronto until further notice.

WHO is recommending the screening of air passengers departing from affected areas (see table on front page) on flights to other countries (SARS is known to be spreading by human-to-human transmission in these areas).

Key Points
- SARS is a serious emerging infectious disease.
- It is a changing situation and advice is under constant review.
- People should remain alert to symptoms.
- There should be prompt reporting of all suspect/probable cases.
- There should be proper isolation and management of suspect/probable cases.
- Hand washing is the single most important measure in preventing the spread of infection.
- There has been unprecedented collaboration worldwide.

For further information see WHO at www.int/en and NDSC at www.ndsc.ie

L Hickey, J O'Donnell, H Murray, NDSC

References
1. WHO. Severe Acute Respiratory Syndrome (SARS). Available at www.int/en/
2. CDC. Update: Outbreak of Severe Acute Respiratory Syndrome – Worldwide, 2003. *MMWR Wkly* 2003; **52** (12): 241-248.

Salmonella Monthly Report (Februrary 2003):

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.Anatum	1	0	0	0	0	0	0	0	1
S.Enteritidis	1	0	0	0	0	0	0	0	1
S.Mbandaka	0	0	0	0	1	0	0	1	2
S.Rissen	0	0	0	0	0	0	1	0	1
S.Typhimurium	1	0	0	0	0	1	0	3	5
Total	**3**	**0**	**0**	**0**	**1**	**1**	**1**	**4**	**10**

* Travel-associated (Nigeria)