Meningococcal infection

Neisseria meningitidis is the most common cause of bacterial meningitis in Australia. Between 5% and 10% of the population asymptomatically carry *Neisseria meningitidis* in the nasopharynx. In a small proportion of these individuals infection progresses to an acute invasive disease such as septicaemia, meningitis or pneumonia.

Neisseria meningitidis is spread by direct contact with an infected person through respiratory droplets from the nose and throat. The incubation period is 3 to 4 days. Symptoms and signs may include fever, headache, nausea, stiff neck and petechial rash.

There are 13 different serogroups of *Neisseria meningitidis.* Of these, three, serogroups A, B and C, account for 90% of invasive infections. While serogroup A organisms are rarely isolated in Australia, outbreaks have been reported in Aboriginal communities in central Australia. Serogroup B organisms account for most cases of sporadic disease in Australia. However the isolation of serogroup C organisms has increased in recent years.

From 1994 to 1996 the Australian Meningococcal Surveillance Program of the National Neisseria Network tested 750 islolates of *Neisseria meningitidis* associated with invasive disease. Of these, approximately 95% were serogroups B and C. Serogroup B predominated nationally and in most States and Territories, with the exception of 1994 when serogroup C was more prominent in New South Wales, Tasmania and South Australia. Group C was also more prevalent in the Northern Territory in 1994 and 1995.

Vaccines containing groups A, C, Y and W135 are available in Australia, and can be used in the control of outbreaks due to these serogroups. However, they do not protect against the more commonly isolated group B organisms. Outbreaks of any serogroup can be controlled by the prophylactic use of rifampicin or other suitable antibiotics. These reduce or eliminate the carriage of the organism in the nasopharynx. Close contacts, including household contacts, those in nurseries and those exposed to oral secretions (for example, by kissing) should receive chemoprophylaxis.

Meningococcal infection is a notifiable disease in all States and Territories. The notification rate recorded by the National Notifiable Diseases Surveillance Scheme rose from 1.6 cases per 100,000 population in 1991 to 2.1 per 100,000 population in 1995. The number of reports has risen in recent months but remains similar to previous years (Figure 1). Meningococcal infection is most commonly reported for those in the 0 - 4 years age group, with a further peak for those aged 15 - 24 years (Figure 2).

Figure 1. Notifications of meningococcal infection, 1993 to 1995, by month of onset

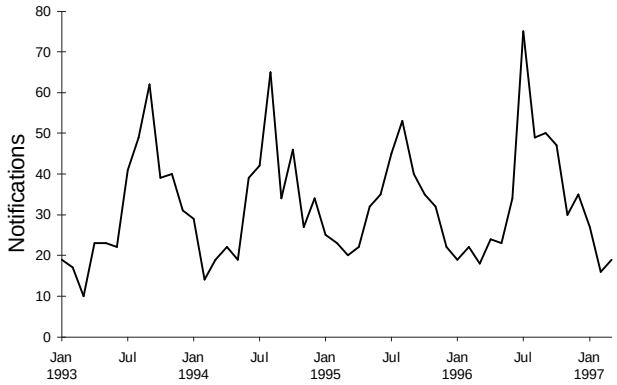
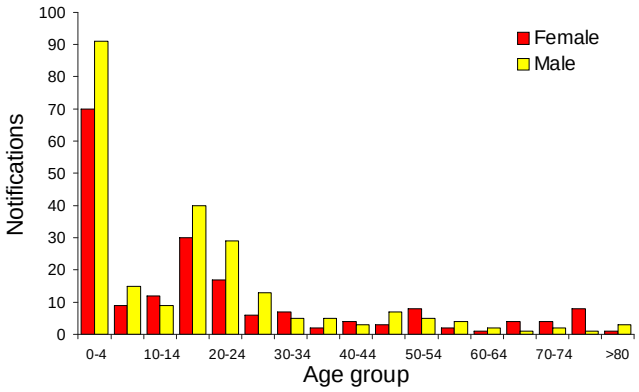


Figure 2. Notifications of meningococcal infection, 1996, by age group and sex



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.

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 2 to 15 April 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	0	0
Haemophilus influenzae type B	0	0	0	0	0	0	0	0	0	0	17	17
Measles	0	1	0	2	0	1	2	1	7	10	132	147
Mumps	0	1	0	NN	1	0	7	1	10	6	56	39
Pertussis	3	68	1	20	29	6	65	20	212	69	2513	1008
Rubella	1	1	0	21	1	0	8	4	36	63	473	933
Tetanus	0	0	0	0	0	0	0	0	0	0	2	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 2 to 15 April 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)[3,4]	0	0	10	1	0	0	7	7	25	11	119	54
Barmah Forest virus infection	0	15	0	18	1	0	2	-	36	49	235	348
Campylobacteriosis[5]	14	-	18	115	89	10	54	28	328	304	3419	3507
Chlamydial infection (NEC)[6]	10	NN	38	155	0	10	76	44	333	201	2401	2010
Dengue	0	1	0	68	0	-	0	0	69	1	169	17
Donovanosis	0	NN	0	1	NN	0	0	0	1	0	9	17
Gonococcal infection[7]	1	18	62	69	0	1	16	32	199	127	1229	1054
Hepatitis A	1	29	9	20	1	0	7	2	69	71	1252	782
Hepatitis B incident	0	0	0	3	0	0	1	5	9	7	95	67
Hepatitis C incident	1	1	0	-	0	0	-	-	2	0	3	11
Hepatitis C unspecified	6	NN	17	87	NN	17	16	22	165	274	2330	2646
Hepatitis (NEC)	0	0	0	0	0	0	2	NN	2	0	7	8
Legionellosis	0	1	0	1	2	0	3	3	10	6	51	57
Leptospirosis	0	2	0	3	0	1	1	0	7	7	38	69
Listeriosis	0	0	0	1	0	0	2	7	10	3	34	16
Malaria	0	8	9	14	1	0	2	1	35	39	199	224
Meningococcal infection	0	7	1	4	2	0	7	0	21	8	88	72
Ornithosis	0	NN	0	0	0	0	0	0	0	6	22	25
Q Fever	0	7	0	14	1	0	1	1	24	15	164	136
Ross River virus infection	0	66	30	322	134	2	70	69	693	679	3609	5222
Salmonellosis (NEC)	4	78	24	104	26	6	502	45	789	199	3057	2128
Shigellosis[5]	0	-	11	15	8	0	1	2	37	18	295	207
Syphilis	0	25	8	18	0	2	0	0	53	59	365	438
Tuberculosis	0	10	1	4	0	4	10	2	31	31	279	343
Typhoid[8]	0	3	0	0	0	0	1	1	5	4	28	45
Yersiniosis (NEC)[5]	0	-	0	6	1	0	0	0	7	4	111	88

1. For HIV and AIDS, see *CDI* 1997;21:97. 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. Tas: includes Ross River virus and dengue.
4. NT, Vic and WA: includes Barmah Forest virus.
5. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
6. WA: genital only.
7. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
8. NSW, Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

- Elsewhere Classified.

Table 3. Notifications of rare[1] diseases received by State and Territory health authorities in the period 2 to 15 April 1997

Disease[2]	Total this period	Reporting States or Territories	Total notifications 1997
Brucellosis			12
Chancroid			1
Cholera			1
Hydatid infection	1	Tas	7
Leprosy	2	Qld	6

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 4. Notifications of shigellosis, 1994 to 1997, by month of onset

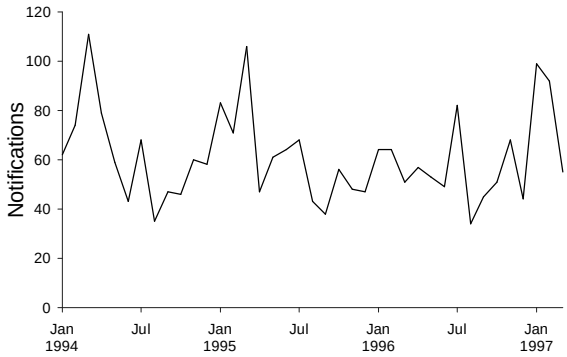
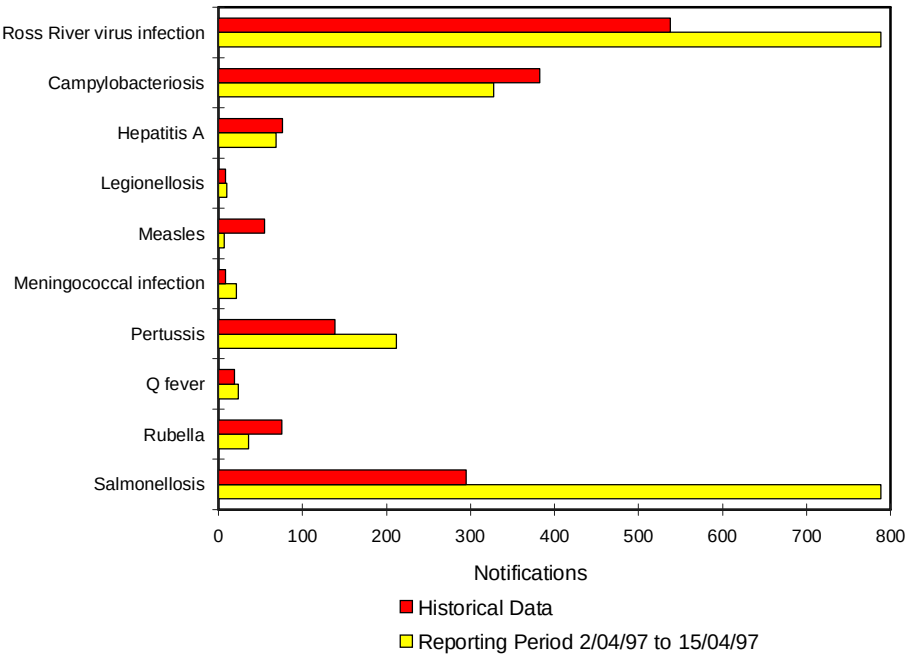


Figure 3. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



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

Reporting period 2 to 15 April 1997

There were 3,413 notifications received for this two-week period (Tables 1, 2 and 3). The numbers of reports for selected diseases have been compared with average data for corresponding periods in the previous three years (Figure 3).

Reports of Ross River virus infection continued to rise, with 693 notifications received this period. The majority of notifications were from Queensland (322) and South Australia (134). Fifty per cent of reports were for the 25 - 44 years age range. The total numbers received for this year are still below the levels reported for the same period in 1996.

Notifications of salmonellosis have increased markedly in recent weeks and reports received so far in 1997 are above the numbers for the same period in 1996. The highest number of cases for this period was reported from Victoria (502), with the majority having dates of onset during March. Recent outbreaks detected in Victoria (see page 120) have contributed to the high number of notifications.

Thirty-seven reports of shigellosis were received this period. The number of notifications in 1997 is higher than the number for the same period in 1996, but the trend is consistent with the higher incidence seen in spring and summer in recent years (Figure 4). In 1997, the highest number of reports has been in the 0 - 4 years (104), 5 - 9 years (37) and 25 - 29 years (25) age groups.

Figure 5. Sentinel general practitioner influenza consultation rates, 1997, by week and scheme

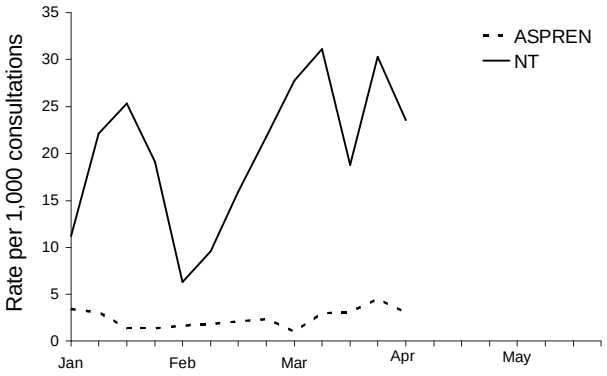
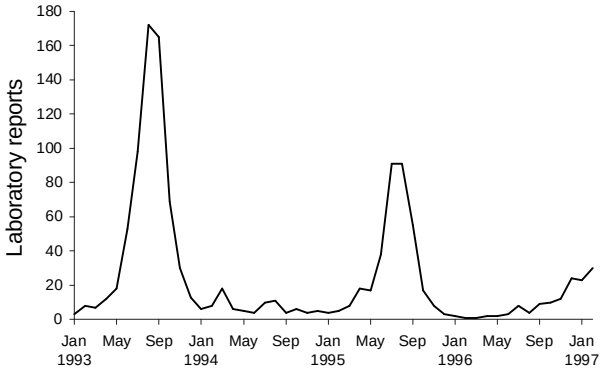


Figure 6. Influenza B laboratory reports, 1997, by week



National Influenza Surveillance, 1997

Australian Sentinel Practice Research Network; Communicable Diseases Intelligence Virology and Serology Laboratory Reporting Scheme Contributing Laboratories, New South Wales Department of Health; Victorian Department of Health; World Health Organization Collaborating Centre for Influenza Reference and Research.

Three types of data are included in National Influenza Surveillance, 1997. These include Sentinel General Practitioner Surveillance, Laboratory Surveillance and Absenteeism Surveillance. These are described below.

Sentinel General Practitioner Surveillance

Data will be included from four sources this season: ASPREN (the Australian Sentinel Practice Research Network); the Department of Health and Community Services, Victoria; the Department of Health, New South Wales; and Tropical Influenza Surveillance of the Department of Health and Community Services, Northern Territory.

The ASPREN consultation rate for influenza-like illness has remained below 5% so far for 1997, which is usual for the time of year (Figure 5). However, Tropical Influenza Surveillance in the Northern Territory recorded a peak in the consultation rate in mid-January, and after falling in early February has risen again in recent weeks.

No data are available from Victoria and New South Wales this fortnight.

Laboratory Surveillance

Laboratory surveillance data from the Communicable Diseases Intelligence Virology and Serology Laboratory Reporting Scheme will be included in National Influenza Surveillance, 1997. The World Health Organization Collaborating Centre for Influenza Reference and Research will also contribute information on strains isolated.

This fortnight 9 reports of influenza A were received. Thirty-five reports have been received for the year to date, which is similar to previous years.

Nineteen reports of influenza B have been received this fortnight, bringing the total number of reports for the year to date to 70. This is the highest number recorded by this scheme for the time of year (Figure 6). The male:female ratio was 1.1:1 and 30% of reports were for children under the age of 5 years.

Absenteeism Surveillance

National absenteeism data will continue to be supplied by Australia Post and included in National Influenza Surveillance, 1997.

The national absenteesim rate has remained stable throughout February and March at approximately 2.5%.

Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network (ASPREN) comprises 99 sentinel general practitioners from throughout the country. Approximately 9,000 consultations are recorded each week for 12 conditions. Of these, CDI reports the consultation rates for chickenpox, HIV testing (doctor initiated), HIV testing (patient initiated), influenza, measles, pertussis, Ross River virus infection, rubella and gastroenteritis. For further information including case definitions see CDI 1997;21:6.

Data for weeks 14 and 15 ending 6 and 13 April respectively are included in this issue of *CDI* (Table 4). The consultation rate for gastroenteritis has continued to decline during the last 3 months. The rate for chickenpox has declined from the higher consultation rate reported during the summer, to a rate comparable with the 1996 autumn period (Figure 7). Patient-initiated HIV testing has shown a significantly reduced consultation rate over the last 4 reporting weeks to little more than half the rate experienced during the previous 10 weeks; consultation

Table 4. Australian Sentinel Practice Research Network reports, weeks 14 and 15, 1997

Condition	*Week 14, to 6 April 1997*		*Week 15, to 13 April 1997*	
	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters
Chickenpox	15	2.3	9	1.3
Gastroenteritis	71	10.9	64	9.3
HIV testing (doctor initiated)	6	0.9	8	1.2
HIV testing (patient initiated)	10	1.5	7	1.0
Influenza	26	4.0	27	3.9
Measles	0	0.0	0	0.0
Pertussis	1	0.2	2	0.3
Ross River virus infection	4	0.6	1	0.1
Rubella	1	0.2	0	0.0

rates for doctor-initiated testing have not varied appreciably. Consultation rates for Ross River virus infection have remained low during 1997. The numbers of reported cases of measles, rubella and pertussis have remained low.

Sentinel Chicken Surveillance Programme

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There have been a number of seroconversions to Murray Valley encephalitis and Kunjin viruses in the sentinel chicken flocks in the north of Western Australia during the 1997 wet season. A summary of the number of confirmed positives recorded from the Kimberley and Pilbara flocks in March and early April 1997 is presented in Table 5.

There are still a number of possible seroconversions from both regions waiting to be confirmed. To date, there have been no cases of Australian encephalitis reported from the Kimberley or Pilbara regions.

Figure 7. ASPREN consultation rate for chickenpox, 1996 to 1997, by week

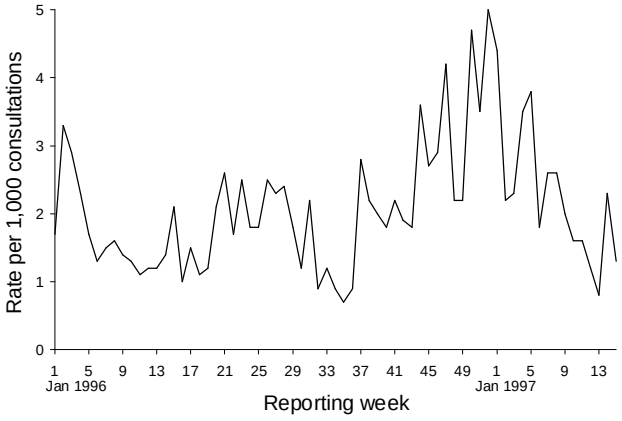


Table 5. Sentinel Chicken Surveillance Programme seroconversions, Western Australia, March and April 1997

	March			April			
	MVE	Kunjin	MVE and Kunjin	MVE	Kunjin	MVE and Kunjin	Total
Kimberley							
Kununurra	3			1		5	9
Derby (town)	2	1					3
Broome	2		1				3
Pilbara							
Harding Dam (Karratha)				6	1		7
Tom Price				2		1	3
Paraburdoo						1	1
Ophthalmia (Newman)	1	1	1	2		1	6
Whaleback Mine (Newman)					1	2	3

Figure 8. Respiratory syncytial virus laboratory reports, 1995 to 1997, by month of specimen collection

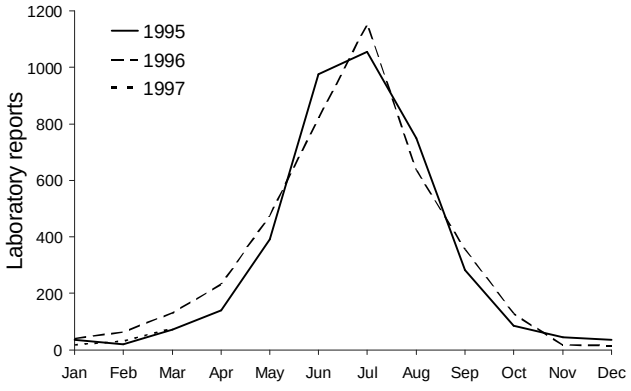


Figure 9. *Mycoplasma pneumoniae* laboratory reports, 1994 to 1997, by month of specimen collection

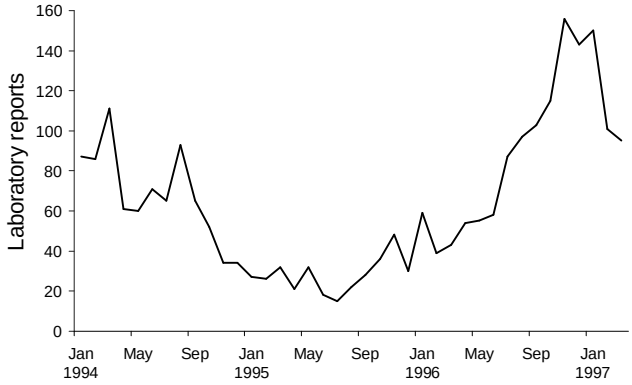
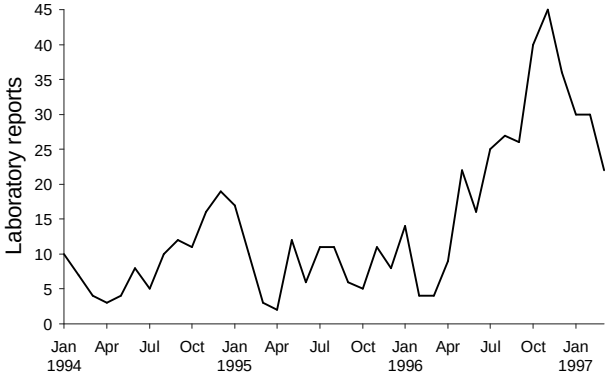


Figure 10. Parvovirus laboratory reports, 1994 to 1997, by month of specimen collection



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.

There were 1,058 reports received in the *CDI* Virology and Serology Laboratory Reporting Scheme this period (Tables 6 and 7). The largest number of reports (264) was of Ross River virus infection. Diagnosis was by IgM detection (249), four-fold rise in titre (14) and single high titre (1). Reports of Ross River virus infection are continuing to increase as reported in *CDI* 1997; 21:107-108.

Reports of respiratory syncytial virus infection are also increasing as expected (Figure 8). There were 52 reports received this fortnight, with diagnosis by antigen detection (28), virus isolation (22) and single high titre (1). One report did not indicate the method of diagnosis.

Laboratory reports of *Mycoplasma pneumoniae* are continuing to decline but are well above those received in corresponding periods over the last two years (Figure 9). There were 54 reports received in the last fortnight, with diagnosis by IgM detection (35), single high titre (11), total antibody (6) and four-fold rise in titre (2).

A similar pattern is evident in the number of laboratory reports of parvovirus (Figure 10). Although the number of reports of parvovirus is declining, the number reported for March is the highest recorded for that month in the previous five years.

Table 6. Virology and serology laboratory reports by State or Territory[1] for the reporting period 27 March to 9 April 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	Tas	Vic	WA			
Measles, mumps, rubella										
Mumps virus			2			1		3	1.5	15
Rubella virus	1		1	1			4	7	7.2	339
Hepatitis viruses										
Hepatitis A virus	2	5	1	1		4	8	21	10.5	351
Arboviruses										
Ross River virus		4	75	78	1	26	80	264	103.3	1,251
Barmah Forest virus	1	3	3				7	14	2.8	113
Sindbis virus							1	1	0.0	1
Dengue not typed							1	1	0.7	37
Kunjin virus							1	1	0.3	3
Flavivirus (unspecified)			3			2		5	3.0	13
Adenoviruses										
Adenovirus type 3					1	1		2	2.5	13
Adenovirus not typed/pending	5		5	11	1	18	1	41	41.5	348
Herpes viruses										
Herpes virus type 6				1				1	0.0	3
Cytomegalovirus	1		3	8		13	8	33	57.3	425
Varicella-zoster virus	1		4	7	1	17	9	39	35.0	553
Epstein-Barr virus	13	2	5	20		7	22	69	43.0	1,111
Other DNA viruses										
Parvovirus	1			2		17	2	22	1.5	156
Picornavirus family										
Coxsackievirus B3						1		1	0.8	3
Poliovirus type 2 (uncharacterised)				1				1	0.2	6
Rhinovirus (all types)	3			1		5	8	17	28.2	237
Enterovirus not typed/pending			6				19	25	36.5	256
Ortho/paramyxoviruses										
Influenza A virus			9					9	8.7	145
Influenza B virus			11			5	3	19	1.5	112
Influenza virus - typing pending				22				22	0.0	105
Parainfluenza virus type 1				2		1		3	14.5	37
Parainfluenza virus type 2			1			5		6	12.3	25
Parainfluenza virus type 3	6		1	1		4		12	15.7	334
Parainfluenza virus typing pending				26				26	0.8	135
Respiratory syncytial virus	24		1	3	1	20	3	52	69.3	306
Other RNA viruses										
HTLV-1		1						1	0.2	8
Rotavirus	5			3		13	13	34	21.2	314
Astrovirus						2		2	0.2	5
Norwalk agent						11		11	1.2	49
Small virus (like) particle						1		1	0.2	2

Table 6. Virology and serology laboratory reports by State or Territory[1] for the reporting period 27 March to 9 April 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	Tas	Vic	WA			
Other										
Chlamydia trachomatis not typed	3	40	11	20	1	8	62	145	75.7	1,768
Chlamydia psittaci						2		2	4.0	33
Mycoplasma pneumoniae	22	2	8	2		13	7	54	13.2	662
Coxiella burnetii (Q fever)	3		5				3	11	3.8	106
Rickettsia australis						1		1	0.3	10
Rickettsia tsutsugamushi			2					2	0.0	4
Bordetella pertussis						68	4	72	21.0	875
Legionella pneumophila			1					1	0.5	3
Cryptococcus species						1		1	0.7	5
Leptospira hardjo			2					2	0.8	10
Leptospira australis			1					1	0.5	2
TOTAL	91	57	161	210	6	267	266	1,058	642.0	10,289

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 7. Virology and serology laboratory reports by contributing laboratories for the reporting period 27 March to 9 April 1997

State or Territory	Laboratory	Reports
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	40
	The New Children's Hospital, Westmead	20
	South West Area Pathology Service, Liverpool	26
Queensland	Queensland Medical Laboratory, West End	34
	State Health Laboratory, Brisbane	127
South Australia	Institute of Medical and Veterinary Science, Adelaide	208
Tasmania	Royal Hobart Hospital, Hobart	4
Victoria	Microbiological Diagnostic Unit, University of Melbourne	8
	Monash Medical Centre, Melbourne	20
	Royal Children's Hospital, Melbourne	133
	Victorian Infectious Diseases Reference Laboratory, Fairfiel	114
Western Australia	PathCentre Virology, Perth	179
	Princess Margaret Hospital, Perth	22
	Western Diagnostic Pathology	123
TOTAL		1,058