



COMMUNICABLE DISEASES INTELLIGENCE



ISSN 0725-3141 VOLUME 16 NUMBER 10 18 May 1992

CONTENTS

ARTICLES	Page
Annual Report of the CDI 'Viruses' Reporting Scheme, 1991	206
OVERSEAS BRIEFS	222
COMMUNICABLE DISEASES SURVEILLANCE	222

Editor: Robert Hall

Editorial Staff: Jenny Hargreaves, Evon Bowler, Anura Ponnuthurai, Lenore Cupitt, Barbara Jenkins and Michelle Wood.

CDI is produced fortnightly by:

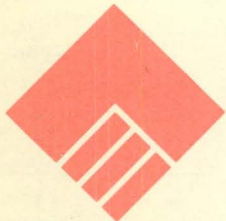
Communicable Diseases Section
Department of Health, Housing and Community Services
GPO Box 9848 Canberra ACT 2601.
Fax: (06) 289 7802 Telephone: (06) 289 1555

Contributions covering any aspect of communicable diseases are invited. Publication does not preclude authors from arranging publication of their material elsewhere.

Opinions expressed in *CDI* are those of the authors and not necessarily those of the Department of Health, Housing and Community Services or other Communicable Diseases Network - Australia affiliates. Figures given may be subject to revision.

Consent for copying in all or part can be obtained from:

Manager, AGPS Press
Australian Government Publishing Service,
PO Box 84, Canberra ACT 2600



DEPARTMENT OF
HEALTH, HOUSING AND
COMMUNITY SERVICES

COMMUNICABLE DISEASES NETWORK-AUSTRALIA
A National Network for Communicable Diseases Surveillance

ANNUAL REPORT OF THE CDI 'VIRUSES' REPORTING SCHEME, 1991

(Jenny Hargreaves, Communicable Diseases Section, Department of Health, Housing and Community Services)

The *Communicable Diseases Intelligence's* 'Viruses' Laboratory Reporting Scheme for surveillance of communicable diseases diagnosed in virology and serology laboratories has been operating since 1977. It is based on reports contributed by laboratories around Australia and covers viruses, chlamydias, coxiellas, rickettsias and mycoplasmas.

Up until 1984, annual reports of the Viruses Scheme were published in *CDI*. In recent years, such reports have not been made, however, it is intended that starting with this report for 1991, the publication of annual reports will resume. Annual data compilations for the intervening years will not be published, but are available on request.

The laboratory reports published fortnightly in *CDI* are based on the date of reporting which is the date on which the reports are received by *CDI*. In contrast, this annual report is based on the date of specimen collection for each report. The data may therefore differ from those published fortnightly, but will more accurately reflect the time of occurrence of each reported case, as there can sometimes be significant delays between the time of specimen collection and the time of report.

Apart from the date of specimen collection, each laboratory report contains the virus identification and data on the source specimen and methods of isolation, direct identification and serology, as appropriate. They usually contain data on the sex and age of the patient and on the clinical diagnosis, and can also contain addi-

tional relevant information on occupation, travel history, outbreaks or immunocompromisation. Partial or coded patient identification is also included to enable further follow-up with laboratories, as required, and duplicate reports to be deleted or amalgamated.

The number of reports of the disease agents made in the Scheme is influenced by various factors, including the number, type and location of participating laboratories, and current diagnostic techniques and habits, as well as the actual occurrence of infections. Thus, whilst much valuable information can be obtained from the Scheme, these factors must be taken into account and the data interpreted with caution.

Contributing Laboratories

The reports for 1991 were contributed by 15 laboratories in all States and in the Australian Capital Territory (Table 1). There was a total of 30563 reports, about the same number as received each year in the last 10 years (Figure 1). The same laboratories have been contributing to the Scheme over this period, with the exception of Dr T B Lynch's Laboratory at Rockhampton, which began contributing in 1990.

Seasonality

The reports showed a seasonal trend (Figure 2), with the most reports for specimens collected in July, August and September. This corresponded with seasonal peaks in the number of reports of respiratory syncytial

Table 1. Laboratory reports with 1991 specimen collection dates, by contributing laboratories and State or Territory

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Garran	689
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	4318
	New England Pathology, Tamworth	126
	Prince Henry/Prince of Wales Hospitals, Sydney	1428
	Royal Alexandra Hospital for Children, Camperdown	890
Queensland	Dr T B Lynch, Pathologist, Rockhampton	1085
	State Health Laboratory, Brisbane	4618
	Toowoomba Pathology Laboratory	129
South Australia	Institute of Medical & Veterinary Science, Adelaide	3888
Tasmania	Hobart Pathology	19
	Royal Hobart Hospital	231
Victoria	Fairfield Hospital, Melbourne	4789
	Microbiological Diagnostic Unit, University of Melbourne	247
	Royal Children's Hospital, Melbourne	1985
Western Australia	Princess Margaret Hospital, Perth	990
	State Health Laboratory Services, Perth	5131
TOTAL		30563

Figure 1. Total laboratory reports, by year of specimen collection, 1982 to 1991

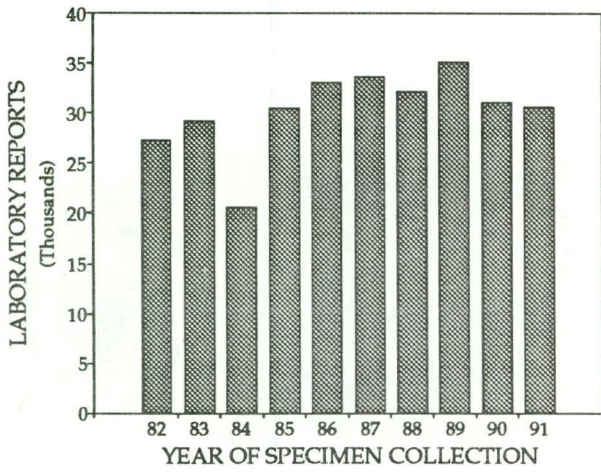


Figure 2. Total laboratory reports, 1991, by month of specimen collection

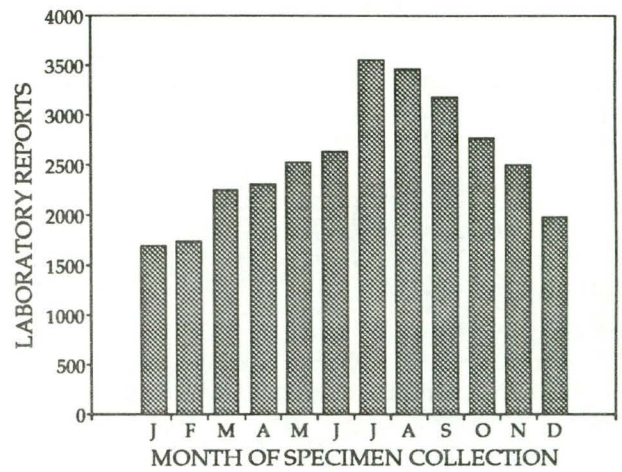
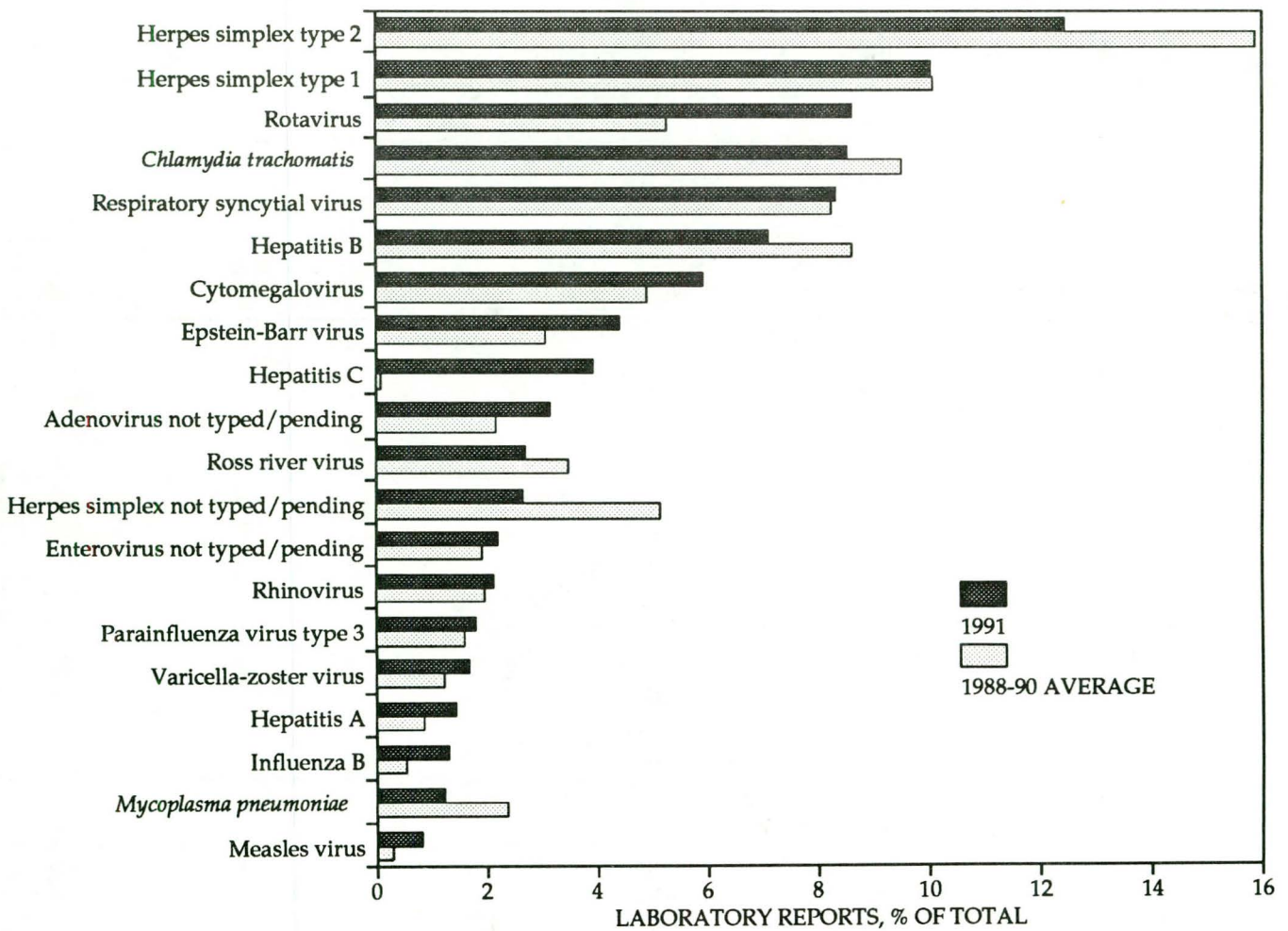


Figure 3. The top 20 viruses reported, 1991 and 1988-90 average, as % of total reports



virus (July-August), rotavirus (August-September) and influenza B (August).

The Top 20 Viruses

Reports of the 20 most commonly reported organisms comprised 27778 or 90.9% of the reports, compared with an average of 87.6% for 1988-90 (Figure 3, Table 2). As for the average for the 3 years 1988 to 1990, the most common reports for 1991 were herpes simplex type 2, followed by herpes simplex type 1. Rotavirus, *Chlamydia trachomatis* (untyped), respiratory syncytial virus and hepatitis B reports completed the top 6 virus types reported for both 1991 and 1988-90 average.

Notable differences between the 1991 reports of the top 20 viruses and the 1988-90 reports were the smaller proportion of reports of herpes simplex type 2, hepatitis B and herpes simplex not typed/pending. There were larger proportions than average for hepatitis C (which has only been reported since 1990) and rotavirus (which was reported more times in 1991 than in any previous year). There were also smaller increases in the proportion of reports due to cytomegalovirus, Epstein-Barr virus, adenovirus not typed/pending, varicella-zoster virus, hepatitis A, influenza B (for which 1991 was an epidemic year) and measles. Smaller decreases were recorded for Ross River virus and *Mycoplasma pneumoniae*.

Sex Distribution

The sex of the patient was included in 97.6% of the reports. Of those with known sex, 53.0% were males, compared with 49.92% of the Australian population (Figure 4) (Australian population data used are Australian Bureau of Statistics' preliminary estimated resident population at 30 June 1991.) This reflects the facts that males comprise a larger proportion of the younger population of Australia (for example, 51.2% of persons aged less than 5 years), and that a disproportionately high proportion of children's hospital laboratories is probably involved in the Scheme. It also reflects the higher attack rates known to be experienced by males for many viral diseases, and the larger number of males infected with HIV, and thus more susceptible to opportunistic infections with other viruses.

For 14 of the top 20 viruses, there were more reports for males than females (Table 3). More reports for females were only made for herpes simplex types 1 and 2 and untyped, *Chlamydia trachomatis* untyped, Ross River virus and measles in this group.

Figure 4. Total laboratory reports and Australian population 1991, by sex, as % of total

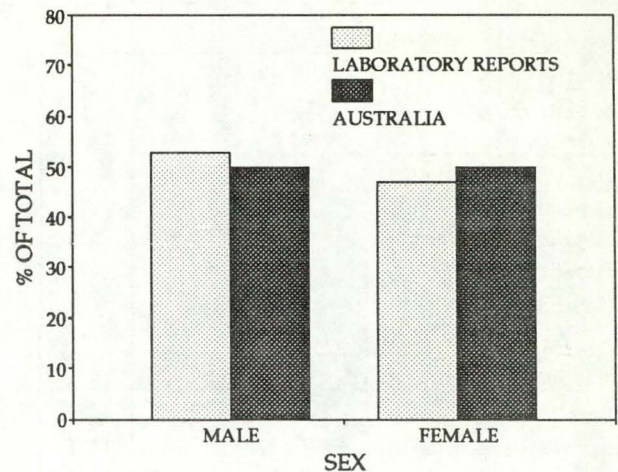


Table 3. Top 20 viruses reported 1991, by sex¹

Virus	Males	Females
Herpes simplex type 2	1594	2164
Herpes simplex type 1	1243	1799
Rotavirus	1460	1147
<i>Chlamydia trachomatis</i> untyped	1080	1498
Respiratory syncytial virus	1468	1049
Hepatitis B	1218	663
Cytomegalovirus	1116	666
Epstein-Barr virus	677	655
Hepatitis C	751	436
Adenovirus not typed/pending	568	389
Ross River virus	381	449
Herpes simplex not typed/pending	338	458
Enterovirus not typed/pending	380	283
Rhinovirus	394	244
Parainfluenza type 3	329	222
Varicella-zoster virus	264	248
Hepatitis A virus	305	125
Influenza B	216	184
<i>Mycoplasma pneumoniae</i>	202	171
Measles virus	122	130
Total for Top 20	14106	12980
Total (all reports with known sex)	15807	14020

1. Reports with known sex only included.

Table 2. Total laboratory reports by State or Territory of reporting laboratory, 1991

	STATE OR TERRITORY OF REPORTING LABORATORY							Total for 1991	Average 1988 to 1990
	ACT	NSW	Qld	SA	Tas	Vic	WA		
MEASLES, MUMPS, RUBELLA									
Measles virus	5	29	11	56		143	12	256	112
Mumps virus	1	18		1		10	2	32	54
Rubella virus	6	89	55	27	4	37	28	246	359
HEPATITIS VIRUSES									
Hepatitis A virus	10	149	38	31	1	73	142	444	287
Hepatitis B virus	39	790	572	79	22	260	420	2182	2835
Hepatitis C virus	65	22	15	225	42	295	547	1211	38
Hepatitis D virus			22		1		14	37	0
Hepatitis non-A non-B (Other)					18			18	2
ARBOVIRUSES									
Ross River virus		54	529	32		76	141	832	1142
Barmah Forest virus		5	31					36	5
Dengue type 1			10				3	13	0
Dengue type 2			2			1		3	0
Dengue type 4							1	1	0
Dengue not typed		3	6			2	3	14	38
Kokobera virus			1					1	0
Stratford virus			3					3	0
Kunjin virus			14					14	2
Murray Valley encephalitis virus			6			4		10	1
Flavivirus untyped			26			3		29	21
ADENOVIRUSES									
Adenovirus type 1	1	42		19	1	28		91	132
Adenovirus type 2	3	74		7		58		142	165
Adenovirus type 3		20		14	1	53		88	162
Adenovirus type 4	1	8				14		23	73
Adenovirus type 5		15		7	1	8		31	54
Adenovirus type 6		3		6				9	14
Adenovirus type 7		3		1		4		8	19
Adenovirus type 8		6		1		31		38	42
Adenovirus type 9		5				6		11	7
Adenovirus type 10		4						4	7
Adenovirus type 11		24				5		29	28
Adenovirus type 13		1						1	2
Adenovirus type 14		1						1	2
Adenovirus type 16				2				2	1
Adenovirus type 18				1				1	1
Adenovirus type 19		3		1		2		6	7
Adenovirus type 21				1				1	0
Adenovirus type 22						3		3	3
Adenovirus type 24		3						3	1
Adenovirus type 26						11		11	3
Adenovirus type 27		1						1	1
Adenovirus type 28		1				11		12	2
Adenovirus type 29		4				1		5	0
Adenovirus type 30						7		7	9
Adenovirus type 31						3		3	0
Adenovirus type 32						1		1	0
Adenovirus type 35						4		4	4

Table 2. Total laboratory reports by State or Territory of reporting laboratory, 1991, continued

	STATE OR TERRITORY OF REPORTING LABORATORY							Total for 1991	Average 1988 to 1990
	ACT	NSW	Qld	SA	Tas	Vic	WA		
Adenovirus type 37				2		5		7	5
Adenovirus type 40		3		1				4	0
Adenovirus type 44						1		1	2
Adenovirus type 45						2		2	1
Adenovirus type 46						1		1	1
Adenovirus type 47						1		1	0
Adenovirus not typed/pending	2	176	223	131		228	206	966	717
HERPES VIRUSES									
Herpes simplex virus type 1	12	246	694	502	13	932	674	3073	3309
Herpes simplex virus type 2	3	629	551	480	14	889	1244	3810	5207
Herpes simplex not typed/pending	128	556	29	6		37	64	820	1690
Cytomegalovirus	8	264	454	68	14	770	242	1820	1616
Varicella-zoster virus	8	132	42	52	3	135	150	522	410
Epstein-Barr virus	6	277	406	350	2	140	179	1360	1015
Herpes virus type 6		3						3	1
Herpes virus group - not typed	20	2	2	3		43	44	114	232
OTHER DNA VIRUSES									
Papovavirus group		6				3		9	7
Molluscum contagiosum		1	19				1	21	4
Contagious pustular dermatitis (Orf)		1				1	3	5	2
Parvovirus		5	1		1	21		28	0
Poxvirus group not typed			1			1		2	3
Cowpox virus			1					1	0
PICORNA VIRUS FAMILY									
Coxsackievirus A2		1				1		2	0
Coxsackievirus A9		11			2	30	2	45	52
Coxsackievirus A16		5				3		8	20
Coxsackievirus A24						1		1	1
Coxsackievirus A not typed/pending							2	2	0
Coxsackievirus B1		2		1		2		5	4
Coxsackievirus B2	1	14		4	1	6	8	34	18
Coxsackievirus B3		7				1	5	13	20
Coxsackievirus B4	4	41		3	1	6	7	62	61
Coxsackievirus B5	2	16		3		18	1	40	36
Coxsackievirus B not typed/pending							1	1	2
Echovirus type 1	1	3						4	5
Echovirus type 4						2		2	32
Echovirus type 5		2				1		3	4
Echovirus type 6		8				1		9	18
Echovirus type 7		2				2		4	4
Echovirus type 9		5						5	85
Echovirus type 11		6				4		10	34
Echovirus type 14		6		1				7	14
Echovirus type 15						1		1	1
Echovirus type 16		4				8	1	13	1
Echovirus type 17	8	46		2		3		59	1
Echovirus type 18		1				1		2	7
Echovirus type 21		1			1			2	1
Echovirus type 22		14				4	1	19	18

Table 2. Total laboratory reports by State or Territory of reporting laboratory, 1991, continued

	STATE OR TERRITORY OF REPORTING LABORATORY							Total for 1991	Average 1988 to 1990
	ACT	NSW	Qld	SA	Tas	Vic	WA		
Echovirus type 24				1			1	2	1
Echovirus type 25		1						1	8
Echovirus type 30		1						1	153
Echovirus type 31				1				1	0
Echovirus type 32	1	1						2	0
Echovirus type 33				1				1	1
Echovirus not typed				2		1		3	5
Poliovirus type 1 (uncharacterised)		29		2		8	1	40	51
Poliovirus type 2 (uncharacterised)		37		7		10		54	47
Poliovirus type 3 (uncharacterised)		15		7		4		26	25
Poliovirus untyped		69				5		74	89
Enterovirus type 71 (BCR)		5				5	3	13	9
Rhinovirus (all types)	2	116	75	54	4	376	26	653	650
Picornavirus not typed							1	1	0
Enterovirus not typed/pending	2	191	221	5		92	163	674	635
ORTHO/PARAMYXOVIRUSES									
Influenza A virus	2	7	6	9			30	54	483
Influenza A H1N1						5		5	122
Influenza A H3N2		1						1	95
Influenza B virus	16	88	92	101		100	11	408	175
Influenza C virus			1					1	0
Parainfluenza virus type 1		4	3	5		8	27	47	247
Parainfluenza virus type 2	1	5	20	75		24	18	143	123
Parainfluenza virus type 3	6	116	123	102		175	34	556	526
Parainfluenza virus not typed/pending			6			42	11	59	57
Respiratory syncytial virus	94	620	383	403	32	693	329	2554	2710
Paramyxovirus (unspecified)			3					3	0
OTHER RNA VIRUSES									
Rotavirus	125	858	424	448	46	483	259	2643	1736
Reovirus		7					1	8	8
Coronavirus		29				7		36	8
Astrovirus		19						19	12
Calici virus		37						37	15
Norwalk agent		14		1		6		21	16
Small virus (like) particle		37				21	1	59	38
HTLV-1							8	8	1
HIV-1	1		1				52	54	6
OTHER									
<i>Chlamydia trachomatis</i> (untyped)	88	368	514	465	26	263	891	2615	3120
<i>Chlamydia trachomatis</i> A-K			59					59	0
<i>Chlamydia trachomatis</i> L1-L3			17				1	18	10
<i>Chlamydia pneumoniae</i>		2						2	0
<i>Chlamydia psittaci</i> (ornithosis)	16	24	5	3		87	4	139	89
<i>Chlamydia</i> not typed/pending		1						1	0
<i>Mycoplasma pneumoniae</i>	1	89	14	51		137	89	381	782
<i>Mycoplasma hominis</i>			2					2	0
<i>Coxiella burnetii</i> (Q fever)		98	98	20		16	8	240	250
Other rickettsiae			1					1	3
TOTAL	689	6762	5832	3888	250	7021	6121	30563	32768

Age Distribution

The probable relative over-representation of children's hospital laboratories in the scheme is also reflected in the age distribution of the total 1991 reports (Figure 5). Over one third of the reports are for children aged less than 5 years, compared with only 7.33% of the Australian population. However, it also reflects the high rates of infection known to be experienced by young children as they are exposed for the first time to viruses such as respiratory syncytial virus, rotavirus and the parainfluenza viruses.

Respiratory syncytial virus was the most commonly reported virus for children in the age group less than 1 month (Table 4). Rotavirus was also common, as were

Figure 5. Total laboratory reports and Australian population 1991, by age group, as % of total

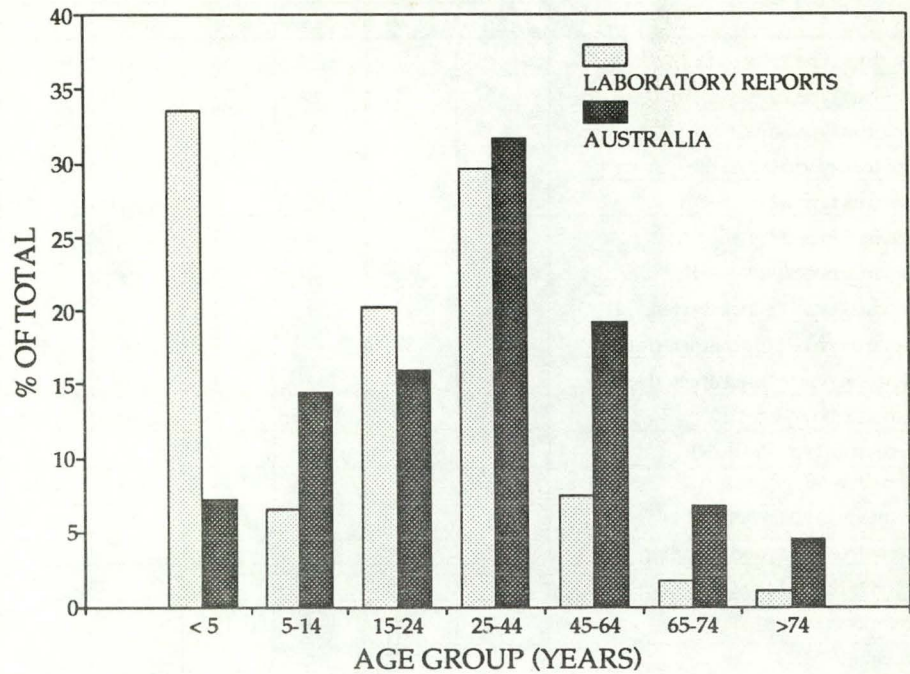


Table 4. The ten most frequently reported viruses, 1991, by age group

Rank	< 1 month		1-11 months	
	Virus	Reports	Virus	Reports
1	Respiratory syncytial virus	52	Respiratory syncytial virus	1733
2	Cytomegalovirus	27	Rotavirus	797
3	Enterovirus not typed/pending	14	Cytomegalovirus	379
4	Rotavirus	13	Adenovirus not typed/pending	368
5	<i>Chlamydia trachomatis</i> untyped	11	Rhinovirus	331
6	Herpes simplex type 2	9	Enterovirus not typed/pending	306
7	Rhinovirus	9	Parainfluenza type 3	248
8	Adenovirus not typed/pending	8	Herpes simplex type 1	70
9	Coxsackievirus type B4	6	Poliovirus untyped	64
10	Parainfluenza type 3	5	Adenovirus type 2	56
Total	All reports	182	All reports	4927

Rank	1-4 years		5-14 years	
	Virus	Reports	Virus	Reports
1	Rotavirus	1483	Herpes simplex type 1	303
2	Respiratory syncytial virus	587	Epstein-Barr virus	259
3	Adenovirus not typed/pending	378	<i>Mycoplasma pneumoniae</i>	125
4	Herpes simplex type 1	320	Rotavirus	119
5	Enterovirus not typed/pending	215	Hepatitis B	115
6	Cytomegalovirus	201	Measles	98
7	Rhinovirus	200	Influenza B	73
8	Parainfluenza type 3	181	Herpes simplex not typed/pending	72
9	Herpes simplex not typed/pending	105	Respiratory syncytial virus	60
10	Epstein-Barr virus	97	Hepatitis A	57
Total	All reports	4425	All reports	1866

Table 4. The ten most frequently reported viruses, 1991, by age group, continued

Rank	15-24 years		25-44 years	
	Virus	Reports	Virus	Reports
1	<i>Chlamydia trachomatis</i> untyped	1395	Herpes simplex type 2	2115
2	Herpes simplex type 2	988	Hepatitis B	968
3	Herpes simplex type 1	896	Hepatitis C	893
4	Epstein-Barr virus	657	Herpes simplex type 1	844
5	Hepatitis B	1532	<i>Chlamydia trachomatis</i>	780
6	Cytomegalovirus	189	Cytomegalovirus	545
7	Herpes simplex not typed	165	Ross River virus	448
8	Hepatitis C	150	Herpes simplex not typed	291
9	Ross River virus	117	Epstein-Barr virus	218
10	Hepatitis A	100	Hepatitis A	194
Total	All reports	5798	All reports	8482

Rank	45-64 years		65-74 years	
	Virus	Reports	Virus	Reports
1	Herpes simplex type 2	341	Herpes simplex type 1	99
2	Herpes simplex type 1	323	Hepatitis B	59
3	Hepatitis B	258	Herpes simplex type 2	53
4	Cytomegalovirus	258	Varicella-zoster virus	44
5	Ross River virus	177	Cytomegalovirus	38
6	Varicella-zoster virus	84	Ross River virus	29
7	Herpes simplex not typed	68	Hepatitis C	23
8	Hepatitis C	60	Epstein-Barr virus	18
9	<i>Chlamydia trachomatis</i> typed	59	Influenza B	17
10	<i>Chlamydia psittaci</i>	51	Herpes simplex not typed/pending	15
Total	All reports	2138	All reports	503

Rank	>75 years	
	Virus	Reports
1	Herpes simplex type 1	60
2	Varicella-zoster virus	43
3	Herpes simplex type 2	20
4	Cytomegalovirus	19
5	Influenza B	16
6	Rotavirus	16
7	Hepatitis B	13
8	Herpes simplex not typed/pending	12
9	Influenza A	8
10	Parainfluenza type 3	7
	<i>Mycoplasma pneumoniae</i>	7
Total	All reports	293

were the 2 most commonly reported viruses. Herpes simplex type 1 was the eighth most common report in the 1 to 11 month age group, the fourth most common in the 1 to 4 year group, and the most common in the 5 to 14 year age group. *Mycoplasma pneumoniae*, hepatitis B virus, measles, influenza B and hepatitis A were in the top ten for the 5 to 14 year age group, but not for younger age groups.

In the 15 to 24 year and 25 to 44 year age groups, agents which are commonly sexually transmitted dominated the top ten viruses reported: *Chlamydia trachomatis*, herpes simplex types 1, 2 and not typed, hepatitis B, cytomegalovirus. Hepatitis C and Ross River virus were in the top ten viruses in these age groups, and not in the younger ones.

In the 45 to 64 year age group, the sexually transmitted viruses were important again, as was Ross river virus, varicella-zoster virus and *Chlamydia psittaci*. In the older adult groups (65 to 74 years, and 75+ years), varicella-zoster virus and the influenza viruses were reported relatively more commonly.

viruses which are acquired congenitally (cytomegalovirus, herpes simplex type 2).

In both the 1 to 11 month age group and the 1 to 4 year age group, respiratory syncytial virus and rotavirus,

Clinical Diagnoses

Information on the clinical diagnosis was provided for 24769 reports (81.0%) in 1991. Genital disease was the most commonly reported syndrome: 5204 or 21.0% of the reports with known clinical diagnosis. Identifications of herpes group viruses and *Chlamydia trachomatis* were the most frequently reported for cases of genital disease (Table 5).

Skin and/or mucous membrane disease was the next most common report (19.6% of known diagnoses). Herpes group viruses were frequently reported, as were measles, rubella and Ross River virus.

Gastrointestinal disease (excluding hepatitis) was reported for 15.2% of cases with known clinical diagnosis, and was most often associated with rotavirus, adenoviruses and enteroviruses.

Lower respiratory tract disease was reported for 12.8% of cases, and upper respiratory tract disease for 10.4%. Respiratory syncytial virus, rhinovirus, parainfluenza viruses, cytomegalovirus, influenza B, adenoviruses and enteroviruses were often reported for both lower and upper respiratory tract disease. *Mycoplasma pneu-*

moniae and *Chlamydia psittaci* were also commonly reported for lower respiratory tract disease, and Epstein-Barr virus and herpes simplex virus type 1 for upper respiratory tract disease.

A total of 5.9% of the reports were of clinically diagnosed hepatitis, for which the hepatitis viruses and herpes group viruses were most often identified.

Reticuloendothelial disease was reported for 602 (2.1%) of the reports. Epstein-Barr virus was identified for 503 of these, and cytomegalovirus was identified for a further 35.

The 471 eye disease reports comprised 1.9% of the total with known diagnosis. They were most commonly associated with herpes group viruses, adenoviruses and *Chlamydia trachomatis* untyped.

Muscle/joint disease was reported for 452 (1.8%) of the reports and Ross River virus was identified for 376 of them (83%).

One hundred and sixty-six reports (0.7%) were of meningitis. The causative organism was identified as an enterovirus in 112 cases (67%), with echovirus type 17 the most commonly reported type (Table 5).

Table 5. The ten most frequently reported viruses, 1991, by clinical diagnosis¹

Rank	Genital Disease		Skin and/or Mucous Membrane Disease	
	Virus	Reports	Virus	Reports
1	Herpes simplex type 2	2178	Herpes simplex type 1	1908
2	<i>Chlamydia trachomatis</i> untyped	1991	Herpes simplex type 2	1724
3	Herpes simplex type 1	636	Varicella-zoster virus	411
4	Herpes simplex not typed	279	Herpes simplex not typed	288
5	Cytomegalovirus	54	Measles	148
6	<i>Chlamydia trachomatis</i> A-K	26	Rubella	80
7	Herpes group untyped	14	Herpes group not typed	57
8	<i>Chlamydia trachomatis</i> L1-L3	13	Ross River virus	53
9			Enterovirus not typed/pending	38
10			Epstein-Barr virus	21
Total	All reports	5204	All reports	4865

Rank	Gastrointestinal Disease		Lower Respiratory Tract Disease	
	Virus	Reports	Virus	Reports
1	Rotavirus	2447	Respiratory syncytial virus	1566
2	Adenovirus not typed/pending	461	<i>Mycoplasma pneumonia</i>	240
3	Enterovirus not typed/pending	282	Rhinovirus	216
4	Small virus (like) particle	59	Parainfluenza type 3	215
5	Poliovirus not typed	59	Cytomegalovirus	212
6	Adenovirus type 2	46	Influenza B	130
7	Calici virus	37	Adenovirus not typed/pending	111
8	Coronavirus	36	<i>Chlamydia psittaci</i>	78
9	Cytomegalovirus	25	Enterovirus not typed/pending	44
10	Norwalk agent	20	Parainfluenza type 2	38
Total	All reports	3756	All reports	3161

Table 5. The ten most frequently reported viruses, 1991, by clinical diagnosis¹, continued

Rank	Upper Respiratory Tract Disease		Hepatitis	
	Virus	Reports	Virus	Reports
1	Respiratory syncytial virus	746	Hepatitis B	874
2	Rhinovirus	313	Hepatitis A	290
3	Cytomegalovirus	244	Hepatitis C	123
4	Parainfluenza type 3	226	Epstein-Barr virus	59
5	Adenovirus not typed/pending	202	Cytomegalovirus	54
6	Epstein-Barr virus	148	Hepatitis D	21
7	Herpes simplex type 1	144	Herpes simplex type 1	11
8	Enterovirus not typed/pending	122		
9	Influenza B	97		
10	Parainfluenza type 2	84		
Total		2573	All reports	1455

Rank	Reticuloendothelial Disease		Eye Disease	
	Virus	Reports	Virus	Reports
1	Epstein-Barr virus	503	Herpes virus type 1	146
2	Cytomegalovirus	35	<i>Chlamydia trachomatis</i> untyped	104
3	Rubella virus	13	Adenovirus type 3	48
4	Mumps virus	11	Adenovirus not typed/pending	47
5			Adenovirus type 8	37
6			Cytomegalovirus	21
7			Adenovirus type 4	19
8			Herpes simplex not typed	10
9			Adenovirus type 37	7
10				
Total	All reports	602	All reports	471

Rank	Muscle/Joint Disease		Meningitis	
	Virus	Reports	Virus	Reports
1	Ross River virus	376	Enterovirus not typed/pending	33
2	Rubella virus	15	Echovirus typed 17	25
3	Epstein-Barr virus	10	Coxsackievirus type A9	17
4	Barmah Forest virus	10	Coxsackievirus type B5	13
5	<i>Coxiella burnetii</i> (Q fever)	9	Adenovirus not typed/pending	8
6	Influenza B	6	Coxsackievirus type B2	8
7	Kunjin virus	5	Coxsackievirus type B4	6
8	Flavivirus (unspecified)	5	Echovirus type 16	5
9			Herpes simplex not typed	5
10			Enterovirus type 71 (BCR)	5
Total	All reports	452	All reports	166

1. Only viruses with 5 or more reports of a diagnosis have been included.

Reports by Virus

The remainder of this report comprises selected details for the viruses and/or virus groups covered by the Scheme, presented in the same order as they appear in Table 2.

Measles Virus

The higher than usual level of measles reports which began in 1990 continued in 1991, so that there were more measles reports (256) than in any year since 1982. Most of the reports (143) were from Victoria, and 56 were from South Australia. The largest number of reports (98) was in the age group 5 to 14 years and 10 of the reports were in infants aged less than 12 months. Skin manifestations, fever/malaise and respiratory

symptoms were the most commonly reported, and there were 3 cases of encephalitis, 1 of meningitis and 3 of SSPE reported. No definite seasonal trend was apparent. Further details about recent measles activity were published in *CDI* 1991;15:313-316.

Mumps Virus

Mumps virus was reported infrequently, as has been usual in recent years; there was a total of only 32 reports. For 30 of these, the age and sex of the patient was reported. There were reports for persons in all age groups (except less than 12 months, and more than 75 years) and 25 of the reports were in males. One case each of encephalitis and meningitis were reported.

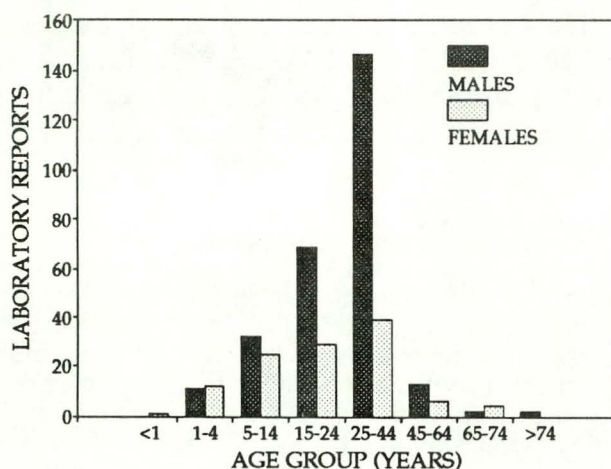
Rubella Virus

There were fewer reports of rubella virus in 1991 than in recent years. A slight seasonal peak occurred in the spring. The largest numbers of reports were received for young adult males (who would not have been vaccinated) and in women of child-bearing age (in whom infection is likely to be detected more often, in connection with antenatal screening). Skin manifestations were the most common clinical feature (80 cases), and there were 15 cases with muscle/joint manifestations, 2 with encephalitis and 5 congenitally infected infants reported. Further details about recent rubella activity and congenital infections were published in *CDI* 1991;15:333-336 and *CDI* 1992;16:140-141.

Hepatitis A Virus

Hepatitis A was reported more frequently than usual, reflecting the outbreaks that occurred in the homosexual communities in several States in 1991. A total of 444 reports were made, peaking in October. The overall male:female ratio was 2.44:1.00 (Figure 6), reflecting much greater numbers of reports in adult males than in other groups in New South Wales, South Australia, Victoria and Western Australia. Further details about 1991 hepatitis A activity were published in *CDI* 1991;15:249-51,384-386.

Figure 6. Hepatitis A reports, 1991, by age group and sex



Hepatitis B Virus

Most of the reports of this virus are based on detection of hepatitis B surface antigen (HBsAg), so little is known about whether reported cases are new or chronic infections. A total of 2182 reports were received, less than has been usual in recent years. The male:female ratio was 1.84:1.00, and the largest numbers of cases were reported for the age groups 25 to 44 years (968 cases) and 15 to 24 years (447 cases). There were only 4 cases detected in infants aged less than 1 month.

Hepatitis C Virus

Hepatitis C was reported for the first time only in 1990 (115 reports) and there were 1208 reports in 1991. As the hepatitis C test cannot distinguish between new, past and chronic infections, some laboratories have not reported their hepatitis C results. The male:female ratio of the cases was 1.72:1.00, and 890 (73.7%) were in persons in the age group 25 to 44 years. The *CDI* hepatitis C data were described in more detail recently, *CDI* 1992;16:142-144.

Hepatitis D Virus

This virus was also reported for the first time in 1990, and there were 37 reports for 1991. Thirty of these were in males, and 29 were in the age group 25 to 44 years.

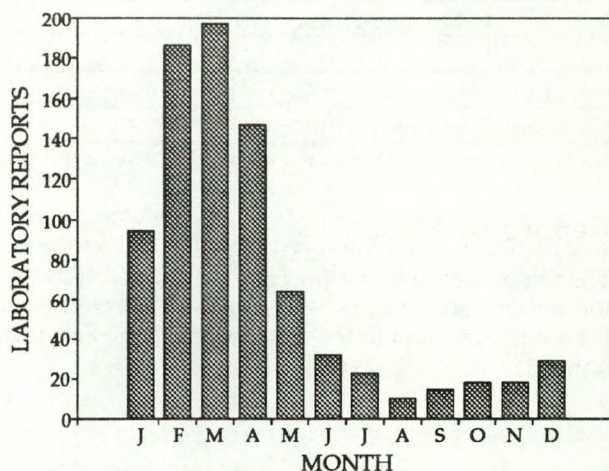
Hepatitis A (non-A, non-B, other)

This report was received for 18 patients. Fourteen of the patients were males.

Ross River Virus

The 832 reports of Ross River virus were fewer than was recorded for the previous 3 years, reflecting the relatively low season in 1990-91, and the slow start to the 1991-92 season (Figure 7). The 1990-91 season peaked in February-March, and largely comprised reports from Brisbane (February peak) and Rockhampton (March peak). Reports received in December reflected an early start to the 1991-92 season in Western Australia, and some activity in Queensland.

Figure 7. Ross River virus reports, 1991, by month



More cases were reported for males than females (ratio 0.85:1.00), and most (742) occurred in persons in the age group 15 to 64 years. Further details of the 1990-91 Ross River virus reports were published in *CDI* 1991;15:339-40.

Barmah Forest Virus

Assays for Barmah Forest virus have recently been developed and the virus was reported 6 times in 1989, 10 times in 1990 and 36 times in 1991. Thirty-one of the 1991 patients were reported from Queensland and 6 were from New South Wales. There were 19 females and 17 males, and 28 were in the age group 25 to 64 years. Ten patients reported muscle/joint disease.

Dengue

A total of 31 reports of dengue were received: 13 type 1, 3 type 2, 1 type 4 and 14 untyped. Many of the infections were known to have been acquired during overseas travel (South-east Asia 4, Solomon Islands 3, Indonesia 1, Bali 1, Thailand 1, Papua New Guinea 1, Singapore 1, unspecified 1).

Kokobera Virus

Kokobera virus was reported to the scheme for the first time in 1991. There was a single report, of a male in the age group 65 to 74 years, from Queensland.

Stratford Virus

Stratford virus was also reported to the scheme for the first time in 1991. There were 3 reports, all of males in the age group 25 to 44 years, from Queensland. Gastro-intestinal symptoms were reported for one of the patients.

Kunjin Virus

There were 14 reports of this virus, all from Queensland laboratories. For 5 of the patients, muscle/joint disease was the reported symptom. No cases of encephalitis associated with this virus were reported.

Murray Valley Encephalitis Virus

Ten reports of Murray Valley encephalitis virus were received, many more than the usual 0 to 3 reports each year. For 4, the reported syndrome was encephalitis.

Flavivirus (untyped)

There were 29 reports of untyped flavivirus, with 26 from Queensland. Muscle/joint disease was reported for 3 of the patients, and skin disease for another. All the patients were over the age of 14 years.

Adenoviruses

A total of 1518 reports of adenoviruses were received, and of these, 552 (36.4%) were typed. Overall, there were 929 reports in males, and 569 reports in females (ratio 1.63:1.00). Type 2 was the most commonly reported type (142 or 25.7% of those typed), followed by type 1 (91 or 16.5%) and type 3 (88 or 15.9%).

Respiratory symptoms were caused mainly by types 2 (64 reports), 1 (42 reports), 3 (24 reports), 5 (22 reports) and untyped (325 reports). Gastrointestinal symptoms

were reported mostly for types 2 (46 reports), 1 (19 reports), 11 (18 reports) and untyped (461 reports). Eye disease was mainly attributed to types 3 (48 reports), 8 (37 reports), 4 (19 reports) and untyped (47 reports). Types 1 and 2 showed slight seasonal peaks in July-August.

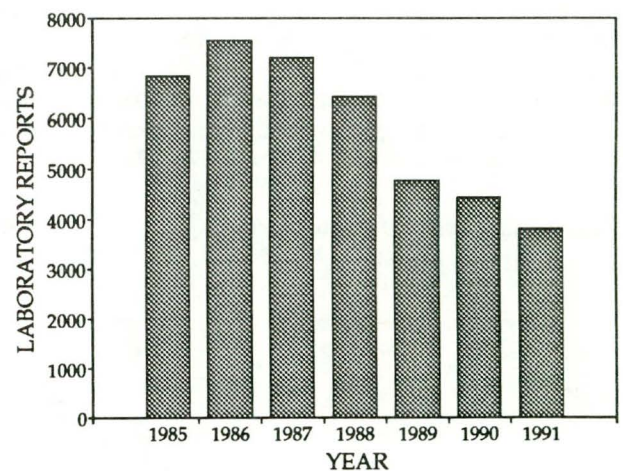
Herpes Simplex Type 1

A total of 3073 reports of herpes simplex type 1 were received, about the same number as in the last few years. There were 1799 reports in females and 1243 in males (ratio 1.00:1.45). Reports occurred for persons in all age groups: 73 in infants less than 1 year, 320 in 1 to 4 years, 303 in 5 to 14 years, 896 in 15 to 24 years, 844 in 25 to 44 years, 323 in 45 to 64 years, 159 in persons aged 65 or over. Skin disease was reported most commonly (1908 reports), followed by genital disease (636 reports), respiratory disease (179 reports) and eye disease (146 reports). There were 2 cases of meningitis and 1 of encephalitis reported.

Herpes Simplex Type 2

Herpes simplex type 2 reports declined, following the trend in recent years (Figure 8). There were 2164 reports in females and 1594 in males (ratio 1.00:1.36). Reports occurred for persons in all age groups, but was most common in the age group 15 to 44 years (3103 or 81.4%). There were 9 reports in infants aged less than 1 month, 3 in infants 1 to 11 months, 6 in 1 to 4 years, 14 in 5 to 14 years, 341 in 45 to 64 years, and 73 in persons aged 65 or over. Genital disease was reported most commonly (1991 reports), followed by skin disease (1724 reports).

Figure 8. Herpes simplex type 2, 1985 to 1991, by year



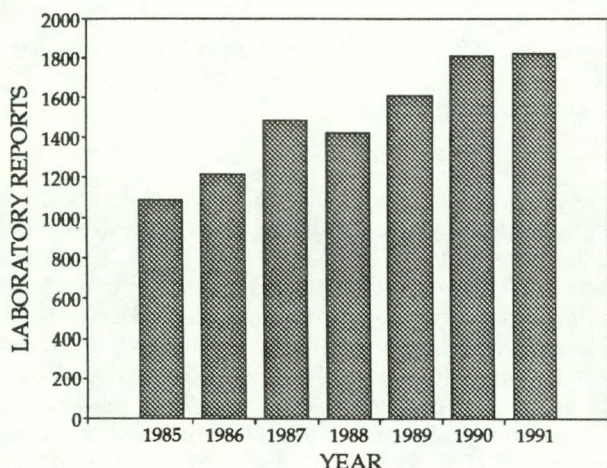
Herpes Simplex Not Typed/pending

A total of 819 untyped herpes simplex reports were received, representing 10.6% of all the herpes simplex reports. There were 458 reports for females and 338 for males, in all age groups. Genital disease was reported for 280 cases and skin disease for 303 cases. Nineteen cases of encephalitis and 5 of meningitis were reported.

Cytomegalovirus

The number of cytomegalovirus reports rose in 1991 to 1820, following the trend in recent years (Figure 9). Most reports were in males (1116, compared with 666 in females). Cases occurred in all age groups, with peaks in both the 1 to 11 month group (379 reports) and in the 25 to 44 year group (545 reports). Respiratory symptoms were reported for 478 cases, genital for 54, hepatic for 54, reticuloendothelial for 33 and eye disease for 21 cases. Congenital infection was reported for 56 children.

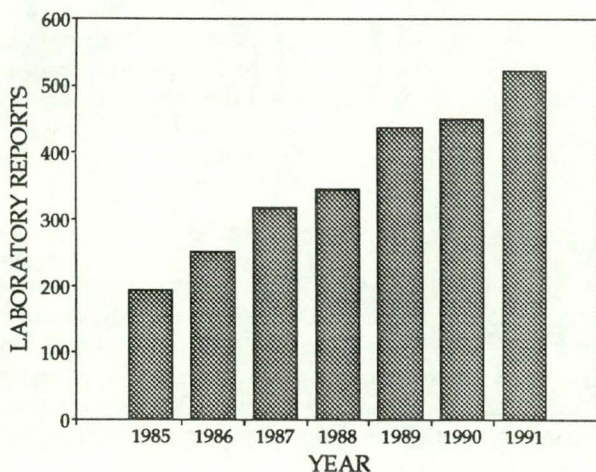
Figure 9. Cytomegalovirus reports, 1985 to 1991, by year



Varicella-Zoster Virus

This virus was also reported more often in 1991, following a rising trend in recent years (Figure 10). It was reported equally in males (264) and females (248). The most cases were reported in the 25 to 44 year age group (657 reports), and it was the second most common report in persons aged over 75 years (43 reports). Skin disease was reported for 411 cases (78.7%), respiratory

Figure 10. Varicella-zoster virus reports, 1985 to 1991, by year

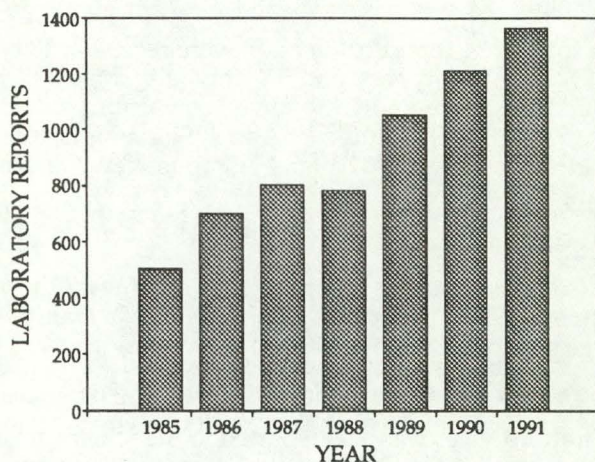


symptoms for 13 cases, encephalitis for 10 cases and meningitis for 1 case.

Epstein-Barr Virus

Epstein-Barr virus was also reported more often in 1991 (Figure 11). There were 677 reports in males and 655 in females. The most cases occurred in the age group 15 to 24 years (657 cases), and 1134 cases (83.3%) occurred in the age group 5 to 44 years. Reticuloendothelial disease was reported for 503 cases, respiratory symptoms for 163 cases, hepatitis for 59 cases and skin disease for 21 cases.

Figure 11. Epstein-Barr virus reports, 1985 to 1991, by year



Herpes Virus Type 6

There was 1 report of this virus in 1989, 1 in 1990 and 3 in 1991. The 1991 reports were all in children aged 1 to 4 years. Skin disease was reported for two of the patients.

Herpes Virus Group, Not Typed

Herpes virus group, not typed was reported 114 times, or for 1% of all herpes group reports. Fifty-seven reports were of skin disease, 12 of encephalitis, 3 of meningitis, 5 of other CNS symptoms, and 2 reports were of eye disease.

Other DNA Viruses

There were 21 reports of molluscum contagiosum, more than for any previous year. Ten were reports of skin disease, and there was 1 report of eye disease and 1 of gastrointestinal symptoms.

Parvovirus was reported to the scheme for the first time in 1991. Twenty-five of the 28 reports were in females. Cases were reported in all age groups to 64 years, and 9 occurred in the 25 to 44 year age group. Skin and muscle/joint manifestations were the most commonly reported symptoms.

Coxsackieviruses Group A

A total of 58 reports of group A coxsackieviruses were received for 1991. As in previous years, the most common types were type A9 (45 reports) and type A16 (8 reports). No outbreaks, as occurred in 1987 with type

A9, were detected. Type 9 affected mainly children (24 aged less than 15), and young adults (16 aged 15 to 44 years). It caused encephalitis in 17 cases, meningitis in 1, other CNS symptoms in 1, respiratory symptoms in 14, and skin disease in 5 cases. Type 16 affected only children between the age of 1 and 14 years. Skin disease was reported for 7 of the patients.

Coxsackieviruses Group B

Group B coxsackievirus infection was reported for 155 patients. The most common types were type B4 (60 cases), B5 (40 cases) and B2 (34 cases). All 3 types affected mainly children, and had the most cases recorded in the 1 to 11 month age group.

Type B4 was reported for 6 cases of meningitis, 2 of encephalitis, 3 of other CNS symptoms, 8 of respiratory symptoms and 8 of gastrointestinal symptoms. Most cases occurred in the winter months. Type B5 was reported for 13 cases of meningitis, 1 of other CNS symptoms, 10 of gastrointestinal symptoms and 7 of respiratory symptoms. Type B2 was associated with 2 reports of encephalitis, 8 of meningitis, and 8 of gastrointestinal symptoms.

Echoviruses

The only notable echovirus outbreak activity which occurred in 1991 was caused by type 17. Fifty-nine cases of this echovirus type were reported, the highest number recorded for any year. Most were from New South Wales, but a few were from Victoria in later months, the ACT and South Australia. There were 37 cases in males, 22 in females. Most were in children and 20 were in infants aged less than 12 months. Meningitis was the reported symptom for 25 patients, encephalitis for 2, and gastrointestinal disease for 7. Reports peaked in June-July (see *CDI* 1992; 16:118).

Echovirus type 22 was reported for 19 patients, about the same number as usual for this endemic virus. Respiratory or gastrointestinal symptoms were recorded for most of the patients.

Types 16, 11, 6 and 9 showed slight epidemic activity. There were 13 reports of type 16, mainly at the end of the year. Five of the reports were of meningitis. Type 11 was reported 10 times, and caused respiratory, gastrointestinal and skin symptoms. There were 9 reports of type 6, with 8 from New South Wales. Eight were in children less than 15 years old, and 3 cases of meningitis were included. The 5 type 9 reports were all from New South Wales, and heralded the increased type 9 activity in 1992.

The higher number of reports for the 1988-90 average (Table 2) for types 4, 9 and 30 reflect the large outbreaks of these viruses which occurred in 1988-89.

Polioviruses

Polioviruses were reported for 194 patients, about the same as average for recent years. The age group for 189 of the patients was under 5 years. Ninety-nine had gastrointestinal disease as the reported syndrome, and 150 had faeces or digestive tract biopsy/postmortem tissue as the source specimen. Respiratory symptoms

were reported for 36 patients, and the virus was isolated from nasopharyngeal specimens for 41 patients. There were two reports of isolates from CSF; for 1, encephalitis was the reported syndrome, and for the other, general malaise was reported. These 2 reports are being further followed-up.

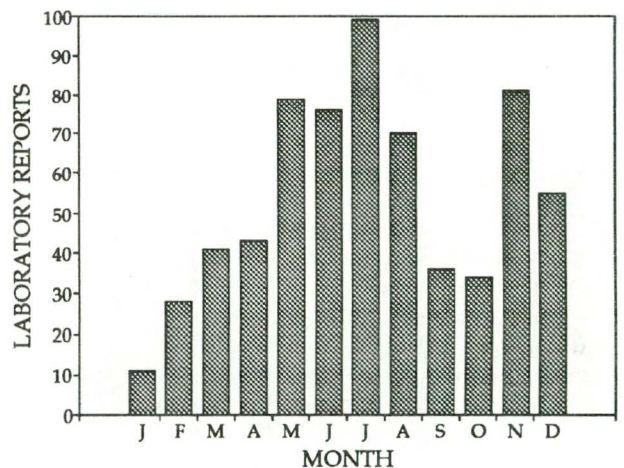
Enterovirus Type 71

There were 13 reports of this virus, with 7 in children aged 1 to 4 years. Included were 5 cases of meningitis and 5 cases of skin disease.

Rhinoviruses

The 653 reports of rhinoviruses was about the same as the average reported in recent years. There were 394 reports in males and 244 in females (ratio 1.61:1.00). Most reports were for young children, with 9 reports for the age group less than 1 month, 331 for the group 1 to 11 months, and 46 for the group 1 to 4 years. Respiratory disease was reported for 97.7% of cases (555), with 313 reports of upper respiratory tract disease, 216 of lower respiratory tract disease, and 26 of unspecified respiratory tract disease. There was a slight seasonal peak in July (Figure 12).

Figure 12. Rhinoviruses reports, 1991, by month



Enteroviruses Not Typed/Pending

There were 695 reports of untyped enteroviruses and picornaviruses. There were 380 reports in males and 283 in females (ratio 1.34:1.00). Most reports were for young children, with 14 reports for the age group less than 1 month, 306 for the group 1 to 11 months, 215 for the group 1 to 4 years, and 55 for the group 5 to 14 years.

Meningitis was reported for 33 patients, encephalitis for 5, other CNS symptoms for 16, gastrointestinal for 282 and respiratory disease for 174 cases.

Influenza A

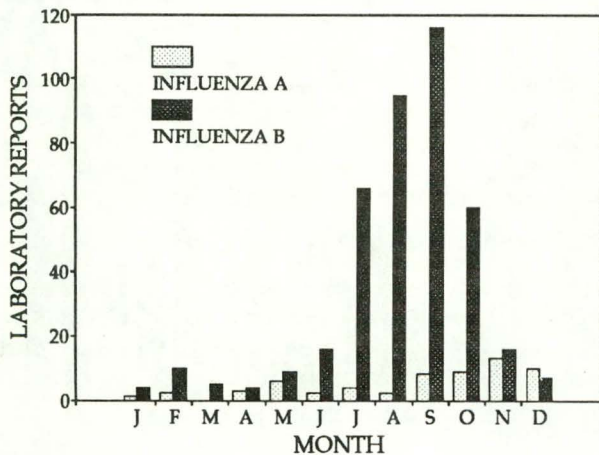
Only 60 reports of influenza A (54 untyped, 5 H1N1, 1 H3N2) were received for 1991, the smallest number ever received for a year. Thirty of the reports were from Western Australia.

Most of the reports were for adults, and 16 cases were recorded in persons over the age of 65 years. Lower respiratory tract disease was reported for 33 of the patients, and upper or unspecified respiratory tract disease for 13. There was a slight peak at the end of the year (Figure 13).

Influenza B

1991 was an epidemic year for influenza B, and a similar number of reports were received as for the previous epidemic years of 1989, 1987, and 1985. Similar numbers of males and females were reported (216 males and 184 females). Reports were fairly evenly spread amongst the age groups: 45 in infants less than 12 months, 52 in 1 to 4 years, 73 in 5 to 14 years, 46 in 15 to 24 years, 91 in 25 to 44 years, 47 in 45 to 64 years, 17 in 65 to 74 years, and 16 in 75+ years. Lower respiratory tract disease was reported for 130 of the patients, and upper or unspecified respiratory tract disease for 133. Muscle/joint disease was specified as the primary diagnosis for 6 patients, and cardiovascular disease for 5 patients. The seasonal peak was in August-September (Figure 13).

Figure 13. Influenza A and Influenza B reports, 1991, by month



Parainfluenza Virus Type 1

Parainfluenza type 1 was only reported 47 times in 1991, with a slight peak in April (Figure 14). Forty-one of the reports were in children aged less than 5 years, and 25 were in the 1 to 11 month age group. Upper (18), lower (25) and unspecified (2) respiratory tract disease were the most commonly reported symptoms.

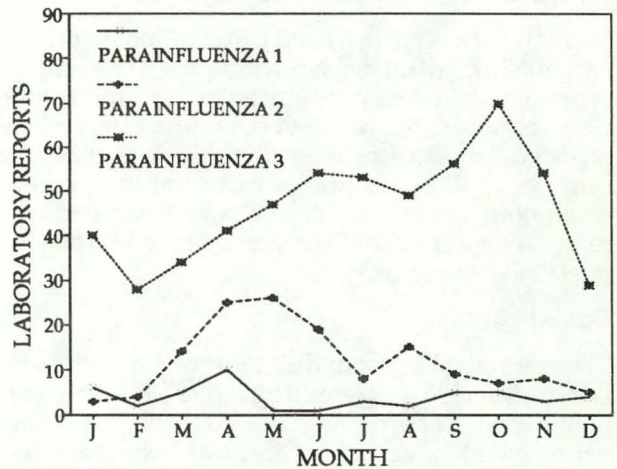
Parainfluenza Virus Type 2

Parainfluenza type 2 was reported for 143 patients in 1991, with a seasonal peak in April-May (Figure 14). Males were reported 82 times, and females 61 times. There were 133 reports in children aged less than 15 years, with 65 in the 1 to 4 year age group. Upper (84), lower (38) and unspecified (13) respiratory tract disease were commonly reported symptoms.

Parainfluenza Virus Type 3

Parainfluenza type 3 was reported at about the same rate as in recent years, and had a slight seasonal peak in spring (Figure 14). Males were reported 329 times, and females 222 times. There were 248 reports in children aged 1 to 11 months, and 181 in those aged 1 to 4 years. Upper (226), lower (215) and unspecified (45) respiratory tract disease were the most commonly reported symptoms.

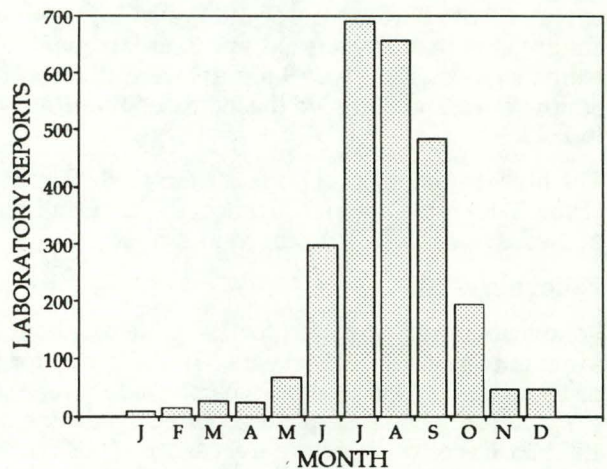
Figure 14. Parainfluenza virus reports, 1991, by month



Respiratory Syncytial Virus

A total of 2554 reports of respiratory syncytial virus were received for 1991, with a peak of 688 reports for July (Figure 15). The male to female ratio of cases was 1.40:1.00 (1468 cases to 1049 cases). A total of 2370 reports (92.9%) were for children aged less than 5 years, and 1731 (67.8%) were for infants aged 1 to 11 months. Upper (746), lower (1562) and unspecified (119) respiratory tract disease were the most commonly reported symptoms.

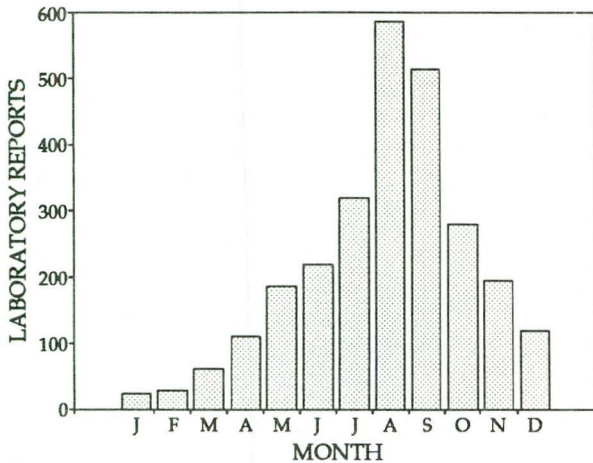
Figure 15. Respiratory syncytial virus reports, 1991, by month



Rotavirus

More rotavirus reports were received than for any previous year. Gastrointestinal symptoms were reported for 2439 (95.5%) of the patients. The largest number of reports was for children aged 1 to 4 years, and there were more for males (1460) than for females (1147). The seasonal peak occurred in August (Figure 16).

Figure 16. Rotavirus reports, 1991, by month



HTLV-1

Human lymphotropic virus type 1 was reported to the scheme for the first time in 1990 (3 reports) and for 8 patients in 1991. Three of the patients were females and 5 were males. They were all in the age group 15 to 64 years.

HIV

Only some of the Scheme's laboratories report HIV diagnoses. There was a total of 54 reports, 51 in males and 3 in females. They were all in the age group 15 to 64 years.

Other RNA Viruses

Other RNA viruses reported were reovirus, coronavirus, astrovirus, calici virus, Norwalk agent and small virus-like particles. Gastrointestinal disease was the reported symptom for 176 (97.8%) of the 180 reports in this group.

Chlamydia trachomatis

Chlamydia trachomatis was reported for 2692 patients. For 2615, it was untyped, for 59, it was typed as A-K, and for 18, as L1-L3. Females were reported more times for untyped (females 1498, males 1080) and type A-K (females 32, males 27), and males were reported more often for type L1-L3 (males 10, females 7). The typed reports were only for persons over the age of 15 years.

The untyped *C. trachomatis* occurred mainly in adults in the age groups 15 to 24 years (1395 reports) and 25 to 44 years (780 reports), and there were 83 reports in children aged less than 5 years, many associated with eye disease. Overall, 107 reports (4.0%) were of eye disease and 2217 (82.4%) were of genital disease.

Chlamydia pneumoniae

Chlamydia pneumoniae was reported to the scheme for the first time in 1991. Lower respiratory tract disease was reported for the 2 patients, 1 female and 1 male in the age group 45 to 74 years.

Chlamydia psittaci

Ornithosis was reported for 139 patients, many more than has been usual in recent years. There were 78 cases in males and 60 in females. The largest number of reports were in the age groups 25 to 44 years (53 reports) and 45 to 64 years (51 reports). Symptoms reported included lower respiratory tract disease (78 cases) and eye disease (3 reports). Eighty-seven reports were from Victorian laboratories.

Mycoplasma pneumoniae

Mycoplasma pneumoniae infections tend to peak every 5 years in Australia, and the last peak year was 1988. In 1991, only 381 reports were received, peaking in November (see *CDI* 1992;16:100). The largest number of reports was for the age group 5 to 14 years (125 reports, followed by the 25 to 44 year group (89 reports). There were more reports in males (202) than in females (171). A total of 240 reports were of lower respiratory tract disease, and 33 were of upper or unspecified respiratory tract disease. There were also 3 reports of CNS symptoms and 2 of muscle/joint disease.

Mycoplasma hominis

Mycoplasma hominis was reported for the first time in 1991. There were two patients, both females in the age group 15 to 44 years. Genital disease was the reported syndrome in both cases.

***Coxiella burnetii* (Q Fever)**

There were 240 reports of Q fever, with 98 each from laboratories in New South Wales and Queensland. Males comprised most of the patients (203 males, 33 females), and 215 (90%) of the patients were in the age group 15 to 64 years (106 in the age group 25 to 44 years). Thirty-four were described as either meat or farm workers. Respiratory tract, muscle/joint, gastrointestinal, cardiovascular and hepatic symptoms were reported.

Acknowledgement

The continuing contributions of all the laboratories which are our partners in this surveillance scheme is gratefully acknowledged.

OVERSEAS BRIEFS

In the last two weeks, the following information has been supplied by the World Health Organization and the Department of Foreign Affairs and Trade.

Cholera Update

Reports from Africa in the last two weeks are of the first cases in Kenya for some time. A total of 680 cases and 13 deaths were reported in March and April. The affected areas are not yet known.

In the Americas, Costa Rica reported its first 3 cases (2 imported) in April. The San Jose Province has been declared infected. In Mexico, cases were reported for March and April, and the Neuvo Leon State has been declared infected. Nicaragua also reported cases for March and April, and Carazo and Managua Departments have been declared infected. Venezuela, Bolivia, Guatemala and Ecuador also reported cases in the last two weeks.

Meningitis in Saudi Arabia

An outbreak of meningococcal meningitis types A and C has occurred in Jeddah in Saudi Arabia, and has spread to Riyadh and other major centres.

In response, the Saudi Arabian Ministry of Health has introduced vaccination procedures for persons arriving in the country. At airports, this has included vaccination of passengers prior to leaving the terminals.

Viral Haemorrhagic Fever in Monkeys from the Philippines

The World Health Organization Collaborating Centre on Virus Reference and Research in London has recently reported that 8 of a group of 55 cynomolgus monkeys which were imported into Italy on 10 March died within 4 weeks of arrival. Postmortem examinations revealed marked splenomegaly and widespread small haemorrhages in many tissues. Laboratory investigations showed significant rise to antibody to filovirus in one animal, and viruses have been isolated from 3 monkeys and confirmed as filoviruses by electron microscopy. The remaining 47 animals have been destroyed.

Staff in contact with the monkeys are being clinically and serologically monitored, and have not yet shown signs of infection. This outbreak is similar to that in 1989-90, which involved the same monkey species, also from the Philippines, and resulted in no human illness.

COMMUNICABLE DISEASES SURVEILLANCE

Laboratory Reporting Schemes

There were 1344 reports received in the *CDI* 'Viruses' Reporting Scheme this fortnight (Tables 6,7 and 8), and 180 reports received for LabDOSS (Sterile Sites Surveillance) for April (page 224).

- There were 30 reports of **influenza A**. Five were further identified as H3N2, and 2 were reported as A/Beijing/353/89-like. There were 5 reports in persons over the age of 65 years (3 females and 2 male).
There have now been 109 reports of influenza A with 1992 specimen collection dates, many more than were recorded by this time of year for any type of influenza in previous years.
- Twenty-six reports of **parainfluenza virus type 1** were received, bringing the total for the year so far to 149. In Australia, the seasonal peak in the activity of this virus usually occurs in April or May.
- There were 19 reports of **parainfluenza type 3**. Included were 3 cases which were probably acquired nosocomially, a female oncology patient aged 2 years, a 10 month old male oncology patient and an 11 month old male patient who also had cytomegalovirus infection.
- **Respiratory syncytial virus** was reported for 82 patients, bringing the total for April to 88 and for the year to 243. This is many more than the 75 reports of this virus which had been received by this time last year.
- There were 310 reports of **Ross River virus** infection, mainly from Queensland laboratories. For 232 reports, the specimen collection dates were in March, for 53 they were in February, and for 23 they were in April. This has brought the total reported with 1992 specimen collection dates to 590, more than the number of reports received by this time of year for any year since 1989. This fortnight, locations reported were the Northern Territory, 4 (Nhulunbuy 2, Darwin 2), Western Australia, 4 (Mandurah 1, not stated 3), New South Wales, 6 (Northern Rivers 1, Sydney 1, Newcastle 2, not stated 2) and Queensland 296 (Brisbane 113, Rockhampton 52, Townsville 24, Cairns 20, Gladstone 13, Toowoomba 8, Mackay 7, Sunshine Coast 7, Maryborough 6, Beenleigh 5, elsewhere and not stated 40).
- There were 52 reports of **Barmah Forest virus**. Thirteen were from Northern Territory locations, with 5 specified as being from Nhulunbuy. The remainder were reported from Queensland: Brisbane,

Cairns, Gold Coast, Mackay, Roma, Rockhampton, Townsville and Toowoomba.

- The 2 reports of **dengue 2** this fortnight were for the two Townsville patients who acquired their infections locally (reported in detail in *CDI* 1991;16:192-93). **Untyped dengue** was reported for 6 patients, including a 64 year old male who had recently returned from Sri Lanka.
- A further 2 cases of **echovirus type 9** infection have been reported. One was an 11 month old male from Sydney (CSF isolate). The other was the first recent report of this virus from Western Australia. The patient was a 10 year old female with meningitis.
- Reports of 2 rare echoviruses were received this fortnight. **Echovirus type 24** meningitis was reported in a 3 month old female from Western Australia. This virus has only been reported once or twice each year recently. **Echovirus type 25** meningitis was reported for a 39 year old female in South Australia. This was only the third report of this virus since 1990.
- There were 6 laboratory reports of **rubella** this fortnight. One was in a 22 year old female who was pregnant, and 2 others were in women of reproductive age (21 years, and in the age group 25 to 44 years).
- **Untyped herpes simplex type 1** was reported for 36 patients. Encephalitis was the reported syndrome for 3 patients, a 53 year old male and a females aged 9 years and 8 months.
- **Cytomegalovirus** infection was reported for 71 patients. Included were 16 pregnant women, 4 congenitally infected infants (females aged 1 day and 2 months, males aged 2 months and 3 months) and the virus was isolated from respiratory tract postmortem tissue of a male infant who had suffered SIDS.
- There were 18 reports of **Q fever**, 3 in females and 15 in males. Five of the male patients were described as meatworkers and 1 of the females was described as a farmer.

- Six reports of infection with *Toxoplasma gondii* were received. Three of the patients were pregnant females in the age group 25 to 44 years.

Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network collected data from 6982 patient encounters in Week 18 and 5905 patient encounters in Week 19 (Table 1). Influenza was reported at a rate of 9.02 cases per 1000 encounters in Week 18, the highest rate so far for this season.

National Notifiable Diseases Reports, 19 April to 2 May 1992

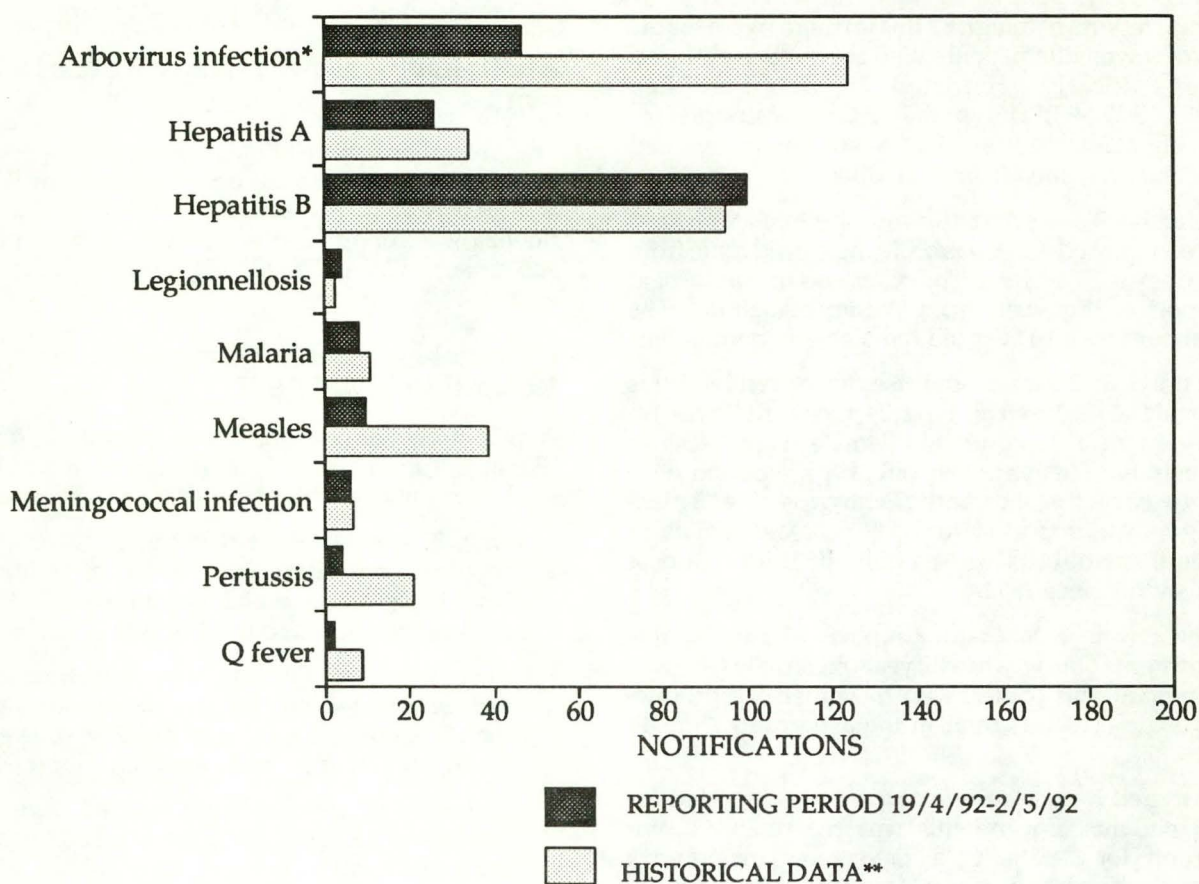
A total of 739 notifications were reported this fortnight (Figure 1, Tables 3,4 and 5). Notifications from Queensland were not available at the time of publication.

- Only 31 cases of **Ross River virus** infection were reported, reflecting the absence of notifications from Queensland, which has reported 2331 of the 2949 cases notified so far this year.
- There were 9 notifications of invasive *Haemophilus influenzae* infection. Three patients were aged less than 12 months, 1 was 1 year old, 2 were 2 years old and the remaining 3 were aged 12, 13 and 69 years.
- Ten cases of **measles** were notified. Ages of the patients were less than 12 months (2), 1 year (3), 2 years and 6 years.
- Nine cases of **rubella** were notified. None were in women of child bearing age.
- The single case of **tetanus** notified was a 60 year old male from Victoria.
- The case of **cholera** from South Australia is the same one that was reported in detail in the last issue of *CDI* (16:193-94).

Table 1. Australian Sentinel Practice Research Network, Weeks 18 and 19, 1992

Condition	Week 18, to 3 May 1992		Week 19, to 10 May 1992	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	63	9.02	45	7.62
Measles	1	0.14	0	0
Mumps	3	0.43	0	0
Rubella	1	0.14	3	0.51
Pertussis	0	0	0	0
Genital herpes	5	0.72	2	0.34
Gastroenteritis	0	0	0	0

Figure 2. Selected National Notifiable Diseases Reports, 19 April to 2 May 1992 and historical data**



*Includes Ross River virus and Dengue

**The Historical data are the averages of the number of notifications in 6 previous 2-week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Sterile Sites Surveillance

The LabDOSS (Laboratory Database of Organisms from Sterile Sites) system has now been sent out to 24 laboratories. Data for April have been provided by six laboratories, of which repatriation General Hospital, Concord, Royal North Shore Hospital and Toowoomba General Hospital are new additions to the Scheme.

A total of 183 reports were received for April (Royal Prince Alfred 53, Liverpool 27, Concord 43, Royal North Shore 49, Central Queensland Pathology Laboratory 3 and Toowoomba 8).

Organisms reported 5 or more times from blood are detailed in Table 2. Other blood isolates reported include 2 *Haemophilus influenzae* type B. One was from 4 year old female with pneumonia and the other was from a 6 month old female with forearm osteomyelitis.

Other blood isolates not included in Table 2 were:

Gram positive: 3 *Staphylococcus* coagulase negative, 4 *Streptococcus pneumoniae*, 2 *Streptococcus* Group B, 1 *Streptococcus sanguis*, 1 *Streptococcus 'milleri'*, 3 *Streptococcus* species, 1 *Enterococcus* species, 1

Corynebacterium JK, 1 *Corynebacterium* species, 2 *Bacillus cereus*, 1 *Bacillus* species.

Gram negative: 1 *Proteus mirabilis*, 1 *Morganella morganii*, 1 *Enterobacter aerogenes*, 2 *Enterobacter* species, 1 *Pseudomonas* species, 2 *Aeromonas hydrophila*, 1 *Acinetobacter calcoaceticus*, 3 *Acinetobacter* species, 1 *Citrobacter freundii*, 1 *Camylobacter jejuni*, 2 *Xanthomonas maltophilia*, 2 *Serratia liquefaciens*.

Anaerobes: 3 *Bacteroides fragilis*, 2 *Bacteroides corporis*, 2 *Bacteroides* species, 1 *Fusobacterium* sp.

Mycobacteria: 1 *Mycobacterium* species.

Fungi: 3 *Candida albicans*.

CSF Isolates and Meningitis Reports

There were two reports of meningitis due to *Streptococcus pneumoniae* isolated from blood. One was a 7 month old female and the other was a 15 month old child. Other CSF isolates were *Acinetobacter iwoffii* from a 32 year old male, *Propionibacterium acnes* from a 67 year old male, and *Staphylococcus epidermidis* from a 75 year old male.

Isolates from Sites other than Blood or CSF

Peritoneal dialysate: 1 *Enterobacter cloacae*, 1 *Escherichia coli*, 5 *Staphylococcus epidermidis*, 1 *Micrococcus* species, 1 *Pseudomonas stutzeri*.

Joint fluid: 1 *Acinetobacter* species, 2 *Staphylococcus aureus*, 1 *Staphylococcus epidermidis*.

Pleural fluid: 1 *Bacteroides* species, 1 *Pseudomonas* species, 1 *Staphylococcus aureus*.

Other: *Escherichia coli* (peritoneal swab from perforated appendix), *Staphylococcus aureus* (thoracic diskitis).

Table 2. Sterile sites surveillance of reports of blood isolates for April 1992¹

Organism	Total ¹	Clinical Information						Risk Factors			
		Lower respiratory	Endocarditis	Gastrointestinal	Urinary Tract	Bone/Joint	Skin	Surgery	Immunosuppressed	IV line	Perinatal
<i>Staphylococcus aureus</i>	20	1	1		1	1	7	2	3	9	
<i>Staphylococcus epidermidis</i>	17		1				1	1	1	13	1
<i>Enterococcus faecalis</i>	6			2				1	3	1	
<i>Escherichia coli</i>	29			4	15			2	13	1	1
<i>Klebsiella</i> species ²	15			4	3		1	2	4	2	
<i>Pseudomonas aeruginosa</i>	7	1		2	3			1	4		
<i>Enterobacter cloacae</i>	8	2		2	2		1	2	3	1	

1. Only organisms with 5 or more reports are included in this table.

2. Includes 12 *K. pneumonia* and 1 *K. oxytoca*.

Table 3. Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 19 April to 2 May 1992

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA			
									This Period 1992	This Period 1991	Year to Date 1992 ¹	Year to Date 1991
Diphtheria	0	0	0		0	0	0	0	0	0	5	3
Measles	1	4	0		0	0	5	0	10	119	312	466
Mumps	NN	0	NN	NN	NN	NN	0	NN	0	NN	0	NN
Pertussis	NN	0	0		0	0	4	0	4	8	173	162
Poliomyelitis	0	0	0		0	0	0	0	0	0	0	0
Rubella ²	0	0	0		2	0	7	0	9	33	156	145
Tetanus	0	0	0	NN	0	0	1	0	1	0	5	3

1. 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.

2. NT, Tas, WA: CRS only; ACT, NSW, Qld: rubella only; SA, Vic rubella and CRS
NN Not Notifiable.

Table 4. Other Notifiable Diseases¹, for the reporting period 19 April to 2 May 1992

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA			
									This Period 1992	This Period 1991	Year to Date 1992 ²	Year to Date 1991
Arbovirus infection (NEC) ³	0	5	NN		7	0	1	0	13	15	225	217
Ross River virus infection	1	-	11		0	NN	11	8	31	307	2949	2547
Dengue	NN	-	0		-	NN	3	NN	3	6	9	40
Campylobacteriosis ⁴	NN	-	16		73	5	38	19	151	425	2621	2497
Chlamydial infection (NEC) ⁵	4	NN	12		0	1	31	0	48	121	1797	1173
Donovanosis	0	NN	0		NN	NN	0	1	1	1	18	19
Gonococcal infection ⁶	0	5	15		0	0	5	37	62	101	854	753
Haemophilus influenzae type b ⁷	NN	3	NN		0	0	6	NN	9	17	155	122
Hepatitis A	1	9	4		2	0	10	0	26	61	645	369
Hepatitis B	0	34	0		0	1	62	3	100	150	1925	1349
Hepatitis C	3	36	NN		NN	2	24	NN	65	180	2396	841
Hepatitis (NEC)	NN	2	0		0	0	1	NN	3	23	13	117
HIV infection ⁸	1	0	0		1	0	0	0	2	1	38	9
Legionellosis	NN	4	0		0	0	0	0	4	5	47	38
Leptospirosis	0	0	0		0	1	0	0	1	14	48	53
Listeriosis	NN	0	NN		NN	0	2	0	2	4	18	14
Malaria	2	0	0		2	0	3	1	8	48	251	277
Meningococcal infection	0	4	0		0	0	2	0	6	13	49	79
Ornithosis	0	NN	0		0	0	2	0	2	2	44	31
Q fever	0	1	0		0	0	1	0	2	28	138	264
Salmonellosis (NEC)	0	5	11		22	9	24	21	92	362	2025	2355
Shigellosis ⁴	0	-	11		7	0	2	1	21	39	211	355
Syphilis	1	7	7		0	0	1	15	31	95	705	702
Tuberculosis	0	7	2		3	1	1	0	14	13	208	115
Typhoid ⁹	0	0	0		0	0	0	0	0	2	12	29
Yersiniosis ⁴	0	0	0		14	0	0	0	14	47	239	207

- For rarely notified diseases, see Table 5.
 - Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of notifications and the increment in the cumulative figure from the previous period.
 - NSW and SA: includes Ross River virus and dengue.
 - NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
 - ACT: trachoma only.
 - NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
 - SA: only as 'bacterial meningitis'; meningococcal infection is separately notified; Tas: only as 'non-meningococcal meningitis'; Vic: eppiglottitis and meningitis only.
 - More complete data on new diagnoses of HIV infections are presented in the monthly *Australian HIV Surveillance Report*. ACT: AIDS only.
 - NSW and Vic: includes paratyphoid.
- NN Not Notifiable.
 NEC Not Elsewhere Classified.
 - Elsewhere Classified.

Table 5. Rarely Notified Diseases¹ for the reporting period 19 April to 2 May 1992

DISEASES	Total this period	Reporting States or Territories	Total for 1992 to Date
Botulism			0
Brucellosis			5
Cholera	1	SA	1
Chancroid	3	WA	4
Hydatid infection			10
Leprosy			5
Lymphogranuloma venereum			0
Plague			0
Rabies			0
Yellow fever			0
Other viral haemorrhagic fevers			0

- Fewer than 50 cases of each of these diseases were notified each year during the period 1986 to 1991.

Table 6. Laboratory reports by State or Territory of reporting laboratory for the reporting period 22 April to 5 May 1992, historical data¹, and total reports for the year

	STATE OR TERRITORY OF REPORTING LABORATORY							Total this fortnight	Historical data ¹	Total reported this year
	ACT	NSW	Qld	SA	Tas	Vic	WA			
MEASLES, MUMPS, RUBELLA										
Measles virus		1	1					2	7.8	69
Rubella virus		1	4				1	6	6.0	80
HEPATITIS VIRUSES										
Hepatitis A virus	1	2	1			2		6	14.2	136
Hepatitis B virus		23	25	1		14	5	68	110.5	812
Hepatitis C virus	7	1	1	20	1		19	49	5.5	789
Hepatitis D virus			3					3	.0	15
Non-A, non-B hepatitis (other)					3			3	.0	3
ARBOVIRUSES										
Ross River virus		1	303				6	310	42.8	637
Barmah Forest virus			40				12	52	.3	93
Dengue type 2			2					2	.2	3
Dengue not typed						1	5	6	.3	15
Murray Valley encephalitis virus			1					1	.5	1
ADENOVIRUSES										
Adenovirus type 1		1			1			2	3.5	38
Adenovirus type 2						1		1	7.5	40
Adenovirus type 5						1		1	1.0	6
Adenovirus type 11						1		1	.7	6
Adenovirus not typed/pending		3	1	7		3	2	16	28.7	340
HERPES VIRUSES										
Herpes simplex virus type 1		8	21	12	3	31	17	92	113.7	1,388
Herpes simplex virus type 2		30	16	14	2	28	42	132	151.0	1,640
Herpes simplex not typed/pending	2	22	3	2		3	2	34	31.3	314
Cytomegalovirus		10	33		3	19	6	71	58.8	780
Varicella-zoster virus		3	2			4	11	20	17.5	253
Epstein-Barr virus		4	46	5		7	1	63	44.7	607
Herpes virus group - not typed							1	1	6.5	28
OTHER DNA VIRUSES										
Parvovirus		2				2		4	.0	50
PICORNA VIRUS FAMILY										
Coxsackievirus B3							1	1	.5	5
Coxsackievirus B5				1		1		2	1.3	22
Echovirus type 9		1					1	2	.7	22
Echovirus type 14		1						1	.5	3
Echovirus type 24							1	1	.0	1
Echovirus type 25				1				1	.2	2
Enterovirus type 71 (BCR)		1						1	.2	7
Enterovirus not typed/pending		9	4			3	17	33	33.2	373
Poliovirus type 1 (uncharacterised)		1						1	1.0	17
Poliovirus type 3 (uncharacterised)				2				2	1.0	10
Rhinovirus (all types)		2			1	13	1	17	17.0	256
ORTHO/PARAMYXOVIRUSES										
Influenza A virus H3N2		4				1		5	.2	15
Influenza A virus		1	1	14		7	2	25	2.0	107
Influenza B virus			2					2	2.0	34
Parainfluenza virus type 1		5		6		15		26	31.7	153

Table 7. Laboratory reports by clinical information for the reporting period 22 April to 5 May 1992, continued

	Encephalitis	Meningitis	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other	Total
Adenovirus not typed/pending				3	9						4	16
HERPES VIRUSES												
Herpes simplex virus type 1				9			57	7		16	3	92
Herpes simplex virus type 2				1			60			65	6	132
Herpes simplex not typed/pending	3			2			14	1		4	10	34
Cytomegalovirus			4	14	1	2	1				49	71
Varicella-zoster virus	1						18				1	20
Epstein-Barr virus		1		7		1	1		1		52	63
Herpes virus group - not typed							1					1
OTHER DNA VIRUSES												
Parvovirus							2		1		1	4
PICORNA VIRUS FAMILY												
Coxsackievirus B3							1					1
Coxsackievirus B5		1									1	2
Echovirus type 9		1									1	2
Echovirus type 14							1					1
Echovirus type 24		1										1
Echovirus type 25		1										1
Enterovirus type 71 (BCR)		1										1
Enterovirus not typed/pending	1	11	1	4	7			1			8	33
Poliovirus type 1 (uncharacterised)											1	1
Poliovirus type 3 (uncharacterised)					2							2
Rhinovirus (all types)		1		15							1	17
ORTHO/PARAMYXOVIRUSES												
Influenza A virus H3N2				3							2	5
Influenza A virus				16							9	25
Influenza B virus									1		1	2
Parainfluenza virus type 1				25							1	26
Parainfluenza virus type 2				3								3
Parainfluenza virus type 3				17							2	19
Parainfluenza virus typing pending				4							1	5
Respiratory syncytial virus				80			1				1	82
OTHER RNA VIRUSES												
Rotavirus				1	32						3	36
Small virus (like) particle					4							4
OTHER												
<i>Chlamydia trachomatis</i> not typed								2		67	17	86
<i>Chlamydia psittaci</i>				3							1	4
<i>Mycoplasma pneumoniae</i>	2			11							7	20
<i>Mycoplasma hominis</i>											1	1
<i>Coxiella burnetii</i> (Q fever)									2		16	18
TOTAL	7	19	5	226	56	44	186	11	135	152	505	1,344

Table 8. Laboratory reports by contributing laboratories for the reporting period 22 April to 5 May 1992

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Garran	23
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	102
	Prince Henry/Prince of Wales Hospitals, Sydney	50
	Royal Alexandra Hospital for Children, Camperdown	28
Queensland	Dr TB Lynch, Pathologist, Rockhampton	106
	State Health Laboratory, Brisbane	487
	Toowoomba Pathology Laboratory	4
South Australia	Institute of Medical & Veterinary Science, Adelaide	104
Tasmania	Royal Hobart Hospital	21
Victoria	Fairfield Hospital, Melbourne	140
	Microbiological Diagnostic Unit, University of Melbourne	11
	Royal Childrens Hospital, Melbourne	68
Western Australia	Princess Margaret Hospital, Perth	25
	State Health Laboratory Services, Perth	175
TOTAL		1344