EPI-INSIGHT

IONAD NAISIUNTA FAIRE GALAIR

Disease Surveillance Report of NDSC, Ireland

Volume 3, Issue 2, February 2002 ISSN: 1393-9548

IN THE NEWS

LABORATORY CONTAINMENT OF POLIOVIRUS: UPDATE

With the imminent global eradication of polio the only source of poliovirus remaining will be in laboratories. In addition to known laboratory isolates or control strains of poliovirus the virus may be present in faecal, throat, water, sewage and other specimens depending on when and where they were collected and how they have been stored. NDSC, acting on behalf of the World Health Organisation (WHO) and the Department of Health and Children, has been carrying out a national survey of laboratories to ensure that any laboratory stocks of poliovirus are properly contained and that no laboratories are unwittingly holding materials containing poliovirus.

In order to certify Europe as polio-free the WHO has asked all European countries to identify laboratories that may possess poliovirus infectious or potentially infectious materials. In the first phase of this project survey forms were sent to 491 biomedical, educational and industrial institutions to compile a national inventory of laboratories. To date 744 laboratories have been identified in 178 institutions and 549 laboratories store biological materials.

In the second phase of the containment process laboratories storing biological materials will be asked to complete a short survey to identify whether or not they possess poliovirus infectious/potentially infectious materials.

It is likely that few, if any, laboratories in Ireland will possess poliovirus infectious/potentially infectious materials. In the third phase of the project any laboratories that do possess such materials will be contacted individually and options for destruction or safe storage of such materials will be discussed.

A deadline of June 2002 has been set for all European countries to complete this process so that Europe can be certified as polio-free.

We would like to thank all of the institutions that have taken the time to complete the initial survey. With the continued support of laboratories across the country Ireland is on-track to complete the process on time.

Further details of the laboratory containment process can be found in the "factsheets" section of the NDSC website www.ndsc.ie

Institutional Outbreaks of Gastroenteric Infection

Since early December there have been 14 reports of outbreaks of gastroenteric illness in institutions in Northern Ireland, involving hospitals, residential and nursing care facilities. Of the hospital outbreaks, 3 are confirmed as being due to small round structured viruses (SRSV), also known as Norwalk-like viruses or human enteric caliciviruses. The other outbreaks are consistent with viral gastroenteritis. The hospital outbreaks have forced the temporary closure of numerous wards to new admissions.

In 2000, there were 68 cases of SRSV in Northern Ireland while 133 cases have been provisionally reported in 2001. The increase may be to some extent artefactual. Greater recognition of the importance of SRSV as a significant and expensive cause of gastrointestinal outbreaks and greater use of PCR techniques to more completely identify SRSV in clinical samples have increased the numbers of cases being reported. Improved surveillance is uncovering more outbreaks of gastroenteritis from community settings such as residential and nursing homes.

Currently, in the Republic of Ireland, outbreaks of gastroenteric illness are being investigated in hospitals in the North-Eastern and Midland Health Board areas.

In the North East, at least 49 people (22 staff and 27 in-patients) have become ill in one hospital. SRSV has been positively identified from some of the cases. The second suspect viral gastroenteric outbreak in the North East involves a psychiatric unit of another general hospital. Twelve cases (4 staff and 8 patients) have been identified. The results of viral studies are awaited.

An SRSV outbreak has been confirmed in a geriatric hospital in the Midlands. To date, 37 people (16 patients and 11 staff) are ill.

Between June and the end of December 2001, there have been 37 outbreaks of gastroenteric infection in the Republic of Ireland reported to the NDSC (provisional figures). Of these, 15 (41%) were considered most likely to be viral in aetiology and 5 (14%) were confirmed as being associated with SRSV.

Several outbreaks of viral gastroenteritis are currently being investigated in the UK. Over 200 people have been affected in a city hospital in Glasgow, with widespread ward closures. A hospital in Birmingham has closed its renal ward following a similar smaller outbreak. The Scottish Minister for Health has ordered an urgent hygiene inspection of every Scottish hospital.

SRSV causes up to 1 million cases of gastroenteric infection in the UK each year. Contaminated oysters and water are important vehicles of transmission and many outbreaks are associated with extensive person-to-person spread. Symptoms include nausea, vomiting, diarrhoea, and abdominal pain. Headache and low-grade fever are not uncommon. Recovery is usually within 2-3 days without serious or long-term health effects. The recent outbreaks however, highlight the financial, social and medical cost of this pathogen when outbreaks occur in health care and other institutional settings.

Acknowledgements

We would like to thank Dr Brian Smyth, Regional Epidemiologist, CDSC Northern Ireland for his assistance in writing this article.

Further Reading

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

Immunisation Uptake in Ireland

Introduction

Vaccines are one of the most important public health interventions available and have been responsible for the elimination/control of many infectious diseases that were once common in Ireland. Childhood immunisation is regarded as a proven safe, effective and relatively inexpensive means of protecting children and the population in general from a range of potentially serious diseases.

Under the current Irish Primary Childhood Immunisation programme it is recommended that children are immunised against tuberculosis at birth or by one month of age (BCG vaccine), against diphtheria (D), tetanus (T), pertussis (P), polio (polio), *Haemophilus influenzae* type b (Hib) and meningococcal group C disease (MenC) at 2, 4 and 6 months (i.e. a total of 3 doses by six months of age) and against measles, mumps and rubella by receiving one dose of MMR vaccine at 15 months. Apart from BCG, Hib and MenC, booster doses of the other vaccines should be administered at 4-5 years of age. With the current immunisation schedule it is entirely possible to eliminate/control the diseases in question. However, this can only be achieved if at least 95% of children have completed the immunisation schedule by 2 years of age (3 doses of relevant vaccines against D, T, P, Polio, Hib and MenC and one dose of MMR) and that these children receive a booster dose against D, T, P polio, and MMR at 4-5 years of age.

Materials and Methods

Each health board is responsible for maintaining an immunisation register. At the end of each quarter, health boards provide the NDSC with data on immunisation uptake rates in children reaching 12 and 24 months in the quarter in question. MenC uptake rates in the under five year olds and in 15-18 year olds are also reported to the NDSC. The NDSC collates and analyses these data using MS Excel. Although MenC uptake at 12 and 24 months is now reported under the Primary Childhood Immunisation programme, for the purposes of this report it will be presented and discussed separately.

Results

Uptake of Vaccines under Primary Childhood Immunisation Programme

The latest figures on immunisation uptake in Ireland are now available. These relate to uptake rates in children who have completed the primary immunisation schedule and reached their first (uptake at 12 months) and second birthday (uptake at 24 months) in Quarter 3, 2001.

For those 12 months of age in Quarter 3, 2001, uptake of D_3, T_3, and $Polio_3$ was 67%, while it was 68% for Hib_3 and 66% for P_3 (Table 1). Uptake rates at 12 months varied between health boards, ranging from 59-62% in the ERHA and the MHB up to 80-83% in NWHB and SEHB (Table 1). Uptake rates at 12 months were similar to those reported in the previous quarter and uptake rates of greater than 72% reported prior to Quarter 2, 2001 were not reached (Figure 1).

In Quarter 3, 2001 immunisation uptake rates at 24 months for D_3, T_3, Hib_3 and $Polio_3$ were 83% and were 81% for P_3. Uptake for these vaccines ranged from 77-79% in the ERHA, up to 88-90% in the NEHB, NWHB and SEHB (Table 2). MMR_1 uptake was 70%, this ranged from 59% in the ERHA to 87% in SEHB (Table 2).

At 24 months, uptake rates were lower than the previous quarter by 2-3% (Figure 2). MMR_1 uptake declined to an alarmingly low rate in Quarter 3, 2001, decreasing by 5% to 70% from the previous quarter (Figure 2). Since Quarter 4, 2000, MMR_1 uptake has consistently declined by 4-5% each quarter with the result that there has been a 13% reduction, from 83% in Quarter 4, 2000 down to 70% in Q3, 2001 (Figure 2).

Table 1: Immunisation uptake rates in children at 12 months of age in Quarter 3, 2001

% Uptake at 12 months Cohort born 01/06/2000 – 30/06/2000						
Health Board	Number in cohort	D_3	P_3	T_3	Hib_3	$Polio_3$
ERHA	5,673	61	60	61	60	59
MHB	914	61	59	61	62	60
MWHB	1,254	64	62	64	64	63
NEHB	1,375	74	73	74	76	75
NWHB	725	82	**	82	82	80
SEHB	1,547	83	81	83	83	82
SHB	2,036	68	66	68	69	67
WHB	1,223	73	71	73	71	72
Total-Ireland	14,747	67	66	67	68	67

** P3 uptake could not be accurately calculated as DTaP/DT uptake was reported as a combined value

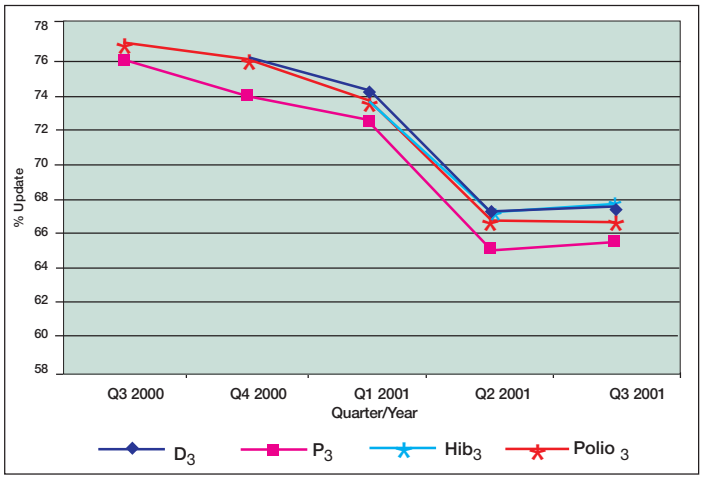

Figure 1: Quarterly immunisation uptake rates at 12 months in Ireland

Table 2: Immunisation uptake rates in children at 24 months of age in Quarter 3, 2001

% Uptake at 24 months Cohort born 01/06/1999 – 30/09/1999							
Health Board	Number in cohort	D_3	P_3	T_3	Hib_3	$Polio_3$	MMR_1
ERHA	5,551	79	77	79	78	79	59
MHB	892	81	79	81	81	81	68
MWHB	1,339	82	80	82	81	82	71
NEHB	1,282	89	88	89	89	89	76
NWHB	785	90	**	90	90	90	77
SEHB	1,626	90	88	90	90	90	87
SHB	2,003	84	82	84	84	84	74
WHB	1,183	87	85	87	87	87	74
Total-Ireland	14,661	83	81	83	83	83	70

** P3 uptake could not be accurately calculated as DTaP/DT uptake was reported as a combined value

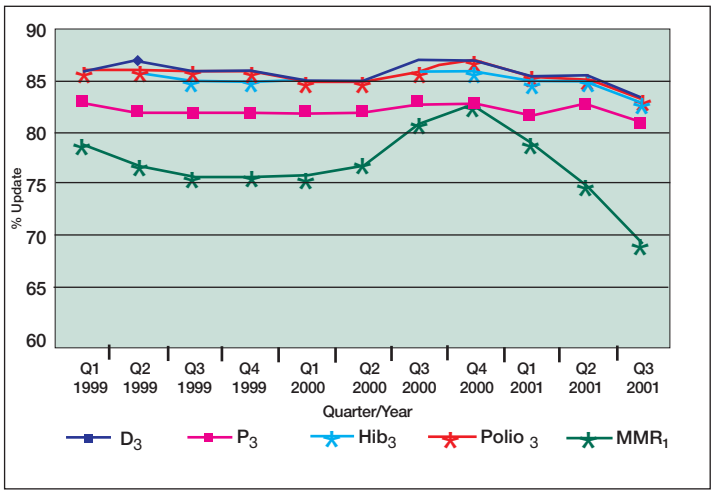

Figure 2: Quarterly immunisation uptake rates at 24 months in Ireland

Uptake of Meningococcal group C conjugate vaccine

The meningococcal group C conjugate vaccine (MenC) was launched in Ireland in October 2000. This vaccine has been incorporated into the Primary Childhood Immunisation schedule and a catch-up campaign was also implemented, offering the vaccine to everyone less than 23 years of age. The MenC catch-up campaign was launched on a phased basis, with Phase 1 targeting those deemed most at-risk i.e. the less than 5 year olds and 15-18 year olds. MenC uptake rates in 1-4 year olds and 15-18 year olds as of October/November 2001 are presented in this report.

MenC uptake in those born between 1996 and 1999 (i.e. aged 1-4 years when MenC was introduced in 2000) currently stands at 71%. Uptake rates decreased with increasing age, ranging from 73% in 1 year olds to 71% in 2 year olds and down to 69% in both 3 and 4 year olds.

In relation to MenC uptake rates in 15-18 year olds, the health boards provided data based on school and college registers and/or on birth cohorts. MenC uptake in schools (based on data from 5 health boards) was 82%, and was 63% in first year college students (based on data from 3 health boards). Four health boards were in a position to provide uptake figures in the15-18 year old age group by birth cohort and overall an uptake rate of 75% was reported. However, uptake rates decreased with increasing age, dropping from 84% in 15 year olds, to 82% in 16 year olds, to 73% in 17 year olds and down to 53% in 18 year olds.

Discussion

As a result of immunisation, serious illnesses such as diphtheria, polio and neonatal tetanus have been eliminated from Ireland. Unfortunately there are still too many cases of vaccine-preventable diseases such as measles, pertussis (whooping cough), mumps and rubella.[1] This relates to the fact that immunisation uptake levels are completely inadequate in Ireland to control these vaccine-preventable diseases.

Immunisation uptake rates at 12 months declined dramatically between Quarter 1 and 2, 2001 and did not recover significantly in Q3, 2001. Possible causes for this decline were previously outlined.[2]

In Quarter 3, 2001, immunisation uptake rates at 24 months continued to decline. Uptake dropped by 2-3% for D_3, P_3, T_3, Hib_3 and $Polio_3$ to 81-83% and by a staggering 5% for MMR_1 to 70% when compared with the previous quarter. These uptake levels at 24 months fall far short of the national target of 95%. This is a major cause for concern as a significant proportion of the population are left vulnerable to and at risk of contracting serious infectious diseases that could be prevented by vaccination. The outbreak of measles in Ireland in 2000, which caused three deaths (2 definite and 1 possible) and 1603 cases, is evidence of what can happen when an insufficient proportion of the population has been immunised.[1]

The MenC immunisation programme launched in 2000 has been effective in reducing the number of cases of group C meningococcal disease. The number of cases declined by approximately 75% in 2001 when compared with the previous year. However, vaccination levels are still significantly below their optimum levels (71% in 1-4 year olds and approximately 75-82% in 15-18year olds). This means that meningococcal group C disease will remain a threat and risk unless 95% uptake levels are reached and maintained in this country.

Immunisation uptake levels in Ireland compare poorly with other countries. The most recent figures from the UK (Q2, 2001) show that at 24 months D_3, P_3 and Hib_3 uptake was 93-94%, while MenC and MMR_1 uptake was 84%.[3] Uptake rates are even better in Northern Ireland when compared with the UK average; D_3, P_3 and Hib_3 uptake is currently 96-97%, while MenC and MMR_1 uptake is 90%.[3]

Dr Margaret Fitzgerald and Dr Darina O'Flanagan, NDSC

Acknowledgements

The authors would like to thank all those who provided data for this report, namely the Specialists in Public Health Medicine and the IT System's Analysts in the health boards.

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LEGIONNAIRES' DISEASE

Infection with *Legionella* bacteria can cause two distinct clinical syndromes, grouped together under the name legionellosis. The first is Pontiac fever, a self-limiting influenza-like illness where patients recover spontaneously in 2–5 days. The second is Legionnaires' disease, which can cause a severe and potentially fatal form of pneumonia.

Legionnaires' disease is a statutorily notifiable disease in Ireland. When compared with other European countries, Ireland's notification rates are noticeably lower, particularly so in comparison with Northern Ireland, Scotland, England and Wales, with whom we share similar ecological factors, including climate, geography and water quality. This would suggest that a major degree of under-diagnosis and under-reporting currently exists in Ireland. Table 1 shows the relatively low annual notification rate for Legionnaires' disease in Ireland over the past 10 years. Ireland's rate compared with other European countries is shown in Table 2.

Table 1: Number of Legionnaires' disease cases notified in Ireland, 1990-2000

Number of Legionnaires' disease cases notified in Ireland, 1990-2000											
Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cases	1	0	2	0	1	1	2	6	2	2	9
Rate per million	0.3	0.0	0.6	0.0	0.3	0.3	0.6	1.7	0.6	0.6	2.5

Forty-three *Legionella* species and sixty-five serotypes have been described, of which *L. pneumophila* is the predominant organism causing Legionnaires' disease. The incubation period for Legionnaires' disease is 2 –10 days, while that of Pontiac fever is a few hours to 2 days. Recognised risk factors for Legionnaires' disease include being of an older age group (> 50 years), male, cigarette smoker, heavy alcohol drinker, chronic underlying disease, having an immunocompromising condition or taking immunosuppressive drugs.

Symptoms of legionellosis can include fever, headache, abdominal pain, diarrhoea, non-productive cough or pneumonia. Diagnosis is by means of a rapid urine antigen test, an antibody blood test or culture of the *Legionella* bacteria. Legionnaires' disease is treated with erythromycin and in severe cases a second additional drug rifampicin may be used (check for contraindications). Pontiac fever requires no specific treatment.

Legionnaires' disease is normally acquired through the respiratory tract by inhalation of a contaminated aerosol. Person-to-person transmission has never been documented.

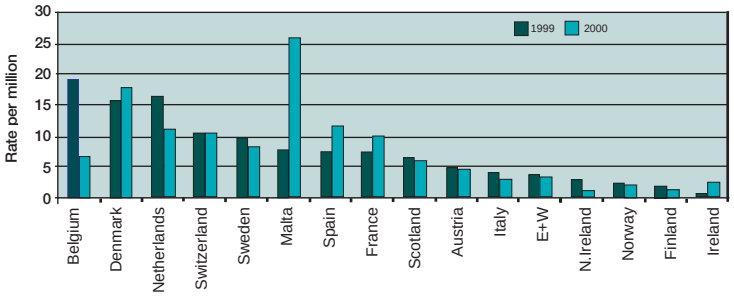
Recognised and potential sources of *Legionella* include:

- Hot and cold water systems
- Cooling towers and evaporative condensers (in air-conditioning systems)
- Respiratory and other therapy equipment
- Spa pools, jacuzzis, natural pools, thermal springs
- Fountains or sprinklers
- Humidifiers for food display cabinets
- Water cooling machine tools
- Vehicle washers, carpet cleaners, medication nebulizers.
- Potting compost/soil in warmer climates.

What these all have in common is a combination of high temperature and a potential for aerosol formation.
A case of Legionnaires' disease is defined as "travel-associated" if the patient has spent one or more nights away from their home in accommodation used for commercial or leisure purposes in the 10 days before onset of illness. These cases may involve travel within Ireland or abroad.

For each case that is notified to Directors of Public Health, an enhanced surveillance form is completed and faxed to the NDSC, where details are entered onto an MS access database.

Table 2: Legionnaires' disease in Europe 1999 and 2000



If the case is travel-associated, then NDSC forwards details to EWGLI (European Working Group for Legionella Infections). Outbreaks or clusters of Legionnaires' disease cases in travellers can be quickly identified through EWGLI, allowing rapid alerts to be communicated to all participating countries, WHO and other relevant bodies.

In 2000, there were 9 cases of Legionnaires' disease notified in Ireland; 6 males and 3 females. The median age was 50 years (range 19 – 80 years). Eight cases were Irish nationals, the ninth case occurred in an American tourist. Five cases were travel-associated. There were two deaths in cases aged 50 and 64 years.

Dr John Cuddihy, NDSC

Useful sources of information include:

"The Control of Legionella Bacteria in Water Systems: Approved Code of Practice and Guidance, ISBN 0717617726 available from HSE Books in the UK.

"The Management of Legionnaires' Disease in Ireland". A consultation draft of this document is available at www.ndsc.ie

The European Working Group for Legionella Infections website at www.ewgli.org

Draft European Guidelines For Control and Prevention of Travel-Associated Legionnaires' Disease will be published shortly by EWGLI.

National MRSA Reference Laboratory Opening

The National Methicillin-Resistant Staphylococcus aureus (MRSA) Reference Laboratory at St James's Hospital in Dublin was officially opened by the Minister of Health, Mr Michéal Martin, on 23rd January 2002. MRSA is recognised as being one of the most important causes of nosocomial infection worldwide and Ireland is known to have one of the highest rates of MRSA in Europe. The National MRSA Reference Laboratory will provide an important and comprehensive service (including confirmation of resistance and antibiogram-resistogram (AR), phage and molecular typing) that will facilitate monitoring and control of both currently ciculating and emerging epidemic strains. For further details contact Prof Conor Keane, Director, MRSA Reference Laboratory, St James's Hospital, Dublin 8. Tel: 01-4103662.

Salmonella Monthly Report (December 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	0	1	1	0	1	1	1	7
S. Enteritidis	2	0	0	0	2	0	0	0	4
S. Typhi *	0	0	0	0	0	0	0	1	1
Total	4	0	1	1	2	1	1	2	12
* Travel associated case (India)									