EPI-INSIGHT

IONAD NAISIUNTA FAIRE GALAIR

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IN THE NEWS

EBOLA HAEMORRHAGIC FEVER OUTBREAK IN GABON

The World Health Organisation has recently confirmed an outbreak of Ebola haemorrhagic fever in Ogoooué Ivindo Province in the northeast of Gabon.[1] As of 11th December, twelve suspected cases have been reported and there have been ten deaths. Ebola virus has been isolated from one recovering case.

Ebola is one of the most virulent viral diseases known, causing death in 50-90% of all clinically ill cases. Cases have been reported in the Democratic Republic of the Congo, Sudan, the Ivory Coast, Uganda and Gabon. The natural reservoir of the Ebola virus has not yet been identified, but seems to reside in the rainforests of Africa and Asia. Non-human primates are known to have been the source of infection for humans but are not thought to be the reservoir.[2] Transmission is by direct contact with the body fluids or organs of an infected person or chimpanzee. Nosocomial spread can also occur. Symptoms include fever, weakness, muscle aches, vomiting and diarrhoea followed by a maculopapular rash and internal and external bleeding. No specific treatment is available but intensive support therapy is required for those who are seriously ill.

The risk to people in Ireland is small. However, given the speed and volume of international travel and commerce, it is important that countries are prepared to deal with Ebola, should it be necessary. The Scientific Advisory Committee of the National Disease Surveillance Centre has completed a document, "The Management of Viral Haemorrhagic Fevers in Ireland". This document is available on the NDSC website at www.ndsc.ie. Doctor information leaflets will be available shortly from the NDSC.

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QUADRIVALENT MENINGOCOCCAL VACCINE REQUIRED FOR PILGRIMS TO SAUDI ARABIA

Vaccination against meningitis A and C infection has been routinely recommended by the Saudi Arabian Government for pilgrims to the Hajj or Umrah following an epidemic of group A meningococcal infection in 1987. However, in March 2000 an outbreak of W135 meningococcal disease occurred among pilgrims returning from the Hajj pilgrimage. Many European countries reported such cases. A total of 45 cases were identified in UK residents who had either recently returned from the Hajj or had come into close contact with returning pilgrims. Eight people died. A similar situation arose in the UK in 2001, when there were 34 cases of W135 infection and 10 deaths.[1] This W135 strain appears to be a particularly virulent strain. The case fatality rate has been higher with this strain compared to usual. No cases of Hajj related W135 meningococcal disease have been reported in Ireland to date.

The Saudi Arabian Government now requires all travellers to the Hajj and Umrah to be immunised against meningitis W135, in addition to meningitis A. This means getting the quadrivalent meningococcal vaccine (ACWYVax) instead of the usual AC meningococcal vaccine. The quadrivalent vaccine protects against groups A, C, W135 and Y meningococcal disease. All travellers over two years of age, including those vaccinated against groups A and C within the last three years, must be vaccinated once with the quadrivalent vaccine at least 10 days before arrival in Saudi Arabia. Proof of vaccination with this quadrivalent vaccine is now required before visas for Hajj/Umrah are issued.

It is recommended that children between 3 months and 2 years of age (i.e. under 3 years) who are travelling to the Hajj/Umrah should receive two doses of the quadrivalent vaccine which will offer protection against group A meningococcal disease and perhaps some protection against W135 disease.[2] To ensure good protection in children against group C meningococcal disease, both during travel abroad and in Ireland, the MenC conjugate vaccine should preceed quadrivalent vaccination by at least two weeks. If this is not feasible, vaccination at any time interval with both doses of quadrivalent vaccine is preferable to not offering MenC vaccination.

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Contents:

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

FOODBORNE ZOONOSES

Introduction

The World Health Organisation defines zoonoses as diseases and infections that are transmitted naturally between vertebrate animals and man. They include a wide variety of diseases (parasitic, fungal, bacterial and viral) that differ greatly both clinically and epidemiologically. The fundamental reason that these diseases are grouped together is that prevention and control requires combined veterinary and medical interventions. Transmission of zoonotic diseases from animals to humans occurs through direct contact with infected animals or their faeces and tissues, (anthrax, rabies, brucellosis) or by the consumption of contaminated food or water (salmonellosis, *E.coli* 0157, listeriosis and *Campylobacter* enteritis).

Many zoonoses are occupational hazards for people who are in close contact with animals/animal tissues on a regular basis, such as veterinary practitioners, farm and abattoir workers. However, in European and other developed countries the zoonoses that cause major concern for public health are those transmitted through food and water. Modern farming techniques which allow mass production of food, and global distribution means that the vast numbers of people can potentially be exposed to pathogens originating from a single source.

The epidemiology of many foodborne zoonotic diseases has changed in recent years. The incidences of traditionally important zoonotic infections, such as tuberculosis due to *Mycobacterium bovis* and brucellosis (undulant fever), have decreased dramatically since the introduction of routine milk pasteurisation. Other diseases have increased in frequency (*Salmonella*) or have newly emerged (*Campylobacter* and verotoxin producing *E.coli*). Nowadays, *Salmonella* and *Campylobacter* cause the majority of zoonotic illness across the EU.[1]

For these latter diseases the pathogens are found throughout the food chain, from animal feeding stuffs to the final products available on shop shelves. The use of meat and bone meal in animal feeding stuffs has been banned, but fishmeal, grains and cereals used in the production of animal feed may be contaminated by zoonotic pathogens. In poultry and pig production houses, husbandry conditions may be conducive to transmission of infection – many of these infections may be subclinical and only detected from testing of blood, environmental dust or faeces. Diseases such as brucellosis and bovine TB can cause health problems for animals and have been subject to heavy control measures. However, the number of humans affected by these two diseases in Ireland is extremely small. Some zoonoses do not cause illness in the animal and are not detected by the veterinary practitioner. Verotoxin producing *E.coli* for example, is considered to be a commensal in animals but can be fatal in humans.

Source of Data

In Ireland, data on zoonotic diseases are provided by a number of different sources.

The Department of Agriculture, Food and Rural Development (DAFRD) collects data on pathogens in animals, animal feed stuffs and food at the slaughterhouse/processing level. The Food Safety Authority (FSAI) collects data on pathogens in food at the retail level and is involved in outbreak surveillance. The National Disease Surveillance Centre is responsible for surveillance of zoonotic infections in humans and also for provision of outbreak surveillance data. Human data are compiled from routine notifications, laboratory reports and enhanced surveillance systems.

At a European level, the member states provide information on trends and sources of zoonotic agents to the European Community Reference Laboratory on Zoonoses. These data are analysed and an annual report on trends and sources of zoonotic agents in animals, food and humans in the EU is produced.[1] A summary of the report for 1999 is available at http://europa.eu.int/comm/food/fs/sfp/mr/mr08_en.pdf. The data are also used by the EU Scientific Committee on Veterinary Measures in relation to Public Health.

Zoonoses Legislation

The main legislation governing zoonoses is the EU Directive 92/117/EEC which was enacted in Irish law SI. No. 2 of 1996. The legislation concerns the monitoring of zoonoses in animal feed, animals, food and humans, and general control measures on zoonoses. The limitations of the Directive are that a requirement for control in addition to monitoring applies only to *Salmonella.* Furthermore, only two types of *Salmonella* are included (*S. Typhimurium* and *S. Enteritidis*) and those in poultry flocks only. The rules are not binding on member states with the result that not all countries fully comply with the Directive and the data from the Member States are incomplete and not fully comparable.

Revision of Zoonosis Legislation

In order to improve the control and monitoring of zoonoses throughout the EU, the Commission adopted proposals for revised zoonoses legislation, in August 2001.[2] These proposals have been sent to Council and are being debated at present. The revised Directive has 2 parts:

1. A Directive on monitoring of zoonoses.

This proposed Directive lays down a system for monitoring certain zoonotic agents throughout the human and animal food-chains. Member States will be required to take part in coordinated monitoring programmes, to establish baseline values on the level of most of the important zoonotic infections in each Member State. Data will be collected on the incidence of zoonotic diseases in humans, on the occurrence of foodborne outbreaks and on antimicrobial resistance in certain zoonotic agents. The new agents to be included in the monitoring programme are: *Campylobacter, Cryptosporidium, Listeria* and Verotoxigenic *E.coli,* in addition to *Salmonella, Brucella, Trichinella* and *Echinococcus* which are already covered by the earlier Directive 92/117/EEC.

2. Regulations for control of zoonoses.

These regulations set up a framework for a pathogen reduction policy, particularly in animal populations as this is the most effective way of preventing spread of infection via food. A timetable of target pathogen reduction has been set out, with *Salmonella* the priority pathogen, especially in poultry and eggs. Marketing restrictions will apply to foodstuffs that do not meet the target reduction within the appropriate timescale.

The EU is in the process of setting up a European Food Authority which will undertake risk assessment and risk communication on issues across the food chain.

Information on zoonotic diseases related to food sources of animal origin

At present, the only information available in Ireland that can attribute disease to a food source is from collated reports of outbreak investigations.

Data from outbreaks of infectious intestinal disease compiled by FSAI from 1998 to 2000, show that outbreaks due to foods of animal origin account for approximately 20-30% of all outbreaks. Poultry and eggs have been the most frequently implicated food types.[3,4] However, the number of outbreaks attributable to these has decreased, particularly in 2000, when they were only implicated in three outbreaks (Table 1). The number of notifications of salmonellosis as well as the number of notifications of food poisoning have also fallen (Figure 1). It is thought that this is due in part to the *Salmonella* control measures in the poultry and egg industry.

Table 1. Number of outbreaks in Ireland by food category and year 1998 to 2000.

Food Category	1998	1999	2000
Poultry	2 (5.1%)	7 (25%)	2 (5.6%)
Pork	3 (7.7%)	0 (0.0%)	1 (2.8%)
Beef (minced beef, other)	3 (7.7%)	1 (3.6%)	1 (2.8%)
Eggs (including egg fried rice)	5 (12.8%)	4 (14.3%)	1 (2.8%)
Seafood (including tuna, scallops, shellfish)	0 (0.0%)	1 (3.6%)	2 (5.6%)
Dairy (milk, cheese, ice cream, other)	1 (2.6%)	0 (0.0%)	1 (2.8%)
Other foods	9 (23%)	1 (3.6%)	5 (13.9%)
Sources missing or unknown	16 (41.1%)	14 (50.0%)	23 (63.9%)
Total no. of outbreaks	**39(100%)**	**28(100%)**	**36(100%)**

Salmonella Control Programmes

In Europe there have been a number of EU Directives since 1989 in relation to the control of *Salmonella* in poultry. However, not all member states are fully compliant with the Directives. However, Ireland operates a strict *Salmonella* monitoring programme which involves compulsory testing of poultry breeding flocks and egg production flocks. Testing of duck, geese and turkey flocks is also carried out. All flocks positive for *S. Enteritidis* or *S. Typhimurium* are slaughtered. This means that table eggs are protected from contamination due to vertical transmission, but that poultry meat (chickens etc) for consumption may be contaminated with *Salmonella*.

Initiatives to develop a comprehensive control programme for *Salmonella* in pigs are underway. This programme concerns testing only and does not include a "slaughter out" policy.

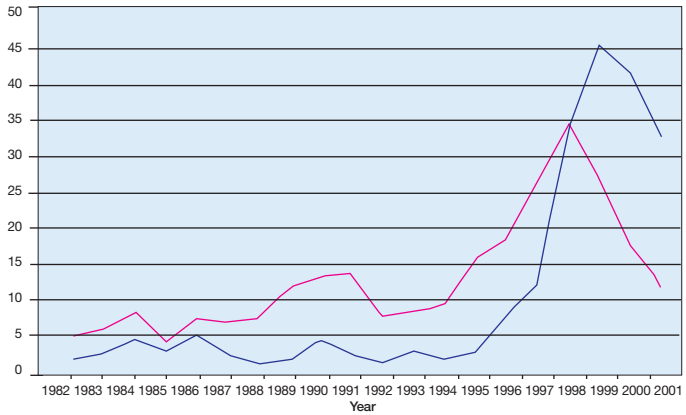

Figure 1: Crude incidence rate of salmonellosis and food poisoning in Ireland, 1982 to 2001 to date.
(Source: DoHC and NDSC. Data for 2001 are provisional)

National Zoonosis Group

In the past year a working group has been set up to look at the role zoonotic agents play in the health of the Irish population. This group is composed of veterinary, medical, and public health practitioners from the three agencies NDSC, DAFRD and FSAI. This group has met on a regular basis to identify pathogens of public health importance, to advise on control measures, to monitor trends and evaluate interventions, to agree on data to be sent to EU agencies, to provide feedback to the various laboratories and personnel supplying information, and to prepare an overall national report on trends and issues for policy makers.

Regional Zoonosis Committees

FSAI supports and facilitates nine regional zoonoses committees. These committees, modelled on the initial one set up in Cork in 1988, are composed of professionals from a variety of disciplines and agencies all working in the area of zoonoses e.g. environmental and veterinary professionals (both local authority and regional DAFRD), public health doctors, laboratories including public analyst laboratories, and people working in food, clinical and veterinary microbiology. The committees are not statutory but were set up to promote public health through information sharing and to enable networking and good working relationships to develop so that if an incident or outbreak occurs then relevant people know each other. Expansion of membership to others involved with fisheries, planning, water and sanitation (county engineers) and environmental protection will be pursued in 2002.

Conclusion

In the past two years there has been a downward trend in *Salmonella*, *Campylobacter*, and VTEC infections in humans in Ireland. This trend is all the more marked given the increased awareness amongst the multidisciplinary professionals across the food chain and the improved surveillance generated by the creation of the NDSC. A concerted effort by the agrifood industry and the multiagency inspectorate is delivering benefits. Control of these pathogens is being achieved by sequential incremental risk reduction at all stages along the food chain.

Dr M Fitzgerald, A Brennan, B Cotter, FSAI

Acknowledgements

We would like to thank Martin Blake, Department of Agriculture, Food and Rural Development for information provided and Patrick Wall for his advice.

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MUMPS OUTBREAK IN NORTHERN IRELAND

Measles, mumps, rubella vaccine (MMR) was introduced into the UK in October 1988 and to coincide with its introduction into the vaccination programme, mumps became a notifiable disease in Northern Ireland. Figure 1 outlines the trend in notifications since 1989.

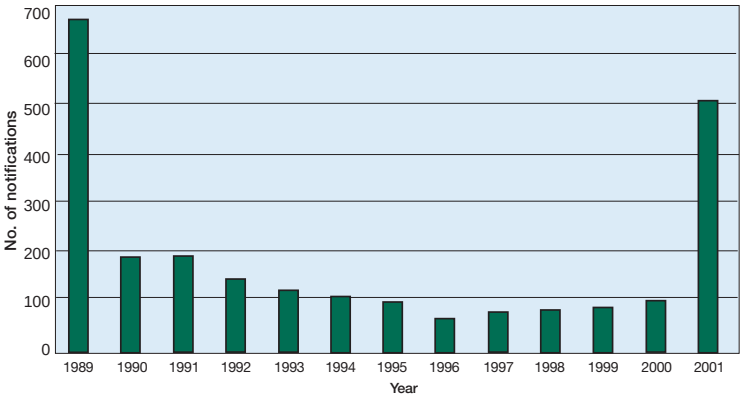

Figure 1: Mumps notifications in Northern Ireland, 1989 – 2001 (week 36).

Notifications fell from 691 in 1989 to 67 in 1996. They then began to significantly increase from October 1999 and peaked in January 2001 when 159 were received (Figure 2).

This outbreak commenced in the Carrickmore area of the Western Health and Social Services Board. This is a mainly rural area that lies at the junction of the Western, Northern and Southern Health and Social Services Boards. The outbreak then radiated out to neighbouring areas in the Northern and Southern Boards before extending, after twelve months to Derry in the northern part of the Western Board. To date the outbreak has not extended to the Eastern Board area which includes Belfast. A total of 1541 notifications of mumps have been received in Northern Ireland between week 41 in 1999 and week 36 this year of which 1465 (95%) were from residents of the Northern, Southern and Western Boards.

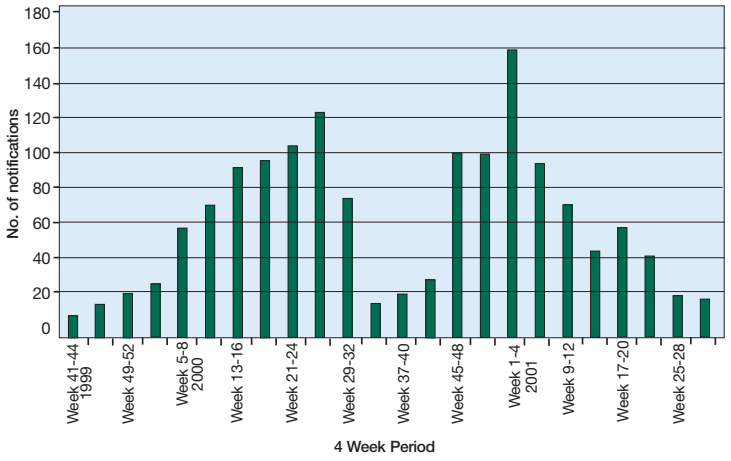

Figure 2: Mumps notifications in Northern Ireland by 4-week period, 1999 (week41) to 2001 (week36).

Since 1995, Consultants in Communicable Disease Control, upon receipt of a notification of measles, mumps or rubella infection, arrange through the notifying clinician for salivary antibody testing to be undertaken. A confirmed case of mumps is defined as one with a positive IgM on salivary antibody testing. Since week 41 in 1999 there have been 529 confirmed cases in Northern Ireland.

Initial analysis of 332 confirmed cases notified between November 1999 and August 2000 noted that 129 (41%) had never been immunised, 184 (58%) had one dose of MMR, and only 3 (1%) received 2 doses of MMR. Ninety five percent were aged between 9 -19 years.

Transmission of infection was thought to mainly occur in schools, particularly secondary schools. It was noted that the July/August 2000 school holidays were associated with a marked reduction in notifications. Notifications then sharply increased during the autumn term particularly from week 45.

Since 1990, the uptake rates of MMR vaccination in Northern Ireland, in children by their second birthday, have ranged from 90 - 95%. Following the national measles/rubella immunisation campaign in 1994 of all those aged 5 - 16 years, a second dose of MMR vaccine has been offered to those in the pre-school age group (3 - 5 years). Currently 87% of children in Northern Ireland reaching their fifth birthday will have received two doses of MMR vaccine. Thus the majority of those at primary school (5-11 year olds) will have received two doses of MMR vaccine unlike those at secondary school.

This outbreak, which is one of the largest reported outbreaks of mumps, is further confirmation of the need for a two-dose MMR strategy. The high uptake of MR vaccine in 1994 has protected the secondary school population from measles and rubella infection but there remains a cohort who have either not received MMR or received only one dose of the vaccine. As a consequence of this outbreak, arrangements are being made to ensure that all school leavers are offered two measles containing vaccines one of which should be MMR.

Dr B Smyth (CDSC, NI), Dr E Reaney and Dr V Tohani, Southern HSSB, Dr M Devine, Northern HSSB, Dr R Smithson, Western HSSB.

TRAINING FELLOWSHIPS FOR INTERVENTION EPIDEMIOLOGY IN EUROPE

The European Programme for Intervention Epidemiology Training started in 1995. The programme is funded by the European Commission and by various EU member states as well as Norway. Subject to agreement for another round of funding, the eight cohort of fellows is planned, starting in September 2002. The programme invites applications of eight fellowships for this 24-month training programme in communicable disease field epidemiology.

Applicants for the 2002 cohort must be nationals of an EU member country or Norway and should have experience in public health, a keen interest in field-work and be pursuing a career involving public health infectious disease epidemiology. They should have a good knowledge of English and of at least one other EU language, and be prepared to live abroad for a period of 24 months

The aim of the training is to enable the fellow to assume service responsibilities in communicable disease epidemiology. The in-service training will focus on outbreak investigations, disease surveillance, applied research, and communications with decision makers, the media, the public and the scientific community. Fellows will attend a three-week intensive introductory course and then be located in a host institute in one of the 15 participating European countries and Norway. Further training modules are organised during the two-year programme, normally in one of the participating national institutes with responsibility for communicable disease surveillance.

Detailed information can be obtained from the EPIET programme office at the address below. Letters of application accompanied by a curriculum vitae should be submitted by 15 February 2002 to:

European Programme for Intervention Epidemiology Training
Institut de Veille Sanitaire
12, rue du Val d'Osne
94415 Saint-Maurice Cedex, France
Fax:+33 1 55 12 53 35
Email: EPIET@invs.sante

Salmonella Monthly Report (November 2001):

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

Health Board	E	M	MW	NE	NW	SE	S	W	Total
S. Typhimurium	2	2	2	1	1	2	5	1	16
S. Enteritidis	11	1	1	1	0	1	5	2	22
S. Agona	0	0	0	1	0	0	0	0	1
S. Bareilly	1	0	0	0	0	0	0	0	1
S. Bredeney	0	0	0	0	0	2	0	0	2
S. Dublin	3	0	0	0	0	0	0	0	3
S. Kentucky	1	0	0	0	0	0	0	0	1
S. Stanley	1	0	0	0	0	0	0	0	1
S. Typhi *	0	0	0	0	0	0	0	1	1
S. Virchow	2	0	0	0	0	0	0	0	2
Total	21	3	3	3	1	5	10	4	50

* Travel associated case (India)