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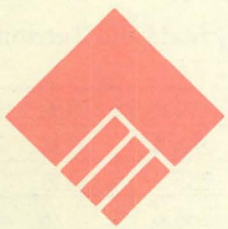


DEPARTMENT OF HEALTH, HOUSING AND COMMUNITY SERVICES

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

NATIONAL SALMONELLA SURVEILLANCE SCHEME HUMAN ANNUAL REPORT 1991

(Reproduced with acknowledgement from the National Salmonella Surveillance Scheme Quarterly Report, August 1992, Editor Joan Powling)

Human Isolates - 1991 Annual Summary

A total of 7,292 reports were received for 1991 (Table 1).

There were 6,232 reports of salmonellosis which was almost the same as that for 1990 (6,250; the published figure for total reports in the 1990 Annual Report was 6,196. After the inclusion of late submissions the figure was amended to 6,250). The case rate of *Salmonella* infection increased in the past year in Tasmania (54%) and the Northern Territory (10%) and decreased in South Australia (23%) and Queensland (11%). There was little change in the other States and the ACT (Table 2, Figure 1). There has been a steady increase in case rate in Victoria and Tasmania since 1985.

There was a ten per cent decrease Australia-wide in the number of cases of *Shigella* infection despite the 21 per cent increase in the case rate from the Northern Territory.

Twenty outbreaks were associated with *Salmonella* infections, two with *Shigella* infections and there was one incident of food poisoning by prawns contaminated with *Vibrio parahaemolyticus*. Of the *Salmonella* outbreaks, three were of S. Heidelberg, two of S. Cerro, two of separate phage types of S. Bovismorbificans, five of phage types of S. Typhimurium and two of S. Typhimurium RDNC. The highest case numbers were reported from the outbreaks of S. Bovismorbificans phage types 23 and 21 in Sydney (75 and 59 cases respectively) and of S. Heidelberg in Victoria (74 cases) and in Sydney (48 cases).

S. Typhimurium heads the list of the top ten salmonellas for 1991, accounting for 29 percent of Australian acquired cases (38% in 1990). There were 1,553 cases Australia-wide compared with 2,057 for 1990. Fewer cases of S. Typhimurium were involved in outbreaks in 1991 and, by comparison with 1990, fewer cases were reported from Queensland, New South Wales and South Australia. The two most commonly reported phage types of S. Typhimurium were 9 and 135, the same as for 1989 and 1990. Their relative abundance in the top ten phage types increased slightly in 1991, however.

Table 1. Total reports received

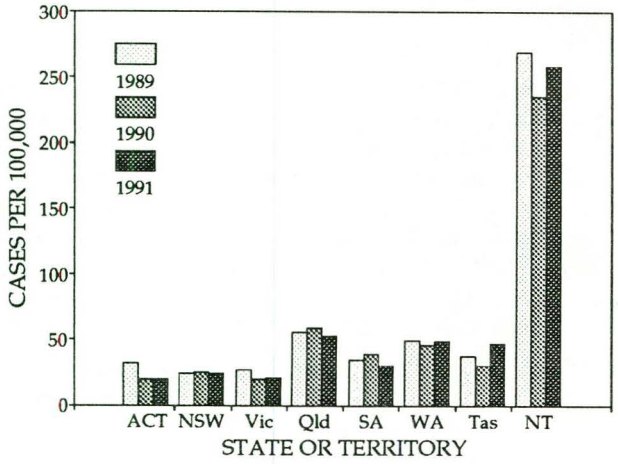
	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	TOTAL
Salmonella	66	1,548	1,185	1,545	457	775	221	435	6,232
Shigella	5	86	82	39	65	282	2	255	816
Aeromonas	-	1	6	2	-	-	-	-	9
E. coli (EPIC)	-	6	2	3	-	-	-	-	11
Plesiomonas	-	4	-	-	-	-	-	-	4
Vibrio	-	7	3	1	-	-	-	-	11
Yersinia	1	96	32	77	3	-	-	-	209
Total	72	1,748	1,310	1,667	525	1,057	223	690	7,292

Table 2. Annual case rates per 100,000 population[1] for *Salmonella* infection, 1985 to 1991, by State and Territory

	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	TOTAL
1991	20.4	24.8	21.4	53.3	30.5	48.8	47.4	258.3	334
1990	20.0	25.0	20.0	59.6	39.5	46.3	30.7	235.1	435
1989	32.1	24.4	26.8	55.6	35.1	49.8	37.4	268.6	678
1988	17.6	19.6	18.0	62.6	25.8	53.0	25.4	226.6	298
1987	21.4	16.0	12.3	52.4	23.2	50.2	28.2	236.8	462
1986	19.2	17.1	12.7	50.4	25.6	52.9	13.3	264.8	342
1985	55.3	21.4	12.0	43.1	28.6	59.7	18.5	311.9	743

1. Rates determined using 1986 census data.

Figure 1. Case rates per 100 000 population[1] for *Salmonella* infections, 1989 to 1991, by State and Territory



1. Rates determined using 1986 census data.

The percentage of S. Typhimurium cases was highest in those States with the largest urban populations and lowest in the Northern Territory and Queensland (Table 3). The two latter areas also have a higher diversity of *Salmonella* serovars and, in Queensland, there were 23 per cent more cases of S. Virchow than of S. Typhimurium.

With the exception of S. Cerro, which replaced S. Muenchen and entered the top ten for the first time, the top ten serovars remain unchanged from 1990. S. Cerro has become increasingly prominent in Victoria and New South Wales in recent years and was involved in two separate outbreaks in July and August 1991.

New and unusual *Salmonella* serovars reported during the year were: S. Albany (ACT ex Mexico), S. Banana (ACT), S. Bonn (ACT), S. Eppendorf (NSW), S. Hamburg (NSW), S. Kiambu (Qld), S. Lagos (NSW), S. Lindenburg (Vic), S. Mikawasima (Qld). Phage types of S. Typhimurium encountered for the first time during 1991 were 133 (Qld), 153 (NSW), 19 (Vic) and 73 (Vic).

Salmonella Infections - Case Rates

The total number of cases acquired in Australia for the year ended 31 December 1991 was 5,334 (Table 2). There were 547 follow-ups, 32 isolations from migrants and refugees and 319 cases acquired overseas.

Typhoid and Paratyphoid Cases

S. Typhi

There were 93 reports during 1991. Of these, one was from a visiting Indonesian fisherman and 24 were repeat isolations leaving a total of 68 cases. Fifty-eight cases were known to be from infections acquired overseas, one case had resulted from contact with overseas visitors, one from contact with a known typhoid patient and another, with no history of recent travel, had come from Vietnam over seven years ago. One case, of a visiting scientist with Vi-phage type B1 var, was a suspected laboratory acquired infection. In nine cases no details were supplied.

The most common Vi-phage types encountered were A with six cases (India, Pakistan, China and Chile), B1 and B1 var with three cases (the Philippines and China) and E1 with nine cases (India and Chile). The other Vi-phage types reported were: 36 and 51 (countries not specified); C2 (Cambodia); C5 (India and Nepal); D var (China); D2 (not specified); E var (India); E9 (China); K1 (India); M1 (Iran and Pakistan); M2 (not specified); O (India) and T (not specified).

S. Paratyphi A

There were 37 reports and 30 cases compared with 16 cases in 1990. Overseas acquired infections accounted for 26 of these cases and the remaining four were reported without patient details.

There were 15 cases of phage type 1, from Indonesia (5), India (4), South-east Asia (2), Thailand, one Indo-Chinese refugee, and unspecified (2); one case each of phage types 2 (no details) and 4 (Bangladesh); two cases of phage type 5 (Indonesia) and one case of phage type 6 (overseas not specified). Four cases were typed as RDNC (India and Thailand) and three were recorded as untypable (India and Thailand).

Table 3. Distribution of isolates of *Salmonella*, 1991, by State and Territory

	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	TOTAL
Cases	51	1342	859	1378	410	687	207	400	5334
Serovars	22	81	58	90	50	68	19	62	153
S. Typhimurium phage types	7	35	29	27	27	22	10	11	67
S. Typhimurium cases (STM)	21	484	439	147	136	207	95	23	1553
% STM/total cases	41	36	51	11	33	30	46	6	29
S. Bovismorbificans phage types	3	11	7	6	5	4	2	2	16
S. Bovismorbificans cases	7	194	33	15	24	21	3	3	300

1. These include overseas acquired infections. This is to avoid the assumption that cases have been acquired in Australia when in fact the relevant patient details have not been provided.

S. Paratyphi B

There were 45 reports and 21 cases, of which only three reported acquiring the infection overseas. These were two cases of phage type 3aI var 1 and one case of 3aI var, all from South America. Five cases were of phage type Taunton and, of these, three were from the same family (see NSSS Newsletter Issue No 4/92). No overseas connection was established either for this incident or the other two cases (M/10 NSW and F/60 NSW post-cholecystectomy).

Thirteen cases of S. Paratyphi B var Java were reported from two adults (F/29 WA, M/63 NSW) and eleven children. Seven of the children were under two years of age and, of these, three were from the Kimberley region of Western Australia and four from Sydney.

Isolations from Blood, Urine and Unusual Sites

Bacteraemias excluding enteric fever

There were 98 cases of bacteraemia reported in 1991 (Table 4) compared with 66 cases in 1990. Twenty-six serovars of *Salmonella* were reported from 93 of the cases as well as *Shigella flexneri* 2a (NT 2), *Shigella flexneri* 6 (Qld) and *Yersinia enterocolitica* O:3 Bio 4 (Qld, Vic). The *Shigella* cases were all infants of 12 months and younger.

Of the 26 *Salmonella* serovars there were 20 cases of S. Heidelberg (four adults), 10 cases of S. Virchow (three acquired overseas and one meat worker), four cases each of S. Chester (two adults) and S. Dublin (three adults) and three cases of S. Enteritidis (all adults). Of the 23 cases of S. Typhimurium reported from 11 phage types, six were of phage type 9. There were eight cases from five phage types of S. Bovismorbificans (seven adults, six of whom were over 60).

S. Hindmarsh (M/79, NSW) was one of the more unusual serovars. It was in the top ten serovars in New Zealand in 1991.

Isolations from Urine

There were 70 cases involving isolates from urine in 1991 (66 in 1990) of which 51 were from females and 19 from males. There were 32 serovars of *Salmonella*, one isolate of *Aeromonas hydrophila* (F/52, Vic) and one of *Shigella sonnei* biotype g (F/52, Vic). The most common serovars were S. Havana (5), S. Heidelberg (4), S. Infantis (4) and S. Virchow (4). There were two isolates from each of S. Mbandaka, S. Panama, S. Potsdam, S. Zanzibar and one each of S. Enteritidis phage types 26 (Qld) and 4 (SA).

In 1990 there were five cases of S. Virchow and two cases of S. Mbandaka involving urine isolates.

Unusual Sites of Isolation

There were 38 cases involving isolates from sites other than faeces, blood and urine. *Shigella flexneri* 2a (colon biopsy, M/44, Tas - ex Thailand), *Shigella flexneri* 3c (penile lesion, M/31, NSW) and *Vibrio alginolyticus* (ear, M/39, NSW) were isolated in addition to 23 different serovars of *Salmonella*.

Some interesting sites of isolation were **cerebrospinal fluid:-** S. Aberdeen, S. Heidelberg 4 and S. Virchow (all babies, Qld); **vaginal swabs:-** S. Give (F/20, Tas) and S. Waycross (F/33, Qld); **pus, submandibular ulcer:-** S. Reading (M/49, Qld); **thigh wound:-** S. Enteritidis 4 (M/60, ACT - ex Hong Kong); **cyst on back:-** S. Yarrabah (M/35, Qld). Another was the isolation of S. Havana from a **hand wound** of a woman (F/43) on an outback station in the Northern Territory. In 1990

Table 4. *Salmonella* serovars in bloods and urines, 1991

Bloods				
	Blood Cases (98)		Total Cases (5334)	
Serovar	No.	% of total	No.	% of total
S. Typhimurium	23	23.5	2057	29.1
S. Heidelberg	20	20.4	282	5.3
S. Virchow	10	10.2	223	4.2
S. Bovismorbificans	8	8.2	300	5.6
S. Chester	4	4.1	232	4.4
S. Dublin	4	4.1	8	0.15
S. Enteritidis	3	3.1	77	1.4
Urines				
	Urine Cases (70)		Total Cases (5334)	
Serovar	No.	% of total	No.	% of total
S. Havana	5	7.1	991	1.9
S. Heidelberg	4	5.7	282	5.3
S. Infantis	4	5.7	147	2.75
S. Virchow	4	5.7	223	4.2

Table 5. *Shigella* infections, 1991, case rates per 100,000 population[1]

	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	TOTAL
1991	1.6	1.2	0.9	1.3	4.0	17.8	0.2	157.6	685
1990	1.2	1.5	0.9	2.0	2.8	24.5	0.2	129.8	759
1989	0.0	1.4	1.2	1.9	3.2	23.4	0.5	93.6	692
1988	0.4	1.1	0.8	3.8	2.1	14.6	0.9	124.5	656
1987	0.0	1.3	0.6	2.2	3.2	19.8	0.4	120.0	687
1986	0.4	2.3	0.8	2.0	3.2	32.8	0.5	164.7	970

1. Rates determined using 1986 census data.

there was an outbreak of S. Havana among police dogs on the RAAF base near Katherine.

Shigella Infections

There were 816 reports of *Shigella* infections for 1991. Of these, 90 were acquired overseas, 10 were from migrants and refugees, and 31 were follow-up isolations leaving a total of 685 cases which were recorded as having been acquired in Australia (Table 5). This is probably an over-estimation as not all reports were accompanied by comprehensive patient details.

The case rate in the Northern Territory represents an increase of 21 percent over that for 1990 and brings the case rate back up to the level of 1986 from which it fell to a record low in 1989.

Sh. flexneri 2a (37%), *Sh. flexneri* 6 (17%) and *Sh. sonnei* biotype a (21%) accounted for 75 percent of total cases in 1991. *Sh. sonnei* biotype g was the most common infection acquired overseas (29 cases).

Infections Acquired Overseas

These include migrants and refugees and exclude enteric fever. Organisms reported for more than 10 cases are detailed in Table 6. Organisms recorded for fewer than 10 cases are listed below (1. migrant or refugee).

Between 5 and 9 cases:

S. Bareilly (6): Pakistan, Vietnam[1](4); S. Bovismorbificans (4): Bali (PT 13, 2), Thailand (PT 21), Madagascar (PT 22); S. Derby (9): India, Nepal, Hong Kong, Taiwan, Vietnam[1]; S. Haardt (4): Malaysia; S. Heidelberg (4): Hong Kong, Vietnam[1], Fiji, Guatemala (PT 7); S. Java RDNC (5): Bali, Sri Lanka, Thailand; S. Stanley (5): Bali, Burma, Thailand; *Sh. flexneri* 3a (7): Bali, Egypt, Nepal, Tonga, Philippines, Vietnam[1]. *Sh. flexneri* 6 (6): Lebanon, Thailand, Afghanistan[1].

Table 6. Infections acquired overseas, 1991[1]

Organism	No. of cases 1991 (1990)	Regions of Acquisition
Sh. sonnei biotype g	29 (24)	Africa, Indonesia including Bali, Fiji, India, Nepal, Thailand, Zimbabwe
S. Typhimurium	23 (23)	Bali (PT 104, 108, 141, RDNC), Hong Kong (PT 12), Indonesia (PT 12a), India (PT 135), Thailand (PT 168, 9), Singapore (PT 170), Zimbabwe (PT 9), Korea (RDNC)
S. Hadar	19 (39)	Bali (7), Indonesia, India, Africa, Thailand
S. Enteritidis	17 (18)	Malaysia, Singapore, Thailand, Japan, Philippines, Greece, Guam, Hong Kong (PT 1 and 4), Britain (PT 4 and 8), Fiji (PT 26)
S. Agona	15 (9)	India, Bali, Singapore, Thailand, Laos[1], Philippines, Vietnam[1]
S. Virchow	17 (17)	Bali, Hong Kong, India, Sri Lanka, Thailand, Afghanistan[1]
Sh. sonnei biotype a	14 (20)	Indonesia including Bali, India, Nepal, Sri Lanka, Fiji
S. Blockley	14 (15)	Malaysia, Singapore, Indonesia including Bali, Burma, Laos[1]
Sh. flexneri 2a	12 (12)	China, Indonesia, Pakistan, Thailand, Africa[1]
S. Anatum	12 (3)	Bali, Thailand[1], Vietnam[1], Philippines
S. Berta	10 (29)	Bali

1. Migrant or refugee. Organisms reported for 10 cases or more only.

Between 2 and 4 cases:

C. jejuni (2): New Caledonia, Thailand; *P. shigelloides* (2): Sri Lanka, Indonesia; S. Braenderup (2): China, Singapore; S. Infantis (3): Bali, Nepal, Sudan; S. Java 3b var 3 (2): Vietnam[1]; S. Javiana (2): Bali, Vietnam[1]; S. Johannesburg (2): Indonesia; S. Kentucky (2): Bali; S. Krefeld (2): Thailand; S. London (2): Thailand; S. Mbandaka (3): Indonesia, India; S. Mississippi (2): Vanuatu; S. Montevideo (2): Bali; S. Newport (4): Bali, Vietnam[1], Spain; S. Potsdam (3): Bali; S. Richmond (2): India; S. Saintpaul (2): Bali; S. Senftenberg (4): Thailand; S. Weltevreden (3): Bali, Singapore; *Sh. boydii*[1] (2): Egypt, Vietnam[1]; *Sh. flexneri* 1b (3): Mexico, South America; *Sh flexneri* 4a (4): Vietnam (3[1]), India; *Sh. flexneri* var Y (2): Philippines, Vietnam[1]; *Sh. sonnei* (2): Thailand, Vietnam[1].

One case only:

A. hydrophila: Bali; S. 4,5:i:- Singapore; S. 6,7:b:- South America; S. Alachua Indonesia; S. Albany Mexico; S. Amsterdam Thailand; S. Arizonae Thailand; S. Birkenhead Fiji; S. Cerro India; S. Emek Bali; S. Give Indonesia; S. Havana Bali; S. Hessarek var 27 Solomon Islands; S. Ibadan Vanuatu; S. Java 3b Bali; S. Java Beccles var Bali; S. Java Dundee Vietnam[1] and var 2 Nepal; S. Livingstone Bali; S. London var 15+ Vietnam[1]; S. Matopeni India; S. Meleagridis Cambodia[1]; S. Panama Central America; S. Rissen Hong Kong; S. Rubislaw Bali; S. Sofia subsp 2 Thailand; S. Suberu India; S. Tennessee Hong Kong; S. Treforest India; *Sh. boydii*: Afghanistan[1]; *Sh. boydii* serotypes 14 and 2 not specified, 8 Mexico; *Sh. dysenteriae* serotypes 2 unspecified, 4 Nepal, 9 Bali; *Sh. flexneri* serotypes 1a Egypt, 4a mann neg South-East Asia, 5a Bali; *V. cholerae* non O1 Bali; *Y. enterocolitica* not specified.

Suspected or Confirmed Outbreaks

Northern Territory

The largest outbreak this year was of *Sh. sonnei* biotype a which began in Darwin in October 1990 and continued until March 1991. Forty-four cases were reported to the NSSS during this period.

Table 7. Top ten Salmonella serovars, 1991

Serovar	No. of Cases	Position in 1990	% of Top Ten	% of Total	Origin/No. of Cases
S. Typhimurium[1]	1,553	1	45.8	29.1	NSW 484, Vic 439
S. Bovismorbificans[1]	300	3	8.9	5.6	NSW 194, Vic 33
S. Heidelberg[1]	282	10	8.3	5.3	Vic 102, NSW 92, Qld 77
S. Saintpaul	240	4	7.1	4.5	Qld 135
S. Chester	232	6	6.9	4.4	Qld 95, WA 55
S. Virchow	223	2	6.6	4.2	Qld 181
S. Birkenhead	158	8	4.7	3.0	Qld 94, NSW 51
S. Infantis	147	9	4.3	2.7	NSW 32, Vic 37
S. Anatum	129	5	3.8	2.4	Qld 36, SA 35
S. Cerro[1]	122	0	3.6	2.3	NSW 41, Vic 29
Total	3,386		100	63.5	

1. Associated with outbreaks.

Table 8. Top ten phage types of S. Typhimurium

Phage type	No. of cases	Position in 1990	% of Top Ten	% of Total	Origin/No.of Cases
9	305	1	33.1	19.6	Vic 121, NSW 98
135	241	2	26.2	15.5	Vic 104, NSW 69
12a	88	6	9.5	5.7	WA 36, NSW 17
44	53	-	5.8	3.4	NSW 20, Vic 16
101	52	10	5.6	3.3	SA 18, NSW 14
1	40	-	4.3	2.6	Vic 17, NSW 14
141	38	-	4.1	2.4	NSW 16, WA 14
145	35	7	3.8	2.2	Qld 12, NSW 9
8	35	-	3.8	2.2	NSW 15, SA 7, Tas 7
179	34	9	3.7	2.2	NSW 16
Total	921	-	99.9	59.1	

Three smaller incidents involved S. Brisbane in which four cases, all infants around Alice Springs, were reported within two days in February; five cases of S. Infantis in Darwin, all children bar one, within one week in April; and four cases of *Sh. flexneri* 2a centred around Katherine in early May.

New South Wales

The largest outbreaks were of S. Bovismorbificans phage types 21 and 23 and S. Heidelberg 1, two of which were reported as early as December 1990 and which peaked between January and March 1991. Nine cases of S. Typhimurium 44 from an incident of food poisoning at a country wedding were reported in March. There was an elevation in the number of S. Cerro cases in July and prawns were implicated in two cases of *V. parahaemolyticus* from Sydney in July.

Queensland

Nine cases of S. Heidelberg 2 were reported from Rockhampton in January, four cases of S. Hvittingfoss, all infants, from Mount Isa in April and four cases, all adults, of S. Enteritidis 26 from Brisbane in July.

South Australia

Twenty cases of S. Anatum were reported to the NSSS between February and March and six cases of S. Tennessee, all Vietnamese (five adults), in February. There was a small outbreak (four cases) of S. Typhimurium 9 in Naracoorte in August.

Tasmania

There were three suspected outbreaks involving S. Give (twenty cases between January and February) and two phage types of S. Typhimurium. Fourteen cases of S. Typhimurium RDNC were reported in February from northern Tasmania and 29 cases of S. Typhimurium 9 from both north and south of the island in June and July.

Victoria

The largest outbreak for the year, of S. Heidelberg, began in December 1990 and involved 74 cases from Melbourne suburbs and the township of Melton on the western outskirts. From late January to mid-March, 62 cases of S. Typhimurium 135 were reported. The organism was found to have contaminated a batch of gelati in an inner suburban coffee shop in Melbourne. When the premises were investigated S. Typhimurium 145 was also found. From January to March 22 cases of S. Typhimurium RDNC with the same phage pattern as those from northern Tasmania were reported from Melbourne. There was an increased incidence of S. Cerro (18 cases between June and August from several localities) and S. Typhimurium 9 (21 cases between July and August) in an area to the west of Melbourne.

Top Ten Salmonellas

The top ten salmonellas for 1991 comprised 63.5 percent of the total cases acquired in Australia (Table 7). Four of the serovars were associated with outbreaks. The top ten phage types of S. Typhimurium comprised 59 per cent of the total number of S. Typhimurium cases (Table 8).

Note

The Fourth Quarter Human Report of the NSSS was not reproduced in *CDI*. If required, copies can be obtained from the NSSS at the University of Melbourne, or from *CDI*.

Q FEVER - A PREVENTABLE DISEASE: WHY NOT PREVENTED?

(Philip Weinstein, Merridie Macaitas and Scott Cameron, Communicable Diseases Control Unit, South Australian Health Commission)

Q fever is essentially an occupational disease, endemic in industries where people are exposed to ruminants or products thereof. The infective organism, *Coxiella burnetti*, is carried asymptomatically by cattle, sheep and goats (and sometimes other animals), and is shed in products of conception, excrement and milk. If the organism becomes airborne in aerosols or dust, it can infect people by inhalation.

Many infected people remain asymptomatic or suffer no more than a mild febrile illness. Severe symptoms develop in some; a sudden onset of fever with shivering, headache, cough and weakness. Subclinical hepatitis is common and pneumonitis occurs in 20-50% of cases. Endocarditis is the most serious complication, and together with chronic hepatitis follows in 1-2% of acute cases[1]. Endocarditis may be fatal and at best requires prolonged chemotherapy and/or surgery. The course of the acute disease is highly variable, usually lasting one to three weeks, but relapsing symptoms may persist for years and lead to chronic debility in up to 20% of cases[2].

In South Australia, 165 cases of Q fever were notified in the last 7 years (1 January 1986 to 1 September 1992), averaging some 25 cases per year, and representing some 4% of the Australian total (*CDI* data). The cost of a single acute case has been estimated to be $5,000 including medical, compensation and worker replacement costs[2]. This figure requires updating but at face value, represents an annual cost of $125,000 to South Australia, or approximately $3 million for the whole of Australia. If one adds to this the cost of chronic cases (around $50,000 each[2]) and the psychosocial impact of the post Q fever debility, it becomes obvious that the real cost of Q fever is far greater. Why then are people at risk not immunised?

The distribution of South Australian cases by occupation is given in the Table. The vast majority of cases were in males (92%) in their 30s and 40s (age range of 16 to 74 years), as may be expected from the given occupations. No seasonal pattern was evident, despite a theoretically increased risk during calving or lambing season. Meatworkers at abattoirs were best represented, accounting for more than half of the cases, and yet this would appear to be the easiest group of workers to protect, were employers or unions simply to insist on immunisation.

A vaccine (Q-vax®) with an efficacy near 100% was licensed in 1989, and is available again from Commonwealth Serum Laboratories (CSL). One dose is protective for at least 5 years (possibly for life with natural boosters resulting from subsequent exposures to the infecting organism)[3]. Severe vaccine reactions are limited to people who have previously been infected clinically or subclinically, therefore each potential recipient should be questioned closely about past illness resembling Q fever, and also undergo antibody screening and skin testing. The total cost of prevaccination screening and vaccination may range from $135 to $170 depending on the number of persons tested on the same day. A cost-benefit analysis is currently underway by CSL to update information.

Table. The distribution by occupation of 165 cases of Q Fever in South Australia over 7 years (1 January 1986 to 1 September 1992)

Occupation	Per cent of total cases
Meatworker	55.8%
Animal transporter	8.5%
Farm or dairy worker	19.4%
Other	16.3%
Total	100%

There are about 8,000 meatworkers in the State (G. Warren, pers. comm.), and an increasing proportion of these remain in the workforce for several years. Further, only half of these workers are still susceptible to Q fever[4] and it would appear to be cost-effective for employers to provide vaccine to all their workers (particularly new recruits). A similar argument is likely to apply to employers of animal transporters, veterinarians and laboratory workers at risk, as well as to self-employed farmers.

In South Australia, prevaccination screening and vaccine is available from the Work Health Clinic, Mile End in addition to arrangements for abattoir workers at abattoir medical stations. Vaccine is now also available for use by any medical practitioner. Attention is drawn to the stringent pre-vaccination protocol and the need for a brief training in administering and reading the skin test. CSL is currently producing a video, which will be available by early November, to brief medical practitioners on the vaccine and its use.

All employers, employees and medical practitioners are urged to consider seriously the advantages of vaccination.

The assistance of Prof. B. Marmion with the preparation of this paper is gratefully acknowledged.

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CDI Editorial Comment

Q fever is a notifiable disease in all States and Territories of Australia. In 1991, 565 cases were notified: 1 in the ACT, 175 in New South Wales, 358 in Queensland, 26 in South Australia, 30 in Victoria and 5 in Western Australia. So far this year, 332 cases have been notified: 94 in New South Wales, 209 in Queensland, 7 in South Australia, 19 in Victoria and 3 in Western Australia.

The number of notifications has not decreased markedly compared with the number of notifications recorded in the years prior to the licensing of the vaccine in 1989 (Table). This may partially be a reflection of the improved systems for notifications which have been implemented since 1989 in many of the States and Territories, however, the number of reports of Q fever made to the *CDI* Laboratory Reporting Schemes has also not decreased over the last few years.

Table. Q fever notifications and reports to the *CDI* Laboratory Reporting Schemes, 1985 to 1992, by year

Year	Notifications	Laboratory Reports[1]
1985	202	160
1986	367	303
1987	355	351
1988	424	272
1989	353	227
1990	431	250
1991	595	240
1992[2]	332	181

1. Laboratory reports are based on dates of specimen collection.
2. Notifications made to 3 October 1992 and laboratory reports made to 6 October 1992.

ARBOVIRUS INFECTIONS IN AUSTRALIA, 1991-92, *CDI* DATA

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

The *Communicable Diseases Intelligence* collects data on the occurrence of arbovirus infections in Australia on a routine basis from two sources, the National Notifiable Diseases Surveillance System and the *CDI* Laboratory Reporting Schemes. Reports of arboviruses in Australia usually peak in March or April each year, and are at the lowest levels in August and September. This annual report for the 1991-92 summer therefore covers reports to the National Notifiable Diseases Surveillance System with onset dates from September 1991 to August 1992, and *CDI* laboratory reports with specimen collection dates in the same period.

The National Notifiable Diseases Surveillance System collects data on arboviruses under 3 rubrics: 'arbovirus infection not elsewhere specified', 'Ross River virus infection' and 'dengue'. Not all these rubrics are notifiable in all States and Territories. Data from South Australia and Tasmania group all arbovirus disease notifications as 'arbovirus infection not elsewhere classified', and no distinction is made between viruses; however, nearly all arbovirus infections notified in South Australia are due to Ross River virus infection (A S Cameron, South Australian Health Commission, pers. comm.). Data from New South Wales and Western Australia do not include 'dengue' as a separate rubric; cases of dengue are classified as 'arbovirus infection not elsewhere classified'.

A total of 5,702 notifications of arbovirus infection of all types was received in the season September 1991 to August 1992. These included 281 notifications of arbovirus infection not elsewhere classified, 5,175 of Ross River virus infection and 246 of dengue. There was a marked difference in the totals notified from States and Territories, with the majority of notifications being from Queensland (Table 1).

Table 1. Notifications of arbovirus diseases from States and Territories with onset dates from 1 September 1991 to 31 August 1992.

State or Territory	Arbovirus Not Elsewhere Classified	Ross River Virus	Dengue	Total
ACT	0	1	0	1
NSW	45	248	0	293
NT	40	177	4	221
Qld	152	3,924	232	4,308
SA	24	0	0	24
Tas	1	0	0	1
Vic	19	129	10	158
WA	0	696	0	696
Total	281	5,175	246	5,702

Notifications to the National Notifiable Diseases Surveillance System were provided by the health authorities of each of the State and Territories. Laboratory reports were provided by nine of the laboratories which contribute to the *CDI* Laboratory Reporting Schemes (Table 2). The continuing assistance of each of these agencies in providing these data is gratefully acknowledged.

Ross River Virus Infection

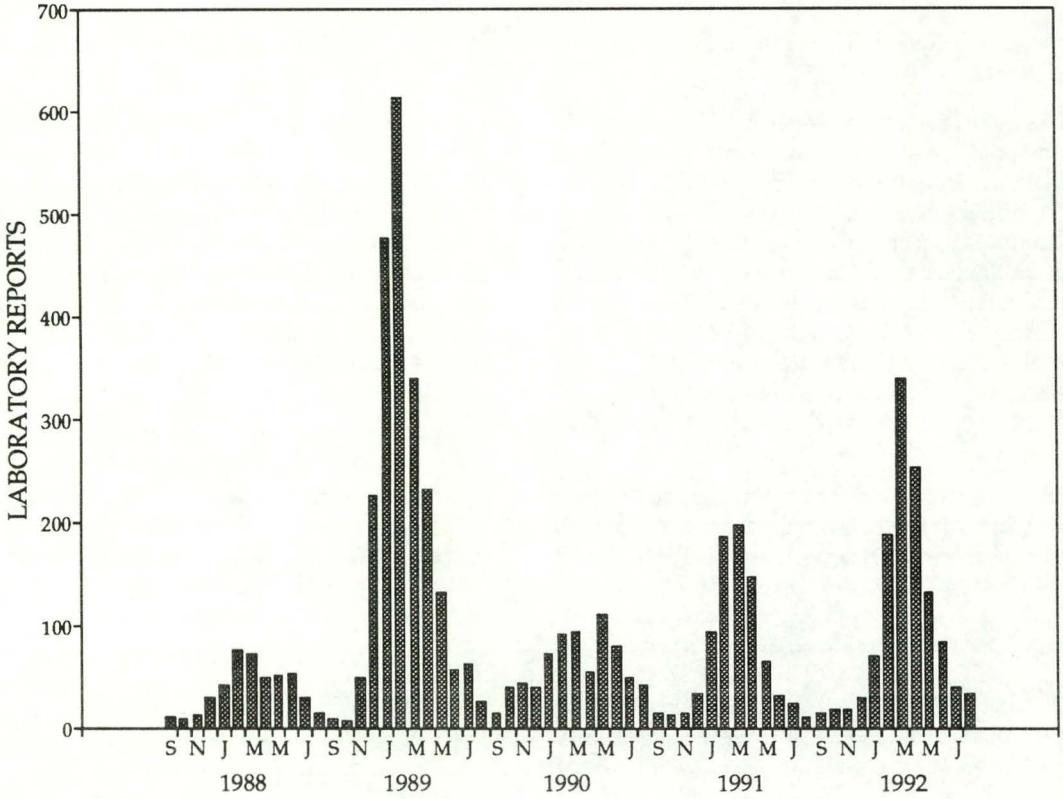
CDI Laboratory Reporting Schemes

During the period September 1991 to August 1992, there were 1,222 laboratory reports of Ross River virus infection. The specimen collection dates peaked in March and April, as for most years in the recent past (Figure 1). There were more reports received overall than for any year since the 1988-89 summer.

Table 2. Arbovirus laboratory reports, September 1991 to August 1992, by contributing laboratory

Contributing Laboratory	Reports
Institute of Clinical Pathology and Medical Research, Westmead	10
Prince Henry/Prince of Wales Hospitals, Sydney	14
Dr T B Lynch, Pathologist, Rockhampton	236
Queensland Medical Laboratory, West End	37
State Health Laboratory, Brisbane	991
Institute of Medical and Veterinary Science, Adelaide	28
Fairfield Hospital, Melbourne	42
State Health Laboratory Services, Perth	438
Total	1,796

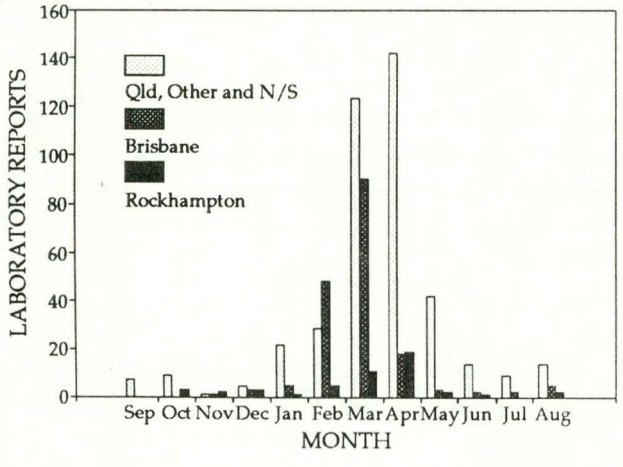
Figure 1. Ross River virus laboratory reports, September 1987 to August 1992, by month of specimen collection



Many of the reports were accompanied by location information, which for some reports will have been the possible location of acquisition of the infection, but will in some cases have been the location of the residence of the patient, or the location of the referring medical practitioner or laboratory.

The location information provided indicated that most of the reports were from Queensland (800, 65.5%) (Table 3), where the reports overall peaked in March. Reports from Brisbane also peaked in March (Figure 2), but reports from Rockhampton and Townsville peaked in April, and reports from Cairns had a broad peak from February to May (Figure 3). Gladstone, Mackay, Maryborough, Sunshine Coast and Toowoomba had

Figure 2. Ross River virus laboratory reports, September 1991 to August 1992, Brisbane, Rockhampton and Queensland other and not stated[1], by month of specimen collection



1. Queensland other and not stated excludes Townsville and Cairns (Figure 3) and includes reports from laboratories in Queensland, with no location information.

Figure 3. Ross River virus laboratory reports, September 1991 to August 1992, Townsville and Cairns, by month of specimen collection

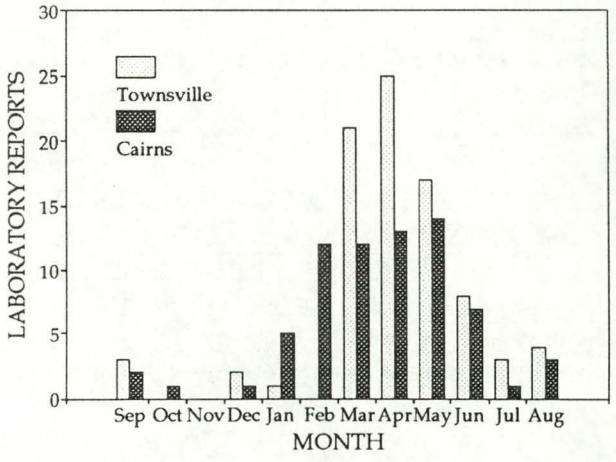


Table 3. Ross River virus laboratory reports, September 1991 to August 1992, by location

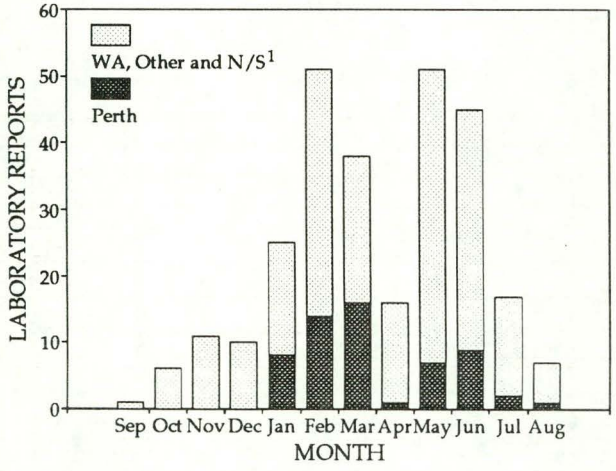
LOCATION	REPORTS	LOCATION	REPORTS	LOCATION	REPORTS
NEW SOUTH WALES		Mt Isa	4	Capel	1
Not specified[1]	16	Mt Morgan	1	Carnarvon	20
Ashford	1	Nambour	8	Collie	3
Cobar	1	Redcliffe	9	Dawesville	1
Collombatti	1	Rockhampton	49	Denham	1
Coolongolook	1	Roma	2	Denmark	1
Deniliquin	1	Sunshine Coast	15	Derby	2
Goonellabah	1	Toowoomba	21	Esperance	2
Gulargambone	1	Townsville	87	Exmouth	1
Lavington	1	Thursday Is	3	Falcon	1
Lismore	1	Wamuran	1	Gelorup	1
Markwell	1	Wandoan	3	Geraldton	10
Northern Rivers	2	Warwick	2	Greenbushes	1
Newcastle	2	Western Queensland	9	Halls Creek	3
Riverina	1	Yeppoon	4	Hammersley	1
Sydney	1	TOTAL	800	High Wycombe	1
Warnes Bay	1	SOUTH AUSTRALIA		Kalgoorlie	11
TOTAL	33	Not specified[1]	6	Karratha	1
NORTHERN TERRITORY		Barmerah	1	Katanning	4
Not specified[1]	9	Berri	2	Kununurra	4
Casuarina	2	Clare	2	Laverton	1
Darwin	6	Greenacres	1	Leederville	1
Nhulunbuy	43	Hackham	1	Leonora	1
Oenpelli	1	Kimba	1	Manjimup	16
Rapid Creek	1	Loxton	2	Margaret River	2
Tennant Creek	2	Maitland	1	Meekatharra	4
TOTAL	64	Murray Bridge	2	Merredin	2
QUEENSLAND		Port Augusta	1	Midland-Cohen	1
Not specified[1]	225	Renmark	3	Morawa	1
Agnes Waters	1	Tailem Bend	1	Narrogin	4
Alton Downs	1	Waikerie	2	Newman	17
Barcaldine	1	TOTAL	26	Nickol Bay	4
Beenliegh	9	VICTORIA		Northam	2
Brisbane	176	Not specified[1]	8	Nowergup	1
Bundaberg	7	Brighton	1	Parkerville	1
Burpengary	1	Cobram	1	Pemberton	1
Byfield	1	Colac	1	Perenjori	1
Cairns	71	Dalkeith	1	Perth	58
Calliope	1	Echuca	1	Pinjarra	1
Darling Downs	5	Harkaway	1	Port Hedland	8
Emerald	2	Heywood	1	Rivervale	1
Emu Park	1	Hoppers Crossing	1	Rockingham	1
Gladstone	18	Koroit	1	Three Springs	1
Gold Coast	7	Loch	1	Tom Price	2
Gracemere	2	Mildura	1	Waggrakine	1
Gympie	6	TOTAL	19	Walpole	1
Ipswich	6	WESTERN AUSTRALIA		Wickham	1
Kenilworth	1	Not specified[1]	52	Woodanilling	1
Kingaroy	1	Albany	4	Wyndnam	1
Kinka Beach	1	Bridgetown	2	TOTAL	280
Lockyer	3	Broome	4		
Mackay	21	Bunbury	1		
Maryborough	14	Busselton	13	TOTAL FOR AUSTRALIA	1,222

1. Not specified includes reports from laboratories in the State, with no location information.

peaks in reports in March and April. Only small numbers of reports were received from other centres.

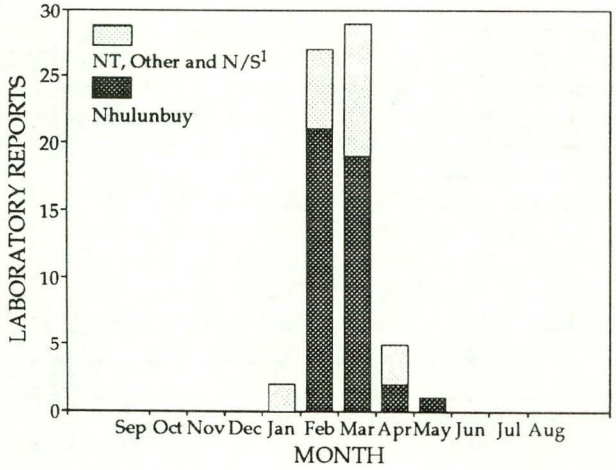
A total of 280 reports were received with Western Australian locations, with 58 from Perth (Figure 4). There were 2 peaks in reports. The first was in February-March, when there were peaks in reports from Perth and the south-west locations of Busselton and Manjimup, and the second was in May-June, when there were increased reports from Perth, and from Kalgoorlie in the Goldfields region, from Carnarvon, Newman and Geraldton, north of Perth.

Figure 4. Ross River virus laboratory reports, September 1991 to August 1992, Perth and Western Australia other and not stated[1], by month of specimen collection



1. Other and not stated includes reports from laboratories in Western Australia, with no location information.

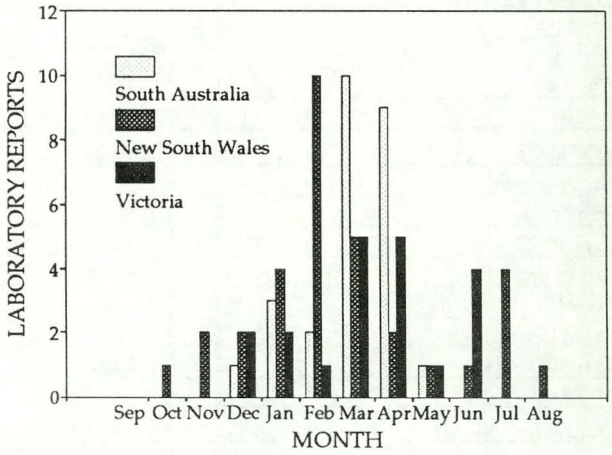
Figure 5. Ross River virus laboratory reports, September 1991 to August 1992, Nhulunbuy and Northern Territory, other and not stated, by month of specimen collection



There were 64 reports from the Northern Territory. Most of these were from Nhulunbuy, where there was an outbreak of Ross River virus and Barmah Forest virus disease in February and March[1] (Figure 5).

Only small numbers of laboratory reports of Ross River virus were received with New South Wales, Victorian or South Australian locations (Figure 6). Reports from New South Wales peaked in February, and those from South Australia and Victoria peaked in March-April.

Figure 6. Ross River virus laboratory reports, September 1991 to August 1992, South Australia, New South Wales and Victoria, by month of specimen collection



Bone and/or joint disease was the most commonly reported symptom for the season's Ross River virus reports (Table 4), although skin disease and malaise or fever only were also frequently reported.

All cases reported through the laboratory reporting scheme were diagnosed serologically, and 1,184 (96.9%) were by demonstration of IgM. A four-fold change was reported for 17 patients, and a single high titre for 12 (Table 5).

Age and sex was recorded for 1,190 patients (97.4%). Only six were aged under the 5 years, and most were in the age group 25 to 65 years (Figure 7). More females were affected than males; the male to female ratio was 1.00:1.11.

National Notifiable Diseases Surveillance System

There were 5,175 notifications received of Ross River virus infection with onset dates from 1 September 1991 to 31 August 1992 (Table 1). Queensland contributed the majority of these reports with 3,924 notifications, followed by New South Wales with 248, the Northern Territory with 177, Victoria with 129 and the Australian Capital Territory with a single notification. Within States and Territories there was a further marked variation in the rate of notification according to statistical division. There were 4,958 notifications with information sufficient for assignment to statistical divisions

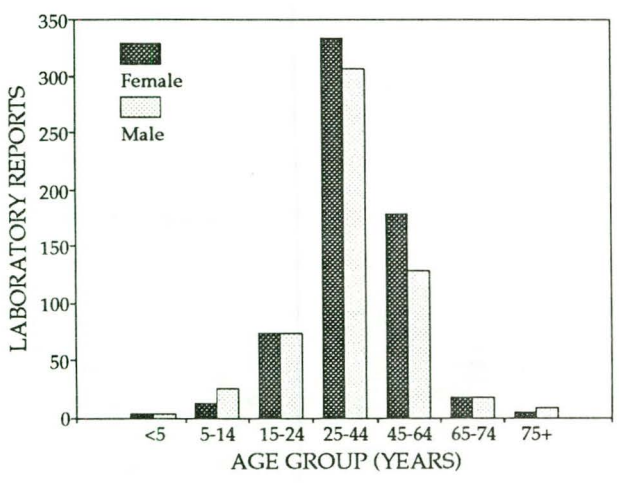
Table 4. Arbovirus laboratory reports, September 1991 to August 1992, by clinical information

Virus	Bone/Joint Disease	Skin Disease	Malaise or Fever only	Other or Not Stated	Total
Ross River virus	505	115	109	493	1,222
Barmah Forest virus	53	30	17	112	212
Dengue 1	1	1	1	7	10
Dengue 2	15	17	47	156	235
Dengue 3	0	0	1	2	3
Dengue untyped	4	5	19	39	67
Kokobera virus	0	0	0	1	1
Stratford virus	0	0	1	2	3
Kunjin virus	2	0	4	4	10
Murray Valley Encephalitis virus	0	0	0	2	2
Flavivirus untyped	1	3	10	17	31
TOTAL	581	171	209	835	1,796

Table 5. Arbovirus laboratory reports, September 1991 to August 1992, by diagnosis method

Virus	IgM	Four-fold Change	Single High Titre	Other or Not stated	Total
Ross River virus	1,184	17	12	9	1,222
Barmah Forest virus	181	20	11	0	212
Dengue 1	10	0	0	0	10
Dengue 2	197	1	37	0	235
Dengue 3	3	0	0	0	3
Dengue untyped	63	1	0	3	67
Kokobera virus	1	0	0	0	1
Stratford virus	3	0	0	0	3
Kunjin virus	10	0	0	0	10
Murray Valley Encephalitis virus	2	0	0	0	2
Flavivirus untyped	29	2	0	0	31
TOTAL	1,683	41	60	12	1,796

Figure 7. Ross River virus laboratory reports, September 1991 to August 1992, by age group and sex



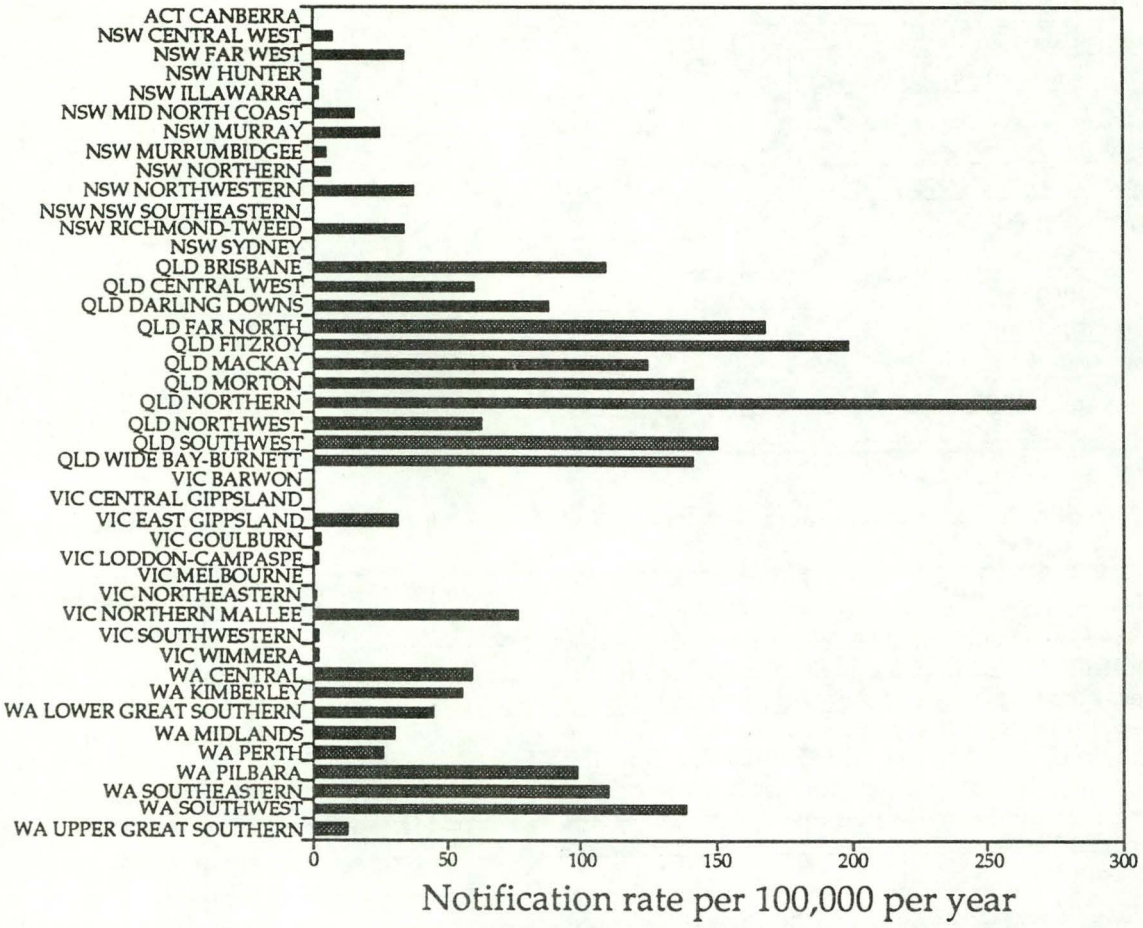
within States and Territories. The maximum recorded rate of notifications was from the Northern statistical division of Queensland with a rate of notified cases of 267.2 per 100,000 population per year (Figure 8).

Date of onset was recorded in all reports of notifications. Australia-wide, the peak incidence of recorded onset occurred in March with 1,643 notifications (31.7%), followed by April with 1,158 notifications (22.4%) (Figure 9).

There was a variation in the peak month of onset between the States and Territories. In the Northern Territory the peak incidence by recorded month of onset was in February, in Queensland, Victoria and Western Australia the peak incidence by recorded month of onset was in March and in New South Wales it was in April (Figures 10 and 11).

There were 2 peaks of month of recorded onset in Western Australia, in March[2] and in June, and there was a fairly uniform incidence in Victoria throughout the period January to May[3]. In Victoria, in statistical divisions where more than 10 cases were notified dur-

Figure 8. Rate of notification of Ross River virus infection per 100,000 population per year, September 1991 to August 1992, by statistical division



1. Includes only statistical divisions where more than 10 cases were notified during the year.

Figure 9. Notification of Ross River virus infection, Australia, September 1991 to August 1992, by month of onset

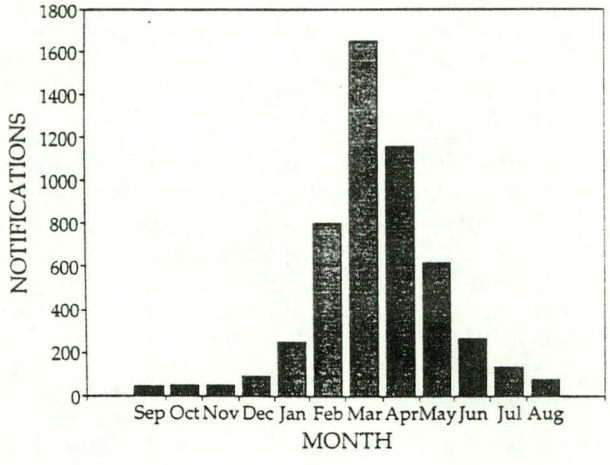


Figure 10. Notification of Ross River virus infection by month of onset and State or Territory except Queensland, September 1991 to August 1992

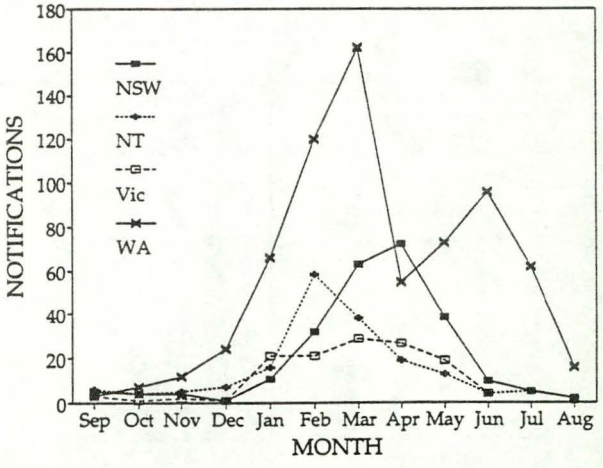


Figure 11. Notification of Ross River virus infection by onset date, Queensland, September 1991 to August 1992

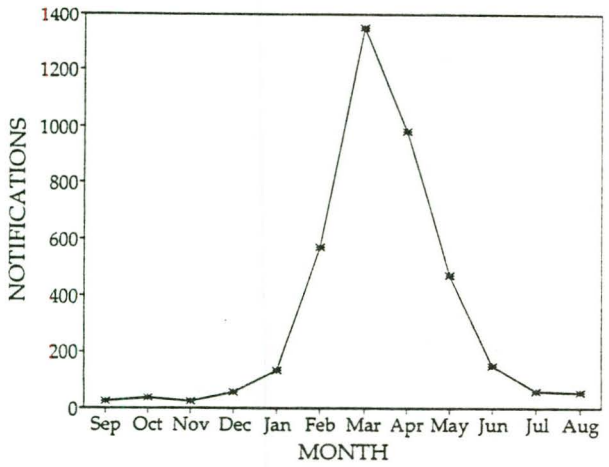
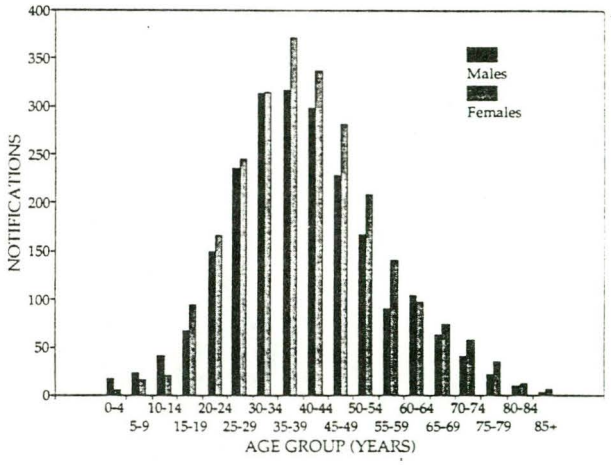


Figure 12. Notifications of Ross River virus infection by age group and sex, September 1991 to August 1992



ing the year, peak incidences were in January for East Gippsland, in March for Melbourne and April for Northern Mallee. Similarly in Western Australia, in statistical divisions where more than 10 cases were notified during the year, peak incidences of recorded month of onset were in March for Kimberley, June for Central and Pilbara, and July for Southeastern. The Lower Great Southern division maintained a constant rate of recorded month of onset between March and June (Table 6).

There were 4,648 notifications (90.5%) where both age and sex were recorded. All age groups were affected, with a peak in both sexes in the 35-39 years age group. There was a predominance of females in all age groups above 10-14 years (Figure 12), with the overall male:female ratio being 1.00:1.13.

Of the total 5,175 notifications, 5,047 (97.5%) were recorded as the diagnosis having been 'confirmed'.

Barmah Forest Virus Infection

There were 212 laboratory reports of Barmah Forest virus infection received during the period. Reports of this virus have increased markedly over the last few years since the development of specific assays for it (1989 - 6 reports, 1990 - 10 reports, 1991 - 36 reports, 1992 - 200 reports). The specimen collection dates showed a broad peak between February and May (Figure 13).

The location information indicated that 131 reports (62%) were from Queensland (Table 7), where the reports overall peaked between March and May. Reports from Brisbane, Cairns and Rockhampton also peaked in March-April but reports from Townsville peaked in May.

Fifty-seven reports were from the Northern Territory. Most of these were specified as being from Nhulunbuy (associated with the concurrent Barmah Forest and Ross River virus disease outbreak) and most had specimen collection dates in February and March.

Table 6. Notifications of Ross River virus infection by month of onset and statistical division[1], Victoria and Western Australia, September 1991 to August 1992

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Vic East Gippsland	0	0	1	1	6	5	3	0	2	2	0	1
Vic Melbourne	1	0	0	0	1	3	4	3	3	1	0	0
Vic Northern Mallee	1	1	1	0	7	12	11	18	8	1	0	0
WA Central	0	0	0	1	5	1	1	0	5	12	8	4
WA Kimberley	0	0	0	1	0	3	8	0	0	1	0	1
WA Lower Great Southern	0	0	0	0	1	0	5	3	5	5	1	1
WA Midlands	0	0	0	0	0	2	1	1	4	5	3	0
WA Perth	0	3	3	8	19	63	108	37	21	26	13	6
WA Pilbara	0	0	0	0	0	0	0	0	12	20	12	3
WA Southeastern	0	0	0	0	0	0	1	0	18	17	21	0
WA Southwest	3	4	9	14	40	50	35	12	7	9	2	1

Figure 13. Barmah Forest virus laboratory reports, September 1991 to August 1992, by month of specimen collection

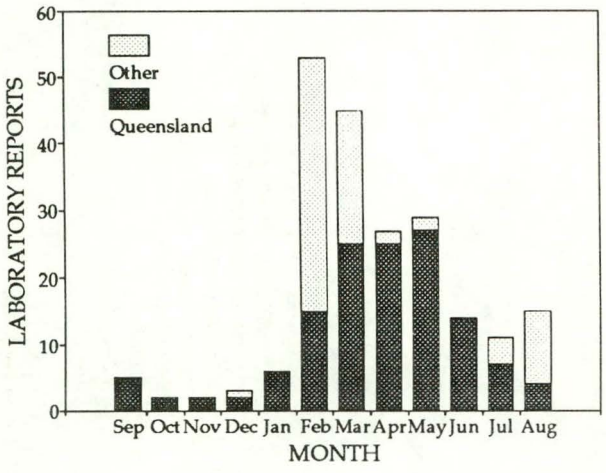
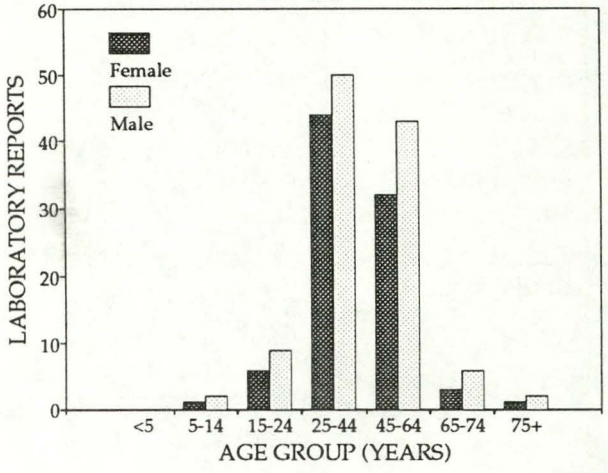


Figure 14. Barmah Forest virus laboratory reports September 1991 to August 1992, by age group and sex



A total of 22 reports were received with Western Australian locations. Most of these had specimen collection dates in July and August 1992, and were from the Carnarvon, Geraldton, Meekatharra and Nickol Bay areas.

One laboratory report of Barmah Forest virus was received for New South Wales (Northern Rivers area in December), and one for Victoria (February).

As for Ross River virus infection, bone and/or joint disease was the most commonly reported symptom for Barmah Forest virus infections (Table 4), and skin disease and malaise/fever were also frequently reported. Most of the cases were diagnosed by demonstration of IgM (181 or 85%), although some were by four-fold change or single high titres (Table 5).

Age and sex information was complete for 199 patients (93.9%). Most were in the age group 25 to 65 years (Figure 14), but in contrast with the sex distribution for Ross River virus disease, more males were affected than females; the male to female ratio was 1.00:0.78.

Table 7. Barmah Forest virus laboratory reports, September 1991 to August 1992, by location

Location	Reports	Location	Reports
NEW SOUTH WALES		Mackay	6
Northern Rivers	1	Rockhampton	11
TOTAL	1	Roma	1
NORTHERN TERRITORY		Sunshine Coast	3
Not specified[1]	10	Tin Can Bay	1
Darwin	1	Townsville	28
Fanny Bay	1	Toowoomba	2
Nhulunbuy	45	Western Queensland	1
TOTAL	57	TOTAL	131
QUEENSLAND		VICTORIA	
Not specified[1]	3	Not Specified1	1
Barcaldine	1	TOTAL	1
Beenleigh	1	WESTERN AUSTRALIA	
Brisbane	52	Not specified[1]	7
Caboolture	1	Carnarvon	7
Caloundra	1	Laverton	2
Cairns	12	Meekatharra	1
Darling Downs	1	Nickol Bay	4
Gladstone	1	Perth	1
Gold Coast	4	TOTAL	22
Gympie	1	TOTAL FOR AUSTRALIA	212

Table 8. Other arbovirus laboratory reports, September 1991 to August 1992, by location

Virus	Location	Reports	Virus	Location	Reports
Dengue 1	Cairns	2	Flavivirus untyped	Barcaldine	1
	Queensland, nfs[1]	1		Brisbane	1
	South Pacific	1		Cairns	2
	South-East Asia	1		Mackay	1
	Not stated	5		North Queensland	1
Dengue 3	Not stated	3		Queensland, nfs[1]	1
Kokobera virus	Rockhampton	1		Rockhampton	2
Stratford virus	Cairns	2		Toowoomba	2
	New South Wales, nfs[1]	1		Townsville	8
Kunjin virus	Brisbane	2		'Tropics'	1
	Cairns	3		South-East Asia	1
	Nanango	1		Cambodia	1
	Mackay	1		Indonesia	1
	Western Queensland	1		Singapore	1
	Oenpelli, NT	1		Thailand	1
	Northern Territory, nfs[1]	1		Travel, nfs[1]	1
Murray Valley Encephalitis virus	Rockhampton	1		Not stated	5
	South Australia	1			

1. nfs not further specified

Dengue 1

There were 10 laboratory reports of dengue 1 received by the *CDI* Laboratory Reporting Schemes in the period September 1991 to August 1992. Location information was provided for 5 of these (Table 8), and 2 were known to have been probably acquired overseas. All were diagnosed by demonstration of IgM (Table 6), and all of the 9 patients for whom age information was supplied were adults, aged between 22 and 45 years.

Dengue 2

There were 235 laboratory reports of dengue 2 infection received during the 12 month period. This is the most ever received by the *CDI* Laboratory Reporting Schemes for any dengue type; yet further reports have been recently received, but were not able to be included in this report. Almost all the reports were from the outbreak which was centred on Townsville, and a few other locations in Queensland (Table 9), and had specimen collection dates in May, June and July (Figure 15).

Malaise or fever was the most commonly reported symptom for dengue 2 infections (Table 5), and skin disease and bone/joint disease were also reported for some patients. Despite the potential for dengue haemorrhagic fever (which can occur in an individual who is infected with a second dengue type), there were no

Figure 15. Dengue 2 laboratory reports, September 1991 to August 1992, by month of specimen collection

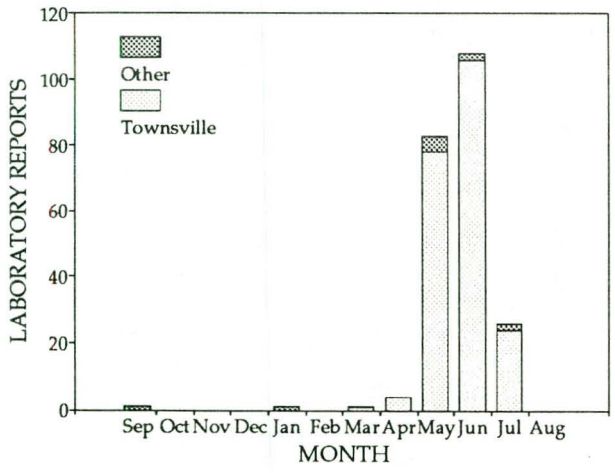


Figure 16. Dengue 2 laboratory reports, September 1991 to August 1992, by age group and sex

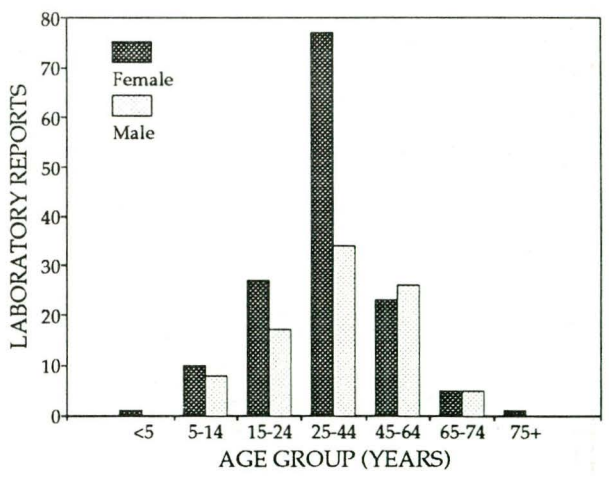


Table 9. Dengue 2 laboratory reports, September 1991 to August 1992, by location

Location	Reports
Cairns	3
Douglas	1
Thursday Island	1
Townsville	223
Queensland, not specified	4
Singapore	1
Overseas, not specified	1
Not stated	1
TOTAL	235

reports of cases with compatible symptoms, or reports of deaths.

Most of the cases were diagnosed by demonstration of IgM (197 or 84%), and some were by four-fold change or single high titres (Table 6).

Age and sex information was available for all but one patient. There were many more females than males (144 females, 90 males, M:F ratio of 1.00:1.60), especially in the age group 25 to 44 years (Figure 16).

Dengue 3

Three reports of dengue 3 were received by the *CDI* Laboratory Reporting Schemes. Place of acquisition was not specified for any of them. The patients were all males, aged 23 years, 31 years and 43 years, and all were diagnosed by demonstration of IgM (Table 6).

Dengue Untyped

CDI Laboratory Reporting Schemes

Sixty-seven laboratory reports of untyped dengue infection were received with September 1991 to August 1992 specimen collection dates. They peaked in May (Figure 17), with the peak in the 33 reports from Townsville (Table 10). The other reports with location information included one from Ingham in June, and seven cases acquired overseas, sporadically throughout the year.

Table 10. Untyped dengue laboratory reports, September 1991 to August 1992, by location

Location	Reports
Townsville	33
Ingham	1
South-East Asia	1
Singapore	1
Sri Lanka	1
Kuala Lumpur, Malaysia	1
Overseas, not specified	2
Vietnam	1
Not specified	26
TOTAL	64

As for the dengue 2 infections, malaise or fever was the most commonly reported symptom for untyped dengue 2 (Table 5), and there were some reports of skin disease and bone/joint disease. There were no reports of cases compatible with dengue haemorrhagic fever or reports of deaths.

Sixty-three of the cases were diagnosed by demonstration of IgM, and one was by four-fold change (Table 6).

Age and sex information was available for 66 of the 67 patients. Cases were spread over a wide age range (Figure 18), and, as for dengue 2, there were many more females than males (40 females, 26 males, M:F ratio of 1.0:1.5). This sex difference was apparent in all age groups.

Figure 17. Untyped dengue laboratory reports, September 1991 to August 1992, by month of specimen collection

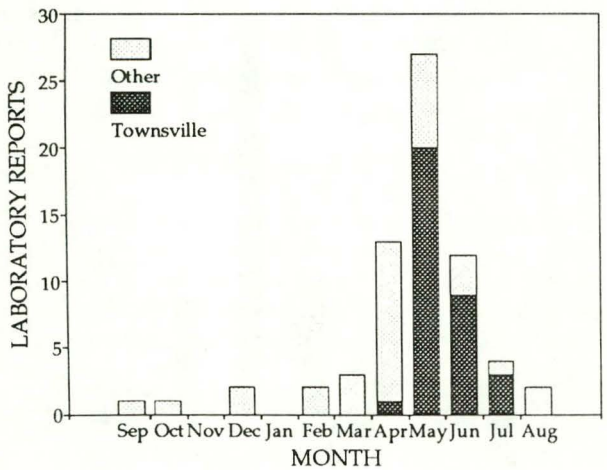


Figure 18. Untyped dengue laboratory reports, September 1991 to August 1992, by age group and sex

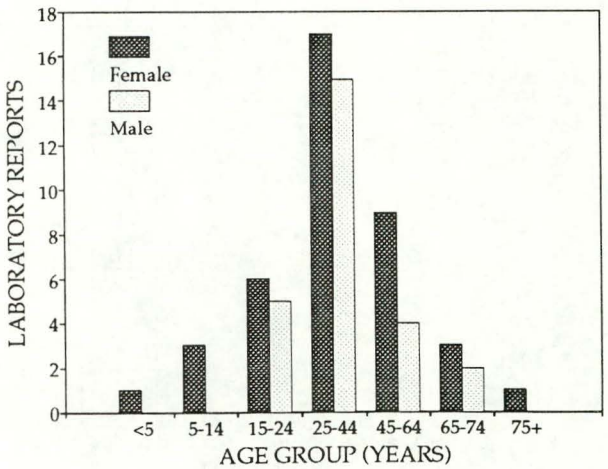


Figure 19. Notification of dengue by month of onset, Australia, September 1991 to August 1992

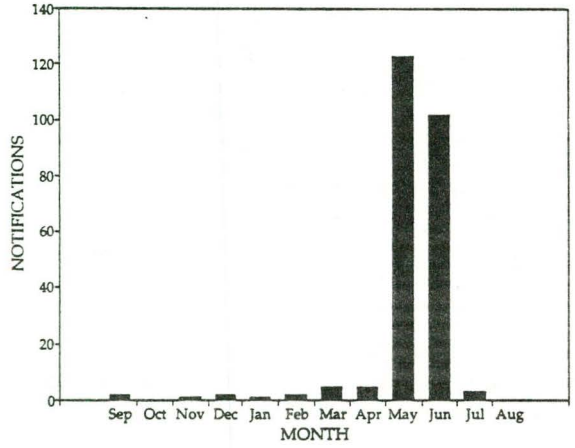
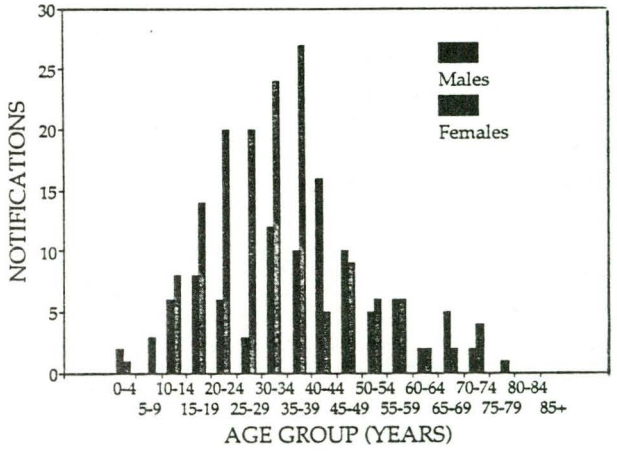


Figure 21. Notifications of dengue, September 1991 to August 1992, by age group and sex



National Notifiable Diseases Surveillance System

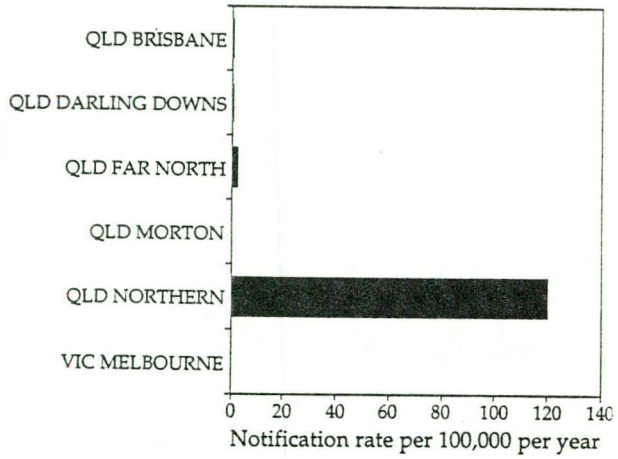
There were 246 notifications of dengue this season; 232 from Queensland, 10 from Victoria and 4 from the Northern Territory (Table 1). The National Notifiable Diseases Surveillance System does not collect information on serotype.

In a total of 225 (91.5%) of the cases, the month of onset was recorded as being in May or June (Figure 19).

All cases were reported from only 6 statistical divisions. A total of 216 (87.8%) were from the Northern Queensland statistical division, with an incidence rate there of 120 per 100,000 population per year (Figure 20).

There was a marked predominance of females (male:female ratio 1:1.63) who tended to be younger than the males, the average age for females being 32.9 years and for males being 37.8 years (Figure 21).

Figure 20. Rate of notification of dengue per 100,000 population per year, September 1991 to August 1992, by statistical division



Kokobera Virus

A single laboratory report of Kokobera virus was received. The patient was a 65 year old male, who was diagnosed by IgM in December 1991. The location was recorded as Rockhampton. No clinical information was supplied.

Stratford Virus

Stratford virus was reported for three patients in the *CDI* Laboratory Reporting Schemes. All were males, aged 25 years, 38 years and 39 years. Two were from Cairns, and the other was from New South Wales. Specimen collection dates were in November and December 1991, and all were diagnosed by demonstration of IgM (Table 5). Gastrointestinal symptoms were reported for one patient, and malaise/fever for another.

Kunjin Virus

Ten laboratory reports of Kunjin virus were received, all with Queensland or Northern Territory locations. There were 5 male patients and 5 females, all adults. No cases of encephalitis were included; bone/joint disease, general malaise and fever were the only symptoms reported. Specimen collection dates were spread throughout the year and all diagnoses were by demonstration of IgM.

Murray Valley Encephalitis Virus

There were two laboratory reports of Murray Valley encephalitis virus received. One was a 30 year old male from the Rockhampton area (September), and the other was a female from South Australia (March). No clinical information was supplied for either of these cases.

Flavivirus Untyped

Thirty-one laboratory reports of untyped flavivirus were received for the 12 month period. Five infections were known to have been acquired overseas, including a case of suspected Japanese encephalitis, acquired by a 34 year old male in July. Eight cases were from the Townsville area, and had specimen collection dates from April to July, coinciding with the outbreak of dengue 2 which occurred there then. Several other cases occurred sporadically in several locations in Queensland (Table 8).

All the patients were adults, ranging in age from 19 to 87 years. There were 13 males and 18 females. There was one case of encephalitis reported (referred to above), and one case of 'other nervous system disease', in a 35 year old female from the Cairns area; all other cases for which information was supplied had malaise or fever only or skin or bone/joint symptoms reported. Twenty-nine cases were diagnosed by IgM, and the remaining two by a four-fold change in titre.

References

1. Merianos A, Farland A-M, Patel M, Currie B, Dentith H and Smith D. A concurrent outbreak of Barmah Forest and Ross River virus disease in Nhulunbuy, Northern Territory. *Comm Dis Intell* 1992;**16**:110-111.

2. Lindsay M, Condon R, Mackenzie J, Johansen C, D'Ercole M, and Smith D. A major outbreak of Ross River virus infection in the south-west of Western Australia and the Perth metropolitan area. *Comm Dis Intell* 1992;**16**:290-294.

3. Marcon N. Ross River virus disease and Barmah Forest disease notifications, Victoria, summer 1991-1992. *Comm Dis Intell* 1992;**16**:404-406.

OVERSEAS BRIEFS

In the last two weeks, the following information has been supplied by the World Health Organization.

Cholera Update

Newly infected areas are Putumayo Department in Colombia, Piaui State in Brazil and Yoro Department in Honduras.

Cases for August and September have been reported for Angola, Belize, Bhutan, Bolivia, Brazil, China, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Iraq, Malawi, Mexico, Mozambique, Nepal, Nicaragua, Panama, Peru, Uganda and Venezuela.

Plague in Zaire

The outbreak of pneumonic plague in Zaire has included 191 cases and 78 deaths over the period 1 January to 31 August. All cases occurred in the Ituri Sub-region in the Haut-Zaire Province.

Influenza Update

The antigenic characteristics of the influenza viruses isolated in recent months have been investigated by the WHO Collaborating Centres for Reference and Research on Influenza in Atlanta, London and Melbourne. The results obtained show that the majority of the viruses are closely related to the strains recommended for vaccine for the coming northern winter.

Influenza A (H_3N_2) viruses have predominated worldwide. The isolates tested are antigenically heterogeneous, with an increasing proportion resembling the variant A/Washington/15/91 which is closely related to the vaccine strain A/Beijing/353/89. In addition, the spread of viruses related to the variant A/Shanghai/24/90 has been observed. These viruses have been identified recently in Australia, China and Thailand.

Few influenza A (H_1N_1) viruses have been isolated during this time, however, the majority of isolates from Argentina and New Zealand were of this subtype. Isolates tested were somewhat heterogeneous antigenically and were similar to the vaccine strain A/Singapore/6/86 or the variant A/Texas/36/91 which predominated in New Zealand.

Influenza B viruses have been received from China, Hong Kong, Indonesia, South Africa and the United States of America. The majority of isolates were antigenically similar to the vaccine strain B/Panama/45/90, and closely related to the variant B/Qingdao/102/91. Single isolates antigenically similar to B/Victoria/2/87 were also identified, one each from China and South Africa.

Meningococcal Meningitis in Burundi

An epidemic of meningococcal meningitis has caused 1,239 cases and 215 deaths in Burundi since 19 August. The weekly number of cases increased markedly in the last week of August and was over 300 in the following week (ending 6 September). Cases have been reported in 10 provinces, but mostly in the province of Ruyigi. About one-quarter of the cases has been in children under 10 years of age and about two-thirds were under 30 years, but cases have been observed in all age groups.

This is the first outbreak of meningococcal meningitis in Burundi reported to the WHO. This epidemic, and those in neighbouring Kenya, Uganda and the United Republic of Tanzania in the past few years may be an indication of the extension of the 'meningitis' belt south of the traditionally affected sub-Sahelian region.

COMMUNICABLE DISEASES SURVEILLANCE

Laboratory Reporting Schemes

There were 1,625 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 6, 7 and 8) and 238 reports received for LabDOSS (Sterile Sites Surveillance, Table 2).

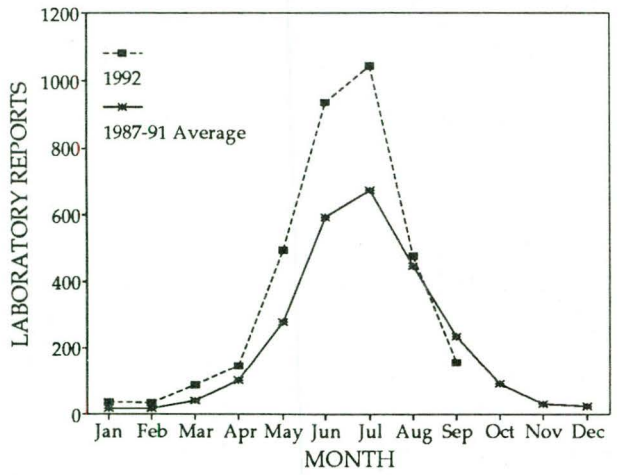
- **Influenza** was reported for 59 patients. A total of 50 were untyped **influenza A** (2 isolations, 1 antigen detection and 48 serological diagnoses - 44 single high titres, 1 IgM, 1 four-fold change, 2 other or not stated), and 9 of **influenza B** (1 antigen detection and 8 single high titres).

  There has now been a total of 1,194 reports of influenza A untyped and influenza A H_3N_2 peaked this year. They peaked in June and July, earlier than the peak which is usually seen in Australia in August.

  Eight reports of untyped influenza A this fortnight were in persons over the age of 65 years, as was 1 report of influenza B. Totals for the year are 247 influenza A untyped, 11 influenza A H_3N_2, 2 influenza A H_1N_1 and 17 influenza B in persons over the age of 65 years.

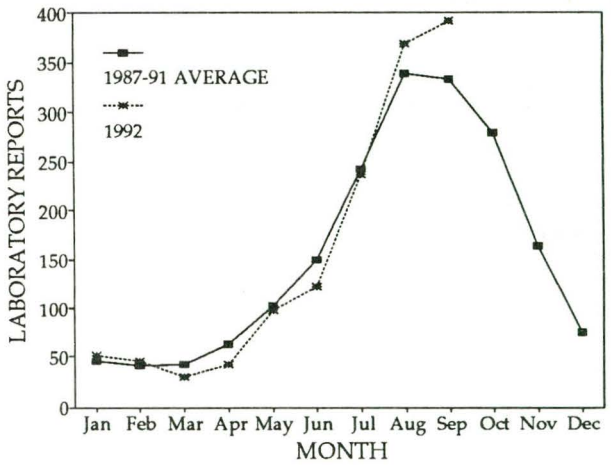
- **Respiratory syncytial virus** was reported for a total of 84 patients this fortnight, bringing the total for the year to 3,413, many more than the average for recent years (Figure 1). Six patients under the age of 1 year reported this fortnight had immunocompromisation reported as a risk factor. One patient had erythema multiforme as the reported symptom.

Figure 1. Respiratory syncytial virus laboratory reports, 1992 and 1987-91 average, by month of specimen collection



- There were 202 reports of **rotavirus** this fortnight. The number of reports of this virus this year has been about the same as the average for recent years, and peaked in August-September (Figure 2).

Figure 2. Rotavirus laboratory reports, 1992 and 1987-91 average, by month of specimen collection



- *Mycoplasma pneumoniae* infection was reported for 126 patients this fortnight, bringing the total for the year to 877, more than for any year since 1988, which was the last year in which there was increased activity of this organism in Australia. Reports were received from New South Wales, Queensland, Victoria, Western Australia and South Australia, which have all had increased reports over the last 3 to 4 months. Multi-system failure was reported for a male patient who was diagnosed by detection of IgM.

- Twenty-nine reports of **rubella** were received this fortnight. Twenty-five reports were in males, but there were 2 reports in females of reproductive age (21 years, 38 years). Reports were received from laboratories in Queensland, Victoria and Western Australia this fortnight.

- There were 88 reports of **hepatitis B**. Included were 10 pregnant females and a 10 year old male whose mother was a carrier.

- **Hepatitis C** was reported for 117 patients. A history of injecting drug use was reported for 24 patients, 1 patient had a history of blood transfusion, 3 had tattoos identified as a risk factor (1 also with injecting drug use history, 1 also with blood transfusion history), 3 patients had renal failure and were on haemodialysis, 2 were pregnant, 3 were haemophiliacs (1 also HIV positive), 1 was the 5 month old son of a hepatitis C positive female, 1 had a hepatitis C positive husband, 1 had a history

Table 1. Australian Sentinel Practice Research Network, Weeks 40 and 41, 1992

Condition	Week 40, to 4 October 1992		Week 41, to 11 October 1992	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	59	10.4	26	6.1
Measles	1	0.2	2	0.5
Mumps	0	0	0	0
Rubella	5	0.9	3	0.7
Pertussis	0	0	0	0
Genital herpes	3	0.5	4	0.9
Gastroenteritis	86	15.1	38	8.9

of a needle stick, and 1 was diagnosed and identified as the donor following a needle stick injury to a staff member.

- Two reports of **adenovirus type 34** were received this fortnight, the first ever reported to the laboratory reporting schemes. The patients were a 2 year old male and a 2 year old female, both from South Australia and both reporting gastrointestinal symptoms. The virus was isolated from faeces in both cases.
- There were 3 reports of **echovirus type 7** this fortnight, following a single report of this virus last fortnight. Three have been from Victoria and 1 from New South Wales, and all had August specimen collection dates. Meningitis and/or CSF isolate was reported for 2 patients, and respiratory symptoms for another. This virus is usually very rare in Australia; 5 or fewer reports of it have been received each year since 1987, however there was a large outbreak during 1985.
- There were 5 reports of **echovirus type 25** received from New South Wales laboratories. All patients were aged 1 year or less. Encephalitis was the reported symptom for a 2 month old male, lower respiratory tract disease was reported for a 1 year old male, and gastrointestinal symptoms were reported for a 3 month old female. This virus is usually rare in Australia; fewer than 10 cases have been reported in most years.
- There were 36 reports of **cytomegalovirus** infection. Included were 1 HIV positive patient, 2 patients with a history of transplant (1 heart, 1 not stated), 3 patients who were pregnant, and a 5 day old infant.
- **Q fever** was reported for 9 patients, all males. Hepatic disease was reported for one 45 year old patient.
- ***Chlamydia trachomatis*** infection was reported for 157 patients this fortnight. Included were 3 infants under the age of 1 month (1 7 days old, 1 8 days old, 1 not stated), 2 with eye infections and 1 with lower respiratory tract disease, and a 23 year old female who was diagnosed after her baby was found to have an eye infection. There has been a total of 10 infants under the age of 1 month, and 30 aged 1 to 11 months, reported with *Chlamydia trachomatis* eye infections this year.
- **Syphilis** was reported for 8 patients. Included was a 77 year old female who was being investigated for Alzheimer's Disease.

Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network collected data from 5,686 patient encounters in Week 40 and 4,255 patient encounters in Week 41 (Table 1). The rate of reporting of influenza has continued to decline, back to the levels recorded before the influenza season began this year. Rubella continues to be reported at a higher rate than earlier in the year, coinciding with increased laboratory reports of the virus and notifications of rubella to the National Notifiable Diseases Scheme.

Sterile Sites Surveillance (LabDOSS)

Data for September have been provided by nine laboratories, and Gosford Central Coast Area Health Service also provided data for August.

A total of 238 reports have been included for this report (Royal Hobart Hospital 8, Liverpool Hospital 49, Concord Hospital 34, Royal North Shore Hospital 25, Northern Tasmania Pathology Service 14, Nambour Hospital 11, Toowoomba Hospital 19, TB Lynch Pathologists, Rockhampton 4 and Gosford Central Coast Area Health Service 74).

Thirty nine isolates of *Staphylococcus aureus* were reported during this period. Of these, eight isolates were further identified as methicillin resistant *Staphylococcus aureus* (MRSA) and were reported by two laboratories (Gosford Central Coast Area Health Service 4 and Concord Hospital 4). Seven isolates were obtained from males aged between 69 and 80 years.

Gosford Central Coast Area Health Service reported a case of enteric fever in a 38 year old Philippino male. *Salmonella typhi* was isolated from a blood sample of this patient.

Table 2. LabDOSS reports of blood isolates for September 1992

Organism	Total[1]	Clinical Information					Risk Factors				
		Lower respiratory	Endocarditis	Gastrointestinal	Urinary Tract	Skin	Surgery	Immunosuppressed	IV line	Perinatal	Neonatal
Staphylococcus aureus	39	1		3	4	9	7	9	8		
Staphylococcus epidermidis	9		1		1		1	2	1		
Staphylococcus coagulase negative	14	1	1			2		1	2		1
Streptococcus pneumoniae	18	15	1					1			
Streptococcus sanguis	6	1	1					1			1
Enterococcus faecalis	9		1	1	3			2			1
Escherichia coli	37		2	6	15		4	10			
Haemophilus influenzae	6	2									
Bacteroides fragilis	5			1			1	3			
Klebsiella pneumonia	5			2	1			1			
Proteus morabilis	6				3		1	1			
Pseudomonas aeruginosa	7	1		1	1	1	2	3			1
Candida albicans	5						3		2		

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

Organisms reported 5 or more times from blood are detailed in Table 2. Other blood isolates not included in Table 2 were:

Gram positive: 1 *Streptococcus* Group A, 1 *Streptococcus* Group B, 4 *Streptococcus* Group G, 3 *Streptococcus milleri*, 2 *Streptococcus* species, 2 *Corynebacterium* species, 1 *Enterococcus* species, *Aerococcus* species, 1 *Listeria monocytogenes*.

Gram negative: 3 *Klebsiella* species, 4 *Klebsiella oxytoca*, 2 *Enterobacter aerogenes*, 2 *Enterobacter cloacae*, 1 *Enterobacter* species, 1 *Serratia marcescens*, 1 *Citrobacter diversus*, 1 *Pseudomonas* species, 1 *Neisseria meningitidis*, 1 *Salmonella typhi*, 1 *Yersinia enterocolitica*, 3 *Morganella morganii*.

Anaerobes: 2 *Bacteroides* species, 3 *Bacteroides thetai*, 2 *Clostridium* species, 1 *Clostridium clostridii*, 2 *Clostridium perfringenes*, 1 *Peptostreptococcus* species, 1 *Propionibacterium* species.

CSF Isolates and Meningitis Reports

There were 12 reports of meningitis during this period. *Haemophilus influenzae* type b was isolated from six of these cases. Four isolates were reported from children under the age of 1 year and two were reported from children under the age of 2 year. Two 1 year old children were reported by Liverpool Hospital from an area with same postcode. *Neisseria meningitidis* was isolated from 2 cases. One isolate was from a 3 year old male and other isolate was from a 18 year old male. There were 3 cases of *Streptococcus pneumoniae* reported from patients whose age ranged from 3 to 34 years. Immunodeficiency was reported as the risk factor for the 34 year old male. *Cryptococcus neoformans* was isolated from a 45 year old immunocompromised male.

Isolates from Sites other than Blood or CSF

Peritoneal dialysate: *Campylobacter jejuni* isolate was reported from a 56 year old immunocompromised male following gastrointestinal illness. The patient later died. *Staphylococcus epidermidis* was reported from a 27 year old male with chronic ambulatory peritoneal dialysis. *Alciligenes faecalis* was reported in a 45 year old immunocompromised female.

Joint fluid: *Staphylococcus aureus* reported from a male with no risk factors. *Streptococcus* species was isolated from a 63 year old male with discitis.

Pleural fluid: *Escherichia coli* was reported from a 66 year old female following colectomy and ileostomy. *Pseudomonas aeruginosa* also reported from this patient.

Other: *Staphylococcus aureus* was isolated from a paraspinal abscess for a 61 year old male patient.

National Notifiable Diseases Surveillance System Reports 20 September to 3 October 1992

A total of 2,127 reports of notifiable diseases was received during this period and all were in a format suitable for analysis (Tables 3, 4 and 5, Figure 4). In this report statistical divisions used by the Australian Bureau of Statistics are used for geographical analysis. Due to a programming error the year to date totals in the last notifiable diseases report (*CDI* 1992;**16**:431-432)

were incorrect, however Tables 3, 4 and 5 gave the correct year to date figures.

- There were 104 notifications of **Ross River virus infection** received this period, bringing the total so far this year to 5,088. Forty-seven of the cases were in males and 57 were in females. Ages ranged from the 5-9 to the 80-84 years age groups. Dates of onset were recorded as April in 1, May in 4, June in 34, July in 4, August in 11, September in 46 and October in 3. Cases were notified predominantly from northern and coastal Queensland.
- There was a single report of **brucellosis** in a male in the 20-24 years age group, from rural Queensland.
- There were 80 notifications of **gonococcal infection** reported, to bring the total for the year to date to 2,098. Of the cases reported this period, 59 were in males and 21 were in females.
- There were 7 notifications of ***Haemophilus influenzae* type b infection** reported. Of these, 3 were in males and 4 were in females and all were aged less than 5 years. There were no apparent clusters of cases. A total of 338 cases have been notified thus far this year.
- A total of 55 cases of hepatitis A was reported this period, 36 males and 19 females, bringing the notifications for the year so far to 1,366. Sixteen of the cases were aged less than 15 years and the peak incidence was reported in the 25-29 years age group (11 cases). Cases were most frequently reported from rural Queensland.
- There were 5 notifications of legionellosis, and 2 were from adjacent postcode areas with the same date of onset. Three were in males aged between 60 and 74 and 2 were in females in the 70-79 years age groups.
- A single report of a notification of leprosy was received, in a male in the 45-49 years age group.
- There was a single notifications of leptospirosis received in a male of unknown age from rural Tasmania.
- Twenty-nine notifications of **measles** were received, bringing the total for the year to 613. Of the cases reported this period, 3 were aged less than 1 year and the mean age was 9.5 years. Males accounted for 19 of the cases and females 10. There were 3 apparent clusters of cases.
- There were 6 cases of **meningococcal infection** reported, 2 males and 4 females, bringing the total for the year to 190 cases. Three of the cases were aged less than 5 years. All cases were apparently epidemiologically unrelated.
- There were 17 notifications of **pertussis** this period, for a total this year of 353 cases. Of the cases, 7 were in males and 10 were in females; 5 were aged less than 5 years and 5 aged less than 1 year.
- Fifteen notifications of **Q fever** were reported this period, 14 males and 1 female, to bring the total notifications for the year so far to 332. Cases were reported predominantly from rural Queensland, rural new South Wales, rural South Australia and Melbourne.
- The **rubella** epidemic has not abated; there was a total of 272 notifications. Of these, 205 were in males, 65 were in females and the sex was not recorded in 2. The cases to date this year now total 971. The increase in the number of cases with onset dates after July has continued to rise (Figure 3). Of the female cases, 19 were in the 15-44 years age group; of the males, 28 were in the 10-14 years age group, 77 in the 15-19 years age group and 37 were in the 20-24 years age group. For the sexes combined, 5 cases were aged less than 1 year, and the mean age was 17.5 years. There were 47 apparent clusters in separate postcode areas with 2 to 14 cases in each cluster.
- There was a single case of **typhoid** notified, in a female in the 30-34 years age group, bringing the total this year to 37.

Figure 3. Rubella notifications, 1992, by month of onset

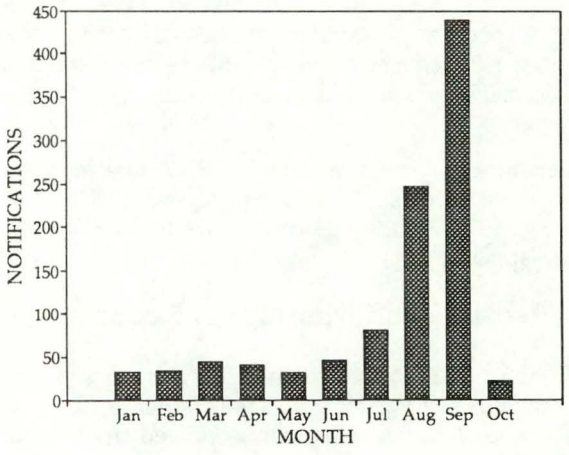
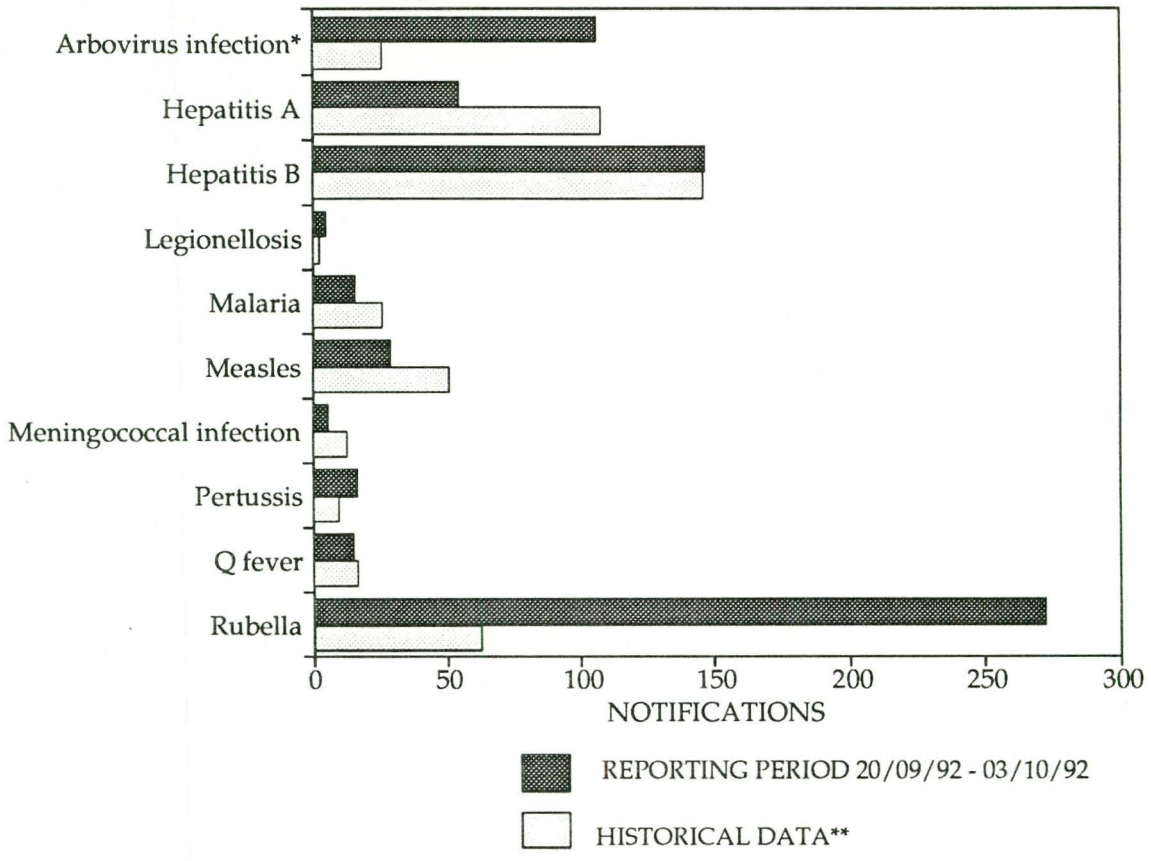


Figure 4. Selected National Notifiable Diseases Reports, and historical data **



* Includes Ross River virus and Dengue

** The Historical data are the averages of the number of notifications in 3 previous 2-week reporting periods: the corresponding period for last year and the periods immediately preceding and following that.

Table 3. Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 20 September to 3 October 1992

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This Period 1992	This Period 1991	Year to Date 1992	Year to Date 1991
Diphtheria	0	0	0	0	0	0	0	0	0	0	12	7
Measles	4	6	0	3	1	1	14	0	29	59	613	944
Mumps	0	0	NN	NN	NN	NN	0	NN	0	NN	11	NN
Pertussis	0	2	0	2	2	1	5	5	17	13	353	266
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella[2]	83	2	0	36	9	0	142	0	272	126	971	440
Tetanus	0	0	0	NN	0	0	0	0	0	0	10	6

1. 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.

2. NT, Tas, WA: CRS only; ACT, NSW, Qld: rubella only; SA, Vic: rubella and CRS.

NN Not Notifiable.

Table 4. Other Notifiable Diseases[1], for the reporting period 20 September to 3 October 1992

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2] This Period 1992	This Period 1991	Year to Date 1992	Year to Date 1991
Arbovirus infection (NEC)[3]	0	0	NN	2	0	0	0	0	2	4	276	177
Ross River virus infection	1	-	7	84	-	NN	0	12	104	28	5088	3362
Dengue	0	-	0	0	-	NN	0	NN	0	0	265	42
Campylobacteriosis[4]	1	-	8	89	72	20	68	52	310	349	6155	6131
Chlamydial infection (NEC)	1	NN	26	115	0	10	35	0	187	146	4241	3045
Donovanosis	0	NN	0	1	NN	NN	0	0	1	4	62	51
Gonococcal infection[5]	1	11	19	22	0	0	1	26	80	68	2098	1832
Haemophilus influenzae type b[6]	0	0	NN	1	4	0	2	NN	7	33	338	415
Hepatitis A	4	3	9	30	2	0	6	1	55	144	1366	1433
Hepatitis B	9	27	3	46	0	2	50	10	147	173	4636	2901
Hepatitis C	11	46	15	479	NN	2	41	NN	594	278	6184	2830
Hepatitis (NEC)	0	0	0	0	1	0	0	NN	1	3	42	234
HIV infection[7]	0	1	0	0	1	1	0	7	10	1	202	33
Legionellosis	0	0	0	0	0	0	2	3	5	4	127	81
Leptospirosis	0	0	0	0	0	1	0	0	1	14	78	113
Listeriosis	0	0	NN	0	NN	0	0	0	0	1	25	32
Malaria	0	0	0	10	1	0	5	0	16	23	543	624
Meningococcal infection	0	1	0	1	0	0	2	2	6	12	190	208
Ornithosis	0	NN	0	0	0	0	0	0	0	1	69	83
Q fever	0	4	0	9	1	0	1	0	15	25	332	505
Salmonellosis (NEC)	1	4	6	39	13	3	14	20	100	143	3604	4402
Shigellosis[4]	0	-	4	1	2	0	3	12	22	32	487	713
Syphilis	1	19	28	36	0	0	1	7	92	79	1802	1504
Tuberculosis	0	2	3	6	0	1	21	2	35	29	579	412
Typhoid[8]	0	0	0	0	1	0	0	0	1	4	37	58
Yersiniosis[4]	0	-	0	4	9	0	1	0	14	15	469	411

1. For rarely notified diseases, see Table 5.
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. NSW, SA, Tas: includes Ross River virus and dengue. WA: includes dengue.
4. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
5. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
6. SA: only as 'bacterial meningitis'; meningococcal infection is separately notified; Tas: only as 'non-meningococcal meningitis'; Vic: epiglottitis and meningitis only.
7. More complete data on new diagnoses of HIV infections are presented in the monthly *Australian HIV Surveillance Report*.
8. NSW and Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

Table 5. Rarely Notified Diseases[1] for the reporting period 20 September to 3 October 1992

DISEASES	Total this period	Reporting States or Territories	Year to date 1992
Botulism			0
Brucellosis	1	Qld	17
Cholera			3
Chancroid	2	ACT 1, WA 1	5
Hydatid infection			26
Leprosy	1	WA	11
Lymphogranuloma venereum			3
Plague			0
Rabies			0
Yellow fever			0
Other viral haemorrhagic fevers			0

1. 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 23 September to 6 October 1992, historical data[1], 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	4	3	4				12	11.0	137
Mumps virus		1						1	.7	37
Rubella virus			10			4	15	29	8.8	224
HEPATITIS VIRUSES										
Hepatitis A virus		1	11			1	1	14	14.8	274
Hepatitis B virus		34	33	2		8	11	88	91.2	1,830
Hepatitis C virus	1		40	51	2		23	117	31.8	1,883
ARBOVIRUSES										
Ross River virus			1				2	3	23.5	1,197
Barmah Forest virus			1				3	4	.8	210
Dengue type 2			4					4	.3	237
Dengue not typed							1	1	5.8	67
ADENOVIRUSES										
Adenovirus type 1		6		1		1		8	4.8	80
Adenovirus type 2		13		4		4		21	7.3	100
Adenovirus type 3		3		3		1		7	3.5	42
Adenovirus type 4		2		5		2		9	2.3	25
Adenovirus type 5		3						3	2.5	22
Adenovirus type 6				1				1	.3	5
Adenovirus type 7						1		1	.0	5
Adenovirus type 8						3		3	2.2	25
Adenovirus type 19						1		1	.0	20
Adenovirus type 34				2				2	.0	2
Adenovirus type 35							1	1	.0	2
Adenovirus not typed/pending		4	1	28		19	6	58	31.8	850
HERPES VIRUSES										
Herpes simplex virus type 1		6	32	18		52	15	123	118.8	2,785
Herpes simplex virus type 2		11	48	26		33	35	153	161.3	3,491
Herpes simplex not typed/pending	2	32	2			4	3	43	33.3	719
Cytomegalovirus		8	10			16	2	36	83.3	1,479
Varicella-zoster virus		9	21	2		5	1	38	20.5	520
Epstein-Barr virus	1		5	25		5	4	40	48.8	1,232
OTHER DNA VIRUSES										
Parvovirus						4		4	.5	116
PICORNA VIRUS FAMILY										
Coxsackievirus A9		1						1	1.8	6
Coxsackievirus B5						2		2	.7	31
Echovirus type 7		1				2		3	.0	5
Echovirus type 9		5					1	6	.2	165
Echovirus type 16						1		1	.2	18
Echovirus type 22						1		1	.5	7
Echovirus type 25		5						5	.5	7
Echovirus not typed/pending			1					1	.2	1
Poliovirus type 1 (uncharacterised)						2		2	2.0	49
Poliovirus type 2 (uncharacterised)		1		1				2	1.5	41
Poliovirus type 3 (uncharacterised)		2						2	1.2	29

Table 6. Laboratory reports by State or Territory of reporting laboratory for the reporting period 23 September to 6 October 1992, continued

	STATE OR TERRITORY OF REPORTING LABORATORY							Total this fortnight	Historical data[1]	Total reported this year
	ACT	NSW	Qld	SA	Tas	Vic	WA			
Poliovirus type 3 (vaccine strain)		1						1	.0	2
Rhinovirus (all types)		11				32		43	21.2	514
Enterovirus type 71 (BCR)		1				1		2	.3	18
Enterovirus not typed/pending		2	1			11	6	20	15.8	693
ORTHO/PARAMYXOVIRUSES										
Influenza A virus		1	2	27		1	19	50	12.7	1,037
Influenza B virus		1		1			7	9	22.8	121
Parainfluenza virus type 2						1	1	2	2.7	60
Parainfluenza virus type 3		3	3	2		7	13	28	15.8	393
Parainfluenza virus typing pending						3	1	4	4.0	83
Respiratory syncytial virus	1	12		17	6	34	14	84	191.5	3,486
OTHER RNA VIRUSES										
HIV-1							3	3	2.7	25
Rotavirus		94		28	8	53	19	202	189.7	1,599
Astrovirus		2						2	2.8	13
Calici virus		2						2	1.3	22
Small virus (like) particle		2					1	3	2.8	50
OTHER										
Chlamydia trachomatis not typed		11	85	29		10	22	157	145.7	2,135
Chlamydia pneumoniae						1		1	.0	12
Chlamydia psittaci						1		1	4.2	84
Chlamydia species		1						1	.0	2
Mycoplasma pneumoniae		40	46	6		20	14	126	18.3	951
Coxiella burnetti (Q fever)		4	2	1		1	1	9	10.3	208
Streptococcus species			11					11	.0	27
Bordetella species			2					2	.0	8
Leptospira species			1					1	.0	10
Treponema pallidum		3	5					8	.0	110
Toxoplasma gondii			2					2	.0	17
TOTAL	6	343	383	284	16	348	245	1,625	1,383.7	29,655

1. 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. Laboratory reports by clinical information for the reporting period 23 September to 6 October 1992

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA													
Measles virus								9				3	12
Mumps virus												1	1
Rubella virus								21		2		6	29

Table 7. Laboratory reports by clinical information for the reporting period 23 September to 6 October 1992, continued

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
HEPATITIS VIRUSES													
Hepatitis A virus							10					4	14
Hepatitis B virus					1		27	2			1	57	88
Hepatitis C virus			1				49					67	117
ARBOVIRUSES													
Ross River virus										1		2	3
Barmah Forest virus								2		1		1	4
Dengue type 2												4	4
Dengue not typed												1	1
ADENOVIRUSES													
Adenovirus type 1					2	2						4	8
Adenovirus type 2	1				7	8						5	21
Adenovirus type 3					4	1			2				7
Adenovirus type 4					4	1			3			1	9
Adenovirus type 5						3							3
Adenovirus type 6					1								1
Adenovirus type 7									1				1
Adenovirus type 8									3				3
Adenovirus type 19									1				1
Adenovirus type 34						2							2
Adenovirus type 35												1	1
Adenovirus not typed/pending					25	13	1	1	2			16	58
HERPES VIRUSES													
Herpes simplex virus type 1					7		1	83	1		29	2	123
Herpes simplex virus type 2								59			89	5	153
Herpes simplex not typed/pending					1			25	1		3	13	43
Cytomegalovirus				7	6				1			22	36
Varicella-zoster virus								32				6	38
Epstein-Barr virus					2							38	40
OTHER DNA VIRUSES													
Parvovirus								1		1		2	4
PICORNA VIRUS FAMILY													
Coxsackievirus A9					1								1
Coxsackievirus B5		2											2
Echovirus type 7					2							1	3
Echovirus type 9	1	3										2	6
Echovirus type 16					1								1
Echovirus type 22					1								1
Echovirus type 25	2				1	1						1	5
Echovirus not typed/pending												1	1
Poliovirus type 1 (uncharacterised)					2								2
Poliovirus type 2 (uncharacterised)						2							2
Poliovirus type 3 (uncharacterised)												2	2
Poliovirus type 3 (vaccine strain)						1							1
Rhinovirus (all types)					36	1						6	43

Table 7. Laboratory reports by clinical information for the reporting period 23 September to 6 October 1992, continued

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
Enterovirus type 71 (BCR)		1						1					2
Enterovirus not typed/pending		2			6	4		3				5	20
ORTHO/PARAMYXOVIRUSES													
Influenza A virus					34					2		14	50
Influenza B virus					5							4	9
Parainfluenza virus type 2					2								2
Parainfluenza virus type 3					23							5	28
Parainfluenza virus typing pending					4								4
Respiratory syncytial virus					76			1				7	84
OTHER RNA VIRUSES													
HIV-1												3	3
Rotavirus						199						3	202
Astrovirus												2	2
Calici virus						1						1	2
Small virus (like) particle						2						1	3
OTHER													
Chlamydia trachomatis not typed					1	2			4		117	33	157
Chlamydia pneumoniae					1								1
Chlamydia psittaci					1								1
Chlamydia species					1								1
Mycoplasma pneumoniae					86			1				39	126
Coxiella burnetti (Q fever)					1		1					7	9
Streptococcus species					1			1				9	11
Bordetella species					1							1	2
Leptospira species												1	1
Treponema pallidum												8	8
Toxoplasma gondii												2	2
TOTAL	4	8	1	7	347	243	89	242	19	7	239	419	1625

Table 8. Laboratory reports by contributing laboratories for the reporting period 23 September to 6 October 1992

STATE	Laboratory	Reports
Australian Capital Territory	Woden Valley Hospital, Canberra	6
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	217
	Royal Alexandra Hospital for Children, Camperdown	46
	South West Area Pathology Service, Liverpool	80
Queensland	Queensland Medical Laboratory, West End	322
	State Health Laboratory, Brisbane	61
South Australia	Institute of Medical & Veterinary Science, Adelaide	284
Tasmania	Northern Tas Pathology Service, Launceston General Hospital	16
Victoria	Fairfield Hospital, Melbourne	170
	Microbiological Diagnostic Unit, University of Melbourne	9
	Royal Children's Hospital, Melbourne	169
Western Australia	Princess Margaret Hospital, Perth	58
	State Health Laboratory Services, Perth	187
TOTAL		1625