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

INFLUENZA VIRUSES OF THE 1995 SEASON AND COMPOSITION OF THE AUSTRALIAN INFLUENZA VACCINE FOR THE 1996 WINTER

World Health Organization Collaborating Centre for Reference and Research on Influenza, Melbourne, and the Australian Influenza Vaccine Committee

Southern Hemisphere activity

The composition of influenza vaccine is reviewed annually in order to take account of antigenic variation ('drift 'and shift') in the circulating influenza viruses. In February this year the World Health Organization (WHO) recommended[1] that the vaccine for the 1995-96 northern winter should contain an A/Singapore/6/86 (H_1N_1)-like strain, an A/Johannesburg/33/94 (H_3N_2)-like strain and a B/Beijing/184/93-like strain. Since then, the influenza activity has been monitored and influenza virus isolates from Africa, the Americas, Asia, Europe and Oceania have been characterised at the WHO Collaborating Centres for Reference and Research on Influenza in Melbourne, London and Atlanta.

Influenza in Australia commenced with outbreaks in the north of the Northern Territory during late March and spread progressively through the Territory during April. Morbidity was reported to be 10-30% in affected communities[2]. Specimens yielded mainly influenza A (H_1N_1) viruses with occasional influenza B isolates, however, it appears that the latter were restricted to an Aboriginal community on a group of islands off the north coast of the Territory. Some limited outbreaks of influenza A (H_1N_1) followed in the southern States during April ahead of more widespread outbreaks commencing in late May and peaking in June-July but with moderate levels persisting through to August. Influenza B became more prominent later in the season.

In New South Wales and Queensland the outbreaks commenced later and peaked in late August. Influenza A (H_1N_1) again predominated but influenza B was present from the outset and became more prominent later in the outbreaks. There were few isolates of influenza A (H_3N_2) viruses this year.

Elsewhere in the Southern Hemisphere outbreaks in New Zealand were largely due to influenza B strains but with increasing numbers of influenza A (H_3N_2) isolates later in the season: there was little evidence of H_1N_1 viruses in New Zealand. Outbreaks in southern Africa yielded both subtypes of influenza A but with H_3N_2 viruses predominating. In South American countries (Argentina, Brazil and Chile), activity was due to both influenza A (H_3N_2) and influenza B viruses[3].

Strain analysis

Type A (H_1N_1)

Isolates from Australia and elsewhere displayed some degree of antigenic heterogeneity. While occasional isolates were most closely related to the earlier A/Taiwan/1/86 reference strain, the majority of the viruses which had been isolated and passaged in cell culture most closely resembled the reference strain A/Santi-

Table 1. Haemagglutination inhibition titres for influenza A (H_1N_1) reference and test antigens

	Reference antisera					
	A/Taiwan/ 1/86	A/Victoria/ 36/88	A/Texas/ 36/91	A/Santiago/ 7885/92	A/Florida/ 2/93	Passage history
Reference antigens						
A/Taiwan /1/86	1280	1280	320	1280	640	Egg
A/Victoria/36/88	2560	2560	640	1280	640	Egg
A/Texas/36/91	640	640	2560	640	320	Egg
A/Santiago/7885/92	640	640	320	640	320	Cell-egg
A/Florida/2/93	640	640	640	640	2560	Egg
Test antigens						
A/Perth/13/95	80	320	320	80	320	Cell
A/Perth/13/95	1280	1280	2560	1280	1280	Egg
A/Perth/15/95	160	160	320	160	640	Cell
A/Perth/15/95	640	640	2560	640	320	Egg
A/South Australia/56/95	640	1280	640	640	320	Cell
A/Cape Town/5/95	160	320	160	320	320	Cell
A/Cape Town/4/95	640	1280	640	640	320	Cell
A/Sydney/20/95	320	1280	320	640	320	Cell
A/Sydney/23/95	1280	1280	640	640	640	Cell

Table 2. Haemagglutination inhibition titres for influenza A (H_3N_2) reference and test antigens

	Reference antisera				
	A/Hong Kong/23/92	A/Shangdong/9/93	A/Ann Arbor/3/93	A/Guangdong/25/93	A/Johannesburg/33/94
Reference antigen					
A/Hong Kong/23/92	320	160	160	320	80
A/Shangdong/9/93	320	640	320	320	320
A/Ann Arbor/3/93	320	640	1280	1280	1280
A/Guangdong/25/93	320	320	1280	1280	1280
A/Johannesburg/33/94	320	160	1280	1280	1280
Test antigen					
A/Johannesburg/13/95	320	320	640	1280	1280
A/Johannesburg/18/95	320	320	1280	1280	1280
A/Wellington/1/95	640	640	1280	1280	1280
A/Victoria/75/95	640	640	1280	1280	1280

ago/7885/92 and showed some lowering of reactivity with A/Texas/36/91 antiserum. However, viruses of this type isolated and passaged in eggs were antigenically indistinguishable from the A/Texas/36/91 reference strain (Table 1). This host adaptive phenomenon is not uncommon with influenza and had previously been observed with the A/Texas strain.

Type A (H_3N_2)

Recent strains from all sources, including the small number of Australian isolates, showed essentially the same reaction profile as the A/Guangdong/25/93 and A/Johannesburg/33/94 reference viruses (Table 2).

Type B

The majority of Australian and New Zealand isolates this season displayed significantly lowered reactivity with the reference B/Panama/45/90 antiserum, and reacted most strongly with antisera prepared against the B/Quingdao/102/92 and B/Beijing/184/93 reference strains. The similarity of these strains, B/Harbin/7/94 (a B/Beijing-like vaccine strain incorporated in the current Northern Hemisphere vaccine) and local isolates including B/Wellington/9/95 can be seen in Table 3.

Australian influenza vaccine for 1996

Following the review of these and other local and overseas data, the Australian Influenza Vaccine Committee recommended the following vaccine formulation for the 1996 winter:

- an A/Texas/36/91 (H_1N_1)-like strain, 15 micrograms haemagglutinin
- an A/Johannesburg/33/94 (H_3N_2)-like strain, 15 micrograms haemagglutinin
- a B/Beijing/184/93-like strain, 15 micrograms haemagglutinin.

Table 3. Haemagglutination inhibition titres for influenza B reference and test antigens

	Reference antisera				
	B/Panama/45/90	B/Qingdao/102/91	B/Beijing/184/93	B/Harbin/7/94	B/Wellington/9/95
Reference antigens					
B/Panama/45/90	160	320	80	80	160
B/Qingdao/102/91	80	640	160	160	160
B/Beijing/184/93	40	640	160	80	160
B/Harbin/7/94	40	640	160	160	320
B/Wellington/9/95	40	640	160	80	160
Test antigens					
B/Wellington/11/95	80	640	320	320	640
B/Brisbane/7/95	40	320	160	160	320
B/South Australia/3/95	80	320	160	160	320
B/Waikato/1/95	80	320	160	80	160
B/Perth/2/95	80	640	160	160	320
B/Victoria/102/95	80	640	160	160	320

The A/Johannesburg/33/94 (H_3N_2)-like strain replaces the A/Guandong/25/93 (H_3N_2)-like strain as a reference strain for the vaccine, however these strains are essentially antigenically equivalent. The B/Beijing/184/93-like strain replaces the B/Panama/45/90-like strain of the 1995 Australian vaccine formulation.

Comment on the epidemiology of influenza A (H_1N_1)

The H_1N_1 subtype of influenza A re-emerged in the human population in 1977 after an absence of only 20 years. Initially the re-emergent strains affected mainly children and young adults and had little impact in older members of the population who had experienced closely-related viruses during the 1950s. With further antigenic drift of the subtype a number of outbreaks occurred during the following decade and progressively affected older members of the population. The last major outbreaks in 1988 in the Southern Hemisphere and the following northern winter, due to the A/Victoria/36/88 variant, were associated with excess mortality in the high-risk groups.

Since then the subtype has not circulated in Australia and has been largely absent from most parts of the world. Some limited late activity in the 1991-92 northern winter yielded the further variant A/Texas/36/91 which produced widespread outbreaks in New Zealand but not elsewhere. Since then H_1N_1 isolates have been rare.

The outbreaks in the Northern Territory were considerably earlier than normally observed in Australia, however, influenza shows a less definite seasonality in tropical and sub-tropical regions. Spread to the southern States which occurred in April and May was certainly early. The initial spread, with high morbidity in primary school children[4] was not unexpected as the subtype has been absent since 1988 and a high percentage of primary school children would have no prior experience to related viruses and, therefore, no pre-existing immunity. Absence of the virus from New Zealand was also expected in view of the 1992 outbreaks due to viruses of this type.

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CDI editorial comment

The National Influenza Surveillance scheme will publish a comprehensive report on 1995 influenza activity in Australia based on results from laboratory, sentinel general practitioner, absenteeism and other surveillance activities before the commencement of the 1996 season.

HIB IMMUNISATION RATES IN CHILDREN ATTENDING DAY-CARE: FACTORS AFFECTING UPTAKE

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Introduction

Haemophilus influenzae type b (Hib) disease has been a significant cause of mortality and morbidity in children, especially those under five years of age[1]. The risk of acquiring invasive disease, and in particular meningitis, is higher in Aboriginal infants[2] and those attending day-care outside the home[3,4,5]. Evidence from overseas studies has indicated a significant reduction in the incidence of Hib meningitis as a result of immunisation[6,7]. In Australia evidence[8] suggests a similar decrease in incidence since the approval of congugate vaccines for children over 18 months in February 1992 and for infants from the age of two months in September 1992.

In January 1993, the Health Department of Western Australia commenced a Hib immunisation program by providing an infant vaccine at no charge to all children at the age of two months. In May 1993, the Department highlighted the importance of immunisation against Hib for children attending day-care, play groups and pre-school centres. This was in response to three cases of Hib meningitis occurring in infants attending day-care over a six week period.

The Geraldton Public Health Unit initiated a media campaign and wrote to all parents with children in day-care to inform them of the need to vaccinate their children against Hib.

Following this brief campaign, the Geraldton Public Health Unit conducted a survey in June 1993 of all children in day-care within the city to determine the proportion who had received any doses of Hib vaccine, and to identify reasons for failure to immunise. The results of the study were used to plan activities to increase awareness of Hib disease and the need for immunisation.

The survey was repeated in June 1994 to ascertain an anticipated increase in immunisation uptake following introduction of the Commonwealth funded National Hib Immunisation Program in mid-1993. This report details the results of the surveys undertaken in 1993 and 1994.

Methods

Child-care in Geraldton is provided by two commercial centres and numerous (n = 43) smaller family based day-care in private homes. Supervision of all registered day-care facilities is provided by the local government authority.

All day-care centres and family day-care homes were surveyed. Parents of all 389 children attending day-care in 1993 and all 540 children in 1994 were sent anonymous questionnaires seeking the following information: age of child; sex; length of time child had attended day-care; days per week child attended day-care; whether the child had received any doses of Hib vaccine and the date of vaccine receipt (which was used as a validation of the information on vaccine receipt); source of information about Hib immunisation; reasons for non-immunisation; annual household income; maternal and paternal age.

Data analysis was performed using Epi Info v5.

Results

Surveys were returned by the parents for 292 children in 1993 (response rate 75%) and 262 children in 1994 (response rate 49%).

Although the total number of returned questionnaires was similar for both surveys, the response fraction in 1994 was affected by a larger number of children surveyed.

Data for children in the age group 0-5 years only were analysed, leaving 284 and 242 subjects in 1993 and 1994 respectively.

In 1993 161 (57%) of children had received one or more doses of Hib vaccine. For 1994 the percentage had increased to 73% (177), which was significant at the 0.05 level (Chi square, $p = 0.00001$).

The relationship of receipt of vaccine with time spent at day-care each week and household income was also investigated. Ninety-eight per cent of responses each year included information on time spent in day-care each week; there was no apparent relationship with the proportion of children who had received Hib vaccine (Table 1). Eighty-eight per cent of responses including information on family income in 1993, and 87% in 1994. There was a clear trend for higher immunisation rates

Table 1. Children who had received one or more doses of Hib vaccine, by time spent in day-care each week and year

	1993		1994	
Time in day-care each week	Number	% immunised	Number	% immunised
< 2.5 days	149	59.7	127	75.6
> 2.5 days	130	57.5[1]	109	71.5[1]

1. Not significant.

Table 2. Children who had received one or more doses of Hib vaccine, by yearly household income and year

	1993		1994	
Household income (dollars)	Number	% immunised	Number	% immunised
0 - 20,000	79	46.8	77	72.7
20,000 - 30,000	60	50.0	53	73.6
30,000 - 40,000	63	68.2	48	79.2
40,000 +	47	74.5[1]	33	91.0[2]

1. $p = 0.00001$ for trend.
2. $p = 0.001$ for trend.

Table 3. Sources of information on Hib vaccination for parents whose children had received at least one dose of Hib vaccine, by year

	1993	1994
Media (radio, television, newspapers, magazines)	47.8%	31.2%
Letter from public health unit	23.3%	0%
Family doctor	18.5%	17.0%
Community nurse or community health centre	10.4%	23.4%
Other/not stated	0%	28.4%

Table 4. Reasons reported for failure to immunise, by year

Stated reason	1993 n=68	1994 n=56
Vaccine cost	50%	25%
Did not know about vaccine	20.6%	25%
New, but thought not important	8.8%	19.6%
Concerned about vaccine side effects	0%	12.5%
Other	20.6%	17.9%

in higher income groups, although rates in lower income groups in particular improved between 1993 and 1994 (Table 2).

Neither maternal nor paternal age were associated with immunisation status.

Several sources of information on Hib vaccination were nominated by parents whose child had received a dose of vaccine. In both 1993 and 1994, media sources were the most commonly reported (Table 3).

Vaccine cost was the reason most commonly reported by parents whose children had not received Hib vaccine (Table 4), but this reason was less common in 1994 than in 1993.

Discussion

The day-care surveys indicated an increase in the proportion of children under the age of five years in Geraldton who had received a dose of Hib vaccine in 1994 compared with 1993. However, the low response rate in 1994 in particular may have incorporated a reporting bias; the possibility that respondents were more likely to have had their children vaccinated should therefore be considered in the interpretation of this result.

The Hib immunisation uptake of only 57% in the children for whom surveys were completed in 1993 was not surprising considering that the Hib vaccines were not made available free of charge by the Commonwealth Government to all children under the age of five years until mid-1993. Children born after February 1993 were eligible for a rebate to cover the vaccine cost however for most children attending day-care in 1993, Hib vaccination was costly. This cost varied between $25 and $30 and when 'out of pocket' expenses from a general practitioner consultation were added, the total amount often exceeded $40 per immunisation. Such cost could have been a strong disincentive for families, especially those less well off, to have their children immunised. In this study 56% of all children for whom surveys were returned in 1993 came from families with annual incomes of $30,000 or less.

Following the introduction of Commonwealth-funded vaccine in mid-1993, 74% of responding parents had had their children immunised against Hib, at the time of the second survey in June 1994. Twenty-six per cent of day-care attendees remained unvaccinated in June 1994, more than a year after access to free vaccine. The reasons given in the 1994 survey for this failure to immunise were unexpected. Forty-five per cent of parents either still did not know of the program or thought Hib immunisation unimportant. The cost of the vaccine was also cited by 25% of parents as a reason for non-immunisation, even though it had been available free of charge for over 12 months.

Further analysis of 42 unvaccinated children for which complete data had been obtained, revealed that of the 20 families that either did not know of the vaccine or thought it unimportant, 80% had incomes of less than $30,000 and 50% had incomes below $20,000. This suggests that those families from lower socio-economic backgrounds are likely to have low uptake rates for Hib vaccination despite the availability of free vaccine and an extensive public education campaign. This observation is consistent with other experience in which public education programs have failed to effect satisfactory immunisation uptake rates[9]. Clearly, alternative strategies to target these families need to be developed.

In this regard, it is useful to note that only about 18% of parents indicated that they received information about Hib vaccination from their general practitioner. This suggests that general practitioners may be able to have an increased role in promoting Hib vaccination, although it is possible the questionnaire design may have underestimated their contribution. General practitioners may be in a unique position to ensure this high risk group of children who attend day-care outside the home are adequately protected.

Future immunisation media campaigns need to recognise the difficulty in promoting behavioural change in lower socio-economic groups.

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CDI editorial comment

In July 1994, the National Childhood Immunisation Program (NCIP) commenced, incorporating the National Hib Immunisation Program. The NCIP provides Hib and other vaccines recommended for routine use in childhood by the National Health and Medical Research Council for free to all children.

The Program has included education activities aimed at increasing awareness of the importance of immunisation and improving immunisation coverage. Last year, comprehensive education of general practitioners and other vaccination providers included distribution of an immunisation kit incorporating the fifth edition of *The Australian immunisation procedures handbook.*

This year, the National Education Campaign of the Program has been implemented, taking into consideration issues such as lower vaccination coverage in lower income groups. This large-scale community-wide campaign includes the wide distribution of the booklet for parents *Understanding childhood immunisation* and a media campaign with advertisements on television, buses and milk cartons and in women's magazines, aimed at groups identified as less likely to have their children immunised.

COMMENTARY

Japanese encephalitis in Australia: wildlife considerations

Morton Bell[1], *Jack Shield*[2], *Stephen Garnett*[3]

Japanese encephalitis (JE) is a severe viral (flavivirus) infection of humans. It occurs in many areas of Asia including India, Indonesia, the Philippines, Japan, China, Korea and the eastern provinces of the Commonwealth of Independent States. Worldwide there are approximately 50,000 cases a year with a case-fatality rate of 20 to 25%. Waterbirds and pigs appear to be the main reservoirs of the virus which is carried by a range of mosquito vectors[1]. In endemic countries, pigs appear to be the major amplifiers of the virus[2].

In the recent outbreak of JE on an island in the Torres Strait[3], pigs were positive for anti-JE antibody, demonstrating that they could be a sensitive indicator of the presence of the virus. Testing of pig sera recently collected in the Western Province of Papua New Guinea has shown evidence of flavivirus infection, possibly JE (J Shield, unpublished observations). These results are to be further assessed by additional tests to rule out cross reactions due to flaviviruses other than JE.

It is possible that JE was introduced into Australia from a focus in Papua New Guinea, triggered by factors such as the delayed wet season in Cape York to February-March 1995, or the introduction of a new JE strain to the Western Province wetlands by migrating birds. Until more is known about the factors which led to the introduction of the virus, we should assume that JE may reappear in the Torres Strait or even further south in subsequent wet seasons.

Waterbirds, particularly herons and egrets which have been identified overseas as transporters of JE[4], are regular seasonal migrators across the Torres Strait[5]. The movements are north to the island of New Guinea for winter, and south to Cape York and the Gulf of Carpentaria for summer (the wet season). If seasonal migrating birds were responsible for the introduction of the virus, the main risk could be to the northern mainland of Australia, as the main movement of birds from the wetlands of the southern parts of the island of New Guinea is to the wetlands of Cape York and the Gulf. At the destination wetlands there are usually feral pigs[6] and mosquitoes which could facilitate transmission, if the JE virus were introduced onto the Australian mainland, and there are considerable secondary bird movements south from these areas. Already the feral pig is quite rightly targeted as an environmental 'vandal', as a carrier of endemic diseases and as a potential spreader of foot and mouth disease. Now it seems we must consider it as the possible amplifier of this threat to human health.

The Queensland Department of Primary Industries is examining possibilities of using various animal species, including feral pigs, as sentinels to alert us to new appearances of JE in Queensland.

The potential introduction of JE to Cape York provokes many questions. What factors led to the introduction of the virus in the Torres Strait? Is JE in Papua New Guinea and if so, are the strains the same as those in the Torres Strait? Will the Australian feral pigs spread JE? What would be the role of macropods (kangaroos, wallabies)? Would these or other animals act as reservoirs? Could the virus become endemic in Australia or would the extended dry winter preclude its persistence? If established in the Cape York area, what risk would it represent to the rest of Australia?

The potential for the establishment of JE in Australia highlights the urgent needs for interventions to prevent further cases and for funding and implementing well co-ordinated research activities on the subject.

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CDI editorial comment

Following the cases of Japanese encephalitis (JE) in the Torres Strait earlier this year, a meeting was held on Thursday Island in July to review the outbreak and to develop an action plan aimed at prevention of further outbreaks. The meeting was attended by representatives and experts from the Queensland and Commonwealth departments of health and primary industry, the local communities, the Papua New Guinea government and the Centers for Disease Control and Prevention in the United States.

The meeting concluded that the outbreak had affected the eastern, central, and northern islands of the Torres Strait and that there was no evidence to suggest that there had been a previous outbreak in the area. There were insufficient data available to determine whether there would be future outbreaks in the Torres Strait. Further research was required, including serological assessments to determine if there was JE in the Western Province of Papua New Guinea.

The action plan developed by the meeting was based on environmental, animal health, vector control and human health interventions with short, intermediate and long term time frames.

Environmental interventions recommended included improvements to the drainage and sewerage on the islands and the employment of an environmental health officer for island communities. Vector control work to be undertaken centred on identification of mosquito breeding sites, cleaning of the drains before the next wet season and health promotion activities. The Northern Australian Quarantine Service undertook to conduct animal sentinel surveillance activities. Other activities planned included relocating pigs away from community houses, a survey of feral pig populations, a review of the policy regarding the keeping of animals of the islands and a review of issues relating to vaccination of pigs.

Vaccination of the human population was not initially recommended as the short term interventions were expected to have been well established before the 1995-96 wet season. However, the wet season is approaching and it has not yet been possible for them all to be fully implemented. Vaccination of the population of the outer islands is therefore being undertaken in the near future to minimise the likelihood of cases occurring in early 1996. Surveillance for human cases is also continuing in the area.

Research addressing some of the questions about the presence of JE in Papua New Guinea and the mechanisms by which it was introduced into Australia has also commenced.

OVERSEAS BRIEFS

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

Yellow fever in Liberia

An outbreak of febrile jaundice strongly resembling yellow fever is in progress in Buchanan, Bassa County in Liberia, and the area has been declared infected. The first cases were identified retrospectively as having occurred in July 1995. A total of 146 cases and six deaths had been detected as of mid-November through hospital record review and active case finding. Ninety sera from persons suffering clinical illness were tested for IgM in a capture immunoassay and 55 were found to contain antibodies reactive with yellow fever virus.

Epidemiological investigations have identified the vector mosquitoes *Aedes africanus* and *Aedes aegypti* around Buchanan, with *Aedes aegypti* larval densities indicating widespread breeding of this potential vector species, suggesting a significant risk for urban transmission of the virus.

The World Health Organization has provided 100,000 doses of yellow fever vaccine and contingency plans to obtain additional supplies have been instituted.

A yellow fever vaccination certificate is required from all persons over one year of age travelling to Liberia. Similarly, a yellow fever vaccination certificate is required on entry to Australia from all persons over one year of age who have spent overnight or longer in Liberia within the previous six days.

Dengue in the Americas

The number of cases of dengue and dengue haemorrhagic fever continues to rise and the epidemic is extending to new areas i the Americas. As of 15 November, over 200,000 cases of dengue and more than 5500 cases of dengue haemorrhagic fever had been reported this year. Over 110,000 dengue cases had been reported from Brazil and over 10,000 each from Honduras, Nicaragua and Venezuela.

Influenza in the Northern Hemisphere

Sporadic cases of influenza and small outbreaks have been reported recently from many countries in the Northern Hemisphere. Influenza A H_1N_1 isolates have been reported from France, Hong Kong and the United States, influenza A H_3N_2 from Israel, Madagascar, Sweden, France, Hong Kong, Iceland, Canada, the United States and the United Kingdom, untyped influenza A from Finland, and influenza B from the United Kingdom, Hong Kong and the United States.

Cholera update

Cape Verde had reported a total of over 12,000 cases and 240 deaths to early November this year in the outbreak that began in November 1994. Despite control efforts, the disease is spreading, with seven of the nine inhabited islands that comprise the country affected, and a marked increase in cases since June. Control activities have included efforts to improve water quality and sanitation, home visits for every new case detected, disinfection of homes of cases by spraying, routine chemoprophylaxis for close contacts and health education for families of cases.

Liberia reported 2410 cases and 56 deaths from early September to 20 October, in **Senegal**, 852 cases and 43 deaths have been reported recently and the Departments of Dakar, Pikine, Mbacke, Touba and Rufisque have been declared infected, and in **Iraq**, 197 cases and 2 deaths have been reported from the Suleimaniyah Governorate.

Cholera cases have been reported since June from Afghanistan, Argentina, Belize, Brazil, Burkino Faso, Burundi, Cameroon, Cape Verde, China, Colombia, Costa Rica, Cote d'Ivoire, Ecuador, El Salvador, Ghana, Guatemala, Guinea, Honduras, India, Iran, Iraq, Japan, Laos, Liberia, Libyan Arab Jamahiriya, Mali, Mexico, Moldova, Nicaragua, Peru (over 11,000 cases between March and July), the Russian Federation, Romania, Senegal, Sierra Leone, Singapore, Tanzania, Togo, Uganda, Ukraine, Vietnam and Zaire.

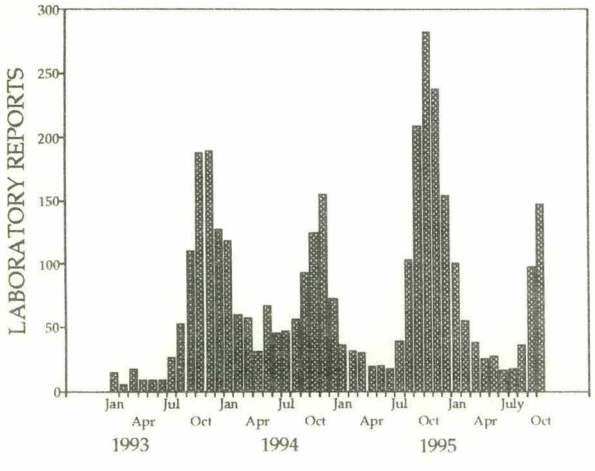
COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 2005 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 9, 10 and 11).

- Eight reports of **measles** were received this period. The number of reports has remained low compared to the same period last year.
- Three reports of **mumps** were received this period. All cases were reported from Queensland and diagnosis was by IgM detection.
- **Rubella** was reported for 123 patients this period diagnosed by IgM detection (119), fourfold rise in titre (one) and virus isolation (one). Included were 30 females, 13 of whom were of childbearing age, and 93 males. Also included was one patient who was HIV positive. In recent months there has been a marked increase in rubella reports (Figure 1).
- **Hepatitis A** was reported for 22 patients this period including 9 males and 13 females.
- Positive **hepatitis B** serology was reported for 121 patients this fortnight including 49 males and 71 females. A total of 61 cases was in the 15 to 44 year age range. Included was one case involving a needlestick injury. One death was reported from Western Australia.
- Two hundred and sixty-seven reports of positive **hepatitis C** serology were received this period. Included were 153 males and 109 females. Two hundred and three reports were in the 15 to 44 year age range.
- One case of **hepatitis D** was reported in a 31 year old female. Diagnosis was by IgM detection.

Figure 1. Rubella laboratory reports, 1993 to 1995, by month of specimen collection



- **Ross River virus** was reported in 15 patients this fortnight. Eight of these were reported in Queensland, 6 reported in Western Australia and one report in New South Wales. Diagnosis was by single high titre (2) and IgM detection (13).
- Eight reports of **Barmah Forest virus** were received this period. The number of reports continues to decrease this year.
- Thirty-nine reports of **adenovirus** were received this fortnight diagnosed by virus isolation (32) and antigen detection (7). Two cases of **adenovirus type 2** were reported and one case of **adenovirus type 5**. One reported case of **adenovirus type 11** was received for a patient with heamorrhagic cystitis. Amongst untyped adenovirus reports (36) were two patients; one who suffered a febrile convulsion, the other a one year old with hepatoblastoma who died from renal failure.
- **Herpes simplex virus type 1** was reported for 240 patients this fortnight. Diagnosis was by virus isolation (234), antigen detection (5) and a single high titre (one).
- Two hundred and eighty-four reports of **herpes simplex virus type 2** were received this period diagnosed by virus isolation (282) and antigen detection (2).
- **Untyped herpes simplex virus** was detected by organism isolation in the CSF of a 51 year old male with viral meningitis. A total of 33 reports were received.
- Sixty-one reports of **cytomegalovirus** were received this period. Diagnosis was by virus isolation (19), nucleic acid detection (one), single high titre (one), IgM detection (39) and IgA detection (one). Included were 2 HIV/AIDS patients, 3 transplant recipients (one liver and one heart-lung transplant) and an 8 month old female with microcephaly (virus isolated from urine).
- **Varicella-zoster virus** was reported for 62 patients this period. Diagnosis was by virus isolation (20), antigen detection (25), nucleic acid detection (4) and IgM detection (13).
- One hundred and thirty-two cases were reported for **Epstein-Barr virus** this fortnight. Diagnosis was by a single high titre (27), fourfold rise in titre (3) and IgM detection (102).
- ***Molluscum contagiosum*** was reported in a 31 year old Western Australian male.
- Four reports of **parvovirus** were received this period. Diagnosis for all was by IgM detection.
- **Echovirus type 14** was reported in a 3 month old female. Diagnosis was by organism isolation.

- **Rhinovirus** was reported for 36 patients this period. These included 23 reports from Victoria, 12 from New South Wales and one from Queensland, all diagnosed by virus isolation. Twenty-five cases were in the one to 11 month age group.
- Forty-five reports of untyped **enterovirus** were received this fortnight, 3 of whom reported meningitis. **Enterovirus type 71** was reported in a 18 month old male with encephalitis.
- **Influenza A** was reported for 8 patients this fortnight. Diagnosis was by antigen detection (one), single high titre (4) and fourfold rises in titre (3). A total of 747 reports has been received for the year to date. Ninety-two isolates were identified as being H_1N_1 subtypes and 9 as H_3N_2 subtypes. The number of reports received has continued to decline since July this year.
- Five reports of **influenza B** were received this fortnight. Diagnosis was by virus isolation (2), single high titre (one), fourfold rise in titre (one) and IgM detection (one). The number of reports continued to decline this fortnight with a total of 332 reports this year to date.
- **Parainfluenza virus type 3** was reported for 35 patients this fortnight. Diagnosis was by virus isolation (25) and antigen detection (10). In recent months reports for parainfluenza virus type 3 have decreased however reporting is still higher than for parainfluenza virus types 1 and 2 (Figure 2).
- Nineteen reports of **respiratory syncytial virus (RSV)** were received this fortnight. Method of diagnosis included virus isolation (8), antigen detection (10) and single high titre (one).
- **Rotavirus** was reported for 23 patients this period including 10 males and 13 females. Nineteen cases were reported as below 4 years of age.
- ***Chlamydia psittaci*** was reported for 24 patients, 8 of whom reported lower respiratory tract symptoms. Diagnosis was by antigen detection (one), single high titre (9), fourfold increases in titre (12) and IgM detection (2). Seventeen cases were reported as part of an investigation of an outbreak of respiratory disease[1] in the North Eastern Statistical Division of Victoria. Included were 16 males and one female, 15 patients (88%) reported as 44 years or over. *Chlamydia psittaci* reports have been higher this year than in recent years (Figure 3).
- ***Chlamydia trachomatis*** was reported for 181 patients this period. Diagnosis was by isolation (39), antigen detection (19), nucleic acid detection (121) and IgM detection (2). Included were 119 females and 61 males.
- Twenty-five reports of ***Mycoplasma pneumoniae*** were received this period for 7 males and 18 females. Twenty were reported in the 5 to 44 year age group. Method of diagnosis included single high titre (one), fourfold rise in titre (one), IgM detection (17) and total antibody (6).
- ***Streptococcus* Group A** was reported for 48 patients this fortnight. Included was one case who reported glomerular nephritis and another with rheumatic fever. All cases were diagnosed by single high titre.
- Thirty-eight cases were reported for ***Bordetella*** this period (17 *Bordetella pertussis* and 21 *Bordetella* species). Thirty cases (55%) reported in the 5 to 14 year age group. Included were 34 males and 21 females.
- ***Schistosoma* species** was reported in 11 patients this fortnight, 8 of whom reported overseas travel. Included were 6 males and 5 females reported in a range of ages between 15 and 64 years.

Figure 2. Parainfluenza virus laboratory reports, 1994 to 1995, by month of specimen collection and virus type

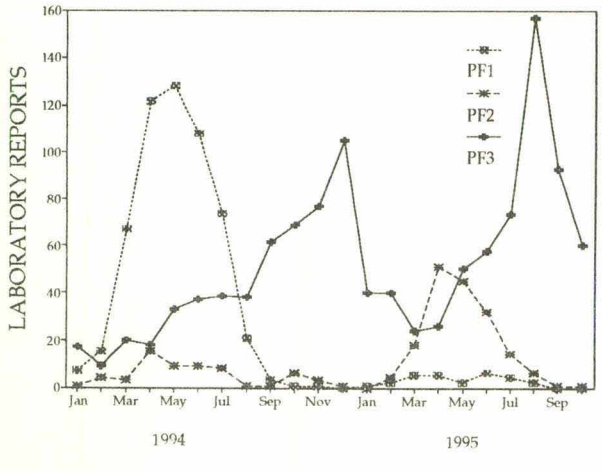


Figure 3. *Chlamydia psittaci* laboratory reports, 1993 to 1995, by month of specimen collection

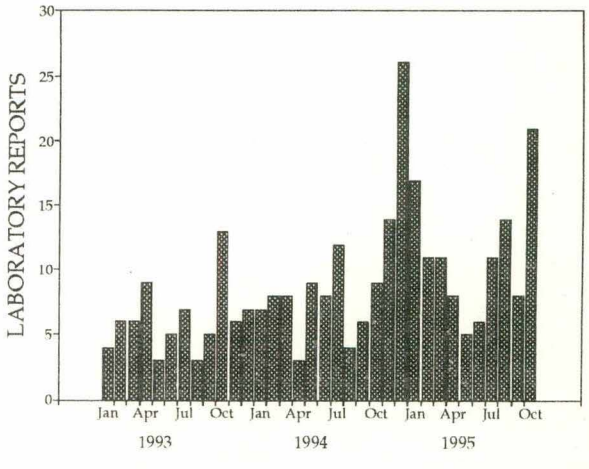


Table 1. Australian Sentinel Practice Research Network, weeks 44 and 45, 1995

Condition	Week 44, to 5 November 1995		Week 45, to 12 November 1995	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	13	1.8	25	4.6
Rubella	5	0.7	3	0.6
Measles	0	0	0	0
Chickenpox	14	2.0	15	2.8
Pertussis	2	0.3	1	0.2
Gastroenteritis	117	16.4	82	15.2

Australian Sentinel Practice Research Network

Data for week 44 (ending 5 November) and week 45 (ending 12 November) are included in this issue of *CDI* (Table 1). There were 7122 consultations reported for week 44 and 5398 for week 45. Measles continues to be rarely reported, as in the Virology and Serolgy Reporting Scheme and the National Notifiable Diseases Surveillance System.

HIV and AIDS Surveillance

Methodological note

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), in collaboration with State and Territory health authorities and the Commonwealth of Australia. Cases of HIV infection are notified to the National HIV Database on the first occasion of diagnosis in Australia, by either the diagnosing laboratory (ACT, New South Wales, Tasmania, Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia, Western Australia). Cases of AIDS are notified through the State and Territory health authorities to the National AIDS Registry. Diagnoses of both HIV infection and AIDS are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly *Australian HIV Surveillance Report*, available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Telephone: (02) 332 4648 Facsimile: (02) 332 1837.

HIV and AIDS diagnoses and deaths following AIDS reported for May 1995 and cumulative to 31 May 1995, as reported to 31 August 1995, are included in this issue of *CDI* (Tables 2 and 3).

Sterile Sites Surveillance (LabDOSS)

Data for this four weekly period have been provided by 11 laboratories. There were 464 reports of significant sepsis:

New South Wales: South Western Area Pathology 66; John Hunter Hospital 83.
Tasmania: Royal Hobart Hospital 19; Northern Tasmanian Pathology Service 6.
Queensland: Sullivan, Nicolaides and Partners 40; Ips-

Table 2. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 to 31 May 1995, by sex and State or Territory of diagnosis

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA			
										This period 1995	This period 1994	Year to date 1995	Year to date 1994
HIV diagnoses	Female	0	6	0	3	0	0	4	1	14	7	41	38
	Male	1	38	0	11	3	2	13	3	71	68	351	372
	Sex not reported	0	1	0	0	0	0	0	0	1	3	7	7
	Total[1]	1	45	0	14	3	2	17	4	86	78	401	417
AIDS diagnoses	Female	0	0	0	0	0	0	3	0	3	4	11	13
	Male	0	18	1	6	0	0	14	0	39	52	184	324
	Total[1]	0	18	1	6	0	0	17	0	42	56	196	339
AIDS deaths	Female	0	0	0	0	1	0	0	0	1	4	12	16
	Male	0	12	0	7	3	0	9	2	33	55	205	281
	Total[1]	0	12	0	7	4	0	9	3	35	60	218	299

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

Table 3. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 31 May 1995, by sex and State or Territory of diagnosis

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	AUSTRALIA
HIV diagnoses	Female	13	536	4	90	44	4	159	64	914
	Male	156	9701	79	1496	544	71	3243	713	16003
	Sex not reported	0	2048	0	0	0	0	43	0	2091
	Total[1]	169	12292	83	1591	588	75	3453	778	19029
AIDS diagnoses	Female	3	121	0	24	15	2	43	13	221
	Male	68	3351	25	550	247	32	1222	243	5738
	Total[1]	71	3482	25	576	262	34	1272	257	5979
AIDS deaths	Female	2	84	0	18	12	2	21	8	147
	Male	46	2363	18	390	160	21	939	176	4113
	Total[1]	48	2453	18	410	172	23	966	185	4275

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

wich General Hospital 23; Toowoomba Pathology Laboratory 65.
Australian Capital Territory: Woden Valley Hospital 42.
Northern Territory: Alice Springs Hospital 26.
Western Australia: Princess Margaret Hospital for Children 10; Sir Charles Gairdner Hospital 84.

Organisms reported 5 or more times from blood are detailed in Table 4. Other blood isolates not included in Table 4 were:

Gram positive: 2 *Bacillus* species, 1 *Corynebacterium jeikeium*, 3 *Corynebacterium* species, 1 *Clostridium perfringens*, 1 *Enterococcus casseliflavus*, 2 *Enterococcus faecium*, 1 *Enterococcus durans* (78 year old male with a malignancy), 1 *Listeria monocytogenes* (47 year old male with a malignancy), 1 *Staphylococcus capitis*, 3 *Streptococcus* Group D, 1 *Streptococcus* Group G, 3 *Streptococcus* 'milleri', and 4 *Streptococcus sanguis*.

Gram negative: 4 *Acinetobacter* species, 1 *Aeromonas hydrophila* (65 year old male with neutropaenia and a malignancy), 1 *Aeromonas* species, 1 *Capnocytophagia canimorsus*, 1 *Citrobacter freundii*, 3 *Enterobacter aerogenes*, 3 *Enterobacter cloacae*, 2 *Enterobacter* species, 1 *Gemella morbillorum*, 1 *Gemella* species, 4 *Klebsiella oxytoca*, 1 *Klebsiella* species, 3 *Neisseria meningitidis* (all less than one year old; one preterm neonate), 1 *Pasteurella* species, 2 *Proteus mirabilis*, 1 *Pseudomonas pickettii* (74 year old male with acute renal failure), 2 *Pseudomonas* species, 2 *Salmonella* Paratyphi, 1 *Salmonella* species, 1

Table 4. LabDOSS reports of blood isolates, by organism and clinical information

	Clinical information						Risk factors				
Organism	Bone/Joint	Lower respiratory	Endocarditis	Gastrointestinal	Urinary tract	Skin	Surgery	Immunosuppressed	IV line	Neonatal	Total[1]
Enterococcus faecalis			1					1			5
Staphylococcus aureus	6	3	4	2	1	7	8	18	4		75[2]
Staphylococcus epidermidis		2				2	3	8	1	2	20
Staphylococcus coagulase negative		4	1	3	2		3	12	2	6	48
Streptococcus Group A						5		2			9
Streptococcus Group B	1						1		1	1	5
Streptococcus pneumoniae		16		2				5			33
Streptococcus species			2								6
Streptococcus 'viridans'			1			1				1	5
Escherichia coli		2		6	28		8	18	1		85
Haemophilus influenzae	1	2									5
Klebsiella pneumoniae				1				3	1		7
Morganella morganii				1		3	1	2			6
Pseudomonas aeruginosa						3		6	1		9

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

Table 5. LabDOSS reports of meningitis and/or CSF isolates, by organism and age group

	<1 months	1-11 months	1-4 years	5-14 years	15-24 years	35-44 years	45-54 years	55-64 years	Total
Staphyloccoccus coagulase negative					1	1	1		3
Streptococcus pneumoniae		4	1					1	6
Escherichia coli	1								1
Haemophilus influenzae			1						1
Neisseria meningitidis			1	1	2				4
Serratia marcescens	1								1

Serratia species, 2 *Serratia marcescens*, 1 *Veillonella parrula* and 2 *Xanthomonas maltophilia*.

Anaerobes: 3 *Bacteroides fragilis*, 1 *Bacteroides* species, 1 *Clostridium perfringens*, 1 *Fusobacterium* species, 1 *Lactobacillus* species, 1 *Peptostreptococcus* species, 1 *Porphyromonas* species and 2 *Propionibacterium acnes*.

Fungi: 4 *Candida albicans*, 3 *Candida* species and 1 *Rhodotorula* species.

There were 228 (56% of total) blood isolates reported for patients over the age of 55 years (Figure 4).

Hospital acquired blood isolates

A total of 61 isolates was reported as being hospital acquired. The most commonly reported organisms were *Escherichia coli* (9), *Pseudomonas aeruginosa* (4), *Staphylococcus aureus* (13, including 3 MRSA) and *Staphylococcus* coagulase negative (11).

Meningitis and/or CSF isolate reports

There were 16 reports of meningitis and/or CSF isolates (Table 5). Included were 1 *Escherichia coli*, 4 *Neisseria meningitidis* (2 males and 2 females with age range 2 to 19 years, one serogroup A or C), 1 *Haemophilus influenzae* (one year old male, type f), 3 *Staphylococcus* coagulase negative, 6 *Streptococcus pneumoniae* (2 females and 4 males) and 1 *Serratia marcescens*.

Isolates from sites other than blood or CSF

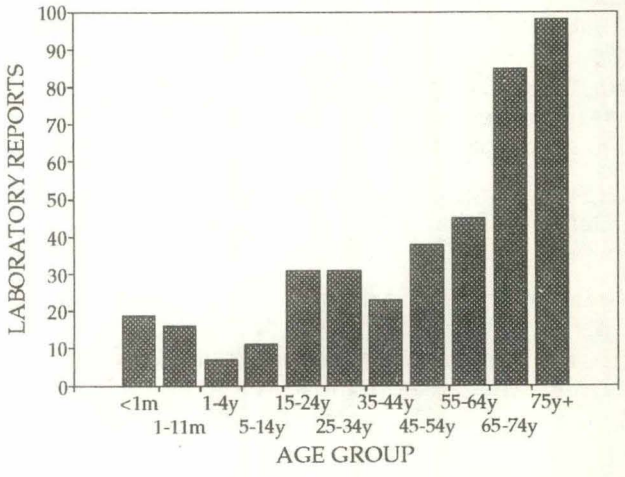
Joint fluid: 10 reports were received this period including 1 *Pseudomonas aeruginosa*, 7 *Staphylococcus aureus*, and 2 *Staphylococcus* coagulase negative.

Peritoneal dialysate: a total of 10 reports was received. Included was 2 *Bacillus* species, 1 *Enterobacter cloacae*, 1 *Escherichia coli*, 1 *Klebsiella pneumoniae*, 3 *Staphylococcus aureus*, 1 *Staphylococcus epidermidis* and 1 *Streptococcus viridans*.

Pleural fluid: 7 reports of organisms isolated from pleural fluid were received this period including 2 *Klebsiella pneumoniae*, 1 *Pseudomonas aeruginosa*, 1 *Serratia marcescens*, 1 *Staphylococcus aureus*, 1 *Staphylococcus* coagulase negative and 1 *Streptococcus sanguis*.

Other: 2 *Bacteroides* species, 1 *Candida* species, 1 *Enterococcus* species, 1 *Escherichia coli*, 1 *Haemophilus influenzae*, 1 *Klebsiella* species, 2 *Staphylococcus aureus*, 4 *Staphylococcus* coagulase positive, 1 *Staphylococcus epidermidis*, 1

Figure 4. LabDOSS reports of blood isolates, by age group



Streptococcus Group A, 1 *Streptococcus* Group D, 1 *Streptococcus pneumoniae* and 1 *Streptococcus sanguis*.

National Notifiable Diseases Surveillance System, 29 October to 11 November 1995

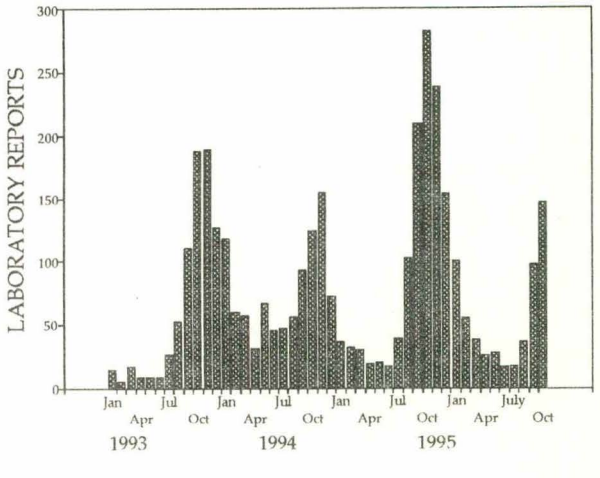
There were 1645 notifications received for the period (Tables 6, 7 and 8, and Figure 6). As no notifications have been received from Queensland in respect of the current reporting period, caution is required in the interpretation of Figure 6, and of comparisons of totals for the current period with those for 1994 in the Tables.

- There were 6 notifications of **Ross River virus infection**; 4 cases were male and 2 were male. Cases were from age groups between 25 years and 69 years, and were reported from New South Wales, Victoria and Western Australia. Dates of onset were reported as during September (one case), October (2 cases) and November (3 cases).
- A single case of **dengue** in a male in the age group 35-39 years was notified from Western Australia.
- There were 511 notifications of **campylobacteriosis**; 261 cases were male, 247 cases were female, and the sex of 3 cases was not reported. Cases were reported from all age groups from 0 years to 84

years, with 22% of cases being aged less than 5 years.

- There were 64 notifications of **gonococcal infection** received; 44 cases were male and 13 cases were female. Of the total, 11 cases were reported from New South Wales, 36 cases from the Northern Territory, 3 cases from South Australia, 5 cases from Victoria and 9 cases from Western Australia. Recorded ages were from all age groups in the range from 10 to 54 years, with one case from the age group 60-64 years; 56% of the cases were aged between 15 and 29 years.
- Nineteen cases of **hepatitis A** were reported; 9 cases were male, 9 were female, and the sex of the remaining case was not recorded. The cases were from most of the age groups 5-9 years to 50-54 years, with one case in the age group 60-64 years and one case in the age group 85-89 years. Cases were reported from both metropolitan and country areas of several States and Territories.
- Three cases of **hepatitis B** were reported; 2 cases were males and one was female; one case was from each of the age groups 10-14 years, 15-19 years and 20-24 years.
- Four notifications of **legionellosis** were received. All cases were male; 2 cases were reported from the New South Wales Statistical Division of Hunter, and one each from the Melbourne Statistical Division and the Perth Statistical Division. The cases were from age groups between 35 years and 69 years.
- Three cases of **leptospirosis** were reported. All were males; the cases were from age groups between 25 years and 54 years. The cases were reported from country areas of Victoria and Western Australia.
- There were 9 notifications of **malaria** received; 8 cases were male and one was female. Recorded ages were between 10 years and 54 years. Reported onset dates were in September (3 cases), October (5 cases) and November (one case). Cases were reported from 8 separate Statistical Divisions in 5 States and Territories.
- Thirty-two cases of **measles** were reported; 18 cases were male and 14 cases were female. Five cases were reported in children aged less than two years; the ages of other cases ranged between 2 years and 41 years, with 7 cases in the age range 11-19 years. There were 3 apparent clusters of 2 to 5 cases each in the same postcode area, one apparent cluster in each of the Australian Capital Territory, New South Wales, and Tasmania.
- There were 7 cases of **meningococcal infection** reported; 3 cases were male and 4 cases were female. The cases were aged between 0 and 74 years, with 2 cases being in the age group 0-4 years. There were no apparent clusters of cases.
- Nineteen cases of **ornithosis** were notified from Victoria. Most of these cases were the subject of a brief report in an earlier issue of *CDI*[1], and of a report in the Virology and Serology Reporting Scheme in this issue (p 651).
- There were 140 notifications of **pertussis**; 80 cases were male, 58 cases were female, and the sex of the remaining 2 cases was not recorded. All age-groups between 0 years and 79 years were represented. Seven cases were aged less than one year, and 9 more were aged less than 5 years. There were 26 apparent clusters of between 2 and 5 cases each in the same postcode area. Apparent clusters were in New South Wales (12), the Northern Territory (one), Victoria (3) and South Australia (10).
- Seven notifications of **Q fever** were received from country regions of New South Wales and Victoria; all cases but one were males; the ages of cases were in age groups between 15-19 years and 45-49 years.
- There were 228 cases of **rubella** reported; 174 cases were male and 54 cases were female. Recorded ages of cases were from all age groups between 0 and 49 years. Twenty-eight cases were reported for females in the age range from 15 to 44 years. Over 60% of the cases (142) were reported in males 10-24 years of age. The increased numbers of cases reported with onset in recent months (Figure 5) reflect large numbers of cases in the following Statistical Divisions: in New South Wales Central West 94 cases with onset in September (but only one case since then); in Sydney 81 in September and 76 in October; in Victoria Central Highlands 35 cases in September and 22 in October; in Melbourne 65 cases in September and 151 in October; and in Perth 49 cases in September and 72 in October. Notifications have not been received from Queensland relating to this 2-month period; however information provided by Queensland sentinel laboratories to the Virology and Serology Reporting Scheme

Figure 5. Rubella notifications, 1991 to1995, by month of onset



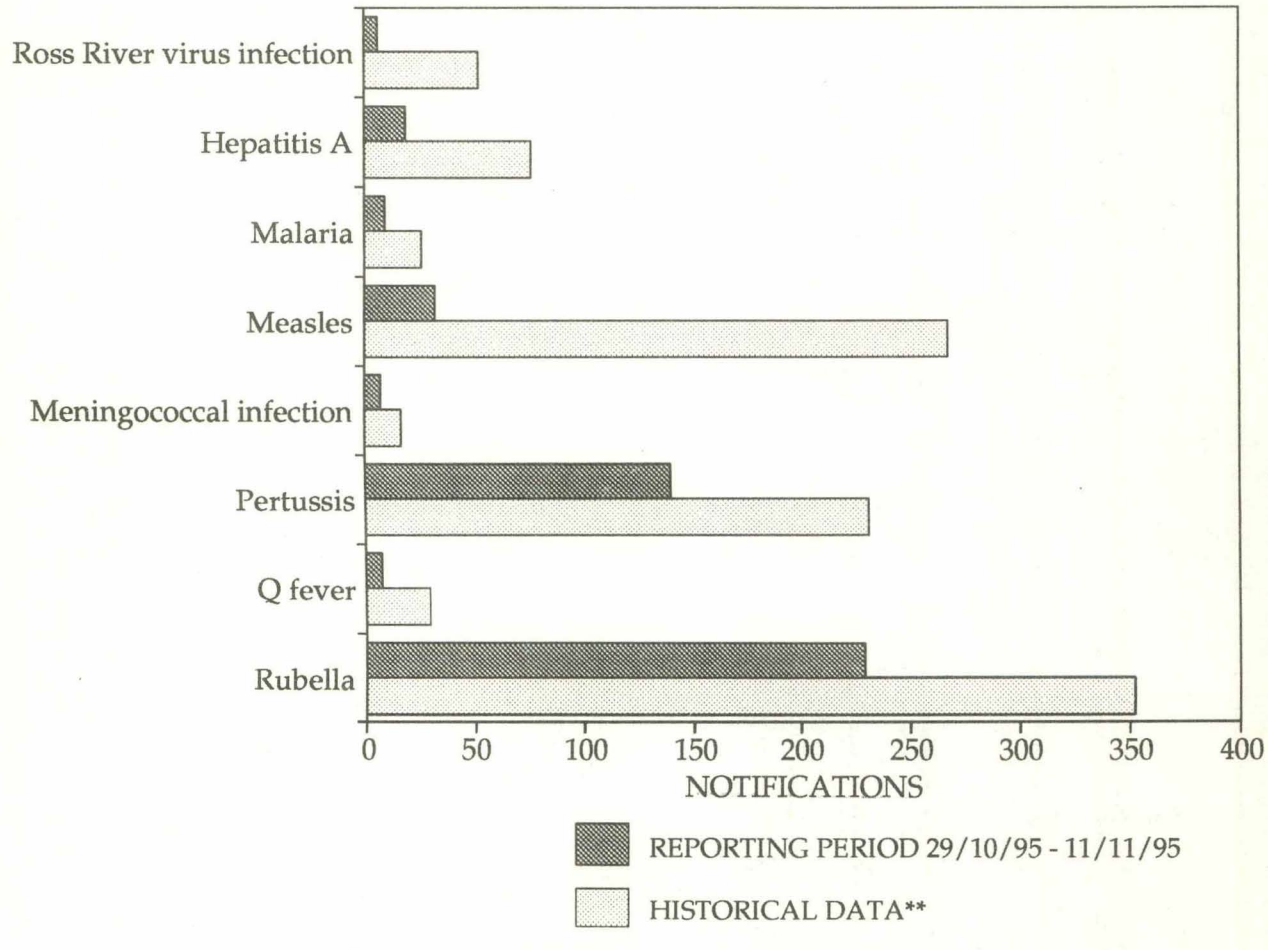
(see p 657) suggests that possibly of the order of 250-300 cases have occurred in Queensland since the beginning of September.

- There were 132 cases of **salmonellosis** reported; 62 cases were male and 69 cases were female; the sex of the remaining case was not recorded. The cases were from all of the age groups 0-4 years to 80-84 years; 43% of the cases were aged less than 5 years.
- Fifty-eight cases of **syphilis** were reported; 33 cases were male and 25 cases were female. One case, a male, was aged under one year. The other cases were from all age groups between 10-14 years and 75-79 years.
- There were 13 cases of **tuberculosis** reported; 7 cases were male and 6 cases were female. The cases were from most age groups between 10-14 years and 75-79 years. The dates of onset were reported as being in the months of January (one case), September (3 cases), October (8 cases) and November (one case).
- Three cases of **typhoid** was reported. One case was male, one was female, and the sex of the third case was not recorded. The ages of cases ranged from 7 to 25 years. Two cases were reported from Sydney and one from the Melbourne Statistical Division.
- Two cases of **yersiniosis** were reported; one case was male and the other female. Both cases were aged in the age group 0-4 years.

Reference

1. Communicable Diseases Surveillance. *Comm Dis Intell* 1995; **19**: 576-586.

Figure 6. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



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

Table 6. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 29 October to 11 November 1995

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This period 1995	This period 1994	Year to date 1995	Year to date 1994
Diphtheria	0	0	0		0	0	0	0	0	0	0	0
Haemophilus influenzae b infection	0	0	0		0	0	0	0	0	3	59	156
Measles	8	14	0		0	3	7	0	32	237	1188	4028
Mumps	0	0	0	NN	0	0	2	1	3	5	127	82
Pertussis	1	56	2		48	1	27	5	140	267	3461	4775
Poliomyelitis	0	0	0		0	0	0	0	0	0	0	0
Rubella	18	50	0		0	9	116	35	228	310	2838	2306
Tetanus	0	0	0		0	0	0	0	0	2	3	14

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.

NN Not Notifiable.

Table 7. Notifications of other diseases[1] received by State and Territory health authorities in the period 29 October to 11 November 1995

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2] This period 1995	This period 1994	Year to date 1995	Year to date 1994
Arbovirus infection												
Ross River virus infection	0	2	0		0	-	1	3	6	23	2314	3861
Dengue	0	0	0		0	-	0	1	1	8	22	17
NEC[3]	0	0	0		0	0	1	0	1	0	745	511
Campylobacteriosis[4]	0	-	22		291	24	94	80	511	536	8970	8519
Chlamydial infection (NEC)[5]	5	NN	38		12	1	61	26	143	216	4912	5564
Donovanosis	0	NN	2		NN	0	0	1	3	3	67	98
Gonococcal infection[6]	0	11	36		3	0	5	9	64	116	2484	2493
Hepatitis A	2	3	3		1	0	9	1	19	60	1185	1663
Hepatitis B	0	1	1		1	0	0	0	3	14	274	296
Hepatitis C incident	-	0	0		0	-	-	-	0	0	83	33
Hepatitis C unspecified	21		19			0	114	47	199	306	7712	7767
Hepatitis (NEC)	0	1	0		0	0	0	NN	1	2	32	39
Legionellosis	0	2	0		0	0	1	1	4	6	155	162
Leptospirosis	0	0	0		0	0	2	1	3	2	116	110
Listeriosis	0	0	0		0	0	0	0	0	1	51	21
Malaria	0	1	2		0	1	3	2	9	6	498	633
Meningococcal infection	0	0	0		1	1	5	0	7	12	318	338
Ornithosis	0	NN	0		0	0	19	0	19	3	125	69
Q fever	0	1	0		0	0	6	0	7	34	368	590
Salmonellosis (NEC)	2	42	26		21	2	20	19	132	177	5075	4590
Shigellosis[4]	0	-	15		1	0	2	0	18	23	640	636
Syphilis	0	21	37		0	0	0	0	58	65	1484	1994
Tuberculosis	1	4	1		2	1	3	1	13	35	942	884
Typhoid[7]	0	2	0		0	0	1	0	3	1	49	46
Yersiniosis (NEC)[4]	0	-	0		0	0	1	1	2	10	261	361

1. For HIV and AIDS, see Tables 2 and 3. For rarely notified diseases, see Table 8.
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.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

Table 8. Notifications of rare[1] diseases received by State and Territory health authorities in the period 29 October to 11 November 1995

DISEASES	Total this period	Reporting States or Territories	Year to date 1995
Botulism	0		0
Brucellosis	0		22
Chancroid	0		2
Cholera	0		5
Hydatid infection	0		33
Leprosy	0		6
Lymphogranuloma venereum	0		1
Plague	0		0
Rabies	0		0
Yellow fever	0		0
Other viral haemorrhagic fevers	0		0

1. Fewer than 60 cases of each of these diseases were notified each year during the period 1988 to 1994.

Table 9. Virology and serology laboratory reports by State or Territory[1] for the reporting period 2 to 15 November 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				1			1	6	8	57.5	279
Mumps virus				3					3	2.5	68
Rubella virus		24		57		1	6	35	123	93.2	834
HEPATITIS VIRUSES											
Hepatitis A virus		2	2	13			3	2	22	11.8	419
Hepatitis B virus		39	8	43	1		12	18	121	80.5	2,204
Hepatitis C virus		16	16	99			7	129	267	213.8	5,319
Hepatitis D virus		1							1	1.3	16
ARBOVIRUSES											
Ross River virus			2	7			1	5	15	13.2	1,037
Barmah Forest virus			1	7					8	2.7	223
Dengue not typed								1	1	1.0	19
Flavivirus (unspecified)		2							2	.7	39
ADENOVIRUSES											
Adenovirus type 2							2		2	4.5	33
Adenovirus type 5							1		1	.8	15
Adenovirus not typed/pending		23		1			6	6	36	43.7	807
HERPES VIRUSES											
Herpes simplex virus type 1	1	47	2	69	1		48	72	240	177.3	4,415
Herpes simplex virus type 2		52	9	97		1	43	82	284	197.8	4,698
Herpes simplex not typed/pending		27		2		1	1	2	33	23.3	465
Cytomegalovirus		19		18		1	19	4	61	50.3	1,354
Varicella-zoster virus		11		27			10	14	62	36.7	969
Epstein-Barr virus		21	1	73			2	35	132	57.5	1,764
Herpes virus group - not typed							1	1	2	1.0	17

Table 9. Virology and serology laboratory reports by State or Territory[1] for the reporting period 2 to 15 November 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			
OTHER DNA VIRUSES											
Molluscum contagiosum								1	1	.5	3
Poxvirus group not typed							1		1	.0	4
Parvovirus				1			2	1	4	6.3	104
PICORNA VIRUS FAMILY											
Echovirus type 9		2							2	.3	22
Echovirus type 14		1							1	.2	10
Poliovirus type 1 (uncharacterised)		4							4	2.0	31
Rhinovirus (all types)		12		1			23		36	33.0	618
Enterovirus type 71 (BCR)							1		1	.0	33
Enterovirus not typed/pending		3		9			8	25	45	39.8	828
ORTHO/PARAMYXOVIRUSES											
Influenza A virus				5			2	1	8	14.0	676
Influenza B virus							5		5	6.3	336
Parainfluenza virus type 3		20		2			12	1	35	27.5	739
Respiratory syncytial virus		13		1			3	2	19	42.7	3,753
OTHER RNA VIRUSES											
HIV-1				10					10	1.7	105
Rotavirus		6		2		4	11		23	97.3	1,568
Norwalk agent							3		3	.3	31
Small virus (like) particle							1		1	.8	15
OTHER											
Chlamydia trachomatis not typed		34	11	75		1	13	47	181	94.8	2,369
Chlamydia psittaci							24		24	2.7	150
Chlamydia spp typing pending				2					2	.7	6
Chlamydia species		7							7	2.7	59
Mycoplasma pneumoniae		2	1	12			2	8	25	32.0	299
Coxiella burnetii (Q fever)		5		5			3		13	10.3	180
Streptococcus group A		2	15	30			1		48	17.7	524
Yersinia enterocolitica				1					1	.2	42
Bordetella pertussis							12	5	17	29.7	572
Bordetella species		4	1	33					38	8.0	208
Legionella longbeachae								1	1	.0	18
Leptospira species			1					1	2	.7	22
Treponema pallidum		1	4	2					7	11.0	471
Entamoeba histolytica							1		1	.0	17
Toxoplasma gondii				1					1	1.3	109
Schistosoma species							9	2	11	.0	130
Strongyloides stercoralis			1				1		2	.0	17
TOTAL	1	401	75	709	2	9	301	507	2,005	1,555.7	39,072

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 10. Virology and serology laboratory reports by clinical information for the reporting period 2 to 15 November 1995

	Encephalitis	Meningitis	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA											
Measles virus						6				2	8
Mumps virus										3	3
Rubella virus						26		2		95	123
HEPATITIS VIRUSES											
Hepatitis A virus				1	11					10	22
Hepatitis B virus					15					106	121
Hepatitis C virus					73				1	193	267
Hepatitis D virus										1	1
ARBOVIRUSES											
Ross River virus								1		14	15
Barmah Forest virus								1		7	8
Dengue not typed										1	1
Flavivirus (unspecified)										2	2
ADENOVIRUSES											
Adenovirus type 2			1			1					2
Adenovirus type 5										1	1
Adenovirus not typed/pending			6	11						19	36
HERPES VIRUSES											
Herpes simplex virus type 1			5			128	7		64	36	240
Herpes simplex virus type 2			1		1	105	1		150	26	284
Herpes simplex not typed/pending		1				7				25	33
Cytomegalovirus	1		6	1	3	2				48	61
Varicella-zoster virus						41			1	20	62
Epstein-Barr virus			34							98	132
Herpes virus group - not typed						1			1		2
OTHER DNA VIRUSES											
Molluscum contagiosum									1		1
Poxvirus group not typed						1					1
Parvovirus								3		1	4
PICORNA VIRUS FAMILY											
Echovirus type 9										2	2
Echovirus type 14			1								1
Poliovirus type 1 (uncharacterised)										4	4
Rhinovirus (all types)			27							9	36
Enterovirus type 71 (BCR)	1										1
Enterovirus not typed/pending		3	28	2		1				11	45
ORTHO/PARAMYXOVIRUSES											
Influenza A virus			2					1		5	8
Influenza B virus			2							3	5
Parainfluenza virus type 3			28							7	35
Respiratory syncytial virus			14			1				4	19

Table 10. Virology and serology laboratory reports by clinical information for the reporting period 2 to 15 November 1995, continued

	Encephalitis	Meningitis	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
OTHER RNA VIRUSES											
HIV-1										10	10
Rotavirus				22						1	23
Norwalk agent				3							3
Small virus (like) particle				1							1
OTHER											
Chlamydia trachomatis not typed						4	3		138	36	181
Chlamydia psittaci			8							16	24
Chlamydia spp typing pending										2	2
Chlamydia species										7	7
Mycoplasma pneumoniae			12							13	25
Coxiella burnetii (Q fever)										13	13
Streptococcus group A			1			4		7		36	48
Yersinia enterocolitica										1	1
Bordetella pertussis			15							2	17
Bordetella species			21							17	38
Legionella longbeachae			1								1
Leptospira species										2	2
Treponema pallidum									6	1	7
Entamoeba histolytica					1						1
Toxoplasma gondii										1	1
Schistosoma species										11	11
Strongyloides stercoralis										2	2
TOTAL	2	4	213	41	104	328	11	15	362	925	2005

Table 11. Virology and serology laboratory reports by contributing laboratories for the reporting period 2 to 15 November 1995

STATE OR TERRITORY	LABORATORY	REPORTS
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	171
	Prince Henry/Prince of Wales Hospitals, Sydney	89
	Royal Alexandra Hospital for Children, Camperdown	16
	Royal Prince Alfred Hospital, Camperdown	19
	South West Area Pathology Service, Liverpool	63
Queensland	Nambour Hospital	4
	Queensland Medical Laboratory, West End	803
Tasmania	Northern Tasmanian Pathology Service, Launceston	6
Victoria	Microbiological Diagnostic Unit, University of Melbourne	6
	Monash Medical Centre, Melbourne	21
	Royal Children's Hospital, Melbourne	78
	Unipath Laboratories	28
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	166
Western Australia	PathCentre Virology, Perth	307
	Western Diagnostic Pathology	228
TOTAL		2005