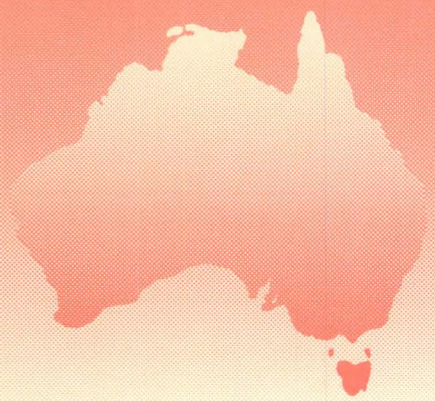


# COMMUNICABLE DISEASES INTELLIGENCE

ISSN 0725-3141 VOLUME 16 NUMBER 23 16 November 1992

## CONTENTS



**Editor:** Robert Hall

**Editorial Staff:** Jenny Hargreaves, Ponnuthurai Anura, Lance Sanders, Lenore Cupitt, Michelle Jozing and Barbara Jenkins.

*CDI* is produced fortnightly by:
Communicable Diseases Section
Department of Health, Housing and Community Services
GPO Box 9848 Canberra ACT 2601
Fax: (06) 289 7802 Telephone: (06) 289 1555



Parts of *CDI* are also available on the *CDI* Bulletin Board System, accessible with a computer, communications software and a modem on (06) 281 6695.



DEPARTMENT OF HEALTH, HOUSING AND COMMUNITY SERVICES

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

# PERTUSSIS OUTBREAKS IN WESTERN AUSTRALIA FROM 1 JANUARY 1986 TO 31 DECEMBER 1990

*(Reproduced with permission from Western Australian Notifiable Diseases Bulletin, Volume 2, Number 5, 6 August 1992; Editors Robert Condon, Margaret Ashwell, Ian Rouse, Martin Roberts and Dan Sprague)*

During the last few decades both mortality and morbidity from pertussis have fallen markedly. This reduction has mainly been achieved by the introduction of an active immunisation program, which simultaneously vaccinates against diphtheria, tetanus and pertussis during infancy and childhood. This has been standard practice in Western Australia for a number of years. The Health Department of Western Australia also regularly runs campaigns to raise community awareness of the need for immunisation.

During the five year period 1985 to 1989, the proportion of children who completed their scheduled DTP/CDT vaccinations in Western Australia increased from 74 per cent to 95 per cent[1].

Even with this reasonable level of immunisation (which includes an unknown level of CDT coverage) there have been three outbreaks of pertussis in the last ten years, occurring at intervals of approximately three to four years, during the summer, and lasting for about four to five months.

The first outbreak occurred in the summer of 1981-1982[2], and led to pertussis becoming a notifiable

**Table. Pertussis notifications by age group during the outbreaks, Western Australia, 1986 to 1990**

| Age Group (years) | Per cent |
|---|---|
| < 1 | 9.7 |
| 1 - 4 | 24.4 |
| 5 - 9 | 29.4 |
| 10 - 14 | 18.0 |
| 15 - 19 | 4.8 |
| 20 - 24 | 1.7 |
| 25 - 29 | 1.5 |
| 30 - 34 | 2.1 |
| 35 - 39 | 1.9 |
| 40 - 44 | 0.5 |
| 45 - 49 | 0.9 |
| 50 - 54 | 0.5 |
| 55 - 59 | 0.1 |
| 60 - 64 | 0.4 |
| 65 + | 3.8 |

**Figure 1. Pertussis notifications in Western Australia, January 1986 to July 1990, by month**

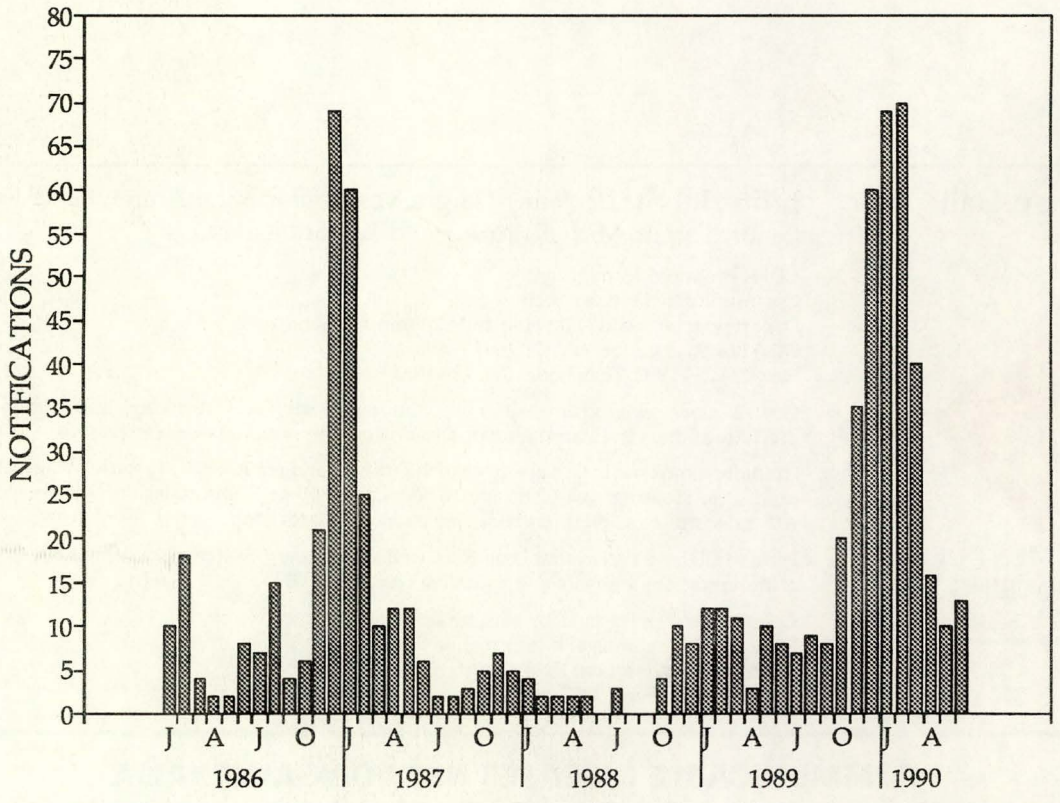


**Figure 2. Western Australian pertussis notifications, rate per 100,000 person years in the 1986-1987 outbreak**

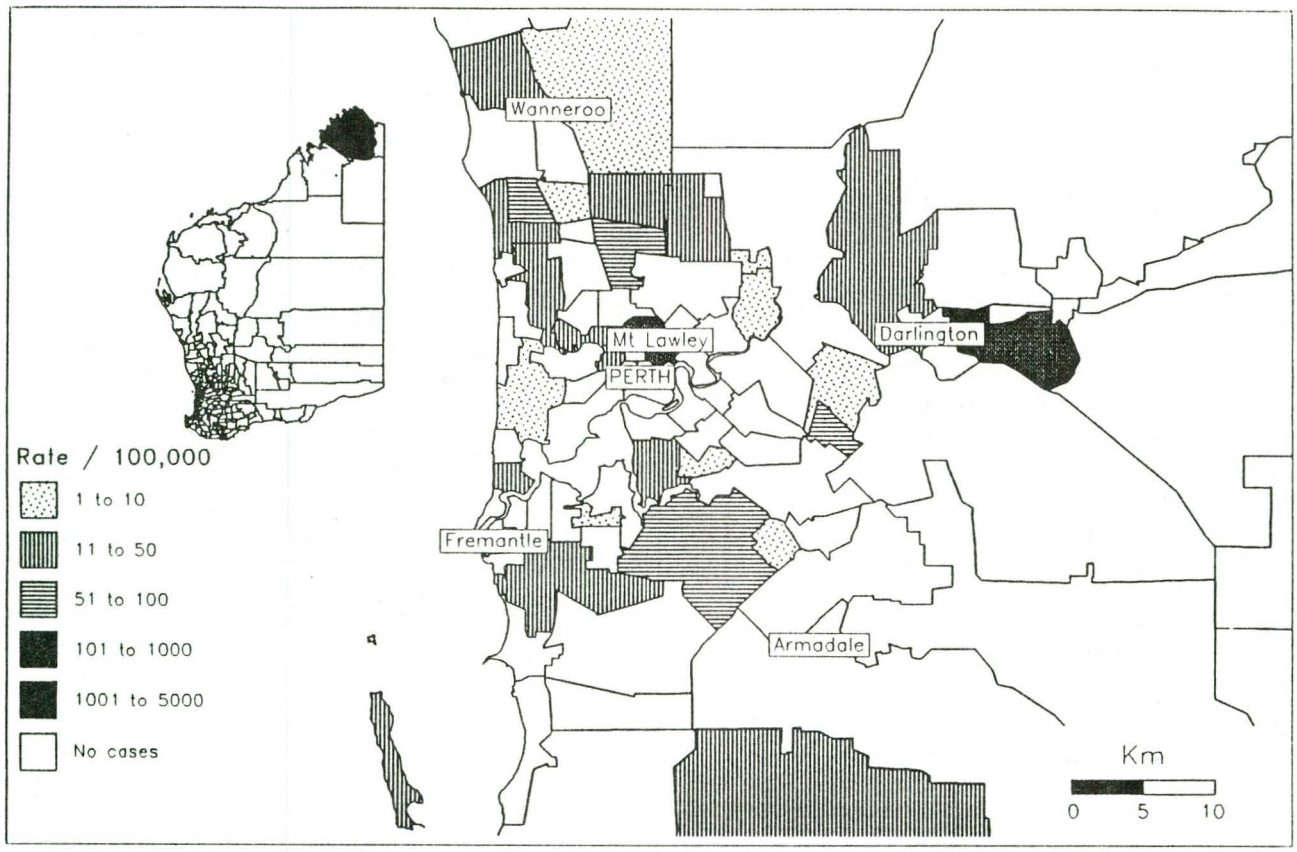
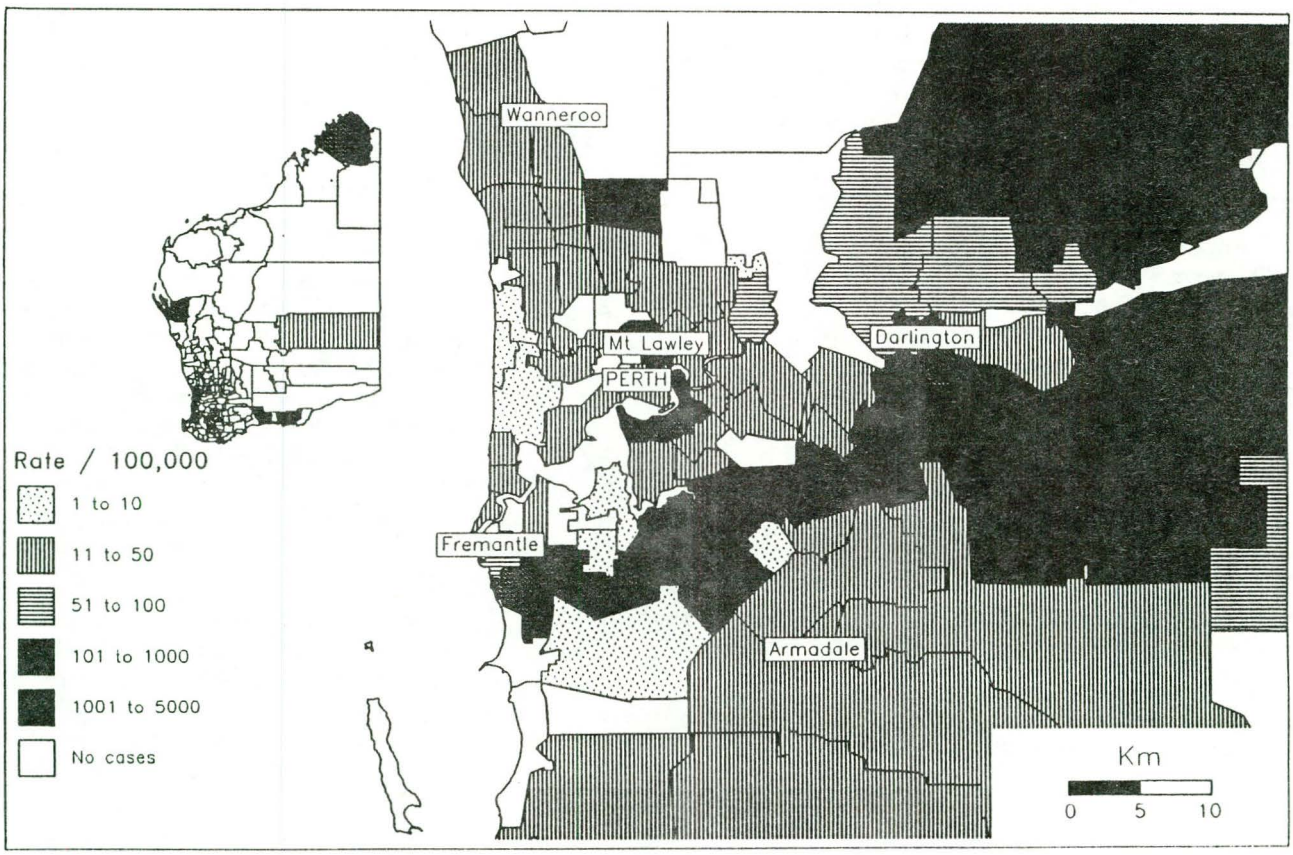



**Figure 3. Western Australian pertussis notifications, rate per 100,000 person years in the 1989-1990 outbreak**



infectious disease in May 1985. The other two outbreaks occurred in the summers of 1986-1987 and 1989-1990. It is these two later outbreaks that will be examined in detail.

The monthly notifications of pertussis from January 1986 to July 1990 clearly show the two outbreak peaks, each occurring over the summer months (Figure 1).

Infants under one year old accounted for 9.7% of the cases in the two outbreaks, the 1-4 year olds 24.4%, the 5-9 year olds 29.4%, the 10-14 year olds 18.0% and persons 15 years and over accounted for 18.8% (Table). There was no significant difference in the ages of the patients between the two outbreaks.

Approximately equal numbers of male and female cases were observed during the two outbreaks (51.8% females and 48.2% males). This almost even sex distribution was constant in all age groups and in each outbreak.

An examination of the clustering of cases in each outbreak shows two very different patterns. This pattern may not be wholly representative of the actual incidence of pertussis as the notification of pertussis cases is not likely to be complete.

For each outbreak, the geographic distribution of the cases can be divided into two main areas: the Kimberley and the Perth metropolitan area. It is unlikely that either area had any influence on the other because of their large geographical separation and the limited population movement between them.

In the 1986-1987 outbreak there were 101 notifications. These were confined to the Kimberley region and a few sections of the Perth metropolitan area (Figure 2).

The Kimberley had a notification rate of 4,562.2 per 100,000 person years (n=36), while in the Perth metropolitan area, the suburbs of Glen Forrest and Mt Lawley had the highest notification rates of 112.5 (n=8) and 151.9 per 100,000 persons years (n=6) respectively.

In the 1989-1990 outbreak there were twice as many notifications, with 223 cases reported (Figure 3).

The Kimberley had a notification rate of 380.2 per 100,000 person years (n=3) much less than in the 1986-1987 outbreak. The Perth metropolitan area, however, had several suburbs with a notification rate over 100 per 100,000 persons years (n>5); Darlington had a rate of 4,504 per 100,000 person years (n=12).

Over 60% of the reported cases occurred in persons greater than 4 years of age, who should be fully immunised. This suggests that either their protection had waned or they were not vaccinated or did not complete the full immunisation schedule. Studies have repeatedly shown that pertussis vaccine has been highly effective in preventing the disease and that the immunity does not markedly decline with time if the full immunisation schedule is completed[3].

The marked reduction of the number of cases in the Kimberley area between the two outbreaks shows a good response in increasing the immunisation rate by the community services in that region.

The increasing number of cases in the Perth metropolitan areas, however, suggests that there could be a need to increase immunisation levels, particularly in the suburbs of Darlington and Glen Forrest.

The cyclic nature of the outbreaks of pertussis has been reported in several other countries, the latest being New Zealand[4]. The four year cycle seems to reflect the time needed for the number of susceptible persons within a community to reach a critical level for pertussis to spread. These older persons transmit the disease to infants who have not started or completed their immunisations. The summer months are the ideal time for this as the older children are home from school for their holidays.

As each outbreak reflects the immunisation coverage of previous years, any change in the level of immunisation at this time will, unfortunately, be unlikely to have any effect on the possible outbreak due this summer. We encourage medical practitioners to be alert to the possibility of cases of pertussis presenting during the next few months.

## References


1. Roberts M and Bedford JE. *1991 Final report of the Sentinel Schools Surveillance Program for Immunisation Status and Vaccine-preventable Diseases.* Perth: Health Department of Western Australia, 1991.
2. Waddell VP and Lee NA (Eds). *Our State of Health: An Overview of the Health of Western Australian Population,* 1991 Edition. Perth: Health Department of Western Australia, 1991.
3. Centers for Disease Control. Pertussis - United States, 1982 and 1983. *MMWR* 1984;**33**:573-5.
4. Pertussis in New Zealand, 1991. *CDNZ* 1992;**92**(3):21-22.


## *CDI* Editorial Comment

The pattern of pertussis notifications in Australia over the last few years reflects the epidemics in Western Australia in 1986-87 and 1989-90 (Figure). Also reflected are the epidemic in 1985-86, when there were increased notifications in New South Wales, South Australia, and to an extent in Victoria, and the increased notifications in 1989-90 from New South Wales, South Australia, and the ACT, as well as Western Australia. Queensland also experienced an epidemic over the summer of 1989-90, but pertussis was not then notifiable there, and so its cases are not represented in the season's large peak.

The notification pattern also shows the seasonality of pertussis in Australia: in most years there has been an increase in notifications over the summer months, whether or not an epidemic has occurred. 1990 may have been an exception, as there were increased notifications in the spring that year, however, over half of

these were from Queensland, which began notifying pertussis in August that year.

The final influence on the notification pattern has been the changes in the notification systems which have been occurring around Australia over the last few years, and which have tended to result in a higher level of notifications of many diseases. In January 1985, pertussis was only notifiable in New South Wales, South Australia and Victoria. It became notifiable in Western Australia in May 1985, the Northern Territory in June 1985, Tasmania in September 1989, and Queensland in August 1990. Notifications have been compiled on an unofficial basis in the ACT since November 1989, and officially since June 1992. In addition, some States have completely or partially changed from doctor to laboratory notification of the disease.

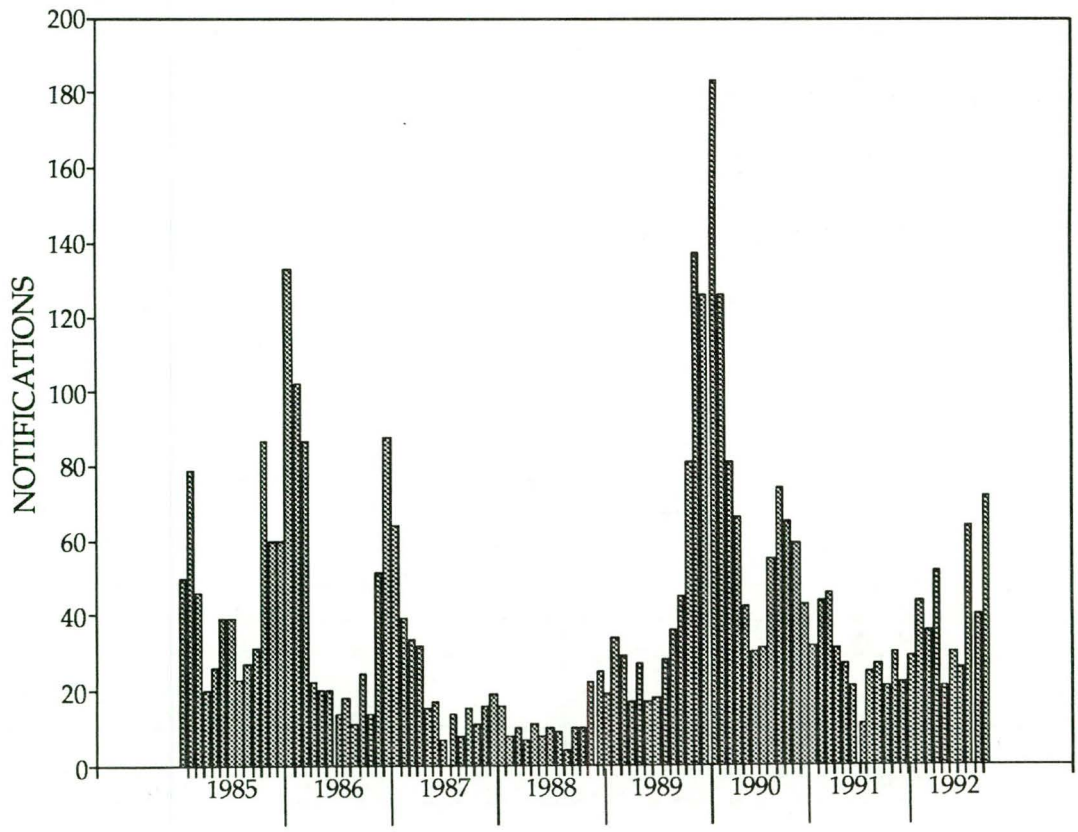
These patterns indicate that pertussis epidemics occur in 3 or 4 year cycles in Australia, and can differ from State to State. If the next epidemic period occurs 3 years after the last one in 1989-90, an increased number of notifications would be expected this summer. So far this year, there have been 414 pertussis notifications, more than the 285 notifications which had been reported by this time last year, and Queensland, New South Wales, the ACT, Victoria and Western Australia reported some increase in notifications in September and October. The epidemics of 1985-86, 1986-87 and 1989-90 were not apparent until notifications for October and November had been received, so it may be too early to determine whether these increases are the beginning of an epidemic summer, or simply a seasonal rise in cases.

The occurrence of these epidemic periods indicates that the uptake of pertussis vaccine in Australia is insufficient to control the disease in this country. The Australian Bureau of Statistics has estimated that, in 1989-90, only 70.9% of children aged 0 to 6 years were fully immunised against pertussis[1], so there is a large pool of children who are potentially susceptible to the disease. The occurrence of the epidemics, and the documented low immunisation levels, illustrate the continuing need for all children to be immunised against pertussis according to the NHMRC's recommendations[2]. The pertussis vaccine is effective and safe. As with other vaccines, it is associated with minor transient side-effects, but claims that it is the cause of major side-effects have recently been found to have been unsubstantiated[3].

## References


1. *1989-90 National Health Survey Children's Immunisation, Australia.* Canberra: Australian Bureau of Statistics, 1992.
2. National Health and Medical Research Council. *Immunisation Procedures.* Canberra: Australian Government Publishing Service, 1991.
3. Griffith AH. Permanent brain damage and pertussis vaccination: is the end of the saga in sight? *Vaccine* 1989;7:199-210.


**Figure. Pertussis notifications, Australia, 1985 to 1992, by reporting period (4-weekly, 1985 to 1989; monthly, 1990 to 1992)**



# PERTUSSIS AT ROYAL CHILDREN'S HOSPITAL, MELBOURNE, 1988 TO 1991

*(Eric Uren, Royal Children's Hospital, reproduced with permission from Infectious Disease Bulletin, Department of Microbiology and Infectious Disease, Royal Children's Hospital, Number 68, November 1991 - March 1992; Editor Geoff Hogg)*

Estimates of the DTP immunisation rate in parts of Australia have been between 94 and 97%[1,2] but, despite this and the efficacy of the *Bordetella pertussis* vaccine after a complete immunisation course, pertussis still remains a significant problem for young children who have not started or completed their course of vaccinations, and also for some older children, adolescents and adults, who can experience waning immunity[3,4,5]. The true incidence of *B. pertussis* infection in the community is unknown, as the reported laboratory confirmed infections are generally restricted to the paediatric population. In addition, recurrent infections in older subjects may be asyptomatic[5]. Laboratory diagnosis is generally based on utilising one or more of the standard techniques of culture, immunofluorescence (IF) detection of the organism or antibody detection in serum or nasopharyngeal aspirates (NPAs)[5,6].

Between January 1988 and December 1991, 1,335 NPAs from suspected cases of pertussis were submitted to the Royal Children's Hospital (RCH) Virus Laboratory for investigation. Each specimen was examined by IF for respiratory syncytial virus (RSV), adenovirus, influenza virus types A and B, parainfluenza virus types 1,2 and 3 and *B. pertussis*. Specimens were also inoculated into tissue culture for virus isolation and inoculated onto culture plates for *B. pertussis* detection. The correlation between IF detection and culture of B. pertussis was 96%, and the sensitivities of IF and culture were 85% and 91% respectively. The positive predictive value of the IF test was 85% compared to 91% for culture.

*B. pertussis* organisms were detected by IF in 135 (10.1%) of the specimens. Respiratory viruses were detected by IF or tissue culture isolation in 43.8% of NPAs, and 46.2% failed to yield a pathogen (Table). RSV (189 cases), rhinovirus (144) and parainfluenza virus (120) were the most common viruses identified in these patients.

The age group from 0.1 to 0.3 years accounted for 47% of the confirmed *B. pertussis* infections (Table). This pattern of high risk in the early months of childhood correlates with the vaccination/immunity status shown in an 18 month study carried out in this laboratory in 1978-79, when 38 of 51 confirmed *B. pertussis* infections were in patients who had not received DTP and a further ten were in patients who had received only one immunising dose. These figures are similar to data from Princess Margaret Hospital for Children, Perth[6]. The age incidence pattern of pertussis in our 1988-91 group is similar to that for RSV infection, for which 49% of patients were aged 0.3 years or less. In comparison, only 30% of the patients for whom rhinovirus, parainfluenza virus or no pathogen was detected were aged 0.3 years or less.

The low detection rate of *B. pertussis* cannot be viewed as a failure of the diagnostic techniques. The clinical

**Table. Virus laboratory results, 1988 to 1991, by patient age**

| Age (years) | *Bordetella pertussis* | RSV[1] | Cytomegalovirus | Influenza | Adenovirus | Parainfluenza | Rhinovirus | Negative | Total |
|---|---|---|---|---|---|---|---|---|---|
| 0.1 | 28 | 41 | 5 | 3 | 2 | 12 | 10 | 90 | 191 |
| 0.2 | 20 | 31 | 14 | 2 | 4 | 12 | 16 | 61 | 160 |
| 0.3 | 15 | 20 | 3 | 1 | 4 | 12 | 15 | 50 | 120 |
| 0.4 | 20 | 13 | 7 | 1 | 6 | 10 | 20 | 58 | 135 |
| 0.5 | 7 | 9 | 5 | 3 | 4 | 10 | 10 | 43 | 91 |
| 0.6 | 5 | 5 | 4 | 1 | 4 | 8 | 4 | 35 | 66 |
| 0.7 | 3 | 2 | 0 | 1 | 5 | 7 | 6 | 26 | 50 |
| 0.8 | 4 | 6 | 0 | 1 | 6 | 2 | 4 | 17 | 40 |
| 0.9 | 0 | 2 | 1 | 1 | 2 | 6 | 5 | 18 | 35 |
| 1 - 2 | 13 | 37 | 6 | 3 | 25 | 21 | 29 | 119 | 253 |
| 3 - 4 | 2 | 9 | 1 | 2 | 1 | 8 | 7 | 51 | 81 |
| 5 - 6 | 4 | 8 | 0 | 2 | 3 | 5 | 5 | 34 | 61 |
| 7 - 8 | 9 | 6 | 2 | 1 | 3 | 2 | 6 | 16 | 45 |
| > 8 | 5 | 0 | 0 | 1 | 1 | 5 | 7 | 8 | 27 |
| Total | 135 | 189 | 48 | 23 | 70 | 120 | 144 | 626 | 1,355 |
| % pos | 10.1 | 13.9 | 3.5 | 1.7 | 5.2 | 8.9 | 10.6 | | 53.8 |

1. RSV Respiratory syncytial virus

diagnosis of pertussis in these patients was provisional only and a more accurate assessment of the value of these tests can be gained from our 1978-79 study which demonstrated a 67% positive detection rate in patients with a clinical diagnosis of pertussis at the time of discharge.

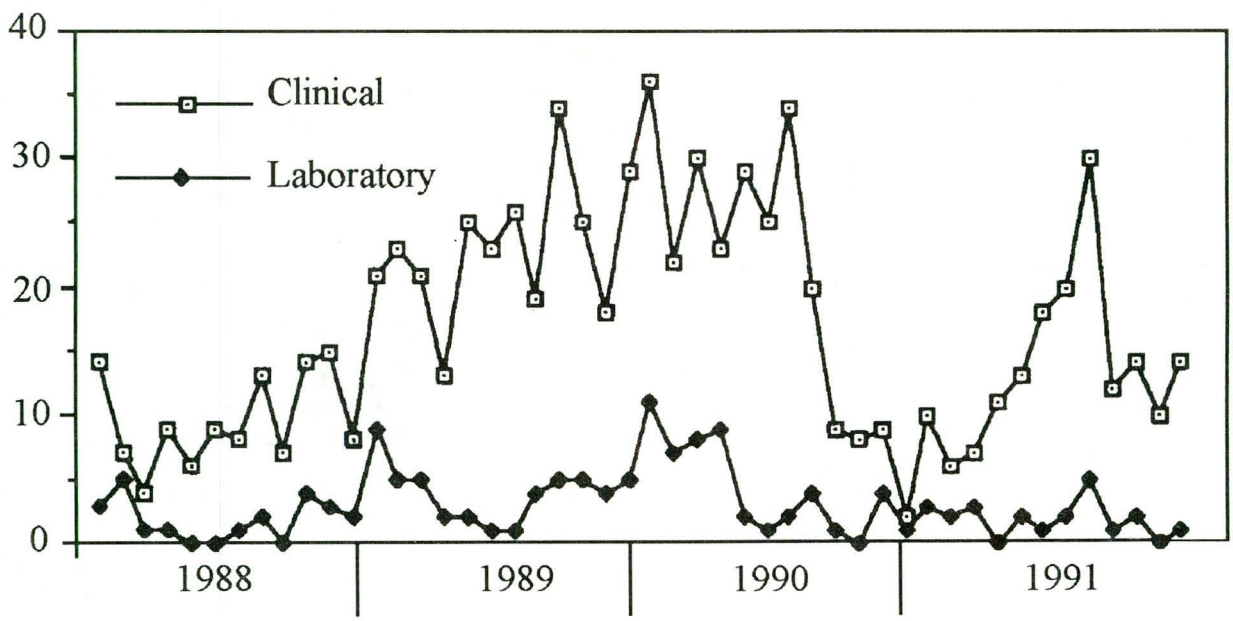
The monthly incidence of the clinical 'pertussis' cases and the cases confirmed by the detection of *B. pertussis* is shown in the Figure. Increased incidence of pertussis in Australia is noted in the summer-early autumn period. Data from the National Diseases Returns (Notifiable Diseases) indicated that the summer-autumn of 1989-90 was an epidemic season in most areas of Australia except in Victoria[7]. The RCH *B. pertussis* detections for the 1989-90 season showed increased activity but did not reflect the Australia-wide epidemic.

The lack of correlation between *B. pertussis* detection and the winter peaks of clinical 'pertussis' suggest that there was overdiagnosis of clinical 'pertussis' with many of the cases being due to RSV and rhinovirus infection.

## References


1. Carrangis J. The development of the South Australian immunisation campaign from its origins to 1990. *Comm Dis Intell* 1992;**16**:90-92.
2. Condon R, Roberts M, Rouse I. Western Australian Sentinel Schools Surveillance Program for Immunisation Status and Vaccine-preventable Diseases. *Comm Dis Intell* 1992;**16**:93-4.
3. Trollfors B. Whooping cough in adults. *BMJ* 1981;**283**:697-698.
4. Linnemann CC, Partin JC, Perlstein RH, and Englander GS. Pertussis: persistent problems. *J Paed* 1974;**85**:589-91.
5. Broome CV, Preblud SR, Bruner B, McGowan JE *et al*. Epidemiology of pertussis, Atlanta, 1977. *J Paed* 1981;**98**:362-367.
6. Masters P, Campbell P, Wild B. Pertussis in Western Australia during the eighties. *Comm Dis Intell* 1991;**15**:5-8.
7. Pertussis - epidemic summer in Australia. *Comm Dis Intell* 1990;(6):4-8


**Figure. Cases of 'pertussis' at Royal Children's Hospital, Melbourne, 1988 to 1991, by month**



# COXSACKIEVIRUS B5 CLUSTER IN ADELAIDE, SEPTEMBER - OCTOBER 1992

*(Paul Goldwater, Department of Microbiology, Adelaide Children's Hospital)*

Since mid-September 1992, a variety of febrile illnesses with a broad spectrum of clinical manifestation has been noted in several adults and children in Adelaide. The illnesses seem to have been caused by coxsackievirus B5. Most of the cases were diagnosed by using a modification of an enzyme immunoassay developed by King *et al*[1] to detect virus-specific IgM against the six coxsackie B viruses.

There have been four cases of aseptic meningitis, one each in a neonate, a 5.8 year old girl, a 1.8 year old girl and a 12.8 year old boy. All four recovered uneventfully. The mother of the neonate had a trivial illness but her serum was strongly positive for coxsackie B5-specific IgM. Coxsackievirus B5 was isolated from the cerebrospinal fluid obtained from the neonate and the 1.8 year-old.

Other cases included cerebellitis in a 5.5 year old boy, pericarditis in a 49 year old woman, and two cases of severe illness with a generalised rash. A 1.8 year old boy had a severe febrile illness with an erythema multiforme-like rash. His sibling was also unwell with a similar illness but specimens were not obtained for diagnosis. The other case in which a generalised morbilliform rash occurred was in a 2.5 year old boy. This very sick child was at first thought to have been septicaemic and had pronounced pneumonic changes on chest radiograph. This case was unusual in being positive for measles-specific IgM as well as having a strongly reactive coxsackievirus B5-specific IgM. Like the other patients, he has recovered without sequelae. There was a further case of viral pneumonia in a 2.5 year old girl.

A case of acute myocarditis was seen in a 9 month old girl who presented with difficulty feeding and dyspnoea. The heart was found to the dilated on ultrasound.

The Adelaide Children's Hospital Microbiology Department is interested to know of similar disease in Australia and is willing to test sera from such patients for evidence of coxsackie B virus infection.

## Reference

1. King ML, Shaikh A, Bidwell D, Voller A and Banatvala JE. Coxsackie B virus specific IgM responses in children with insulin-dependent (juvenile-onset: type 1) diabetes mellitus. *Lancet* 1983;i:1397-1399.

## *CDI* Editiorial Comment

The *CDI* Laboratory Reporting Schemes have collected reports of coxsackievirus B5 infection since 1978. Fewer than 50 reports of this virus have been received in most years, but there were periods of increased reporting over the summers of 1981-82, 1984-85 and 1987-88.

From July 1981 to June 1982, there were 160 reports; laboratories in South Australia reported increased cases in the spring of 1981, and this was followed by increased reports from laboratories in New South Wales, Victoria and Queensland during the summer and autumn of 1982.

A total of 107 cases were reported from July 1984 to June 1985. Most occurred from October to February and were reported by laboratories in Queensland, South Australia and Victoria.

From July 1987 to June 1988, there were 98 reports, mainly from November to April, from laboratories in New South Wales and Victoria.

So far this year, there have been 25 reports of coxsackievirus B5 infection, 13 from Victoria, 5 from South Australia, 4 from Western Australia, 2 from New South Wales and 1 from the Australian Capital Territory. Nineteen of the patients have been males, and 6 females; ages have ranged from 1 month to 42 years. A CSF isolate and/or meningitis was reported for 13 patients, respiratory tract infection for 4 patients, high fever for 5 patients, and septic shock and gastrointestinal symptoms were reported for 1 patient each.

# PSEUDOBACTERAEMIA AND CONTAMINATED PROTHROMBIN ESTIMATION TUBES

*(Margaret Broom, Senior Technologist and Ross Smith, Clinical Microbiologist, Institute of Medical and Veterinary Science, Adelaide)*

Over a 7 week period in July and August 1992, a species of *Enterobacter* was isolated from the blood of 27 patients at the Royal Adelaide Hospital. This 'epidemic' co-incided with the introduction by the laboratory of a new medium used in the automated blood culture system. Also around the time of commencement of the 'outbreak', a new anticoagulant tube used for

prothrombin time estimation was introduced to the hospital.

Investigations cleared the new blood culture medium bottles and the automated machinery used in processing the cultures as the cause of the problem.

Two-thirds of the positive blood cultures were found to have been taken in the Accident and Emergency Department. Resident medical staff in this area frequently take sufficient blood to perform a battery of screening tests, a practice not so common on inpatients. On interview, several medical officers admitted filling multiple tubes with blood before aliquoting the blood to the blood culture medium bottles. All cultures of the anticoagulant from 6 randomly selected prothrombin time estimation tubes grew an *Enterobacter* species. Thus nozzles/needles of the syringes were being contaminated with infected anticoagulant which in turn was inoculated into the blood culture bottles.

After staff were reminded of the need to fill blood culture bottles first when dispensing patients' blood to sampling containers, the 'epidemic' ended. The manufacturer of the contaminated tubes was notified and promised prompt remedial action.

Pseudobacteraemia due to cross contamination of blood cultures from other collecting containers has been well documented in the past[1] and leads to diagnostic confusion, inappropriate patient management and considerable unnecessary work for clinical microbiology staff.

### Reference

1. Pseudobacteraemia and contaminated ESR bottles. *Communicable Disease Report* 1992;**2**:167.

## OVERSEAS BRIEFS

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

### Cholera Update

Newly infected areas are Cayo District in Belize and Chihuahua State and Sonora State in Mexico.

All or parts of the following countries were cholera-infected on 30 October: Angola, Belize, Benin, Bhutan, Bolivia, Brazil, Burkino Faso, Burundi, Cambodia, Cameroon, Chad, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Ecuador, El Salvador, French Guiana, Ghana, Guatemala, Guinea, Honduras, India, Indonesia, Iraq, Iran, Kenya, Liberia, Malawi, Malaysia, Mali, Mauritania, Mexico, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Panama, Peru, Rwanda, Sao Tome and Principe, Suriname, Tanzania, Togo, Tuvalu, Uganda, Ukraine, Venezuela, Vietnam, Zaire and Zambia.

### Meningococcal Meningitis in the United Republic of Tanzania

Since the beginning of this year, 4,279 cases of cerebrospinal (meningococcal) meningitis have been reported, with 451 deaths (10.5%). The number of cases has increased rapidly since March, particularly in the southern part of the country. Over 1,000 cases have been reported in the southern region of Ruvuma, but cases have also been observed in Dodoma, Iringa, Mwanza, Kagera and Shinyanga, and further regions are being investigated.

Epidemics of meningococcal meningitis have been reported in the United Republic of Tanzania since 1989. In 1991, the regions in the northern part of the country were affected, particularly Arusha, Dodoma, Mara and Mwanza. With the previously reported outbreak in Burundi, this is yet a further indication of the southern extension of the 'meningitis belt' in Africa.

## *CDI* NOTICE TO READERS

### Correction - Composition of the Australian Influenza Vaccine for the 1993 Winter

A correction is required for the article notifying the composition of the Australian influenza vaccine for the 1993 winter (*CDI* 1992; **16**:477). The subheadings 'Influenza A $H_1N_1$' and ' Influenza A $H_3N_2$' were transposed. The first of these paragraphs should have been headed 'Influenza A $H_3N_2$' and the second should have been 'Influenza A $H_1N_1$'.

# COMMUNICABLE DISEASES SURVEILLANCE

## Laboratory Reporting Schemes

There were 1,201 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 7, 8 and 9), and 433 reports of isolates from normally sterile sites received in LabDOSS (Table 3).

- The number of **influenza** reports continues to decline; this fortnight there were only 12 reports. Eleven were untyped **influenza A** (1 antigen detection, 8 single high titres, 2 four-fold changes), and one was **influenza B** (single high titre). Four were in males over the age of 65 years.
- **Parainfluenza type 3** reports are increasing, as at this time of year in most years in Australia. One report this fortnight was of isolation of the virus from a CSF sample of a 50 year old male.
- **Ross River virus** infection was reported for only 4 patients this fortnight (all IgM). Three were from Queensland, and one was reported from South Australia.
- The number of **measles** reports has risen over the last few months (Figure 1), as often occurs in the spring in Australia, and has also occurred in the National Notifiable Diseases Surveillance System, discussed below. Increases have been reported from South Australia (56 reports this year), Queensland (31 reports) and New South Wales (16 reports) in particular.
- There were 57 reports of **rubella** this fortnight, bringing the total for the year to 319, more than for any year since 1989. There were 5 reports in females of reproductive age. Forty-three reports were in males. Age was supplied for 41 of these; they were all too old to have been routinely vaccinated with MMR in infancy.
- **Hepatitis A** was reported for 12 patients. Included was a 55 year old male who had contracted the disease in Ethiopia one month previously.
- There were 91 reports of **hepatitis B.** Included were 11 pregnant females, and 2 patients with a history of injecting drug use (one was the source of a needlestick injury).
- There were 76 reports of **hepatitis C.** A history of injecting drug use was reported for 6 patients, and one had sustained a needlestick injury 3 months previously.
- **Hepatitis E** was reported to the Laboratory Reporting Schemes for the first time. Hepatitis E virus-like particles were detected by electron microscopy in faeces from a 10 year old male with gastrointestinal symptoms.
- **Echovirus type 6** reports were received for 9 patients from New South Wales and Victorian laboratories. Specimen collection dates were between May and October, and a CSF isolate and/or meningitis were reported for 7 of them. This virus was known to have caused an outbreak in Western Australia earlier this year, and it is now apparent that there has been increased activity of the virus in eastern Australia, as well, particularly in New South Wales (Figure 2).

**Figure 1. Measles laboratory reports, 1992, by month of specimen collection**

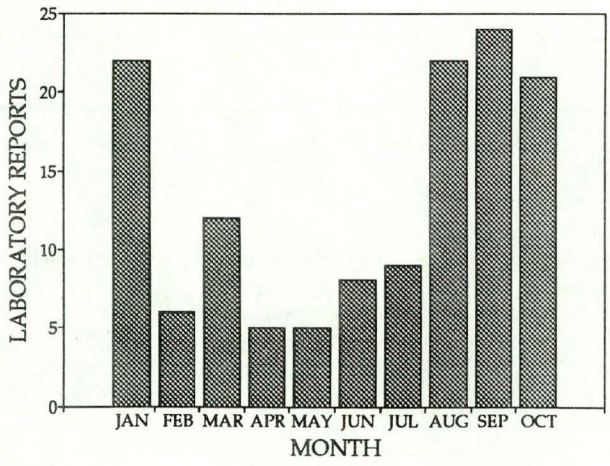
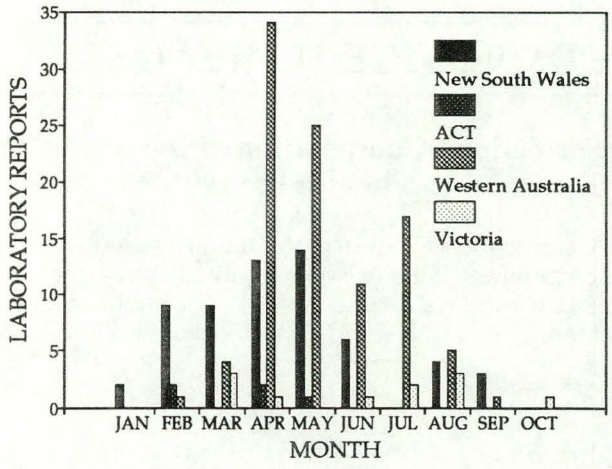
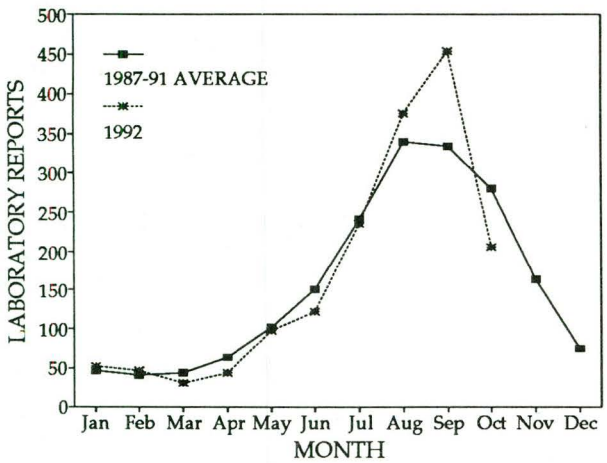



**Figure 2. Echovirus type 6 laboratory reports, 1992, by month of specimen collection and State or Territory of reporting laboratory**



- There were 82 reports of **rotavirus** this fortnight. The number of reports of this virus this year peaked in August-September overall (Figure 3) and in New South Wales and Western Australia, in August in Tasmania, and in September in Queensland, South Australia and Victoria.

**Figure 3. Rotavirus laboratory reports and 1987-91 average, 1992, by month of specimen collection**




- Two reports of **coronavirus** were received from a Victorian laboratory. One was the third of 3 staff members with coronavirus infection in 3 weeks. The virus was isolated from a nasopharyngeal specimen.
- Reports of **herpes simplex virus** this fortnight included type 1 isolated from oesophagus tissue of a HIV-positive 23 year old male, type 1 from a post mortem lung tissue sample of a 59 year old female who had Hodgkin's Disease, and type 2 isolated from the vulva of a female patient at delivery.
- **Cytomegalovirus** infection was reported for 54 patients. Included were 4 HIV positive patients (one who died), 5 patients with a history of transplant (2 lung, 2 renal, 1 not stated), 2 congenitally infected infants (one aged 1 year with delayed motor development), 3 patients who were pregnant (including one whose fetus was suffering intra-uterine growth retardation, one who was asplenic). The virus was also isolated from a placenta from a female who had been infected at 27 weeks gestation, and from a sample of semen from a 36 year old male.
- There was only one laboratory report of **Q fever** this fortnight. The patient was a 44 year old male from the Grafton area of New South Wales.
- **Syphilis** was reported for 12 patients. Included were 3 pregnant females.

## Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network collected data from 7,626 patient encounters in Week 44 and 4,834 patient encounters in Week 46 (Table 1). The rate of reporting of influenza declined further this fortnight, to rates last reported in February this year. Rubella continues to be the most commonly reported of the diseases preventable by routine childhood immunisation, in parallel with recent notifications of this disease. Gastroenteritis was again reported at a rate of about 12 to 13 per 1,000 encounters.

## Victorian Influenza Surveillance System

The results of the final fortnight in this year's Victorian Influenza Surveillance System are presented in this issue of *CDI* (Table 2). There were no laboratory cases in Fortnight 12, and the number of cases recorded in the general practitioner surveillance fell in comparison to the previous fortnight. Both laboratory cases and cases reported by sentinel general practices peaked in June (Figure 4).

(Raina MacIntyre, Health Department Victoria)

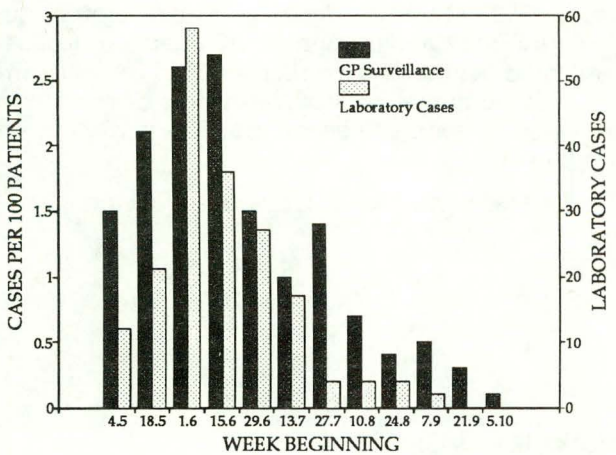
**Table 1. Australian Sentinel Practice Research Network, Weeks 44 and 45, 1992**

| Condition | Week 44, 1 November 1992 | | Week 45, to 8 November 1992 | |
|---|---|---|---|---|
| | Reports | Rate per 1000 encounters | Reports | Rate per 1000 encounters |
| Influenza | 24 | 3.1 | 13 | 2.7 |
| Measles | 0 | 0 | 0 | 0 |
| Mumps | 1 | 0.1 | 1 | 0.2 |
| Rubella | 7 | 0.9 | 3 | 0.6 |
| Pertussis | 1 | 0.1 | 1 | 0.2 |
| Genital herpes | 4 | 0.5 | 0 | 0 |
| Gastroenteritis | 92 | 12.1 | 61 | 12.6 |

**Table 2. Victorian Influneza Surveillance System, Fortnight 12 1992 (5 October to 16 October 1992)**

| | Fortnight 12 5 October to 16 October |
|---|---|
| General Practices (34) Influenza cases per 100 patients seen | 0.1 |
| Laboratories (2) Influenza cases (per 100 specimens) | 0 (0) |
| Hospitals (3) Admission with influenza and/or pneumonia (per 100 admissions) | 14 (0.3) |
| Schools (30) Total absenteeism, Tuesday per 100 persons | 17 |
| Industry (2) Total absenteeism, per 100 employees | 6.4 |
| Deaths, from all causes Total per 10,000 population | 2.6 |

**Figure 4. Victorian Influenza Surveillance System laboratory cases and general practitioner surveillance cases, 1992, by fortnight**




## Sterile Sites Surveillance (LabDOSS)

Data for October have been provided by eight laboratories, and Royal Prince Alfred Hospital also provided data for August and September (Table 3). A total of 433 reports have been included (Royal Brisbane Hospital 245, Royal Prince Alfred Hospital 48, Central Queensland Pathology Laboratory 8, Royal Hobart Hospital 44, Liverpool Hospital 41, Northern Tasmania Pathology Service 13, Nambour Hospital 8, and Gosford Central Coast Hospital Services 26).

Sixty-six isolates of *Staphylococcus aureus* were reported during this period. Of these, five isolates were further identified as methicillin resistant *Staphylococcus aureus* (MRSA) and were reported by 3 laboratories.

Organism reported five or more times from blood are detailed in Table 3. Other blood isolates were:

**Gram positive:** 4 *Clostridium* species, 4 *Streptococcus milleri*, 3 *Corynebacterium* species, 1 *Micrococcus* species, 1 *Enterococcus* faecium, 2 *Listeria monocytogenes* and 1 unidentified gram positive bacillus.

**Gram negative**: 1 *Citrobacter freundii*, 1 *Enterobacter aerogenes*, 2 *Enterobacter cloacae*, 2 *Enterobacter* species, 1 *Flavobacterium* species, 4 *Klebsiella* species, 2 *Neisseria meningitidis*, 1 *Pseudomonas cepacia*, 1 *Pseudomonas paucimobilis*, 3 *Salmonella* species, 1 *Serratia liquefaciens*, 2 *Serratia* species, 1 *Yersinia enterocolitica* and 1 *Xanthomonas maltophila*.

**Anaerobes:** 4 *Bacteroides fragilis*, 1 *Bacteroides meaninogenicus*, 1 *Bacteroides thetai*, 1 *Bacteroides* species, 1 *Fusobacterium* species and 1 *Propionibacterium* species.

**Yeasts:** 1 *Candida* species, 1 *Saccharomyces* species.

**CSF Isolates and Meningitis Reports**

There were 23 reports of meningitis during this period. *Haemophilus influenzae* type b was isolated from one of these cases. One isolate (non b) was reported from a 26 year old female who had previously had a splenectomy. The organism type was not recorded for the other cases.

*Neisseria meningitidis* was isolated from 7 cases. Five of the isolates were from children under the age of 3 (3 male, 2 female), one was from a 3 year old male and one from a 19 year old female.

There were 4 cases of *Streptococcus pneumoniae* reported. One was from a 3 month old female, one from a 16 year old female, and one from a 72 year old male. One isolate was from a 21 year old male who had had a splenectomy and hypogammaglobulinaemia.

*Cryptococcus neoformans* was isolated form two immunocompromised males, aged 31 and 47. A *Klebsiella* species was isolated from a 70 year old male.

**Isolates from Sites other than Blood or CSF**

**Peritoneal dialysate:** 3 *Staphylococcus aureus*, 2 *Staphylococcus epidermidis*, 1 *Escherichia coli*. A nosocomially acquired *Corynebacterium* species was isolated on 3 occasions from a 65 year old female.

**Joint fluid:** 2 *Staphylococcus aureus*, 1 *Staphylococcus epidermidis*, 1 coagulase negative *Staphylococcus*.

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

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

**Table 3. LabDOSS reports of blood isolates for October 1992**

| Organism | Total[1] | Clinical Information | | | | | | Risk Factors | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lower respiratory | Endocarditis | Gastrointestinal | Urinary Tract | Bone/Joint | Skin | Surgery | Immunosuppressed | IV line | Perinatal | Neonatal | Nosocomial |
| *Acinetobacter* species | 8 | | | | 1 | | | 4 | 1 | | | | |
| *Candida albicans* | 5 | | | | 2 | | | 1 | 2 | | | | |
| *Enterococcus faecalis* | 7 | | | 1 | | | | 2 | 2 | | | 1 | 1 |
| *Escherichia coli* | 35 | | | 3 | 31 | | | 3 | 16 | | 2 | 1 | |
| *Haemophilus influenzae* | 5 | 3 | | | | | 2 | | 1 | | | | |
| *Klebsiella pneumoniae* | 11 | 3 | | 1 | 1 | | 1 | 1 | 7 | | | | |
| *Proteus mirabilis* | 9 | | | 1 | | | 1 | 2 | | | | | |
| *Pseudomonas aeruginosa* | 19 | 2 | | | 3 | | | 2 | 6 | | 1 | | |
| *Pseudomonas* species | 6 | 1 | | | | | | | 1 | | | | |
| *Staphylococcus aureus* | 66 | 4 | | 3 | 1 | 3 | 6 | 6 | 13 | 9 | | | 1 |
| *Staphylococcus epidermidis* | 33 | 1 | | | | | | | 7 | 1 | | | |
| *Staphylococcus* coagulase negative | 29 | 2 | 1 | | | | 1 | 2 | 9 | 3 | | | |
| *Strepococcus* group A | 5 | | | | | | 2 | 1 | | | | | |
| *Strepococcus* group B | 5 | | | | | | 2 | | 1 | | | 2 | |
| *Streptococcus pneumoniae* | 30 | 19 | | | | | 1 | | 1 | | | 1 | |
| *Streptococcus sanguis* | 6 | | 1 | | | | 1 | | 4 | | | | |
| *Streptococcus viridans* | 5 | | 1 | | | | 1 | | 1 | | | | |
| *Streptococcus* species | 6 | | 1 | | | | | 1 | | | | | |
| *Streptococcus* group G | 5 | 1 | 1 | | | | 2 | | | | | | |

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

## National Notifiable Diseases Surveillance System 18 October to 31 October 1992

A total of 2,028 reports of notifiable diseases was received during this period and all were in a format suitable for analysis (Tables 4, 5 And 6; Figure 7). The National Notifiable Diseases Surveillance System has received a total of 45,408 reports of notifications to date this year, more than the 44,155 reports received in the full year 1991. In this report statistical divisions used by the Australian Bureau of Statistics are used for geographical analysis.

- There has been a further reduction of the incidence of notified **Ross River virus infection** with 48 reports received this period. Forty of the cases had onset dates recorded as October. There were 19 males and 29 females. Ages ranged from the 10-14 to the 75-79 years age groups. They were reported from coastal Queensland, coastal Western Australian and Victorian statistical divisions.
- Notifications of cases of **dengue** continued with a further 34 reports being received. They were from Townsville and surrounds and had recorded onset dates of July (21), August (11), September (1) and October (1). There were 12 males and 22 females. There have been 341 notifications of dengue to date.
- There were 2 cases of **brucellosis** notified this period, in a male and a female, both from Queensland. They were in the 45-49 and the 70-74 years age groups respectively.
- Seventy-seven notifications of **gonococcal infection** were reported, to bring the total for the year to date to 2,268. Of the cases reported this period, 48 were in males and 29 were in females. Two cases (1 male and 1 female) were recorded as being less than 1 year of age.
- There were 14 notifications of ***Haemophilus influenzae* type b infection** reported. There were 11 males and 3 females and 11 were aged less than 5 years. Two cases were reported with recorded ages in the 55-59 years age group and a single case in the 80-84 years age group. There were 2 apparent clusters of 2 cases each within 3 and 4 days of each other in 2 separate postcode areas.
- Forty-five cases of **hepatitis A** was reported this period. They were predominantly from Brisbane, Sydney and rural areas of Queensland and New South Wales. There were 30 males and 15 females.

Cases were predominantly (13 notifications) in the 5-9 years age group.

- There were 2 notifications of **legionellosis**. Both were males and ages were reported as being in the 45-49 and 55-59 years age groups. There was no apparent clustering.
- There were 3 notifications of **leptospirosis** received. They were all in males in the 20-24, 35-39 and 50-54 years age groups. They were reported from rural areas of Western Australia and Victoria.
- A single case of **listeriosis** was notified, in a person of unrecorded sex with age recorded as less than one year.
- There has been an increase in the activity of **measles** with 69 notifications received this period. The incidence of notified measles with onset dates recorded as August or after has increased (Figure 5). Current activity centres on South Australia, New South Wales and Victoria and the total for the year now stands at 745. There were 33 males and 36 females. Age was not recorded in 1 case, 8 cases were recorded as being aged less than 1 year, 21 less than 5 years and the average reported age was 9.9 years. There were 8 apparent clusters of from 2 to 6 cases each in 13 different or contiguous postcode areas, with reported dates of onset separated by intervals of 0 to 40 days.
- There were 9 cases of **meningococcal infection** reported, 5 in males and 4 in females. Five of the cases were aged less than 5 years. All cases were apparently epidemiologically unrelated.
- There were 31 notifications of **pertussis** this period. Of these, 14 were in males and 17 were in females; 11 were aged less than 5 years and 6 were aged less than 1 year. There were 2 apparent clusters of 6 and 2 cases each 3 different postcode areas, with reported dates of onset separated by intervals of 0 to 7 days. There have been 414 notifications received of pertussis to date in 1992. There has been an increase of activity of pertussis since June this year (Figure, page 497).
- There were 17 notifications of **Q fever** reported this period, 13 males, 2 female and sex was not recorded for 2 cases. Cases were reported predominantly from rural areas of New South Wales and Queensland.
- Notifications of **rubella** have started to decline, with total of 292 notifications received this period. In 201 cases sex was recorded as male, in 90 as female, and sex and was not recorded in a single case. There have been 1,844 notifications reported to date this year. The increase in the number of cases with onset dates after July has risen further (Figure 6). Of the female cases, 34 were in the 15-44 years age group; of the males, 19 were in the 10-14 years age group, 77 in the 15-19 years age group and 46 were in the 20-24 years age group. For the sexes combined, age was not recorded in 5 cases, 1 case was aged less than 1 year, and the mean age was 18.7 years. There were 50 apparent clusters in separate postcode areas with 2 to 18 cases in each cluster.
- There were 95 notifications of **syphilis** received, 51 were in males, 43 were in females and sex was not recorded in 1. Three cases were recorded as being aged less than 15, 2 were aged less than 1 year.
- There was a single case of **tetanus** notified, in a female in the 45-49 years age group.

**Figure 5. Measles notifications, 1992, by month of onset**

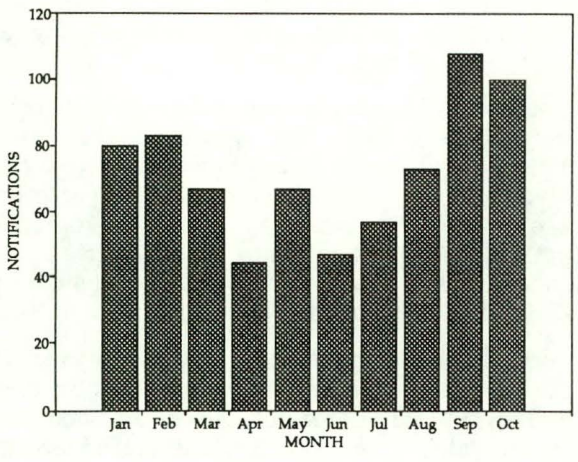



**Figure 6. Rubella notifications, 1992, by month of onset**

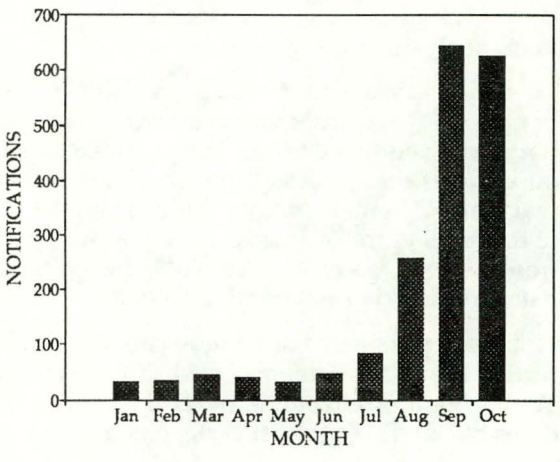
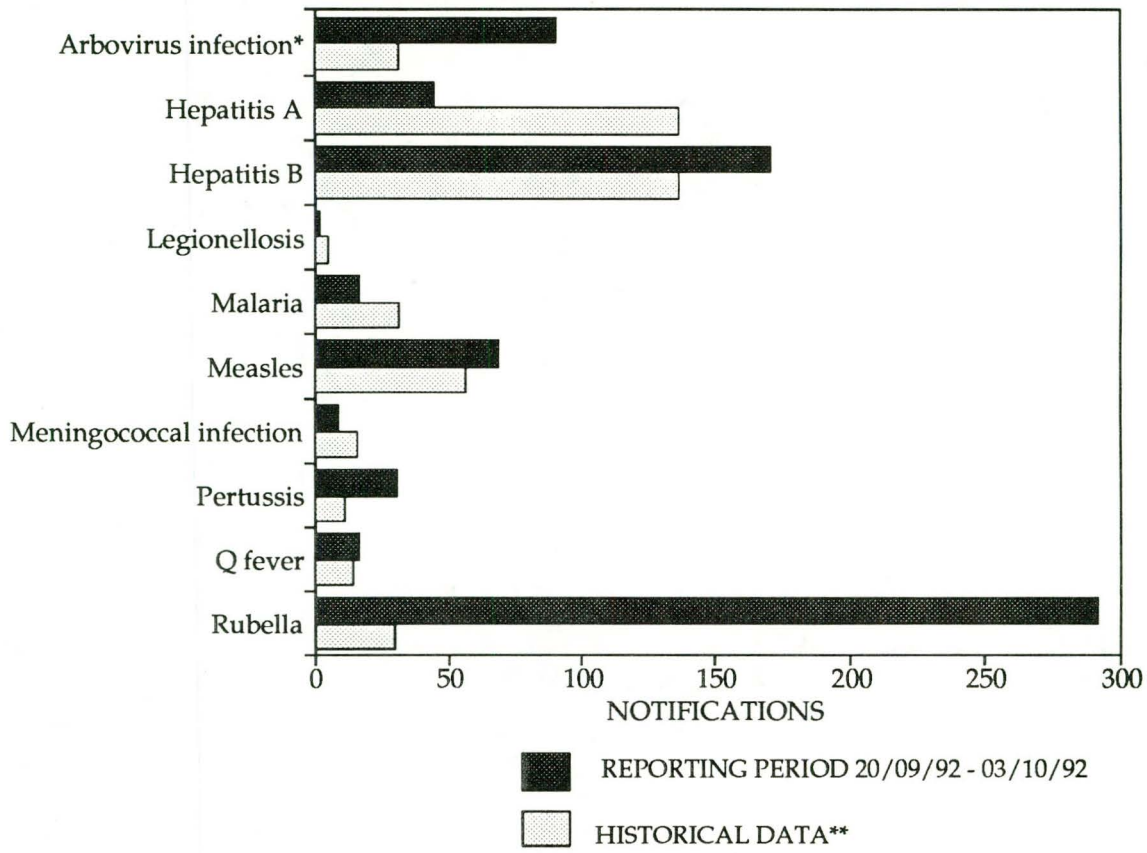


**Figure 7. Selected National Notifiable Diseases Reports, and historical data ****




* Includes Ross River virus and Dengue

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

**Table 4. Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 18 October to 1 November 1992**

| DISEASES | ACT | NSW | NT | Qld | SA | Tas | Vic | WA | TOTALS FOR AUSTRALIA[1] This Period 1992 | This Period 1991 | Year to Date 1992 | Year to Date 1991 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diphtheria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 7 |
| Measles | 4 | 17 | 1 | 6 | 24 | 0 | 15 | 2 | 69 | 46 | 745 | 1042 |
| Mumps | 0 | 0 | NN | NN | NN | NN | 0 | NN | 0 | NN | 11 | NN |
| Pertussis | 6 | 5 | 0 | 8 | 2 | 2 | 4 | 4 | 31 | 10 | 414 | 285 |
| Poliomyelitis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rubella[2] | 75 | 8 | 0 | 94 | 12 | 0 | 103 | 0 | 292 | 27 | 1844 | 504 |
| Tetanus | 0 | 0 | 0 | NN | 0 | 0 | 1 | 0 | 1 | 0 | 13 | 6 |

1. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.

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

NN Not Notifiable.

## Table 5. Other Notifiable Diseases[1], for the reporting period 18 October to 1 November 1992

| DISEASES | ACT | NSW | NT | Qld | SA | Tas | Vic | WA | TOTALS FOR AUSTRALIA[2] This Period 1992 | This Period 1991 | Year to Date 1992 | Year to Date 1991 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arbovirus infection (NEC)[3] | 0 | 0 | NN | 8 | 1 | 0 | 0 | 0 | 9 | 8 | 292 | 187 |
| Ross River virus infection | 0 | - | 3 | 36 | - | NN | 2 | 7 | 48 | 33 | 5190 | 3421 |
| Dengue | 0 | - | 0 | 34 | - | NN | 0 | NN | 34 | 2 | 341 | 45 |
| Campylobacteriosis[4] | 1 | - | 9 | 132 | 168 | 32 | 39 | 42 | 423 | 470 | 7113 | 6982 |
| Chlamydial infection (NEC) | 0 | NN | 15 | 96 | 2 | 20 | 19 | 0 | 152 | 151 | 4636 | 3326 |
| Donovanosis | 0 | NN | 0 | 0 | NN | NN | 0 | 0 | 0 | 1 | 62 | 57 |
| Gonococcal infection[5] | 0 | 9 | 5 | 18 | 0 | 0 | 4 | 41 | 77 | 119 | 2268 | 2051 |
| Haemophilus influenzae type b[6] | 0 | 4 | NN | 5 | 0 | 0 | 5 | NN | 14 | 29 | 353 | 471 |
| Hepatitis A | 0 | 12 | 3 | 26 | 1 | 0 | 1 | 2 | 45 | 175 | 1435 | 1712 |
| Hepatitis B | 0 | 80 | 0 | 60 | 0 | 4 | 17 | 10 | 171 | 144 | 4954 | 3158 |
| Hepatitis C | 6 | 98 | 8 | 153 | NN | 5 | 14 | NN | 284 | 138 | 6220 | 3190 |
| Hepatitis (NEC) | 0 | 2 | 0 | 0 | 1 | 0 | 0 | NN | 3 | 0 | 46 | 236 |
| HIV infection[7] | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 6 | 199 | 39 |
| Legionellosis | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 129 | 88 |
| Leptospirosis | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 13 | 94 | 133 |
| Listeriosis | 0 | 0 | NN | 1 | NN | 0 | 0 | 0 | 1 | 5 | 27 | 38 |
| Malaria | 0 | 0 | 0 | 7 | 3 | 0 | 5 | 2 | 17 | 29 | 573 | 679 |
| Meningococcal infection | 0 | 2 | 0 | 2 | 0 | 0 | 3 | 2 | 9 | 18 | 207 | 240 |
| Ornithosis | 0 | NN | 0 | 0 | 2 | 0 | 4 | 0 | 6 | 7 | 81 | 99 |
| Q fever | 0 | 4 | 0 | 13 | 0 | 0 | 0 | 0 | 17 | 15 | 361 | 536 |
| Salmonellosis (NEC) | 1 | 17 | 20 | 33 | 15 | 4 | 9 | 27 | 126 | 158 | 3787 | 4702 |
| Shigellosis[4] | 1 | - | 11 | 2 | 4 | 0 | 4 | 15 | 37 | 41 | 547 | 778 |
| Syphilis | 2 | 10 | 30 | 25 | 0 | 0 | 3 | 25 | 95 | 98 | 2001 | 1684 |
| Tuberculosis | 0 | 11 | 3 | 5 | 0 | 1 | 25 | 2 | 47 | 33 | 673 | 463 |
| Typhoid[8] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 37 | 63 |
| Yersiniosis[4] | 0 | - | 0 | 3 | 4 | 0 | 1 | 1 | 9 | 23 | 491 | 442 |

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

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

## Table 6. Rarely Notified Diseases[1] for the reporting period 18 October to 1 November 1992

| DISEASES | Total this period | Reporting States or Territories | Year to date 1992 |
|---|---|---|---|
| Botulism | | | |
| Brucellosis | 2 | Qld | 19 |
| Cholera | | | 3 |
| Chancroid | | | 5 |
| Hydatid infection | | | 31 |
| Leprosy | | | 10 |
| Lymphogranuloma venereum | | | 3 |
| Plague | | | |
| Rabies | | | |
| Yellow fever | | | |
| Other viral haemorrhagic fevers | | | |

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

**Table 7. Laboratory reports by State or Territory of reporting laboratory for the reporting period 21 October to 3 November 1992, historical data[1], and total reports for the year**

| | STATE OR TERRITORY OF REPORTING LABORATORY | | | | | | Total this fortnight | Historical data[1] | Total reported this year |
|---|---|---|---|---|---|---|---|---|---|
| | ACT | NSW | Qld | SA | Vic | WA | | | |
| MEASLES, MUMPS, RUBELLA | | | | | | | | | |
| Measles virus | | 1 | 4 | 9 | | | 14 | 11.2 | 164 |
| Mumps virus | | | 1 | | 1 | | 2 | 1.0 | 43 |
| Rubella virus | 3 | | 37 | 3 | 14 | | 57 | 20.7 | 361 |
| HEPATITIS VIRUSES | | | | | | | | | |
| Hepatitis A virus | | 1 | 7 | 3 | 1 | | 12 | 13.2 | 307 |
| Hepatitis B virus | | 39 | 37 | 3 | 12 | | 91 | 103.7 | 2,040 |
| Hepatitis C virus | | | 32 | 44 | | | 76 | 32.7 | 2,077 |
| Hepatitis D virus | | | 1 | | | | 1 | .7 | 41 |
| Hepatitis E virus | | | | | 1 | | 1 | .0 | 1 |
| ARBOVIRUSES | | | | | | | | | |
| Ross River virus | | | 3 | 1 | | | 4 | 9.7 | 1,233 |
| ADENOVIRUSES | | | | | | | | | |
| Adenovirus type 1 | | 7 | | | 2 | | 9 | 6.5 | 91 |
| Adenovirus type 2 | | 6 | | | 3 | | 9 | 8.3 | 114 |
| Adenovirus type 3 | | 7 | | 2 | 1 | | 10 | 2.3 | 57 |
| Adenovirus type 4 | | 5 | | 1 | | | 6 | 1.0 | 39 |
| Adenovirus type 5 | | 1 | | 2 | 1 | | 4 | 2.5 | 31 |
| Adenovirus type 6 | | 1 | | | | | 1 | .7 | 7 |
| Adenovirus type 8 | | 1 | | | 5 | | 6 | 2.7 | 31 |
| Adenovirus type 9 | | 1 | | | | | 1 | .3 | 10 |
| Adenovirus type 40 | | 1 | | | | | 1 | .0 | 6 |
| Adenovirus not typed/pending | | 13 | 14 | 15 | 1 | 3 | 46 | 33.5 | 956 |
| HERPES VIRUSES | | | | | | | | | |
| Herpes simplex virus type 1 | 1 | 6 | 59 | 30 | 41 | | 137 | 137.0 | 3,080 |
| Herpes simplex virus type 2 | | 17 | 78 | 17 | 17 | 1 | 130 | 172.5 | 3,827 |
| Herpes simplex not typed/pending | 8 | 23 | | | 5 | 3 | 39 | 33.2 | 790 |
| Cytomegalovirus | 2 | 7 | 12 | | 26 | 7 | 54 | 83.3 | 1,613 |
| Varicella-zoster virus | | 5 | 16 | 1 | 6 | 2 | 30 | 23.2 | 584 |
| Epstein-Barr virus | | 2 | 13 | 6 | 2 | | 23 | 64.8 | 1,363 |
| OTHER DNA VIRUSES | | | | | | | | | |
| Parvovirus | | | | | 5 | | 5 | .5 | 134 |
| PICORNA VIRUS FAMILY | | | | | | | | | |
| Coxsackievirus A9 | | | | | 1 | | 1 | 3.2 | 10 |
| Coxsackievirus A16 | | 1 | | | 4 | | 5 | .8 | 18 |
| Coxsackievirus B1 | | | | | 3 | | 3 | .2 | 19 |
| Coxsackievirus B5 | 1 | 1 | | 1 | | | 3 | .8 | 37 |
| Echovirus type 6 | | | | | 1 | | 1 | .3 | 86 |
| Echovirus type 7 | | | | | 2 | | 2 | .2 | 11 |
| Echovirus type 9 | | 4 | | | 5 | | 9 | .0 | 176 |
| Echovirus type 17 | | 1 | | | | | 1 | 1.2 | 44 |
| Echovirus type 25 | | 6 | | | | | 6 | .0 | 15 |
| Echovirus type 30 | | | | | 1 | | 1 | .0 | 1 |
| Poliovirus type 1 (uncharacterised) | | 7 | | | 1 | | 8 | 1.7 | 57 |
| Poliovirus type 2 (uncharacterised) | | 2 | | | | | 2 | 2.0 | 44 |
| Poliovirus type 2 (vaccine strain) | | 1 | | | | | 1 | .0 | 2 |
| Rhinovirus (all types) | | 19 | 3 | 3 | 8 | | 33 | 18.7 | 574 |
| Enterovirus type 71 (BCR) | | | | | 1 | | 1 | .7 | 20 |

**Table 7. Laboratory reports by State or Territory of reporting laboratory for the reporting period 21 October to 3 November 1992, historical data[1], and total reports for the year, continued**

| | STATE OR TERRITORY OF REPORTING LABORATORY | | | | | | Total this fortnight | Historical data[1] | Total reported this year |
|---|---|---|---|---|---|---|---|---|---|
| | ACT | NSW | Qld | SA | Vic | WA | | | |
| Enterovirus not typed/pending | | 1 | 16 | | | | 17 | 18.7 | 736 |
| ORTHO/PARAMYXOVIRUSES | | | | | | | | | |
| Influenza A virus | 1 | | 1 | 7 | 2 | | 11 | 15.7 | 1,089 |
| Influenza B virus | | | | 1 | | | 1 | 19.5 | 136 |
| Parainfluenza virus type 2 | | | | | 1 | | 1 | 1.8 | 63 |
| Parainfluenza virus type 3 | 1 | 5 | 9 | 3 | 2 | 1 | 21 | 18.3 | 445 |
| Respiratory syncytial virus | | 4 | 6 | 3 | 1 | 6 | 20 | 60.5 | 3,558 |
| OTHER RNA VIRUSES | | | | | | | | | |
| Rotavirus | | 56 | | 13 | 1 | 12 | 82 | 158.8 | 1,867 |
| Astrovirus | | 1 | | | | | 1 | 1.2 | 14 |
| Reovirus (unspecified) | | | | | 2 | | 2 | .2 | 8 |
| Coronavirus | | | | | 2 | | 2 | 1.7 | 30 |
| Small virus (like) particle | | 3 | | | | | 3 | 2.7 | 58 |
| OTHER | | | | | | | | | |
| *Chlamydia trachomatis* not typed | 2 | 12 | 26 | 29 | 5 | | 74 | 122.8 | 2,304 |
| *Mycoplasma pneumoniae* | | 18 | 41 | 17 | 10 | | 86 | 20.0 | 1,151 |
| *Coxiella burnetti* (Q fever) | | 1 | | | | | 1 | 8.2 | 223 |
| *Streptococcus* species | | | 13 | | | | 13 | .0 | 50 |
| *Bordetella pertussis* | | 1 | | | | | 1 | .0 | 7 |
| *Bordetella* species | | | 5 | | | | 5 | .0 | 16 |
| *Cryptococcus* species | | | 2 | | | | 2 | .0 | 11 |
| *Treponema pallidum* | | 10 | 2 | | | | 12 | .0 | 161 |
| TOTAL | 19 | 298 | 438 | 214 | 197 | 35 | 1,201 | 1,244.7 | 32,041 |

1. The historical data are the averages of the numbers of reports in 6 previous 2 week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

**Table 8. Laboratory reports by clinical information for the reporting period 21 October to 3 November 1992**

| | Encephalitis | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEASLES, MUMPS, RUBELLA | | | | | | | | | | | | | |
| Measles virus | | | | | | | | 11 | | | | 3 | 14 |
| Mumps virus | | | | | | | | | | | | 2 | 2 |
| Rubella virus | | | | | | | | 23 | | | | 34 | 57 |
| HEPATITIS VIRUSES | | | | | | | | | | | | | |
| Hepatitis A virus | | | | | | | 11 | | | | | 1 | 12 |
| Hepatitis B virus | | | | | | 1 | 32 | | | | | 58 | 91 |
| Hepatitis C virus | | | | | | | 42 | | | | | 34 | 76 |
| Hepatitis D virus | | | | | | | 1 | | | | | | 1 |
| Hepatitis E virus | | | | | | 1 | | | | | | | 1 |

**Table 8. Laboratory reports by clinical information for the reporting period 21 October to 3 November 1992, continued**

| | Encephalitis | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARBOVIRUSES | | | | | | | | | | | | | |
| Ross River virus | | | | | | | | 1 | | 1 | | 2 | 4 |
| ADENOVIRUSES | | | | | | | | | | | | | |
| Adenovirus type 1 | | | | | 3 | 4 | | | | | | 2 | 9 |
| Adenovirus type 2 | | | | | 5 | 2 | | | | | | 2 | 9 |
| Adenovirus type 3 | | | | | 3 | 5 | | | 1 | | | 1 | 10 |
| Adenovirus type 4 | | | | | 2 | 2 | | | 1 | | | 1 | 6 |
| Adenovirus type 5 | | | | | 4 | | | | | | | | 4 |
| Adenovirus type 6 | | | | | | | | | | | | 1 | 1 |
| Adenovirus type 8 | | | | | | | | | 5 | | | 1 | 6 |
| Adenovirus type 9 | | | | | | | | | | | | 1 | 1 |
| Adenovirus type 40 | | | | | | 1 | | | | | | | 1 |
| Adenovirus not typed/pending | 1 | | | | 22 | 13 | | 1 | 1 | | | 8 | 46 |
| HERPES VIRUSES | | | | | | | | | | | | | |
| Herpes simplex virus type 1 | | | | | 11 | | | 70 | 8 | | 42 | 6 | 137 |
| Herpes simplex virus type 2 | | | | | | | | 52 | | | 69 | 9 | 130 |
| Herpes simplex not typed/pending | 1 | | | | 2 | | | 16 | | | 6 | 14 | 39 |
| Cytomegalovirus | | | | 2 | 22 | 2 | 1 | 1 | 2 | | | 24 | 54 |
| Varicella-zoster virus | 1 | | 1 | | | | | 24 | | | | 4 | 30 |
| Epstein-Barr virus | | | | | 2 | | | 1 | | | | 20 | 23 |
| OTHER DNA VIRUSES | | | | | | | | | | | | | |
| Parvovirus | | | | | | | | 4 | | 1 | | | 5 |
| PICORNA VIRUS FAMILY | | | | | | | | | | | | | |
| Coxsackievirus A9 | | 1 | | | | | | | | | | | 1 |
| Coxsackievirus A16 | | | | | | | | 5 | | | | | 5 |
| Coxsackievirus B1 | | | | | 2 | | | | | | | 1 | 3 |
| Coxsackievirus B5 | | 1 | | | 2 | | | | | | | | 3 |
| Echovirus type 6 | | | | | | | | | | | | 1 | 1 |
| Echovirus type 7 | | 2 | | | | | | | | | | | 2 |
| Echovirus type 9 | | 7 | | | | 2 | | | | | | | 9 |
| Echovirus type 17 | | | | | | | | | | | | 1 | 1 |
| Echovirus type 25 | | | | | 1 | | | | | | | 5 | 6 |
| Echovirus type 30 | | 1 | | | | | | | | | | | 1 |
| Poliovirus type 1 (uncharacterised) | | | | | 4 | 2 | | 1 | | | | 1 | 8 |
| Poliovirus type 2 (uncharacterised) | | | | | 1 | | | | | | | 1 | 2 |
| Poliovirus type 2 (vaccine strain) | | | | | 1 | | | | | | | | 1 |
| Rhinovirus (all types) | | | | | 27 | | | | | | | 6 | 33 |
| Enterovirus type 71 (BCR) | | | | | 1 | | | | | | | | 1 |
| Enterovirus not typed/pending | | 1 | | | 10 | 3 | | 2 | | | | 1 | 17 |
| ORTHO/PARAMYXOVIRUSES | | | | | | | | | | | | | |
| Influenza A virus | | | | | 6 | | | | | | | 5 | 11 |
| Influenza B virus | | | | | 1 | | | | | | | | 1 |
| Parainfluenza virus type 2 | | | | | 1 | | | | | | | | 1 |
| Parainfluenza virus type 3 | | 1 | | | 18 | | | | | | | 2 | 21 |
| Respiratory syncytial virus | | | | | 20 | | | | | | | | 20 |

**Table 8. Laboratory reports by clinical information for the reporting period 21 October to 3 November 1992, continued**

| | Encephalitis | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OTHER RNA VIRUSES | | | | | | | | | | | | | |
| Rotavirus | | | | | | 77 | | | | | | 5 | 82 |
| Astrovirus | | | | | | 1 | | | | | | | 1 |
| Reovirus (unspecified) | | | | | | | | | | | | 2 | 2 |
| Coronavirus | | | | | 2 | | | | | | | | 2 |
| Small virus (like) particle | | | | | | 3 | | | | | | | 3 |
| OTHER | | | | | | | | | | | | | |
| *Chlamydia trachomatis* not typed | | | | | | | | | 1 | | 57 | 16 | 74 |
| *Mycoplasma pneumoniae* | 1 | | | | 52 | | | 3 | | | | 30 | 86 |
| *Coxiella burnetti* (Q fever) | | | | | | | | | | | | 1 | 1 |
| *Streptococcus* species | | | | | 3 | | | | | 1 | | 9 | 13 |
| *Bordetella pertussis* | | | | | 1 | | | | | | | | 1 |
| *Bordetella* species | | | | | 3 | | | | | | | 2 | 5 |
| *Cryptococcus* species | | | | | 1 | | | | | | | 1 | 2 |
| *Treponema pallidum* | | | | | | | | | | | 1 | 11 | 12 |
| TOTAL | 4 | 14 | 1 | 2 | 233 | 119 | 87 | 215 | 19 | 3 | 175 | 329 | 1201 |

**Table 9. Laboratory reports by contributing laboratories for the reporting period 21 October to 3 November 1992**

| STATE | LABORATORY | REPORTS |
|---|---|---|
| Australian Capital Territory | Woden Valley Hospital, Canberra | 19 |
| New South Wales | Institute of Clinical Pathology & Medical Research, Westmead | 192 |
| | Prince Henry/Prince of Wales Hospitals, Sydney | 3 |
| | Royal Alexandra Hospital for Children, Camperdown | 42 |
| | South West Area Pathology Service, Liverpool | 61 |
| Queensland | Queensland Medical Laboratory, West End | 345 |
| | State Health Laboratory, Brisbane | 93 |
| South Australia | Institute of Medical & Veterinary Science, Adelaide | 214 |
| Victoria | Fairfield Hospital, Melbourne | 192 |
| | Microbiological Diagnostic Unit, University of Melbourne | 5 |
| Western Australia | Princess Margaret Hospital, Perth | 35 |
| TOTAL | | 1201 |