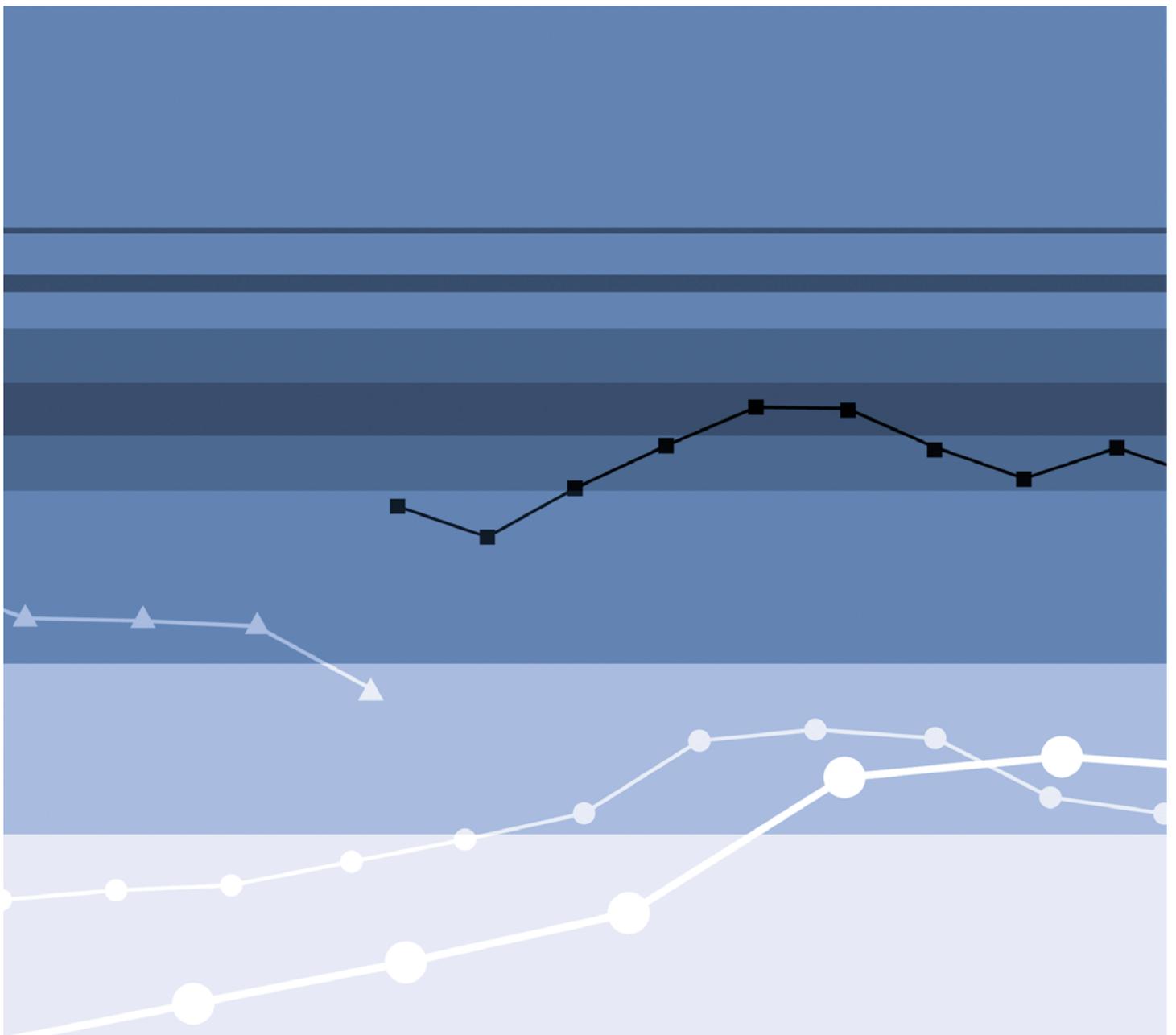


Foodborne Infections and Gastrointestinal Diseases on the Island of Ireland in 2002

Report commissioned by **safefood**





Foodborne Infections and Gastrointestinal Diseases on the Island of Ireland in 2002

Report commissioned by **safefood**

Prepared by

Dr Costas Danis, MD

European Programme for Intervention Epidemiology Training
(EPIET) Fellow

Supervised by

Dr Lelia Thornton

Specialist in Public Health Medicine, NDSC, Dublin

Dr Brian Smyth

Regional Epidemiologist, CDSC-NI, Belfast

October 2003

This research was commissioned and funded by:



With the assistance of



**European Programme
for Intervention
Epidemiology Training**



**Communicable Disease
Surveillance Centre –
Northern Ireland, Belfast**



**National Disease
Surveillance Centre,
Dublin**

Table of Contents

Table of Contents	iii
List of Tables	iv
List of Figures	v
Foreword	vi
Acknowledgments	vii
Summary	vii
1. INTRODUCTION	1
2. METHODOLOGY	1
3. DESCRIPTION OF THE TWO FOODBORNE DISEASE SURVEILLANCE SYSTEMS	
3.1 Republic of Ireland	2
3.1.1 National Infectious Disease Notification System	2
3.1.2 Enhanced surveillance for Verotoxigenic <i>Escherichia coli</i> O157	3
3.1.3 National Salmonella Reference Laboratory (NSRL)	3
3.1.4 Zoonosis Laboratory Reports (under EU Directive)	3
3.1.5 Outbreaks	3
3.2 Northern Ireland	4
3.2.1 Notifiable Diseases Clinical Notifications	4
3.2.2 Laboratory Reporting Surveillance System	5
3.2.3 Enhanced Surveillance for <i>E. coli</i> O157	5
3.2.4 Surveillance scheme for general outbreaks of infectious intestinal disease	5
3.2.5 Other sources of data	5
4. FOODBORNE INFECTIONS AND GASTROINTESTINAL DISEASES ON THE ISLAND OF IRELAND – ANALYSIS OF DATA FOR 2002	
4.1 Food-Poisoning (Clinical Notifications)	6
4.2 Gastroenteritis in Children under 2 years (Clinical Notifications)	8
4.3 Campylobacteriosis	9
4.4 Salmonellosis	11
4.5 VTEC O157	16
4.6 Cholera	19
4.7 Bacillary Dysentery (Shigellosis)	19
4.8 Typhoid and Paratyphoid	19
5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS	20
References	25
Abbreviations	26

List of Tables

Table 1	Number (%) of <i>Campylobacter</i> species reported, Northern Ireland (NI), Republic of Ireland (ROI) and island of Ireland, 2002	12
Table 2	Number (%) of serotypes of <i>Salmonella enterica</i> , Republic of Ireland (ROI), Northern Ireland (NI) and island of Ireland, 2002	15
Table 3	Number (%) of <i>Salmonella</i> Enteritidis phage types reported, island of Ireland, 2002	16
Table 4	Number (%) of <i>Salmonella</i> Typhimurium definitive types reported, Republic of Ireland (ROI), Northern Ireland (NI) and island of Ireland, 2002	16

List of Figures

Figure 1	Incidence rate (per 100,000 population) of food-poisoning notifications by year, island of Ireland (Republic of Ireland and Northern Ireland), Scotland and England & Wales, 1992-2002	7
Figure 2	Incidence rate (per 100,000 population) of food-poisoning notifications by year, Republic of Ireland (ROI), Northern Ireland (NI) and the island of Ireland, 1990-2002	8
Figure 3	Incidence rate of food-poisoning notifications (per 100,000 population) by quarter, Northern Ireland (NI), Republic of Ireland (ROI) and the island of Ireland, 2002	8
Figure 4	Age standardised incidence rate of food-poisoning notifications by Health Board in the Republic of Ireland and in Northern Ireland, 2002	9
Figure 5	Incidence rate (per 100,000 population) of gastroenteritis (children under 2 years of age) notifications by year, Northern Ireland (NI) and Republic of Ireland (ROI), 1990-2002	9
Figure 6	Incidence rate of Campylobacter cases by year, island of Ireland, England, Wales and Scotland, 1999-2002	10
Figure 7	Incidence rate of Campylobacter cases by year, Republic of Ireland (ROI) and Northern Ireland (NI), 1999-2002	10
Figure 8	Age specific incidence rate (per 100,000 population) of confirmed cases of campylobacteriosis, Republic of Ireland (ROI) and Northern Ireland (NI), 2002.	11
Figure 9	Isolation of Campylobacter by quarter, island of Ireland, Republic of Ireland (ROI), Northern Ireland (NI), England, Wales and Scotland, 2002	11
Figure 10	Incidence rates of salmonellosis (per 100,000 population) by year, England & Wales, Scotland, Northern Ireland (NI), Republic of Ireland (ROI) and island of Ireland, 1998-2002	12
Figure 11	Age specific incidence rate (per 100,000 population) of confirmed cases of salmonellosis, Republic of Ireland (ROI) and Northern Ireland (NI), 2002	11
Figure 12	Age standardised incidence rate of Salmonella infections by Health Board in the Republic of Ireland and in Northern Ireland, 2002	13
Figure 13	Isolation of Salmonella spp. by month, Republic of Ireland (ROI) and Northern Ireland (NI), 2002	14
Figure 14	Serotyping of Salmonella spp., Republic of Ireland (ROI) and Northern Ireland (NI), 2002	14
Figure 15	Laboratory reports of Salmonella, island of Ireland, 1998-2002	15
Figure 16	Proportion of laboratory reports of Salmonella infection acquired abroad, Republic of Ireland (ROI), Northern Ireland (NI) and the island of Ireland, 2002	17
Figure 17	Incidence rate of VTEC O157 cases by year, island of Ireland, England & Wales and Scotland, 1996-2002	17
Figure 18	Incidence rate of VTEC O157 cases by year, Northern Ireland (NI) and Republic of Ireland (ROI), 1996-2002	18
Figure 19	Age specific incidence rates of VTEC O157 (per 100,000 population), Northern Ireland (NI) and Republic of Ireland (ROI), 2002	19
Figure 20	Number of cases of VTEC O157, by month of onset of symptoms or by month of laboratory reporting, Northern Ireland (NI) and Republic of Ireland (ROI), 2002.	19
Figure 21	Incidence rate (per 100,000 population) of VTEC O157 by quarter, Scotland, England, Wales and island of Ireland, 1999-2002	20
Figure 22	Information flow for clinical food-poisoning notifications, Republic of Ireland and Northern Ireland	23
Figure 23	Information flow for Salmonella notifications, Republic of Ireland and Northern Ireland	24

Foreword

A recent **safefood** consultation paper, 'Towards the Enhancement of Foodborne Disease Surveillance' indicated that the guiding principles for the development of surveillance in Northern Ireland and the Republic of Ireland should be the integration of data collection systems and analysis of combined data. The current surveillance systems have developed independently from each other and clinical, food and animal surveillance systems remain un-integrated in both jurisdictions. A more complete and efficient food safety system could be achieved through co-ordination and linkages across the disease surveillance systems and jurisdictions. For that reason, stronger links are being developed between **safefood**, surveillance agencies, government departments and public health professionals.

This report is an examination and review of the clinical surveillance data collected in both jurisdictions. The work was undertaken as part of **safefood's** support for the European Programme for Intervention Epidemiology Training (EPIET), which trains EU medical practitioners, public health nurses, microbiologists or veterinarians in all aspects of foodborne disease surveillance.

The report represents the outcome of **safefood's** support for the EPIET Fellow, Dr Costas Danis, working at the National Disease Surveillance Centre (NDSC), Dublin and the Communicable Disease Surveillance Centre - Northern Ireland (CDSC-NI), Belfast between 2002 and 2004. The EPIET Fellow's task was to collate and analyse 2002 data on the incidence of foodborne infections and gastrointestinal disease in both the Republic of Ireland and Northern Ireland and report on the current situation with regard to these conditions on the island of Ireland as a whole.

This study has identified similarities, differences and deficiencies in the foodborne disease surveillance systems currently existing in NI and ROI. The report concludes with some recommendations as to how the systems in the two jurisdictions might be harmonised to provide a more complete and efficient food safety system for the island of Ireland.

Dr. Thomas Quigley
Director of Science and Technical, safefood

Acknowledgments

The authors of this report and **safefood** would like to thank Dr Patricia Garvey, Dr Barbara Foley, Dr Paul McKeown, Mr Stephen Murchan and Ms Audrey Lynch-McQuaid for their assistance in writing this report. We also wish to acknowledge the co-operation of the staff of NDSC and CDSC-NI, Consultant Microbiologists, Consultants in Communicable Disease Control, Senior Area Medical Officers, Area Medical Officers, Specialists in Public Health Medicine, Medical Scientists, Surveillance Scientists, Principal Environmental Health Officers and Environmental Health Officers in supplying the data. We would also wish to thank the Scottish Centre for Infection and Environmental Health (SCIEH), the Communicable Disease Surveillance Centre-England (CDSC) and the Communicable Disease Surveillance Centre-Wales for supplying their data.

Summary

Surveillance of foodborne diseases on the island of Ireland is undertaken by the National Disease Surveillance Centre (NDSC) in the Republic of Ireland (ROI) and the Communicable Disease Surveillance Centre (CDSC-NI) in Northern Ireland (NI). The establishment of **safefood**, the Food Safety Promotion Board in 1999 has provided further impetus to promote cross-border co-operation with greater harmonisation of surveillance systems and activity. This study was commissioned in order to document the two systems, make a comparison of the two datasets and obtain, for the first time, an all-island report on the incidence of foodborne illness and gastrointestinal infection.

Data on food-poisoning, gastroenteritis in children under 2 years, *campylobacter*, *salmonella*, VTEC O157, cholera, bacillary dysentery (shigellosis), typhoid and paratyphoid for 2002 were obtained from NDSC and CDSC-NI and analysed using Epi-Info 2002 and Access 2000. The incidence rates of the various foodborne diseases/conditions were compared for the two jurisdictions and an analysis of the combined data for the whole island was performed. Components of the ROI and NI foodborne disease surveillance systems were compared and contrasted.

Key Findings

- *The incidence rate of clinical food-poisoning notifications on the island of Ireland was about one-third the corresponding 2002 rates for Scotland, England and Wales.*
- *Clinical notifications of gastroenteritis in children aged less than 2 years of age continued to decline in both NI and ROI in 2002 compared to previous years.*
- *Campylobacter remained the single most common bacterial cause of food poisoning in both jurisdictions (more than three times as many reports as Salmonella). This rate remained consistently lower (about 2.5-fold) than rates observed in England, Wales and Scotland.*
- *Salmonella incidence continued to decline as observed in recent years. Twenty-six percent of salmonella cases were acquired abroad. S. Enteritidis (majority PT1 or PT4) was the predominant serotype isolated, followed by S.Typhimurium (majority DT104B or DT104). These two serotypes accounted for 70% of all Salmonella isolates obtained on the island of Ireland in 2002.*
- *The incidence rate of confirmed VTEC 0157 cases notified on the island of Ireland in 2002 was similar in ROI and NI, slightly higher than in England and Wales, and much lower than in Scotland in 2002. The majority of cases occurred in late summer (August) in both jurisdictions, which is similar to the seasonal pattern observed in Great Britain.*
- *Campylobacter, Salmonella and VTEC O157 infections were most common in children in the 0-4 year age group.*
- *A relatively small number of cases of cholera (2), typhoid (7) and paratyphoid fever (1) were notified to the NDSC and CDSC-NI during 2002. Many of these infections were acquired abroad.*
- *The incidence rates of food-poisoning notifications, gastroenteritis in children under 2 years, salmonellosis and campylobacteriosis in NI appear to be higher than in ROI.*
- *The higher incidence rates in NI may reflect a true difference in incidence or the finding may be artefactual resulting from differences between the two surveillance systems such as: (i) different case definitions used in clinical notifications; (ii) differences in the list of notifiable diseases; (iii) surveillance for some pathogens based on clinical notifications in ROI, while being strictly laboratory-based in NI; (iv) different data fields on reporting forms; and (v) different patterns of information flow.*
- *Harmonisation of the two surveillance systems on the island of Ireland would contribute to a more complete and efficient food safety system and, on the basis of the findings of this study, recommendations as to how this could be achieved are made.*

1. Introduction

Northern Ireland (NI) and the Republic of Ireland (ROI) have different surveillance systems for foodborne diseases. As a result of the continuing concern about food safety and its implications on an all-island basis in recent years, a multidisciplinary group of individuals with specialist knowledge of current surveillance, both in NI and the ROI, under the co-ordination of **safefood**, has been focusing on enhancing the surveillance of foodborne diseases, developing the current systems and harmonising surveillance¹. **safefood**, which was set up under the Belfast Agreement, has a general function in the surveillance of foodborne diseases with particular responsibility for promoting cross-border co-operation, identifying priorities for development, enhancing exchange of information and accessing and analysing surveillance data held by the appropriate NI and ROI authorities. As part of these efforts, this report aims to document the two systems, make a comparison of the two datasets and describe for the first time, for the whole island of Ireland, the epidemiology of foodborne diseases with reference to the year 2002.

2. Methodology

For this report, foodborne and gastrointestinal human disease data for 2002 were collected from the two surveillance centres, i.e. the National Disease Surveillance Centre (NDSC) in the ROI and the Communicable Disease Surveillance Centre in NI (CDSC-NI). These data were analysed using Epi-Info 2002, Microsoft Access 2000 and Microsoft Excel, and were compared for the two jurisdictions. An analysis of the combined data for the whole island was also performed where appropriate. Rates for 2002 were calculated using denominator data from the 2001 census for NI (total population: 1,689,000) and the 2002 census for ROI (total population: 3,917,203). For the other years, rates were calculated using the closest census year, e.g. for 1997, the 1996 census was used. Direct methods of standardisation were applied using the ROI's population (2002 census) as the standard population. Components of the two surveillance systems were compared.

3. Description of the Two Foodborne Disease Surveillance Systems

3.1. Republic of Ireland

The ROI is divided into seven Health Boards and one Regional Health Authority (ERHA) region in the greater Dublin area, which is subdivided into three area Health Boards. National responsibility for the surveillance of foodborne disease rests with the National Disease Surveillance Centre (NDSC). Surveillance of human illness due to foodborne disease in the ROI is carried out using the following sources of information:

1. *National Infectious Disease Notification System (Statutory Notification)*
2. *Enhanced Surveillance System for Verotoxigenic Escherichia coli (VTEC- O157)*
3. *National Salmonella Reference Laboratory (NSRL)*
4. *Zoonosis Laboratory reports (under EU directive-92/117/EC)*
5. *National Outbreak surveillance system*

3.1.1. National Infectious Disease Notification System

[known as WANDA system (Weekly Analysis of Notifiable Data) within NDSC]

In the ROI, under the Infectious Disease Regulations 1981 (SI No 390 of 1981), “A medical practitioner as soon as he becomes aware or suspects that a person on whom he is in professional attendance is suffering from or is the carrier of an infectious disease shall forthwith transmit a written notification to a medical officer of health.” In other words, medical practitioners are required to notify cases of confirmed and suspected infectious diseases (listed below) by submitting a written notification in a sealed envelope to Medical Officers (MOs), i.e. Senior Area Medical Officers (SAMOs) or the Directors of Public Health (DsPH) of the corresponding Health Board. The MOs are required to send to NDSC by the Wednesday of each week a return of the cases of infectious diseases notified to them in the week ending on the previous Saturday. A minimum dataset is usually provided for each case-based notification, i.e. identifier, county/reporting area, date of onset, date of notification and/or week number, date of birth and/or age, gender, disease and organism. These notifications received are entered into an MS Access database at NDSC. Every Friday, a weekly report is compiled providing information on the number of cases in each disease category by Health Board, age and gender, and a comparison with the previous year’s data. This information is distributed to the Health Boards, plus the Food Safety Authority of Ireland (FSAI) and **safefood**, and is published on the NDSC website (www.ndsc.ie). Annual reports are also generated. An evaluation in 1996 showed that there is a significant amount of under-reporting from clinical notifiers².

There is no specific requirement on laboratories to report infectious pathogens to an MO in ROI*. In some Health Board regions, voluntary laboratory systems of reporting infectious diseases have been established. There are two such systems, Infoscan and Laboratory Surveillance System (LSS). These two systems collect and collate weekly data from laboratories in their region. Infoscan covers the Southern Health Board, the South Eastern Health Board and the Mid Western Health Board region, representing a population of 1.25 million persons and LSS covers the ERHA region, covering a population of 1.4 million. Data from both of these systems are reported to NDSC along with the clinical notifications.

* The ROI legislation in relation to notifications of infectious diseases was amended on 1 January 2004.

Under the Infectious Diseases Regulations 1981, the notifiable foodborne and gastrointestinal diseases in the ROI are the following:

- *Cholera*
- *Bacillary Dysentery (Shigellosis)*
- *Food-poisoning (bacterial other than Salmonella)*
- *Gastroenteritis (when contracted by children under 2 years)*
- *Hepatitis A*
- *Salmonellosis (other than Typhoid or Paratyphoid)*
- *Typhoid and Paratyphoid*

Case definitions are not specified in the legislation.

3.1.2. Enhanced Surveillance System for Verotoxigenic *Escherichia coli* (VTEC O157)

In 1999, NDSC in co-operation with each Health Board in the ROI established an enhanced surveillance system for Verotoxigenic *E. coli* O157:H7 (VTEC O157). SAMOs, area medical officers (AMOs), specialists in public health medicine, clinical microbiologists, medical scientists, surveillance scientists, infection control nurses, principal environmental health officers and environmental health officers participate in a system whereby a standard dataset of information is collected at health board level on each case identified and reported to NDSC (including suspect and probable cases, in addition to confirmed cases). The reporting form includes demographic details, clinical data, possible risk factors, food and travel history, laboratory information (including serotyping and phage typing) and information on links between cases. Case definitions for suspect, probable and confirmed cases are outlined on the reporting form. An initial notification to NDSC is made on the date of notification of the case to the relevant Health Board, and follow-up information is returned when available. Annual reports are produced by NDSC.

3.1.3. National Salmonella Reference Laboratory (NSRL)

In 2000, the National Salmonella Reference Laboratory (NSRL) was established in the Department of Bacteriology at University College Hospital, Galway. Detailed information on *Salmonella* phage typing, molecular typing, and antimicrobial resistance along with demographic details are transferred to NDSC on a monthly and annual basis.

3.1.4. Zoonosis Laboratory Reports (under EU directive)

Under the EU Zoonosis Directive, laboratories are requested to provide their Health Boards with data on organisms causing zoonotic infections, including *Campylobacter*. The following dataset is requested: identifier, date of birth/age, sex, date of notification/onset, health board/county. These data are collected once a year by the Health Boards and are forwarded to NDSC, where they are analysed and compiled into an annual report.

3.1.5. National Outbreak Surveillance System

On initial suspicion of a foodborne outbreak, the NDSC is notified by phone and given basic information. A preliminary outbreak form is completed. Once the outbreak has been investigated, the NDSC staff follow up with the notifier and seek completion of a standardised 'follow-up' outbreak surveillance form, which details numbers ill, sampling, organism identified, vehicle of transmission, route of transmission, etc.

3.2 Northern Ireland

There are four Health and Social Services Boards in NI (Eastern, Northern, Southern and Western). Responsibility for surveillance across Northern Ireland rests with CDSC-NI. Surveillance of foodborne illness is carried out using the following systems:

1. *Notifications of infectious diseases*
2. *Laboratory Reporting Surveillance System*
3. *Enhanced surveillance for E. coli O157*
4. *Surveillance scheme for general outbreaks of infectious intestinal diseases*

3.2.1. Notifiable Diseases Clinical Notifications

The Public Health Act (NI) 1967 states “every Medical Practitioner attending on a person shall, as soon as he becomes aware, or has reasonable grounds for suspecting, that a person is suffering from a notifiable disease, send to a Medical Officer of Health for the area in which the examination took place a certificate stating the name, age, sex, address of patient, the address of the building in which the examination took place and the notifiable disease from which, in the opinion of the Medical Practitioner, the patient is, or may be suffering”.

Weekly summaries of notifiable diseases are made by each Health Board and sent to Department of Health, Social Services and Public Safety (DHSSPS), which forwards them to CDSC-NI. These reports contain only aggregated data of the total numbers for each notifiable disease by Health Board area and not details of age, gender, etc. CDSC-NI produces the ‘Northern Ireland Communicable Disease Monthly Report’, which is distributed to GPs, hospital clinicians, laboratories, environmental health departments and other selected professionals and is published on the CDSC-NI website (www.cdscni.org.uk).

The notifiable diseases in NI, which are potentially foodborne, are the following:

- *Cholera*
- *Dysentery*
- *Food-poisoning (including Salmonella)*
- *Gastroenteritis (persons under two years of age only)*
- *Hepatitis A*
- *Paratyphoid fever*
- *Typhoid fever*

No clinical case definitions are included in the legislation but the UK Health Departments use the following definition of food-poisoning – “any disease of an infectious or toxic nature caused by or thought to be caused by the consumption of food or water”. This definition has been made known to all doctors in NI by the DHSSPS.

3.2.2. Laboratory Reporting Surveillance System

Laboratories submit weekly reports of “significant organisms” to the CDSC-NI. The organisms to be reported are based on a list produced by PHLS (Public Health Laboratory Service) with a few additions agreed with local microbiologists. This facilitates comparison of NI data with England and Wales. The information obtained includes demographic details, date of onset/receipt of specimen, health board, test result, type of specimen and type of test (e.g. culture/serology). The data are entered manually onto a regional database held by CDSC-NI and summary reports are produced on a monthly and annual basis. Laboratory reporting is voluntary, but it is recognised as good professional practice. An electronic reporting system (CoSurv) is in the process of being rolled out to laboratories, which will enable more complete and timely receipt of data at CDSC-NI. By the 31 December 2003, all laboratories (apart from one) will have had this software installed, which is the software package used by the majority of laboratories in England and Wales.

All *Salmonella* spp. and *E. coli* O157 isolated in clinical laboratories in NI are routinely forwarded to the Laboratory of Enteric Pathogens (LEP), Colindale, London for further identification. The resultant phage types are then forwarded by the source laboratory to CDSC-NI. CDSC-NI has phage types on virtually all *Salmonella* and *E. coli* O157 reported in NI since 1990. Some laboratories forward *Campylobacter* isolates to LEP for serotyping. However, this would account for less than 10% of *Campylobacter* samples.

All clinical laboratories in NI routinely examine all faecal specimens for *Campylobacter*, *Salmonella* and *E. coli* O157. The majority of laboratories, but not all, in 2002 routinely examined all faecal specimens for *Cryptosporidium*.

As the UK Food Standards Agency has a target to reduce the number of food poisoning cases arising in the UK by 20%, upon receipt of a *Salmonella* laboratory report, CDSC-NI liaises with each Health Board and determines for each case of *Salmonella* if it is likely to have been acquired within or outside the UK. Resource constraints prevent this from being undertaken for *Campylobacter* infection.

3.2.3 Enhanced Surveillance for *E. coli* O157

Since the mid-1990s Consultants in Communicable Disease Control (CsCDC) have used a common detailed questionnaire when investigating reports of sporadic *E. coli* O157 infection. This contains questions on all likely risk factors. These questionnaires are usually retained at Board level and not routinely forwarded to CDSC-NI.

3.2.4. Surveillance Scheme for general outbreaks of infectious intestinal disease

Outbreak reporting by CsCDC to CDSC-NI is voluntary. A generic outbreak report form is used similar to that used in England and Wales. This describes the type of setting in which the outbreak occurred, the causative organism, the number of people ill, the number positive for the organism and the food vehicle, if known. Details of the type of epidemiological investigation are also requested (descriptive, cohort or case control study). Collated outbreak data are published in CDSC-NI's monthly and annual reports.

3.2.5. Other sources of data

CDSC-NI also receives data on *Salmonella* isolates identified by the veterinary laboratories of the Department of Agriculture and Regional Development (DARD) and pathogens identified from foodstuffs by the Northern Ireland Public Health Laboratory.

4. Foodborne Infections and Gastrointestinal Disease on the Island of Ireland – Analysis of Data for 2002

This section describes the results of the analysis of the 2002 data obtained from NDSC (ROI) and CDSC-NI for the following foodborne diseases/conditions:

1. Food-poisoning (Clinical Notifications)
2. Gastroenteritis (for children under 2 years)
3. Campylobacteriosis
4. Salmonellosis
5. VTEC O157 infection
6. Cholera
7. Bacillary Dysentery
8. Typhoid & Paratyphoid

Data were available and analyses were performed for VTEC O157 and Campylobacter, although these two pathogens are not specified in the list of notifiable diseases.

4.1. Food-poisoning (Clinical Notifications)

Crude incidence rates of food-poisoning

In 2002, 2,983 cases of food-poisoning were notified to NDSC (ROI) and CDSC-NI giving a combined all-island (North/South) incidence rate of 53.2 per 100,000 population. This figure is about one third the corresponding 2002 incidence rates in England and Wales (140/100,000) and in Scotland (152/100,000). As shown in Figure 1, the rates in England & Wales and Scotland have been consistently higher, although the trends were similar.

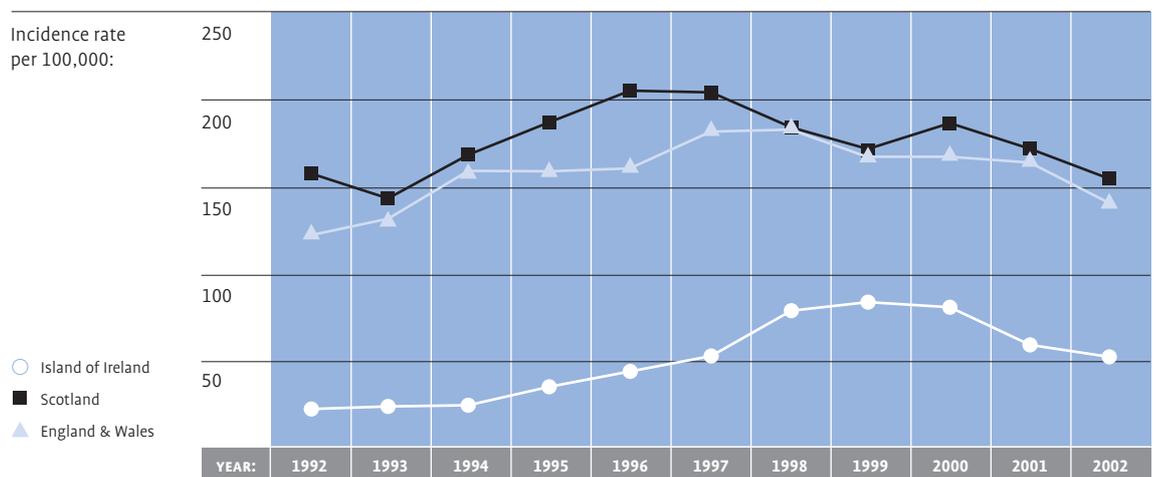


Figure 1. Incidence rate (per 100,000 population) of food-poisoning notifications by year, island of Ireland (Republic of Ireland and Northern Ireland), Scotland and England & Wales, 1992-2002.

Note: Different case definitions are used in each jurisdiction (see Discussion).

In the ROI, 1,763 cases of bacterial food-poisoning were notified to NDSC in 2002. This figure includes 369 *Salmonella* cases that were notified separately from the other 'food-poisoning organisms'. The crude incidence rate was 45 per 100,000 population. In NI, 1,220 cases of food-poisoning were notified during 2002. The corresponding incidence rate was 72.2 per 100,000 population.

Notifications increased by 7% in ROI from 2001 to 2002, while they decreased by 26% in NI for a second year since 2000 and stood at their lowest annual total since 1994 (Figure 2).



Figure 2. Incidence rate (per 100,000 population) of food-poisoning notifications by year, Republic of Ireland (ROI), Northern Ireland (NI) and the island of Ireland, 1990-2002.

The highest rates of food poisoning were reported in quarters 2 and 3 in both jurisdictions (Figure 3).

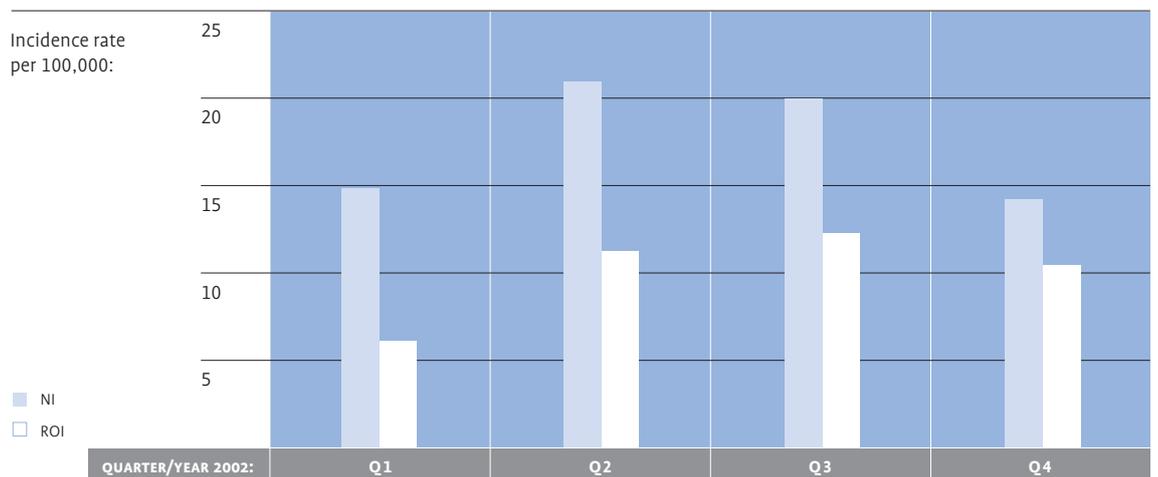


Figure 3. Incidence rate of food-poisoning notifications (per 100,000 population) by quarter, Northern Ireland (NI) and Republic of Ireland (ROI), 2002.

Regional distribution

As in previous years, regional variation was noted in the numbers of cases reported in each Health Board region, with the highest rates in NI and in the South Eastern Health Board (SEHB) of the ROI.

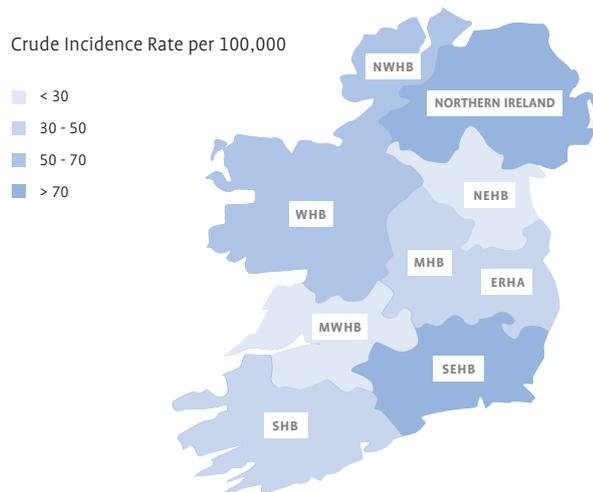


Figure 4. Age-standardised incidence rate of food-poisoning notifications by Health Board in the Republic of Ireland and in Northern Ireland, 2002.

4.2. Gastroenteritis in children under 2 years (Clinical Notifications)

Clinical notifications of gastroenteritis in children aged less than 2 years of age continued to decline in both jurisdictions in 2002, compared to previous years, with 1747 cases (44.6/100,000) notified in ROI and 882 cases (52.2/100,000) reported in NI (Figure 5). The all-island incidence rate for 2002 was 47/100,000.

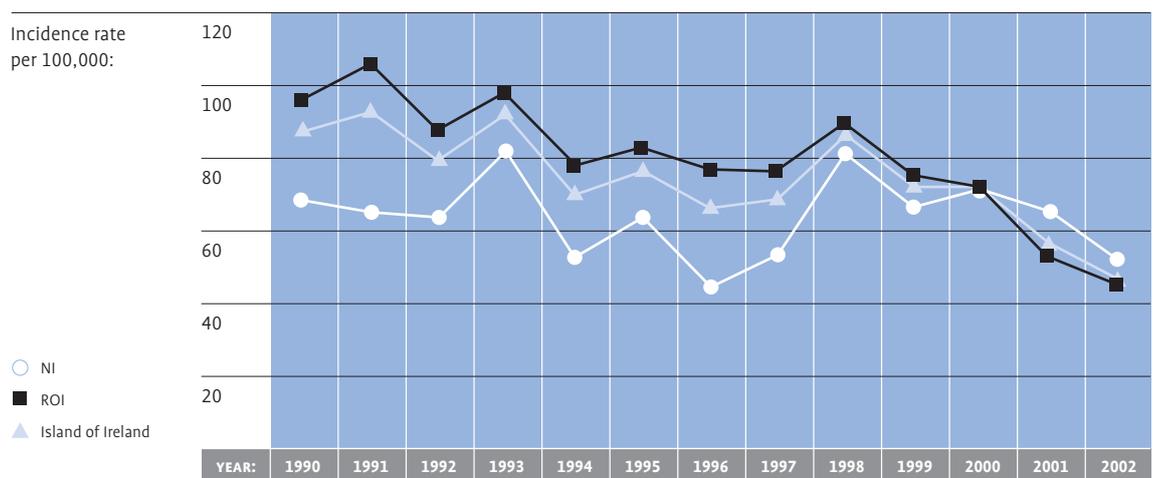


Figure 5. Incidence rate (per 100,000 population) of gastroenteritis (children under 2 years of age) notifications by year, Northern Ireland (NI), Republic of Ireland (ROI) and the island of Ireland, 1990-2002.

4.3. Campylobacteriosis (Laboratory Reports)

Incidence rate of Campylobacter infection

In 2002, as in previous years, *Campylobacter* remained the single most common cause of bacterial gastrointestinal infection reported in both jurisdictions, with 2,153 (38/100,000) laboratory reports on the whole island (over three times more than *Salmonella*). This rate is consistently lower (about 2.5-fold) than the rate observed in England, Wales and Scotland (Figure 6).

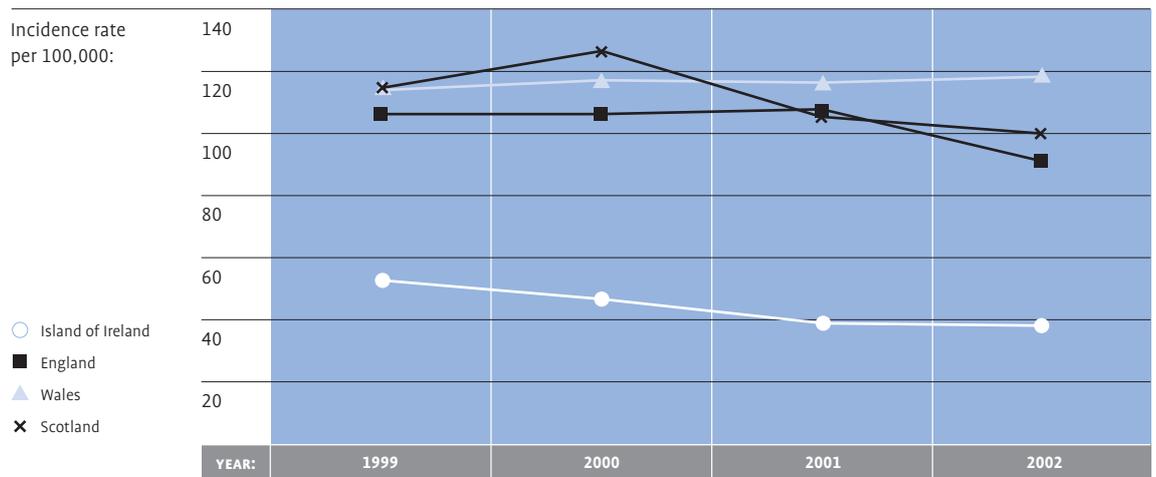


Figure 6. Incidence rate of Campylobacter cases by year, island of Ireland, England, Wales and Scotland, 1999-2002.

Eight hundred and seventeen laboratory reports (48/100,000) were notified to CDSC-NI and 1,336 (34/100,000) to NDSC (ROI). Since 2000, the crude incidence rate has been higher in the north than in the south. Reports have decreased since 2000 in NI (18% reduction between 2000 and 2002). In ROI reports have been decreasing since 1999, but there was a 4% increase in 2002 compared to 2001 (Figure 7). Gender data were available for 2,073 (96%) cases, of which 1,104 were male (53%) and 969 (47%) were female.

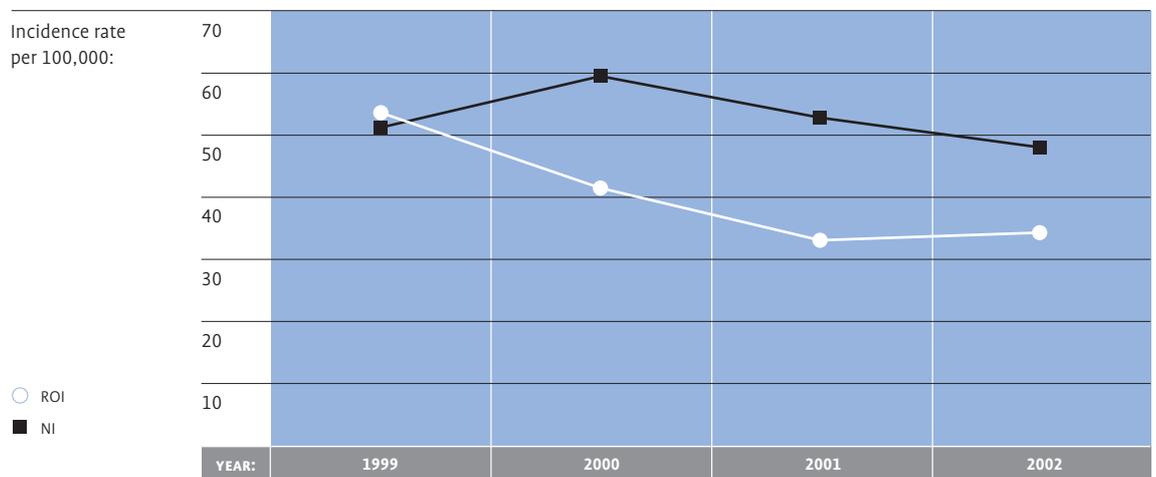


Figure 7. Incidence rate of Campylobacter cases by year, Republic of Ireland (ROI) and Northern Ireland (NI), 1999-2002.

Age distribution

The highest burden of illness was seen in children in the 0-4 year age group (Figure 8). This finding was also reported in previous years and has been documented as a feature of the illness worldwide.

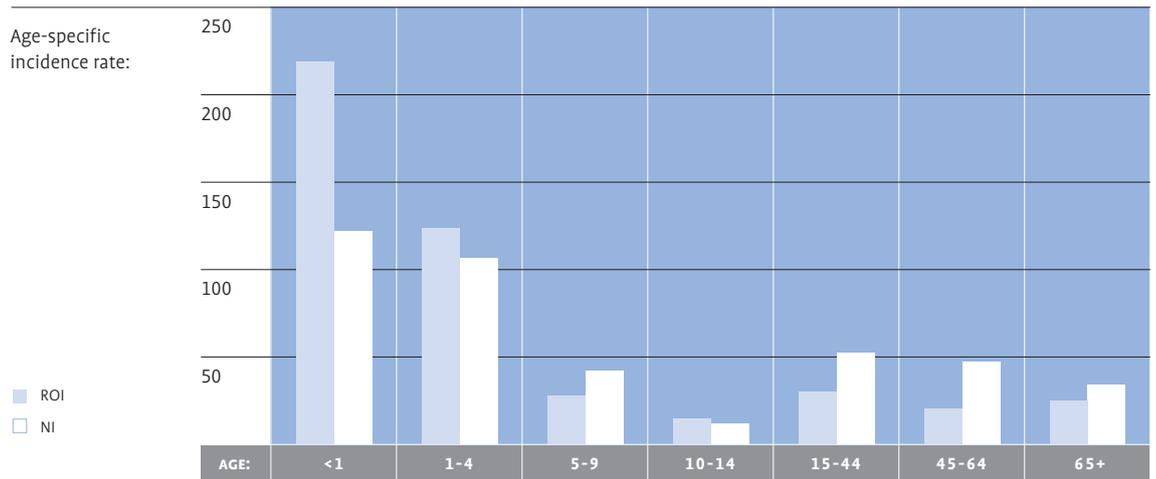


Figure 8. Age specific incidence rate (per 100,000 population) of confirmed cases of campylobacteriosis, Republic of Ireland (ROI) and Northern Ireland (NI), 2002.

Seasonality

On the island of Ireland the peak incidence of campylobacteriosis occurred in the second quarter of 2002 (late spring/early summer). This pattern was observed in previous years as well. It is the same in both jurisdictions (Figure 9), but differs in England, Wales and Scotland, where the majority of cases are reported in the third quarter (of 2002 and of the previous years).

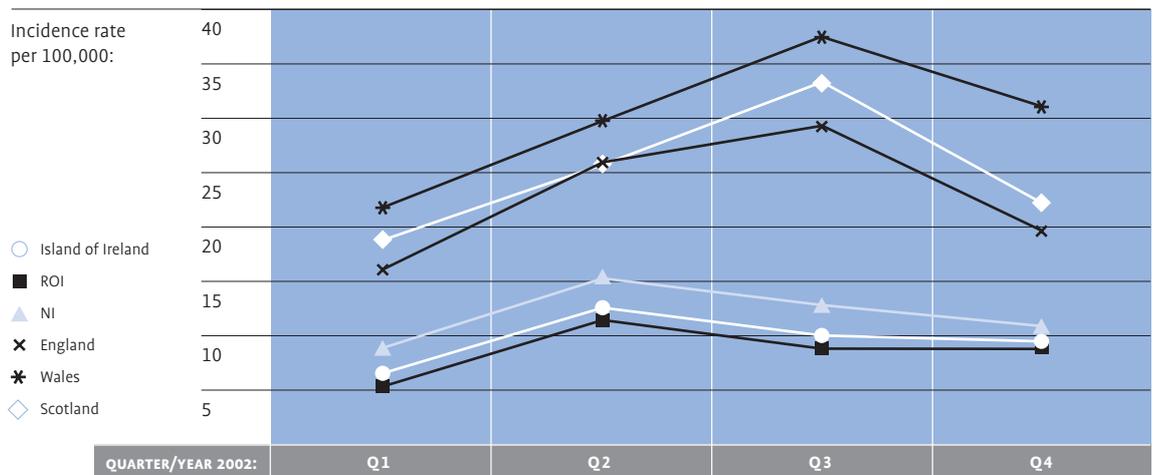


Figure 9. Isolation of *Campylobacter* by quarter, island of Ireland, Republic of Ireland (ROI), Northern Ireland (NI), England, Wales and Scotland, 2002.

Note: The quarter refers to the date of onset of illness in ROI and to the date the specimen was received from the laboratory in the UK.

Species of *Campylobacter*

The most common species isolated was *Campylobacter jejuni* (27%), followed by *Campylobacter coli* (2%), but 70% (84% in NI and 62% in ROI) of isolates were not speciated (Table 1). This was also observed in previous years.

Table 1: Number (%) of *Campylobacter* species reported, Northern Ireland (NI), Republic of Ireland (ROI) and island of Ireland, 2002.

Species	No. of isolates (%)		
	NI	ROI	Ireland (all-island)
<i>C.jejuni</i>	119 (15)	466 (35)	585 (27)
<i>C.coli</i>	14 (2)	36 (3)	50 (2)
<i>C.lari</i>	0 (0)	4 (0.3)	4 (0.2)
Not speciated	684 (84)	830 (62)	1514 (70)
Total	817 (100)	1336 (100)	2153 (100)

Outbreaks of *Campylobacter*

There was only one outbreak of *Campylobacter jejuni* reported in the ERHA region of ROI. It affected 7 people and was linked to a restaurant. The vehicle of infection has never been reported. There were no reported outbreaks of campylobacteriosis in NI in 2002. Outbreaks of *Campylobacter* infection are rare and the majority of cases worldwide are sporadic.

4.4. Salmonellosis

Crude incidence rate of *Salmonella* infection

There were 664 laboratory-confirmed cases of salmonellosis on the island of Ireland during 2002, giving an incidence rate of 12 per 100,000 population. The incidence rates of laboratory-confirmed human salmonellosis have declined in the past few years. This has coincided with an overall decrease in the incidence of salmonellosis in both England & Wales and Scotland (Figure 10).

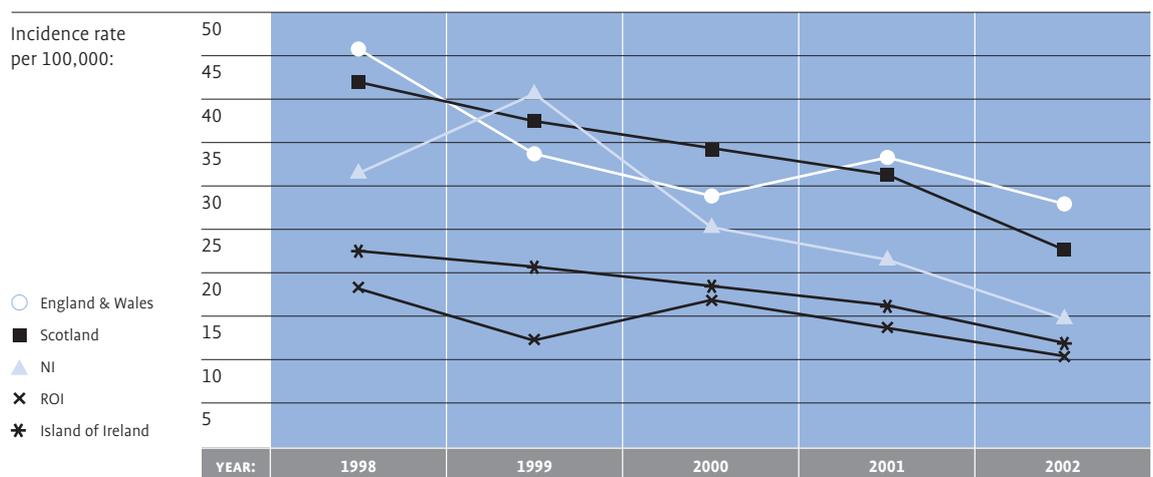


Figure 10. Incidence rates of salmonellosis (per 100,000 population) by year, England & Wales, Scotland, Northern Ireland (NI), Republic of Ireland (ROI) and island of Ireland, 1998-2002.

Note: 2001 and 2002 data for England & Wales are provisional.

Four hundred and eleven cases of salmonellosis (excluding *S.Typhi*) were reported from the NSRL to NDSC in ROI during 2002, while 253 cases were reported to CDSC-NI. The corresponding crude incidence rates were 10.4 (ROI) and 14.9 (NI). The male:female ratio was 1.1:1 in ROI and 1.2:1 in NI. The incidence rates peaked in 1998 in ROI and in 1999 in NI and since then they have been dropping steadily.

Age distribution

The highest incidence rate was recorded in young children (Figure 11). The pattern was similar in both jurisdictions. Twenty-three per cent of cases (93/411) in ROI and 15% (37/253) in NI occurred in the 0 to 4 year age group.

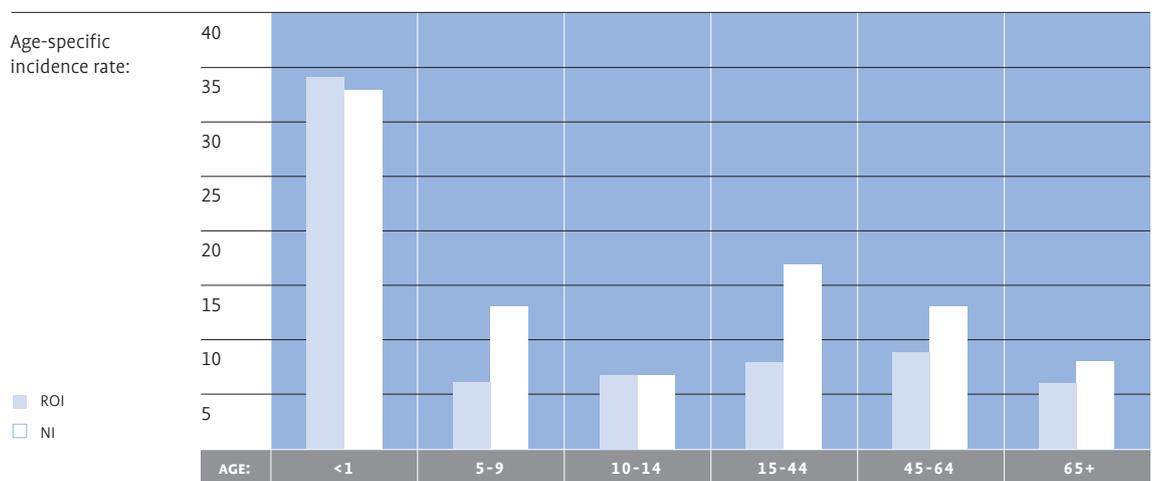


Figure 11. Age-specific incidence rate (per 100,000 population) of confirmed cases of salmonellosis, Republic of Ireland (ROI) and Northern Ireland (NI), 2002.

Regional distribution

The highest rates of salmonellosis in 2002 were reported in the north of the island, in the North-Western Health Board (NWHB) of ROI and in NI (Figure 12).

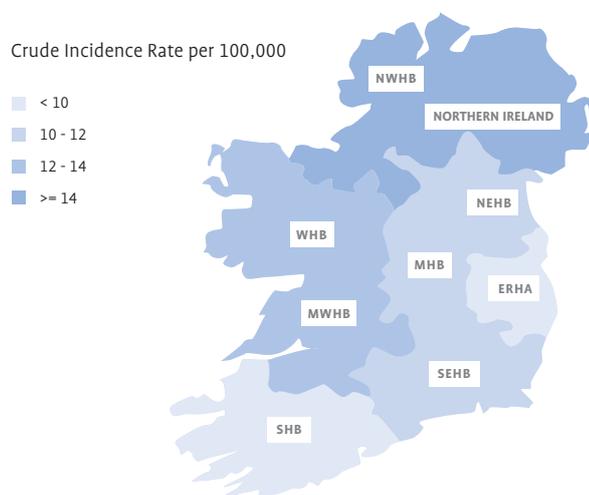


Figure 12. Age-standardised incidence rate of Salmonella infections by Health Board in the Republic of Ireland and in Northern Ireland, 2002.

Seasonal distribution

There was a marked seasonality in the number of human cases reported in 2002 with a peak seen in both July and October in ROI and in July and September in NI (Figure 13). The month refers to the date the isolate was received in the reference laboratory for ROI, while for NI it refers to the date the isolate was received in the local hospital laboratory.

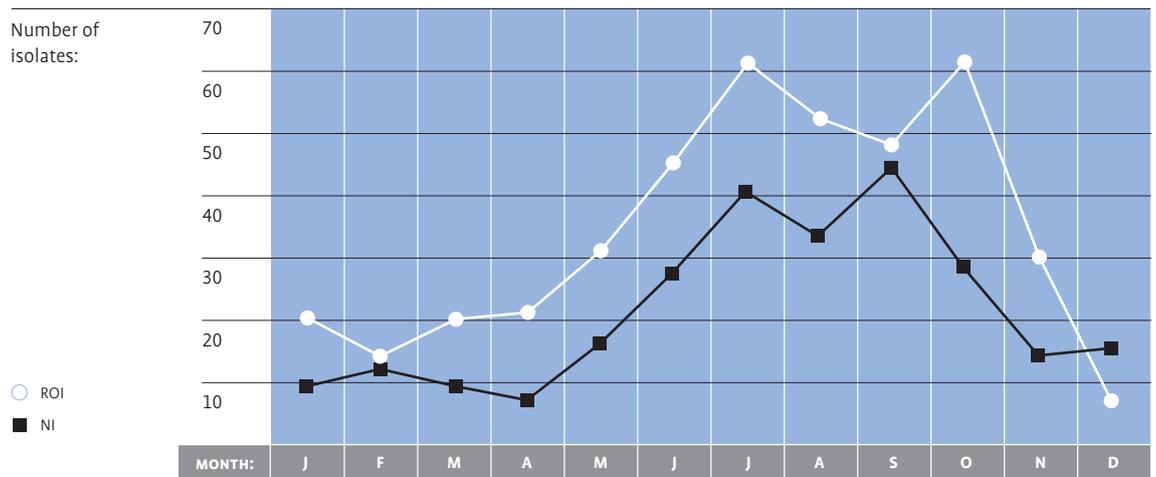


Figure 13. Isolation of *Salmonella* spp. by month, Republic of Ireland (ROI) and Northern Ireland, 2002.

Serotypes

In both jurisdictions, *S. Enteritidis* was the predominant serotype associated with human salmonellosis, followed by *S. Typhimurium*. Together *S. Enteritidis* and *S. Typhimurium* serotypes accounted for approximately 74% of all *Salmonella* isolates in 2002 in ROI and 67% in NI (Figure 14 and Table 2). The next most commonly isolated serotypes accounted for very small numbers. This trend has also been observed in the rest of Europe with *S. Enteritidis* being the commonest type.

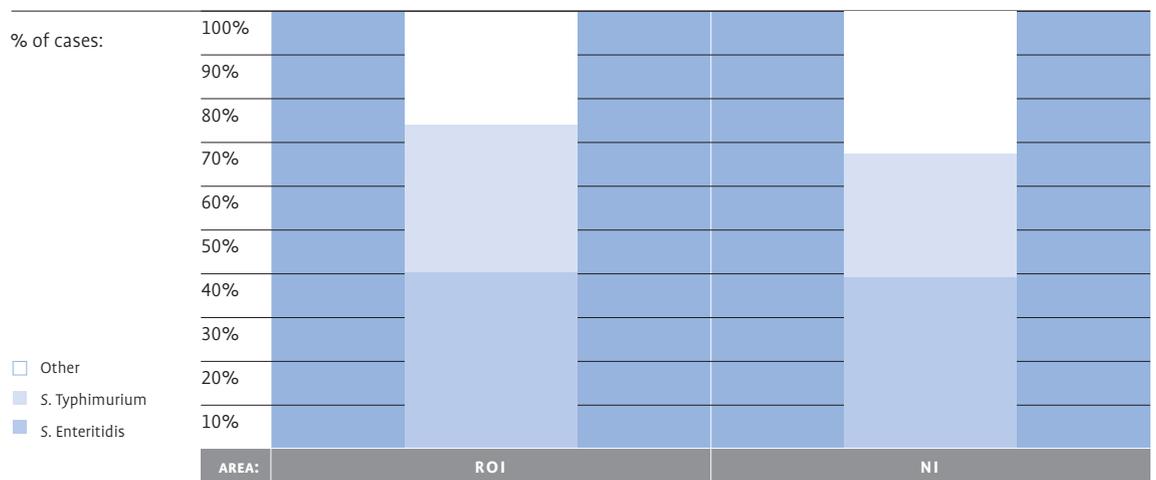


Figure 14. Serotyping of *Salmonella* spp., Republic of Ireland (ROI) and Northern Ireland (NI), 2002.

Table 2. Number (%) of serotypes of *Salmonella enterica*, Republic of Ireland (ROI), Northern Ireland (NI) and island of Ireland, 2002.

Serotype	ROI	NI	Island of Ireland
	No. (%)	No. (%)	No. (%)
S. Enteritidis	165 (40)	99 (39)	264 (40)
S. Typhimurium	140 (34)	71 (28)	211 (31)
S. Virchow	10 (2)	5 (2)	15 (2)
S. Dublin	9 (2)	1 (0.4)	10 (2)
S. Stanley	7 (2)	0	7 (1)
S. Hadar	6 (1)	3 (1)	9 (1)
S. Kottbus	6 (1)	0	6 (1)
S. Agona	5 (1)	2 (1)	7 (1)
S. Newport	5 (1)	2 (1)	7 (1)
S. Montevideo	0	4 (2)	4 (0.6)
S. Infantis	3 (1)	3 (1)	6 (0.9)
S. Mbandaka	3 (1)	0	3 (0.4)
S. Ohio	3 (1)	0	3 (0.4)
S. Putten	3 (1)	0	3 (0.4)
S. Brandenburg	3 (1)	1 (0.4)	4 (0.6)
S. Java	3 (1)	0	3 (0.4)
S. Bredeney	2 (0.5)	1 (0.4)	3 (0.4)
S. Braenderup	2 (0.5)	3 (1)	5 (0.7)
S. Heidelberg	2 (0.5)	0	2 (0.3)
S. Durban	2 (0.5)	0	2 (0.3)
S. Give	2 (0.5)	1 (0.4)	3 (0.4)
S. Panama	2 (0.5)	2 (1)	4 (0.6)
S. Poona	2 (0.5)	/	2 (0.3)
S. Senftenberg	2 (0.5)	2 (1)	4 (0.6)
All other serotypes	24 (6)	53 (21)	77 (12)
Total	411	253	664

There has been a downward trend in the two predominant *Salmonella* serotypes isolated as well as in the total number of *Salmonella* isolations on the island of Ireland (Figure 15).

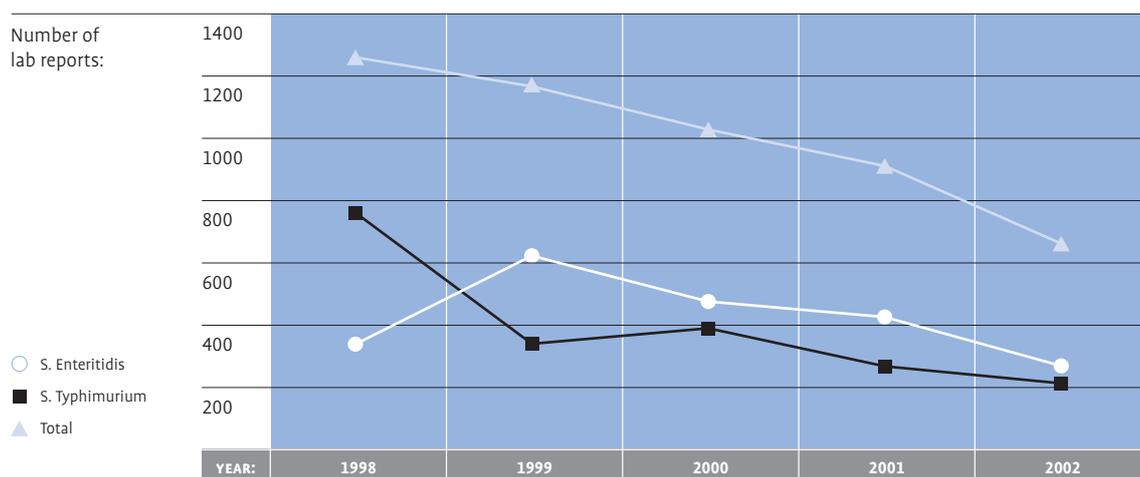


Figure 15. Laboratory reports of *Salmonella*, island of Ireland, 1998-2002.

Phage types

The most frequently isolated phage type (PT) of *S. Enteritidis* in the island of Ireland was PT1 accounting for 29% of *S. Enteritidis* isolates (Table 3), followed by PT4 (25%). In NI, PT4 remained the most common phage type (32%), although it has declined consistently over the past four years (a three-fold reduction since 2001).

Table 3. Number (%) of *Salmonella Enteritidis* phage types reported, island of Ireland, 2002.

	PT1	PT4	PT6	PT6A	PT14B	PT21	PT8	Others*	Total
ROI	54 (33)	35 (21)	16 (10)	9 (5)	8 (5)	5 (3)	12 (7)	26 (16)	165
NI	22 (22)	32 (32)	4 (4)	9 (9)	2 (2)	3 (3)	4 (4)	23 (23)	99
All-island	76 (29)	67 (25)	20 (8)	18 (7)	10 (4)	8 (3)	16 (6)	49 (19)	264

*Others include not specified.

The most frequently isolated phage types of *S. Typhimurium* were similar in NI and the ROI. Thirty four percent of *S. Typhimurium* isolates on the island of Ireland in 2002 were definitive type (DT) 104 B (Table 4). DT 104 which used to be the most common isolate over the past years, accounted for 20% of the *S. Typhimurium* isolates.

Table 4. Number (%) of *Salmonella Typhimurium* definitive types reported, Republic of Ireland (ROI), Northern Ireland (NI) and island of Ireland, 2002.

	DT 104 B	DT 104	DT 193	DT 12	DT 208	Others*	Total
ROI	53 (38)	27 (19)	16 (11)	6 (4)	3 (2)	35 (25)	140
NI	18 (25)	16 (23)	4 (6)	2 (3)	1 (1)	30 (42)	71
All-island	71 (34)	43 (20)	20 (9)	8 (4)	4 (2)	65 (31)	211

*Others include not specified.

Travel history

Of the 664 *Salmonella* cases reported on the island of Ireland, 161 (24%) were travel-associated. In ROI, 81 (20%) cases were identified as acquired abroad while in NI 80 (32%) cases are thought to have been acquired abroad, i.e. outside the UK in the case of NI (Figure 16). The majority of all-island travel-associated cases were associated with travel to Spain and the serotype most commonly linked with Spain was *S. Enteritidis*.

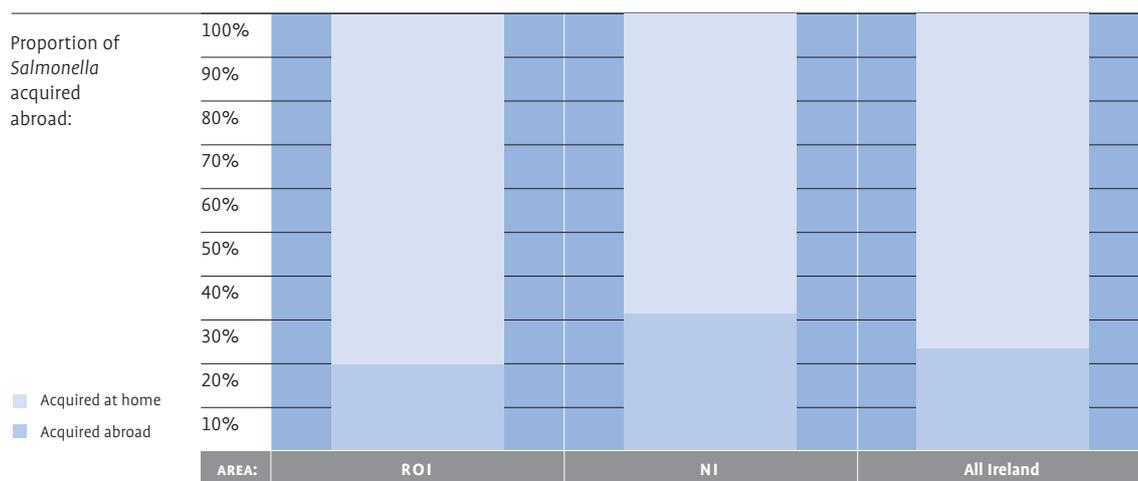


Figure 16. Proportion of laboratory reports of *Salmonella* infection acquired abroad, Republic of Ireland (ROI), Northern Ireland (NI) and island of Ireland, 2002.

Outbreaks

During 2002, NDSC was made aware of eight outbreaks of salmonellosis affecting a total of twenty-eight people. Five of these were family outbreaks and three were general outbreaks. All the general outbreaks occurred in healthcare settings – two in hospitals and one in a residential institution. There were no *Salmonella* outbreaks reported by CDSC-NI.

4.5. VTEC O157

Crude incidence rates of VTEC O157

The total number of confirmed VTEC O157 cases notified in Ireland (all-island) in 2002 was 97, giving an incidence rate of 1.7 per 100,000 population (Figure 17). This rate was higher than in England & Wales (1.1/100,000). Much higher (about three-fold) rates have consistently been reported for Scotland (4.5/100,000). The Scottish peak in 1996 was due to an outbreak in Lanarkshire.

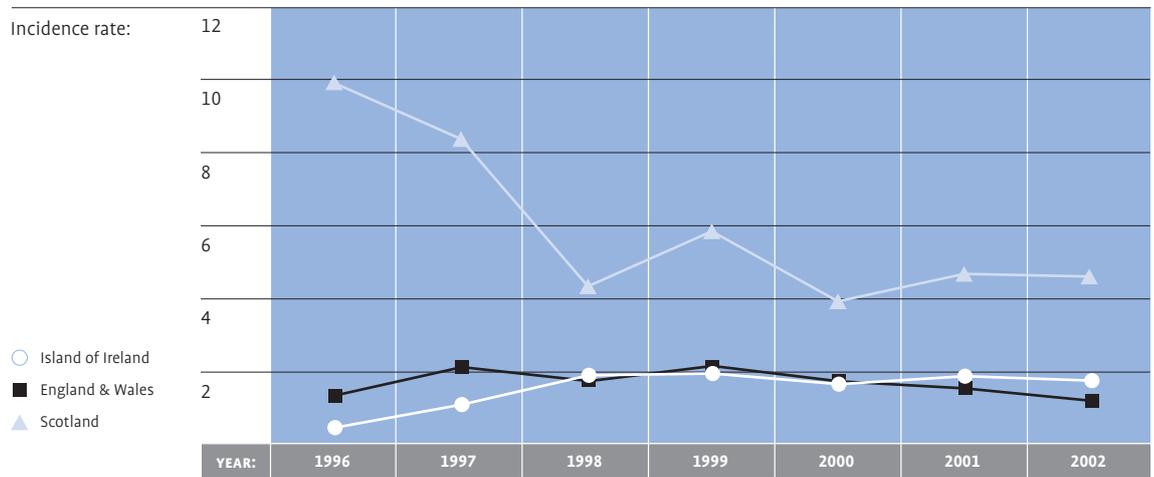


Figure 17. Incidence rate of VTEC O157 cases by year, island of Ireland, England & Wales and Scotland, 1996-2002.

Seventy confirmed cases of VTEC O157 were notified to NDSC in ROI during 2002 (two of these cases were non-residents, and therefore were not included in the estimation of population-based rates) giving a crude incidence rate of 1.7 per 100,000 population, the highest rate recorded since 1998³ (Figure 18).

In NI, there were 27 laboratory reports of *E. coli* O157 giving a crude incidence rate of 1.6 per 100,000 population (Figure 18). These reports have almost halved compared to reports in the previous three years and the rate was the lowest since 1997. This was partly due to the fact that there were no reported outbreaks in 2002. All of the O157 isolates in NI were verotoxin-producing, i.e. were VTEC O157.

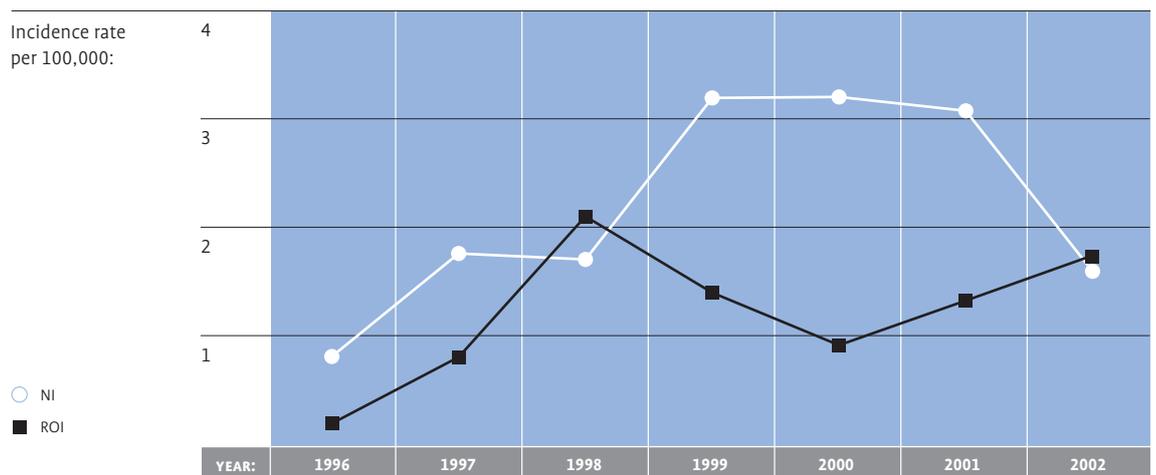


Figure 18. Incidence rate of VTEC O157 cases by year, Northern Ireland (NI) and the Republic of Ireland (ROI), 1996-2002.

Note: Data for the Republic of Ireland for the years 1996-1999 were taken from the report of the FSAI VTEC Working Group.⁴

Age distribution

The highest incidence rate was recorded in children under 5 years of age in both jurisdictions (Figure 19), a trend that was also observed in previous years. Thirty seven per cent of cases (26/70) occurred in the 0 to 4 age group in ROI and 26% (7/27) in NI, giving an average figure of 36% for the whole island.

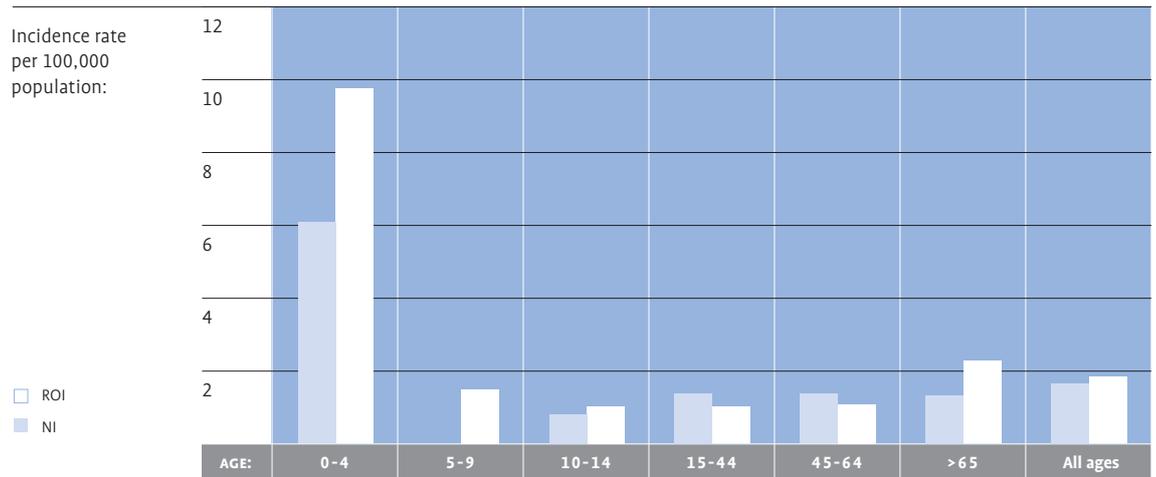


Figure 19. Age-specific incidence rates of VTEC O157 (per 100,000 population), Northern Ireland (NI) and Republic of Ireland (ROI), 2002.

Seasonality of VTEC O157 cases

The majority of cases in 2002 occurred in late summer with a peak in August in both jurisdictions (Figure 20).

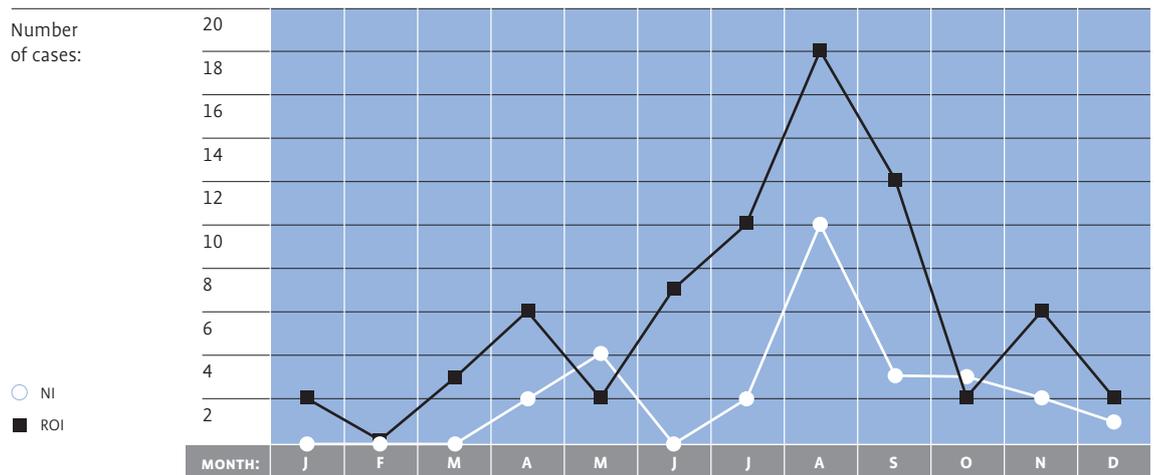


Figure 20. Number of cases of VTEC O157 by month of onset of symptoms or by month of laboratory reporting, Northern Ireland (NI) and Republic of Ireland (ROI), 2002.

The seasonal pattern observed on the island of Ireland is similar to that seen in England, Wales and Scotland, with the majority of cases occurring in the third quarter of each year (Figure 21).

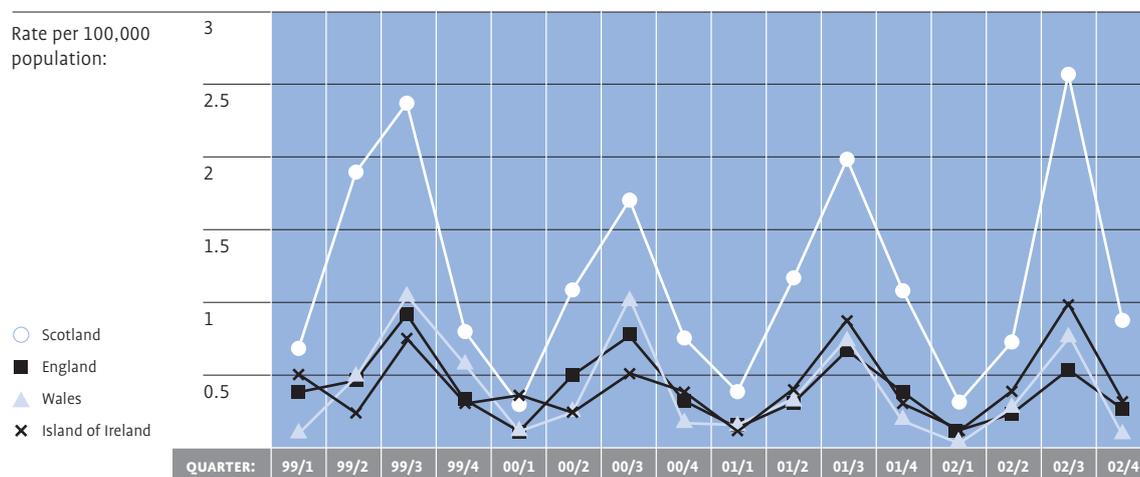


Figure 21. Incidence rate (per 100,000 population) of VTEC O157 by quarter, Scotland, England, Wales and island of Ireland, 1999-2002. Note: Rates for England, Wales and Scotland are calculated using the census mid-population estimates for each year, while for the island of Ireland population data from 2001 census for NI and 2002 census for ROI are used.

Outbreaks of VTEC O157

There were 14 family outbreaks of VTEC O157 in ROI affecting 29 people, but no links were found with any food or water source. No general or family outbreaks of VTEC O157 were reported in NI during 2002.

4.6. Cholera

In 2002, two cases of cholera were reported on the island of Ireland. One case (clinical notification) was notified to NDSC. Laboratory tests in ROI identified *Vibrio cholerae* serogroup O1, biotype El Tor, serotype Ogawa as the causative organism. The infection was acquired in Bangladesh. The case in NI (identified from a laboratory report) was a female aged between 54 and 60 years old, but her travel history is not known.

4.7. Bacillary Dysentery (Shigellosis)

Thirty-three cases (0.6/100,000) of bacillary dysentery were notified in 2002 to the two surveillance centres (NDSC and CDSC-NI) through the clinical notification systems. Seven of these were reported in NI, where there was a three-fold reduction in the number of isolates in 2002 compared to 2001. In ROI, the figures for the two years were similar (i.e. 26 cases in 2002 versus 28 cases in 2001). Twenty six percent of cases on the island of Ireland in 2002 occurred in those less than 20 years of age, while 52% of all cases were aged between 20 and 34 years. Twenty-three cases (70%) were female; ten cases (30%) were male. Fifteen isolates (45%) were *Shigella sonnei*, five (15%) were *Shigella boydii*, five (15%) were *Shigella flexneri*. No species was reported for the other eight cases.

4.8. Typhoid and Paratyphoid

Eight cases of typhoid were notified on the island of Ireland in 2002 through the clinical notification systems, five in ROI and three in NI. The country of infection was reported for four of the cases notified in ROI: India, Nigeria, Pakistan and the Philippines.

There was only one case of paratyphoid fever in NI (one female over 65 years of age). The isolate identified was *S. Paratyphi* B phage type (PT) Taunton var 1.

5. Discussion, Conclusions and Recommendations

Food-poisoning clinical notifications

The crude incidence rate of food-poisoning in NI appears to be higher than that of the ROI. This might reflect a true difference in incidence or it could be an artefact due to the fact that:

1. Food-poisoning is defined differently for the purpose of notifications in the two jurisdictions. In ROI, food-poisoning includes disease caused by bacterial pathogens only (other than Salmonella), while NI uses the UK case definition, which includes a broader spectrum of causative agents like viruses, parasites and toxins. The UK food-poisoning definition also includes water as a vehicle of infection. Besides, salmonellosis is a separate statutory notifiable disease in ROI and therefore it is not classified in the 'food-poisoning' category. However, for the calculation of the food-poisoning rate of ROI in this report, the Salmonella notifications were added to the clinical notifications.
2. General Practitioner (GP) service is free in the UK while it is not free in ROI, and this could affect the number of people presenting to the GP, especially with mild illness. This could also apply to notifications of all the other diseases/pathogens. However, a recent survey has shown that the consultation rates do not differ significantly between the two jurisdictions⁵.

Case-based data (with information on age, gender, date of onset of illness and organism) are collected in ROI, thus allowing more detailed weekly analysis. In NI, only aggregate reports on the number of clinical notifications are provided to CDSC-NI (Figure 22), but weekly laboratory reports on individual causative organisms are collected instead. In ROI, 94% of the food-poisoning clinical notifications in 2002 contained the specific causative organism (i.e. the causative organism was not reported for only 6% of the 'clinical cases'). This means that the majority of clinical notifications (although they were obtained from clinicians) were either laboratory-confirmed, or epidemiologically linked to a laboratory confirmed case (e.g. in an outbreak).

It is important to highlight that the patterns of information flow differ for both ROI and NI. Clinical notifications are forwarded directly to NDSC from the health boards in ROI, while in NI health boards send their data to the DHSSPS in Belfast, which is responsible for providing the aggregated reports to CDSC-NI.

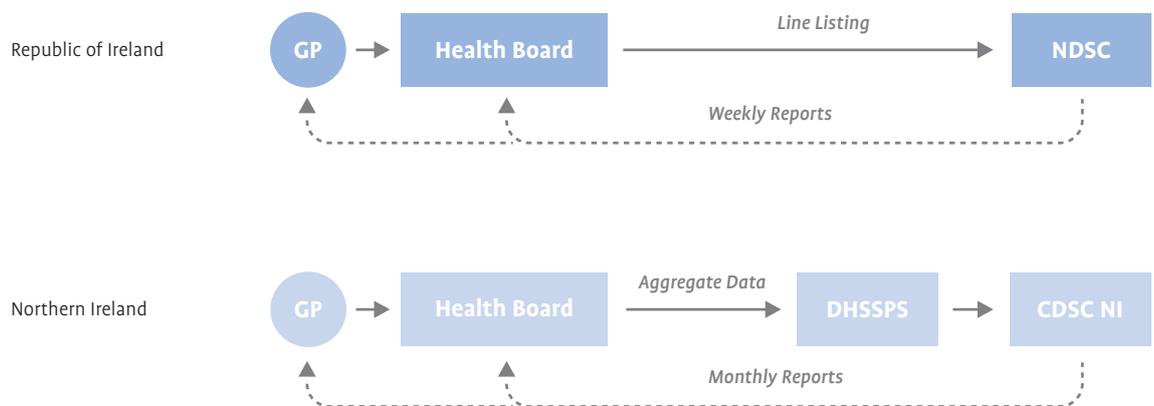


Figure 22. Information flow for clinical food-poisoning notifications, Republic of Ireland and Northern Ireland.

With regards to providing feedback, weekly reports are disseminated to the data providers in ROI while monthly summaries are provided in NI.

As is commonly observed, reporting from clinical notifiers was less complete than laboratory reporting in both jurisdictions as demonstrated in the 2002 data by the discrepancy between the number of laboratory notifications and the smaller number of corresponding clinical notifications. More clinical notifications would be expected as these may include suspected cases, e.g. epidemiologically linked cases from which no clinical specimens were taken.

Campylobacter

As mentioned before, *Campylobacter* is by far the most common bacterial cause of laboratory-confirmed food-poisoning and gastrointestinal infection in both jurisdictions. Although an important public health burden, campylobacteriosis is not individually notifiable and laboratory reporting is not obligatory. Different sources of information are used in the two jurisdictions.

In NI, surveillance is based on weekly laboratory reports (similar to the other pathogens), while in ROI there are two sources of information on *Campylobacter*: National Infectious Disease Notification System (weekly) and Zoonosis laboratory reports (once a year). In other words, NI laboratory reports come in weekly, while ROI national laboratory data are not available on a weekly or even monthly basis, but only on an annual basis and weekly collation and analysis is performed using the clinical food-poisoning notifications. Currently, there is no national *Campylobacter* reference laboratory in ROI.

The data analysed in this report were obtained from the yearly database of Zoonosis laboratory reports in ROI and the weekly laboratory reports in NI.

Salmonella

The incidence of salmonellosis in 2002 (as in previous years) was lower in ROI than in Northern Ireland, England, Wales and Scotland. It is difficult to determine if this reflects a true difference in incidence or a difference in ascertainment.

Differences appear in the two surveillance systems regarding *Salmonella*. In ROI, salmonellosis is a separate notifiable disease by law, while in NI it is not on the list of notifiable diseases, but is included in the food-poisoning category.

Different sources of information are used in the two jurisdictions (Figure 23). In NI, surveillance is strictly based on weekly laboratory reports, while in ROI there are currently two parallel sources of information for *Salmonella*: clinical notifications (WANDA) on a weekly basis and reference laboratory data (NSRL) reported to NDSC on a monthly and also on an annual basis (line-listing).

The data used for this report were obtained only from laboratory reports from both surveillance centres (hospital laboratories in NI and the reference laboratory (NSRL) in ROI) and therefore could be analysed together.

The reporting forms are also different, with only 75% of the data fields that are collected and analysed common to both systems, e.g. there is more information on antimicrobial resistance in ROI.

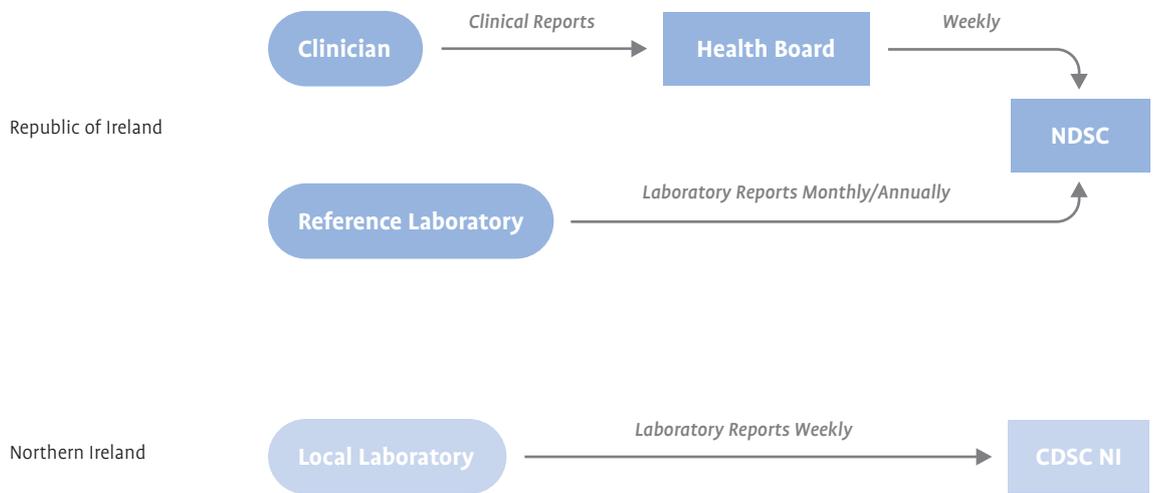


Figure 23. Information flow for Salmonella notifications, Republic of Ireland and Northern Ireland.

As mentioned before, laboratory reporting appears to be more complete, as demonstrated in the 2002 ROI data by the discrepancy between the number of reference laboratory reports (411) and the smaller number of clinical notifications of *Salmonella* (369).

VTEC O157

The incidence of VTEC O157 in 2002 did not differ significantly compared to 2001 on an all-island basis and the rates were for the first time similar in both jurisdictions. However, the two jurisdictions have different approaches with respect to their *E. coli* surveillance systems. ROI uses ‘enhanced surveillance’ requesting additional information on all cases of verotoxin-producing *E. coli* (VTEC O157). Public health doctors report all the new cases to NDSC initially on the date of notification and send all completed enhanced forms at a later stage. These forms include laboratory information. In NI, the system is strictly laboratory-based for *E. coli* O157 and laboratories report directly to CDSC-NI on a weekly basis. The reporting forms differ, with only 70% of the data fields (that are collected and analysed) common to both systems. There is more information on risk factors in the enhanced forms in ROI, while information on food and travel history is not collected at CDSC-NI, but is retained at health board level. In addition, in NI, surveillance refers to all types of *E. coli* O157 (even the non-verotoxin-producing serotypes), while in ROI data are collected and analysed only for verotoxin-producing *E. coli* (VTEC O157) and occasionally for non-O157 VTEC subtypes (ROI is considering extending its enhanced surveillance to all non-O157 VTEC subtypes).

Conclusions

On the island of Ireland there was a decline in 2002 compared to 2001 in clinical notifications of food-poisoning and gastroenteritis in children under 2 years and in laboratory reports of *Salmonella* and VTEC O157. The incidence of *Campylobacter* infection remained similar to 2001.

The incidence rates of food-poisoning notifications, and *Salmonella* and *Campylobacter* laboratory reports on the island of Ireland have been consistently lower than the corresponding rates in England, Wales and Scotland. This could be due to under-reporting or might reflect a true difference.

NI appears to have higher incidences of food-poisoning, gastroenteritis contracted by children under 2 years, salmonellosis and campylobacteriosis than ROI, but this could be due to artefacts resulting from the differences in the two surveillance systems.

The analysis of the 2002 datasets from the two surveillance centres helped to highlight some similarities, deficiencies and differences between the two systems. These include:

- *The lists of notifiable diseases in the two jurisdictions are similar, but not the same, e.g. salmonellosis is an individually notifiable disease in ROI, while it is included in the general ‘food-poisoning’ category in NI.*
- *In both systems, none of the notifiable diseases are associated with specific case definitions in the legislation. Clinical notification food-poisoning definitions differ in the two jurisdictions (i.e. they include a different spectrum of organisms).*
- *There is wide laboratory reporting to CDSC-NI for all ‘significant’ organisms causing food-poisoning and gastrointestinal disease, while nationwide laboratory reporting to NDSC is limited to just two organisms, Salmonella and Campylobacter.*
- *In ROI, there are currently no national guidelines for the standardisation of laboratory practices. In NI, laboratories are asked to follow the Health Protection Agency’s (HPA) standard operating procedures.*
- *Data on some organisms, such as Clostridium difficile, viruses (i.e. Norovirus) and parasites (Giardia, Cryptosporidium, etc.), are available only for those under 2 years of age in NDSC (through the clinical notifications of gastroenteritis under 2 years), while data on all ages are provided to CDSC-NI through laboratory reports of these organisms.*
- *Data on age and sex for clinical notifications are not collected and analysed centrally in Northern Ireland. Consequently, analysis of clinical notifications is limited to the numbers of notifications only. In depth analysis of clinical notification data is essential to monitor trends and alert for changes over time, place and person.*
- *At the moment, clinical notifications at national level cannot be linked to data coming from laboratories or other sources in either system.*
- *The reporting forms are not standardised between the two systems, or even between health boards and laboratories within each system.*
- *The patterns of information flow differ for NI and ROI (Figures 22 and 23).*

Recommendations

In order to achieve harmonisation of the two surveillance systems on the island of Ireland the following should be considered:

- *The lists of notifiable diseases should be the same. The current lists of notifiable diseases may not reflect the current public health needs and their revision should be considered. Important individual pathogens (e.g. Campylobacter, Cryptosporidium, and Listeria) should become notifiable. This would increase awareness of the infections they cause and allow for better understanding of their epidemiology and public health burden. In ROI, a sub-committee of the NDSC scientific advisory committee⁶ was established at the request of the Department of Health and Children to review the list of notifiable diseases and to make recommendations regarding additions or amendments to the current list. The changes will become effective from January 2004 (Infectious Diseases (Amendment) (No.3) Regulations 2003, S.I. No. 707 of 2003). In NI, individual organisms are reported weekly from the laboratories, although they are not specified in the list of notifiable diseases.*
- *Common case definitions should be used in both jurisdictions. A decision of the European Parliament (Decision No 2000/96/EC) states that for the purpose of submitting data for the epidemiological surveillance and control of communicable diseases (as set out in Decision No 2119/98/EC) member states shall apply specific case definitions, which have been devised centrally with input from member states. Both jurisdictions should follow this recommendation. Case definitions compatible with those used within the European Union states would facilitate the notification process and enhance the comparability of data coming from the different surveillance systems.*
- *The notification forms should be standardised and a minimum common dataset for each disease/organism should be established between the two jurisdictions. This would assist uniformity of notifying practices across the island.*
- *Laboratory reporting should become statutory. This would facilitate more complete reporting of information. Laboratory notifications are essential for diseases whose definitive diagnoses require laboratory confirmation and laboratories are one of the most valuable sources of information on infectious diseases that require public health action. It is hoped that laboratory reporting will be introduced in ROI in 2004.*
- *Common guidelines (e.g. the HPA guidelines) should be promoted so as to move towards standardisation of laboratory practice throughout the island.*
- *Line-listings of clinical notification data (with minimum information on age and sex) should be provided centrally to CDSC-NI, for data analysis at central level.*
- *Clinical notifications should be linked to data coming from laboratories or other sources. Data linkage will assist in removal of duplicates, complement missing information, and enhance the completeness of data obtained from different sources. This will be facilitated by the development of electronic reporting systems.*
- *At the moment, both surveillance centres are in the process of developing electronic reporting systems. There is still potential for future joint collaboration and sharing of expertise in the design of these systems. It is essential the systems in use in the different jurisdictions have common core data fields and are capable of information exchange.*

Enhanced collaboration that incorporates the strengths of the two surveillance systems and harmonisation of their reporting mechanisms would contribute to a more complete and efficient food safety system on an all-island basis.

NOTE: The new legislation on national infectious diseases that came into operation in the ROI on 1 January 2004 encompasses many of the above-mentioned recommendations.

References

1. *Functional Meeting Group on Disease Surveillance (2002) Towards the Enhancement of Foodborne Disease Surveillance: A Consultation Paper.* Food Safety Promotion Board, Cork.
2. Grein, T. (1996) *The Eastern Health Board Notifiable Diseases Surveillance System (NDSS), Evaluation Report, Dublin.*
3. Garvey P, Foley B and McKeown P. (2003) *Epidemiology of Verotoxigenic E. coli O157 in Ireland. Epi-Insight 4(6):2-3.* Available at: <http://www.ndsc.ie/Publications/EPI-Insight/2003Issues/d740.PDF>
4. *VTEC Working Group (1999) The prevention of E. coli O157:H7 infection: a shared responsibility.* Food Safety Authority of Ireland, Dublin.
5. *Food Safety Promotion Board (2003) Acute Gastroenteritis in Ireland, North and South: a Telephone Survey.*
6. *Notifiable Diseases Sub-committee of the Scientific Advisory Committee (2002) Review of Notifiable Diseases and the Process of Notification.* National Disease Surveillance Centre, Dublin.

Abbreviations

AMO	Area Medical Officer
CDSC	Communicable Disease Surveillance Centre, England
CDSC-NI	Communicable Disease Surveillance Centre, Northern Ireland
CsCDC	Consultants in Communicable Disease Control
DARDNI	Department of Agriculture and Rural Development, Northern Ireland
DHSSPS	Department of Health, Social Services and Public Safety
DsPH	Directors of Public Health
DT	Definitive type
EPIET	European Programme for Intervention Epidemiology Training
ERHA	Eastern Regional Health Authority
EU	European Union
FSAI	Food Safety Authority of Ireland
safefood	Food Safety Promotion Board
GP	General Practitioner
HPA	Health Protection Agency
LEP	Laboratory of Enteric Pathogens, Colindale
MO	Medical Officer
NDSC	National Disease Surveillance Centre
NI	Northern Ireland
NSRL	National Salmonella Reference Laboratory
NWHB	North-Western Health Board
PHLS	Public Health Laboratory Service
PT	Phage type
ROI	Republic of Ireland
SAMO	Senior Area Medical Officer
SCIEH	Scottish Centre for Infection and Environmental Health
SEHB	South Eastern Health Board
UK	United Kingdom
VTEC O157	Verotoxigenic Escherichia coli O157
WANDA	Weekly Analysis of Notifiable Data

safefood –
the Food Safety
Promotion Board
7 Eastgate Avenue
Eastgate, Little Island
Co. Cork

biaslán –
an Bord um Chur Chun
Cinn Sábháilteachta Bia
7 Ascaill an Gheata Thoir
An tOileán Beag
Co. Chorcaí

Tel: +353 (0)21 230 4100
Fax: +353 (0)21 230 4111
info@safefoodonline.com
www.safefoodonline.com

HELPLINE
N.I 0800 085 1683
R.O.I 1850 40 4567
www.safefoodonline.com