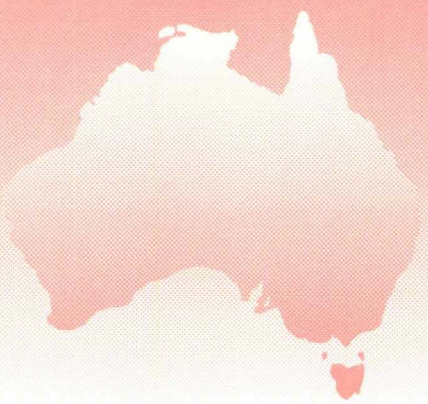

COMMUNICABLE DISEASES INTELLIGENCE

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CONTENTS

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

PILOT STUDY OF MEASLES IMMUNITY IN INFANTS AGED FOUR TO SIX MONTHS

Mark J Ferson, Director, Public Health Unit, Eastern Sydney Area Health Service; L Ross Whybin, Senior Hospital Scientist and Peter W Robertson, Principal Hospital Scientist, Department of Microbiology, The Prince of Wales Hospital; Randwick, New South Wales

The National Health and Medical Research Council has no detailed recommendations on the use of normal human immunoglobulin to protect infants under the age of 12 months who have been exposed to measles[1]. It has been considered that such passive immunisation is unnecessary in infants under six months of age, as they are are believed to be protected by the presence of maternal antibodies acquired as a result of measles infections in childhood[2]. However, mothers of newborn babies now largely belong to cohorts which received live measles vaccine and were not exposed to natural measles infection. Recent studies suggest that a significant proportion of babies born to these mothers have lost maternally derived measles antibodies by six months of age[3-5]. We report a pilot study in infants aged between four and six months, the aim of which was to determine the prevalence of maternally derived measles immunity in this age group.

Subjects and methods

For the study, leftover sera were used which had been stored in the Serology Department, The Prince of Wales Hospital, from 20 infants aged approximately four to six months who had undergone serological testing for other infectious diseases between June and September 1994. The indication for the original serological test, date of birth, specimen collection date and infant's sex were obtained for each specimen, together with the gestational age, when possible. All sera were tested for the presence of measles-specific IgG antibodies by enzyme immunoassay (EIA) as previously described[6,7]. Epi Info version 5 was used for data analysis.

Results

Sera from 20 infants (12 female, seven male, one unknown) aged between 111 and 181 days were tested for measles IgG antibodies. The most common reason for the original test was to perform respiratory serology (14 infants, mainly for the presence of *Bordetella* IgA antibody), whilst two required a TORCH screen (for possible congenital infections), two required hepatitis serology and two were referred for HIV p24 antigen testing. Of the 20 infants, fifteen (75%) were seronegative for measles IgG antibodies and only five were seropositive. Gestational age was only available for 11 infants, of whom nine were born at term (at least 37 weeks' gestation) and two were premature (32 and 34 weeks). Both premature infants and seven of the nine term infants were seronegative.

Discussion

Whilst the duration of vaccine induced immunity in uncertain, it is unlikely to be lifelong[8]. Nowadays, many young adults, including women of child-bearing age, have received measles vaccine rather than having been exposed to natural measles infection. As a result, younger women who received vaccine in infancy were more likely to lack measles IgG antibodies when tested antenatally than were older women[3]. In the present pilot study, 75% of infants aged four to six months lacked measles IgG antibody, although this may have been influenced by two infants having been born prematurely and a further two having been born to HIV-infected mothers. Nonetheless, our figures are comparable to those of Chui et al who found that 78% of infants were seronegative by EIA at six months[4] and to those of Kamat et al who found that 74% of four to five month old infants were seronegative when tested by indirect fluorescent antibody assay[5].

Larger studies to confirm our findings would be desirable. In the meantime, however, we suggest that the NHMRC recommend that there be no lower age limit for the administration of normal human immunoglobulin to measles contacts.

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MENINGOCOCCAL ISOLATE SURVEILLANCE REPORT, AUSTRALIA, 1 JANUARY TO 30 JUNE 1994

Reference laboratories in each State and Territory are collaborating in the examination of strains of *Neisseria meningitidis* isolated throughout Australia. Initially the serogroup and antibiotic susceptibility of invasive isolates will be reported. It is anticipated that further strain differentiation in the form of serotyping and serosubtyping will become available subsequently.

The laboratories (see below) examined eighty-three isolates of *Neisseria meningitidis* from cases of invasive meningococcal disease in the first six months of 1994. Fifty of the strains were serogroup B, 30 serogroup C, one serogroup A, one serogroup W135 and one isolate was not groupable (Table). Some geographic differences in serogroup distribution were noted, for example, the preponderance of serogroup C isolates in South Australia and the absence of this serogroup in Western Australia, where serogroup B was most common. However, the number of isolates examined is as yet too small to place too great an emphasis on these variations.

Forty-seven isolates were from blood and/or CSF, and 36 were from blood only.

The strains were also examined for their sensitivity to antibiotics used in the treatment and prophylaxis of meningococcal disease, namely, penicillin, ceftriaxone, chloramphenicol, rifampicin, and ciprofloxacin. While none of the isolates tested in this period were resistant to any of the above agents, reports overseas indicate that strains of *Neisseria meningitidis* with decreased susceptibility to penicillin and other antibiotics are being isolated with increasing frequency. The monitoring of the antibiotic susceptibility of Australian isolates will therefore continue as part of this project.

The cooperation of laboratories throughout Australia contributing to this surveillance is greatly appreciated. Isolates of meningococci may be sent to the reference centres listed below:

Western Australia

Chris Richardson (or in his absence Christina Farrer)
Department of Microbiology
Princess Margaret Hospital for Children
1 Thomas Street
SUBIACO WA 6008
phone (09) 340 8273; fax (09) 340 8117

Queensland

John Bates
Laboratory of Pathology and Microbiology
63 George Street
BRISBANE QLD 4000
phone (07) 224 5556; fax (07) 221 9737

South Australia

David Hansman
Department of Microbiology
Adelaide Children's Hospital
72 King William Road
NORTH ADELAIDE SA 5006
phone (08) 204 7326

Table. Meningococcal isolates, 1 January to 30 June 1994, by State or Territory, site and serogroup

State or Territory	Total isolates	Site					
		CSF +/- blood			Blood only		
		Serogoup B	Serogroup C	Other	Serogroup B	Serogroup C	Other
Queensland	25	8	5	1[1]	7	4	
Victoria	15	8	3		2	2	
ACT	1	1					
New South Wales	22	7	4		5	6	
South Australia	8		4		2	2	
Western Australia	12	4		2[2]	6		
Total	83	28	16	3	22	14	0

1. Not groupable.
2. One strain each of serogroups A and W135.

Victoria

Julia Griffith
Microbiological Diagnostic Unit
University of Melbourne
PARKVILLE VIC 3052
phone (03) 344 5701

New South Wales

John Tapsall
Microbiology Department
The Prince of Wales Hospital
RANDWICK NSW 2031
phone (02) 399 4084

Rosemary Munro
Microbiology Department
Liverpool Hospital
LIVERPOOL NSW 2170
phone (02) 600 3697

Tasmania

Keith Ott
Department of Microbiology
Royal Hobart Hospital
HOBART TAS 7000
phone (002) 388 410

ACT

Justin Raby
Department of Microbiology
Woden Valley Hospital
PO Box 11
WODEN ACT 2606
phone (06) 244 2425

Northern Territory

Strains are referred from Alice Springs and Royal Darwin Hospitals.

CDI editorial comment

These are the first results from the National *Neisseria* Network, which is aiming to furnish an ongoing national documentation of meningococcal isolate serogroup and antibiotic susceptibility information. The serotyping and serosubtyping also being undertaken will enable more detailed epidemiological analysis of meningococcal disease in Australia.

There were 150 notifications of meningococcal infection reported to the National Notifiable Diseases Surveillance System with onset in the period 1 January to 30 June 1994. A total of 397 has been reported so far for the period 1 January to 31 December 1994. This compares with totals of 378, 292 and 285 reported for 1993, 1992 and 1991 respectively.

LEPTOSPIROSIS IN VICTORIA IN 1992 AND 1993 - A REPORT FROM A DIAGNOSTIC LABORATORY

Anne Midwinter[1] *and Solly Faine, Leptospirosis Laboratory, Department of Microbiology, Monash University, Clayton, Victoria*

Introduction and methods

This report analyses the results of microscopic agglutination tests (MAT) for leptospirosis[1,2] on sera from patients referred for testing to the Leptospirosis Laboratory, Department of Microbiology, Monash University, Victoria through their medical practitioner or a pathology laboratory in 1992 and 1993. The laboratory performs MAT testing routinely two to three times weekly. It does not usually culture specimens or test urine samples for leptospires.

Criteria for 'positive' tests were MAT titres of ≥50. 'New positives' were defined as patients with titres ≥400 and/or a fourfold rise in titre to ≥400[1,2]. Those not known to have had titres of ≥400 previously were notified to the Victorian Department of Health and Community Services (H&CS). Titres between 50 and 400 were regarded as residual from previous infection. Antibody titres decay about 10% per year[3], but an underlying residual titre can be found in 5 to 30% of patients[3-6].

Information provided in each test request included the patient's name and address, referring doctor and date of specimen collection. Occupation was added frequently, but the date of onset of illness and clinical details were rarely provided. Records kept in a computer database and in record books and cards were selected from the database and compared with notification figures and other data from Victorian Government sources (H&CS and the Department of Agriculture) and other publications. The patients reviewed had been acutely ill and suspected of having leptospirosis or were being followed up after previous diagnosis. Screening and routine tests results were excluded.

The aims of the analysis were to check whether the data were representative of the notified population and a valid sample, and to ascertain from them the amount

1. Present address: Centaur Diagnostic Laboratory, Bendigo, Victoria.

and nature of leptospirosis recorded. Particular questions asked were: How many patients were tested and what proportion of tests were reactive? What proportion of tests represented new or past infections? How many patients required more than one test for confirmation of diagnosis? What serovars of leptospirosis reacted? Where in the State did the patients live?

Leptospirosis is endemic in rural Victoria, especially in the dairy-farming areas broadly defined as the western (Geelong to Warrnambool), south-eastern (Gippsland) and northern (Murray-Goulburn) regions. The postcodes of the patients' addresses were used to determine geographical distribution, and this was compared with the districts reported in the H&CS notifications for further validation of data.

Results and comments

There were 865 and 727 patients tested, respectively, in 1992 and 1993 (Table 1). About 10-15% of patients were tested more than once. About 16% of tests and 19% of patients were positive (titres ≥50). There were 187 patients whose sera reacted at titres ≥50 and did not subsequently rise on retesting, indicating prevalence of past infections of about 12% in the tested population.

Sixty patients in 1992 and 54 patients in 1993 had titres of ≥400 ('new positives') and were notified as new infections (about 7% of patients tested each year), representing about 38% of the patients who had positive reactions. Overall, 6 to 30% of patients serotested gave positive results and in peak months, up to 60% of the patients tested were previously undiagnosed new cases. There was a seasonal annual rise in tests, patients, total positives and new cases between September and May (Figure 1), as noted previously[7].

Almost all the new cases were serovar hardjo infections (57 in 1992, 48 in 1993) with small numbers of serovar pomona (3 and 1), serovar copenhageni (0 and 3), and serovar ballum (0 and 2). Half of the serovar hardjo infections were diagnosed with one test and a further 45% were diagnosed with two tests (Table 2). In the absence of cultures, it was not possible to determine which types of the serovar hardjo were responsible. Where occupation was stated, almost all worked on dairy farms.

H&CS notifications were 95 in 1992[8], and 86 in 1993[9], so this laboratory reported about 65% of all the notifications in the State each year. New cases paralleled H&CS notifications each month (Figure 2), except for a possible discrepancy in January 1993, when the numbers of tests and H&CS notifications rose without a similar rise in new infections diagnosed in this laboratory. The explanation could be that these tests reflected cases of Q fever in the tested population. Q fever is clinically very similar to leptospirosis, and a propor-

Table 1. Microscopic agglutination tests (MAT) for leptospirosis, 1991[1], 1992 and 1993

	1991	1992	1993
Sera tested	1032	960	872
Patients tested	875	865	727
Positive patients (titre ≥50)	132	160	141
% patients positive	15.1	18.5	19.4
% tests positive	12.8	16.7	16.2
New positives (titre ≥400; notified)	na[2]	60	54
% of patients new positives	na	6.9	7.3
% of positive tests new positives	na	37.5	37.6

1. Monthly and annual data for 1991 were published previously[7]. Summary data are included here for comparison with 1992 and 1993.
2. na not available.

Table 2. *Leptospira borgpetersenii* serovar *hardjo* infections, by number of tests required for diagnosis

	1992 (%)	1993 (%)
Positive on one test	31 (55)	22 (46)
Positive on second test	24 (42)	23 (48)
Positive in 3 to 5 tests	1 (2)	3 (6)

Figure 1. Microscopic agglutination tests (MAT) for leptospirosis, January 1992 to December 1993, by month of specimen collection

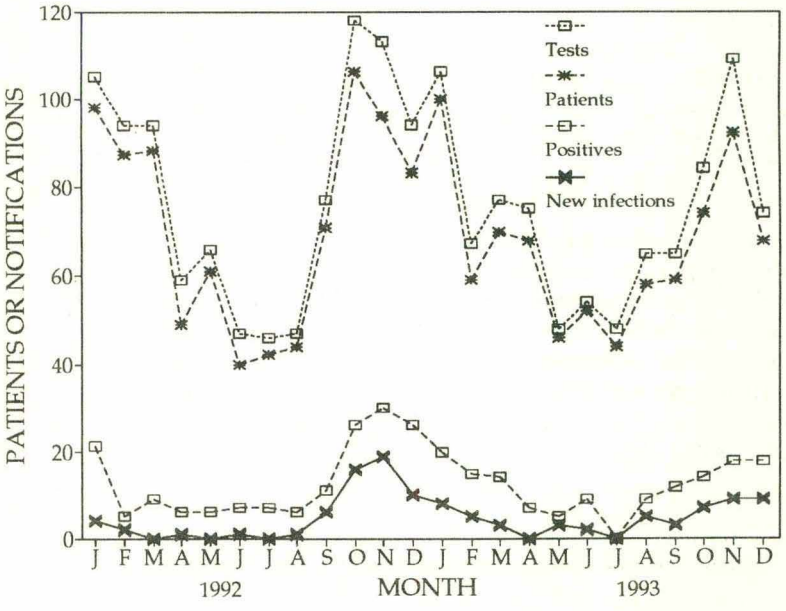
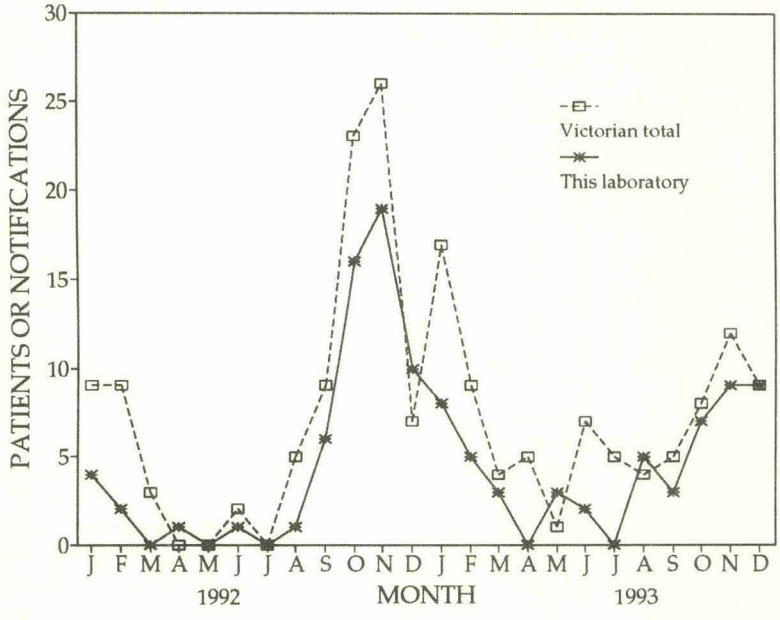


Figure 2. New leptospirosis infections diagnosed in this laboratory by month of specimen collection and total leptospirosis notifications in Victoria by month of onset, January 1992 to December 1993



tion of H&CS notifications is based on clinical practitioner advice, not necessarily supported by laboratory confirmation. Slight differences between monthly laboratory and Victorian notification totals may also arise because the laboratory cases are reported by month of specimen collection and the notifications are compiled by month of onset of the disease or of notification, which may be different for some patients.

The ratio of new positives to total positive tests and the ratio of new positives to diagnosed old infections also rises early in the epidemic season, and sometimes more markedly than increases in new cases or increases in requests for tests (data not shown). These ratios may prove effective predictors of the onset of epidemics.

Most of the patients who had new infections resided in the western region (36 in 1992, 23 in 1993; postcode groups 3100-3399) in the wet coastal dairying area between Geelong and Portland. Another group came from the Gippsland-South Gippsland eastern region (18 in 1992, seven in 1993; postcodes 3800-3999). Ten came from the northern-north-western area (two in 1992, eight in 1993; postcodes 3500-3799). A much larger proportion of positive tests were new infections in the Western areas (16% in 1992 and 12% in 1993) from which the most test requests were also received (Figure 3). H&CS notifications were also mainly from the western and Gippsland areas of Victoria in 1992[8] and 1993[9].

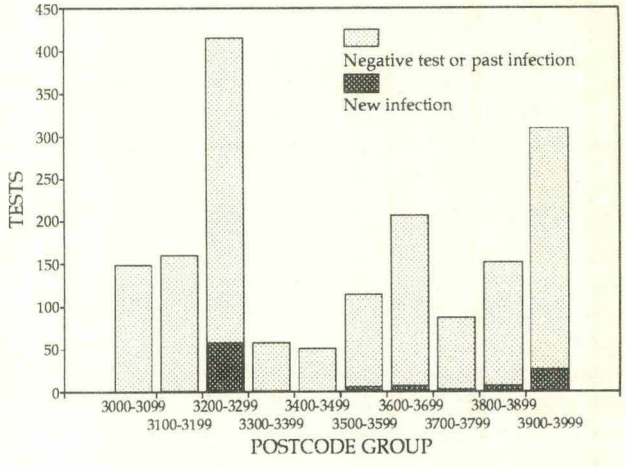
The data from this laboratory are therefore considered to be valid and representative because they coincide temporally and geographically with H&CS notifications.

Disease incidence rates calculated based on the total Victorian population, including the urban population, are meaningless for leptospirosis. The population at risk is largely the 12-15,000 persons engaged in milking and related activities with the approximately 8,600 dairy herds in Victoria: 2,700 herds and 4-5,000 persons in the Western district, and about 3,000 herds and 5,000 persons in each of the Eastern and the Northern regions (John Morton, personal communication). Considering that 65% of the 95 cases notified to H&CS in 1992[8] and the 86 cases notified in 1993[9] were from the population of dairy farm workers, the average incidence of leptospirosis can be estimated at 4.1-5.2 per 1000 in 1992, and 3.7-4.7 per 1000 in 1993. In the western districts, H&CS recorded 65 patients in 1992 (a wet spring and summer), and 28 in 1993. If it is assumed that all of these cases were in the 5,000 persons involved with dairy herds, they represent annual rates of 13.0 and 5.6 per 1,000 persons, respectively.

Almost half (53) of the new cases diagnosed in this laboratory occurred during a four month period October 1992 to January 1993. If it is assumed that all of these cases were in the 12-15,000 persons involved in the dairy industry, this represents an annualised rate of 10.6-13.3 per 1000 or 1.1-1.3%. In the Western region, where the rate is approximately double the average, about 25 per 1000 or 2.5% of dairy farm workers may be infected during the peak season each year.

There were 159 and 178 cases of leptospirosis notified for all Australia in 1992 and 1993, of which Victoria accounted for 60% and 48%, respectively.

Figure 3. Microscopic agglutination tests (MAT) for leptospirosis, 1992 and 1993, by test result and postcode group



Acknowledgments

The authors are greatly indebted to John Morton, District Veterinary Officer, Warrnambool, John Carnie, Epidemiology Section, H&CS Victoria and Phillip Capicciano, United Dairy Farmers Victoria, for information and statistics; to Ron Murley, Korumburra, for asking some of the questions; and to longstanding colleagues Ben Adler, Tu Vinh, Sue Ballard, Vicki Vallance and Marina Harper for performance of tests and collection of data.

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CDI editorial comment

There have been only 131 notifications of leptospirosis received so far for 1994 in the National Notifiable Diseases Surveillance System, fewer than for 1993 and 1992. As in previous years, most have been from Victoria (48) and Queensland (59). One hundred and twenty-two have been for males (male:female ratio 15.3:1.0) and 100 (76%) have been for males in the 20 to 54 year age group.

The *CDI* Virology and Serology Reporting Scheme also compiles reports of leptospirosis. Since 1992, there have been 104 reports, mainly from Queensland laboratories. There have been 49 reports of unspecified *Leptospira*, three of serovar canicola, six of serovar icterohaemorrhagiae, 12 of serovar pomona, six of serovar australis and 28 of serovar hardjo. Risk factors have been included in some of the reports: for unspecified *Leptospira* there have been two reports for abattoir workers, two for dairy farmers, two for unspecified farmers and one for a banana worker; for serovar pomona, one report has been for a grazier; for serovar australis, three reports were for cane farmers; for serovar hardjo, there have been three reports for dairy farmers. Seven reports have been for females and 97 for males, 86 in the 15 to 64 year age group.

NATIONAL *SALMONELLA* SURVEILLANCE SCHEME REPORT, FIRST QUARTER 1994

Reproduced with acknowledgement from the Human First Quarter Report, National Salmonella Surveillance Scheme Report 1994;(3), editors Joan Powling, Baheip Truong, Diane Lightfoot and Petrina Adams

There were 2701 reports received by the National *Salmonella* Surveillance Scheme (NSSS) for the first quarter of 1994 (Table 1). The total number of *Salmonella* cases acquired in Australia for the quarter was 1919. There were 169 follow-ups, three cases from migrants or refugees and 145 cases reported as acquired overseas.

New records for the NSSS for the quarter were *S.* Agama (F/1 New South Wales) and *S.* Bispebjerg (F/<1 Western Australia). Uncommon *Salmonella* serovars reported during the quarter were *S.* Breukelen (M/5 Queensland), *S.* Brisbane (M/<1 Queensland), *S.* Bukavu (F/2 Northern Territory), *S.* Champaign (F/1 Northern Territory), *S.* Charity (M/2 Queensland), *S.* Istanbul (M/44 South Australia ex Singapore), *S.* Kiambu (M/1 Queensland), *S.* Mikawasima (M/23 Victoria ex Malaysia), *S.* Sachsenwald subsp IV (M/2 Queensland) and *S.* Treforest (M/54 Northern Territory).

The only unusual phage types (PT) of *S.* Typhimurium reported this quarter were PT 23 (F/5 Queensland) and PT 36 (F/<1 Victoria).

Salmonella infections - case rates

The 1919 Australian acquired cases of *Salmonella* infection reported during the quarter was an increase of 21% over the total number of cases for the same period in 1993. By comparison to the first quarter of 1993 (Table 2), there was a decrease in the *Salmonella* case rate per 100,000 head of population in Western Australia (22%),

Table 1. Total reports of enteric pathogens, first quarter 1994, by State or Territory

	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	Total
Salmonella	21	463	436	769	105	212	59	171	2236
Shigella species	8	33	19	42	21	128	1	34	286
Aeromonas species	0	0	9	2	0	0	0	0	11
Campylobacter species	0	1	73	0	0	0	2	0	76
E. coli (EPEC)	0	0	1	4	0	0	0	0	5
Plesiomonas species	0	0	3	0	0	0	0	0	3
Vibrio species	0	3	1	0	0	0	0	0	4
Yersinia species	0	23	4	53	0	0	0	0	80
Total	29	523	546	870	126	340	62	205	2701

Table 2. Case rates per 100,000 of *Salmonella* infection acquired in Australia and total reports, selected quarters, by State or Territory

	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	Total reports
1st quarter 1994	4.4	6.6	7.6	23.2	6.3	10.7	11.3	89.8	1919
4th quarter 1993	4.4	4.2	5.6	12.6	6.6	6.9	11.2	65.2	1131
1st quarter 1993	4.4	7.3	4.8	21.6	6.7	13.8	9.8	63.9	1583
1st quarter 1992	4.8	6.9	5.0	25.4	5.9	16.1	11.2	73.6	1718
1st quarter 1991	7.6	9.9	9.1	15.7	12.2	17.1	22.0	90.4	2039
1st quarter 1990	8.4	9.4	7.3	24.5	16.6	20.2	11.9	91.1	2160
1st quarter 1989	6.8	9.5	7.9	19.0	12.4	15.0	18.8	65.2	1901

New South Wales (9%) and South Australia (6%) and an increase in case rate in Victoria (58%), the Northern Territory (40%), Tasmania (15%) and Queensland (7%).

Infections acquired overseas

The most common infections acquired overseas were *S.* Enteritidis PT 4 and *S.* Hadar with 13 cases each, reported from travellers returning from South-east Asia. *S.* Hadar was the most commonly reported infection acquired in Bali in this quarter. A previously rare serovar for the NSSS was *S.* Istanbul, reported as acquired in Singapore.

The cases acquired overseas are listed as follows. They exclude enteric fever.

ASIA

Indonesia: *S.* Anatum; *S.* Blockley (2); *S.* Enteritidis PT 4; *S.* Hadar; *S.* Infantis; *S.* Montevideo; *S.* Tennessee; ***Irian Jaya:*** *Sh. sonnei*; ***Bali:*** *Pl. shigelloides*; *S.* Agona (3); *S.* Derby; *S.* Emek (2); *S.* Enteritidis PT 4 (2); *S.* Hadar (8); *S.* Kentucky (3); *S.* Litchfield; *S.* Paratyphi B biovar Java 1 var 3; *S.* Paratyphi B biovar Java 3b var 3; *S.* Paratyphi B biovar Java RDNC (2); *S.* Typhimurium PT 12a, PT 141 (2); *S.* Virchow (2); *S.* Weltevreden (2); *Sh. flexneri* serotypes 1b, 4a mannitol negative and 6; *Sh. sonnei* (3), *Sh. sonnei* biotypes a and g (3); *V. cholerae* O1 El Tor Ogawa.
Malaysia: *C. jejuni* subsp *jejuni*; *S.* Blockley; *S.* Enteritidis PT 4 (3); *S.* Mikawasima; *S.* Typhimurium PT 44 and RDNC, *Sh. flexneri* 6.
Singapore: *S.* Enteritidis PT 4 (2); *S.* Istanbul; *S.* subsp I ser 4,5:i:-.
Thailand: *S.* Derby; *S.* Emek; *S.* Enteritidis PT 4 (2), PT 9a; *S.* London var 15+; *S.* Ohio; *S.* Panama (2); *S.* Stanley (2); *S.* Typhimurium PT 8, RDNC, untypable; *Sh. flexneri* var X.
Philippines: *S.* Anatum (3); *S.* Enteritidis PT 4.
China: *S.* Chailey.
Hong Kong: *S.* Newport.
Korea: *S.* subsp I ser 4,12:d:-.
Vietnam: *S.* Anatum; *S.* Bredeney; *S.* Newport; *S.* Typhimurium PT 8; *Sh. flexneri* 2a.
Cambodia: *Sh. boydii* 11; *Sh. flexneri* serotypes 3 and 6.
India: *A. hydrophila*; *C. jejuni* subsp *jejuni*; *S.* Newport; *S.* Virchow; *S.* Worthington, *Sh. boydii* serotypes 2 and 11, *Sh. flexneri* 6.
Nepal: *S.* Infantis.
Burma: *S.* Bareilly; *Sh. flexneri* 2.
Pakistan: *S.* Hadar; *S.* Infantis; *S.* Newport; *S.* Paratyphi B bv Java RDNC; *S.* Poona; *Sh. flexneri* 6.
Afghanistan: *Sh flexneri* 2 .

AFRICA

Ethiopia: *Sh. flexneri* 2.
Unspecified: *S.* Bovismorbificans PT 2; *Sh. flexneri* 2; *Sh. sonnei* biotype g.

MIDDLE EAST

Saudi Arabia: *S.* Virchow.
Jordan: *S.* Derby.
Egypt: *Sh. flexneri* 6.

EUROPE

Macedonia: *S.* Typhimurium PT 44.
Greece: *S.* London; *S.* Typhimurium PT 135.

AMERICAS

Mexico: *S.* Muenchen; *Sh. sonnei* biotype a.
South America (unspecified): *Sh. sonnei* biotype a.
United States: *S.* Enteritidis PT 4; *V. cholerae* non O1.

PACIFIC

Fiji: *S.* Hadar; *S.* Typhimurium PT 64.
Vanuatu: *S.* Typhimurium PT 201.
Western Samoa: *S.* Enteritidis PT RDNC.
Tahiti: *S.* Enteritidis PT RDNC.

UNSPECIFIED COUNTRIES

S. Blockley; *S.* Derby; *S.* Enteritidis PT 4; *S.* Hadar (2); *S.* Richmond; *S.* Typhimurium untypable, *S.* Virchow, *S.* subsp I ser 4,5:i:-; *Sh. flexneri* 3a; *Sh. sonnei* and biotypes a (3) and g.

Shigella infections

There was a total of 286 reports of *Shigella* infections received for this quarter. Of these, five were follow-up specimens, four were from migrants or refugees and 32 were reported from travellers returning from overseas leaving a total of 245 cases reported as acquired in Australia. This was an increase of 15% over the number of Australian acquired cases reported in the first quarter of 1993.

The most common were *Sh. sonnei* (untyped) with 112 cases, *Sh. flexneri* 2a with 37 cases, *Sh. flexneri* 2 (32) and *Sh. sonnei* biotype a (29 cases). One hundred and twenty cases of shigellosis were reported from Western Australia; 71 were cases of *Sh. sonnei* from the north-western region of the State.

Shigella infections acquired overseas included *Sh. boydii* 11 (India and Cambodia); *Sh. boydii* 2 (India); *Sh. flexneri* 1b (Bali); *Sh. flexneri* 2a (Vietnam); *Sh. flexneri* 3 (Cambodia); *Sh. flexneri* 4a mannitol negative (Bali); *Sh. flexneri* 6 (India, Pakistan, Malaysia, Cambodia, Bali and Egypt); *Sh. sonnei* (Irian Jaya, Bali); *Sh. sonnei* biotype a (Mexico, unspecified South America); and *Sh. sonnei* biotype g (Solomon Islands, Bali and Africa).

Typhoid and paratyphoid cases

There were 18 reports of *S.* Typhi, 12 reports of *S.* Paratyphi A and 2 reports of *S.* Paratyphi B (Table 4).

Isolations from blood, urine and unusual sites

There were 31 reports of bacteraemias excluding enteric fever, 29 reports of urine isolates and 8 reports of isolates from unusual sites (Table 5).

Outbreaks

Several outbreaks and incidents were recorded during the quarter, the largest of which was for *Sh. sonnei* in the north-western region of Western Australia in March. During this quarter the first cases of *S.* subsp I ser 16:l,v:- were reported. An increased incidence of cases of this unnamed serovar was reported from all States except Tasmania during the second quarter, reaching a peak in May (*see CDI* 1994;**18**:378-379). Cases have also been reported from across the Tasman in New Zealand.

Australian Capital Territory

There were five cases of ***Sh. flexneri* 2a** reported from two families (four children and one adult) in late March in Canberra.

Table 3. Cases of *Shigella* infection acquired in Australia, by State or Territory

Organism	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	Total
Sh. boydii	0	1	0	0	0	0	0	0	1
Sh. boydii 1	0	1	0	0	0	1	0	1	3
Sh. boydii 2	0	0	1	0	0	0	0	0	1
Sh. flexneri	0	1	0	0	0	0	0	1	2
Sh. flexneri 1b	0	3	0	0	0	0	0	0	3
Sh. flexneri 2	0	0	0	1	0	31	0	0	32
Sh. flexneri 2a	7	6	1	6	1	0	0	16	37
Sh. flexneri 2b	0	2	0	0	0	0	0	0	2
Sh. flexneri 3a	0	1	0	0	0	0	0	0	1
Sh. flexneri 3c	0	7	2	0	0	0	0	0	9
Sh. flexneri 6	0	1	0	0	1	4	1	0	7
Sh. flexneri var Y	0	0	0	0	0	3	0	0	3
Sh. flexneri untypable	0	0	0	0	1	0	0	1	2
Sh. sonnei	0	1	0	27	0	81	0	3	112
Sh. sonnei biotype a	0	3	2	5	11	0	0	8	29
Sh. sonnei biotype g	0	0	1	0	0	0	0	0	1
Total	7	27	7	39	14	120	1	30	245

New South Wales

There were 30 cases of ***S.* Typhimurium PT 9**, including 11 children, reported from Sydney in late January to early February.

Five cases of ***S.* Kottbus**, all infants, were reported from Walgett, Brewarrina and Bourke (far north-west) in mid-January.

***S.* Typhimurium PT 179** was reported for two cases in early February involved in a houseboat food poisoning incident in which eight persons were affected.

***S.* Typhimurium RDNC** with the same phage pattern was reported for four cases, all infants, from the Gosford region in early March.

Northern Territory

Fourteen cases of ***S.* Eastbourne** (10 adults, four children), were reported from an outbreak followed by screening of hospital kitchen staff in Katherine from late December 1993 to March 1994.

Queensland

***S.* Typhimurium PT 170** was reported for 28 cases (16 children, four teenagers, eight adults) from Roma, in early to mid-March.

There were eight cases of ***Sh. sonnei*** reported in February, two adults, five children and one teenager, from the same street in Rockhampton as the 1993 incident and with same pattern of antibiotic sensitivity.

Sh. sonnei was reported for 14 cases from a childrens' home (13 children aged 6 to 11, and one adult staff member) at Yeppoon in early March.

Tasmania

***S.* Typhimurium PT 12a** was reported for eight cases (six adults and two children) in Hobart in late January-early February.

***S.* Typhimurium PT 135** was reported for three cases (one adult and two children) in Hobart on the same day in late February.

Table 4. Typhoid and paratyphoid cases

(Vi)-phage type	Sex/age (years)	State or Territory	Notes
S. Typhi			
A	F/69	NSW	Carrier
A	F/15	NSW	From Peru, liver dysplasia
C1	F/27	Vic	Travelled in Thailand
D2	M/41	Vic	From Indonesia
D2	F/21	ACT	Recently in Papua New Guinea
D2	M/29	NSW	No details
D2	M/27	NSW	Recently in Papua New Guinea
E1a	M/25	NSW	Travel in India and Nepal
J1	M/16	NSW	Acquired in Hong Kong
M1	F/11	NSW	No details
M1	M/16	WA	Travelled in Indonesia
M3	F/8	WA	Acquired in Vietnam
Untypable	M/42	WA	Visited Bali
Untypable	ns[1]/ns	NSW	Visited Bali
Untypable	F/32	WA	Visited Pakistan
Untypable	M/16	WA	Visited Indonesia
Untypable j:z66 phase	M/20	Qld	Visited Indonesia
Untypable j:z66 phase	F/31	NSW	Visited Indonesia
S. Paratyphi A			
1	M/50	WA	Returned from Pakistan
2	M/34	Vic	Missionary returning from Pakistan
5	M/42	NSW	Acquired in Indonesia
6	M/22	Vic	Visitor from Nepal
RDNC	M/12	Vic	Travel in India and Nepal
Untypable	F/23	WA	Visited Thailand
Untypable	F/23	Vic	India, Nepal and Thailand
Untypable	M/46	NSW	Returned traveller, no details
S. Paratyphi B			
3b var 3	M/37	SA	History not provided
Battersea	F/5	Qld	History not provided

1. ns not stated.

Victoria

There were 32 cases of ***S.* Typhimurium PT 135** (11 adults, 19 children, one teenager, one not stated) reported from early February to early March from the Gippsland region (13 cases), metropolitan Melbourne (12 cases) and other areas of Victoria (7 cases).

Twenty-three cases of ***S.* Typhimurium PT 9** (12 adults, 11 children) were reported for February from Melbourne and three regional areas, Ballarat, Wangaratta and Sale.

Table 5. Isolations from blood, urine and unusual sites

Organism	Sex/age (years)	State or Territory	Organism	Sex/age (years)	State or Territory
Bacteraemias excluding enteric fever					
C. jejuni subsp *jejuni*	F/43	Vic	*S.* Typhimurium PT 9	M/41	NSW
S. Anatum	F/<1	NT	S. Typhimurium RDNC	F/ns[1]	Vic
S. Bredeney	F/1	NT	*S.* Typhyimurium RDNC	M/24[2]	NSW
S. Bredeney	M/1	Vic	*S.* Virchow	M/30	Qld
S. Chester	F/13	Qld	*S.* Virchow	F/1	Qld
S. Enteritidis PT 4	M/36[2]	Vic	*S.* Virchow	F/33	Qld
S. Enteritidis PT 4	M/33	NSW	*S.* Virchow	M/1	Qld
S. Enteritidis RDNC	F/12[2]	ACT	*S.* Virchow	F/1	Qld
S. Enteritidis RDNC	M/20[2]	NSW	*S.* Virchow	F/43	Vic
S. Panama	M/28[2]	Vic	*S.* Virchow	F/1	Qld
S. Paratyphi B bv Java RDNC	F/21[2]	Vic	*S.* subsp IIIb ser 61:i:z	M/<1	Vic
S. Paratyphi B bv Java Battersea	M/1	NT	*Sh. flexneri* 3c	M/36	NSW
S. Potsdam	F/<1	Vic	*Sh. sonnei* biotype a	M/50[2]	NT
S. Typhimurium PT 135	F/46	Vic	*V. cholerae* non O1	M/64[2]	NSW
S. Typhimurium PT 44	M/73	Vic	*Y. enterocolitica* O:3 Bio 4	M/70	Qld
S. Typhimurium PT 44	F/68	NT			
Urine isolates					
A. caviae	M/1	Vic	*S.* Potsdam	F/27	Qld
S. Aberdeen	F/20	Vic	*S.* Saintpaul	M/75	Qld
S. Abony	M/4	Qld	*S.* Saintpaul	M/81	NSW
S. Bovismorbificans PT 23	F/47	Vic	*S.* Singapore	ns/34	Qld
S. Brandenburg	F/16	NSW	*S.* Tennessee	F/55	Qld
S. Cerro	F/79	NSW	*S.* Typhimurium PT 12a	F/26	Qld
S. Chester	F/13	Qld	*S.* Typhimurium PT 9	M/69	Vic
S. Eastbourne	F/37	NT	*S.* Typhimurium PT 9	F/9	NSW
S. Enteritidis RDNC	F/5	Qld	*S.* Typhimurium RDNC	F/24	Vic
S. Hadar	F/16	Vic	*S.* Virchow	F/5	Vic
S. Hvittingfoss	F/<1	Qld	*S.* Virchow	M/47	Qld
S. Lansing	M/81	Qld	*S.* subsp I ser rough:c:1,6	F/88	NSW
S. Mississippi	M/ns	Tas	*S.* subsp I ser rough:e,h:1,2	F/32	NT
S. Mississippi	F/21	Qld	*Sh. flexneri* 2a	F/2	Qld
S. Potsdam	F/6	Qld			
Unusual site isolates			Site		
A. hydrophila	F/64	Vic	Ileostomy fluid		
S. Infantis	M/36	Vic	Perianal abscess		
S. Tennessee	F/75	Vic	Post cholecystectomy		
S. Typhimurium PT 135	F/33	NSW	Chest wound		
S. Typhimurium PT 135	M/30	Vic	Ischio-rectal swab		
S. Typhimurium PT 141 var	M/44	NSW	Wound		
S. subsp I ser 9,12:-1,5	M/70	Vic	Gall bladder swab		
V. parahaemolyticus	M/35	NSW	Wound swab		

1. ns not stated.

Western Australia

Sh. sonnei was reported for 71 cases (43 children, 23 adults, five teenagers) in the north-western region. One of the cases was a food handler.

There were 12 cases of ***Sh. flexneri* 2** (10 children, one teenager, one adult) reported from the Bunbury area, January to February.

***S.* Newport** was reported for eight cases (three adults, four children, one teenager) in the south-western region, January to March.

Five cases (all adults) of ***S.* Typhimurium RDNC** with the same phage pattern were reported, three on one day in February from same suburb in Perth, followed by two more in March.

Top ten *Salmonella* serovars

Of the 1919 Australian acquired cases of *Salmonella* infection, 1295 (67.4%) were isolates from the top ten serovars (Table 6). The top ten *Salmonella* serovars accounted for 67.5% of all Australian acquired cases reported to the NSSS (63% in 1993). The most common serovar was *S.* Typhimurium with 722 cases from 45 phage types. This was an increase of 62% in the number of *S.* Typhimurium cases, which accounted for 37% of the total Australian acquired cases. *S.* Virchow was in second place with 162 cases, 146 of which were from Queensland.

Phage type 9 was the most common *S.* Typhimurium phage type with 149 cases of which 80% were from Victoria and New South Wales (Table 7). The top five phage types accounted for 64% of Australian acquired cases of *S.* Typhimurium.

What did I bring back from Bali?

Bali Belly is not a joke. It is a reality and, if the numbers of reports of enteric disease from travellers returning from their Bali holidays are to be believed, it is on the increase. The number of Australians visiting Bali has increased and so too has our tracking of organisms which we suspect (and, in the case of *S.* Enteritidis PT4, hope) have been acquired overseas.

Table 6. Top ten *Salmonella* serovars

	Position this quarter	Position in 4th quarter 1993	Cases	% of total	Origin and number of cases
S. Typhimurium[1]	1	1	722	37.6	Vic 239, NSW 202, Qld 129
S. Virchow	2	4	162	8.5	Qld 146
S. Saintpaul	3	2	99	5.2	Qld 46, WA 18, NT 18
S. Birkenhead	4	6	58	3.1	Qld 38, NSW 17
S. Enteritidis	5	8	52	2.7	Qld 29, NSW 11
S. Muenchen	6	10	43	2.2	Qld 19, NT 8
S. Chester	7	5	42	2.2	Qld 20, NSW 8
S. Bovismorbificans	8	-	41	2.1	NSW 13, Vic 9, Qld 9
S. Heidelberg	9	7	39	2.0	Qld 27, NSW 10
S. Infantis	10	9	37	1.9	NSW 16, Vic 9
Total			1295	67.5	

In: *S.* Bovismorbificans.
Out: *S.* Newport (30 cases).

Table 7. Top five phage types of *S.* Typhimurium

Phage type	Position this quarter	Position in 4th quarter 1993	Cases	% of total	Origin and number of cases
9[1]	1	3	149	20.6	Vic 60, NSW 59
135[1]	2	1	117	16.2	Vic 42, NSW 32, Qld 18
170[1]	3	4	77	10.7	Qld 43, Vic 18
44	4	2	71	9.8	NSW 51, SA 10
12a[1]	5	-	48	6.7	Vic 10, Qld 10, SA 10
Total			462	64.0	

1. Associated with outbreaks.

The data collected since 1985 show an increase in reports of *Salmonella* infections acquired in Bali, from 12 in 1985 to a provisional total of 118 in 1994 (Figure). This number is likely to be on the conservative side as many persons report having visited Indonesia without specifying exactly where. The number of reports received from travellers to Indonesia generally has remained steady averaging 24 per year in the eight years 1986 to 1993.

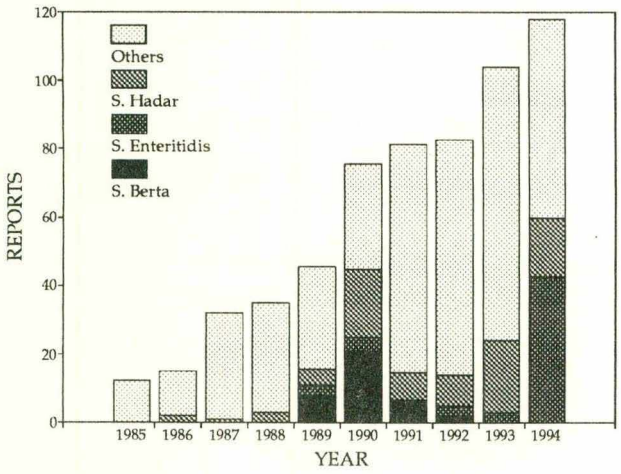
There are serovars of *Salmonella* and even certain phage types of *S.* Typhimurium which are commonly reported in travellers returning from Bali. Twenty-five serovars of *Salmonella*, three species of *Shigella*, two species of *Campylobacter* have been reported as well as *Aeromonas hydrophila*, *Plesiomonas shigelloides* and *Vibrio cholerae* O1 El Tor Ogawa.

S. Berta was first noted as a common serovar acquired in Bali in 1989; 21 cases were reported in 1990 but in 1993 there were none. *S.* Hadar was the next serovar to achieve prominence with 20 cases in 1990 and 21 in 1993. In the intervening years its prevalence in Bali travellers may have been obscured by several local outbreaks in Victoria, New South Wales and Tasmania.

The serovar which now is of most concern is *S.* Enteritidis PT 4 which achieved a huge notoriety in the United Kingdom, Europe and North America when it was found in raw eggs and caused many outbreaks and the deaths of several persons following the consumption of raw or partially cooked eggs. The first Australian case of PT 4 recorded from a Bali traveller was in 1992. There were two cases in 1993 and a provisional total of 40 in 1994.

Apart from the above, the main serovars encountered have been *S.* Agona, *S.* Blockley, *S.* Emek, *S.* Infantis, *S.* Isangi, *S.* Kentucky, *S.* Paratyphi B biovar Java, *S.* Virchow and *S.* Weltevreden. The latter is associated with fish products and many of the others with chicken

Figure. Cases of *Salmonella* infection acquired in Bali, April 1985 to December 1994[1], by year and serovar



1. 1994 totals are provisional.

isolates from South-east Asia (Australian *Salmonella* Reference Laboratory Reports).

The three most common phage types of *S.* Typhimurium which are reported from travellers returning from Bali are PT 104 and PT 141 (8 cases each) and PT 12a (resistance pattern ASTCSuSp). Shigellas commonly reported are *Sh. flexneri* 2a and *Sh. sonnei* biotypes a and g while *Sh. dysenteriae* 9 is rare but invariably associated with Bali travel. While typhoid is an endemic disease in Bali, *S.* Typhi has been rarely reported.

S. Typhi and *S.* Paratyphi typed at the Australasian Phage Typing Reference Laboratory (Microbiological Diagnostic Unit, University of Melbourne), 1990 to 1993

Presented at International Federation for Enteric Phage Typing meetings held at 7th International Congress of Bacteriology and Applied Microbiology in Prague, Czeckoslovakia, July 3-8, 1994

The following are lists of phage types of *Salmonella* Typhi, *Salmonella* Paratyphi A and *Salmonella* Paratyphi B isolates from Australia and other countries of the region typed from 1 January to 31 December 1993. Numbers in parentheses are the percentages of each phage type.

AUSTRALIA

***S.* Typhi (228 cases):** **A** (15.8); **degraded Vi Strain** (15.3); **E1a** (14.0); **I+IV** (9.6); **j:z66** (9.6); **D2** (5.3); **B1-variant** (3.9); **B1** (3.5); **M1** (2.6); **E2** (2.2); **51** (1.7); **38** (1.3); **D-variant** (1.3); **O** (1.3); **E-variant** (1.3); **M2** (0.8); **T** (0.8); **46** (0.8); **M3** (0.8); **Vi negative** (0.8); **B2** (0.4); **D1** (0.4); **F3** (0.4); **36** (0.4); **A degraded** (0.4); **C2** (0.4); **C5** (0.4); **E9** (0.4); **K1** (0.4); **E7** (0.4); **J1** (0.4); **56** (0.4); **D6** (0.4); **43** (0.4).

***S.* Paratyphi A (91 cases):** **1** (40.7); **RDNC** (15.4); **5** (13.2); **2** (8.8); **untypable** (8.8); **4** (4.4); **6** (3.3); **13** (3.3); **9** (2.2).

***S.* Paratyphi B (33 cases):** **RDNC** (24.2); **Taunton** (21.2); **Dundee** (9.1); **3a I var 1** (9.1); **3a I** (6.1); **3a I-variant** (6.1); **3a var** (6.1); **3a var 2** (3.0); **3a var 3** (3.0); **Beccles 5** (3.0); **Beccles var** (3.0); **Dundee-variant** (3.0); **Battersea** (3.0).

PAPUA NEW GUINEA

S. Typhi (203 cases): **D2** (90.1); **Vi-negative** (5.4); **D2-variant** (2.5); **E1a** (1.0); **degraded Vi strain** (1.0); **rough** (1.0).

FIJI

S. Typhi (79 cases): **E1a** (82.2); **A** (16.4); **untypable** (1.3).

NAURU

S. Typhi **(2 cases): E9** (100).

VANUATU

S. Typhi (15 cases): **A** (100).

There were 27 antibiotic resistant strains of *S.* Typhi detected in Australia from 1990 to 1993 (13.2% of total) and three resistant strains of *S.* Paratyphi A (3.3%). There were no resistant strains of *S.* Paratyphi B detected.

The resistant strains of *S.* Typhi were:

A S T C Su Tm	(21)	**A** (India, Pakistan, Bangladesh); **E1a** (India 6, Pakistan 1, not stated 4); **Evar** (India); M1 (Pakistan 4); **degraded** (South-east Asia); **untypable** (Vietnam)
A S T C Tm	(1)	**56** (Vietnam)
A S T Su Tm	(1)	**A** (Nepal)
S T C Su	(1)	**O** (India)
C Su	(1)	**untypable** (Vietnam)
T	(1)	**E1a** (India)
Na	(1)	**degraded** (carrier).

The resistant strains of *S.* Paratyphi A were:

T	(1)	RDNC Cambodia
A S T C Su Tm	(1)	RDNC India
Na	(1)	RDNC India

Diane Lightfoot
MDU October 1994

CDI editorial comment

The National Notifiable Diseases Surveillance System compiled 1957 notifications of salmonellosis, 14 notifications of typhoid and 223 notifications of shigellosis for the first quarter of 1994. This compared with 1557, 30 and 281 notifications for the first quarter of 1993, respectively, and 1625, 20 and 149 for the first quarter of 1992.

OVERSEAS BRIEFS

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

Plague in India

India has been declared plague free, with the removal of both Surat District in Gujarat State and Beed District in Maharashtra State from the list of infected areas. No new cases have been notified to the World Health Organization since 26 October and no domestic rodents have been found positive for two months.

Plague in Zimbabwe

A total of 359 cases of plague and 17 deaths have been reported for a period from October to December from the Nyaki and Lupane Districts, Matabeleland North in Zimbabwe. Lupane District has been declared infected, as was Nyaki District last year.

Influenza in the Northern Hemisphere

In Europe, there have been recent increases in the indicators of epidemic activity in several countries and sporadic isolations of influenza A and B from France, Finland, Portugal, Spain, the Slovak Republic, Sweden, the Russian Federation, Switzerland and the United Kingdom.

In North America, five of the United States (Connecticut, Kentucky, Maryland, New York and Virginia) have reported regional activity and 24 others have reported sporadic activity. There had been 136 isolates with 73% type A (most H_3N_2) by 9 January. In Canada, there have been sporadic cases of influenza A and B reported from Ontario and Saskatchewan respectively.

Cholera update

Santiago Island in Cape Verde (Africa) has been declared infected. The Khorasan, Khuzestan, Sistan and Baluchistan and West Azarbaijan Provinces in Iran have been removed from the infected areas list, as have areas in Malaysia - Kubang Pasu District in Kedah State, Timor Laut District in Penang State, Tawau District in Sabah and Simunjan District in Sarawak.

Cholera cases have been reported for October, November and December from Algeria, Albania, Cape Verde, Chad, Chile, Costa Rica, Dagestan, Djibouti, Ecuador. El Salvador, Gaza, Guinea, Guinea Bissau, Hong Kong, India, Italy, Laos, Mozambique, Morocco, Niger, Philippines, Romania, Sierra Leone, Singapore, Somalia, Tanzania (in December in Rwandan refugees in Benaco and Musuhara camps, only) and Ukraine.

CDI NOTICE TO READERS

Progress towards polio eradication in Australia

The World Health Organization's initiative to eradicate poliomyelitis from the world by the year 2000 was launched by the World Health Assembly in May 1988. Since then, the global incidence of the disease has fallen dramatically, from 34,762 in 1988 to 9665 in 1993 when, in addition, 111 countries reported no cases for the previous three years[1].

The eradication of poliomyelitis in the Americas was certified in 1994[2] after there had been over three years without any confirmed polio cases, poliovirus vaccine coverage among children had been documented at over 80% in most countries and at 87% overall in the region, and there had been adequate surveillance for polio cases, including surveillance for acute flaccid paralysis and for wild poliovirus isolated from stool specimens.

World Health Organization Western Pacific Region's goal is to eradicate poliomyelitis by 1995. In 1993, the Region reported an historic low of 1147 cases. Only five countries reported cases in the previous three years - Cambodia, China, Laos, the Philippines and Vietnam, and Papua New Guine was also still considered endemic. The Region's eradication program involves a network of national polio reference laboratories and two Regional Polio Reference Laboratories (the Viral Identification Unit at the Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital, Melbourne, and the National Institute of Health in Tokyo, Japan) which assess whether poliovirus isolates are wild type or vaccine related. National immunisation days are being conducted in China, Laos, the Philippines and Vietnam during the 1994-95 northern winter in an attempt to reach the goal of zero cases by the end of this year.

Australia has had no cases of poliomyelitis notified to the National Notifiable Diseases Surveillance System since 1986, when there was one case reported. There were no other cases notified in the 1980s, and only 14 cases in the 1970s. As it has been so long since the last cases in Australia, and it appears that poliomyelitis may have been eradicated, arrangements have now been set in place for the formal assessment of Australia's polio eradication status. Australia will be able to be declared polio free if, after a period of time of enhanced surveillance for the disease and polio vaccine coverage, no cases are detected, and sufficient vaccine coverage rates are documented.

The Viral Identification Unit at the Victorian Infectious Diseases Reference Laboratory has been designated as the National Polio Reference Laboratory and will assess whether Australian poliovirus isolates are wild type or vaccine related. Isolates from cases of acute flaccid paralysis and other polioviruses isolated in Australian laboratories will be tested by the Reference Laboratory, and funding has been made available to transport all poliovirus isolates to the Laboratory for testing. Seventy such uncharacterised poliovirus isolates were reported to the *CDI* Virology and Serology Reporting Scheme in 1994 and 110 in 1993.

Surveillance for acute flaccid paralysis is being established through the Australian Paediatric Surveillance Unit by a collaborating group of investigators from the Commonwealth Department of Human Services and Health and the Viral Identification Unit at the Victorian Infectious Diseases Reference Laboratory. For this surveillance, which is expected to begin early in 1995, participating paediatricians seeing a patient with acute flaccid paralysis will directly report to one of the investigators, who will recommend that two stool samples be collected within 48 hours of diagnosis for testing for poliovirus. If a poliovirus is detected, it will be sent to the National Polio Reference Laboratory to determine whether it is a vaccine or wild strain. This surveillance will supplement the routine surveillance for poliomyelitis which has been conducted by the National Notifiable Diseases Surveillance System and its predecessors since 1917.

National polio immunisation coverage was last estimated in the Australian Bureau of Statistics' 1989-90 National Health Survey. Overall, 72.1% of children aged 0 to 6 years were fully immunised, 15.9% were partially immunised, 5.8% were not immunised and the immunisation status was not known for 6.1%. Updated national poliovirus immunisation coverage information will be compiled by the Australian Bureau of Statistics when it conducts a national Child's Immunisation Survey in April 1995. There will also be regular central reporting of estimated immunisation coverage rates by all States and Territories to the Commonwealth this year, as part of the National Immunisation Program.

References

1. Poliomyelitis in the world, 1993. *Wkly Epidemiol Rec* 1994;69:169-175.
2. Centers for Disease Control and Prevention. Certification of poliomyelitis eradication - the Americas, 1994. *MMWR Morb Mortal Wkly Rep* 1994;43:673-676.

COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 2898 reports received in the *CDI* Virology and Serology Reporting Scheme this period. Included are reports for a four week reporting period from some laboratories following the Christmas break (Tables 7, 8 and 9). More reports with collection dates in 1994 are expected over the next few reporting periods.

- Eighty-four reports of **measles** were received this period including 41 in the 5 to 14 year age group. Thirty-eight were male and 45 female (one sex not stated) including a 21 year old female with severe clinical measles and dehydration. Method of diagnosis was IgM detection (83) and fourfold rise in titre (one). The number of reports peaked in September (Figure 1).
- **Rubella** was reported for 183 patients this fortnight, 49 females (30 in the 15 to 44 year age group) and 134 males. The number of reports remained high through the months of November and December. For 1994 more reports were recieved for males 15 to 24 years of age than for any other group (Figure 2). Two diagnoses were by single high titre, 7 by fourfold rise in titre and 174 by the detection of rubella specific IgM.
- **Hepatitis A** was reported for 36 patients this period. Included were 20 males, 9 of whom were in the 25 to 44 year age group and 14 females (one sex not stated). Included was a 27 year old injecting drug user from Queensland.
- Positive **hepatitis B** serology was reported for 137 patients this fortnight, 69 males and 66 females (2 sex not stated). One hundred and eight patients were in the 15 to 44 year age group including 21 pregnant females. Also included were 2 patients with a history of injecting drug use and 2 with a history of overseas travel.
- Positive **hepatitis C** serology was reported for 386 patients this fortnight including 242 males and 142 females (2 sex not stated). Two hundred and ninety-one reports were for the 25 to 44 year age group. Included were 40 injecting drug users, 8 pregnant females, 2 patients with thalassemia major and one HIV positive patient.
- **Ross River virus** infection was reported for 53 patients this period, 39 from Queensland and 4 from the Northern Territory. All were presumptive diagnoses (IgM positive) with specimen collection dates from late November to early January. The number of reports received so far for the months of November and December 1994 remains below that for the same period in 1993.
- Twenty-five reports of **Barmah Forest virus** were received, one from the Northern Territory and the remainder from Queensland, all presumptive diagnoses (IgM positive).
- A single report of an untyped **flavivirus** was received for a 21 year old Queensland female.
- One hundred and nine reports of **adenovirus** were received this fortnight diagnosed by virus isolation (59), antigen detection (42) and single high titre (8). Included were 6 reports each of **adenovirus types 1** and **2**, and 8 reports of **adenovirus type 3**, 4 of which were reported in association with eye disease. An **untyped adenovirus** was reported isolated from the nasopharynx of an 18 month old male with endocarditis.
- **Herpes simplex virus type 1** was reported for 362 patients this period including 114 reported in association with genital disease and 9 associated with eye disease. Eighteen diagnoses were by antigen detection, 343 by virus isolation and one by IgM detection.

Figure 1. Measles laboratory reports, 1993 to 1994, by month of specimen collection

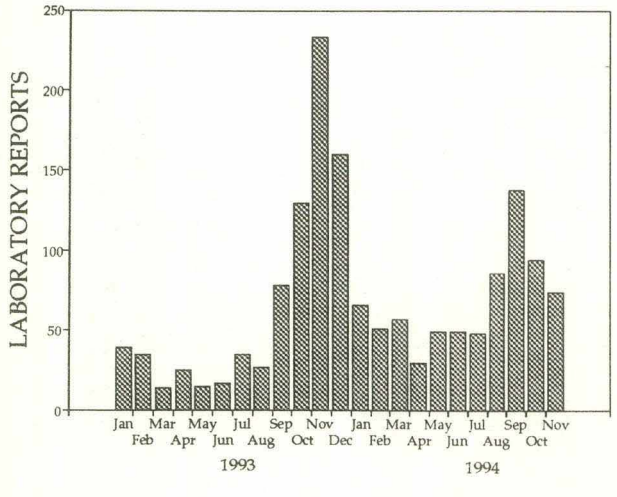
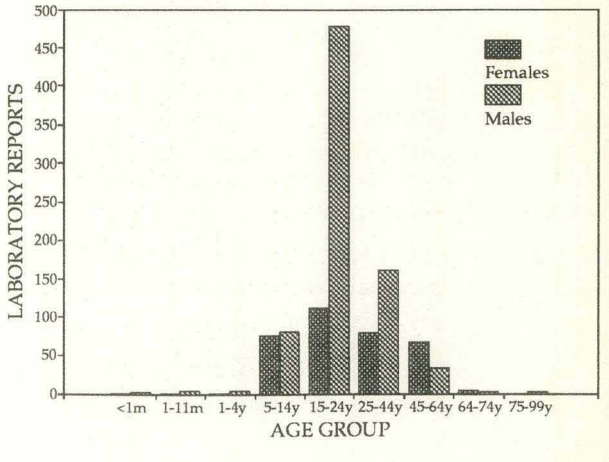


Figure 2. Rubella laboratory reports, 1994, by age group and sex



- There were 130 reports of **cytomegalovirus** this fortnight. Method of diagnosis included virus isolation (57), antigen detection (2), IgM detection (69), fourfold rise in titre (one) and single high titre (one). Included was isolation from the lung of a 59 year old HIV positive male at postmortem. Also included were 4 other HIV positive patients and 4 transplant recipients.
- **Varicella-zoster virus** was reported for 84 patients including isolation from the thigh of a 27 year old pregnant female at 11 weeks' gestation and from the eye of a one year old male. Diagnosis was by virus isolation (26), antigen detection (33), IgM detection (24) and single high titre (one). There was a rise in the number of reports received in the spring of 1994 (Figure 3).
- **Epstein-Barr virus** was reported for 175 patients this period, 115 of whom were in the 15 to 24 year age group and 29 in the 5 to 14 year age group.
- Ten reports of **parvovirus** were received this reporting period. Included were 7 females, 6 of whom were in the 15 to 44 year age group, and 3 males. Clinical manifestations included rash (3) and polyarthritis (2).
- **Orf** virus was detected by electron microscopy in the skin of a 52 year old Victorian male.
- Six reports of **coxsackievirus B3** were received this period, 4 males and 2 females, all in the one to 44 year age group. Patients were from Victoria (5), New South Wales (one) and the Australian Capital Territory (one). Included was isolation from postmortem heart, lung and liver specimens from a 5 day old male who had died of SIDS. Also included was virus isolation from the nasopharynx of a 21 month old male with pneumonia for whom RSV was also reported.
- **Echovirus type 6** was reported for 5 patients this period including two with a clinical diagnosis of meningitis. Two cases were male and 3 female all in the one month to 24 year age group. Included was a 4 month old female from South Australia who had died of SIDS. Two of the child's siblings had experienced a vomiting illness 24 and 48 hours respectively prior to her death.
- Five reports of **echovirus type 30** were received for one male and 4 females all in the one month to 44 year age group. Three patients were reported to have meningitis.
- Seventy-eight **untyped enterovirus** reports were received this fortnight including 52 males and 26 females, age range one month to 44 years.
- **Rhinovirus** was reported for 67 patients this period 33 of whom were under the age of 12 months and a total of 56 in the under 4 years age group.
- Seven reports of **influenza A** were received this period, diagnosed by single high titre (6) and IgM detection (one).
- **Influenza B** was isolated from the nasopharynx of a 2 year old Victorian male with pyrexia and lower respiratory tract symptoms (specimen collected in late November).
- **Parainfluenza virus type 3** was reported for 64 patients this period, 53 of whom were under the age of 4 years. This virus was isolated from the CSF of a 40 year old HIV positive male patient and detected by immunofluorescence in the nasopharynx of a 13 year old cardiac transplant recipient. Method of diagnosis included virus isolation (34) and antigen detection (30). The number of reports received remained high for the months of November and December (Figure 4).
- An **untyped parainfluenza virus** was detected by immunofluorescence in the nasopharynx of an 11 month old female with a malignancy who is a long term excretor of this virus.

Figure 3. Varicella-zoster virus laboratory reports, 1994, by method of detection and month of specimen collection

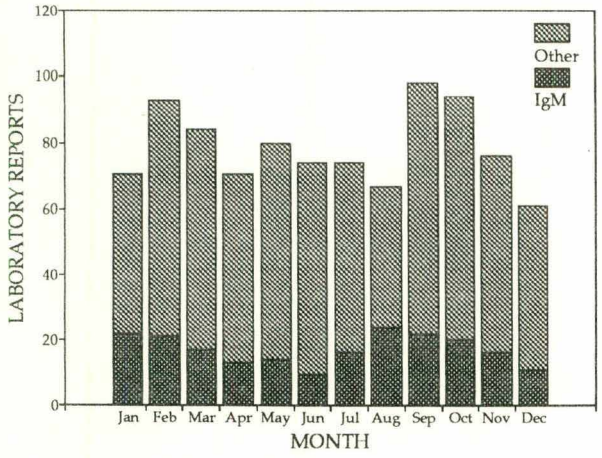
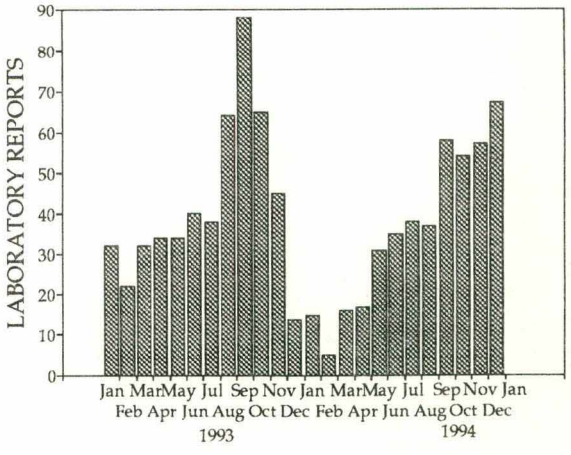


Figure 4. Parainfluenza type 3 laboratory reports, 1993 to 1994, by month of specimen collection



- Twenty-eight reports of **respiratory syncytial virus (RSV)** were received this fortnight. The number of reports declined markedly in the months of November and December.
- **Rotavirus** was reported for 105 patients this period, 53 males and 47 females (5 sex not stated). Thirty-three were under the age of one year and a total of 96 were in the under 4 years age group.
- **Calicivirus** was reported for a 2 year old Victorian child with gastroenteritis.
- One hundred and seventy reports of ***Chlamydia trachomatis*** were received this fortnight, for 56 males and 113 females (one sex not stated). One hundred and sixty-two were in the 15 to 44 year age group.
- Ten reports of ***Chlamydia psittaci*** were received for 7 males and 3 females. Included was a 49 year old male with a cough and abnormal chest x-ray who kept parrots.
- ***Coxiella burnetii*** (Q fever) was reported for 32 patients this period, 21 from New South Wales, 5 each from Queensland and Victoria and one from South Australia. Included were 27 males and 4 females (one sex not stated) all in the 17 to 53 years age range.
- ***Bordetella*** was reported for 46 patients this period including 26 ***Bordetella pertussis*** and 20 ***Bordetella*** species. Twenty-one patients were in the 5 to 14 year age group. Diagnosis was by antigen detection (8), IgM detection (16) and IgA detection (22).
- ***Legionella micdadei*** was diagnosed by fourfold rise in titre for a 52 year old female from Victoria with pneumonia.
- Forty-eight reports of positive **syphilis** serology were received this period, for 29 males and 18 females (one sex not stated), 25 of whom were in the 15 to 44 year age group.

Australian Sentinel Practice Research Network

Data for week 52 in 1994 (ending 1 January 1995) and week 1 in 1995 (ending 8 January) are included in this issue of *CDI* (Table 1). There were 3967 and 5147 consultations reported, respectively. The rate of reporting of chickenpox has been higher during the last few months than earlier in 1994 (Figure 5).

ASPREN has recommenced rubella reporting for 1995. Cases are recorded once only, according to the case definition:

(a) an exanthem with enlarged lymph nodes, most prominently suboccipital and post-auricular, with a macular rash on the face, spreading to the trunk and proximal portions of the limbs, or

(b) serological evidence of rubella infection.

The case definitions used for influenza, measles, chickenpox, pertussis and gastroenteritis were published in *CDI* 1994;**18**:147-149.

Figure 5. ASPREN reports of chickenpox per 1000 consultations, January 1994 to January 1995, by week

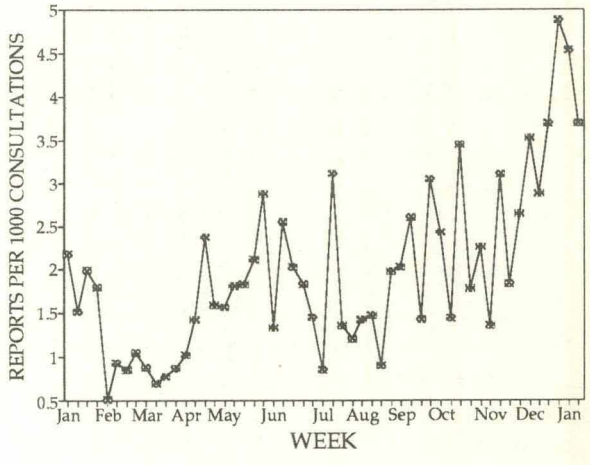


Table 1. Australian Sentinel Practice Research Network, week 52, 1994 and week 1, 1995

Condition	Week 52, to 1 January 1995		Week 1, to 8 January 1995	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	28	7.1	20	3.9
Rubella	-	-	6	1.2
Measles	1	0.3	1	0.2
Chickenpox	18	4.5	19	3.7
Pertussis	5	1.3	4	0.8
Gastroenteritis	80	20.2	85	16.5

Australian encephalitis: Sentinel Chicken Surveillance Programme, Serological Results for November and December 1994

AK Broom[1], *J Azuolas*[2], *L Hueston*[3], *JS Mackenzie*[4], *L Melville*[5] *and DW Smith*[6]

Sentinel chicken serology was undertaken for 18 of the 23 flocks in the Kimberley, Pilbara and Gascoyne regions of Western Australia in November and December 1994. There were no seroconversions to flaviviruses during this period.

Seven of the 8 flocks in the Northern Territory were tested and again there was no evidence of flavivirus antibodies in the sera tested.

The sentinel chicken programmes for New South Wales and Victoria recommended in November or December 1994, and there was no flavivirus activity in these areas.

1. Department of Microbiology, The University of Western Australia.
2. Veterinary Research Institute, Victoria.
3. Virology Department, Westmead Hospital, New South Wales.
4. Department of Microbiology, The University of Queensland.
5. Berrimah Agricultural Research Centre, Darwin, Northern Territory.
6. State Health Laboratories, Perth, Western Australia.

Sterile Sites Surveillance (LabDOSS)

Data for this fortnight have been provided by 10 laboratories. There were 369 reports of recent significant sepsis:

Australian Capital Territory: Woden Valley Hospital 24.
New South Wales: John Hunter Hospital 57; Liverpool Hospital 50; Prince of Wales Hospital 67; Royal North Shore Hospital 46; Royal Prince Alfred Hospital 37.
Queensland: Central Queensland Pathology Laboratory 3; Ipswich General Hospital 5.
South Australia: Institute of Medical and Veterinary Science 65.
Tasmania: Royal Hobart Hospital 15.

Organisms reported 5 or more times from blood are detailed in Table 2.

There were 6 reports of *Haemophilus influenzae* bacteraemia without meningitis. Four patients were from New South Wales: a 28 year old male with pneumonia and a history of injecting drug use (not type b); a 77 year old immunocompromised male; a 52 year old male with a history of injecting drug use and diabetes; and a 58 year old male with pneumonia. Type was not specified for these latter three patients. Two patients were from Tasmania: a 4 year old male with epiglottitis (type not provided); and a 50 year old male with epiglottitis (type b). There were no apparent clusters.

Table 2. LabDOSS reports of blood isolates, by organism and clinical information

Organism	Clinical information						Risk factors				Total[1]
	Bone/Joint	Lower respiratory	Endocarditis	Gastrointestinal	Urinary tract	Skin	Surgery	Immunosuppressed	IV line	Neonatal	
Enterococcus faecalis				2					2		6
Staphylococcus aureus	6	1	3	2		16	13	17	14		77[2]
Staphylococcus epidermidis			1	2			1	2	8	1	20
Staphylococcus coagulase negative			1			4	3	5	2	1	14
Streptococcus Group A	1					5	1				8
Streptococcus Group B		1				1					9
Streptococcus Group G						2		1			5
Streptococcus pneumoniae		9						1	1		13
Escherichia coli		1		14	17	2	1	15	1	1	51
Enterobacter cloacae				4			3		3		7
Haemophilus influenzae		2						3			6
Klebsiella pneumoniae				4	3		1	6			13
Klebsiella species				2				3			6
Pseudomonas aeruginosa		1		1	4		1	4	3		13
Candida albicans			1			1		2	2		5

1. Only organisms with 5 or more reports are included in this table.
2. MRSA 8.

Other blood isolates not included in Table 2 were:

Gram positive: 1 *Clostridium perfringens*, 2 *Corynebacterium jeikeium* (in a 78 year old immunocompromised male with a vascular prosthesis, from South Australia; and a 36 year old female with myeloma and an intravenous line, from New South Wales), 1 *Enterococcus* species, 2 *Listeria monocytogenes*, 3 *Streptococcus* 'milleri', 3 *Streptococcus mitis*, 1 *Streptococcus sanguis*, 4 *Streptococcus* species, 3 *Streptococcus* 'viridans'.

Gram negative: 4 *Acinetobacter* species, 1 *Campylobacter jejuni*, 1 *Citrobacter freundii*, 4 *Citrobacter* species, 1 *Enterobacter aerogenes*, 3 *Enterobacter* species, 4 *Klebsiella oxytoca*, 1 *Morganella morganii*, 1 *Neisseria meningitidis* (serogroup not reported, in a 4 month old male with pneumonia, from New South Wales), 1 *Neisseria subflava* (in a 40 year old male with a bone marrow transplant, from New South Wales), 1 *Pasteurella multocida* (in a 77 year old male with a risk factor of abdominal surgery, from New South Wales), 4 *Proteus mirabilis*, 2 *Proteus vulgaris*, 1 *Pseudomonas cepacia* (in a 44 year old female with malignancy and an intravenous line, from New South Wales), 1 *Pseudomonas fluorescens*, 1 *Rahnella aquatilis* (in a 72 year old male, from New South Wales, with risk factors of malignancy and an intravenous line), 1 *Salmonella* Virchow (in a 25 year old male with cholangitis, from New South Wales), 1 *Salmonella* Typhi (in a 47 year old female with a history of travel to Bali and Djakarta), 2 *Serratia marcescens*, 1 *Vibrio vulnificus* (isolated from a leg wound in a 69 year old male from Queensland), 2 *Xanthomonas maltophilia*.

Anaerobes: 2 *Bacteroides fragilis*, 1 *Clostridium perfringens*, 1 *Clostridium ramosum*, 1 *Clostridium* species, 2 *Fusobacterium* species, 1 *Peptostreptococcus micros* (in a 43 year old male with urinary tract infection, from South Australia), 1 *Prevotella buccae*, 1 *Prevotella ruminicola brevis*.

Fungi: 2 *Candida* species, 1 *Cryptococcus albidus*, 1 *Xylophyla bantiana*.

There were 20 blood isolates from patients aged less than one year and 190 from patients aged 55 years and over (Figure 6).

Hospital acquired blood isolates

A total of 115 isolates was reported as hospital acquired. The six most commonly reported organisms were: 5 *Enterobacter cloacae*; 5 *Escherichia coli*; 5 *Klebsiella pneumoniae*; 7 *Pseudomonas aeruginosa*; 35 *Staphylococcus aureus* (including 5 MRSA); 12 *Staphylococcus* coagulase negative.

Meningitis and/or CSF isolate reports

There were 22 reports of meningitis and/or CSF isolates (Table 3). Two isolates were *Cryptococcus*

Figure 6. LabDOSS reports of blood isolates, by age group

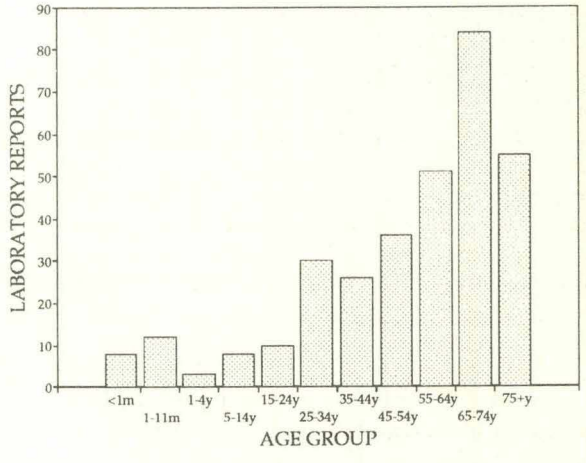


Table 3. LabDOSS reports of meningitis and/or CSF isolates, by organism and age group

	1-11 months	5-14 years	15-24 years	25-34 years	45-54 years	55-64 years	65-74 years	Total
Listeria monocytogenes					1			1
Staphylococcus aureus					1	1		2
Staphylococcus coagulase negative					1			1
Staphylococcus hominis			1					1
Staphylococcus warneri					1			1
Streptococcus bovis biotype II							1	1
Streptococcus pneumoniae	2							2
Enterobacter cloacae	1							1
Haemophilus influenzae type b		1						1
Neisseria meningitidis group B						1		1
Neisseria meningitidis group C			1	1	1			3
Pseudomonas aeruginosa						1		1
Serratia liquefaciens							1	1
Xanthomonas maltophilia	1							1
Cryptococcus neoformans			1	1				2

neoformans. These were reported in a 33 year old male who was HIV positive, isolates from blood and CSF; and a 24 year old female, normal host on amphotericin B, isolated from CSF. Both patients were from New South Wales. One isolate was *Enterobacter cloacae*, from blood, in a 4 month old male from New South Wales. Two risk factors, preterm neonate and intravenous line, were reported. *Haemophilus influenzae* type b was isolated from the blood and CSF of a 6 year old female from New South Wales. *Listeria monocytogenes*, from blood and CSF, was reported in a 53 year old immunocompromised female with a malignancy, from South Australia.

Four isolates were *Neisseria meningitidis*. Three isolates were reported as serogroup C: from blood, a 18 year old male from New South Wales; from CSF, a 30 year old male visitor from New Zealand; and, from CSF, a 54 year old female from South Australia. One isolate, from CSF, was reported as serogroup B in a 55 year old male from South Australia

Pseudomonas aeruginosa was isolated, from CSF, in a 64 year old female with a history of a wound infection, from New South Wales. One isolate was *Serratia liquefaciens*, from CSF, in a 66 year old male from the Australian Capital Territory. Two isolates were *Staphylococcus aureus*, both from CSF. These were reported in a 57 year old male with a risk factor of orthopaedic surgery, from South Australia; and a 51 year old female with a risk factor of neurological surgery, from New South Wales. *Staphylococcus* coagulase negative isolate, from blood, was reported in a 52 year old immunocompromised female from South Australia. *Staphylococcus warneri* was isolated, from CSF, in a 48 year old female with a risk factor of neurological surgery, from Tasmania. One isolate was *Staphylococcus hominis*, from CSF, reported in a 21 year old female with phlebitis and a lumboperitoneal shunt, from New South Wales. *Streptococcus bovis* biotype II was isolated, from blood and CSF, in a 74 year old female from South Australia. Three isolates were reported as *Streptococcus pneumoniae*: one, from blood, in a 6 month old female; and, from blood and CSF, in an eleven month old male. Both patients were from New South Wales. *Xanthomonas maltophilia*, from blood, was isolated in a young (1-11 month old) immunocompromised female from South Australia.

Isolates from Sites other than Blood or CSF

Joint fluid: 1 *Escherichia coli*, 1 *Proteus mirabilis*, 7 *Staphylococcus aureus*, 1 *Staphylococcus warneri*, 1 *Streptococcus sanguis*.

Pleural fluid: 1 *Pseudomonas aeruginosa*, 1 *Staphylococcus aureus* (MRSA).

Peritoneal dialysate: 1 *Enterobacter gergoviae*.

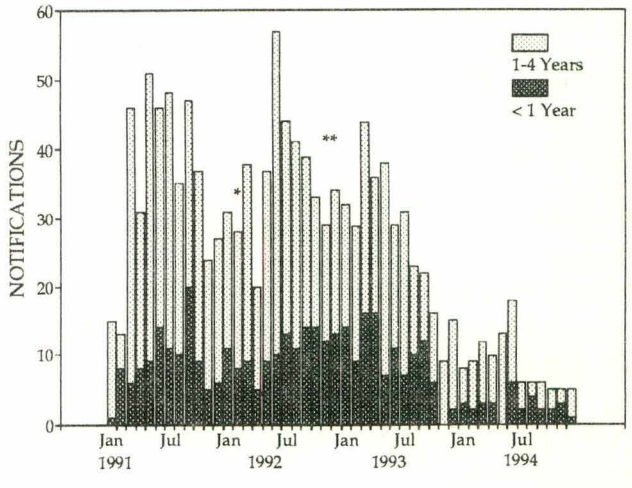
Other: 1 *Enterococcus faecalis*, 1 *Klebsiella pneumoniae*, 2 *Staphylococcus aureus*.

National Notifiable Diseases Surveillance System, 25 December 1994 to 7 January 1995

There were 933 notifications received in the period (Tables 4, 5 and 6). No notifications were received from the Northern Territory.

- There were 11 notifications of **Ross River virus infection**; 6 cases were male and 5 were female. The cases were aged between the 25-29 and 70-74 years age groups. Recorded onset dates were October (one), November (one), and December (11).
- A single case of **brucellosis** was reported for a male in the 20-24 years age group.
- There were 231 notifications of **campylobacteriosis**; 127 cases were male, 101 cases were female and the sex of one case was unrecorded. The cases were aged between the 0-4 and the 80-84 years age group with 19% of cases aged less than 5 years.
- Thirty cases of **gonococcal infection** were reported; 21 cases were male and 9 were female. Recorded ages were between the 15-19 and the 50-54 years age group.
- Three cases of ***Haemophilus influenzae* type b infection** were reported. All 3 cases were male and they were age between the 0-4 and the 40-44 years age groups with a single case aged less than 5 years (Figure 7). All onset dates were in December.
- There were 28 notifications of **hepatitis A**; 17 cases were male, 10 were female, and the sex of one case was unrecorded. The cases were aged from the 5-9 years age group to the 65-69 years age group.

Figure 7. *Haemophilus influenzae* type b infection notifications in children aged less than 5 years, 1991 to 1995, by month of onset and age group.

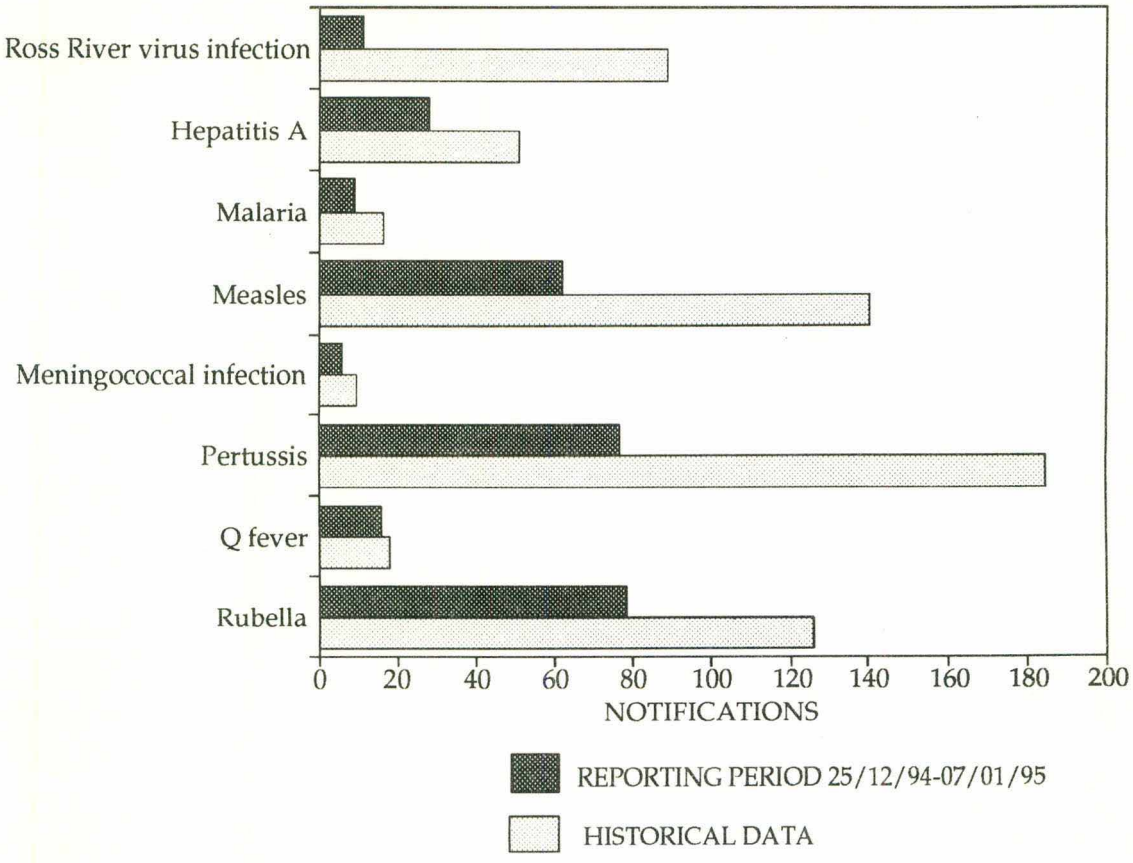


* PRP-D approved in February 1992.

** Infant vaccine approved in September 1992.

- Two incident cases of **hepatitis B** were reported. One case was a male in the 30-34 years age group and one case was a female in the 15-19 years age group.
- There were 2 incident cases of **hepatitis C** reported. Both cases were male and they were in the 20-24 years and the 40-44 years age groups respectively.
- Two notifications of **legionellosis** were received; both cases were male. Recorded ages were in the 65-69 years and the 70-74 years age groups respectively. Recorded onset dates were in December.
- Four cases of **leptospirosis** were reported; two cases were male and two were female. The cases were aged between the 35-39 and the 50-54 years age groups with the age of one case not recorded. Three cases were resident in rural Statistical Divisions of Victoria and one case was resident in a rural Statistical Division of New South Wales.
- There were 3 notifications of **listeriosis** received; all cases were female. One case was aged less than one year and the remaining 2 cases were in the 25-29 years and the 50-54 years age groups respectively. All cases were resident in the statistical division on Adelaide and recorded onset dates were in December.
- Nine cases of **malaria** were reported; 6 cases were male and one was female. Recorded ages were from the 10-14 years age group to the 40-45 years age group. Onset dates were in November (one) and December (8).
- There were 63 notifications of **measles**; 36 cases were male and 27 were female. Recorded ages were between the 0-4 and the 30-34 years age group with 31% of cases aged less than 5 years. Recorded onset dates were in January (8), September (one), October (2), November (one), and December (51). There were 11 apparent clusters of between 2 and 4 cases each in the same postcode area. Apparent clusters were in New South Wales (7), the Australian Capital Territory (one), and Queensland (3).
- There were 6 cases of **meningococcal infection** reported; 2 cases were male and 4 were female. Cases were aged between the 0-4 and the 50-54 years age groups with 2 cases aged less than one year.
- Seventy-seven cases of **pertussis** were reported; 34 cases were male and 43 were female. Recorded ages were between 0-4 and the 75-79 years age groups with 7 cases aged less than one year. There were 12 apparent clusters of between 2 and 4 cases each resident in the same postcode area. Apparent clusters were in New South Wales (4), Victoria (2), Queensland (4), Western Australia (one) and South Australia (one).
- There were 15 notifications of **Q fever;** 14 cases were male and one case was female. Recorded cases were aged between the 15-19 and the 60-64 years age groups.
- Seventy-eight cases of **rubella** were reported; 45 cases were male, 31 cases were female and the sex of 2 cases was unrecorded. Cases were aged between the 0-4 and the 70-74 years age group with 13 cases reported in females in the 15-44 years age group.
- There were 92 cases of **salmonellosis (not elsewhere classified)** reported; 44 cases were male and 48 cases were female. Recorded ages were between the 0-4 and the 90-94 years age groups with 36% of cases age less than 5 years. There were 2 apparent clusters of two cases each in the same postcode area and recorded onset dates within 2 days, in South Australia and Tasmania.
- Eighteen cases of **syphilis** were reported; 11 cases were male, 5 cases were female, and the sex of 2 cases was unrecorded. Cases were aged between the 15-19 and the 80-84 years age groups.
- There were 7 cases of **tuberculosis** reported; 4 cases were male and 3 cases were female. Recorded ages were between the 40-44 and the 75-79 years age groups. Onset dates were January (2) and December (5).
- Ten cases of **yersiniosis** were reported; 7 cases were male and 3 cases were female. Recorded ages were between the 0-4 and the 45-49 years age groups. There were no apparent clusters.

Figure 8. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



1. 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.

Table 4. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 25 December 1994 to 7 January 1995

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This period 1994-95	This period 1993-94	Year to date 1995[3]	Year to date 1994[3]
Diphtheria	0	0		0	0	0	0	0	0	0	0	0
Haemophilus influenzae b infection	0	0		0	1	0	2	0	3	23	2	9
Measles	5	35		14	1	0	7	0	62	163	45	123
Mumps	0	0	NN	NN	0	NN	0	0	0	1	0	0
Pertussis	2	13		31	6	0	16	9	77	267	56	199
Poliomyelitis	0	0		0	0	0	0	0	0	0	0	0
Rubella[2]	0	0		59	1	0	7	11	78	75	67	57
Tetanus	0	0		NN	0	0	0	0	0	0	0	0

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. Tas: CRS only.
3. Year to date totals are for 1 to 7 January 1994 and 1995 and are therefore lower than the totals for the corresponding reporting periods.

NN Not Notifiable.

Table 5. Notifications of other diseases[1] received by State and Territory health authorities in the period 25 December 1994 to 7 January 1995

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2]			
									This period 1994-95	This period 1993-94	Year to date 1995[8]	Year to date 1994[8]
Arbovirus infection												
Ross River virus infection	0	1		8	2	-	0	0	11	96	11	87
Dengue	0	0		0	0	-	0	0	0	1	0	0
NEC[3]	0	1		9	0	0	0	0	10	11	9	9
Campylobacteriosis[4]	11	-		36	42	1	124	15	229	268	182	203
Chlamydial infection (NEC)[5]	2	NN		41	20	0	36	11	110	144	74	118
Donovanosis	0	NN		0	NN	NN	0	0	0	1	0	1
Gonococcal infection[6]	0	9		2	5	0	3	11	30	58	12	39
Hepatitis A	0	4		11	1	0	11	1	28	35	20	28
Hepatitis B incident	0	1		0	0	0	1	0	2	6	2	4
Hepatitis C incident	-	2		-	0	-	-	-	2	1	0	1
Hepatitis C unspecified	6			31		0	55	16	108	181	86	141
Hepatitis (NEC)	0	0		1	0	0	0	NN	1	2	1	0
Legionellosis	0	0		0	1	0	1	0	2	12	0	6
Leptospirosis	0	1		0	0	0	3	0	4	3	3	2
Listeriosis	0	0		0	3	0	0	0	3	0	1	0
Malaria	0	3		0	3	0	3	0	9	7	6	5
Meningococcal infection	0	2		1	1	0	2	0	6	11	3	6
Ornithosis	0	NN		0	1	0	1	0	2	6	2	6
Q fever	0	8		1	1	0	6	0	16	15	7	11
Salmonellosis (NEC)	0	17		18	27	0	17	8	87	145	67	93
Shigellosis[4]	0	-		4	1	0	0	1	6	15	4	10
Syphilis	1	4		6	1	0	6	0	18	49	17	39
Tuberculosis	0	1		2	0	0	4	0	7	39	6	35
Typhoid[7]	0	0		0	0	0	0	0	0	2	0	1
Yersiniosis (NEC)[4]	1	-		3	4	0	2	0	10	10	7	9

1. For HIV and AIDS, see Tables 2 and 3 *CDI* 1995;19:16-17. For rarely notified diseases, see Table 6.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. Tas: includes Ross River virus and dengue.
4. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
5. WA: genital only.
6. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
7. NSW, Vic: includes paratyphoid.
8. Year to date totals are for 1 to 7 January 1994 and 1995 and are therefore lower than the totals for the corresponding reporting periods.

NN Not Notifiable.

NEC Not Elsewhere Classified.

- Elsewhere Classified.

Table 6. Notifications of rare[1] diseases received by State and Territory health authorities in the period 25 December 1994 to 7 January 1995

DISEASES	Total this period	Reporting States or Territories	Year to date 1995[2]
Botulism			0
Brucellosis	1	Qld	1
Chancroid			0
Cholera			0
Hydatid infection			0
Leprosy			0
Lymphogranuloma venereum	2	Vic	0
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 1988 to 1993.
2. Year to date total is for 1 to 7 January 1995 and is therefore lower than the total for the reporting period.

Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 15 December 1994 to 11 January 1995, historical data[2], and total reports for the year

	State or Territory [1]								Total this fortnight	Historical data [2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
MEASLES, MUMPS, RUBELLA											
Measles virus	3	9	14	50			7	1	84	68.5	101
Mumps virus				3			2		5	3.8	7
Rubella virus		4	2	173	3		1		183	79.0	259
HEPATITIS VIRUSES											
Hepatitis A virus		9		20	3		4		36	20.5	48
Hepatitis B virus	2	49	3	53	1	2	26	1	137	100.2	184
Hepatitis C virus	16	56	6	154	74	65	15		386	210.2	550
ARBOVIRUSES											
Ross River virus			14	39					53	49.2	75
Barmah Forest virus			1	24					25	8.7	35
Flavivirus (unspecified)				1					1	2.3	1
ADENOVIRUSES											
Adenovirus type 1					4		2		6	5.0	7
Adenovirus type 2					3		3		6	4.3	7
Adenovirus type 3					4		4		8	4.8	8
Adenovirus type 5							1		1	1.5	1
Adenovirus type 7					3				3	.3	3
Adenovirus not typed/pending	2	16		13	26	2	19	7	85	70.0	125
HERPES VIRUSES											
Herpes simplex virus type 1		15	4	158	72	12	101		362	201.3	499
Herpes simplex virus type 2		12	4	181	38	7	60		302	246.8	393
Herpes simplex not typed/pending	14	8			1		2	4	29	32.3	54
Cytomegalovirus	4	14	1	67	3	3	29	9	130	77.0	179
Varicella-zoster virus		7	2	45	13		16	1	84	50.3	105
Epstein-Barr virus		27		86	44		18		175	93.3	209
Herpes virus group - not typed							1	1	2	1.7	3
OTHER DNA VIRUSES											
Contagious pustular dermatitis (Orf virus)							1		1	.3	1
Poxvirus group not typed				1					1	.3	1
Parvovirus		1		3		1	5		10	6.7	11
PICORNA VIRUS FAMILY											
Coxsackievirus B2		2					1		3	.8	3
Coxsackievirus B3	1						5		7	.0	10
Coxsackievirus B5		1							1	3.7	2
Coxsackievirus B6					1				1	.2	1
Echovirus type 3		1					1		2	.0	3
Echovirus type 6		1			2		2		5	.3	10
Echovirus type 23					1				1	.0	1
Echovirus type 30		5							5	17.0	14
Poliovirus type 1 (uncharacterised)		1							1	2.0	3
Poliovirus type 2 (uncharacterised)							1		1	1.2	1
Poliovirus type 3 (uncharacterised)					1				1	1.0	1
Rhinovirus (all types)	1	9		18	2	1	36		67	48.8	99
Enterovirus not typed/pending		5	1	52			19		77	59.5	94
ORTHO/PARAMYXOVIRUSES											
Influenza A virus		1		1	4		1		7	16.3	13
Influenza B virus							1		1	11.7	1
Parainfluenza virus type 1					1				1	2.7	1

Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 15 December 1994 to 11 January 1995, historical data[2], and total reports for the year, continued

	State or Territory [1]								Total this fortnight	Historical data [2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
Parainfluenza virus type 2							1		1	1.0	2
Parainfluenza virus type 3		4		25	2		32	1	64	24.7	91
Parainfluenza virus typing pending		2							2	1.0	4
Respiratory syncytial virus		4		2	2	8	10	2	28	24.3	43
OTHER RNA VIRUSES											
HIV-1				6		1			7	3.7	9
Rotavirus		6			37	17	4	41	105	55.0	163
Calici virus							1		1	.7	1
Norwalk agent							3		3	.3	3
OTHER											
Chlamydia trachomatis not typed	5	9	13	98	26	5	12	2	170	113.5	242
Chlamydia psittaci					1		9		10	4.7	17
Chlamydia species					2				2	.3	2
Mycoplasma pneumoniae		1		17			9		27	81.2	40
Coxiella burnetii (Q fever)		21		5	1		5		32	23.3	45
Streptococcus group A		4	9	29		1			43	13.5	47
Yersinia enterocolitica		2							2	.3	11
Brucella species				1					1	1.0	2
Bordetella pertussis			1	1			24		26	18.7	35
Bordetella species		1	2	17					20	22.0	24
Legionella species							1		1	.3	1
Cryptococcus species		2							2	1.0	4
Leptospira species				2					2	.7	4
Treponema pallidum	1	31	9	6			1		48	17.2	63
Toxoplasma gondii		1		1		1	1		4	1.5	5
Schistosoma species							1		1	.0	2
TOTAL	49	342	86	1352	375	126	498	70	2,898	1,913.5	3,983

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

Table 8. Virology and serology laboratory reports by clinical information for the reporting period 15 December 1994 to 11 January 1995

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA													
Measles virus					4			20				60	84
Mumps virus												5	5
Rubella virus			1		3	1		76		5		97	183
HEPATITIS VIRUSES													
Hepatitis A virus							14					22	36
Hepatitis B virus						2	27					108	137
Hepatitis C virus						1	37					348	386

Table 8. Virology and serology laboratory reports by clinical information for the reporting period 15 December 1994 to 11 January 1995, continued

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
ARBOVIRUSES													
Ross River virus								4		13		36	53
Barmah Forest virus										7		18	25
Flavivirus (unspecified)												1	1
ADENOVIRUSES													
Adenovirus type 1					3	1			1			1	6
Adenovirus type 2					4	1						1	6
Adenovirus type 3					4				4				8
Adenovirus type 5					1								1
Adenovirus type 7					1				2				3
Adenovirus not typed/pending		1			31	37			4			12	85
HERPES VIRUSES													
Herpes simplex virus type 1					7			185	9	1	114	46	362
Herpes simplex virus type 2								96			190	16	302
Herpes simplex not typed/pending	1				3			12			8	5	29
Cytomegalovirus				1	27	4	1	4		3		90	130
Varicella-zoster virus								60	1		2	21	84
Epstein-Barr virus					16			3				156	175
Herpes virus group - not typed								2					2
OTHER DNA VIRUSES													
Contagious pustular dermatitis (Orf virus)								1					1
Poxvirus group not typed										1			1
Parvovirus								3		2		5	10
PICORNA VIRUS FAMILY													
Coxsackievirus B2												3	3
Coxsackievirus B3					3							3	6
Coxsackievirus B5		1											1
Coxsackievirus B6												1	1
Echovirus type 3					1							1	2
Echovirus type 6		2										3	5
Echovirus type 23					1								1
Echovirus type 30		3										2	5
Poliovirus type 1 (uncharacterised)												1	1
Poliovirus type 2 (uncharacterised)												1	1
Poliovirus type 3 (uncharacterised)					1								1
Rhinovirus (all types)					58							9	67
Enterovirus not typed/pending		8	7		30	9	1	5	1	2		15	78
ORTHO/PARAMYXOVIRUSES													
Influenza A virus					3							4	7
Influenza B virus					1								1
Parainfluenza virus type 1												1	1
Parainfluenza virus type 2					1								1
Parainfluenza virus type 3			1	1	51	2						9	64
Parainfluenza virus typing pending					1							1	2
Respiratory syncytial virus					23			1		1		3	28

Table 8. Virology and serology laboratory reports by clinical information for the reporting period 15 December 1994 to 11 January 1995, continued

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
OTHER RNA VIRUSES													
HIV-1												7	7
Rotavirus					1	103						1	105
Calici virus						1							1
Norwalk agent						3							3
OTHER													
Chlamydia trachomatis not typed					1			2	2		149	16	170
Chlamydia psittaci					7							3	10
Chlamydia species					2								2
Mycoplasma pneumoniae					12			1				14	27
Coxiella burnetii (Q fever)							1					31	32
Streptococcus group A					6					6		31	43
Yersinia enterocolitica												2	2
Brucella species												1	1
Bordetella pertussis					25							1	26
Bordetella species					12							8	20
Legionella species					1								1
Cryptococcus species												2	2
Leptospira species												2	2
Treponema pallidum												48	48
Toxoplasma gondii												4	4
Schistosoma species												1	1
TOTAL	1	15	9	2	345	165	81	475	24	41	463	1277	2898

Table 9. Virology and serology laboratory reports by contributing laboratories for the reporting period 15 December 1994 to 11 January 1995

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Canberra	51
New South Wales	Prince Henry/Prince of Wales Hospitals, Sydney	57
	Royal Alexandra Hospital for Children, Camperdown	32
	Royal Prince Alfred Hospital, Camperdown	17
	South West Area Pathology Service, Liverpool	128
Queensland	Queensland Medical Laboratory, West End	1393
	State Health Laboratory, Brisbane	152
South Australia	Institute of Medical and Veterinary Science, Adelaide	374
Tasmania	Northern Tasmanian Pathology Service, Launceston	4
	Royal Hobart Hospital, Hobart	118
Victoria	Microbiological Diagnostic Unit, University of Melbourne	12
	Monash Medical Centre, Melbourne	61
	Royal Children's Hospital, Melbourne	148
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	283
Western Australia	Princess Margaret Hospital, Perth	68
TOTAL		2898