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Contents

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Australia Reports First Polio Case Since 1986

On 13 July 2007 Australian health authorities reported a case of polio in a 22-year-old male who recently returned by plane to Australia from Pakistan.[1] The last case of wild type poliovirus infection in Australia occurred in 1986 and the Western Pacific Region, including Australia, was certified as polio free in 2000.

Any case of polio is a significant public health concern. The Australian Health Protection Committee agreed a national action to contact trace all passengers who travelled with the infected passenger and to isolate his Australian home contacts. The patient, who has recovered from his initial paralysis, will remain in hospital in isolation until he is diagnosed polio free.

Passengers who travelled with the case are considered to be at low risk of contracting the disease. HPSC is not aware of any Irish residents who may have been on the flight.

Polio is a highly infectious disease that can be prevented through immunisation. All Irish children should receive four doses of polio vaccine as part of the childhood immunisation programme. However, any individuals (child or adult) who are unsure of their immunisation status, particularly if they are travelling abroad to countries where polio is still reported (Nigeria, Pakistan, India, Afghanistan, Niger, Somalia, Angola, DR Congo, Chad, Myanmar), should inform their doctor and receive polio vaccine as necessary.

Ireland, as part of the WHO European Region, was certified polio free in 2002. The last case of polio was reported in Ireland in 1984.

Ireland participates in a WHO European acute flaccid paralysis (AFP) surveillance system in order to ensure that Ireland remains polio free. All cases of AFP in children <15 years of age should be reported to the medical officer of health and rapidly investigated to outrule polio as a cause of AFP. Two stool samples from each AFP patient should be sent to the National Virus Reference Laboratory for virology testing. In the event that any cases of AFP due to the poliovirus are identified appropriate public health action would be taken immediately.

More information on polio and AFP surveillance can be found on the HPSC website at http://www.ndsc.ie/hpsc/A-Z/VaccinePreventable/Polio/.

Reference

1. Australian Government Department of Health and Ageing. Public health alert over positive case of polio in Australia. Available at http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-mediarel-cmo-130707.

Influenza Forum Seasonal Influenza Conference

The Influenza Forum is holding a one-day conference on seasonal and pandemic influenza on1 September 2007 in the Walton Theatre, Arts Block, Trinity College, Dublin 2. The Influenza Forum is a multidisciplinary group of healthcare professionals who came together on an informal basis to discuss a shared interest in influenza.

The conference will debate best practice in the prevention, surveillance and treatment of seasonal influenza in Ireland and will also include an update on current activities on pandemic influenza. Confirmed participants include Dr. Darina O'Flanagan, Director, Health Protection Surveillance Centre; Professor William Hall, Director, National Virus Reference Laboratory and Chair of the Pandemic Influenza Expert Group; Jo Yarwood, Head of Immunisation Information, UK Department of Health; Dr. Peter Kreidl, Senior Expert, Preparedness and Response Unit, ECDC; and Dr. Michael Gardam, Director, Infection Prevention and Control, Toronto General Hospital. In addition, there will be a number of Irish speakers from clinical and public health specialties.

Five CME points (Royal College of Physicians) are available for those who attend the meeting. The Irish College of General Practitioners has also approved the meeting for GMS study leave (2 CME sessions/5 credits). The meeting will commence at 9.30am (registration from 8.30am) and concludes at 4pm. Lunch will be provided.

To register, please contact Ann-Marie at 01-6070221 or at abannan@firstmedical.ie. Registration is free. Please see medical press for more details.

Outpatient Antibiotic Consumption in Ireland, 2006

Introduction

Surveillance of antimicrobial consumption is a key component of the Strategy for the Control of Antimicrobial Resistance in Ireland (SARI) and Ireland participates in the European Surveillance of Antimicrobial Consumption (ESAC). This report covers antibiotic consumption in outpatient (sometimes referred to as ambulatory, community or primary) care areas collected under ESAC guidelines for 2006 in Ireland.[1] Consumption is measured in defined daily dose (DDD), which is the assumed average maintenance dose per day for a drug used for its main indication in adults.

Methods

The Health Protection Surveillance Centre (HPSC) has purchased Irish antibiotic sales data from IMS Health, a pharmaceutical market research company. This dataset contains regional, monthly wholesaler to retail pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland. An automated data-extraction protocol was devised at HPSC to obtain the DDD outputs for antibiotics. The current WHO anatomical therapeutic chemical index was used to classify the antibiotics.

Rates were calculated in DDD per 1,000 inhabitants per day (DID) for the outpatient data. Population size was estimated between 1993 and 2006 for non-census years using a curve interpolation method. Monthly expected usage values for 2000-2006 were calculated from time-series data using an exponential smoothing model.

Results

Overall rates

The overall outpatient antibiotic consumption for Ireland in 2006 was 21.1 DID, a rise from the previous year's rate of 20.5 DID, and has been rising steadily at 2.4% per year since 1993 when the rate was 16.1 DID.

In 2006, outpatient consumption of penicillins accounted for the largest class used (50% of total at 10.5 DID), followed by tetracyclines (16%, 3.4 DID), macrolides (16%, 3.3 DID), cephalosporins (9%, 1.9 DID), quinolones (4%, 0.9 DID) and sulphonamides (4%, 0.9 DID). Others, comprising aminoglycosides and miscellaneous, accounted for less than 1% at 0.1 DID.

Penicillins

Figure 1 shows the breakdown of penicillin usage by subclass in outpatients. Penicillin in combination with beta-lactamase inhibitor (such as amoxicillin/clavulanate) accounted for the largest proportion of penicillins and showed a dramatic rise over the last seven years (2000-2006). Broad-spectrum penicillin (such as ampicillin and amoxicillin) usage was stable but high. Beta-lactamase resistant penicillin (such as flucloxacillin) and narrow-spectrum penicillin (such as benzylpenicillin) usage were lower but showed slight increases.

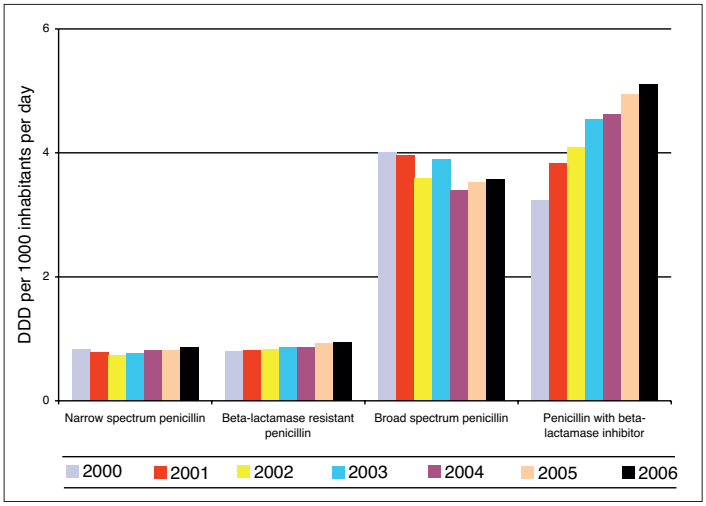

Figure 1. Outpatient consumption of penicillin subclass in Ireland, 2000-2006

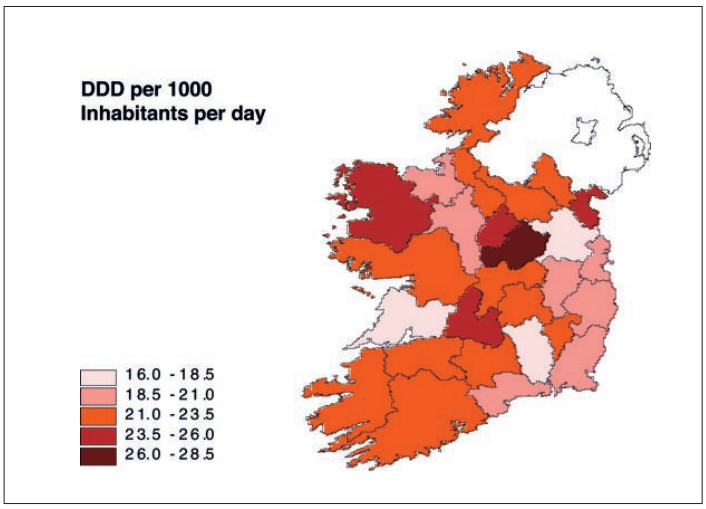

Figure 2. Outpatient antibiotic consumption by county in Ireland, 2006

Regional variation

Figure 2 shows that there is considerable variability in outpatient antibiotic usage at county level (16.2 to 26.3 DID).

Seasonality

The fluctuation in outpatient antibiotic use by month from 2000 to 2006 is shown in figure 3. The usual seasonal pattern exhibits a decline in usage in the summer months and an increase for the winter months. The average winter usage is usually 27% higher than summer usage. The overall pattern was the same for 2006 although there were significant differences in three months of 2006 from the expected values. There was higher usage than expected in February and March, and lower usage than expected in December.

Figure 3. Outpatient antibiotic consumption in Ireland by month, 2000-2006

Cost estimates

The IMS data, which represent private and non-private community antibiotic usage, produced a total ingredient cost of antibiotics for 2006 at €55.3 million. This is a rise of 7% from 2005 when the cost was €51.7 million. The HSE National Shared Services Primary Care Reimbursement Service reported that the antibiotic ingredient cost for 2005 under its three main schemes was €28.0 million.[2]

Discussion

In an ESAC report of 2002 data for 32 EU countries, the range of outpatient antibiotic usage was 10.0 DID (the Netherlands) to 32.2 DID (France).[3] Outpatient antibiotic usage in Ireland was 21.1 DID for 2006 and has been around 19-21 DID over the last five years. Thus the overall rate in Ireland is mid-range in Europe. However, the marked seasonal fluctuation, coupled with a higher proportion of broad-spectrum penicillin consumption in Ireland, is consistent with those countries such as Portugal and Italy which have a higher level of resistance among key indicator pathogens, unlike the Nordic countries which generally have low levels of resistance. Furthermore, the overall outpatient usage, particularly of penicillins such as amoxicillin/clavulanate, is increasing, which contrasts with many European countries that have succeeded in reducing their overall consumption, particularly of broad-spectrum antibiotics, in recent years.

Outpatient antibiotic usage in some Irish counties appears to be considerably different from the national rate (range 16.2 to 26.3 DID, in 2006). This regional variation is similar to the pattern seen in 2004 and 2005, and may reflect differences in prescribing practices, socioeconomic factors or pharmaceutical marketing.[4] Analysis of primary care reimbursement data showed that those entitled to reimbursement (representing 30% of the population) are prescribed about 60% of the antibiotics in terms of cost.

Seasonal fluctuation (about 27% rise from summer to winter) has been seen every year in outpatient antibiotic consumption and is probably related to over-prescribing of antibiotics for respiratory tract infections in winter months. In addition, in 2006, there was a significant rise in antibiotic consumption in the spring, the reasons for which are not know, but may reflect changes in the seasonal fluctuation of viral respiratory pathogens. The pattern closely matched the 2005/2006 influenza season which also peaked in spring, later than usual. The association between trends in antibiotic usage and the rate of influenza-like illness over the last few years is currently being studied by HPSC.

The three factors – regional, seasonal and socioeconomic – may work together to produce very high rates of antibiotic consumption in some primary care areas at certain times, resulting in increased pressure for selection of resistant variants of important bacterial pathogens. The HSE plan to deliver a national programme of general practice education, along with a public awareness campaign on prudent antibiotic use, over the next twelve months.

Although the IMS dataset used in this report is very comprehensive a drawback with its use is that the data are based on wholesaler to retail pharmacy sales rather than on prescribed doses. Therefore, the unexpected drop in sales in December of 2006 may have been a result of stockpiling from the unseasonable rise in the spring of 2006. To address this and other limitations the HPSC, in collaboration with the School of Pharmacy at Trinity College Dublin, has begun a project to collect antibiotic prescription data directly from sentinel retail pharmacies in Ireland.

Ajay Oza, Robert Cunney, HPSC

Acknowledgements

We thank IMS Health and the ESAC management team.

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2. National Shared Services Primary Care Reimbursement Service. Financial and statistical analysis of claims and payments – 2005. Health Services Executive.
3. Goossens H *et al*. Outpatient antibiotic use in Europe and association with resistance. *Lancet* 2005; **365**(9459): 579-87.
4. Oza A, Cunney R. Outpatient antibiotic consumption in Ireland, 2005. *EPI-Insight* 2006; **7**(11): 2-3.

Invasive *Haemophilus influenzae* type b disease in Ireland, 2006/2007

Background

Less than two decades ago, *Haemophilus influenzae* type b (Hib) disease was one of the most important causes of invasive bacterial infections in young children. Hib causes a variety of serious diseases such as meningitis, epiglottitis, septicaemia, cellulitis and pneumonia. Following the introduction of the Hib conjugate vaccine to the childhood immunisation schedule at 2, 4 and 6 months in October 1992, and the implementation at the same time of a catch-up campaign targeting children under 4 years of age, the incidence of Hib declined in Ireland from approximately 100 cases (2.9/100,000) per year in the late 1980s to around 10 cases (0.2/100,000) annually by 2000. However, towards the end of 2004 an increase in the number of Hib cases was observed and, worryingly, infection was occurring predominantly in fully vaccinated children. This trend continued into early 2005. In the six-month period between October 2004 and March 2005, nine Hib vaccine failures occurred compared to between one and four annually over the previous six years (1998-2003).

The increase in the number of Hib cases in fully vaccinated children led to concerns that a three-dose infant schedule was no longer sufficient to maintain long term protection. A catch-up campaign offering a Hib booster dose to children over 12 months but <4 years of age was launched on 21 November 2005 and ran until May 2006. Since 18 September 2006, a Hib booster has been included in the infant immunisation schedule at 12 months of age.

This paper presents the latest epidemiology of invasive Hib disease in Ireland. Enhanced notification data on this disease received by HPSC between July 2006 and June 2007 (2006/2007) are analysed and the impact of the Hib catch-up campaign was assessed. Data were extracted from the Computerised Infectious Disease Reporting (CIDR) system on 16 July 2007.

Results

The number of Hib notifications in 2006/2007 declined compared with the previous year, with 10 and 16 cases being notified respectively. The decrease was seen mainly in children, with four cases occurring in the <15 year olds, compared to 13 cases in 2005/2006 (figure 1). In contrast, the number of Hib cases in those ≥15 years increased in 2006/2007; 10 cases were notified with an age range of 20-78 years, compared to just four cases in 2005/2006 (figure 1). One child died as a result of Hib disease in 2006/2007.

A true Hib vaccine failure is defined as the occurrence of Hib disease in an individual despite having been fully vaccinated against the disease. In 2006/2007, three Hib vaccine failures occurred compared with 13 in 2004/2005 and nine in 2005/2006 (figure 1). In 2004/2005, the increase in Hib vaccine failures was mainly in children aged 1-4 years (12 cases). With the introduction of the Hib booster campaign in late 2005, a decline in Hib vaccine failures, especially in this age group, ensued with just five cases arising in 2005/2006 and one in 2006/2007 (figure 2). The increase in vaccine failures seen in slightly older children in 2005/2006, did not follow through into 2006/2007, with only one failure arising in the 5-14 year age group compared to four last year (figure 2).

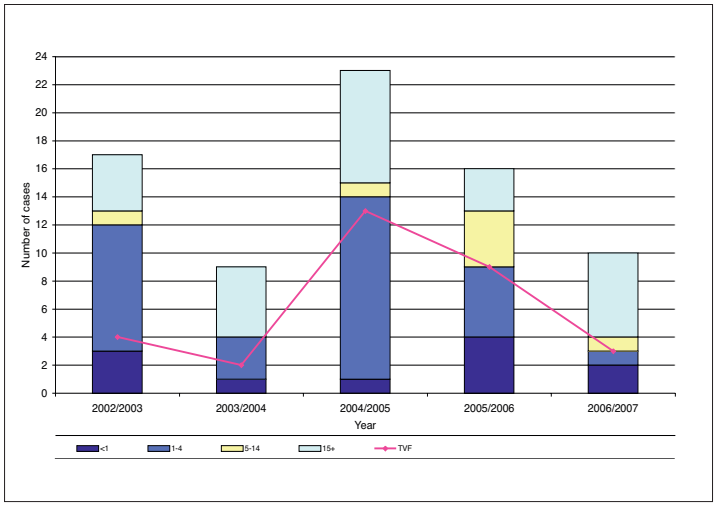

Figure 1. Number of invasive Hib cases in Ireland by year (July-June) and age group and the total number of true Hib vaccine failures (TVFs) by year

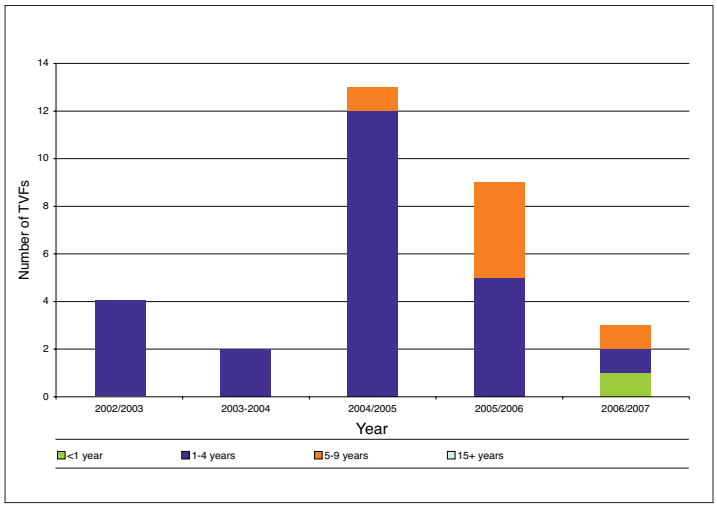

Figure 2. Number of true Hib vaccine failures by age group and year (July - June)

Discussion

The latest trends regarding the epidemiology of invasive Hib disease in Ireland indicate the positive impact the Hib booster catch-up campaign has had in reducing the incidence of Hib disease in children. Over the last year, the incidence of the disease declined in the age group targeted by the catch-up programme and in older children, demonstrating the herd immunity effect associated with Hib vaccination. In 2006/2007, just 40% of Hib cases occurred in children <15 years of age compared to 81% in this age group the previous year.

Even more impressive has been the decline in the number of cases associated with Hib vaccine failures, decreasing from 13 in 2004/2005, to nine in 2005/2006 and three in 2006/2007, which is back to the levels seen in the years before the upsurge in 2004/2005. The decline was even more pronounced in the 1-4 year olds, from 12 in 2004/2005 to five in 2005/2006 and one this year.

The decline in Hib disease and especially in cases associated with vaccine failures is encouraging and is an indication of the positive impact the Hib catch-up booster campaign is having in protecting children. However, to ensure Irish children are protected from this disease on an ongoing basis it is important that Hib booster uptake levels are improved. A mid-term evaluation of the Hib catch-up campaign conducted as a GP survey indicates that uptake was only 69%.

To control and prevent the occurrence and transmission of invasive Hib disease especially in children, it is vital that immunisation uptake rates of 95% are reached for the three doses of Hib vaccine at 2, 4 and 6 months, and to ensure long term protection from the disease it is vital that children receive the booster dose at 12 months of age.

Margaret Fitzgerald, Suzanne Cotter, Darina O'Flanagan, HPSC

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