Annual report of the Australian Gonococcal Surveillance Programme 1996

The Australian Gonococcal Surveillance Programme[1]

Abstract

In 1996 the Australian Gonococcal Surveillance Programme (AGSP) examined 2,753 isolates of *Neisseria gonorrhoeae*. The source of isolates, site of infection and antibiotic susceptibility patterns showed considerable regional variation. Strains examined in Adelaide, Sydney and Melbourne were predominantly from male patients where rectal and pharyngeal isolates were common. Cases in other centres had a much lower male:female ratio and most were genital tract isolates. Resistance to the penicillin and quinolone groups of antibiotics was highest in Sydney and Melbourne. Gonococcal resistance to the penicillins was similar to previous years. Quinolone-resistant *Neisseria gonorrhoeae* (QRNG) were isolated mostly from overseas travellers. However, some local transmission of QRNG was documented in Sydney. All isolates were sensitive to spectinomycin and ceftriaxone. *Comm Dis Intell* 1997;21:189-192.

Introduction

The Australian Gonococcal Surveillance Programme (AGSP) is a collaborative program conducted by reference laboratories in each State and Territory. The primary aim of the program is to monitor antibiotic susceptibility of Australian isolates of *Neisseria gonorrhoeae* to assist in the formulation of treatment regimens appropriate to proper management of gonorrhoea. Management of gonorrhoea is based on single dose antibiotic therapy at first diagnosis; a strategy that ensures patient compliance. There is a close correlation between the likely outcome of treatment and the *in vitro* susceptibility of the causative organism. However, treatment is required before results of susceptibility tests on individual isolates can be performed. Treatment regimens are therefore formulated on a knowledge of the *in vitro* sensitivity of prevalent gonococci[1]. That is, the overall pattern of susceptibility of prevalent gonococci is the critical determinant of appropriate antibiotic therapy, rather than individual strain susceptibility identified on a case by case basis[2].

The gonococcus has a well demonstrated capacity to develop antibiotic resistance by numerous chromosomal and extrachromosomal mechanisms. Continuing long-term surveillance is required to monitor and respond to changes in resistance which can occur in a short time[1].

A report appeared in *Communicable Diseases Intelligence* in 1981[3] when antibiotic sensitivity data were

ISSN 0725-3141
Volume 21
Number 14
10 July 1997

1. Corresponding author, John Tapsall, Department of Microbiology, The Prince of Wales Hospital, High Street, Randwick, New South Wales 2031

Contents

Table. Gonococcal isolates in Australia by sex, site and region, 1 January to 31 December 1996

	Site	Sydney	Melbourne	Brisbane	Adelaide	Perth	Northern Territory	Australia
Male	Urethra	528	300	279	51	364	112	1640
	Rectal	70	56	10	15	6	1	159
	Pharynx	35	22	6	3	0	0	66
	Other/NS	7	4	3	2	14	127	168
	Total	*640*	*382*	*298*	*71*	*384*	*240*	*2033*
Female	Cervix	79	32	194	15	189	144	658
	Other/NS	4	1	11	0	5	41	62
	Total	*83*	*33*	*205*	*15*	*194*	*185*	*720*
TOTAL		*723*	*415*	*503*	*86*	*578*	*425*	*2753*

NS Not stated

first produced by the AGSP. Initially, data on penicillin resistance were reported and the AGSP documented the appearance and spread of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) in Australia[7]. Monitoring of resistance to other antibiotics was added as newer therapeutic agents became available. Quarlerly reports have been published in *Communicable Diseases Intellegence* since 1996[4-6].This is the first annual summary of AGSP data in *Communicable Diseases Intelligence*.

Method

The AGSP has participating laboratories in each State and Territory. It is a network of collaborating centres which seeks to obtain data from as wide a section of the community as possible. For example, strains from the Northern Territory isolated in Alice Springs, Katherine and Darwin, and the laboratories of Western Diagnostic Pathology and Queensland Medical Laboratory in the Northern Territory, are further tested in AGSP centres in Perth, Adelaide and Sydney.

Gonococci isolated in or referred to the participating laboratories are examined by a standardised methodology. The AGSP has a program-specific quality assurance (QA) program[7,8]. Antibiotic sensitivity data are submitted quarterly to a coordinating laboratory which collates the results and also conducts the QA program. The AGSP also receives data on the sex and site of isolation of gonococcal strains. The geographic source of acquisition of resistant strains is ascertained whenever possible. The AGSP has previously reported on trends in gonorrhoea infection in Australia[9]. A summary of this information from 1996 is included in this report.

Results

Number of isolates

There were 2,753 isolates examined in 1996 (Table). Twenty-six per cent of isolates tested were from New South Wales, 21% from Western Australia, 18% from Queensland, 15% from the Northern Territory (examined in Adelaide, Perth and Sydney), 15% from Victoria and smaller percentages from other centres.

Source of isolates

There were 2,033 strains from men and 720 from women; the male:female ratio was 2.8:1. The male:female ratio was higher for patients in Adelaide (4.7:1), Melbourne (11.6:1) and Sydney (7.7:1) than from Perth (2:1), Brisbane (1.5:1) and the Northern Territory (1.3:1). Similarly, male rectal and pharyngeal isolates were more commonly reported in Sydney and Melbourne. There were 12 cases of disseminated gonococcal infection (five males and seven females). Five per cent of isolates were from other sites. Most of these were from specimens of urine and could also be regarded as genital tract isolates.

Antibiotic susceptibility patterns

In 1996, the AGSP reference laboratories examined 2,753 gonococcal isolates for sensitivity to the penicillins. Of these 2,742 were examined for sensitivity to ceftriaxone, ciprofloxacin and spectinomycin, and for high-level resistance to tetracyclines (tetracycline resistant *Neisseria gonorrhoeae* - TRNG).

The patterns of gonococcal antibiotic susceptibility differed between the States and Territories. For this reason, data are presented by region as well as aggregated data for Australia. Percentages quoted in the text are region specific, unless otherwise stated. The highest proportion of resistant strains were from Sydney and Melbourne.

Penicillins

Resistance to the penicillin group (penicillin, ampicillin, amoxycillin) may be mediated by the production of beta-lactamase (penicillinase-producing *N. gonorrhoeae* - PPNG) or by chromosomally controlled mechanisms (chromosomally mediated resistant *N. Gonorrhoeae* - CMRNG).

The proportion of strains fully sensitive(FS) to penicillin (minimum inhibitory concentration -MIC $\leq$ 0.03 mg/L), less sensitive (LS, MIC 0.06 - 0.5 mg/L), relatively resistant (RR, MIC $\geq$1 mg/L) or penicillinase-producing (PPNG) varies throughout the country (Figure).

There were 161 PPNG detected throughout Australia in 1996, representing 5.9% of all isolates. These were mostly isolated from patients infected overseas. Sixty PPNG were isolated in Sydney, (8.3% of Sydney isolates), 41 (9.9%) in Melbourne, 28 (4.8%) in Perth and 17 (3.4%) in Brisbane. The smaller numbers of PPNG seen in Adelaide and the Northern Territory represented 2.3% of all isolates in these centres. Three PPNG were detected in the Australian Capital Territory. Most of the 'imported' isolates were from infections acquired in South-East Asian countries.

There were 271 isolates resistant to penicillin by chromosomal mechanisms. Strains of this type were concentrated in Melbourne (94 CMRNG, 23% of all Melbourne isolates) and Sydney (132 CMRNG, 18% of all isolates). A cluster of CMRNG was also seen in Adelaide in the December quarter.

Isolates which were fully sensitive to the penicillin group were also prominent in Sydney, Melbourne and Brisbane.

Ceftriaxone and Spectinomycin

All strains from all parts of Australia were sensitive to these injectable agents.

Quinolone antibiotics

In 1996, 108 gonococcal isolates throughout Australia displayed altered quinolone sensitivity (4% of all strains). These quinolone resistant *Neisseria gonorrhoeae* (QRNG) were detected most frequently in Melbourne (34 isolates, 8%) and Sydney (50 isolates, 7%). Perth had 11 QRNG (2%), Brisbane 7 (1.4%) and there were three QRNG in the Northern Territory and Adelaide. Strains with high level quinolone resistance were detected most often in Sydney (34 isolates). In the December quarter, there was an increase in the number and proportion of QRNG in Sydney with the 25 strains (20 with high-level resistance) representing 11.5% of isolates. Most QRNG were isolated from patients infected overseas but significantly, local acquisition is now being recorded.

High-level tetracycline resistance

One hundred and thirty-six tetracycline resistant *Neisseria gonorrhoeae* (TRNG, 5% of isolates) were detected throughout Australia in 1996. Nearly half of these (64) were detected in Sydney (9% of Sydney isolates), and about another one-third in Perth (39, 7%). Tetracycline resistant *Neisseria gonorrhoeae* were also prominent in Melbourne (24, 6%), 12 were isolated in Brisbane (2.5%) and 8 in the Northern Territory (2%). Infections with TRNG were mainly acquired in Indonesia, Thailand and Singapore. However an increasing number of isolates were acquired through local contact.

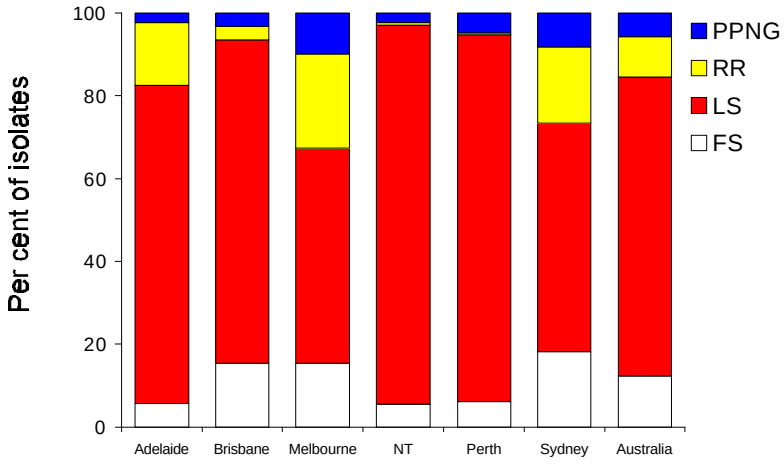
Discussion

The AGSP commenced reporting in July 1981 and has previously analysed data on the basis of financial rather than calendar years[7,10]. Although the source of isolates has remained constant for many years in most AGSP centres, a rearrangement of services in Western Australia has seen the Royal Perth Hospital assume the role of reference laboratory in that State. Additional sources have also been added to the AGSP referral pattern in the Northern Territory. For these reasons direct comparisons with previous years are not always possible, but are included where appropriate. It is envisaged that comparative summaries will be included in future annual reports.

The source of isolates differed in different parts of Australia. The high male:female ratio of cases, and the more common occurrence in Sydney and Melbourne of male rectal and pharyngeal isolates indicate a higher proportion of gonorrhoea in homosexual men in those centres. In isolates from centres across northern Australia, the male:female ratio was lower and most isolates were from genital sites.

While aggregated data on penicillin resistance in gonococci in Australia have been of the order of 15% to 18% for a number of years and changed little in this period[11], significant regional variation in sensitivity to this group of antibiotics remains. Infections with strains in the less-sensitive or fully-sensitive categories usually respond to therapy with standard treatment regimens with the penicillins. Infections with strains which are PPNG or in the relatively resistant category (CMRNG) usually fail to respond to the penicillins. Most penicillin resistance was concentrated in the more populous centres of Sydney and Melbourne where about 30% of isolates were penicillin resistant. While the penicillins should not be used to treat gonorrhoea in these centres, they remain useful in some parts of rural Australia where resistant strains are infrequently encountered. Approximately two-thirds of the penicillin resistance detected throughout Australia was due to chromosomal mechanisms. The increasing importance of CMRNG

Figure. Penicillin resistance of gonocccal isolates for Australia and by region, 1996



FS Fully sensitive to penicillin, MIC ≤ 0.03mg/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*

and the decline in PPNG has also been previously noted[11].

Recent reports of the AGSP have emphasised the appearance and spread of isolates resistant to the quinolone group of oral agents - that is, QRNG. Although some level of quinolone resistance has been present in Australia since 1984[12], this had been accommodated by the use of increased doses of these antibiotics. In 1991, a few cases of treatment failure with higher dose regimens were recorded[13], and in October 1994, strains with very high levels of quinolone resistance were detected[14,15]. The further spread of these isolates in Melbourne[16] and Sydney[17] has been separately documented. The 1996 data indicate the continuing spread of QRNG; particularly in Sydney where there were more QRNG, more strains with higher MICs, and the repeated isolation of QRNG through local contact. This situation obviously requires close monitoring, and strains from patients entering or returning to Australia from overseas need particularly close examination and careful follow-up. Any isolate from a case of apparent treatment failure should be accorded particular attention.

Quinolone-resistant gonococci are also being isolated in increasingly high numbers in countries close to Australia[18]. Consideration should be given to the use of alternative treatment regimens for patients infected outside Australia.

Tetracyclines are not recommended therapy for gonococcal disease in Australia. There is interest in the worldwide spread of strains manifesting high-level plasmid-mediated tetracycline resistance (TRNG). There has been a slow rise in the number of TRNG, with Sydney, Perth and Melbourne isolating most strains of this type. As with QRNG, an increasing proportion of TRNG is acquired through local contact.

The choice of antibiotic therapy for gonorrhoea is limited in the larger cities of Australia. The increase in antibiotic resistance in gonococci, particularly to the quinolone group, further limits the options for therapy for this disease. While cure of virtually all cases can be guaranteed if ceftriaxone and spectinomycin are used, these are injectable agents and this mode of administration is not always favoured. The oral third-generation cephalosporin recommended for use by the World Health Organization (cefixime) is not available in Australia. The treatment of gonorrhoea will be complicated by the capacity of the organism to develop resistance. Continued monitoring of resistance patterns will be required to optimise treatment regimens and detect new forms of resistance as they emerge.

Acknowledgements

Participating laboratories in the AGSP

John Bates, Denise Murphy and Vicki Hicks. Queensland Health Scientific Services, Coopers Plains, Queensland

Edna Limnios, Tiffany Shultz and John Tapsall. Department of Microbiology, The Prince of Wales Hospital, Randwick, New South Wales

Julia Griffith and Geoff Hogg. The Microbiological Diagnostic Unit, University of Melbourne Parkville, Victoria

Greg Handke. Infectious Diseases Laboratories, Institute of Medical and Veterinary Science Adelaide, South Australia

Cheryll McCullough. Microbiology Department, Royal Perth Hospital Perth, Western Australia

Mark Gardam and Keith Ott. Microbiology Department, Royal Hobart Hospital Hobart, Tasmania

Gary Lum and Microbiology Staff. Microbiology Department, Royal Darwin Hospital, Casuarina, Northern Territory

Linda Halliday and Peter Collignon. Microbiology Department, Canberra Hospital South, Woden, Australian Capital Territory

References

1. Tapsall JW. Surveillance of antibiotic resistance in *Neisseria gonorrhoeae* and implications for the therapy of gonorrhoea. *Int J STD & AIDS* 1995;6:233-236.
2. Philpot CR, Tapsall JW. Single dose therapy of uncomplicated ano-genital gonorrhoea. *Med J Aust* 1987;146:254-256.
3. Australian gonococcal surveillance programme. Gonococcal surveillance - Australia (July-September 1981). *Comm Dis Intell* 1981;25:2-3.
4. Australian gonococcal surveillance programme. Gonococcal surveillance. Reporting period 1 January to 31 March 1996. *Comm Dis Intell* 1996;20:499-500.
5. Australian gonococcal surveillance programme. Gonococcal surveillance. Reporting period 1 April to 30 June 1996. *Comm Dis Intell* 1996;20:549-550.
6. Australian gonococcal surveillance programme. Gonococcal surveillance. Reporting period 1 July to 30 September 1996. *Comm Dis Intell* 1997;21:112.
7. Australian gonococcal surveillance programme. Penicillin sensitivity of gonococci in Australia: the development of an Australian gonococcal surveillance programme. *Br J Vener Dis* 1984;60:226-230.
8. Australian gonococcal surveillance programme. Use of a quality assurance scheme in a long-term multicentric study of antibiotic susceptibility of *Neisseria gonorrhoeae*. *Genitourin Med* 1990;66:437-444.
9. Australian gonococcal surveillance programme. Changing patterns in gonococcal infections in Australia, 1981-1987. *Med J Aust* 1988;149:609-612.
10. Australian gonococcal surveillance programme. Penicillin sensitivity of gonococci isolated in Australia 1981-6. *Genitourin Med* 1988;64:147-151.
11. Australian gonococcal surveillance programme. Gonococcal surveillance, Australia, 1 April to 30 June 1995. *Comm Dis Intell* 1995;19:668-670.
12 Tapsall JW, Shultz TR, Phillips EA. Characteristics of *Neisseria gonorrhoeae* isolated in Australia showing decreased sensitivity to quinolone antibiotics. *Pathol* 1992;24:27-31.
13 Tapsall JW, Shultz TR, Lovett R, Munro R. Failure of 500 mg ciprofloxacin therapy in male urethral gonorrhoea. *Med J Aust* 1992;156:143.
14. Australian Gonococcal Surveillance Programme. Gonococcal surveillance, Australia 1 October to 31 December 1994. *Comm Dis Intell* 1995;19:264-266.
15. Tapsall JW, Limnios EA, Thacker C *et al*. High-level quinolone resistance in *Neisseria gonorrhoeae:* a report of two cases. *Sex Trans Dis* 1995;22:310-311.
16. Griffith JM, Barclay LM, de Petra V *et al.* High-level ciprofloxacin-resistant *Neisseria gonorrhoeae* acquired infection in Victoria. *Med J Aust* 1996;164:125.
17. Tapsall JW, Phillips EA, Shultz TR, Thacker C. Quinolone resistant *Neisseria gonorrhoeae* isolated in Sydney, Australia 1991 - 1995. *Sex Trans Dis* 1996;23:425-428.
18. World Health Organization. Western Pacific Region Gonococcal Surveillance, 1994 annual report. *Comm Dis Intell* 1995;19:495-499.

Ross River virus in a joint military exercise

Linda Hueston[1], Alan Yund[2,3], Stanton Cope[2,3], Marshall Monteville[2,3], Marie Marchetti[1], John Haniotis[4], John Clancy[4], Stephen Doggett[4], Richard Russell[4], Dominic Dwyer[1] and Gregg Parker[5]

In support of a large, combined Australia-United States of America military exercise at Shoalwater Bay in south-eastern Queensland during March 1997 (TANDEM THRUST 97), the United States Navy sent the Deployed Public Health Laboratory (DPHL) into the field with the forces. The purpose of this was preventative medicine as well as disease and vector surveillance. Among the numerous potential threats to the health of the troops was Ross River virus (RRV), to which very few of the US personnel would have been previously exposed.

Personnel were educated in protective measures against mosquito biting before the exercise. As troops were to be living in field conditions during the RRV transmission season some cases were expected, particularly in those personnel remaining in the training area for six weeks, thereby increasing exposure potential.

Of 19 suspected clinical cases, six were diagnosed serologically by the DPHL using IgM enzyme linked immunosorbent assay (ELISA) techniques. Samples were forwarded to the Arbovirus Unit at the Institute of Clinical Pathology & Medical Research (ICPMR), Westmead for virus isolation and confirmation of the serologic tests.

Four cases demonstrated a four-fold or greater increase in neutralising antibody titre, and the other two cases demonstrated seroconversion by neutralisation. Ross River virus was isolated from the acute phase samples in these two cases. These are the first reports of RRV isolation from humans in 1997.

Mosquitos were collected in the area during the exercise and were forwarded to the Department of Medical Entomology, ICPMR, for species identification and arbovirus isolation. Almost 40,000 mosquitoes have been processed; at least 40 species have been identified, with *Aedes vigilax* and *Culex annulirostris* the most abundant. To date, RRV has been isolated from pools of *Ae. vigilax, Ae. funereus, Ae. procax* and *Cx. annulirostris*.

A large-scale post-deployment serosurvey is currently underway to establish whether inapparent RRV infections occurred during the exercises. The final results of these studies will be formally published elsewhere when available.

1. Arbovirus & Emerging Disease Unit, Virology Department, Centre for Infectious Diseases and Microbiology Laboratories, Institute of Clinical Pathology & Medical Research, Westmead Hospital, Westmead, NSW 2145.
2. Deployed Public Health Laboratory, Camp Samuel Hill, Exercise TANDEM THRUST 97.
3. Navy Environmental and Preventive Medicine Unit No. 6, Box 112, Pearl Harbor, Hawaii, 96860.
4. Medical Entomology, Centre for Infectious Diseases and Microbiology Laboratories, Institute of Clinical Pathology & Medical Research & the University of Sydney, Westmead Hospital, Westmead, NSW 2145.
5. Fleet Surgeon, United States Navy Seventh Fleet, PSC 473 Box 722, FPO AP 96349-5555

Communicable Diseases Surveillance

Rotavirus

Rotaviruses are a major cause of morbidity and mortality, and a common cause of gastroenteritis in infants and young children. By the age of three most children worldwide have been infected with this virus. Neonatal infection is frequently asymptomatic, whilst disease is reported most commonly for those in the 6 months to 2 years age group. Symptoms include vomiting, fever and watery diarrhoea. The virus is transmitted by the faecal-oral route although spread by the respiratory route has also been suggested. The virus is shed for up to seven days following the onset of symptoms. Outbreaks in daycare centres are common. These can be controlled by excluding children with diarrhoea and vomiting until their symptoms have ceased, and by the practice of good handwashing and cleaning procedures.

The Virology and Serology Laboratory Reporting Scheme, LabVISE, records outbreaks of rotavirus in the winter months each year (Figure 1). The number of laboratory diagnoses recorded by LabVISE has risen in recent weeks, consistent with the time of year. We can expect a further rise in the coming months. For 1996, 92% of reports were for children under 5 years of age (Figure 2).

Figure 1. Rotavirus laboratory reports, 1995 to 1997, by month of specimen collection

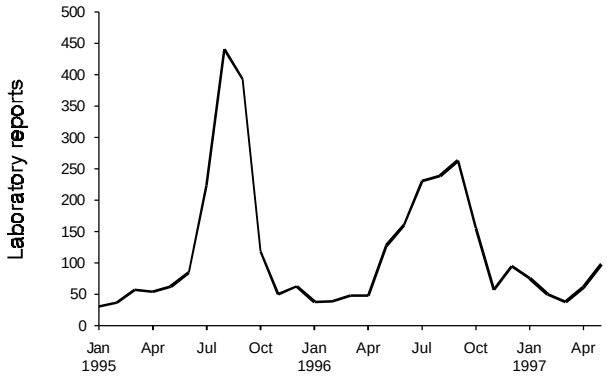
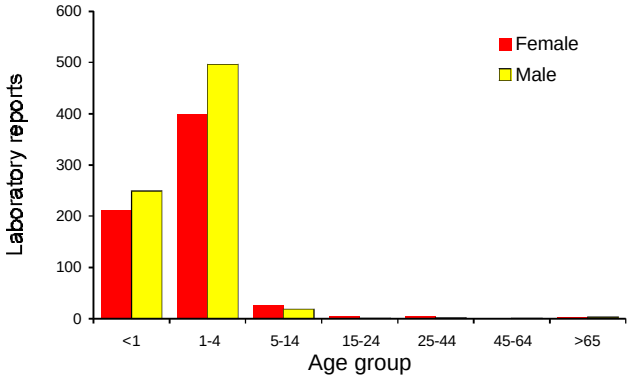


Figure 2. Rotavirus laboratory reports, 1996, by age group and sex



National Notifiable Diseases Surveillance System

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 1997;21:5.

Reporting period 11 June to 24 June 1997

There were 2,417 notifications received for this two week period (Tables 1, 2 and 3). The numbers of reports for selected diseases have been compared with historical data for corresponding periods in the previous three years (Figure 4).

There were 20 notifications of meningococcal disease during this period. Of the notifications for the year to date (171), the majority were from New South Wales (61, 36%) and Victoria (39, 23%). A peak in the number of notifications of meningococcal disease is usually seen in the winter months (Figure 3).

There were 33 cases of measles reported in this period, bringing the total for the year to 253. Most reports for 1997 so far were from New South Wales (67, 26%), Victoria (65, 26%) and Queensland (49, 19%). The number of notifications has remained low since early 1995, following the epidemic which occurred from 1992 to 1994.(Figure 5).

Figure 3. Meningococcal infection notifications, 1992 to 1997, by month of onset

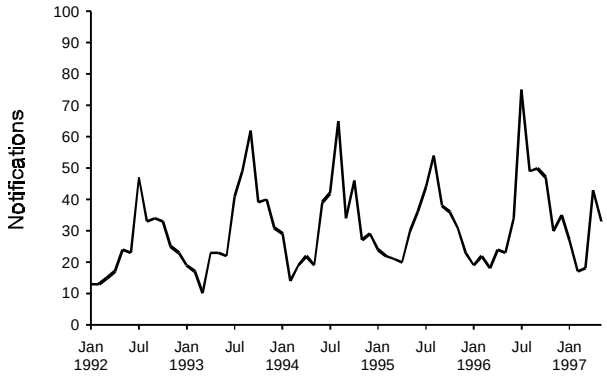


Table 1. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 11 to 24 June 1997

Disease[1,2]	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1997	This period 1996	Year to date 1997	Year to date 1996
Diphtheria	0	0	0	0	0	0	0	0	0	0	1	0
Haemophilus influenzae type b	0	0	0	0	0	1	1	0	2	5	25	32
Measles	1	4	0	3	4	0	15	6	33	14	253	225
Mumps	0	0	1	NN	0	0	3	1	5	4	95	53
Pertussis	0	64	0	22	44	5	47	21	203	98	3523	1489
Rubella	0	1	1	16	1	0	12	1	32	78	668	1288
Tetanus	0	0	0	2	0	0	0	0	2	0	6	1

NN. Not Notifiable

1. No notifications of poliomyelitis have been reported 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.

Table 2. Notifications of other diseases received by State and Territory health authorities in the period 11 to 24 June 1997

Disease[1,2]	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1997	This period 1996	Year to date 1997	Year to date 1996
Arbovirus infection (NEC)[3]	0	1	2	0	0	0	1	1	5	3	107	72
Barmah Forest virus infection	0	4	0	14	0	0	0	-	18	35	455	583
Campylobacteriosis[4]	14	-	7	147	78	13	118	53	430	382	5643	5521
Chlamydial infection (NEC)[5]	7	NN	23	152	0	4	76	68	330	318	3990	3502
Dengue	0	0	0	1	0	0	0	0	1	0	190	23
Donovanosis	0	NN	0	0	NN	0	0	1	1	1	15	26
Gonococcal infection[6]	0	10	58	37	0	0	10	49	164	142	2224	1827
Hepatitis A	1	68	6	28	3	0	4	1	111	87	1755	1235
Hepatitis B incident	0	1	2	0	0	0	2	3	8	6	188	110
Hepatitis C incident	0	0	0	-	0	0	-	-	0	0	5	16
Hepatitis C unspecified	11	NN	12	133	NN	10	154	15	335	486	4379	4543
Hepatitis (NEC)	0	0	0	0	0	0	1	NN	1	0	10	10
Legionellosis	0	3	0	1	2	0	0	4	10	5	87	91
Leptospirosis	0	0	0	10	0	0	0	0	10	16	68	125
Listeriosis	0	0	0	0	0	0	0	0	0	3	44	27
Malaria	0	4	7	31	0	0	1	4	47	37	412	388
Meningococcal infection	1	6	1	4	0	0	5	3	20	18	171	132
Ornithosis	0	NN	0	0	0	0	2	0	2	2	34	42
Q fever	0	14	0	19	0	0	2	1	36	35	293	249
Ross River virus infection	0	71	10	99	8	0	8	7	203	168	5929	7098
Salmonellosis (NEC)	5	17	12	58	13	2	34	21	162	209	4249	3290
Shigellosis[4]	0	-	1	7	1	1	6	16	32	31	463	336
Syphilis	2	19	7	11	0	0	0	4	43	48	613	709
Tuberculosis	0	6	4	4	1	0	13	2	30	56	472	559
Typhoid[7]	0	0	0	0	0	0	2	0	2	1	42	50
Yersiniosis (NEC)[4]	0	-	0	4	2	0	1	0	7	14	150	131

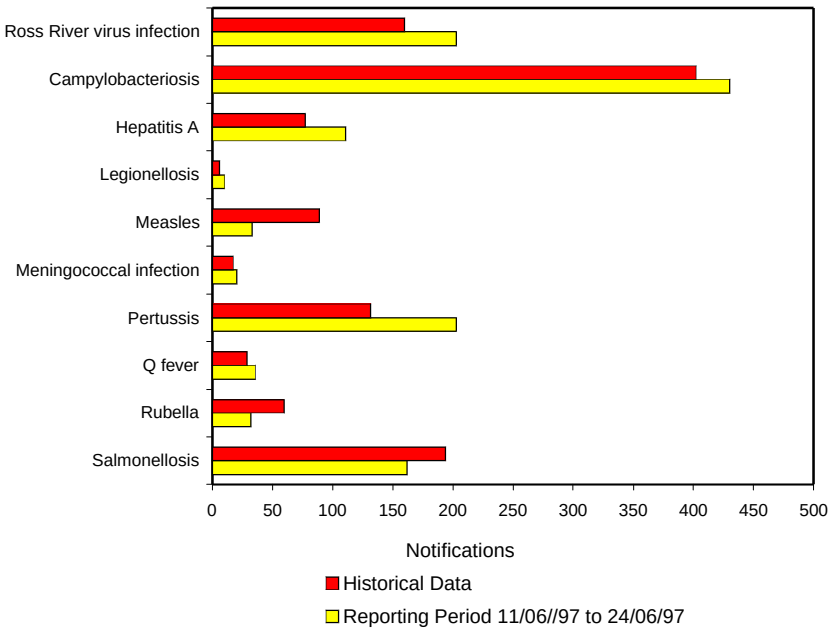
1. For HIV and AIDS, see Tables 4 and 5. For rarely notified diseases, see Table 3.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. NT and WA: includes Barmah Forest virus.
4. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
5. WA: genital only.
6. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
7. NSW, Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified

\- Elsewhere Classified.

Figure 4. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



1. The historical data are the averages of the number of notifications in 9 previous 2-week reporting periods, the corresponding periods of the last 3 years and the periods immediately preceding and following those.

Table 3. Notifications of rare[1] diseases received by State and Territory health authorities in the period 11 to 24 June 1997

Disease[2]	Total this period	Reporting States or Territories	Total notifications 1997
Brucellosis			16
Chancroid			1
Cholera			1
Hydatid infection	2	Qld, WA	18
Leprosy			7

1. Fewer than 60 cases of each of these diseases were notified each year during the period 1988 to 1996.
2. No notifications have been received during 1997 for the following rare diseases: botulism, lymphogranuloma venereum, plague, rabies, yellow fever, or other viral haemorrhagic fevers.

Figure 5. Measles notifications, 1992 to 1997, by month of onset

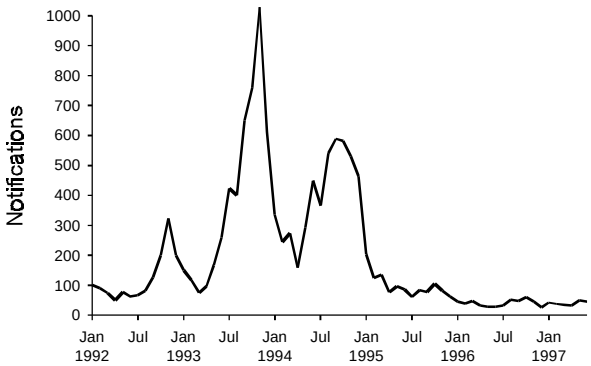


Figure 6. Q fever notifications, 1995 to 1997, by month of onset

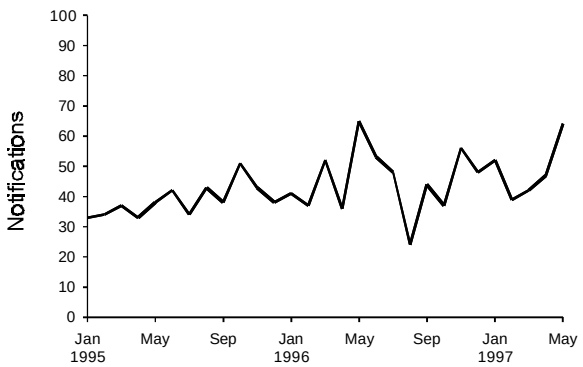


Figure 7. Sentinel general practitioner influenza consultation rates, 1997, by week and scheme

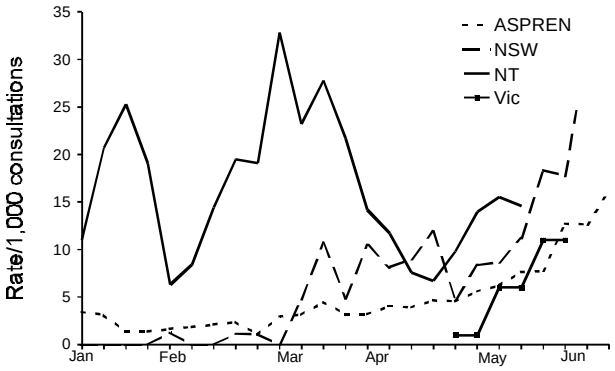


Figure 8. Laboratory reports of influenza, 1997, by type and week of specimen collection

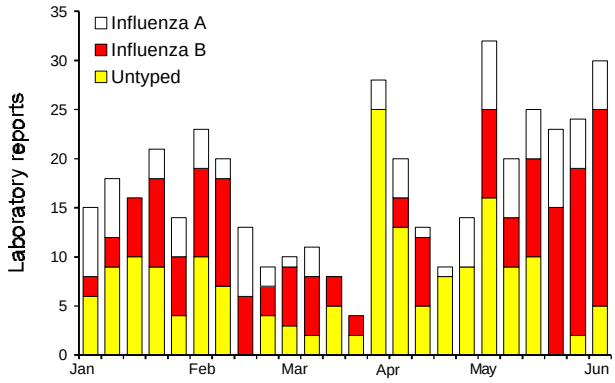
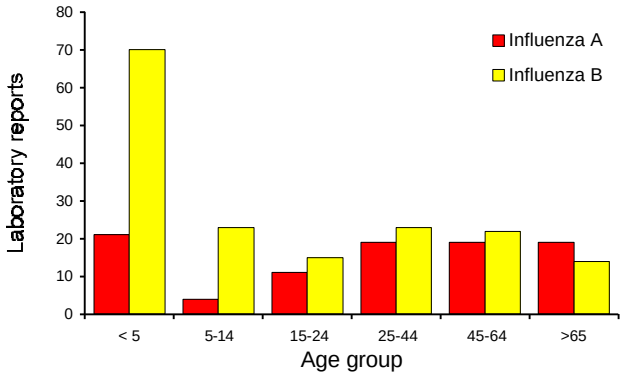


Figure 9. Laboratory reports of influenza, 1997, by type and age group



Thirty-six notifications of Q fever were received this period. The number of cases has risen in recent months (Figure 6).

National Influenza Surveillance, 1997

Three types of data are included in National Influenza Surveillance, 1997. These are sentinel general practitioner surveillance conducted by the Australian Sentinel Practice Research Network, Department of Human Services, Victoria, Department of Health, New South Wales and Department of Health and Community Services, Northern Territory; laboratory surveillance data from the Communicable Diseases Intelligence Virology and Serology Laboratory Reporting Scheme, LabVISE, and the World Health Organization Collaborating Centre for Influenza Reference and Research; and absenteeism surveillance conducted by Australia Post. For further information about these schemes, see CDI 1997; 21:126.

Overall influenza activity rose markedly this fortnight, particularly the sentinel general practitioner consultation rate recorded by the Department of Health, New South Wales. Reports of both influenza A and B are being received.

Sentinel General Practitioner Surveillance

The New South Wales scheme reported a sharp rise in the consultation rate for influenza-like illness this fortnight (Figure 7). The ASPREN consultation rate rose to 16 per 1,000 encounters during this period. No new data are available from the Northern Territory. The Department of Human Services Victoria, recorded a rate of 11 consultations per 1,000 encounters in early June.

Laboratory Surveillance

CDI Virology and Serology Laboratory Reporting Scheme

Ninety-nine reports of influenza virus were recorded by the LabVISE scheme this fortnight. Of these, 35% were for influenza A, 58% for influenza B and 7% untyped. Of the influenza B reports, 35% were for children in the 1 to 4 years age group. For influenza A the age group distribution was more widely spread with only 17% of reports being for this age group (Figure 9). Fifteen per cent of all influenza reports were for adults over the age of 65 years. The number of reports remained high through May and early June (Figure 8). More reports of influenza B were received for May 1997, than were recorded by this scheme for May in previous years.

WHO Collaborating Centre for Reference and Research on Influenza

A total of 64 isolates of influenza A and 30 of influenza B have been received so far this year by the centre for analysis. The majority of these (42 influenza A, and 28 influenza B) were from Victoria. The number of influenza A isolates received has increased recently, with 20 in the past week. All of the influenza A isolates have been confirmed to be of the H_3 subtype. To date there is no indication of significant antigenic drift from the strains which circulated widely in Australia last year. All of the H_3 isolates tested react well with antisera to the A/Wuhan/359/95 reference strain and the current vaccine

Table 4. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 to 28 February 1997, by sex and State or Territory of diagnosis

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Totals for Australia: This period 1997	This period 1996	Year to date 1997	Year to date 1996
HIV diagnoses	Female	0	2	0	0	0	0	1	0	3	7	15	13
	Male	0	28	1	11	3	0	15	3	61	56	132	124
	Sex not reported	0	5	0	0	0	0	0	0	5	0	6	2
	Total[1]	0	35	1	11	3	0	16	3	69	63	153	139
AIDS diagnoses	Female	0	0	0	0	0	0	0	0	0	1	2	2
	Male	0	5	0	3	2	0	6	1	17	52	40	108
	Total[1]	0	5	0	3	2	0	6	1	17	53	42	110
AIDS deaths	Female	0	1	0	0	0	0	0	0	1	5	3	8
	Male	0	9	0	1	0	1	4	0	15	47	35	81
	Total[1]	0	10	0	1	0	1	4	0	16	52	38	89

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

Table 5. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 28 February 1997, by sex and State or Territory

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
HIV diagnoses	Female	19	484	4	106	45	4	180	76	918
	Male	177	10414	89	1732	605	78	3531	806	17432
	Sex not reported	0	2049	0	0	0	0	28	0	2077
	Total[1]	196	12961	93	1843	650	82	3748	885	20458
AIDS diagnoses	Female	7	149	0	34	19	2	56	19	286
	Male	80	4115	27	710	301	39	1462	319	7053
	Total[1]	87	4274	27	746	320	41	1525	340	7360
AIDS deaths	Female	2	107	0	27	14	2	39	13	204
	Male	52	2909	22	496	205	26	1147	230	5087
	Total[1]	54	3022	22	525	219	28	1192	244	5306

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

Table 6. Australian Sentinel Practice Research Network reports, weeks 24 and 25, 1997

Condition	*Week 24, to 15 June 1997* Reports	Rate per 1,000 encounters	*Week 25, to 22 June 1997* Reports	Rate per 1,000 encounters
Chickenpox	24	3.6	16	2.4
Gastroenteritis	61	9.2	59	8.8
HIV testing (doctor initiated)	5	0.8	2	0.3
HIV testing (patient initiated)	13	2.0	11	1.6
Influenza	84	12.6	108	16.1
Measles	0	0.0	1	0.1
Pertussis	2	0.3	1	0.1
Ross River virus infection	0	0.0	0	0.0
Rubella	1	0.2	1	0.1

strain A/Nanchang/933/95. Similarly, all of the influenza B isolates received react strongly with antisera to the B/Beijing/184/93 reference strain and B/Harbin/7/94 vaccine strain.

The centre wishes to remind clinical laboratories that it would like to receive samples of all influenza isolates for antigenic analysis. This is important to determine the formulation of influenza vaccines for the next season. Enquiries regarding this should be directed to Robert Shaw on (03) 9389 1231.

Absenteeism Surveillance

Australia Post recorded a national absenteesim rate of 2.7% and 2.3% in the last two weeks. This has remained stable throughout the season so far.

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 February 1997, as reported to 31 May 1997, are included in this issue of *CDI* (Tables 4 and 5).

Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network (ASPREN) currently comprises 107 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. Of these, CDI reports the consultation rates for chickenpox, gastroenteritis, HIV testing (doctor initiated), HIV testing (patient initiated), influenza, measles, pertussis, Ross River virus infection and rubella. For further information, including case definitions, see CDI 1997;21:6.

Data for weeks 24 and 25 ending 15 and 22 June are included in this issue of *CDI* (Table 6). The consultation rate for chickenpox has risen in recent weeks. The consultation rate for gastroenteritis for the current period is slightly lower than in recent weeks. Consultation rates for doctor and patient initiated HIV testing have been steady for the last two months. Consultation rates for Ross River virus infection, measles, rubella and pertussis remain very low.

LabVISE

The Virology and Serology Laboratory Reporting Scheme, 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 each fortnight. 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 1997;21:8-9.

Figure 10. *Mycoplasma pneumoniae* laboratory reports, 1995 to 1997, by month of specimen collection

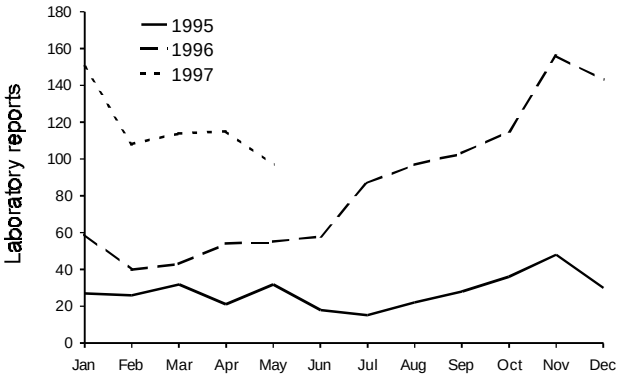
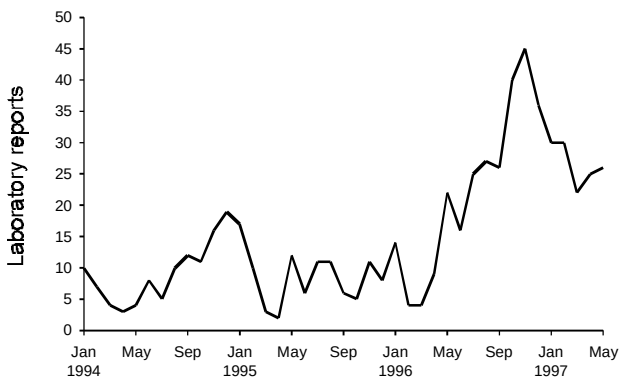


Figure 11. Parvovirus laboratory reports, 1994 to 1997, by month of specimen collection



There were 1,401 reports received in the *CDI* Virology and Serology Laboratory Reporting Scheme this period (Tables 7 and 8).

Although declining, laboratory reports of *Mycoplasma pneumoniae* remain well above those reported in corresponding periods over the last two years (Figure 10). There were 73 reports received in the last fortnight.

Laboratory reports of parvovirus have remained high over the last 12 months. Although declining in the early part of this year, reports have risen again during April and May (Figure 11). Thirteen reports were received this period.

There were 35 reports of parainfluenza virus type 3 received this period and seven reports of type 2. The number of reports for both types has increased during May, and we can expect the increase to continue (Figure 12).

Figure 12. Parainfluenza virus type 2 and type 3 laboratory reports, 1995 to 1997, by month of specimen collection

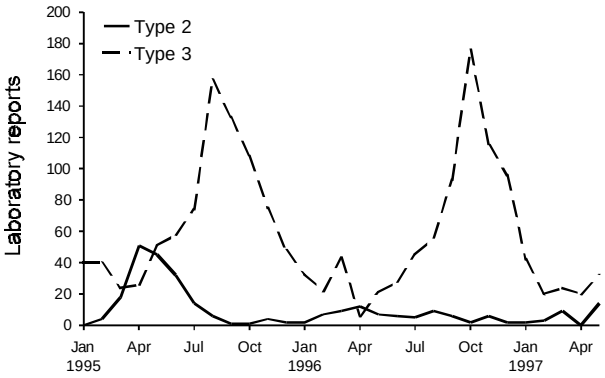


Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 5 to 18 June 1997, historical data[2], and total reports for the year

	State or Territory[1]						Total this fortnight	Historical data[2]	Total reported in *CDI* in 1997
	NSW	NT	Qld	SA	Vic	WA			
Measles, mumps, rubella									
Measles virus					2		2	1.3	33
Mumps virus						2	2	1.8	22
Rubella virus			3	2		2	7	13.8	391
Hepatitis viruses									
Hepatitis A virus	2		2	1	1	9	15	14.8	454
Arboviruses									
Ross River virus		2	52	6		52	112	51.2	1,930
Barmah Forest virus	1		3			8	12	6.8	182
Dengue type 2			1				1	0.2	48
Dengue not typed						3	3	0.3	42
Murray Valley encephalitis virus						3	3	0	3
Kunjin virus						3	3	0.3	6
Adenoviruses									
Adenovirus type 1					1		1	0.7	14
Adenovirus type 2				2			2	0.3	24
Adenovirus type 3					2		2	1.7	18
Adenovirus type 10			1				1	0	1
Adenovirus type 40						2	2	0.7	10
Adenovirus not typed/pending			14	3	7	13	37	38.8	485
Herpes viruses									
Cytomegalovirus	1		8	3	7	22	41	64.7	648
Varicella-zoster virus	5		21	8	8	22	64	37.2	780
Epstein-Barr virus	7		14	24	3	45	93	67.8	1,516

Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 5 to 18 June 1997, historical data[2], and total reports for the year, continued

	State or Territory[1]						Total this fortnight	Historical data[2]	Total reported in *CDI* in 1997
	NSW	NT	Qld	SA	Vic	WA			
Other DNA viruses									
Molluscum contagiosum						4	4	0	6
Parvovirus	1		2	1	7	2	13	6.8	213
Picornavirus family									
Rhinovirus (all types)					1	34	35	28.7	327
Enterovirus not typed/pending		2				46	48	40	346
Ortho/paramyxoviruses									
Influenza A virus	1		18		9	7	35	59.7	203
Influenza B virus	1		4	1	18	33	57	6.8	211
Influenza virus - typing pending				2		5	7	0.5	189
Parainfluenza virus type 1						1	1	12.3	40
Parainfluenza virus type 2	1		1	1	4		7	9.2	58
Parainfluenza virus type 3	5		3	7	8	12	35	14.5	411
Respiratory syncytial virus	147		9	7	125	50	338	335.8	1,121
Paramyxovirus (unspecified)					3		3	1.2	3
Other RNA viruses									
HTLV-1						1	1	0.2	9
Rotavirus	2			11	23	12	48	52.2	505
Norwalk agent					2		2	0.8	60
Other									
Chlamydia trachomatis not typed	10	1	21	10	6	147	195	132.5	2,705
Chlamydia psittaci					1		1	2	42
Chlamydia species	1						1	0.5	19
Mycoplasma pneumoniae	26		21	3	8	15	73	20	938
Coxiella burnetii (Q fever)	4		15			3	22	8.8	202
Rickettsia australis			1				1	1	12
Rickettsia tsutsugamushi			1				1	0.2	16
Rickettsia spp - other						3	3	0.7	6
Bordetella pertussis			7		30	9	46	24	1,040
Legionella pneumophila			2	1		1	4	0	13
Legionella longbeachae						6	6	1.5	16
Legionella species			2				2	0.3	11
Cryptococcus species			1				1	0.5	12
Leptospira pomona			3				3	0	11
Leptospira hardjo			1			1	2	0.2	14
Leptospira australis			2				2	0	4
TOTAL	215	5	233	93	276	579	1,401	1,063.30	15,371

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.
2. The historical data are the averages of the numbers of reports in 6 previous 2 week reporting periods, the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 8. Virology and serology laboratory reports by contributing laboratories for the reporting period 5 to 18 June 1997

State and Territory	Laboratory	Reports
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	68
	New Children's Hospital, Westmead	52
	Royal Prince Alfred Hospital, Camperdown	28
	South West Area Pathology Service, Liverpool	57
Queensland	Queensland Medical Laboratory, West End	137
	State Health Laboratory, Brisbane	106
South Australia	Institute of Medical and Veterinary Science, Adelaide	92
Victoria	Microbiological Diagnostic Unit, University of Melbourne	4
	Monash Medical Centre, Melbourne	65
	Royal Children's Hospital, Melbourne	138
	Victorian Infectious Diseases Reference Laboratory, Fairfield	69
Western Australia	PathCentre Virology, Perth	486
	Princess Margaret Hospital, Perth	99
TOTAL		1,401

Overseas briefs

Source: World Health Organization (WHO)

Fatal myocarditis in Sarawak, Malaysia

Two more deaths from acute viral myocarditits occurred on 24 June bringing the total number of deaths to 29, all in children aged from 5 months to 6 years. Over 600 children have been admitted to the observation wards in hospitals in Sarawak State, and 66 were still under observation on 26 June. The number of cases being admitted to hospital has declined since 20 June. Teams from WHO and the Centers for Disease Control and Prevention are working with the Ministry of Health and national laboratories to establish the cause of the outbreak. Specimens from fatal cases of myocarditis, and from cases of hand, foot and mouth disease have been collected for virus isolation, polymerase chain reaction (PCR) and other investigations. Preliminary results from the virological studies should be available in the near future.

CDI is produced fortnightly by the National Centre for Disease Control, Department of Health and Family Services, GPO Box 9848 Canberra ACT 2601; fax: (06) 289 7791, telephone: (06) 289 1555. For subscriptions or change of address please fax (06) 269 1212 or write to PO Box 462, Fyshwick ACT 2609.

Opinions expressed in *CDI* are those of the authors and not necessarily those of the Department of Health and Family Services or the Communicable Diseases Network Australia New Zealand. Data may be subject to revision.

CDI is available on the *CDI* Bulletin Board System on (06) 281 6695, and via Internet on 'ftp://ftp.health.gov.au' in directory /pub/CDI and on 'http://www.health.gov.au' in /hfs/pubs/cdi/cdihtml.htm. NNDSS data are available on'http://www.health.gov.au/hfs/pubs/nndss/nndss1.htm'