Ionad Naisiunta Faire Galair

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National Disease Surveillance Centre,

25-27 Middle Gardiner St
Dublin 1,
Ireland

Tel: +353 (0)1 **876 5300**
Fax: +353 (0)1 **856 1299**
info@ndsc.ie
www.ndsc.ie

Update on Avian Influenza Outbreaks in Asia

Poultry outbreaks

The outbreaks of avian influenza H5N1 in poultry continue in East and South East Asia. Although the number of countries involved has remained stable since the beginning of February, the number of confirmed outbreaks in Thailand, China and Vietnam continues to increase.[1] Outbreaks of highly pathogenic avian influenza involving other virus strains have been reported from Pakistan (H7) and the USA (H5N2).[2] A probable H7 avian influenza outbreak in poultry was reported on a farm in British Columbia, Canada on 19th February 2004.[3]

In Thailand, avian influenza has been confirmed in cats, with the H5N1 virus being isolated from two domestic cats, and a white tiger from a zoo near Bangkok. This is a worrying development as every time the virus jumps the species barrier it increases the risk of more cases occurring in humans.

Human outbreaks

As of 26th February, nine cases have been reported from Thailand with seven deaths (case fatality rate of 78%), and 23 cases from Vietnam with 15 deaths (case fatality rate of 65%). These are laboratory-confirmed cases and may not give the full picture, as milder cases of illness may not be coming to the attention of healthcare staff.[1] However, there is no evidence of human-to-human transmission and the fact that there are very few cases in humans despite the widespread outbreaks in poultry would indicate that the virus does not spread easily from poultry to humans. This situation could change as the H5N1 strain of the virus is known to mutate rapidly and can exchange genes with influenza viruses from other species.

Clinical description

A clinical description of the initial 5 cases that presented in Thailand reported that 4 of the cases were males aged 6-7 years. All had been previously healthy. They presented to hospital 2-6 days after onset of fever and cough. Other initial symptoms included sore throat (4), rhinorrhoea (2), and myalgia (2). All developed shortness of breath within 1-5 days of onset of symptoms. Lymphopenia was present in 4 of the 5 cases. Chest x-ray changes on admission showed patchy infiltrates in four of the cases and interstitial infiltrates in one case. The respiratory symptoms progressed over several days to respiratory failure and death in all 5 cases. Other organ involvement included mild to moderate hepatitis, and later cardiac and renal impairment.

Preliminary clinical data on some of the cases in Vietnam reported a similar clinical pattern. However, none of the patients reported sore throat or rhinorrhoea, and watery diarrhoea was noted in half the cases.

A recent study found unusually high serum concentrations of chemokines in patients with H5N1 disease. The authors of the study also noted another study that reported that H5N1 influenza viruses induced large amounts of proinflammatory cytokines from macrophage cultures in vitro. They postulated that cytokine dysfunction contributes to the pathogenesis of H5N1 disease.[4]

Control measures

The European Commission has suspended the import into the EU of chicken products and pet birds from all Asian countries affected by the outbreaks. On the 24th February 2004 the Commission also suspended imports of birds and eggs from the United States.[5]

Travellers to East and South-East Asia are being advised not to visit live bird markets, farms or places that may be contaminated by bird faeces. There are currently no travel restrictions to the countries affected by avian influenza.

Unless otherwise indicated, all the above information is available on the WHO website at www.who.int/

Further information is also available on the NDSC website at www.ndsc.ie

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Influenza Vaccine Composition for the 2004/2005 Season

WHO has recommended the following vaccine composition for the 2004-2005 season in the Northern Hemisphere:

- an A/New Caledonia/20/99(H1N1)-like virus
- an A/Fujian/411/2002(H3N2)-like virus[a]
- a B/Shanghai/361/2002-like virus[b]

[a] The currently used vaccine virus is A/Wyoming/3/2003. A/Kumamoto/102/2002 is also available as a vaccine virus.

[b] Candidate vaccine viruses include B/Shanghai/361/2002 and B/Jilin/20/2003 which is a B/Shangai/361/2002-like virus.

Reference

WHO. Recommendations for influenza vaccine composition Northern Hemisphere: 2004-2005. available at www.who.int/csr/disease/influenza/vaccinerecommendations1/en/

Bacterial Meningitis including Meningococcal Septicaemia in Ireland, 2002/2003

Introduction

Bacterial meningitis is an important cause of childhood death and neurological sequelae. Case fatality rates are 5-10% in industrialised countries and are higher in the developing world. Between 10-20% of survivors develop permanent sequelae, such as epilepsy, intellectual disability and deafness. Over the last decade the most common forms of bacterial meningitis have been *Neisseria meningitidis* and *Streptococcus pneumoniae*. Meningitis due to *Haemophilus influenzae* type b (Hib) was a major cause of meningitis in infants but has now been almost eliminated following the introduction of Hib conjugate vaccine in 1992. The meningococcal group C conjugate vaccine (MenC) introduced in Ireland in October 2000 also has had a major impact in significantly reducing morbidity and mortality due to meningitis.[1] In this report when the term bacterial meningitis is used, it refers to all forms of bacterial meningitis and also meningococcal septicaemia, while the term invasive meningococcal disease (IMD) relates to cases of meningitis and/or septicaemia due to *N. meningitidis.*

Materials and Methods

An enhanced surveillance system for bacterial meningitis has been in operation in Ireland since 1997. A standard dataset is used which includes demographic, microbiological and epidemiological details. Details are collected by the Area Medical Officer in the Community Care Area of residence of each suspected case of bacterial meningitis and reported simultaneously to the Department of Public Health and NDSC. The database at NDSC is reconciled regularly with the Irish Meningococcal and Meningitis Reference Laboratory (IMMRL) and the Departments of Public Health databases.

For surveillance purposes, IMD cases are classified as "definite", "presumed" or "possible" These terms are defined in NDSC's case definitions document.[2]

This report focuses on the epidemiology of bacterial meningitis notifications in Ireland between July 2002 and June 2003 (2002/2003) and compares it with data from the three previous epidemiological years, July to June – 2001/2002, 2000/2001 and 1999/2000. The 2002 census was used as the population data source.

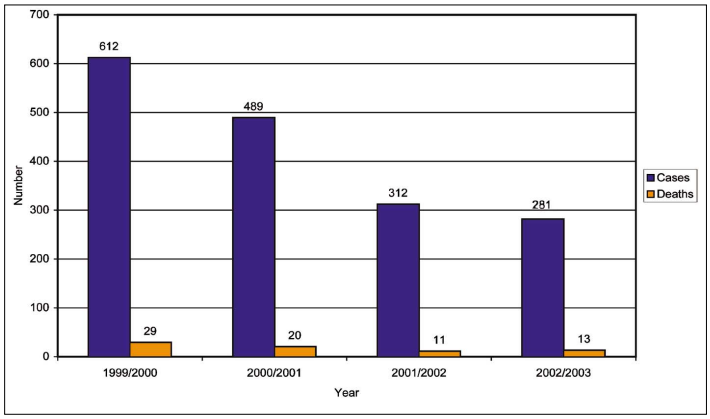

Figure 1. Number of cases and deaths due to bacterial meningitis in the epidemiological years 1999/2000 – 2002/2003.

Results

Bacterial meningitis

Between July 2002 and June 2003 (2002/2003), 281 cases including 13 deaths due to bacterial meningitis were notified in Ireland. A 54% decrease in the occurrence of bacterial meningitis has been seen since 1999/2000 when 612 cases were notified (Figure 1). This reduction can largely be attributed to the decline in the incidence of IMD observed over the last three years (Table 1). The number of cases due to other forms of bacterial meningitis has not changed greatly over this time. Despite the decline, IMD still accounted for the majority of the bacterial meningitis notifications in 2002/2003 (n=223, 79%), whereas 3.9% of the cases were due to pneumococcal meningitis (n=11) and 2.8% due to *Haemophilus influenzae* meningitis (n=8) (Table 1). In 2002/2003 the case fatality rate (CFR) for bacterial meningitis was 4.6% (13 deaths/281 cases).

Table 1. Forms of bacterial meningitis notified in Ireland in the epidemiological years 1999/2000 – 2002/2003

Bacterial Meningitis	1999/2000	2000/2001	2001/2002	2002/2003
IMD	556	407	270	223
Pneumococcal	21	25	16	11
Haemophilus influenzae	6	3	2	8
Group B Streptococcus	1	3	3	4
Listeria	0	2	1	1
Other**	28	49	20	34
Total	**612**	**489**	**312**	**281**
Crude incidence rate*	15.6	12.8	8.0	7.2

* Rate per 100,000 total population.

** Includes *Escherichia coli*, *Staphylococcus aureus*, *Mycobacterium tuberculosis* meningitis and other forms of bacterial meningitis where no organism has been identified.

Invasive meningococcal disease (IMD)

Total IMD

There were 223 cases of IMD notified in 2002/2003. Two of these cases were acquired abroad, one in England, the other in Spain, both were serogroup B. Since these cases were imported, they have been excluded from the analysis and therefore, 221 cases are referred to hereafter.

The number of IMD cases notified in 2002/2003 (n=221, 5.6/100,000 total population) declined by 17.5% compared with 2001/2002 (n=268, excluding two imported cases; 6.8/100,000 total population) and by 60% compared with 1999/2000 (n=554, excluding two imported cases; 14.1/100,000 total population). Of the 221 cases notified in 2002/2003, 190 were classified as definite (86%), 17 as presumed (7.7%) and 14 as possible (6.3%). The male:female ratio was 1.2:1.0. The highest incidence was in children <1 year of age (110.1/100,000) and in those 1-4 years old (30.5/100,000) (Table 2). There were eight deaths due to IMD (all serogroup B) in 2002/2003 compared to 10 deaths the previous year (7 B, 2 C and 1 W135).

IMD by serogroup

In 2002/2003 the breakdown by serogroup was as follows: 187 serogroup B, 4 serogroup C, 4 serogroup W135, 2 serogroup Y, 2 non-groupable (NG) and 22 no organism detected. Ninety one percent of the cases (202/221) were laboratory confirmed; 129 cases by PCR, 61 by culture, 9 by serology and 3 by microscopy.

Serogroup B notifications declined in 2002/2003 (n=187) by 12% when compared to the previous year (n=213) and by 32% compared with 1999/2000 (n=277). Fifty six percent of the serogroup B cases occurred in children <5 years of age. The age-specific incidence rate in <1 year olds was 80.7 per 100,000 and 26.9 per 100,000 in 1-4 year old children, whereas the overall incidence rate including all age groups was 4.8 per 100,000. The CFR due to serogroup B in 2002/2003 was 4.3% (8 deaths/187 cases). Fifty percent of the serogroup B deaths occurred in the <1 year olds and the CFR in this age group was over double (9.1%, 4 deaths/44 cases) that seen in all age groups combined.

Only four cases (0.1/100,000 total population) of serogroup C were notified in 2002/2003 compared with 21 cases (0.5/100,000 total population) in 2001/2002, a decline of 81%. Serogroup C declined by 98% in 2002/2003 when compared with 1999/2000 (n=167; 4.3/100,000 total population), the latter period was pre introduction of the MenC vaccine (Figure 2). None of the four serogroup C cases in 2002/2003 had received the MenC vaccine,

despite that two of the cases were in the age group eligible for vaccination. There were no serogroup C deaths in 2002/2003, whereas there had been two the previous year and four the year prior to that (i.e. 2000/2001).

Table 2. Invasive meningococcal disease by age group, 2002/2003

(Number of cases and age-specific incidence rates per 100,000 [ASIR])

Age group (years)	Group B No. [ASIR]	Group C No. [ASIR]	Other Groups* No. [ASIR]	No organism** No. [ASIR]	Total No. [ASIR]
<1	44 [80.7]	1 [1.8]	4 [7.3]	11 [20.1]	60 [110.1]
1-4	60 [26.9]	0 [0.0]	2 [0.9]	6 [2.7]	68 [30.5]
5-9	16 [6.1]	0 [0.0]	0 [0.0]	1 [0.4]	17 [6.4]
10-14	18 [6.3]	0 [0.0]	0 [0.0]	1 [0.4]	19 [6.7]
15-19	19 [6.1]	1 [0.3]	0 [0.0]	0 [0.0]	20 [6.4]
20-24	4 [1.2]	0 [0.0]	0 [0.0]	2 [0.6]	6 [1.8]
>25	26 [1.1]	2 [0.1]	2 [0.1]	1 [0.04]	31 [1.3]
Total	**187 [4.8]**	**4 [0.1]**	**8 [0.2]**	**22 [0.6]**	**221 [5.6]**

* Serogroups W135, Y and NG

** *N. meningitidis* not detected by culture or PCR or serology, but clinical evidence to support diagnosis of IMD

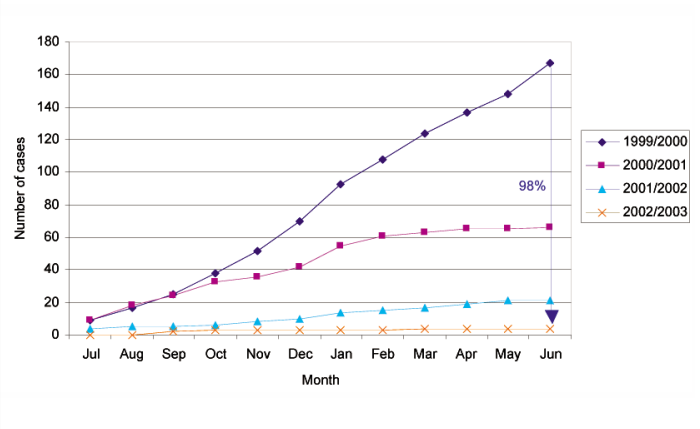

Figure 2. Cumulative number of serogroup C IMD cases by month, 1999/2000 – 2002/20003.

Pneumococcal meningitis

Eleven cases of pneumococcal meningitis were notified between July 2002 and June 2003. Nine of these occurred in children under five years of age, while the remaining two were in adults aged >50 years. There were no deaths due to pneumococcal meningitis in 2002/2003. In contrast there were three deaths in 1999/2000, four in 2000/2001 and one in 2001/2002. Therefore, in those three years the CFR for pneumococcal meningitis ranged from 6-16%.

Haemophilus influenzae meningitis

Eight *H. influenzae* meningitis cases were notified in 2002/2003, which was the highest number of cases seen in recent years (Table 1). Two occurred in the first six months of the year whereas the remaining six occurred in the latter six months (Jan-June 2003). Seven of the eight cases were due to *H. influenzae* type b (Hib) and one was non-capsular. Seven cases occurred in children <5 years of age and one type b case was in the 10-14 year age group. No deaths due to *H. influenzae* meningitis were reported. Of the seven Hib cases, there were two true vaccine failures, in that the children had been fully vaccinated against Hib disease, one apparent vaccine failure (child received only 1/3 doses Hib vaccine) and four of the cases had not been vaccinated.

Group B streptococcus and listeria meningitis

There were four cases due to group B streptococcus meningitis in 2002/2003. Three cases occurred in infants aged one month or less, the fourth was in an adult. There were two deaths. One case of listeria meningitis occurred in 2002/2003, in a newborn infant.

Discussion

Neisseria meningitidis remains the most common reported cause of bacterial meningitis in Ireland with an annual incidence of 5.6 per 100,000 population. Since the introduction of the MenC vaccine the distribution of serogroups B and C has changed. In 1999/2000, prior to availability of the vaccine, serogroup B accounted for 50% of all IMD cases and serogroup C for 30%. In 2002/2003 serogroup B was the causative pathogen in 85% of all IMD cases and serogroup C in just 2%. The incidence of serogroup C disease has declined considerably, falling from an incidence of 4.3 per 100,000 population in 1999/2000 to 0.1 per 100,000 population in 2002/2003. None of the four serogroup C cases notified in 2002/2003 had been vaccinated. Therefore, there were no vaccine failures associated with MenC vaccine over that period. The reduction in serogroup C IMD highlights the public health success story of the MenC vaccination campaign in Ireland with 98% less serogroup C cases now occurring.

Even though the incidence of serogroup B IMD has slightly declined in recent years, its incidence still remains high (4.8/100,000). The <5 year olds are the age group still most affected, with age-specific incidence rates of 80.7 and 26.9 per 100,000 being observed in 2002/2003 in the <1 year olds and 1-4 year olds, respectively.

An increase in invasive Hib infections including Hib meningitis has recently been observed in children. However, since overall numbers are small it is difficult to determine the significance of this increase just yet. The situation will be closely monitored to ensure that any changes in the trends of the disease are detected and the appropriate public health action taken. For a report on invasive Hib disease in Ireland, see the February 2004 issue of Epi-Insight.[3]

Pneumococcal meningitis accounts for between 3-5% of bacterial meningitis cases each year. At present two pneumococcal vaccines are available in Ireland and are recommended for use in persons who are at increased risk of developing pneumococcal disease and its complications.[4]

Although there has been a considerable decline in the occurrence of bacterial meningitis in Ireland, which can largely be attributed to the reduction in the incidence of serogroup C IMD, bacterial meningitis is by no means a disease of the past. Serogroup B IMD is still common in Ireland with 10% of infants who get the disease dying as a result of it. There is no suitable vaccine available yet for this form of IMD. There are other forms of bacterial meningitis where either vaccination is not routinely used or there is no vaccine available. Therefore, it is essential that parents and health care professionals are ever alert to the signs and symptoms of bacterial meningitis, because the earlier the diagnosis, the sooner treatment can be initiated and the greater the chance the person will make a full recovery.

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Acknowledgements

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European Centre for Disease Prevention and Control

On 10th February 2004, the European Parliament voted to create a European Centre for Disease Prevention and Control (ECDC).[1] The vote must be endorsed by the European Council to bring it into law and this is expected to happen in the next few weeks. The centre will be based in Sweden and it is planned that it will be operational in 2005. A management board will be established with representatives from Member States, the Commission and the European Parliament. The centre will have a relatively small core staff of 30-40, but will draw on the expertise of public health professionals from all over the European Union.

The centre will initially focus on the surveillance and control of communicable diseases and outbreaks of disease of unknown origin. It will also assist the EU Health Security Task Force in the monitoring and preparedness planning against bioterrorist attacks. Later it is planned to extend the ECDC brief to cover other aspects of public health such as health monitoring.

The main tasks of the centre [2] will be:

- *Epidemiological surveillance and networking of laboratories.* The centre will develop surveillance on a European level leading to harmonisation of surveillance methodologies and allowing better comparability of data collected in each Member State. Reference laboratories will be identified and maintained and quality assurance schemes put in place.
- *Scientific opinions*. Scientific excellence will be available to the Commission and Member States through the expertise of the centre and that existing in Member States. The centre will set up independent scientific panels if deemed necessary.
- *Early warning and response.* A 24/7 availability of specialists in communicable disease will be available to the Commission and Member States to assist in disease outbreaks. The centre will coordinate with EU and other agencies e.g. European Food Safety Authority and WHO where this is appropriate.
- *Technical assistance.* A EU team will be provided to investigate any unknown human disease in a European county if requested, and humanitarian aid or assistance will be provided to third countries in response to disease outbreaks.
- *Emergencies and communication.* The centre will play a major role in coordinating the response to serious health threats of EU-wide significance. It will also ensure that reliable and accessible information is available to decision makers in the Commission, Member States and international organisations, and the general public.

The emergence of SARS and the current outbreak of avian influenza in South East Asia have demonstrated the need for a rapid, effective and co-ordinated response to global health threats.

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Tetanus in Injecting Drug Users in the UK: Update

The Health Protection Agency in the UK have reissued an alert to healthcare professionals and those working with injecting drug users (IDUs) following an increase in cases of tetanus in IDUs.[1] As of the 26th February 2004, twenty cases have been reported from around the UK including one death.[2] Although cases have been reported in England, Scotland and Wales, most of the cases have occurred in the West of England, along the M5/M6 corridor. The geographical distribution suggests that contaminated heroin is the likely source of the outbreak. As this outbreak has been ongoing since July 2003 there appears to be a continuing source of contamination. In 2000, there was an outbreak of serious illness and death among IDUs in the UK and Ireland associated with *Clostridium novyi* infection, a particular supply of heroin, and subcutaneous and/or intramuscular injection of heroin. One hundred and eight cases and 44 deaths were reported in this outbreak.[3]

Increased awareness is extremely important. IDUs, drug workers and clinicians should be aware of early symptoms including muscle stiffness near the injection site, spreading to other muscles including the jaw (hence the name lock-jaw). This is followed by painful muscle spasms with difficulty swallowing and breathing. Early treatment with tetanus immunoglobulin can be life saving.

The following advice[4] should be given to all those who inject drugs:

- IDUs who develop any of the above symptoms should seek medical advice straight away.
- Never share needles, syringes, cookers/spoons or other 'works' with other users.
- Smoke heroin instead of injecting it.
- If you must inject, do not inject into muscle or under the skin: make sure you hit the vein as blood kills bacteria better than muscle.
- Use as little citric acid as possible as too much damages the skin and muscle and gives bacteria a better chance to grow and cause infection.
- If you inject more than one type of drug, do not inject them all in the same place or with the same 'works' as certain drugs give bacteria a better chance to grow.
- Check whether you have had the recommended course of tetanus vaccine. Although IDUs can get tetanus regardless of their immunisation status, it tends to be less severe in those who are fully immunised.

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Salmonella Monthly Report (January 2004):

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, NSRL.

Health Board	E	M	MW	NE	NW	SE	S	W	Total
S. Derby	0	0	0	0	1	0	0	0	**1**
S. Dublin	1	0	0	0	0	0	0	0	**1**
S. Enteritidis	0	0	2	0	0	1	0	0	**3**
S. Heidelberg	1	0	0	0	0	0	0	0	**1**
S. Kottbus	0	4	0	0	0	0	0	0	**4**
S. Newport	1	0	0	0	0	0	0	0	**1**
S. Typhimurium	2	2	0	2	0	0	1	0	**7**
Total	**5**	**6**	**2**	**2**	**1**	**1**	**1**	**0**	**18**