

Towards the Enhancement of Foodborne Disease Surveillance

A Consultation Paper



Towards the Enhancement of Foodborne Disease Surveillance

A Consultation Paper





Contents



Foreword i

Consultation Process and Timetable ii



Members of the Functional Working Group on Disease Surveillance iii

Executive Summary iv



1 Introduction 1

2 Background 3

3 Epidemiological Surveillance of Humans 5

4 Outbreak Surveillance 13

5 Food Surveillance 15

6 Surveillance of Food Animals 19

7 Integrated Surveillance - The Way Forward 23

8 Training and Research 27

9 Agencies Involved in Surveillance Activities 31

10 Conclusion 33

Appendices 35

Appendix I Surveillance of Foodborne Disease in Northern Ireland 37

Appendix II Food Surveillance in Northern Ireland 47

Appendix III Surveillance of Foodborne Disease in the Republic of Ireland 51

Appendix IV Food Surveillance in the Republic of Ireland 59

Glossary 66



Foreword



Foodborne disease surveillance forms the foundation of our ability to know and track the routine, but foodborne diseases warrant prompt detection and tracing back to their source because they cause substantial morbidity and in some cases may cause death. With each case of foodborne disease consumer confidence in the safety of our food supply is greatly damaged. Rapid and effective surveillance allows specific and appropriate public health interventions to prevent disease and it can signal potential outbreaks thus enabling control measures in advance.

The proposals in this consultation document have been developed by a multidisciplinary group of individuals with specialist knowledge of current surveillance systems who generously gave of their time to consider how surveillance could be further enhanced in the north and south of Ireland. They have drawn up a series of recommendations for the development of the current systems and the harmonisation of surveillance data. The implementation of these recommendations have the potential to improve public health by assuring that the most relevant information is gathered and acted on in a coherent way. The underlying idea is that if we invest relatively small amounts now in the proposed approach, we can make substantial gains for public health and safety while also regaining confidence in the safety of our food supply.

I am delighted to present this consultation paper. The Food Safety Promotion Board has a general function in the surveillance of foodborne disease with particular responsibilities to promote cross-border co-operation, identifying priorities for development, enhancing exchange of information and accessing and analysing surveillance data - this paper forms a basis for consultation and I present it for wider debate.

Martin Higgins
Interim Chief Executive

Consultation Process and Timetable



This consultation paper sets out recommendations for improved and integrated surveillance of microbiological foodborne disease on the island of Ireland. Please consider them carefully and respond with your comments and opinions regarding these recommendations. The consultation period will last until **June 14th 2002**.



The consultation paper is being widely circulated to key stakeholders and public health professionals. Additional copies may be obtained from the Food Safety Promotion Board: telephone *safefood helpline*: 1850 404567 (from the south) or 0800 085 1683 (from the north) or *e-mail*: info@safefoodonline.com



Please send your comments to Dr Thomas Quigley, Food Safety Promotion Board, 7 Eastgate Avenue, Little Island, Cork. They may also be sent by e-mail to tquigley@safefoodonline.com

List of Members of Functional Group



Dr. Brian Smyth
(Chair)

Regional Epidemiologist,
Communicable Disease Surveillance Centre, Belfast



Dr. Margaret Fitzgerald

Chief Specialist in Public Health Medicine,
Food Safety Authority of Ireland, Dublin



Dr. Derval Igoe

Public Health Specialist,
National Disease Surveillance Centre, Dublin

Mr. Gerry McCurdy

Interim Chief Executive,
Food Standards Agency Northern Ireland, Belfast

Mr. Stanley McDowell

Veterinary Sciences Division,
Department of Agriculture and Rural Development, Belfast

Dr. Philip Murphy

Consultant Microbiologist,
Adelaide and Meath Hospital incorporating
the National Children's Hospital, Dublin

Mr. Tom O'Regan

Information Technology Manager,
Food Safety Authority of Ireland, Dublin

Dr. Paul Rooney

Consultant Microbiologist,
Public Health Laboratory, City Hospital, Belfast

Secretariat:

Dr. Thomas Quigley

Food Safety Promotion Board

Dr. Margaret Patterson

Food Safety Promotion Board

Dr. Patricia Garvey

Food Safety Promotion Board

Ms. Sonya Byrne

Food Safety Promotion Board



Introduction

As a result of the continuing concern about food safety and its implications on an all-island basis, the North/South Ministerial Council established the Food Safety Promotion Board (FSPB) on December 2nd 1999. At its Board meeting in February 2000, the FSPB considered the issue of microbiological surveillance and, in noting the complexity of the issues, recommended that the key players in foodborne disease surveillance in Northern Ireland and the Republic of Ireland consider ways for the improvement of microbiological surveillance on an all-island basis.



To assist in the development of a surveillance strategy for the FSPB, a Functional Meeting Group on Disease Surveillance was convened. The group compiled this consultation paper. A series of recommendations are made in the consultation paper and the key recommendations are summarised below.



Scope of the Paper

Food safety covers a broad range of issues, including microbiological, chemical residues and heavy metals, contaminants and infestation. The general definition of foodborne illness encompasses these issues by defining it as an illness caused by food or drink contaminated by chemicals or by pathogenic micro-organisms or their toxins.

However, this paper addresses only microbiological issues of food safety concern as indicated by the FSPB implementing legislation. Given the time constraints, aquaculture and phytosanitary issues are not addressed.

The development of an effective food safety system will warrant other issues also to be addressed, in particular chemical hazards associated with foods. As this is outside the remit of the Group, it is recommended that a forum for the co-ordination of chemical hazard surveillance should be considered within the context of an all-island food safety system.

Water, as a vehicle for the transmission of foodborne illness, is not addressed in this consultation paper but water monitoring should be given consideration in any food safety surveillance system.

Epidemiological Surveillance of Humans

There is no agreed definition of food poisoning for the purpose of the legislation in either jurisdiction and the lists of notifiable foodborne diseases are dissimilar. Laboratory protocols and specimen testing differ between laboratories within and between the two jurisdictions. It is recommended throughout the paper that the FSPB should work with the relevant Departments of Health and other agencies to promote the use of standardised definitions and harmonised practices. This will ensure the quality and comparability of data between jurisdictions.

In the case of human foodborne illness surveillance, harmonisation is possible in the following areas:

- ✔ a common definition of food poisoning
- ✔ common list of, and definitions for, notifiable foodborne diseases
- ✔ standardised notification forms
- ✔ standardised food history investigation forms
- ✔ common laboratory practices, protocols and reporting guidelines.



Laboratories provide invaluable information for surveillance. To ensure the completeness in reporting of information, it is recommended that the laboratory reporting of foodborne pathogens in humans should be made legally notifiable.



The timeliness of surveillance information is crucial and the consultation paper recommends that the FSBP should assist the promotion and resourcing of an integrated computerised food safety information system. This would assist in the rapid transfer of information between laboratories, communicable disease control centres, public health departments and national centres.



Outbreak Surveillance

Outbreaks of foodborne disease do not respect territorial or cross-border boundaries and consequently communication and liaison between key personnel in adjacent areas, including cross-border, is crucial. The establishment of an all-island outbreak surveillance system should be a major priority for food safety in Ireland. Components of such a system include:

- ✔ a protocol, accompanied by training, for the management of cross-border outbreaks
- ✔ standardised outbreak reporting forms
- ✔ statutory central reporting of outbreaks by health boards
- ✔ out of hours medical and environmental health service
- ✔ an all-island directory of contact points.

Food Surveillance

The microbiological surveillance of food provides invaluable information and contributes to a greater understanding of microbiological problems associated with food and to a more rapid resolution of these problems. Central collation and analysis of data is limited in both jurisdictions. The Food Safety Authority of Ireland (FSAI) and the Public Health Laboratory, Northern Ireland (PHL NI), should co-operate in the development of their respective food surveillance databases. Where particular food surveys are undertaken by specialist laboratories or agencies the results should be collated and published. The FSPB should collate and publish combined food surveillance data from both jurisdictions.

The food industry possesses considerable monitoring and surveillance data and a mechanism for the review and collation of information from industry and private laboratories should be established.

Due to limited laboratory resources the number of food samples tested annually is low. However, a minimum sampling rate should be set. Public health laboratory services will need to be reviewed so as to determine the requirements for the provision of an accessible, efficient and effective service.

Food safety research can provide significant information for the control and prevention of foodborne disease. An inventory of food research activities and research outcomes should be compiled by the FSPB. This should be reinforced by an ongoing literature review and dissemination of information on food safety issues and incidents.



Surveillance of Food Animals

The incidence of human pathogens in food animals must also be considered due to the hazards they may pose to human health through the food chain. Data on the occurrence of foodborne pathogens in farm animals are derived from a number of sources. Data generated are collected and collated by the relevant Departments of Agriculture in each jurisdiction and under the EU Directive 92/117, governing the monitoring and control of diseases of animals, annual reports are forwarded to the EU Commission. This data, however, should be more frequently published and should be shared and collated on an all-island basis.

Generally, the surveillance of food animals comprises the monitoring of salmonellosis in poultry breeding flocks in both jurisdictions, and in egg-laying flocks, broiler flocks and most pig herds in the Republic of Ireland. Information relating to other foodborne pathogens, such as *E. coli* O157, *Campylobacter* and salmonellosis in other species is limited. It is recommended that as a priority a review and evaluation of the surveillance of foodborne pathogens in food animals should be undertaken in each jurisdiction by the appropriate authorities.

The relevant Departments of Agriculture in each jurisdiction should develop an accessible database on foodborne zoonoses in animals. Harmonisation of these databases would allow collation of relevant food safety data. The FSPB should encourage collaboration between these authorities to improve co-ordination, collation, analysis and publication of the foodborne zoonotic information.

Interdisciplinary public health links should be formally established in both jurisdictions. Zoonoses committees have been established at health board level in the Republic of Ireland. The national zoonoses committee in the Republic of Ireland should be formalised. Arrangements for further developing local liaison and communication between veterinarians, environmental health officers, public health doctors and microbiologists in Northern Ireland should be examined.

There is substantial trade in pigs and poultry between Northern Ireland and the Republic of Ireland. As part of the review and evaluation of surveillance systems referred to above, it is recommended that the authorities in both jurisdictions explore opportunities to enhance their current monitoring of foodborne pathogens in animals. This should specifically include the need for surveillance for salmonella in egg laying flocks, in commercial broiler flocks and in pig herds. Harmonisation of the farm monitoring programmes would facilitate trace-back and the implementation of control measures.

Integrated Surveillance

The guiding principles for the future development of surveillance and monitoring 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 are compartmentalised. A more complete and efficient food safety system would be achieved through co-ordination and linkages across human, food and animal disease surveillance systems. Therefore, stronger links should be developed in each jurisdiction between animal disease surveillance and public health authorities.



Antimicrobial resistance is of growing public health concern. Possible links have been established with antimicrobial use in food animals leading to resistant micro-organisms in food and man. Linkages between the surveillance of antimicrobial resistance in foodborne pathogens in humans, foods and food animals should be established. This would be facilitated through standardised reporting, harmonised laboratory practice and the availability of comprehensive reference services.



A mechanism for co-ordination of the surveillance data and its dissemination is required. The FSPB should facilitate the implementation of such a mechanism.



The Chief Executives of the FSPB and the Food Standards Agency, Northern Ireland (FSA NI) should participate in the Northern Ireland Food Surveillance Group (NIFSG). A similar forum should be established in the Republic of Ireland to discuss and implement food safety surveillance programmes and should include representatives from the Department of Health and Children (DoHC), the Department of Agriculture and Rural Development (DAFRD), FSAI, FSPB and National Disease Surveillance Centre (NDSC). The FSPB should facilitate regular joint meetings of these personnel from both jurisdictions to discuss relevant all-island food safety issues.

An integrated computerised food safety information network to allow relevant information exchange and analysis should be progressed by the FSPB. In order to do this, the FSPB should examine in detail the current foodborne disease surveillance activities and databases as well as ensure conformity in data collection and reporting.

The FSPB should ensure that combined data from the various surveillance systems is published on a frequent basis.

Training and Research

As the investment in food safety is significant, it is important that public health personnel (including public health doctors, veterinarians, surveillance scientists and environmental health officers) be regularly informed of the latest developments and supported through training and education. Surveillance involves collection, collation, analysis, interpretation and dissemination of information for action. Training must reflect each of these components.

A training needs analysis should be commissioned by the FSPB through the appropriate agencies in each jurisdiction. The FSPB, with relevant agencies, should then support the development of the appropriate training modules.

All-island networking and participation in international training programmes, such as the European Programme for Intervention Epidemiology Training (EPIET) and the Epidemic Intelligence Service (EIS), should be promoted by the FSPB. Links and collaborations with centres of excellence, such as the Public Health Laboratory Service (PHLS), Colindale, UK, the Centre for Disease Control (CDC) Atlanta, USA, the London School of Hygiene and Tropical Medicine and other European centres of excellence should also be supported by the FSPB.

Given the enormous financial burden that foodborne diseases have on the health system and the wider economy, basic and applied research into the surveillance of foodborne illness should be carried out. The surveillance research agenda of the FSPB should be sufficiently broad to cover the entire farm-to-fork continuum and to address information needs at all points along the farm-to-fork chain.



Conclusions

The implementation of the above recommendations will involve the increased allocation of resources. However, an improved food surveillance strategy is urgently required as there are weaknesses in the current system. There is currently incomplete knowledge about the seriousness, incidence and cost of foodborne disease. Information is lacking on the association of pathogens with food animals.



An improved and integrated food surveillance strategy, as outlined in this paper, will contribute greatly to facilitating and informing the scientific foundation of food safety. Such surveillance is required to fully realise the benefits of the valuable and critical tool of risk analysis. Furthermore, investment in food safety surveillance would go some way to meeting public health concerns while at the same time benefiting the promotion of Irish food products in a highly competitive and safety conscious market.



1 Introduction



1.1 The Food Safety Promotion Board

The Food Safety Promotion Board (FSPB) is one of six implementation bodies set up under the terms of the Belfast Agreement and established under S.I. No. 1 of 1999. It was established on December 2nd 1999 with microbiological surveillance of foodborne disease as one of its key functions.



“The body will have a general responsibility to promote cross-border co-operation in the microbiological surveillance of foodborne diseases:

- (a) identifying priorities for the development of surveillance
- (b) establishing a forum for the exchange of information between relevant interests
- (c) promoting collaboration in surveillance-related activity, where appropriate, including training and professional development
- (d) accessing and analysing surveillance data held by the appropriate Northern Ireland and Irish authorities
- (e) publishing surveillance information and analysis
- (f) promoting harmonisation, where appropriate, in the development of surveillance systems including methodologies, approaches to reporting and information technology systems.”



In order to determine an appropriate strategy in relation to surveillance, the FSPB set up a Functional Working Group on surveillance to be chaired by Dr Brian Smyth, Regional Epidemiologist at the Communicable Disease Surveillance Centre (CDSC), Northern Ireland.

1.2 The Functional Working Group on Surveillance and its Remit

The Functional Working Group was given the following terms of reference:

- ✔ to recommend how appropriate collaboration in surveillance related activities including training can be promoted
- ✔ to examine and advise on likely interactions between the FSPB and other bodies
- ✔ to recommend priorities for future surveillance programmes
- ✔ to report by March 31st 2000.

1.3 The Process

The work developed in the following way:

The group firstly examined in some detail the arrangements for the gathering of information on human foodborne illness in both jurisdictions and on the ways in which the microbiological contamination of food is currently surveyed.



The means of surveillance of the presence of human pathogens in food and food animals was then considered. Having examined the surveillance systems, areas of commonality and divergence were then described. Potential areas for convergence of the surveillance systems in each jurisdiction were indicated. It was highlighted that a more co-ordinated and integrated approach to such surveillance is needed and ways in which this may be achieved are outlined. It should be noted, however, that the work was done over a relatively short period of time and while the group made all reasonable attempts to ensure the information in the report is as complete as possible, there may be omissions.

1.4 Food Safety Issues not Addressed in this Paper

The paper addresses only microbiological issues of food safety concern. Aquaculture and the fruit and vegetable sector were not addressed.

However, the development of an effective food safety system will require that other issues also be addressed. These include, in particular, the issues of:

- surveillance of pesticides and agricultural chemicals usage
- residue monitoring (including residues in stock feeds used in production, antibiotics in foodstuffs and the use of sanitisers and disinfectants)
- environmental contaminants and heavy metals (natural or introduced)
- control of extraneous matter.

Water is of particular concern as it is a vehicle for the transmission of foodborne pathogens and a major ingredient of foods as well being used in sanitation in food processing. Major outbreaks of diarrhoeal disease have been the result of food poisoning organisms transmitted by water. Water, as a vehicle for the transmission of foodborne illness, is not addressed in this paper as the Departments of Environment in each jurisdiction have responsibility for water. It is recommended that water monitoring should be given consideration in any food safety surveillance system.

1.5 Summary of Recommendations

1.5a It is recommended that a forum for the co-ordination of chemical hazard surveillance should be considered within the context of an all-island food safety system.

1.5b Water, as a vehicle for the transfer of foodborne illness, is not addressed in this paper but water monitoring should be given consideration in any food safety surveillance system.

2 Background



2.1 Introduction

Surveillance is a key function of the FSPB. In order to set priorities, develop policies, monitor progress and evaluate outcomes, a food safety programme needs quality information on foodborne illness and the causative factors leading to it. This information is obtained through effective surveillance systems.



The word surveillance refers to the systematic collection, collation, analysis and dissemination of epidemiological information for the planning, implementation and assessment of disease control. Surveillance, therefore, implies information for action.



2.2 Objectives of Surveillance

Effective surveillance requires the timely collection of relevant epidemiological data, its timely analysis and interpretation of these data and the rapid dissemination of the results to all who need to know. The objectives of foodborne illness surveillance are to:

- ✔ determine the magnitude of the public health problem posed by foodborne diseases and monitor trends
- ✔ identify outbreaks of foodborne disease at an early stage in order to take timely remedial action
- ✔ determine to what extent food acts as a route of transmission for specific pathogens and identify high-risk foods, improper food production and handling practices from farm-to-fork
- ✔ determine the risk factors for illness in vulnerable populations
- ✔ assess the effectiveness of programmes to improve food safety
- ✔ provide information to enable the formulation of health policies regarding foodborne diseases (including the formulation and prioritisation of preventive strategies).

2.3 Surveillance Systems

In order to achieve the above objectives, various surveillance methods may be employed. In relation to surveillance in Northern Ireland and the Republic of Ireland the following methods are discussed in this paper:

- ✔ notification of human foodborne disease
- ✔ laboratory surveillance of human foodborne disease
- ✔ outbreak investigation of human foodborne disease
- ✔ microbiological food surveillance
- ✔ microbiological surveillance of food animals.

In the following sections the methods for surveillance used in each jurisdiction are compared and potential areas for convergence are outlined.



3 Epidemiological Surveillance of Humans



3.1 Food Poisoning Incidence on the Island of Ireland

The reported incidence of human foodborne illness including food poisoning in Northern Ireland and the Republic of Ireland has been increasing over the last 10 years (Figures 3.1 - 3.3). Caution should be exercised when comparing these differing figures as reporting systems and definitions differ in each jurisdiction. For example, Salmonella and food poisoning other than Salmonella are notified separately in the Republic of Ireland while they are combined in Northern Ireland.

FIGURE 3.1

FOOD POISONING NOTIFICATION RATES IN NORTHERN IRELAND FOR THE PERIOD 1990-2000



FIGURE 3.2

FOOD POISONING NOTIFICATION RATES IN THE REPUBLIC OF IRELAND FOR THE PERIOD 1990-2000





FIGURE 3.3

SALMONELLA NOTIFICATION RATES IN THE REPUBLIC OF IRELAND FOR THE PERIOD 1990-2000



Comprehensive data on the true incidence of foodborne illness on the island of Ireland are not available. The assessment of the level of foodborne illness in humans is the result of information gathered on acute cases and represents only a small percentage of those who become ill. There are many reasons for this, including:

- ❖ the short duration of many foodborne illnesses which means that those affected are unlikely to visit a doctor or report the incident to their local health authority
- ❖ outbreaks are far more likely to be reported and investigated than sporadic cases even though there is evidence that sporadic cases cause far more illness than do recognised outbreaks
- ❖ the difficulty in determining the cause of a reported foodborne illness due to the absence of either faecal or food samples, particularly where there is delay in reporting
- ❖ when tested, the person affected may no longer be excreting the causative pathogen even though they may have exhibited the symptoms of foodborne illness
- ❖ the very low infective dose associated with a number of pathogens makes it difficult to identify the causative organism
- ❖ difficulty in detecting viruses. This is because specimens have to be collected soon after disease onset and specialised diagnostic techniques are required. Such techniques are not widely available for routine use.

In a recent study in the UK it was established that 20% of the population suffer from infectious intestinal disease every year, while only 3.3% present to their GP with infectious intestinal disease ¹.

¹ Wheeler, J.G., Sethi, D., Cowden, J. *et al.* Study of infectious intestinal disease in England: rates in the community, presenting to general practice, and reported to national surveillance. *BMJ* 1999; 318:1046-50.



3.2 Sources of Information on Sporadic Cases in Northern Ireland and the Republic of Ireland

In both jurisdictions routine information relevant to sporadic cases of foodborne disease (single cases apparently unrelated to others), is generated from either:

- (i) statutory notifications from medical practitioners
- (ii) voluntary reporting by laboratories
- (iii) informal reports from members of the public.



3.2.1 Statutory Notifications Current Activities

In both jurisdictions if a medical practitioner becomes aware of, or suspects that, a patient s/he is attending is suffering from food poisoning, s/he is required to notify the relevant medical officer.

Despite the fact that there is a statutory requirement on doctors to make these returns, there is a very significant amount of under-reporting in both jurisdictions. Both systems are manual, with doctors completing a short form that is then posted to the health board. In some localities, the notification details are entered onto a database for local surveillance. There is frequently a considerable delay between the person presenting to their doctor and the submission of the notification details.

3.2.2 Statutory Notifications Proposed Developments

There is no EU agreed definition of food poisoning for the purpose of the legislation in either jurisdiction; the doctor does not need to confirm that the cause of illness is microbiological and the doctor may make the diagnosis of food poisoning even though the cause of illness may not have been traced back to a food source. However, doctors in Northern Ireland, along with others in the United Kingdom (UK), have been supplied with the definition as recommended by the Advisory Committee on the Microbiological Safety of Food (ACMSF). A common definition of food poisoning for the whole island should be worked towards and this should be compatible with that used in other countries. The collation of age and sex data of the infected person has been introduced since July 2000 in the Republic of Ireland but is not recorded centrally in Northern Ireland. Moreover, there is no linkage of notified reports of foodborne illness with laboratory reports of foodborne infections in either jurisdiction. A mechanism is required in each jurisdiction to achieve this linkage.

The list of notifiable foodborne diseases in each jurisdiction is dissimilar and they are reported differently. A review of the Notifiable Diseases System has recently been completed in the Republic of Ireland. It is anticipated that the recommendations from this review will be translated into legislation in 2002. It is recommended that the FSPB facilitate the harmonisation of notifiable foodborne diseases in both jurisdictions.



The development of joint standard protocols and guidelines, including a standard notification form for the reporting of notifiable diseases, should be undertaken. It is recommended that the FSPB work with the relevant Departments of Health to promote the use of standardised definitions in each jurisdiction. It is particularly important that guidelines on the case definition of food poisoning should be developed, since this would assist uniformity of notifying practices across the island.



Continuing education is also required for clinicians to encourage more complete and timely notification on the need to submit appropriate clinical specimens for analysis and to ask more targeted questions in respect of foodborne illness.



Electronic reporting by General Practitioners (GPs) may enhance the level of reporting and it is recommended that this should be advanced by the FSPB in collaboration with the relevant agencies and government departments.

In the Republic of Ireland, an enhanced epidemiological surveillance system for *E. coli* O157 and listeriosis has been established since 1999. Should further developments in enhanced surveillance take place, the opportunity to progress on an all-island basis should be taken.

Table 3.1 outlines the comments on clinical notification systems for foodborne illness in Northern Ireland and the Republic of Ireland.

TABLE 3.1
SUMMARY OF COMMENTS ON CLINICAL NOTIFICATION SYSTEMS FOR FOODBORNE ILLNESS IN HUMANS IN NORTHERN IRELAND AND IN THE REPUBLIC OF IRELAND

Areas of Divergence	Areas of Commonality	Possible Areas of Convergence
<ul style="list-style-type: none"> • Definition of food poisoning differs • Foodborne notifiable diseases differ • Central age/sex data differs 	<ul style="list-style-type: none"> • Under reporting/ascertainment • Manual systems • Delays in reporting • No central linking of laboratory and notifiable data • Limited feedback to clinicians • Based on clinical suspicion 	<ul style="list-style-type: none"> • Common food poisoning definition • Common list of notifiable diseases • Electronic reporting from GPs • Central age/sex details • Common data fields on notification form • Feedback to clinicians • Common professional awareness campaign regarding notification • Common data set for outbreak reporting • Statutory outbreak reporting • Joint training material • Cross-border foodborne incidents communication/liaison • Dissemination of outbreak materials • Enhanced surveillance research



3.2.3 Laboratory Reporting Current Activities

A laboratory report is a definitive result providing confirmation of a microbiological infection and is therefore, an invaluable source of surveillance data. It has the ability to determine the direction of trends, identify increases in incidence or detect the emergence of a pathogen. Laboratory surveillance makes use of available data to assess the occurrence of specific microbiological agents in sporadic cases and clusters thus, highlighting problems that are then subjected to in-depth investigation. When combined with epidemiological data, laboratory surveillance significantly improves the overall picture of the public health situation.



In Northern Ireland, clinical laboratories voluntarily provide information on laboratory isolations of micro-organisms causing infections. The system is manually based with laboratory reports being forwarded centrally at varying time intervals. Regional systems are in existence. The PHLS has developed guidelines for laboratory reporting in England and Wales and these are now used in Northern Ireland.



3.2.4 Laboratory Reporting Proposed Developments

A food source causing sporadic cases of foodborne disease is rarely established, even if suspected, since microbial confirmation depends upon culturing the organism from a suspect food and the patient. To establish a link between a number of sporadic cases and a particular foodstuff, standardised interviews as part of epidemiological investigations, or further microbiological investigations are often necessary. These investigations could be facilitated through the development and use of a standard investigation form. It is recommended that the information gathered using the standardised form should be collated and systematically reviewed for links between apparent sporadic cases.

The Functional Working Group considered those micro-organisms currently causing most morbidity in the population and therefore, recommends that the following foodborne pathogens, as a minimum, be included in the priority laboratory reported organisms: *Campylobacter*, *Salmonella*, *Cryptosporidium*, Verocytotoxin producing *E. coli* (VTEC), *Shigella*, *Listeria* and enteric viruses.

Local laboratories routinely alert the local health board of food poisoning isolations both for surveillance purposes and to trigger public health action. These details are often transmitted by telephone or fax and manually entered onto a database. In some localities, health boards summarise this information and include it in a news sheet which is distributed to local health professionals and environmental health officers (EHOs).

The laboratory reporting of foodborne pathogens is currently voluntary but should be made legally notifiable to ensure completeness in reporting of information. This will require resourcing, particularly at laboratory level. Statutory laboratory reporting will potentially cause significant increases in the reporting of many infections. This may be less so in Northern Ireland where laboratory reporting is generally fairly complete. The interpretation of surveillance data will therefore, require a thorough understanding of local laboratory practice.



In order to improve timeliness of reports and adequate communications there is an urgent need for an integrated computerised information system connecting laboratories, communicable disease centres, public health departments and national centres. In the Republic of Ireland, the NDSC has set up a working group, the Computerised Infectious Disease Reporting (CIDR) group, to introduce national electronic laboratory reporting. This is a multidisciplinary group comprising representatives from the health boards and national agencies. The CDSC, Northern Ireland is currently piloting an electronic laboratory reporting system (CoSurv) that is in use in two-thirds of laboratories in England and Wales. There is potential for joint collaboration and sharing of expertise in this area and it is recommended that the FSPB assist in promoting and resourcing these developments. It is essential that the systems in use in the different jurisdictions have common data fields and are capable of information exchange.

The Central Public Health Laboratory (CPHL) at Colindale, UK provides an enteric reference service. All *Salmonella* and VTEC isolates from Northern Ireland are submitted for further in-depth laboratory investigation and the information is returned to the submitting laboratory. This information is forwarded at intervals to the CDSC, Northern Ireland, where it is collated and published in its monthly bulletin.

An interim *Salmonella* Reference Laboratory has been established in the Republic of Ireland to provide typing services for clinical *Salmonella* isolates. The Public Health Laboratory in Cherry Orchard has recently commenced provision of a verotoxin testing service for VTEC isolates. However, reference services are not available in the Republic of Ireland for other foodborne pathogens and only a portion are sent to the CPHL, Colindale for confirmatory tests and detailed identification. An incomplete picture is thus obtained and the data are not published. Moreover, the turnaround time for these pathogens is variable and therefore of limited use in an outbreak situation. There is an urgent need for a comprehensive and timely enteric reference service in the Republic of Ireland. Reference services provide crucial data for surveillance and it is important that this data is communicated in a regular and timely manner to the appropriate surveillance centre.

While there is variability in the timeliness and quality of the information provided by the laboratories, there are also differences in the range of tests performed, in the sampling techniques and test protocols. Many laboratories are insufficiently resourced to examine for all foodborne pathogens and therefore, cannot provide a comprehensive testing service.

Ensuring quality and comparability of the data between laboratories is an important feature of laboratory surveillance. Besides involvement in quality assurance schemes, proficiency testing and accreditation, there is an urgent need for common laboratory sampling, testing protocols and reporting guidelines for foodborne organisms.

It is recommended that the FSPB commission a survey of laboratory protocols to ascertain current laboratory practices. Common guidelines, such as the PHLS guidelines, should be promoted so as to move towards harmonisation of laboratory practice and reporting throughout the island.



Antimicrobial resistance is of growing public health concern. Possible links have been established with antimicrobial use in food animals leading to resistant organisms in food and man. There needs to be linkages between the surveillance of antimicrobial resistance in foodborne pathogens in humans, foods and food animals. This would be facilitated through standardised reporting, harmonised laboratory practice, adequate database systems and the availability of comprehensive reference services.



Table 3.2 outlines the comments on the laboratory reporting systems for foodborne illness in humans in Northern Ireland and the Republic of Ireland.



TABLE 3.2
SUMMARY OF COMMENTS ON LABORATORY REPORTING SYSTEMS FOR FOODBORNE ILLNESS IN HUMANS IN NORTHERN IRELAND AND IN THE REPUBLIC OF IRELAND

Areas of Divergence	Areas of Commonality	Possible Areas of Convergence
<ul style="list-style-type: none"> • NI central reporting • ROI reporting is incomplete • In NI Salmonella/<i>E. coli</i> O157 are all typed 	<ul style="list-style-type: none"> • Limited antibiotic sensitivity reporting • Manual system • Voluntary reporting • Variable laboratory practice 	<ul style="list-style-type: none"> • Implement statutory laboratory reporting (requires resourcing) • Electronic reporting: Laboratory → Board → Centre → (ROI/NI systems interface) → All-island report • Common laboratory protocols and reporting guidelines for 'priority' organisms • Targeted/enhanced surveillance • Ready access to reference facilities (plus interpretation) • Laboratory survey of bench practices • All-island forum for microbiologists • Review of laboratory services, common data set



3.3 Summary of Recommendations



- 3.3a A common definition of food poisoning for the whole island should be worked towards and this should be compatible with that used within other countries.
- 3.3b The FSPB should facilitate work with relevant agencies to promote harmonisation of notifiable foodborne diseases in both jurisdictions. It should work with the relevant Departments of Health to promote use of standardised definitions and lists of notifiable diseases in each jurisdiction.
- 3.3c The development of joint standard protocols and guidelines, including a standard notification form for the reporting of notifiable diseases, should be undertaken.
- 3.3d Continuing education is required for clinicians to encourage more complete and timely notification on the need to submit appropriate clinical specimens for analysis and to ask more targeted questions in respect of foodborne illness.
- 3.3e Electronic reporting by GPs may enhance the level of reporting and this should be advanced by the FSPB in collaboration with the relevant agencies and government departments.
- 3.3f The laboratory reporting of foodborne pathogens, currently voluntary, should be made legally notifiable to ensure completeness in reporting of information.
- 3.3g The following foodborne pathogens be included in the priority laboratory reported organisms: Campylobacter, Salmonella, Cryptosporidium, Verocytotoxin producing E coli (VTEC), Shigella, Listeria and enteric viruses.
- 3.3h Common laboratory sampling, testing protocols and reporting guidelines for foodborne organisms is necessary.
- 3.3i Common guidelines, such as the PHLS guidelines, should be promoted so as to move towards harmonisation of laboratory practice and reporting throughout the island. A survey of laboratory protocols to ascertain current laboratory practices should be commissioned.
- 3.3j In order to improve timeliness of reports and adequate communications, there is an urgent need for an integrated computerised information system connecting laboratories, communicable disease centres, public health departments and national centres.
- 3.3k There is potential for joint collaboration and sharing of expertise in electronic reporting tools and the FSPB should assist in promoting and resourcing these developments. It is essential the systems in use in the different jurisdictions have common data fields and are capable of information exchange.
- 3.3l There needs to be linkages between the surveillance of antimicrobial resistance in foodborne pathogens in humans, foods and food animals. This would be facilitated through standardised reporting, harmonised laboratory practice and the availability of comprehensive reference services.

4 Outbreak Surveillance



4.1 Sources of Information on Outbreaks

An outbreak represents a situation where two or more cases of food poisoning are related to a common factor. Whilst by far the greatest number of incidents are sporadic cases, outbreaks are an important source of additional information, especially about possible food sources of infection and can provide timely information to prevent further cases of foodborne disease. Outbreak summary information in Northern Ireland is included in the CDSC-NI monthly bulletin. The FSAI has recently published summary outbreak surveillance data for the Republic of Ireland.



4.2 Outbreak Surveillance Systems

Outbreaks do not respect territorial or cross-border boundaries and consequently communication and liaison between key personnel in adjacent areas is crucial.

A protocol for the management of cross-border outbreaks is required and it is recommended that the FSPB assist the appropriate public health professionals and agencies in building on existing arrangements and develop a standardised approach.

Standard forms for the reporting of outbreaks have been developed in Northern Ireland and the Republic of Ireland. In order to compare and collate data on an all-island basis, these should be harmonised.

The FSAI has undertaken steps to improve the routine central reporting of outbreaks by public health departments in the Republic of Ireland. This system is being further developed by the NDSC. The NDSC should co-operate with the FSPB in the promotion of central reporting of outbreak information in the Republic of Ireland. The FSPB should also assist CDSC NI to enhance central outbreak reporting in Northern Ireland, and the sharing of information on an all-island basis.

Outbreak management training is being undertaken by the FSPB, FSAI and FSA NI in collaboration with the health boards. Personnel from the NDSC, DHSSPS and CDSC NI have assisted in this training. A training module for the management of cross-border outbreaks is being developed and this should be widely disseminated. A particularly important aspect of outbreak management is the compilation of a final report of the outbreak and outline of the lessons learned. The collation and review of such reports would provide important information for the prevention and control of future outbreaks.

Surveillance systems for foodborne disease outbreaks for Northern Ireland and the Republic of Ireland are incomplete. Outbreak reporting to the National Centre in both jurisdictions is currently voluntary. It is impossible to assess the burden or control the risk of diseases that are not being systematically counted, collated and analysed. The establishment of an all-island outbreak surveillance system should be a major priority for food safety on the island. It is recommended that central outbreak reporting should be a statutory requirement of health boards.



Surveillance is information for action and this assumes that to take action a 'seven days a week, twenty four hours a day' service is required. It is an urgent priority therefore, to ensure that in each jurisdiction there is the capability to respond in a timely appropriate manner to this information. Particularly when an outbreak is detected, it is essential that it be investigated as a matter of urgency. This requires a twenty four hour response by public health doctors, environmental health officers and laboratory personnel. In Northern Ireland a duty doctor is always available in each health board. However, not all district councils have an environmental health officer duty rota in place. In the Republic of Ireland there is no out-of-hours cover for either public health doctors or EHOs. The relevant authorities in both jurisdictions should ensure that an out-of-hours service is available.

An all-island directory of contact points in case of a foodborne disease outbreak should be developed. This should be available in an electronic format that could be incorporated in an electronic 'on-call' pack.

4.3 Summary of Recommendations

- 4.3a A protocol for the management of cross-border outbreaks is required and the FSPB should assist the appropriate public health professionals and agencies in building on existing arrangements and develop a standardised approach.**
- 4.3b Standard forms for the reporting of outbreaks have been developed in Northern Ireland and the Republic of Ireland. In order to compare and collate data on an all-island basis, these should be harmonised.**
- 4.3c The establishment of an all-island outbreak surveillance system should be a major priority for food safety on the island of Ireland. It is recommended that central outbreak reporting should be a statutory requirement of health boards.**
- 4.3d It is an urgent priority to ensure that in each jurisdiction there is the capability to respond in a timely appropriate manner to surveillance and outbreak information. The relevant authorities in both jurisdictions should ensure that an out-of-hours service is available.**
- 4.3e An all-island directory of contact points in case of a foodborne outbreak should be developed. This should be available in an electronic format that could be incorporated in an electronic 'on-call' pack.**

5 Food Surveillance



5.1 Current Food Surveillance Activities

Various types of surveillance of the microbiology of foods are carried out in Northern Ireland and the Republic of Ireland. The food surveillance exercises collectively provide invaluable information and contribute to a greater understanding of the microbiological problems associated with food and to their more rapid resolution.

In the Republic of Ireland and Northern Ireland, food sampling is driven by EU obligations, local surveillance, hygiene inspection needs and investigations of complaints and food poisoning incidents. With the advent of the FSAI, surveys have begun to be conducted in the Republic of Ireland across all health boards on a nationwide basis and this should assist in the provision of more representative data. In Northern Ireland there are regional surveys and surveillance programmes. Sampling is primarily carried out by environmental health officers. This sampling is not usually representative and therefore, has limited value in providing general information on the prevalence of micro-organisms in food.

District Councils in Northern Ireland receive reports on samples submitted locally. While the health boards would be made aware of positive reports, there is no overall local review of the outcome of sampling. The PHL NI stores all food microbiology results in electronic format, however, it is difficult to extract information for surveillance purposes or provide an overall analysis of the results of this testing programme in Northern Ireland.

Central collation of reports on sample tests is currently being developed in the Republic of Ireland by the FSAI. The data is collected from different public health laboratories but problems are encountered on lack of harmonisation of the submitted data. Standard reporting guidelines are being developed by the FSAI. The current system is manual but electronic communication links with the public health laboratories and the FSAI are being developed.

5.2 Proposed Food Surveillance Developments

The FSAI and the PHL NI, should co-operate in the development of their respective food surveillance databases. This would ensure harmonisation of data to provide for valid comparisons.

Information on food sampling and surveys carried out throughout the island are not adequately communicated among the agencies or professional groups. Progress towards the establishment of a computerised food safety information network would help to resolve this issue and the FSPB should progress this.

It is recommended that the FSPB collate and publish food surveillance data from both jurisdictions. This, together with information from outbreaks, will inform future joint sampling programmes.

The EHOs, in association with their PHLs in both jurisdictions, establish annual surveillance programmes of their own which are largely designed to address local issues. The sample numbers are low due to lack of resources at laboratory level. A minimum sampling rate should be set and this should reflect public health priorities.



The NIFSG co-ordinate, and sometimes initiate, food surveillance surveys. Reports are produced on a regular but infrequent basis. The FSPB should liaise with the NIFSG and other relevant groups in each jurisdiction to develop future all-island food surveys and publications.



Recently the public health laboratories in the Republic of Ireland have formed an association called the Official Food Microbiology Laboratory (OFML) Group. Their Northern Ireland counterparts should be invited to participate. The group should be adequately resourced so that they have the capacity to take part in planned pro-active food surveillance studies. This would also facilitate the sharing of expertise, networking and harmonisation of laboratory process and procedures. The FSPB should encourage and support such co-operation among all laboratories and agencies involved in surveillance.



Food surveys are sometimes regionally based and may be undertaken by individual laboratories. Where particular food surveys are undertaken by specialist laboratories or agencies, the results should be collated and published.

The food industry possesses considerable amounts of data on the microbiological safety and quality of a wide variety of food products. At present there is minimal interchange of the results of microbiological surveillance of food between industry, governments and the enforcement officers. The Department of Agriculture in each jurisdiction undertake only limited exchange of data with industry. There is a problem with commercial confidentiality and difficulties in interpreting the data. A mechanism for the review and collation of information from industry and private laboratories should be established.

Antibiotic resistance monitoring in Salmonella isolates from certain food samples is currently undertaken. The level of this monitoring should be increased and as with the monitoring of antimicrobial resistance in humans, the emergence of antimicrobial resistance among all pathogens in foods should be monitored. There should be increasing harmonisation in the manner in which this is undertaken within laboratories and how this information is collated and merged with other antimicrobial resistance surveillance information.

Food safety research can provide significant information for the control and prevention of foodborne disease. However, much of the information generated remains inaccessible to policy makers and laboratory staff. There is a need for a comprehensive database for ongoing and projected research. The FSPB is establishing such a database. It is recommended that an inventory of food research activities and the research outcomes should be compiled and published by the FSPB. This should be reinforced by an ongoing literature review on food safety issues and incidents.

Table 5.1 outlines the comments on the food surveillance systems in Northern Ireland and the Republic of Ireland.



TABLE 5.1

SUMMARY OF COMMENTS ON FOOD SURVEILLANCE SYSTEMS IN NORTHERN IRELAND AND IN THE REPUBLIC OF IRELAND

Areas of Divergence	Areas of Commonality	Possible Areas of Convergence
<ul style="list-style-type: none"> • Republic of Ireland has 7 food testing laboratories • Data collation is manual (being computerised) • NIPHL computerised but access and analysis difficult • Laboratory request forms differ • Sampling variation 	<ul style="list-style-type: none"> • EU sampling protocol (official control of foodstuffs) 	<ul style="list-style-type: none"> • Implement statutory laboratory reporting (requires resourcing) • Common laboratory request forms • Compatible laboratory databases • Electronic link between food laboratories and national centre • Minimum common data set • Harmonisation of result outputs • Review food laboratory provision: access, quality control and sampling load • Harmonisation of laboratory practice • All-island sampling protocol • All-island food surveillance group • Central reporting (e.g. publication of data)

5.3 Summary of Recommendations

5.3a The FSAI and the PHL NI, should co-operate in the development of their respective food surveillance databases.

5.3b The FSPB should collate and publish food surveillance data from both jurisdictions.

5.3c The EHOs, in association with their PHL in both jurisdictions, should establish annual surveillance programmes. A minimum sampling rate should be set and this should reflect public health priorities.

5.3d The provision of public health laboratory services should be reviewed to determine the optimal number and function of laboratories to provide an accessible, efficient and effective service.

5.3e The FSPB should liaise with the NIFSG and other relevant groups in each jurisdiction to develop future all-island surveys and publications.



5.3f The OFML Group should invite their Northern Ireland counterparts to participate. The Group should be adequately resourced so that they have the capacity to take part in planned proactive food surveillance studies.



5.3g Where particular food surveys are undertaken by specialist laboratories or agencies the results should be collated and published.



5.3h A mechanism for the review and collation of information from industry and private laboratories should be established.

5.3i As with the monitoring of antimicrobial resistance in humans, the emergence of antimicrobial resistance among pathogens in foods should be monitored.

5.3j An inventory of food research activities and the research outcomes should be compiled and published by the FSPB. This should be reinforced by an ongoing literature review on food safety issues and incidents.

6 Surveillance of Food Animals



6.1 Introduction

The prevalence of human pathogens in food animals must also be considered because of the hazards they may pose to human health through the food chain. It is noted that fish and fishery products are not examined in this section and the surveillance of these food and feed products should be reviewed in a subsequent paper.



6.2 Current Food Animal Surveillance Activities



Veterinary activities associated with the protection of public health are located with the relevant Department of Agriculture in both jurisdictions. In the Republic of Ireland, the local authorities also have veterinary staff who carry out surveillance and monitoring activities on some farms and abattoirs.

Data on the occurrence of foodborne pathogens in farm animals are derived from a number of sources including: clinical submissions to veterinary diagnostic investigation centres, statutory surveillance programmes, non-statutory surveillance programmes, follow-up sampling following suspicion of infection and specific research projects or surveillance surveys. Additional private data is sometimes available at primary processing level.

With the exception of salmonellosis, brucellosis and listeriosis most foodborne pathogens do not cause clinical disease in farm animals. Food safety information gained through clinical submissions to veterinary diagnostic investigation laboratories is therefore limited and must be supplemented by other surveillance methods.

At a European level, the Zoonoses Directive, EC 92/117, requires Member States (MS) to operate monitoring and control programmes for the control of salmonellosis in poultry breeding flocks. Programmes to do this are in place in both jurisdictions. Discussions to replace the current Zoonoses Directive, EC 92/117, with a new directive are at an advanced stage and include proposals to extend the requirement for surveillance to the final production stage such as egg laying flocks and commercial broiler flocks. The proposals also refer to separate regulations for control programmes.

There is a range of statutory notifiable foodborne zoonotic diseases and these should be standardised in each jurisdiction. Data generated through this notification system, which reports pathogens isolated from animals, are collected and collated by the relevant Department of Agriculture in each jurisdiction. The EU Directive, EC 92/117, governing the monitoring and control of diseases of animals requires MS to make returns of veterinary and zoonotic organisms. Data is currently returned annually in Zoonoses Reports to the EU Commission by the DARD NI and the DAFRD. Under the new proposals, more than one authority maybe nominated by each MS.

At local level in both jurisdictions, veterinary officers conduct on-farm investigations of zoonotic diseases and other diseases as necessary. Infections of certain *Salmonella* serotypes in animals are notifiable diseases.



6.3 Proposed Developments in Food Animal Surveillance



In each jurisdiction the relevant Department of Agriculture should review their systems for collation of information to ensure a complete, representative and accessible database on foodborne zoonoses. Harmonisation of these databases would allow collation of relevant food safety data on an all-island basis and this should be progressed.



Local authority veterinary services in the Republic of Ireland also generate surveillance data in relation to foodborne zoonoses. This should be collected and integrated with the information obtained from other sources.

The FSPB should encourage collaboration between the appropriate authorities in both jurisdictions to improve co-ordination, collation, analysis and publication of the foodborne zoonotic information.

In both jurisdictions all *S. Typhimurium* and *S. Enteritidis* isolates from animal sources are phage-typed at the CPHL, Colindale, London. In Northern Ireland the information on all *Salmonella* isolates is passed on a frequent basis to the local Consultant in Communicable Disease Control (CCDC) and to the CDSC, Northern Ireland. Such interdisciplinary public health links should be formally established in both jurisdictions. This would not only lead to enhanced surveillance of foodborne disease but would help safeguard against occupationally acquired infections. In order for the information to be of benefit it must be transferred in a timely fashion to the appropriate veterinarian and/or doctor.

Zoonoses committees have been recently established in each health board in the Republic of Ireland. These are informal multidisciplinary teams of professionals who address local issues relating to zoonoses and public health. Their role and function are being developed and this is being co-ordinated by the FSAI. Reports from these groups should be widely disseminated.

Arrangements for further developing local liaison and communication in Northern Ireland between veterinarians, environmental health officers, the CCDC and microbiologists should be examined.

Generally, the surveillance of food animals comprises the monitoring of salmonellosis in poultry breeding flocks in both jurisdictions and in egg-laying flocks, broiler flocks and most pig herds in the Republic of Ireland. Information relating to other foodborne pathogens, such as *E. coli* O157, *Campylobacter* and salmonellosis in other species is limited. Though these organisms do not cause disease in animals they can cause serious infections in humans. Additional surveillance should be undertaken. It is recommended that as a priority that a review and evaluation of surveillance of foodborne pathogens in food animals should be undertaken in each jurisdiction by the appropriate authorities.

In the Republic of Ireland a voluntary *Salmonella* pig monitoring programme is operated in large-scale pig producing farms by industry using officially approved laboratories. Not all pig farms are included in the scheme. This scheme may become mandatory in the near future. The effectiveness of the programme in the Republic of Ireland should be reviewed and consideration given to the need for a *Salmonella* surveillance programme in Northern Ireland.



There is substantial trade in poultry and poultry products between Northern Ireland and the Republic of Ireland. Northern Ireland and the Republic of Ireland operate statutory Salmonella monitoring in poultry breeding flocks. The Republic of Ireland has extended the programme to table egg laying flocks. Consideration should be given to the re-introduction of a Salmonella monitoring programme for table egg-laying flocks in Northern Ireland.



In addition, a degree of self-monitoring of table egg-laying flocks and broiler flocks is conducted by industry in both jurisdictions. Though information on Salmonella positive flocks is forwarded to the relevant Department of Agriculture in each jurisdiction, the extent of sampling is not fully known as negative tests are not always reported. As this information could be improved, the establishment of a mechanism for its review and collation from industry and private laboratories should be examined. Following the review of the completeness of information available from private monitoring, the need for further surveillance of commercial broiler flocks should be considered.



The monitoring of imported animal protein is a statutory requirement in both jurisdictions. Moreover, codes of practice exist for Salmonella monitoring of feedstuffs in both jurisdictions. The adoption of the codes of practice should be reviewed. The data generated through the schemes and through private monitoring should be collated and made available.

Antimicrobial resistance monitoring in animals should be harmonised in both jurisdictions and linked to overall antimicrobial resistance surveillance. As noted earlier, this implies harmonisation of laboratory practice and recording protocols.

The implementation of the above recommendations will involve increases in the allocation of resources. However, investment in food animal surveillance would go some way to meeting public health concerns and at the same time be beneficial to the promotion of Irish agricultural products in a highly competitive and safety conscious market.

Table 6.1 outlines the comments on surveillance of food animals in Northern Ireland and the Republic of Ireland.

TABLE 6.1
SUMMARY OF COMMENTS ON SURVEILLANCE OF FOOD ANIMALS IN NORTHERN IRELAND AND IN THE REPUBLIC OF IRELAND

Areas of Divergence	Areas of Commonality	Possible Areas of Convergence
<ul style="list-style-type: none"> • Table egg layer Salmonella monitoring in ROI • Salmonella monitoring programme in pigs in ROI • Local authority vets in ROI • NI vet data → Board and CDSC 	<ul style="list-style-type: none"> • Vet laboratory service in both areas (source of information) • EC Directives which set surveillance requirements • Breeding poultry flock monitoring • Local and national zoonoses groups meet in ROI while regional group meets in NI 	<ul style="list-style-type: none"> • Exchange of data on zoonoses in animals • Harmonisation of sampling/minimum data sets • All-island ad hoc surveys • Establish baseline of microbiology data in animals



6.4 Summary of Recommendations

- 6.4a In each jurisdiction the relevant Department of Agriculture should review their systems for the collation of information to ensure a complete, representative and accessible database on foodborne zoonoses. In particular, surveillance and monitoring information generated by the Republic of Ireland Local Authorities' Veterinary Service should be collected and integrated with the information obtained from other sources.
- 6.4b The FSPB should encourage collaboration between the appropriate authorities in both jurisdictions to improve co-ordination, collation and analysis of the foodborne zoonotic information. Harmonisation of these databases would allow collation of relevant food safety data and this should be progressed.
- 6.4c Interdisciplinary public health links should be formally established in each jurisdiction. In particular, arrangements in Northern Ireland for further developing local liaison and communication between veterinarians, environmental health officers, the CCDC and microbiologists should be examined.
- 6.4d It is recommended as a priority that a review and evaluation of surveillance of foodborne pathogens in food animals should be undertaken in each jurisdiction by the appropriate authorities.
- 6.4e Consideration should be given to the implementation of a Salmonella monitoring programme in the pig industry in Northern Ireland.
- 6.4f Consideration should be given to the re-introduction of a Salmonella monitoring programme for table egg-laying flocks in Northern Ireland.
- 6.4g The establishment of a mechanism for the review and collation of foodborne zoonoses information from industry and private laboratories should be examined.
- 6.4h The efficacy of the implementation of a Salmonella monitoring programme for feedstuffs should be examined.
- 6.4i Antimicrobial resistance monitoring in animals should be harmonised in both jurisdictions and linked to overall antimicrobial resistance surveillance.

7 Integrated Surveillance - The Way Forward



7.1 Introduction

We have thus far focused on each of the current surveillance systems for human foodborne illness, zoonoses and food contaminants and we have made several recommendations with regard to each system. These systems have developed independently of each other. However, the objectives of foodborne disease surveillance could be achieved more completely and more efficiently through timely data sharing of food safety epidemiological information. Maximum benefit from the current systems of data gathering could be achieved through co-ordination and linkages across the human, food and animal disease surveillance systems. Ultimately the integration of this information should provide sound science based arguments to support risk assessment, determine priorities for research and public health interventions and policies. Integration of data collection systems and analysis of data should be the guiding principles of the future development of surveillance and monitoring in Northern Ireland and the Republic of Ireland. In fact, such principles underpin the recent EU Commission's White Paper on Food Safety. For this to occur stronger links should be developed between animal disease surveillance and public health authorities. This should ensure that there is closer co-ordination between human, animal and food databases.



One of the aims of improving surveillance is that it should allow a more proactive response to controlling food poisoning. At present much of the response is reactive, i.e. the first indication we have of a new pathogen often comes when people fall ill and it is this that triggers surveys of foods and farm animals. A co-ordinated system would be able to predict with a reasonable degree of confidence the next threat and would thus act as an early warning system. Furthermore, with the identification of foodborne zoonoses in food animals or food products preventative measures could be instituted so that humans do not become ill. Links between foodborne human disease and possible food sources are also required for the early detection of foodborne disease outbreaks. The successful containment of an outbreak also involves links between the surveillance system and the agencies that carry them out.

7.2 Current Data Collection/Dissemination Activities

The main agencies for collecting human data are the DoHC, NDSC and FSAI in the the Republic of Ireland and the CDSC in Northern Ireland. Both the NDSC and CDSC NI have been established within the past two years and are consequently in the process of developing their respective surveillance systems. Data on foods of animal origin and veterinary data is collated by the relevant Department of Agriculture in each jurisdiction. Food data is collated by the FSAI in the Republic of Ireland and the PHL NI. These information sources are all independent and co-ordination of the different sources is not always done.



7.3 Proposed Data Collection/Dissemination Activities

A basic infrastructure for the co-ordination and transfer of food safety surveillance data is required. Data generated and required at local level (health board or equivalent) would be more complete and comprehensive than at the jurisdictional level. Local public health professionals will need to access relevant local and jurisdictional information in a timely fashion. At jurisdictional level, information from the different surveillance systems will be integrated, analysed, interpreted and disseminated regionally. At another level, the FSPB will co-ordinate the integration of jurisdictional data and it will interface between the different jurisdictions and agencies. A mechanism to ensure the co-ordination of the surveillance data and its dissemination is required. It is recommended that the FSPB facilitate this. Close collaboration between government departments, local authorities, health boards and national agencies will be required.

In Northern Ireland nominees of the Chief Veterinary Officer, Chief Medical Officer and Chief EHO and representatives from CDSC NI and the PHL NI meet on a regular basis in a forum called the Northern Ireland Food Surveillance Group (NIFSG) to discuss food safety issues relating to the entire region. The Chief Scientific Officer, DARD, chairs the group. Human, food and animal surveillance information is combined and considered. This group may commission surveys. It is recommended that the Chief Executives of the FSPB and the FSA NI should participate in this group.

A similar high-level forum should be established in the Republic of Ireland to discuss and implement food safety surveillance programmes. An ad hoc group from DAFRD, NDSC and FSAI already meet several times per year to agree data for the Institute for Health Protection of Consumers and Veterinary Medicine (BGVV). This group could be established on a more formal footing.

The FSPB should facilitate regular joint meetings of personnel from both jurisdictions to discuss relevant all-island food safety issues.

The FSPB should commission a study with the aim to map, in detail, current foodborne disease surveillance, laboratory activities and monitoring activities occurring within and among agencies throughout the island to investigate how relevant information from these can be integrated and utilised to provide surveillance.

The epidemiological databases for the various surveillance systems are very complex and it is difficult to get strictly comparable information on the various micro-organisms of concern. There is an urgent need to ensure conformity in data collection and reporting among the relevant agencies. For example, as the range of tests carried out on samples differs from laboratory to laboratory, interpretation of data generated is difficult and comparisons cannot be made.

Therefore, in order to merge data from various sources, harmonisation of laboratory practice, data collection and recording systems is required. This can only be achieved with adequate resourcing and commitment at all levels and among all agencies.



The implementation of a computerised information network to facilitate exchange of information would provide a link between all the relevant surveillance agencies and the information suppliers. Such a development should improve the information flow at local, regional, national and cross-border levels. A mechanism to advance an integrated computerised information network to allow relevant information exchange should be considered by the FSPB.



Reference services provide detailed identification and information on microbiological pathogens. When foodborne pathogens from all sources (human, animal and food) are compared at a detailed level (including molecular), much enhanced and co-ordinated surveillance can be achieved. Upon screening of identification data of the isolates from the different sources at the reference centres, trends and clusters of disease may be rapidly detected at any point in the food chain continuum. This analysis could be conducted in collaboration with the submitting laboratories. Once important trends are detected, they can be communicated in a timely way to relevant public health officials and jurisdictions. Rapid controls and prevention measures could then be instituted. As noted earlier, it is important that adequate enteric reference services are available.



Combined integrated surveillance data should be widely available in a timely way. It is recommended that a publication that combines data from the various surveillance systems be made available. The FSPB should ensure that this information is collected and published.

It is recognised that to achieve a comprehensive and integrated surveillance system, substantial funding and resources will be required. However, the information obtained will provide the sound science based arguments that are necessary to protect public health and restore consumer confidence in the food supply.

7.4 Summary of Recommendations

7.4a Integration of data collection systems and analysis of data should be the guiding principles of the future development of surveillance and monitoring in Northern Ireland and the Republic of Ireland.

7.4b In each jurisdiction stronger links should be developed between animal disease surveillance and public health authorities so that there is closer co-ordination between human, animal and food databases.

7.4c A mechanism to ensure the co-ordination of the surveillance data and its dissemination should be considered. The FSPB should facilitate this.

7.4d The Chief Executives of the FSPB and FSA NI should participate in the NIFSG.

7.4e In the Republic of Ireland a forum to discuss the implementation of food safety policy should be established and it should include the Chief Veterinary Officer, Chief Medical Officer, Chief EHO and the Chief Executives of the FSPB, FSAI and NDSC.



7.4f The FSPB should commission a study with the aim to map, in detail, current foodborne disease surveillance, laboratory activities and monitoring activities occurring within and among agencies throughout the island to investigate how relevant information from these can be integrated and utilised to provide surveillance.



7.4g The FSPB should facilitate regular joint meetings of officials from both jurisdictions to discuss relevant all-island food safety issues.



7.4h There is an urgent need to ensure conformity in data collection and reporting among the relevant agencies conducting surveillance and monitoring of the food supply.

7.4i A mechanism to advance an integrated computerised information network to allow relevant information exchange should be considered by the FSPB.

7.4j It is important that adequate enteric reference services be available.

7.4k A publication that combines data from the various surveillance systems should be made available. The FSPB should ensure that this information is collected and published on a frequent basis.

8 Training and Research



8.1 Training

Governments and industry have a significant investment in food safety and it is important that public health personnel are regularly informed of the latest developments and supported through training and education.



Surveillance involves collection, collation, analysis, interpretation and dissemination of information for action. Training must reflect each of these components. Integration of surveillance information will become increasingly dependent on advances in information technology and data handling techniques. Because closer liaison is required by integrated surveillance, it is crucial that training is delivered on a multi-disciplinary basis.



A training needs analysis should, therefore, be commissioned by the FSPB through the appropriate agencies in each jurisdiction. The FSPB, with relevant agencies, should then support the development of the appropriate training modules.

It is already recognised that there is a need for professionals involved in food safety to be aware of the roles of others, to share experiences about best practice and outbreak investigation. Currently, there are limited opportunities to network and develop best practice on an all-island basis. This networking should be facilitated by the FSPB and should take place in a uni- and multi-disciplinary way.

Understanding the principles of surveillance and how it is performed in the relevant jurisdiction should be part of any undergraduate curriculum in food safety and public health. More importantly, there is a requirement that this should form part of postgraduate and continuous professional development courses. Opportunities should exist at health board level, regional level and on an all-island basis for such training. The FSPB should liaise with relevant bodies and agencies and support these training initiatives. International training programmes in epidemiology already exist within Europe (EPIET) and the USA (EIS). The FSPB should promote participation in these programmes.

Surveillance methodologies and laboratory practices are continuing to evolve and it is essential that professionals are aware of the developments and their implications. Links and collaborations with centres of excellence, such as the PHLS Colindale, the CDC Atlanta and other European centres of excellence would enable this to be undertaken. The FSPB should promote and support these links.

8.2 Research

Given the enormous financial burden that foodborne disease has on the health system and the wider economy, basic and applied research into the surveillance of foodborne illness should be carried out. The surveillance research agenda of the FSPB should be sufficiently broad to cover the entire farm-to-fork continuum and to address information needs at all points along the farm-to-fork chain.



It is critical to identify and establish linkages between pathogens present on or in foods and consequent human disease and to use this information to identify effective interventions consistent with the public health risk and to reduce foodborne illness. There already exists marked differences in the incidence rates of laboratory reported enteric infections between regions and the reasons for these differences need to be urgently determined. Therefore, areas of immediate research interest should include: the relative incidence of disease due to foodborne pathogens, the vehicles associated with the illness and the accurate determination of the cost of illness.

Both government and industry need to provide greater funding and support for this research. Specifically research into the following is recommended:

- ✔ population-based sentinel studies to establish the background incidence of diarrhoeal disease and to identify the relative significance of different pathogens
- ✔ case control studies to identify:
 - risk factors for illness
 - opportunities for prevention
 - vehicles of infection in the absence of microbiological confirmation
 - sources of foodborne pathogens
- ✔ baseline studies on the prevalence of foodborne pathogens, VTEC, Campylobacter and Salmonella in food animals
- ✔ costs associated with foodborne illness
- ✔ studies to determine the risk factors for the occurrence of foodborne pathogens in food animals and to devise appropriate and cost-effective interventions.

8.3 Summary of Recommendations

8.3a A training needs analysis should be commissioned by the FSPB through the appropriate agencies in each jurisdiction. The FSPB, with relevant agencies, should then support the development of the appropriate training modules

8.3b Networking should be facilitated by the FSPB and should take place in a uni- and multi-disciplinary way

8.3c The FSPB should liaise with relevant bodies and agencies and support post-graduate and professional training initiatives

8.3d The FSPB should promote participation in international training programmes such as EPIET and EIS

8.3e Links and collaborations with centres of excellence such as the PHLS Colindale, the CDC Atlanta and other European centres of excellence should be promoted and supported by the FSPB



8.3f The surveillance research agenda of the FSPB should be broad based



8.3g Research into the following is recommended:



- ✔ population-based sentinel studies to establish the background incidence of diarrhoeal disease and to identify the relative significance of different pathogens
- ✔ case control studies to identify:
 - risk factors for illness
 - opportunities for prevention
 - vehicles of infection in the absence of microbiological confirmation
 - sources of foodborne pathogens
- ✔ baseline studies on the prevalence of foodborne pathogens, VTEC, Campylobacter and Salmonella in food animals
- ✔ costs associated with foodborne illness
- ✔ studies to determine the risk factors for the occurrence of foodborne pathogens in food animals and to devise appropriate and cost-effective interventions.



9 Agencies Involved in Surveillance Activities



9.1 Agencies Involved in Surveillance

Food safety is the responsibility of numerous and diverse stakeholders and partnerships provide the links that are necessary to build a co-ordinated and cohesive framework for action. Partnerships can improve efficiency and provide a mechanism for information and technology transfer. The potential for partnerships in food safety is large and includes all partners: government, the private sector and consumers.

Those agencies and bodies in the public sector in Northern Ireland and the Republic of Ireland are outlined in Tables 9.1 and 9.2, respectively. Partnerships between the FSPB and other public sector bodies in the system can ensure that surveillance and monitoring efforts provide sufficient information to maintain and improve effectiveness.

TABLE 9.1
OVERVIEW OF OFFICIAL AGENCIES/GROUPS INVOLVED IN FOOD SAFETY IN NORTHERN IRELAND

Agency	Role
Communicable Disease Surveillance Centre (CDSC)	Surveillance of communicable diseases in humans
Water Service	Responsible for the supply and distribution of public water supplies
Drinking Water Inspectorate	Ensures implementation of appropriate water quality regulations in public and private water supplies
Northern Ireland Food Group (NIFG)	EHO and PHL sampling programme co-ordination
Department of Health, Social Services and Public Safety (DHSSPS)	Formulates and disseminates health, social and public safety policy
Public Health Laboratory (PHL)	Testing and monitoring of foodstuffs
Food Standards Agency, Northern Ireland (FSA NI)	Enforcement of food control legislation
Department of Agriculture and Rural Development, Northern Ireland (DARD NI)	Monitoring of animal diseases and zoonotic agents in animals, residue monitoring, implementation of legislation on food control
Northern Ireland Food Surveillance Group (NIFSG)	High level multi-disciplinary group examining regional food data
Regional Advisory Committee on Communicable Disease Control (RACCCDC)	Multi-disciplinary group advising the Chief Medical Officer on communicable disease issues
Irish Society of Clinical Microbiologists (ISCM)	Professional society for clinical microbiologists
Public Health Laboratory Service UK (PHLS UK)	Provides laboratory reference and epidemiological services
Food Safety Promotion Board (FSPB)	Promotion and research into food safety, disease surveillance, risk assessment and promotion of scientific co-operation



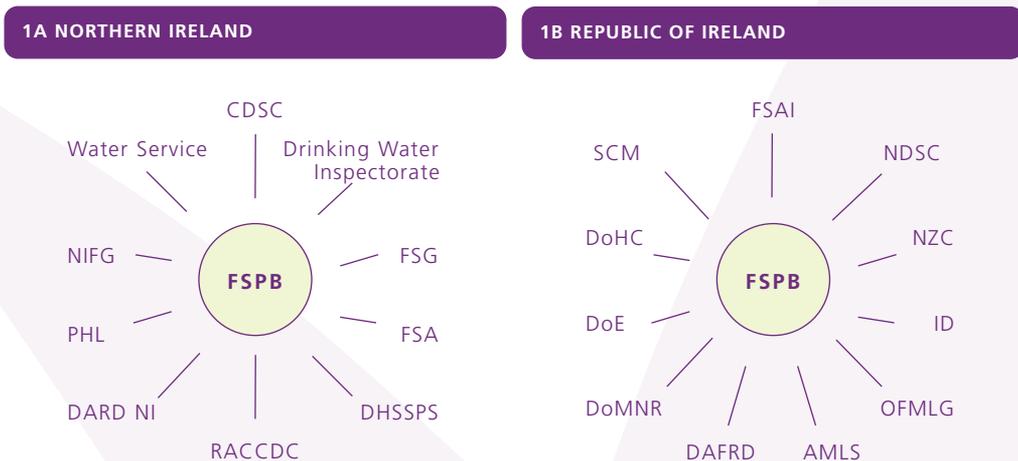
TABLE 9.2

OVERVIEW OF OFFICIAL AGENCIES/GROUPS INVOLVED IN FOOD SAFETY IN THE REPUBLIC OF IRELAND

Agency	Role
Food Safety Authority of Ireland (FSAI)	Food law enforcement and fosters food safety with industry
National Disease Surveillance Centre (NDSC)	Surveillance of communicable diseases in humans
Department of Health and Children(DoHC)	Formulates and disseminates health and social policy, promotes research and training
National Zoonoses Committee (NZC)	Multi-disciplinary sharing information at jurisdictional level
Department of Environment (DoE)	Water monitoring, local authority veterinary service
National Infectious Disease Working Group (ID)	Specialists in public health medicine, co-ordination and development of guidelines
Department of Marine + Natural Resources (DoMNR)	Monitoring of fish and shellfish
Official Food Microbiology Laboratory Group (OFMLG)	Co-ordinating group for public health laboratories, conducting food testing
Department of Agriculture, Food and Rural Development (DAFRD)	Implements food control legislation
Interim National Salmonella Reference Laboratory, NUI Galway	Interim reference laboratory for clinical and foodborne salmonella referencing
Central Veterinary Research Laboratory	National Salmonella reference laboratory for foods of animal origin
Academy of Medical Laboratory Sciences (AMLS)	Professional body providing advice and governing work of technical laboratory personnel
Irish Society of Clinical Microbiologists (ISCM)	Professional body of clinical microbiologists
Public Health Laboratory Service UK (PHLS UK)	Provides laboratory reference and epidemiological service
Food Safety Promotion Board (FSPB)	Promotion and research into food safety, disease surveillance, risk assessment and promotion of scientific co-operation
Environmental Protection Agency (EPA)	Water monitoring

FIGURE 1

OFFICIAL BODIES INVOLVED IN FOOD SAFETY SURVEILLANCE ACTIVITIES



10 Conclusion



The implementation of the recommendations detailed throughout this consultation paper will involve the increased allocation of resources. However, an improved food surveillance strategy is urgently required as there are weaknesses in the present system. There is currently incomplete knowledge about the seriousness, incidence and cost of foodborne disease. Information is lacking on the association of pathogens with food animals.



An improved and integrated food surveillance strategy as outlined in this consultation paper, will contribute greatly to facilitating and informing the scientific foundation of food safety. Such surveillance is required to fully realise the benefits of the valuable and critical tool of risk analysis. Furthermore, investment in food safety surveillance would go some way to meeting public health concerns while at the same time benefiting the promotion of Irish food products in a highly competitive and safety conscious market.



Appendices



Surveillance of Foodborne Disease in Northern Ireland

Contents

- 1 Introduction
- 2 Notifiable Diseases
- 3 Hospital Laboratories
- 4 Death Certificates
- 5 Outbreak Investigations
- 6 Liaison with the Veterinary Service
- 7 Development Plans

- Annex 1 Notifiable Diseases
- Annex 2 Organisms/conditions to be Reported

1 Introduction

This paper describes the current system of surveillance of foodborne diseases within Northern Ireland and outlines the projected development of the system.

The definition of foodborne disease used in Northern Ireland and elsewhere in the UK is that as recommended by the Advisory Committee of the Microbiological Safety of Food (ACMSF). The various sources of data employed in foodborne disease surveillance include:

- disease notification
- laboratory surveillance
- death certificates
- outbreak investigation
- food inspection
- animal health monitoring.

The data from these various sources are collected and managed by different organisations. In 1998 the Department of Health, Social Services and Public Safety (DHSSPS) contracted with the Public Health Laboratory Service Communicable Disease Surveillance Centre (PHLS - CDSC) to provide a regional epidemiology service in Northern Ireland. This led to the establishment of the Communicable Disease Surveillance Centre (CDSC NI) located at Belfast City Hospital.

CDSC NI has the responsibility to collate, analyse and interpret various sources of data in order to provide an overall regional perspective on food borne disease. Data is collected on bacterial, viral and other enteric diseases as well as information on family, institutional and community outbreaks of food poisoning or waterborne disease.

Essential information is provided to the DHSSPS to inform the development of policies for foodborne disease prevention and control. CDSC NI also provides advice and operational support to Directors of Public Health and others involved in communicable disease control on a 24 hour basis. The Unit also has training and research functions.

Each Health and Social Services Board is required to appoint a Consultant in Communicable Disease Control (CCDC). The CCDC is responsible to the Board's Director of Public Health (DPH) for the surveillance, prevention, investigation and control of communicable disease in that area. Each Board's Department of Public Health Medicine provides 24 hour cover for communicable disease control.

2 Notifiable Diseases

All doctors are legally required to notify certain infectious diseases (Annex 1) included in which are Food Poisoning and Gastro-enteritis (persons under 2 years).

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 –

- (a) the name, age, sex and address of the patient
- (b) the address of the building in which the examination took place, and
- (c) the notifiable disease from which, in the opinion of the Medical Practitioner, the patient is, or may be suffering".

However, the above does not apply where the diagnosis is made in the Northern Ireland Fever Hospital (Belvoir Park).

There are four Health and Social Services Boards in Northern Ireland (Eastern, Northern, Southern and Western). Notification of disease is sent to the Director of Public Health (DPH) in the relevant Board but the function of receiving these notifications is normally delegated to the CCDC. Weekly summaries of notifiable diseases are made by each Board and sent to DHSSPS, which forwards them to CDSC NI. These reports only contain total numbers for each notifiable disease for each Health and Social Services Trust area and no details of name, age, sex, district council, etc.

Within each Board the notification details are manually entered onto a database. This allows a varying degree of analysis and facilitates calculation of notification payments to doctors. The CCDCs use similar but not identical databases.

CDSC NI produces the 'Northern Ireland Communicable Disease Monthly Report'. This report contains details of outbreaks, surveillance trends, recent policy issues, laboratory summary data and notifications by Board and for Northern Ireland. In addition, in some Boards, a newsheet giving summary local data is produced which is sent to GPs, hospital clinicians, laboratories, environmental health officers and selected other professionals.

The notification system includes all doctors, both GP and hospital, but there is considerable under-notification and delays can occur so hampering investigations. Notification is based on clinical suspicion and does not necessarily require laboratory confirmation. The system only reports those conditions which present to a doctor and the details completed on the notification form are often incomplete. None of the notifiable diseases are associated with clinical case definitions.

3 Hospital Laboratories

Clinical laboratories inform each CCDC when they identify an organism of public health significance. Reporting of such organisms is from a list agreed between the local microbiologist and the CCDC. These reports initiate public health action as well as providing local surveillance data. The laboratory reporting is voluntary but is recognised as good professional practice.

In addition clinical laboratories send in weekly returns of 'significant organisms' to the CDSC NI. The organisms to be reported are based on a list produced by the PHLS (last revision June 2000) with a few additions agreed with local microbiologists (Annex 2). The laboratory data is then manually entered onto the regional database held by CDSC NI. These returns are therefore analysed by CDSC NI on a Northern Ireland wide basis and a summary is produced in the monthly report.

3.1 Regional Infectious Disease Unit

Until the closure of the Northern Ireland Fever Hospital several years ago, lists of infectious disease admissions were faxed to CCDCs. Summaries of these admissions were produced in the 'Northern Ireland Communicable Disease Monthly Report'.

With the closure of the Fever Hospital, there is now a ward in the Royal Victoria Hospital and one in the Royal Belfast Hospital for Sick Children for patients with communicable disease. Initially they did provide daily admission information but as both adults and children with communicable disease were also being cared for in other non-specialist medical wards, not just in these hospitals but in others in Northern Ireland, the value of such information decreased. It was considered that the notification process coupled with laboratory based reports of gastrointestinal and other infections would be sufficient for routine surveillance purposes.

4 Death Certificates

The Registrar General's report, produced on an annual and quarterly basis, gives an overall summary of causes of death including infectious diseases, but there is considerable time delay before this is produced and there is no identification of individual cases. In some Boards, death certificates are briefly screened by the CCDC each week to determine if there has been a death from a notifiable infectious disease. Since 1999 death certificates are forwarded by the Registrar General to CDSC NI if an infectious cause is stated (ICD 1-139). This includes name, age, sex and address.

5 Outbreak Investigations

Outbreaks are detected by various means. The GP (or other health professional) may notice a shared exposure among self-reporting cases and report the cluster to the CCDC. The CCDC may detect an outbreak through the disease notification or laboratory surveillance systems. Members of the general public, institutions or the news media may detect an outbreak and report it.

The CCDC informs the Environmental Health Departments of Local Authorities on possible cases of food poisoning. An environmental health officer (EHO) then interviews the cases and details of symptoms and food consumed in the 72 hours prior to onset of symptoms are obtained. This may be by telephone or face to face interview. In some areas these details are examined at Group level by a Senior EHO to ascertain if any there is any common feature to link different food poisoning cases. At present this is not computerised and relies on the memory of the EHO to recognise that a source has occurred more than once.

In some areas, details are not routinely returned to the CCDC. The CCDC may only be informed when a likely source has been found or where it appears that an outbreak may be occurring. In other areas results of investigations are routinely returned to the CCDC.

In addition, EHOs receive complaints/information direct from the public and carry out a similar investigation in these circumstances. In some localities the outcome of the investigation is forwarded to the CCDC.

In an outbreak situation the CCDC may convene an Outbreak Control Team involving among others the local microbiologist and EHOs. The CCDC leads the investigation and oversees the production of the outbreak report. An outbreak summary form is completed and returned to the CDSC NI. However these forms are not always completed due to time pressures. Sometimes the complete outbreak report is forwarded to CDSC NI.

The system of outbreak detection and investigation is limited as not all food poisoning cases are notified and there may be considerable elapse of time between the initial outbreak end its investigation.

6 Liaison with the Veterinary Service

At a local level the CCDC liases with the Divisional Veterinary Officer (DVO (DARD NI)) when a particular farm or herd/flock appears to be associated with foodborne infection in humans. Similarly should the DVO be aware of Salmonella in a herd/flock he/she would pass this information to the CCDC particularly if there were reports of human illness associated with animals. In some localities there are annual meetings between the CCDC and the DVOs to review operational issues and communications.

7 Development Plans

One of the major tasks of CDSC NI in the next 12-24 months is to install CoSurv. This is a laboratory based computer software system which will facilitate the electronic transmission of data from microbiology laboratories to the local CCDC as well as to CDSC NI for onward transmission to the national database at CDSC in London. This will avoid much of the data entry which is currently being undertaken at Board level and at CDSC NI. It will also enable the laboratories to analyse their own data, a facility which has not previously been available to most laboratories. CoSurv is being used in the majority of clinical laboratories in England and Wales and DHSSPS has requested that it be implemented in Northern Ireland.

There is a separate module for the CCDC onto which can be entered the notification data. Thus at a Board level the CCDC will have both the laboratory and notification data on the same system. This can then be automatically down loaded to CDSC NI at weekly intervals

Annex 1

Notifiable Diseases

Acute Encephalitis/Meningitis: bacterial	Mumps
Acute Encephalitis/Meningitis: viral	Paratyphoid Fever
Anthrax	Plague
Chickenpox	Poliomyelitis (Acute)
Cholera	Rabies
Diphtheria	Relapsing Fever
Dysentery	Rubella
Food Poisoning	Scarlet Fever
Gastro-enteritis (persons under 2 years)	Smallpox
Hepatitis A	Tetanus
Hepatitis B	Tuberculosis (Non- Pulmonary)
Hepatitis unspecified: viral	Tuberculosis (Pulmonary)
Legionnaires Disease	Typhoid Fever
Leptospirosis	Typhus
Malaria	Viral Haemorrhagic Fevers
Measles	Whooping Cough
Meningococcal Septicaemia	Yellow Fever

Annex 2

Organisms/Conditions to be Reported

The primary laboratory which received the initial specimen, is the one which reports the organism/condition to CDSC NI. Reports are for the week ending on Friday. The criteria used for reporting are those used for reporting to the Communicable Disease Report (CDR):

- ✔ all identifications from faeces
- ✔ symptomatic infections only, with exceptions of all virus infections in pregnancy, typhoid, diphtheria or individuals in outbreaks
- ✔ every organism of clinical significance isolated from blood cultures or metastatic infections
- ✔ every organism causing meningitis, encephalitis or endocarditis
- ✔ organisms or conditions of particular interest (e.g. toxic shock, toxic food poisoning, osteomyelitis, septic arthritis, serious cellulitis, gangrene, MRSA associated with outbreaks)
- ✔ all viruses, Chlamydia, Coxiella, Rickettsia, and Mycoplasma infections.

List of Organisms to be Reported

1 Identification from faeces and non-faecal isolates of:

<i>B. cereus</i>	Hookworm
<i>Campylobacter</i>	<i>Salmonella</i>
<i>C. perfringens</i>	Schistosoma
<i>Cryptosporidium</i>	<i>Shigella</i>
<i>E. histolytica</i>	<i>T. trichuria</i>
<i>E. coli</i> (enteropathogenic or toxigenic)	Other helminths (specify)
<i>G. lamblia</i>	

2 Every organism listed below:

Bacterial infections:

Actinomyces
Aeromonas
Anthrax
B. pertussis
Borrelia
Brucella
C. botulinum
C. tetani
Clostridium (other pathogenic species)
Corynebacterium diphtheria (toxigenic)
Corynebacterium other
Erysepilothrix
Gas gangrene (specify organism)
Legionella

Leptospira
Listeria
Mycobacterium
N. gonorrhoeae
N. meningitidis
Nocardia
Ophthalmia neonatorum (by organism)
Pasturella
Plesiomonas
Streptobacillus moniliformis
Vibrio
Yersinia

Fungal Infections:

a. Deep seated

Aspergillus
Candida/Torulopsis
Coccidioides

Cryptococcus
Histoplasma
Pneumocystis

b. Superficial

Trichophyton mentagrophytes/interdigitale
Trichophyton rubrum
Trichophyton tonsurans
Trichophyton verrucosum
Trichophyton violaceum
Trichophyton other
Candida albicans of skin/nail if microscopy is positive

Epidermophyton floccosum
Microsporum audouinii
Microsporum canis
Microsporum gypseum
Microsporum other
Malassezia furfur

c. Serology

Aspergillus fumigatus
Bird fancier's disease

Candida
Farmers' lung

Helminths:

Diphyllobothrium
Dracunculus
Echinococcus
Fasciola

Protozoa:

Acanthamoeba
Amoebiasis
Hartmanella
Leishmania

Viral and other infections:

Adenovirus
Arbovirus
Astrovirus
Calicivirus
Chlamydia psittaci
Chlamydia trachomatis
Coronavirus
Cowpox
Coxiella
Coxsackie
Cytomegalovirus
E B virus
Echovirus
Hepatitis A
Hepatitis B
Hepatitis C
Herpes simplex
HIV
HTLV
Infectious mononucleosis
(Monospot or Paul-Bunnell)

Strongyloides
Taenia
Toxocara

Naegleria
Plasmodium
Toxoplasma
Trypanosoma

Influenza
LCM virus
Measles
Molluscum contagiosum
Mumps
Mycoplasma pneumoniae
Orf/paravaccinia
Papillomavirus
Papovavirus
Parainfluenza
Parvovirus B19
Poliovirus
Polyomavirus
Rabies
Reovirus
Rhinovirus
Rickettsia
Rotavirus
RS virus
Rubella
Varicella zoster (neonatal, meningitis, encephalitis, pneumonia, pregnant cases or deaths only)

3 All isolates from CSF and blood

Food Surveillance in Northern Ireland

Contents

- 1 Introduction
- 2 Laboratory Services
- 3 Surveillance
- 4 Sample Collection and Testing
- 5 Food Hazards
- 6 Food Standards Agency

1 Introduction

In Northern Ireland there is a hierarchical arrangement for food surveillance. Surveillance includes microbiological and chemical sampling at the following levels:

- ✔ EU Co-ordinated Programme
- ✔ UK Surveillance
- ✔ Northern Ireland Surveillance
- ✔ Local Surveillance
- ✔ Imported Foods
- ✔ Routine Random Sampling

The key players associated with surveillance are MAFF, DoH, DHSSPS (Northern Ireland), DARD, District Councils, PHL and the Public Analyst.

2 Laboratory Services

The main laboratories associated with analytical services and testing are:

DARD	- microbiology, chemicals and radionuclides
PHL	- microbiology
Public Analyst	- chemical, composition and labelling

The above laboratories are accredited by the UK Accreditation Service and fulfil the UK's obligations under the Official Control of Foodstuffs (Additional Measures) Directive. The DARD laboratory for Salmonella is the National Reference Laboratory under Directive 92/117 in respect of salmonellosis in animals.

3 Surveillance

Sampling associated with the hierarchy referred to in the introduction above is generated as follows:

- ✔ EU Co-ordinated Programme – MAFF/DoH/DHSSPS (Northern Ireland) ensures District Councils (EHOs) collect samples according to set protocols and have them delivered to the appropriate laboratory. DARD co-ordinate sampling for veterinary purposes
- ✔ UK Surveillance – MAFF, DoH, DHSSPS and DARD. Surveillance at this level may form part of a UK National Surveillance Programme e.g. residues in meat, pesticides, etc. on work identified by MAFF or DoH on foot of advice from scientific committees e.g. ACMSF

- 🍌 Northern Ireland Surveillance – DHSSPS, DARD, District Councils, Public Analyst and Public Health Laboratory. Surveillance data at this level may be generated by one or more of the above groups. This work involves a structured survey and is co-ordinated by either the Northern Ireland Food Surveillance Group (NIFSG) or the Northern Ireland Food Liaison Group (NIFLG). The NIFSG is made up of representatives from all four bodies whereas the NIFLG is made up of representatives of DHSSPS and District Councils with agreement being sought with the PHL or Public Analyst
- 🍌 Local Surveillance – District Councils, PHL and Public Analyst. Surveillance at this level is normally by way of routine sampling of a range of foodstuffs
- 🍌 Imported Foods – District Councils, PHL and Public Analyst. Imported food is targeted at Belfast Sea Port and Belfast International Airport. Belfast is a Border Inspection Post for products of animal origin originating from outside the EU. Products of non-animal origin e.g. spices, nuts etc. are routinely sampled.

4 Sample Collection and Testing

The authority responsible for the collection of samples is generally associated with the source of the sample. DARD through its veterinary officers and agri-food inspectorate will normally take samples on farms, slaughter houses/cutting plants and in liquid milk plants. District Councils through their EHOs will normally take samples in all other cases. DARD will normally use their own laboratories and District Councils normally submit samples to the PHL for microbiological analysis and to the Public Analyst for chemical analysis. District Councils have developed sampling policies, sampling programmes and sampling procedures for both microbiological and chemical sampling. Sampling is programmed with the PHL and Public Analyst with whom service level agreements exist.

5 Food Hazards

In the event of surveillance identifying a public health risk, there is in place arrangements to ensure the appropriate authorities are notified and remedial measures taken. The principal guidance in this area is Statutory Code of Practice No 14 – Food Hazard Warnings. This system also links into the UK RAPEX alert procedure for notifications to the EC. In Northern Ireland DHSSPS is responsible for advising DoH (London) who in turn will advise the Commission.

6 Food Standards Agency

The introduction of the FSA will have a significant impact on the roles of DHSSPS and DARD. Food policy, legislation, co-ordination, guidance etc. will transfer to the FSA. Northern Ireland will have an executive limb of the UK Agency with a Chairman and committee plus a Director and support staff.

The Surveillance of Foodborne Disease in the Republic of Ireland

Contents

1	Introduction	58
2	National Infectious Disease Notification System	59
3	Additional National Surveillance	60
4	Regional Voluntary Laboratory Surveillance Systems	61
5	Developments in surveillance of foodborne diseases	62

1 Introduction

There are several different agencies involved in surveillance of human foodborne disease in Ireland. National responsibility for the surveillance of foodborne disease rests with the Director of the NDSC and the Minister for Health and Children. There are seven Health Boards in Ireland and one Regional Health Authority, which is subdivided into three area Health Boards. Within each Health Board Region/Authority, the Director of Public Health is the person with the responsibility for the prevention, surveillance and control of infectious disease.

More recently two other bodies have been formed, namely the NDSC and the FSAI. The NDSC was set up in November 1998, on an interim basis. The Minister for Health and Children stated his intention to set up NDSC as an independent statutory authority with the responsibility for co-ordination of national surveillance. NDSC provides advice and operational support to Directors of Public Health and Specialists in Public Health Medicine and others. It also has a training and research function.

The FSAI is an independent statutory body, set up under the Food Safety Authority of Ireland Act, 1998. Its role and legal responsibility is to ensure that food produced, distributed or marketed in the State meets the highest standards reasonably achievable.

The FSAI is responsible for the enforcement of all food safety legislation in Ireland. The Authority operates the national food safety compliance programme by means of service contracts with the 47 government agencies currently involved in the enforcement of food legislation. These contracts, which came into effect in July 1999, outline an agreed level and standard of food safety activity that the agencies perform as agents of the Authority. The FSAI was set up with no direct role in legislation with regard to surveillance.

Surveillance of human illness due to foodborne disease in the Republic of Ireland is carried out using the following sources of information:

- National Infectious Disease Notification System (Statutory Notification System)
- Regional voluntary laboratory surveillance systems
- Enhanced epidemiological surveillance system for *VTEC O157*
- Outbreak surveillance system
- Salmonella typing laboratory information, NUI Galway.

2 National Infectious Disease Notification system

2.1 Notifiable diseases

The 1947 Health Act entitles the Minister to specify by regulation the diseases that are infectious diseases and covered by legislation. This list was first specified in the Health Regulations 1948. The principal current regulations are contained in the 1981 Infectious Disease Regulations, which have been revised in 1985, 1988 and 1996. There are no case definitions for these diseases.

Foodborne illnesses that are notifiable are:

- ✔ Cholera
- ✔ Bacillary Dysentery
- ✔ Food Poisoning (bacterial other than Salmonella)
- ✔ Gastroenteritis (when contracted by children under 2 years)
- ✔ Typhoid and Paratyphoid
- ✔ Viral hepatitis Type A
- ✔ Salmonellosis (other than Typhoid or Paratyphoid).

2.2 The notifier

As soon as a medical practitioner becomes aware of, or suspects that a person on whom he is in professional attendance is suffering from or is the carrier of an infectious disease, he is required to transmit a written notification to a Medical Officer. Where a serious outbreak of infectious disease is suspected, he is also required to give immediate preliminary notification to the Medical Officer. This is usually by phone. A medical practitioner is defined as a person whose name appears in the general register of medical practitioners. A payment of the equivalent of £2 is payable to the medical practitioner by the Health Board for this notification.

A Medical Officer (MO) in law means a Director of Public Health, a Public Health Specialist, a Medical Officer of Health, the Dublin Medical Officer of Health (this post no longer exists), a Senior Area Medical Officer (SAMO) and an Area Medical Officer of a Health Board.

In most Health Boards there is a form for completion by the notifying medical practitioner. In some Health Boards one form is used throughout the region but in others different forms are used in different counties within the region. There is no current national standard form. The form is sent to the SAMO of the area of residence of the patient, or to the Director of Public Health of the Health Board.

2.3 Obligation of MO to Report Notifiable Diseases

The MO is required to furnish to the Director of the NDSC by the Wednesday of each week a return of the cases of infectious diseases notified to him in the week ending on the previous Saturday. He is also required to furnish, as soon as possible, a detailed report on each case of such infectious disease as the Director of the NDSC may specify and to keep records as may be directed by the Director of the NDSC from time to time in relation to the exercise of its powers and the performance of duties under these regulations.

For the purposes of reporting weekly to the Director of the NDSC, the MO is the Director of Public Health or the SAMO. There is no requirement to collate information at Health Board level prior to reporting to the Minister. Therefore, in some regions this information is not collated weekly at Health Board level.

Since July 2000, the minimum data set required for each notification is an identifier, county/reporting area, age/date of birth, sex, diagnosis, date of onset/date of diagnosis/date of report of illness and date of notification of illness.

2.4 Role of the National Disease Surveillance Centre

Notifications received by the NDSC are entered onto an Epi-Info database. Every Friday, a weekly report (Weekly Infectious Disease Report) is compiled summarising the number of cases in each disease category by reporting region and Health Board, and by age and gender. A comparison with the previous year's data is included in this report. This information is distributed to the MOs, the FSAI, the FSPB and is published on the NDSC web site.

Epi-Insight is a monthly publication of the NDSC in which papers providing more detailed analysis of trends in selected infectious diseases are reported. A Salmonella Monthly Report is also published in Epi-Insight. Data in the Salmonella Monthly Report is tabulated by serotype and by Health Board region.

2.5 Feedback of Information on Notifiable Diseases

In some Health Boards, information received from medical practitioners is computerised on receipt and feedback given to providers of information in the form of regular bulletins. Such feedback is not routinely provided in all Health Board regions.

3 Additional National Surveillance

3.1 Enhanced Epidemiological Surveillance System for VTEC O157

In 1999, the NDSC and the Directors of Public Health agreed priority diseases for enhanced surveillance and *E. coli* O157 was one of the priority diseases chosen.

Laboratories have been requested to notify public health specialists of any suspected case of *E. coli* O157. On notification of a case, an epidemiological and environmental investigation is initiated and the NDSC is notified by fax. Once the investigation is completed the final report is sent to the NDSC. The NDSC produces periodic reports for information providers and for other interested parties. This enhanced surveillance system commenced in January 1999 and is currently under review.

3.2 Outbreak Surveillance System

In 1998, the FSAI introduced a system for surveillance of outbreaks of infectious gastrointestinal disease. The system documents all general outbreaks of gastroenteritis, not just those transmitted by food and all family VTEC outbreaks. In July 2001, the NDSC assumed responsibility for the Outbreak Surveillance System. On initial suspicion of a foodborne outbreak, the NDSC is notified by phone, giving basic information.

Once the outbreak has been investigated, the NDSC staff follow up with the notifier and seek completion of a standardised outbreak surveillance form, which details numbers ill, sampling, organism identified, vehicle of infection, route of transmission etc.

Information on outbreaks in Ireland is available for 1998, 1999 and 2000 and feedback has been provided to Health Boards.

3.3 The Interim National Salmonella Reference Laboratory, Galway

In 2000, the Interim National Salmonella Reference Laboratory, directed by Professor Martin Cormican was established. Detailed information on Salmonella phage typing, molecular typing and antimicrobial resistance is now collected and disseminated for local public health action. Information is also sent on a monthly basis to the FSAI and the NDSC and also to Enter-net, the European network for surveillance of salmonella infection.

4 Regional Voluntary Laboratory Surveillance Systems

There is no specific requirement on laboratories to report notifiable diseases to the medical officer. In some Health Board regions, a voluntary system of reporting infectious diseases has been initiated, which includes some notifiable diseases and other diseases of public health concern. In these regions, a regular surveillance bulletin containing this laboratory information is produced.

There are two such systems, namely Infoscan and LSS

4.1 Infoscan

This system commenced in 1991 and collates data from laboratories in the Southern Health Board, the South Eastern Health Board and the Mid Western Health Board region, representing a population of 1.25 million persons.

All gastroenteric pathogens isolated are collected weekly using a manual system at laboratory level and the information is computerised in Cork University Hospital. A bulletin is produced quarterly and information is also available on the World Wide Web.

4.2 Laboratory Surveillance System (LSS)

The LSS was initiated in the early 1990s and since 1994 information on selected gastroenteric pathogens has been collected from all laboratories in the Eastern Health Board region, covering a population of 1.3 million. Data is collected manually in each laboratory and sent to the Department of Public Health for entry onto a database. Regular ID bulletins are produced. In other regions of the Republic of Ireland, there is local liaison between laboratories and public health as appropriate so that public health action can be taken, but there is no systematic collation or analysis of this information. Therefore, approximately one million persons are not included in any laboratory surveillance system.

5 Developments in Surveillance of Foodborne Diseases

5.1 Computerised Infectious Disease Reporting (CIDR)

In September 1999, a working group was established by the NDSC with the following objectives:

- to set up a national electronic communication system to collate, analyse and disseminate laboratory-based information on communicable disease in humans in Ireland
- in setting up this system, to consider the need to integrate with clinical notification systems for communicable diseases in humans.

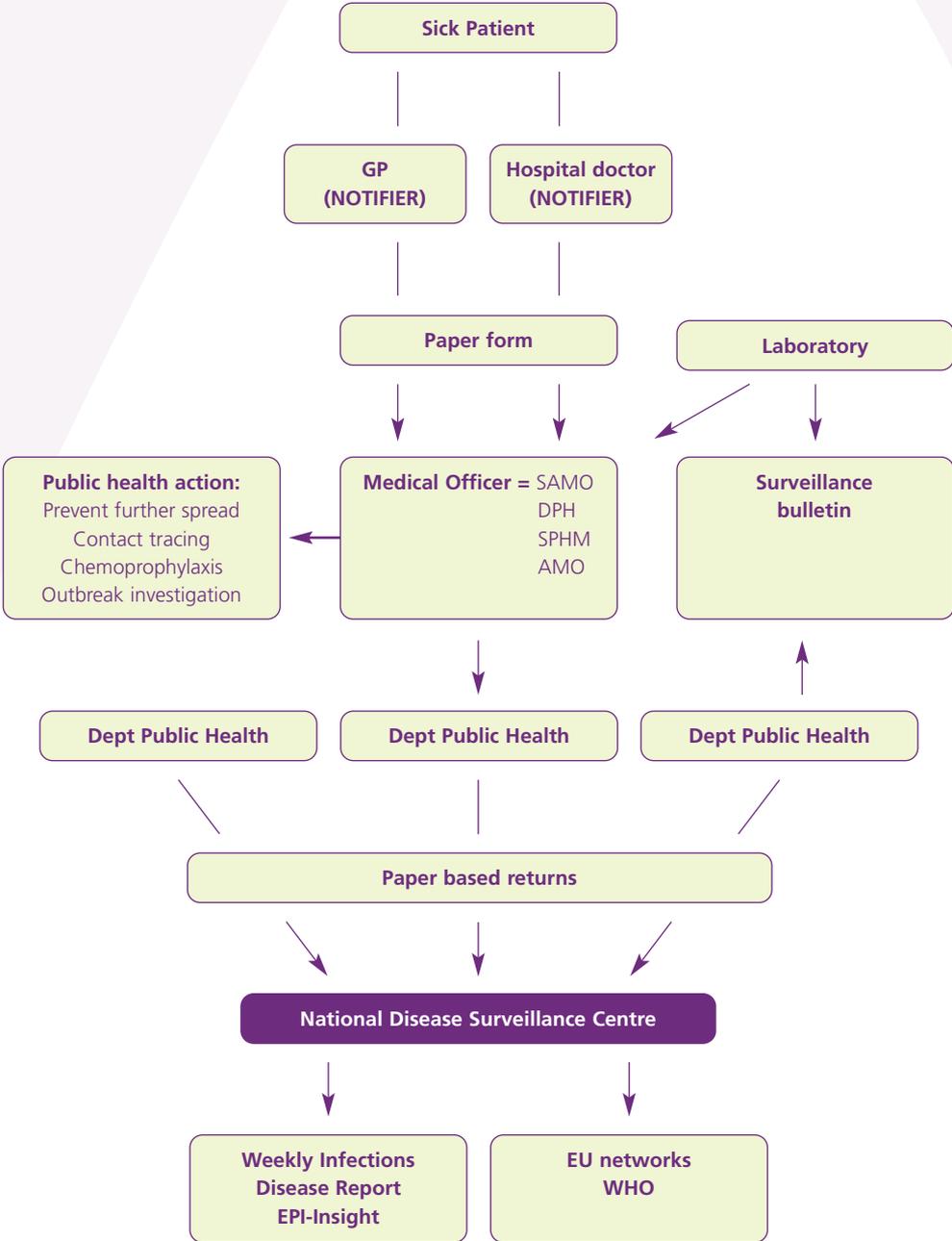
The working group includes representatives from public health, medical microbiology, Health Board IT management, FSAI and the FSPB.

Documents outlining the user and data requirements for a Computerised Infectious Disease System have been published and tenders for building the phase one of the system have been solicited. The tendering, evaluation, building and piloting of the CIDR system will take in the region of 2-3 years.

5.2 The Notifiable Diseases Sub-Committee Report

A formal review of the current system for infectious disease notification was undertaken by the NDSC commencing in September 1999. One major recommendation of the report was that foodborne disease agents should become individually notifiable. This and the other recommendations must be ratified by the Department of Health and Children before they can be legislated for or implemented and it is expected that this will take at least 1-2 years.

Process of Notification



Food Surveillance in the Republic of Ireland

Contents

- 1 Introduction
- 2 The Surveillance System
- 3 Additional Future Developments

Food Surveillance in the Republic of Ireland

1 Introduction

The surveillance of food for chemical and microbiological contaminants is essential for the protection of public health. In the Republic of Ireland the Food Safety Authority of Ireland (FSAI) monitors the safety of food in the Irish food chain in conjunction with forty-one official agencies and their associated laboratories. Through this network of co-operation it is ensured that all food consumed, distributed, marketed or produced in the State meets the highest standards of food safety and hygiene. The objectives of the Authority in relation to the surveillance of foodstuffs are as follows:

- ✔ to identify the pathogens found in foodstuffs in Ireland, in order to prioritise interventions and to protect consumer's health
- ✔ to identify contaminated product and remove it from the market place
- ✔ to assist outbreak investigators in targeting food for sampling (by informing them of the foods from which the particular pathogen has been isolated previously)
- ✔ to compare the microbiological quality of imported versus domestically produced food
- ✔ to compare pathogens identified in food with those found in humans and animals by definitively typing isolates from the three sources.

In attempting to achieve these objectives the Authority has formed a committee of representatives from the Official Food Control Laboratories who come together on a regular basis. Such meetings provide a forum to discuss issues relating to food surveillance. By working in collaboration with the laboratories the FSAI is co-ordinating a national approach to food surveillance.

The immediate availability of accurate and up-to-date information on food surveillance is of priority to the FSAI. Section 16 of the Food Safety Authority of Ireland Act provides for any private data relating to the production and consumption of food to be made available to the Authority. It is the intention of the FSAI to collect data from private laboratories where the majority of food analysis is undertaken in the Republic of Ireland. In this way, data collected on isolates from food may be coupled with data from outbreaks, data on human disease and data on animal disease and used to provide a composite picture of the animal reservoirs, the food vehicles and the pathogens of public health importance as is demonstrated in the Danish Zoonosis annual report.

2 The Surveillance System

2.1 The Health Boards

There are ten Health Boards in the Republic of Ireland with responsibility for the inspection of premises and the enforcement of food safety legislation in the retail sector under service contracts with the FSAI. Each Health Board region has a number of decentralised local offices. The Health Boards also provide laboratory services.

EHOs are primarily responsible for the Health Boards' role in relation to the enforcement of food legislation. Food samples are taken by EHOs in accordance with an agreed sampling programme and delivered to the laboratories. Sampling programmes are prepared at regional level, with increasing central co-ordination by the FSAI. The system is flexible enough to allow sampling at local level in addition to the sampling plan, for example following complaints or suspected food poisoning.

There are seven Public Health (Microbiological) Laboratories and three Public Analyst (Chemical and Physical) Laboratories. All these laboratories are accredited by the Irish National Accreditation Board (INAB) for a comprehensive range of analytical methods. In addition there is a central reference facility for Salmonella located in University College Hospital, Galway.

The Public Health (Microbiological) Laboratories within the Health Boards monitor a wide range of retail foods for the presence of micro-organisms, with ready-to-eat foods sampled at the point of sale being the priority for microbiological surveillance. Complaint samples are also submitted by members of the general public. Results from the laboratory analyses of food samples are forwarded to the FSAI where a database has been developed to facilitate the presentation of the national results. In 1999 a pilot project was conducted which saw full year data for two laboratories and half year data for the remaining five laboratories captured on this database.

The results of approximately 24500 individual tests were reported to the Authority in 1999 as part of the pilot project. Tests for Salmonella, Campylobacter and *E. coli* O157 were carried out on over 5800 food samples and approximately 99% of the reported samples did not contain these bacteria. Discussions are underway with the laboratories with regard to establishing electronic data feeds from the laboratory computer systems to the Authority's database, which will obviate the need for the manual entry of reports.

The Public Analysts Service is responsible for surveillance of food for chemical contaminants. It also deals with complaint samples from the public.

2.2 The Department of Agriculture, Food and Rural Development

2.2.1 Milk and Milk Products

The Department of Agriculture, Food and Rural Development (DAFRD) carries out the enforcement of the relevant legislation on behalf of the FSAI. The Dairy Produce Inspectorate of the Department has responsibility for all establishments manufacturing milk-based products and for the inspection of the holdings supplying these establishments. The Veterinary Inspectorate is responsible for the inspection of establishments processing milk for liquid consumption. The country is divided into six regions with Dairy Produce Inspectorate and Veterinary Inspectorate staff assigned to each region.

An official sampling plan on milk and milk products is in place with the frequency of sampling, the number of samples and the range of analyses for milk and milk-based products stipulated in a standard operating procedure. There is no sampling plan on the official control of water within the establishments however, water samples are regularly taken for the analyses of the microbiological quality of the water.

The official laboratory network consists of three Dairy Science Laboratories carrying out regular testing of official samples of milk and dairy produce and another two Regional Veterinary Laboratories carrying out the analyses on drinking milk.

All five laboratories have been designated as National Reference Laboratories (NRL).

Sampling of the raw milk is organised by the dairies themselves and applies to all milk producers with milk delivery to the dairies. In general, each dairy runs its own laboratory for raw milk analyses, which includes the detection of inhibitory substances. As a measure of external quality control the inspectors of DAFRD submit raw milk control samples for the analyses of fat, protein and Somatic Cell Count (SCC) four times per year. The laboratories themselves take part in external quality control tests for the above-mentioned parameters.

The FSAI has recently commenced a monitoring programme of raw and pasteurised liquid milk for the presence of *Mycobacterium paratuberculosis*. Samples will be collected from all liquid milk plants in the country and the analysis will be carried out at Queen's University, Belfast. The program will run for at least twelve months.

2.2.2 Egg and Egg Products

There is one liquid-egg plant in the Republic of Ireland. The DAFRD carry out weekly inspections on the premises. Sampling of the incoming raw liquid egg and of the egg products (pasteurised whole egg, pasteurised egg white, boiled egg etc.) is carried out in-house by the plant in question. Official samples are taken once a month on the range of products produced. All samples are sent for analysis to the Central Veterinary Research Laboratory (CVRL), Abbotstown where a full range of microbiological tests is carried out.

Egg Production Units are inspected and environmental dust samples taken every month as part of the Bord Bia Quality Assured Egg scheme. These samples are sent to the National Food Centre (NFC), Dunsinea and the CVRL, Abbotstown where they are analysed for the presence of Salmonella.

The Department follows up on any reports of eggs being sold for use in the bakery industry, which are not pasteurised.

2.2.3 Meat

A programme is in place for the sampling and microbiological analysis of product from export meat processing plants in the Republic of Ireland. Thirty product samples are submitted each week to the Central Meat Control Laboratory at Abbotstown for analysis. Sampling is also carried out on raw carcass meat for the purposes of microbiological analysis. In addition abattoirs carry out a considerable level of private sampling. DAFRD has full legal access to the results of this sampling.

The four Local Authority Veterinary Laboratories in Cork City and Cork County, Dublin City and Limerick City also perform microbiological analyses on raw and cooked meats in addition to residue analyses on meat.

The Central Meat Control Laboratory and the Veterinary Laboratory Service monitor Salmonella levels in poultry and pork.

Since October 1999, the FSAI has put in place an enhanced poultry-monitoring programme. In the period October 1999 to October 2000, a total of 3000 poultry samples were taken. Analysis of the samples was carried out at the Irish Equine Centre. All raw samples are tested for the presence of Salmonella, Campylobacter and antibiotic residues. Cooked samples are tested for the presence of Listeria. All bacterial isolates are typed and Campylobacter isolates will be subjected to detailed molecular typing methods. Similar programmes will be launched soon for porcine and bovine carcasses.

2.3 The Department of Marine and Natural Resources

The Department of the Marine and Natural Resources (DoMNR) uses a series of private laboratories for monitoring the bacteriological quality of shellfish growing waters as part of the classification programme under Council Directive EC/492/91.

3 Additional Future Developments

It is the intention of the FSAI to develop a database of definitively typed isolates from the environment, animals, food and humans. This will facilitate tracing of pathogens through the food chain and identifying where intervention is required. Combining the data from molecular epidemiology with surveillance data and field epidemiology will provide a complete picture of the foodborne pathogens and the best way to manage them. A recently developed outbreak surveillance system will be of considerable assistance in this task. It provides for the collation of data on outbreaks i.e. pathogens isolated, associated morbidity and mortality foods implicated and public health and enforcement action taken.

The Authority will work closely with the NDSC which has responsibility for collated data on all communicable diseases with DAFRD which has responsibility for the collation of data on animal infections and with the FSPB to ensure the safety of food for consumers.



4.2 Laboratory Surveillance System (LSS)

The LSS was initiated in the early 1990s and since 1994 information on selected gastroenteric pathogens has been collected from all laboratories in the Eastern Health Board region, covering a population of 1.3 million. Data is collected manually in each laboratory and sent to the Department of Public Health for entry onto a database. Regular ID bulletins are produced. In other regions of the Republic of Ireland, there is local liaison between laboratories and public health as appropriate so that public health action can be taken, but there is no systematic collation or analysis of this information. Therefore, approximately one million persons are not included in any laboratory surveillance system.



5 Developments in Surveillance of Foodborne Diseases

5.1 Computerised Infectious Disease Reporting (CIDR)

In September 1999, a working group was established by the NDSC with the following objectives:

- to set up a national electronic communication system to collate, analyse and disseminate laboratory-based information on communicable disease in humans in Ireland
- in setting up this system, to consider the need to integrate with clinical notification systems for communicable diseases in humans.

The working group includes representatives from public health, medical microbiology, Health Board IT management, FSAI and the FSPB.

Documents outlining the user and data requirements for a Computerised Infectious Disease System have been published and tenders for building the phase one of the system have been solicited. The tendering, evaluation, building and piloting of the CIDR system will take in the region of 2-3 years.

5.2 The Notifiable Diseases Sub-Committee Report

A formal review of the current system for infectious disease notification was undertaken by the NDSC commencing in September 1999. One major recommendation of the report was that foodborne disease agents should become individually notifiable. This and the other recommendations must be ratified by the Department of Health and Children before they can be legislated for or implemented and it is expected that this will take at least 1-2 years.



Glossary



AMLS	Academy of Medical Laboratory Sciences
BGVV	Bundesinstitut für Gesundheitlichen Verbraucherschutz und Veterinärmedizin (The Institute for Health Protection of Consumers and Veterinary Medicine)
CCDC	Consultant in Communicable Disease
CDC	Centres for Disease Control and Prevention
CDSC	Communicable Disease Surveillance Centre
CPLH	Central Public Health Laboratory
CVRL	Central Veterinary Research Laboratory
DAFRD	Department of Agriculture, Food and Rural Development
DARD NI	Department of Agriculture and Rural Development Northern Ireland
DHSSPS	Department of Health, Social Services and Public Safety
DoE	Department of Environment
DoHC	Department of Health and Children
DoMNR	Department of Marine and Natural Resources
EHO	Environmental Health Officer
EIS	Epidemic Intelligence Service
EPIET	European Programme for Intervention Epidemiology Training
FSA	Food Standards Agency
FSA NI	Food Standards Agency Northern Ireland
FSAI	Food Safety Authority of Ireland
FSG	Food Surveillance Group
FSPB	Food Safety Promotion Board
GP	General Practitioner
ID	National Infectious Disease Working Group
ISCM	Irish Society of Clinical Microbiologists
NDSC	National Disease Surveillance Centre
NFC	National Food Centre
NIFSG	Northern Ireland Food Surveillance Group
NIFG	Northern Ireland Food Group
NIPHL	Northern Ireland Public Health Laboratory
NZC	National Zoonoses Committee
OFMLG	Official Food Microbiology Laboratory Group
PHLS UK	Public Health Laboratory Service UK
PHLS	Public Health Laboratory Service
RACCCDC	Regional Advisory Committee on Communicable Disease Control
SMP	Salmonella Monitoring Programme



Notes





Food Safety Promotion Board,
7 Eastgate Avenue,
Eastgate,
Little Island,
Cork

tel: + 353 (0)21 230 4100

fax: + 353 (0)21 230 4111

email: info@safefoodonline.com