Seroepidemiology of invasive pneumococcal disease in Queensland, 1990 to 1997

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Abstract

Serotypes responsible for 842 cases of invasive pneumococcal disease in Queensland between February 1990 and October 1997 were identified. Type 14 caused 37.5% of episodes in children aged 0-4 years and 19.2% of adult cases. Types 6A, 6B, 14, 18C, and 19F were significantly more frequent in young children while types 3, 4, 7F, 9V and 23F predominated in adults. The regional incidence of type 14 and 7F disease differed significantly in Southeast and Far North Queensland. Coverage for 87% of children aged less than 5 years in this study would be provided by a recently advocated polysaccharide-protein conjugate vaccine containing capsular antigens of types 4, 6B, 9V, 14, 18C, 19F and 23F. Similarly, more than 90% of adults would be covered by the currently available 23- valent polysaccaride vaccine.

Introduction

Invasive pneumococcal disease, particularly among indigenous minorities, is a major public health problem in Australia.[1-4] A laboratory based pneumococcus surveillance programme commenced in Queensland in February 1990 and has continued, since July 1994, under the aegis of Queensland Health Scientific Services. This report details the type frequency and distribution of sterile site pneumococcal isolates in Queensland during a 6.8 year period. Serotype data of isolates from 87

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ISSN 0725-3141
Volume 22
Number 12
26 November 1998

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Aboriginal and Torres Strait Islander adults included in this report have been published previously.[2]

Methods

Queensland hospital laboratories participating in the study referred pneumococci cultured from normally sterile sites. Multiple isolates of the same type recovered during an invasive episode were included once. A pneumococcus transport system comprising semi-solid nutrient agar supplemented with lysed horse blood was provided. Referral guidelines were distributed. Cultures, on receipt, were checked for purity, catalogued and stored in skim milk glucose glycerol broth[5] at minus 75^{o} C. All isolates were sero- and factor typed, as appropriate, by the Quellung reaction, with antisera purchased from the Statens Seruminstitut, Copenhagen, Denmark.

Results

Pneumococci from 842 episodes of invasive disease were received from 13 Queensland hospital laboratories between February 1990 and October 1997. The surveillance periods for individual laboratories ranged from 4-80 months (0.4-6.8 years) (Table 1). Three hospitals, Princess Alexandra (PAH), Royal Brisbane (RBH) and Cairns Base (CBH), contributed two thirds of all strains. The ages of 29 RBH patients, from whom isolates were received, were unavailable.

Blood and CSF provided 98.6% of all strains. Adults comprised 64.5% and children aged less than two years 23% of the patient population (Table 2). Overall, 40 of the 90 known pneumococcal types were identified.

Type 14 was responsible for one quarter of all episodes (Table 3). It was the most frequent type encountered in children 0-4 years old (37.5% of 253 cases) (Table 4) and adults (19.2% of 525 cases) (Table 5). A diversity of types, 38 in all, caused adult disease (Table 5) while 82% of infections in young children were due to six types: 6A, 6B, 14, 18C, 19F and 19A (Table 4). Only 35 cases of invasive disease occurred in children aged 5-14 years.

Table 6 compares the frequency in children aged 0-4 years and adults of commonly identified types. A significantly higher proportion of type 6A, 6B, 14, 18C and 19F infections occurred in young children. These serotypes are associated with paediatric disease. Types 3, 4, 7F, 9V and 23F predominated in adults. Proportionately, disease due to type 7F was encountered significantly more frequently in Far North Queensland (FNQ) than in Southeast

Table 1. Surveillance hospitals, monitoring period and the number of referred pneumococcal isolates

Hospital	Surveillance period (years)	Number of referred strains	Percentage (%)
Cairns Base	Aug 1991 - Oct 1997 (6.1)	219	(26.0)
Gold Coast	Aug 1991 - Oct 1997 (6.1)	78	(9.3)
Greenslopes Repatriation	Oct 1990 - Jun 1994 (3.7)	10	(1.2)
Ipswich	Nov 1996 - Mar 1997 (0.4)	3	(0.4)
Mackay Base	Nov 1994 - Jun 1997 (2.6)	2	(0.2)
Mater Misericordiae	May 1997 - Oct 1997 (0.5)	36	(4.3)
Mount Isa Base	Apr 1995 - Oct 1997 (2.5)	18	(2.1)
Nambour General	June 1997 - Oct 1997 (1.3)	13	(1.5)
Prince Charles	Jun 1995 - Aug 1997 (2.1)	58	(6.9)
Princess Alexandra	Feb 1995 - Oct 1997 (2.8)	129	(15.3)
Royal Brisbane	Feb 1990 - Nov 1996 (6.8)	214	(25.4)
Thursday Island	Oct 1995 - Aug 1997 (1.9)	3	(0.4)
Townsville General	Jun 1995 - Oct 1997 (2.3)	59	(7.0)
Total		842	

Table 2. Sites of isolation of invasive pneumococci, by age of subjects, Queensland: February 1990 to October 1997.

	Age (years)					
Site	<2	2-4	5-14	15 & above	unknown	Total (%)
Blood	164	58	28	490	29	769 (91.3)
CSF	12	5	4	12		33 (3.9)
Blood & CSF	10	2	1	16		29 (3.4)
Other*	1	1	2	7		11 (1.3)
Total (%)	187(23)	66(8.1)	35(4.3)	525(64.5)	29	842

* Other: aspirates (joint, 1; lung, 1) 2; pleural fluid, 2; peritoneal fluid, 2; pericardial fluid, 1; dialysis fluid, 1; tissue, 1; blood & peritoneal fluid, 1; blood & pleural fluid & aspirate, 1.

Table 3. Invasive pneumococcal types isolated from patients of all ages in Queensland: February 1990 to October 1997.

Order of frequency	Type *	Number of isolates	(% of total/ cumulative %)
1	14	206	(24.5/24.5)
2	6B	72	(8.6/33.1)
3	4	66	(7.8/40.9)
4	19F	53	(6.3/47.2)
5	23F	50	(5.9/53.1)
6	9V	49	(5.8/58.9)
7	19A	47	(5.6/64.5)
8	18C	42	(5.0/69.5)
9	3	40	(4.8/74.3)
10	7F	35	(4.2/78.5)
11	6A	29	(3.4/81.9)
12	9N	24	(2.8/84.7)
13	1	17	(2.0/86.7)
14	22F	17	(2.0/88.7)
15	8	16	(1.9/90.6)
16	10A	11	(1.3/91.9)
17	11A	10	(1.2/93.1)
18	12F	10	(1.2/94.3)
19	16F	8	(0.9/95.2)
20	15F	6	(0.7/95.9)
21	18A	6	(0.7/96.6)
Subtotal		814	
Other types †		28	
Total		842	

* Types included in the currently available 23–valent pneumococcal polysaccharide vaccine are underlined.

† Types 15C, 34, 38 (3 strains each); 18B, 33F, 48 (2 strains each); 5, 13, 15A, 15B, 17F, 18F, 20, 21, 22A, 23A, 31, 35B, 45 (1 strain each).

Table 5. Invasive pneumococcal types isolated from adults aged 15 years and over in Queensland: February 1990 to October 1997.

Order of frequency	Type *	Number of isolates	(% of total/ cumulative %)
1	14	101	(19.2/19.2)
2	4	51	(9.7/28.9)
3	23F	40	(7.6/36.5)
4	3	37	(7.0/43.5)
5	9V	34	(6.5/50.0)
6	7F	31	(5.9/55.9)
7	6B	29	(5.5/61.4)
8	19A	28	(5.3/66.7)
9	19F	23	(4.4/71.1)
10	9N	17	(3.2/74.3)
11	18C	16	(3.0/77.3)
12	1	15	(2.9/80.2)
13	22F	15	(2.9/83.1)
14	8	14	(2.7/85.8)
15	6A	13	(2.5/88.3)
16	12F	8	(1.5/89.8)
17	10A	7	(1.3/91.1)
18	11A	7	(1.3/92.4)
19	16F	6	(1.1/93.5)
20	15F	5	(1.0/94.5)
21	18A	5	(1.0/95.5)
Subtotal		502	
Other types †		23	
Total		525	

* Types included in the currently available 23-valent pneumococcal polysaccharide vaccine are underlined.

† Types 34, 38 (3 strains each); 33F, 48 (2 strains each); 5, 13, 15A, 15B, 15C, 17F, 18F, 18B, 20, 22A, 23A, 31, 35B (1 strain each).

Table 4. Invasive pneumococcal types isolated from children aged 0 to 4 years in Queensland: February 1990 to October 1997.

Order of frequency	Type	Number of isolates	(% of total/ cumulative %)
1	14	95	(37.5/37.5)
2	6B	42	(16.6/54.1)
3	19F	26	(10.3/64.4)
4	18C	16	(6.3/70.7)
5	19A	15	(5.9/76.6)
6	6A	14	(5.5/82.1)
7	4	13	(5.1/87.2)
8	9V	7	(2.8/90.0)
9	23F	7	(2.8/92.8)
Subtotal		235	
Other types *		18	
Total		253	

* Types 9N, 10A (3 strains each); 1, 12F, 15C, 22F (2 strains each); 7F, 8, 11A, 45 (1 strain each)

Queensland (SEQ) while the reverse was true for type 14 cases (Table 7).

Overall, 91.6% of isolates in this study are included in the currently available 23-valent polysaccharide vaccine (Table 3) while 91.2% of isolates from adults have vaccine coverage (Table 5). Since types 6A (not in the vaccine) and type 6B are cross protective,[6] coverage for this age group is 93.6%.

Discussion

The high frequency of invasive disease in all ages due to type 14 is an important but not surprising finding. Type 14 pneumococcal disease is globally endemic. Of more than 10,000 strains cultured from blood and CSF in mainly European countries during 1982 to 1987, type 14 ranked first and third in children and adults respectively.[7] In the USA between 1978 and 1994 27% of 3884 sterile site isolates from children under six years old were type 14,[8] while in Finland, a study in children aged 0-15 years during 1985 and 1989 identified type 14 in 19% of 365 typed episodes with 82% of strains from subjects under two years old.[9] In developing countries such as Bangladesh and Papua New Guinea and in indigenous populations in

Table 6. Comparison in children aged 0-4 years (n=253) and adults (n=525) of the frequency of type-specific pneumococcal disease in Queensland: February 1990 to October 1997.

Type	Number of isolates		χ^2,1df	P
	Children	Adults		
1	2	15	2.513*	NSS
3	0	37	17.197*	.001
4	13	51	4.682	.05
6A	14	13	4.764	.05
6B	42	29	25.259	.001
7F	1	31	10.770*	.01
8	1	14	3.535*	NSS
9N	3	17	2.110*	NSS
9V	7	34	3.992*	.05
14	95	101	30.375	.001
18C	16	16	4.647	.05
19F	26	23	10.056	.01
19A	15	28	0.116	NSS
23F	7	40	6.253*	.02

* Yates' correction applied.

NSS not statistically significant.

Table 7. Comparison of the regional incidence of types 7F and 14 in Southeast (n=541) and Far North Queensland (n=299): February 1990 to October 1997.

Type	Number of isolates (%)		χ2,1df	P
	SEQ	FNQ		
7F	6 (1.1)	29 (9.7)	33.466	.001
14	153 (28.3)	52 (17.4)	12.378	.001

SEQ Southeast Queensland

FNQ Far North Queensland

Australia, type 14 causes 9-12% of invasive pneumococcal disease in children less than five years old.[3,10,11] A recent marked increase in invasive type 14 disease has been reported in Sweden.[12]

Although type 23F disease is generally associated with children,[13,14] it also commonly invades older age groups,[7,15] as seen in the current study. Unlike most other types protective antibody levels to type 23F continue to increase until adolescence and possibly longer.[16] This finding may, in part, explain the relative frequency of type 23F disease in older subjects.

Type 7F is one of several epidemic types whose frequency has diminished over time while type diversity has increased.[17-21] It has been suggested that these changes are associated with improved socioeconomic conditions including less crowding and prompt treatment and isolation of cases of active disease.[15] The predominance of type 7F disease in FNQ (9.7% of 299 cases) compared with SEQ (1.1% of 541 cases) may reflect the presence of risk factors similar to those in developing countries. In central Australia and Western Australia type 7F is the second (9.4% of 203 episodes) and fourth (6.5% of 153 episodes) ranked type respectively in pneumococcal disease[3] (VISN Study Group, Western Australia, unpublished material). The prevalence of type 7F invasion in eastern states is similar to that of SEQ. Of 989 invasive pneumococci identified in Victoria in 1994 to 1997 only 1.5% belonged to type 7F (Hogg G and Strachan J, unpublished material) while in New South Wales 1.3% of 154 recent isolates are of this type (McIntyre P and others, unpublished material).

Whilst type 14 disease showed a Queensland-wide distribution, significantly greater frequency occurred in SEQ. This was due, at least in part, to the commoness of type 14 disease in patients admitted to RBH during a 6.8 year surveillance period. At this hospital type 14 isolations comprised 31% of all referrals with peaks in 1990 (42%) and 1994 (49%). Type 14 disease also predominated in other SEQ hospitals including Gold Coast (29%) and Prince Charles (34.5%) during shorter monitoring periods.

Our study indicates that more than 90% of pneumococcal strains in adults in Queensland are represented in the current 23-valent polysaccahride vaccine. Children less than 5 years respond poorly to polysaccharide antigens, particularly those belonging to capsular groups 6, 19 and 23 and type 14.[22,23] Types 6A, 6B, 14, 19F and 23F were responsible for 73% of 253 paediatric episodes in the current study. A pneumococcal protein conjugate vaccine containing capsular antigens 4, 6B, 9V, 14, 18C, 19F and 23F for use in children in industrialised countries has been advocated.[24] With cross-protection between types 6A and 6B this formulation would provide 87% coverage for our children aged under five years.

The laboratory surveillance of invasive pneumococcal disease should have an ongoing public health commitment in order to monitor satisfactory vaccine coverage and significant changes in type specific invasion.

Acknowledgements

The participation of the following Queensland hospital laboratories and staff in this study is acknowledged: Brian Parker, Ipswich; Lyn Caldwell, Greenslopes Repatriation; Martyn Tilse and Theo Mollee, Mater Misericordiae; Gillian Wood and Janine Fenton, Prince Charles; Jennifer Bull, Nambour General; David Condie, Mackay Base; Rob Norton and Chris Ashhurst-Smith, Townsville General; Mathew Ford, Mount Isa Base; and Adrian Brown and Vanessa Cameron-Brown, Thursday Island.

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Australian Recommendations for the Influenza Vaccine Composition for the 1999 Season

The meeting of the Australian Influenza Vaccine Committee (AIVC) on Influenza Vaccines was convened on 7 October 1998, in order to select virus strains for the manufacture of Influenza Vaccine for 1999 Season.

Having considered the information on international surveillance by WHO and up-to-date epidemiology and strains characterisation presented at the meeting the Committee considered that the WHO recommendations on the composition of vaccines for 1999 Season should be followed:

- **A (H3N2)** an A/Sydney/5/97 (H3N2)–like strain, 15 µg HA per dose.
- **A (H1N1)** an A/Beijing/262/95 (H1N1)–like strain, 15 µg HA per dose.
- **B** a B/Beijing/184/93- like strain, 15 µg HA per dose.

It was also determined that the following viruses are suitable vaccine strains:

- The high yield reassortant viruses IVR-108 and RESVIR-13 are A/Sydney/5/97 (H3N2)-like strains
- The high yield reassortant virus X-127 is accepted as an A/Beijing/262/95 (H1N1)-like strain
- B/Harbin/7/94 is accepted as a B/Beijing/184/93-like strain

Measles Control Campaign Update

During the three month period of the Campaign, the uptake of measles-mumps-rubella (MMR) vaccine given at primary school clinics and the number of adverse events following MMR vaccination are being monitored. Data are forwarded to the National Centre for Disease Control for collation and publication in *CDI*.

Measles Control Campaign activity data, cumulative to 25 November 1998[1]

Sum total students	1,655,222
Total forms returned	1,536,782
Consents to vaccinate	1,308,141
Total students immunised	1,225,249
Percentages are:	
Of total students	93% returned their forms
Of total forms returned	85% consented to vaccination
Of total consents to vaccination	94% have been vaccinated
Of total students	74% have been vaccinated.

Adverse events

Faints/syncopy	18
Syncopal fits	19
Anaphylaxis	5
Hyperventilation	3
Rash	3
Local allergic reaction	2
Severe immediate local reaction	1
Rash/lymphadenopathy/arthritis	1
Arthropathy	1
Fever/headache	1
Fever/rash/headache/lymphadenopathy	1
Rash/fever/lymphadenopathy	1
Anxiety	1
Lymphadenopathy	1
Myalgia/lymphadenopathy/ headache/stiff neck/rash	1
Immediate acute unilateral parotitis	1
Fit	1

1. These figures do not include mopup. During mopup campaigns 10,238 children were vaccinated therefore increasing the number of children immunised to 1,235,487. In addition, to date 46,913 children have been vaccinated by GPs or other providers.

Enquiries can be directed to Sue Campbell-Lloyd, National Manager of the Measles Control Campaign, Sydney Office, Commonwealth Department of Health and Aged Care, PO Box 9848, Sydney 2000, phone (02) 9263 3990, email Sue.Campbell-Lloyd@health.gov.au.

Antibiotic guidelines for meningococcal prophylaxis

The following information is an extract from Letters to the Editor ***Antibiotic guidelines for meningococcal prophylaxis****. Leunig MJ and Keil. MJA 1998; 169: 396. In reply Collignon P. MJA 1998; 169: 396, outlined in the Medical Journal of Australia, 5 October 1998.*

The current edition (10th) of *Therapeutic Guidelines: antibiotic* includes a significantly increased recommended dose for ceftriaxone, when used as prophylaxis for meningococcal disease, compared to previous editions and with other published expert opinion.

Expert groups within Australia and overseas currently recommend a ceftriaxone dose of 5 mg/kg to a maximum of 250 mg intramuscularly (IM) as a single dose for adults, and 125 mg IM for children under 15 years of age.

There is no evidence to suggest that the increased dose (2 g IM) published in *Therapeutic Guidelines: antibiotic* is either necessary or superior to the recommended lower dose regimen in eradicating carriage. The established efficacy of the recommended dose, with comparable clearance rates in excess of 95% at one and two weeks after therapy, has served as the basis for the dose recommendations used in most countries.

However, rifampicin is the prophylactic antibiotic of choice for contacts of patients with meningococcal disease. Ceftriaxone should only be used in specific situations where rifampicin is considered unsuitable, such as in pregnancy.

Communicable Diseases Surveillance

Highlights

Communicable Diseases Surveillance consists of data from various sources. The National Notifiable Diseases Surveillance System (NNDSS) is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The *CDI* Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme. The Australian Sentinel Practice Research Network (ASPREN) is a general practitioner-based sentinel surveillance scheme. In this report, data from the NNDSS are referred to as 'notifications' or 'cases', whereas those from ASPREN are referred to as 'consultations' or 'encounters' while data from the LabVISE scheme are referred to as 'laboratory reports'.

Vaccine Preventable Diseases

Notifications of Measles and Rubella continue to be low in both the NNDSS and LabVISE reporting scheme.

The number of pertussis notifications, when examined by date of onset, has fallen in each month from November 1997 to August 1998. A plateau appears to have been reached with the number of notifications having onset in September 1998 being 354 compared with 330 for August 1998. A small fall is seen again for October but this is probably because not all notifications for that month have yet been received by the NNDSS (figure 1). Historical data commonly shows a rise in notifications in the later months of the year.

Arboviruses

The number of notifications for dengue remains high with 35 more reports in this period (30 from Queensland). The total for 1998 to date is more than double that for the same period in 1997.

Respiratory viruses

Reports of Parainfluenza type 1 have declined in recent months after peaking in April. Epidemics of Parainfluenza virus type 1 occur in Australia in the autumn-winter months of alternate years. The number of reports received so far this year is similar to that for the same period in 1996 but lower than the last epidemic year of 1994 (Figure 2). In previous epidemic years reports have peaked in April and May.

Parainfluenza virus type 2 reports have declined over recent months. Reporting this year has been lower than that for previous years.

Figure 1. Notifications of pertussis , Australia, 1992 to 1998, by month of onset

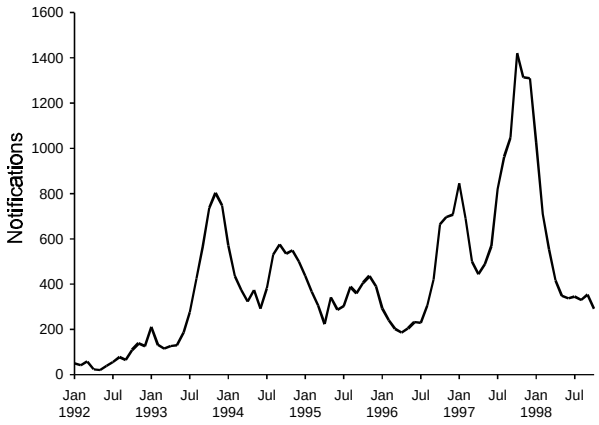
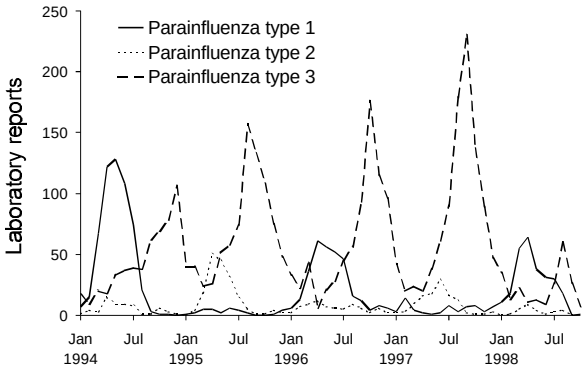


Figure 2. Laboratory reports of Parainfluenza virus type 1,2 and 3, 1994 to 1998, by month of specimen collection



Reports of Parainfluenza virus type 3 have declined over the past months after peaking in August this year. Parainfluenza Type 3 virus has maintained its seasonal pattern although the total number of reports this year has been lower than for previous years. Parainfluenza virus type 3 is most commonly reported in the first 12 months of life. Bronchiolitis and pneumonia are the most common clinical symptoms.

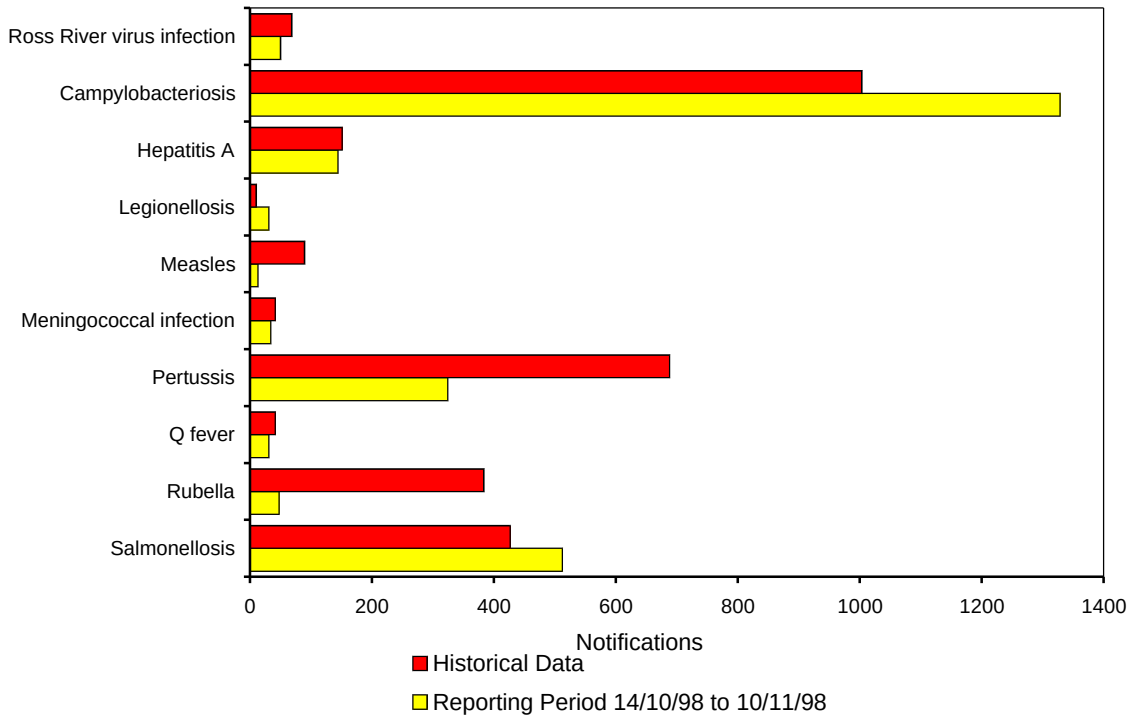
Tables

There were 4,658 notifications to the National Notifiable Diseases Surveillance System (NNDSS) in the four week period, 14 October to 10 November 1998 (Tables 1 and 2). The numbers of reports for selected diseases have been compared with historical data for corresponding periods in the previous three years (Figure 3).

There were 2,536 reports received by the *CDI* Virology and Serology Laboratory Reporting Scheme (LabVISE) in the four week period, 8 October to 4 November 1998 (Tables 3 and 4).

The Australian Sentinel Practice Research Network (ASPREN) data for weeks 40 to 43, ending 1 November 1998, are included in this issue of *CDI* (Table 5).

Figure 3. Selected National Notifiable Diseases Surveillance System reports, and historical data.[1]



1. The historical data are the averages of the number of notifications in the corresponding 4 week periods of the last 3 years and the 2 week periods immediately preceding and following those.

Table 1. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 14 October to 10 November 1998.

Disease[1,2]	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1998	This period 1997	Year to date 1998	Year to date 1997
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0
H. influenzae type b infection	0	0	0	2	0	0	0	0	2	1	28	44
Measles[3]	3	6	0	0	1	1	2	0	13	143	298	662
Mumps	0	1	1	0	0	1	2	1	6	9	154	169
Pertussis	16	100	1	105	22	7	65	8	324	1,096	5,678	7,671
Rubella[4]	2	4	0	26	0	1	10	5	48	116	721	1,275

1. No notification of poliomyelitis has been received since 1986.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. The total number of measles notifications for 1998 has been revised downwards because of a reclassification of 79 cases previously notified as measles by Victoria. These cases have been reclassified as not measles following results of serology.
4. Includes congenital rubella.

Table 2. Notifications of diseases received by State and Territory health authorities in the period 14 October to 10 November 1998.

Disease[1,2,3,4]	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1998	This period 1997	Year to date 1998[5]	Year to date 1997
Arbovirus infection (NEC)[6]	0	1	0	1	0	0	0	0	2	4	66	82
Barmah Forest virus infection	0	1	0	14	0	0	0	1	16	29	494	642
Brucellosis	0	0	0	4	0	0	1	0	5	1	41	31
Campylobacteriosis[7]	22	-	18	420	279	33	385	172	1,329	935	10,303	9,799
Chlamydial infection (NEC)[8]	10	NN	77	388	89	12	167	117	860	634	9,418	7,760
Cholera	0	0	0	0	0	0	0	0	0	1	4	3
Dengue	2	2	0	30	0	0	0	1	35	5	429	204
Donovanosis	0	NN	0	0	NN	0	0	0	0	0	30	28
Gonococcal infection[9]	3	56	137	112	23	1	53	63	448	227	4,680	3,992
Hepatitis A	1	18	3	96	10	0	7	9	144	221	2,375	2,737
Hepatitis B incident[5]	0	2	1	3	5	0	4	0	15	14	208	216
Hepatitis C incident[10]	2	8	0	-	3	2	-	-	23	2	282	60
Hepatitis C unspecified[5]	16	NN	26	218	NN	25	16	89	390	687	7,872	8,301
Hepatitis (NEC)	0	0	0	0	0	0	0	NN	0	0	4	5
Haemolytic uraemic syndrome[11]	NN	0	NN	0	1	0	NN	0	1	NA	11	NA
Hydatid infection	0	0	0	0	0	0	2	0	2	4	38	48
Legionellosis	0	1	0	4	4	0	19	3	31	11	215	125
Leprosy	0	0	0	0	0	0	0	0	0	0	2	10
Leptospirosis	0	0	0	10	0	0	4	0	14	10	148	106
Listeriosis	0	1	0	2	1	0	2	0	6	3	47	65
Malaria	1	5	0	9	2	0	5	5	27	15	622	691
Meningococcal infection	1	13	4	7	1	1	5	2	34	48	409	435
Ornithosis	0	NN	0	0	0	0	6	0	6	0	34	41
Q Fever	0	9	0	20	1	0	0	1	31	44	490	518
Ross River virus infection	2	8	1	27	4	0	2	6	50	58	2,535	6,455
Salmonellosis (NEC)	8	72	33	163	35	9	131	61	512	414	6,782	5,985
Shigellosis[7]	0	-	9	19	5	0	9	6	48	54	537	696
SLTEC, VTEC[12]	NN	0	NN	NN	0	0	NN	NN	1	NA	15	NA
Syphilis[13]	1	19	38	39	2	1	0	2	102	89	1,306	1,111
Tuberculosis	0	11	5	8	1	0	28	5	58	76	835	818
Typhoid[14]	0	2	0	0	2	0	0	0	4	8	66	67
Yersiniosis (NEC)[7]	0	-	0	6	4	0	0	0	10	13	187	212

1. Diseases preventable by routine childhood immunisation are presented in Table x.
2. For HIV and AIDS, see Tables 3 and 4.
3. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
4. No notifications have been received during 1998 for the following rare diseases: botulism (foodborne), lymphogranuloma venereum, plague, rabies, yellow fever, or other viral haemorrhagic fevers. There have also been no cases of thromotic thrombocytopaenic purpura (TTP), which became nationally reportable in August 1998.
5. Data from Victoria for 1998 are incomplete.
6. NT: includes Barmah Forest virus.
7. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.
8. WA: genital only.
9. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
10. Qld and Vic incident cases of Hepatitis C are not separately reported.
11. Nationally reportable from August 1998.
12. Infections with *Shiga*-like toxin (verotoxin) producing *E. Coli* (SLTEC/VTEC) became nationally reportable in August 1998.
13. Includes congenital syphilis.
14. NSW, Qld, Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

NA Not applicable, as reporting for this condition did not commence until 1998.

Table 3. Virology and serology laboratory reports by State or Territory[1] for the reporting period 8 October to 4 November 1998, and total reports for the year.

	State or Territory[1]								Total this period	Total reported in *CDI* in 1998
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA		
Measles, mumps, rubella										
Measles virus					1		1		2	54
Mumps virus		2			1			3	6	43
Rubella virus				4	1		2		7	103
Hepatitis viruses										
Hepatitis A virus		1		4	4		1	6	16	343
Hepatitis D virus					1				1	6
Arboviruses										
Ross River virus				8	1		1	5	15	612
Barmah Forest virus				1				1	2	30
Dengue not typed			2					2	4	36
Flavivirus (unspecified)				1			3		4	64
Adenoviruses										
Adenovirus type 1					23		1		24	63
Adenovirus type 2					1		2		3	23
Adenovirus type 3					7		2		9	47
Adenovirus type 4							2		2	4
Adenovirus type 6					5				5	15
Adenovirus type 7					1				1	17
Adenovirus type 8							1		1	6
Adenovirus type 22							1		1	2
Adenovirus type 40							2		2	13
Adenovirus not typed/pending		25		3	49	1	15	12	105	752
Herpes viruses										
Cytomegalovirus		10		7	14	2	41	7	81	707
Varicella-zoster virus		5		13	16	1	64	21	120	1,118
Epstein-Barr virus		10	1	40	85		26	16	178	1,596
Other DNA viruses										
Papovavirus group							1		1	3
Parvovirus				3	4		19	6	32	220
Picorna virus family										
Coxsackievirus A9							1		1	6
Coxsackievirus B4					1		1		2	8
Coxsackievirus B5							1		1	4
Echovirus type 18					1				1	7
Poliovirus type 1 (uncharacterised)							1		1	7
Poliovirus type 3 (uncharacterised)							1		1	4
Rhinovirus (all types)		17					9	8	34	407
Enterovirus not typed/pending			3	4	1	1	3	19	31	428
Ortho/paramyxoviruses										
Influenza A virus		53	1	3	122	1	33	33	246	2,744
Influenza B virus					11		2		13	165
Parainfluenza virus type 1					5		1		6	276
Parainfluenza virus type 2					1				1	32
Parainfluenza virus type 3		4			16		6	14	40	320
Respiratory syncytial virus		116		6	278	80	312	46	838	4,688

Table 3. Virology and serology laboratory reports by State or Territory[1] for the reporting period 8 October to 4 November 1998, and total reports for the year (continued).

	State or Territory[1]									
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Total this period	Total reported in *CDI* in 1998
Other RNA viruses										
HTLV-1			1					1	2	18
Rotavirus		72	3		52	17	122	13	279	1,175
Norwalk agent							7		7	37
Other										
Chlamydia trachomatis not typed		19	8	28	58	11	20	55	199	3,082
Chlamydia psittaci							12	1	13	53
Mycoplasma pneumoniae		13		16	34		58	6	127	1,216
Coxiella burnetii (Q fever)		4		2	1		3	2	12	109
Bordetella pertussis				15			41	2	58	890
Legionella longbeachae					1				1	29
TOTAL		351	19	158	796	114	819	279	2,536	21,582

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.

Table 4. Virology and serology laboratory reports by contributing laboratories for the reporting period 8 October to 4 November 1998.

State or Territory	Laboratory	Reports
New South Wales	New Children's Hospital, Westmead	178
	Royal Prince Alfred Hospital, Camperdown	53
	South West Area Pathology Service, Liverpool	113
Queensland	Queensland Medical Laboratory, West End	162
	Townsville General Hospital	8
South Australia	Institute of Medical and Veterinary Science, Adelaide	796
Tasmania	Northern Tasmanian Pathology Service, Launceston	28
	Royal Hobart Hospital, Hobart	84
Victoria	Monash Medical Centre, Melbourne	47
	Royal Children's Hospital, Melbourne	546
	Victorian Infectious Diseases Reference Laboratory, Fairfield	231
Western Australia	PathCentre Virology, Perth	250
	Princess Margaret Hospital, Perth	25
	Western Diagnostic Pathology	15
TOTAL		2,536

Table 5. Australian Sentinel Practice Research Network reports, weeks 40 to 43, 1998.

Week number	40		41		42		43	
Week ending on	11 October 1998		18 October 1998		25 October 1998		1 November 1998	
Doctors reporting	51		57		54		54	
Total encounters	6157		7663		6589		7037	
Condition	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters
Influenza	25	4.1	31	4.0	22	3.3	20	2.8
Rubella	5	0.8	3	0.4	0	0.0	1	0.1
Measles	0	0.0	0	0.0	0	0.0	0	0.0
Chickenpox	6	1.0	14	1.8	10	1.5	14	2.0
Pertussis	4	0.6	1	0.1	2	0.3	8	1.1
HIV testing (patient initiated)	11	1.8	4	0.5	14	2.1	11	1.6
HIV testing (doctor initiated)	4	0.6	10	1.3	7	1.1	3	0.4
Td (ADT) vaccine	41	6.7	46	6.0	37	5.6	49	7.0
Pertussis vaccination	37	6.0	49	6.4	40	6.1	43	6.1
Reaction to pertussis vaccine	2	0.3	4	0.5	0	0.0	1	0.1
Ross River virus infection	3	0.5	3	0.4	0	0.0	0	0.0
Gastroenteritis	94	15.3	79	10.3	62	9.4	63	9.0

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The system coordinates the national surveillance of more than 40 communicable diseases or disease groups endorsed by the National Health and Medical Research Council (NHMRC). Notifications of these diseases are made to State and Territory health authorities under the provisions of their respective public health legislations. De-identified core unit data are supplied fortnightly for collation, analysis and dissemination. For further information, see CDI 1998;22:4-5.

LabVISE is a sentinel reporting scheme. Twenty-one laboratories contribute data on the laboratory identification of viruses and other organisms. Data are collated and published in Communicable Diseases Intelligence every four weeks. These data should be interpreted with caution as the number and type of reports received is subject to a number of biases. For further information, see CDI 1998;22:8.

ASPREN currently comprises about 100 general practitioners from throughout the country. Up to 9,000 consultations are reported each week, with special attention to 12 conditions chosen for sentinel surveillance in 1998. CDI reports the consultation rates for all of these. For further information, including case definitions, see CDI 1998;22:5-6.

Additional Reports

Gonococcal surveillance

John Tapsall, The Prince of Wales Hospital, Randwick, NSW, 2031 for the Australian Gonococcal Surveillance Programme

The Australian Gonococcal Surveillance Programme (AGSP) reference laboratories in the various States and Territories report data on sensitivity to an agreed 'core' group of antimicrobial agents on a quarterly basis. The antibiotics which are currently routinely surveyed are the penicillins, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens. When in vitro resistance to a recommended agent is demonstrated in 5% or more of isolates, it is usual to reconsider the inclusion of that agent in current treatment schedules. Additional data are also provided on other antibiotics from time to time. At present all laboratories also test isolates for the presence of high level resistance to the tetracyclines. Tetracyclines are however not a recommended therapy for gonorrhoea. Comparability of data is achieved by means of a standardised system of testing and a programme-specific quality assurance process. Because of the substantial geographic differences in susceptibility patterns in Australia, regional as well as aggregated data are presented.

Reporting period 1 April to 30 June 1998

The AGSP laboratories examined 939 isolates of *Neisseria gonorrhoeae* for sensitivity to the penicillins, ceftriaxone, quinolones and spectinomycin and for high level resistance to the tetracyclines in the June quarter of 1998.

Penicillins

Resistance to this group of antibiotics (penicillin, ampicillin, amoxycillin) was present in a high proportion of isolates examined in Melbourne (36%) and Sydney (45%). In

Adelaide, Brisbane and Perth the proportion of penicillin-resistant strains was 12%, 11% and 6% respectively. A lower proportion of strains were resistant in the Northern Territory (2.3%). Figure 4 shows the proportion of isolates fully sensitive, less sensitive or relatively resistant to the penicillins by chromosomal mechanisms and the proportion of penicillinase-producing gonococci (PPNG) in different regions and as aggregated data for Australia. PPNG and relatively resistant isolates usually fail to respond to therapy with the penicillins. Those in the fully sensitive and less sensitive categories (minimal inhibitory concentration - MIC ≤0.5 mg/L) usually respond to a regimen of standard treatment with the above penicillins.

There were 39 PPNG identified in this reporting period (4.2% of all isolates). These were distributed widely with 7 PPNG reported from Melbourne, 16 from Sydney, 7 from Perth, 6 from Brisbane and 3 from the Northern Territory. Infections with PPNG were acquired locally but more frequently in South East Asian countries often visited by Australians. The Philippines, Thailand, Singapore, China, Korea, Indonesia, Vietnam, and India were among the counties where infections with PPNG were acquired.

Of relatively greater importance than PPNG were the 194 (21%) of all isolates resistant to the penicillins by separate chromosomal mechanisms. These so called CMRNG were most often seen in Sydney (131 strains, 40%), Melbourne (50 strains, 32%), Brisbane (8 strains, 6%) and Adelaide (4 strains, 12%). One relatively resistant isolate was seen in the Northern Territory.

Ceftriaxone and spectinomycin.

Although all isolates from all parts of Australia were sensitive to these injectable agents, a small number of isolates showed some decreased sensitivity to ceftriaxone.

Quinolone antibiotics (Ciprofloxacin, norfloxacin and enoxacin)

Thirty isolates (3.2%) throughout Australia had altered resistance to this group of antibiotics (QRNG) with 18 of these showing high level resistance. Eighteen QRNG (5%) were detected in Sydney, 8 (5%) in Melbourne and 4 (3%) in Brisbane. QRNG were not detected in other centres.

An increase in rates of isolation of QRNG was noted in AGSP reports in 1997. Additionally the appearance of QRNG in locally acquired infections especially in Sydney but also in Melbourne was specifically mentioned. Locally acquisition of high level resistance to quinolone antibiotics was seen again in Sydney in this quarter but was not confirmed in any other centre. Patients infected with QRNG overseas acquired the infections in Indonesia, China,Thailand, Vietnam and the Philippines.

In the corresponding period of 1997, 42 QRNG comprised 5.5% of all Australian isolates.

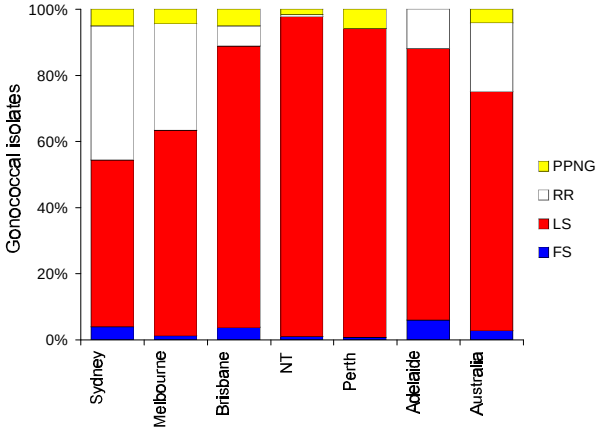
The quinolone agents are the oral agents most often used in centres where penicillins are ineffective. The appearance of quinolone resistance reduces options for succesful treatment of gonorhoea.

High level tetracycline resistance - "TRNG"

Forty TRNG were detected throughout Australia (4.3% of all strains) with isolates of this type again present in most centres. The highest number and proportion of TRNG was found in Sydney where the 21 TRNG represented 6.5% of all isolates. TRNG were also prominent in Perth (7 isolates, 5.6%) and Brisbane (7 isolates, 5.4%). Three TRNG were seen in the Northern Territory and two in Melbourne. TRNG were acquired in India, the Philippines, Vietnam and Papua New Guinea. Local acquisition was increasingly prominent in Sydney.

Sentinel Chicken Surveillance

Figure 4. Penicillin resistance of gonococcal isolates for Australia and by region, 1 April to 30 June 1997



FS	Fully sensitive to penicillin, MIC 0.06 - 0.5 mg/l
LS	Less sensitive to penicillin, MIC 0.06 - 0.5 mg/l
RR	Relatively resistant to penicillin, MIC ,= 1 mg/l
PPNG	Penicillinase producing *Neisseria gonorrhoeae*

Programme

Sentinel chicken flocks are used to monitor flavivirus activity in Australia. The main viruses of concern are Murray Valley encephalitis (MVE) and Kunjin which cause the potentially fatal disease Australian encephalitis in humans. Currently 26 flocks are maintained in the north of Western Australia, seven in the Northern Territory, nine in New South Wales and ten in Victoria. The flocks in Western Australia and the Northern Territory are tested year round but those in New South Wales and Victoria are tested only from November to March, during the main risk season.

Results are coordinated by the Arbovirus Laboratory in Perth and reported bimonthly. For more information see CDI 1998;22:7

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5. Berrimah Agricultural Research Centre, Northern Territory
6. PathCentre, Western Australia
7. Department of Health and Community Services, Northern Territory

Sentinel chicken serology was carried out for 14 of the 27 flocks in Western Australia in September 1998, 22 of the

27 flocks in October 1998. There were no seroconversions in any of the flocks during either month, which is what we would expect at this time of the year.

Sentinel chickens from the Northern Territory were also tested in our laboratory for 5 of the 7 flocks, in September 1998. There were no new seroconversins during this time.

HIV and AIDS Surveillance

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), in collaboration with State and Territory health authorities and the Commonwealth of Australia. Cases of HIV infection are notified to the National HIV Database on the first occasion of diagnosis in Australia, by either the diagnosing laboratory (ACT, New South Wales, Tasmania, Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia, Western Australia). Cases of AIDS are notified through the State and Territory health authorities to the National AIDS Registry. Diagnoses of both HIV infection and AIDS are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly Australian HIV Surveillance Report, available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Telephone: (02) 9332 4648 Facsimile: (02) 9332 1837.

HIV and AIDS diagnoses and deaths following AIDS reported for 1 to 30 June 1998, as reported to 30 September 1998, are included in this issue of CDI (Tables 6 and 7).

Childhood Immunisation Coverage

Table 8 and 9 provides the latest quarterly report on childhood immunisation coverage from the Australian Childhood Immunisation Register (ACIR).

The data show the percentage of children fully immunised at age 12 months for the cohort born between 1 April and 30 June 1997 and at age 24 months for the cohort born between 1 April and 30 June 1996 according to the Australian Standard Vaccination Schedule.

Table 6. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 to 30 June 1998, by sex and State or Territory of diagnosis.

										Totals for Australia			
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1998	This period 1997	Year to date 1998	Year to date 1997
HIV diagnoses	Female	0	1	0	0	2	0	0	1	4	4	37	37
	Male	0	24	2	7	2	0	9	3	47	51	334	371
	Sex not reported	0	0	0	0	0	0	0	0	0	0	8	10
	Total[1]	0	25	2	7	4	0	9	4	51	55	379	419
AIDS diagnoses	Female	0	0	0	0	1	0	0	0	1	1	6	16
	Male	0	8	0	0	2	0	3	0	13	24	95	165
	Total[1]	0	8	0	0	3	0	3	0	14	25	101	181
AIDS deaths	Female	0	0	0	0	1	0	1	0	2	1	4	8
	Male	0	4	0	4	1	0	1	0	10	19	46	126
	Total[1]	0	4	0	4	2	0	2	0	12	20	50	134

Table 7. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 30 June 1998, by sex and State or Territory.

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
HIV diagnoses	Female	22	553	7	128	54	4	194	89	1,051
	Male	183	10,345	98	1,828	635	77	3,706	860	17,732
	Sex not reported	0	262	0	0	0	0	25	0	287
	Total[1]	205	11,179	105	1,962	689	81	3,938	952	19,111
AIDS diagnoses	Female	8	159	0	45	20	2	64	23	321
	Male	82	4,382	32	766	324	41	1,543	337	7,507
	Total[1]	90	4,552	32	813	344	43	1,614	362	7,850
AIDS deaths	Female	2	112	0	28	15	2	46	16	221
	Male	62	3,053	23	533	220	27	1,209	241	5,368
	Total[1]	64	3,172	23	563	235	29	1,261	258	5,605

1. Persons whose sex was reported as transgender are included in the totals.

Table 8. Percentage of children immunised at 1 year of age, preliminary results by disease and State for the birth cohort 1 April to 30 June 1997; assessment date 30 June 1998.

	State or Territory								
Vaccine	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Total number of children	1,099	22,029	903	12,472	4,670	1,573	15,433	6,207	64,386
DTP (%)	88.0	84.9	81.2	87.9	88.0	87.9	87.9	84.8	86.5
OPV (%)	87.7	84.7	80.5	87.7	88.3	88.0	88.0	85.0	86.4
Hib (%)	86.2	83.9	81.9	88.5	86.6	87.4	87.4	84.6	86.0
Fully Immunised (%)	85.0	82.3	76.0	85.8	85.3	86.2	86.2	83.2	84.3
Change in fully immunised since last quarter (%)	+4.0	+3.8	+16.8	+2.6	+6.0	+3.9	+3.2	+6.2	+4.1

Table 9. Proportion of children immunised at 2 years of age, preliminary results by disease and State for the birth cohort 1 April to 30 June 1996; assessment date 30 June 1998.[1]

	State or Territory								
Vaccine	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Total number of children	1,088	22,170	905	12,430	4,747	1,580	15,443	6,675	65,038
DTP (%)	78.6	77.1	61.7	81.9	79.6	77.8	77.8	75.4	78.0
OPV (%)	84.0	81.7	70.7	87.8	84.6	85.8	86.9	77.2	83.8
Hib (%)	77.4	77.2	65.0	81.9	80.2	78.3	78.6	75.8	78.4
MMR (%)	84.7	81.2	71.5	87.9	82.1	84.7	85.0	78.5	83.2
Fully Immunised (%)[1]	69.7	63.8	50.7	72.8	65.6	67.0	67.7	59.2	66.1
Change in fully immunised since last quarter (%)	+0.7	+1.5	+1.9	+4.5	+2.8	+3.6	+0.8	+4.4	+2.3

1. These data relating to 2 year old children should be considered as preliminary. The proportions shown as 'fully immunised' appear low compared with the proportions for individual vaccines. This is at least partly due to poor identification of children on immunisation encounter forms.

Acknowledgment: These figures were provided by the Health Insurance Commission (HIC), to specifications provided by the Commonwealth Department of Health and Family Services. For further information on these figures or data on the Australian Childhood Immunisation Register please contact the Immunisation Section of the HIC: Telephone 02 6203 6185.

Bulletin Board

Joint Annual Scientific Meeting - Australasian Society for Infectious Diseases Inc/Australasian College of Tropical Medicine Inc
17-21 April 1999
Novotel Palm Cove, Palm Cove, Cairns, Nth Queensland
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The International Leptospirosis Society
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Kooringa Lodge, Marysville, Victoria
Phone: 03 9905 4815
Fax: 03 9905 4811
Web page and conference registration:http://www.med.monash.edu.au/micro/department/leptconf/ils99.htm

The Public Health Association of Australia Inc.
31st Annual Conference
26-29 September 1999
Carlton HotelDarwin,
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Details: PO Box 319Curtin ACT 2605
Email: conference@pha.org.au

The Australasian Society for HIV Medicine
11th Annual Conference
18-21 November 1999
Sheraton Hotel, Perth, W A
Phone: 02 9382 1656
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Advance notice

Australian Society for Infectious Diseases Meeting
April 16-19, 2000
Fairmont Resort Leuraorganisers:
Dart Associates:
Phone: 02 94189396for scientific content:
Contact Tom Gottlieb, Concord Hospital
Phone: 02-97677533
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Royal North Shore Hospital
Conference: *Outpatient Parenteral Therapy - beyond 2000*
17-22 September 2000
Fairmont Resort
Luera, New South Wales
Phone: 02 9956 8333
Fax: 02 0056 5154Email:
confact@conferenceaction.com.au

The Australasian Society for HIV Medicine
12th Annual Conference
16-19 November 2000
The Carlton Crest, Melbourne, Victoria
Phone: 02 9382 1656
Fax: 02 9382 3699
Email: B.Pearlman@unsw.edu.au

Health education resource

Talking about HIV/AIDS in the Kimberley, written by clinical psychologist, Pat Lowe, and illustrated by Carol Tang Wei, is a health education and counselling guide for use by health professionals working with Kimberley Aboriginal people. It can be purchased for $60 (postage and packing included) through Ms Ros Cain, of the Kimberley Public Health Unit, PMB 912, Derby WA 6728. Phone 08 9191 1144 or fax 08 9193 13 78

The CDI Bulletin Board is provided as a service to readers. Every effort has been made to provide accurate information, but readers are advised to contact the relevant organisation for confirmation of details. Information about the availability of resources is included when space allows. Inclusion of a resource on the Bulletin Board does not imply endorsement of the resource by either the Communicable Diseases Network Australia New Zealand or the Commonwealth Department of Health and Family Services.

Contributions to the Bulletin Board are invited from those organisations with forthcoming events relevant to communicable disease control.

Overseas briefs

Source: World Health Organization (WHO)
This material has been condensed from information on the WHO internet site. A link to this site can be found under 'Related sites' on the CDI homepage.

Yellow fever

Brazil

As of October 1998 a total of 32 confirmed cases with 13 deaths have been reported to the Pan American Health Organization (PAHO)/WHO. Twenty-three cases (72%) were male and 9 (18%) female. The age distribution of the cases was: 35% over 30 years of age; 35% 20 to 30 years; and 30% 10 to 19 years. Twenty-two cases were not vaccinated, two had received vaccine, and the status of 8 was unknown.

Since the last report from Brazil (*Weekly Epidemiological Record* 1998, Vol. 73, No. 35, pp.271-272), 7 new cases have been notified. Two cases occurred in Pará State (Itaituba and Floresta Municipalities) and 5 in Roraima State (Alto Alegre and Mucajaí Municipalities). At least two of the Roraima cases became sick in Boa Vista, the State Capital, which is infested by Aedes aegypti. The threat of urbanization of yellow fever in Roraima led the national and local authorities to immediately start vaccination of the entire population of the State (260,000 inhabitants). Since 1996, Yellow Fever Vaccine has been included in routine child immunization of the enzootic areas of Brazil. In 1999 the Ministry of Health is planning to immunize 110 million people living in enzootic areas and contiguous regions infested by Ae. aegypti.

Venezuela

In October 1998, Venezuela reported to Pan American Health Organization (PAHO/WHO) an outbreak of yellow fever with 14 cases and 3 deaths.

The cases occurred among the Yanomami Indians who live in region of Parima within the Alto Orinoco County in the State of Amazonas, along the border with Brazil. The cases were identified between the epidemiological weeks 30th and 36th. Ten cases (71%) were male and 4 (19%) female. The age distribution of the cases is: 29% over 30 years of age; 50% between 20 and 30 years of age; and 21% between 5 and 19 years. All the cases were confirmed by laboratory testing: 11 had IgM positive and virus was isolated from 3 cases. One of the fatalities also had a liver specimen positive by the immunohistochemical analysis.

To prevent new cases a vaccination program was implemented, targeting 177 Indian villages (population of 8,776). The program was able to reach a vaccination coverage of 86%.

Source: *Vigilancia Epidemiologica del Ministerio de Sanidad y Assistencia social de Venezuela*

Plague in Uganda

The Ministry of Health of Uganda is investigating reports of plague in the district of Arua. Since April, 49 cases have been reported. WHO is awaiting confirmation of the number of deaths. Cases of human plague have been recorded on 3 occasions over the past 30 years: in 1982 (153 cases, 3 deaths); 1986 (340 cases, 27 deaths); and 1993 (167 cases, 18 deaths).

Rift Valley fever in Mauritania

An outbreak of Rift Valley fever has occurred in the Aioun area, in south-eastern Mauritania. There have been 300-400 human cases (febrile disease), including 6 deaths between 15 and 30 September (some with haemorrhage and icterus). The latter were aged between 14 and 40 years, and all were from areas where goats, sheep, cattle and camels are raised. In the Assaba area, 2 patients were admitted to hospital; both died. The epidemic peaked in late September/early October, and the most recent case was reported around 25 October.

Suspected pneumonia in Sudan

Between July and September 1998, an unidentified disease caused around 100 deaths in a population of 2000 in four remote villages in Meyon, southern Sudan. As soon as the outbreak was reported to WHO, a team was sent to: describe the outbreak by standard epidemiological parameters; collect specimens to allow for laboratory identification of the causative agent; implement immediate control and preventive measures as necessary; and assess whether further assistance was required. Preliminary results suggest that the disease was pneumonia with a haemorrhagic component. A more detailed report will be published as soon as laboratory investigations have been completed.

Cholera

Great Lakes Region

Since May 1998, Rwanda has been been suffering from a cholera outbreak with a total of 2900 cases and 55 deaths, most of which were reported in September. All these cases have been in Cyangugu prefecture, but there is great concern about further spread to other areas of the country.

WHO is providing cholera kits to Kigali, Rwanda and with other international organizations is working closely with the Ministry of Health on prevention and control measures.

Cholera has also badly affected the eastern areas of the Democratic Republic of Congo. Although exact figures are not available, the situation in the Shabunda area of Sud-Kivu remains grave. The current deteriorating security situation in the area has affected control activities and the transport of supplies to treatment centres.

Sulaimania governorate in northern Iraq

The Preventive Health Department of the Sulaimania governorate of Iraq reported 20 cholera cases and 1 death during the period, 12 September - 6 October 1998. Health and sanitary measures have been implemented to prevent further spread.

Communicable Diseases - Australia
Internet web site

‘http://www.health.gov.au/hfs/pubs/cdi/cdihtml.htm’

The web site contains four major subject areas, each subdivided as outlined below:

- *Communicable Diseases Intelligence* publication
- National Notifiable Diseases Surveillance System (NNDSS)
- Outbreaks
- Software and other links

Communicable Diseases Intelligence (CDI) publication

1. Introduction to *CDI* - a brief description of *CDI.*
2. Current issue - the most recent issue of *CDI* is available in both the ‘Adobe Acrobat’ format and ‘html’ format. The whole publication or individual parts can be downloaded from this page.
3. *CDI* fortnightly tables - disease notification table for the current fortnight.
4. 1998 issues - archive of 1998 issues in ‘Adobe Acrobat’ format and ‘html’ format.
5. 1997 issues - archive of 1997 issues in ‘Adobe Acrobat’ format.
6. 1996 issues - archive of 1996 issues in ‘Adobe Acrobat’ format.

National Notifiable Diseases Surveillance System (NNDSS)

1. Introduction to NNDSS - a brief description of the National Notifiable Disease Surveillance System.
2. Annual data - disease notification tables for the period 1991 to date, by year and month; disease notification tables for the period 1991 to date, by year and State/Territory. These tables are updated each fortnight.
3. Australian population data - Australian population data 1990 to 1996, by State.
4. 1996 Annual report.
5. 1995 Annual report.
6. 1994 Annual report.

Outbreaks

1. Australia: Australian current disease outbreak information.
2. Overseas: overseas current disease outbreak information.

Software and other links

1. Acrobat Reader software - download facility for Adobe Acrobat Reader Software (Version 3).
2. Epi Info software site - link to the Epi Info software site.
3. Other Australian and international communicable diseases site - links to other international Internet web sites related to communicable diseases, such as the World Health Organization, the United Kingdom Ministry of Health, the United States of America - Centres for Disease Control and Prevention (CDC), and New Zealand Public Health.

CDI is produced every four weeks by the National Centre for Disease Control, Department of Health and Family Services, GPO Box 9848 Canberra ACT 2601; fax: (02) 6289 7791, phone: (02) 6289 6895.

This journal is indexed by *Index Medicus* and Medline.

Subscriptions

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Website

Http://www.health.gov.au/pubhlth/cdi/cdihtml.htm

Contributions

Contributions covering any aspects of communicable diseases are invited. All contributions are subject to the normal refereering process. Instructions to authors can be found in this issue of *CDI* 1998;22:11.