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COMMONWEALTH DEPARTMENT OF HUMAN SERVICES AND HEALTH

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

# UPTAKE OF SECOND DOSE MMR IN WESTERN AUSTRALIA: TWO COUNTRY REGIONS COMPARED WITH THE METROPOLITAN AREA

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## Introduction

In the wake of recent international discussion[1,2], the National Health and Medical Research Council has recommended a second dose of measles-mumps-rubella vaccine (MMR) for boys and girls between the ages of 10 and 16 years. The second dose is given preferably either in the first year of high school or last year of primary school and replaces the previous monovalent rubella vaccine given to girls only. A brief survey of the uptake of this second dose MMR was undertaken in Western Australia in 1993, the first year in which the altered schedule was implemented. Two country regions were compared with metropolitan Perth to determine the response to the new schedule, to see if there were any differences between country and metropolitan vaccine uptake and to evaluate acceptance of the new vaccine amongst males.

## Method

### Metropolitan survey

The Central Immunisation Clinic in Perth provides a team comprising a doctor or nurse and a field officer to provide immmunisation services to all high schools in the Perth metropolitan area. In previous years this service provided rubella immunisation to girls only, but in 1993 it offered MMR to both girls and boys.

Each school was sent information about the program and the changed policy, with a consent card which the students had to take home to obtain written consent of parents. The team from the Central Immunisation Clinic visited the schools on a pre-arranged basis. Survey data were collected by the Central Immunisation Clinic at the time of providing the second dose MMR. The sex and the number of students immunised at the time and the number eligible for immunisation were recorded. Data on the number of children immunised elsewhere was also recorded.

### Country surveys

The two Regions represented in the country survey were the Great Southern in the south of the State and the Mid-West and Gascoyne in the central and western parts of the State. The population of both Regions is very similar (about 69,000) but the Mid-West and Gascoyne has a larger proportion of Aboriginal person 9.2%) than the Great Southern (3.5%) and more isolated and remote communities.

In both country regions, immunisation services are provided by school nurses in schools and by community health nurses and general pracitioners. School and community nurses used school class records to determine the number of eligible children, in Year 8 in each high school in the Great Southern Region and in Year 7 in each primary school in the Mid-West and Gascoyne Region. School records, community health records and parent held records were used to validate immunisation status. Validation of immunisations completed at a general practitioner's surgery were provided by the parent giving the precise date of immunisation in the Mid-West and Gascoyne survey but only by parental reporting in the Great Southern survey. Follow-up with parents was undertaken on a number of occasions. If documentation could not be found or if there were no response from enquires to parents, the immunisation was counted as not given.

Where the metropolitan survey was only able to collect data on the occasion of immunisation, in both country surveys, data collection and validation continued throughout the year. The validation requirements will have inevitably underestimated the true level of immunisation.

**Table. Second dose MMR uptake in metropolitan Perth and two country regions of Western Australia**

| Region | Number of students | | | | |
|---|---|---|---|---|---|
| | Enrolled | | Immunised and validated | | |
| | Males | Females | Males (%) | Females (%) | Total (%) |
| Perth | 9177 | 8717 | 5680 (61.9%) | 6209[1] (71.2%) | 66.4 |
| Great Southern | 548 | 507 | 447 (81.5%) | 383 (75.5%) | 78.7 |
| Mid-West and Gascoyne | 430 | 420 | 359 (83.5%) | 391[1] (93.1%) | 88.2 |
| Total two country regions | 978 | 927 | 806 (82.4%) | 774 (83.4%) | 82.9 [2] |

1. $p<0.001$ males vs females.
2. $p<0.001$ country regions vs metropolitan Perth.

## Results

### Metropolitan survey

In 1993, 139 government and independent high schools were visited. A total of 9177 eligible males and 8717 eligible females was enrolled, and of these, 66.4% were immunised against MMR (Table). Parents of a further 4.2% of children reported MMR in the previous four years and 9.8% of parents stated that they would seek the vaccination from their own doctor. Vaccination by a general practitioner was not validated, but if all these children were vaccinated by their general practitioner and if those students vaccinated in the previous four years were included, the proportion of children receiving second dose MMR in the metropolitan area would have approached 80%. Validated coverage was significantly better for girls than boys ($p<0.001$) and significantly worse in metropolitan Perth than in the two country regions surveyed ($p<0.001$; Table).

### Great Southern Region survey

Of the 1055 students enrolled in Year 8 in 22 high schools in 1993 in the Great Southern region, a slightly higher proportion were male (52%). Overall validated uptake of MMR was 78.7% (Table). Seventy-seven per cent of all immunisations were given at the schools, 11.3% were given at community health clinics, and general practitioners gave about 12% of all second dose MMR vaccines. If all vaccinations given by general practitioners were validated, the total MMR uptake would have been 89.2%. Although uptake was relatively constant throughout the region there was one school where uptake was only about 50%. This was in a town where there was a group of persons known to be opposed to immunisation.

### Mid-West and Gascoyne Region survey

There were 850 children, 420 males and 430 females, enrolled in Year 7 in the 40 primary schools throughout the Region. The overall validated uptake of MMR immunisation was 88.2%, significantly better in females than in males ($p<0.001$; Table). It was estimated that at least 90% of all immunisations were delivered by community health staff. There was no school in this region where uptake was significantly lower than the overall regional figure.

## Discussion

It is not surprising that more girls than boys between the ages of 11 and 13 were immunised against MMR in the Metropolitan and Mid-West and Gascoyne Regions, given that MMR for boys and girls replaced rubella only for girls. The significantly better MMR coverage rates in both country regions compared with the Perth metropolitan area is perhaps more surprising. The differences between the methods of data collection between the metropolitan and country regions are considered to be insufficient to account for the different coverage rates observed. Some parents in the metropolitan area may have confused the adult diphtheria and tetanus vaccine (ADT) given by the local government authorities at schools with MMR. In the country regions both MMR and ADT immunisations are performed by school nurses. In the metropolitan schools there was a poor return rate of consent for immunisation cards, with up to 15% of students failing to return their cards. Since the Central Immunisation Clinic only visits the school to perform immunisations on one occasion in the year, there is no opportunity to follow up the unimmunised children.

Some parents may have doubted the necessity or safety of having their children immunised a second time against measles, mumps and rubella, given also that some of these children may have had these diseases. However, there is no reason to think that this attitude should have been more prevalent in the metropolitan area than in the country. Parents in all areas had been provided with similar information about the program at the time that consent for immunisation was sought.

Regional Western Australia has a good record of immunisation coverage in high schools. For instance in 1992 the rubella immunisation rate in the Mid-West and Gascoyne was 93.7%[3], which is very similar to the MMR rate in girls in the same Region in 1993. Moreover in the South-West region of Western Australia, where there were 2148 students enrolled in Year 8 in 1993, the MMR immunisation rate was 88.6% (Judy Donnelly, personal communication). While these levels are not as high as National Health and Medical Research Council targets they are certainly better than levels in the metropolitan area which are probably not sufficiently high to prevent outbreaks of measles among high school aged children[4]. Coverage is, however, better than that achieved in a voluntary second dose MMR school based program in the United States in which only 28% of 8,840 eligible children in Baltimore were immunised[5].

Improvement in immunisation levels in school children can probably by achieved by restricting immunisation delivery to only one agency in the school (not a mixture of Health Department and local government) and by immunising in the last year of primary school, as was done in the Mid-West and Gascoyne, rather than the first year of high school, as was done in the Great Southern Region and in metropolitan Perth. School health nurses should be responsible for documentation of all completed immunisations. Results from regional Western Australia suggest that National Health and Medical Research Council targets for second dose MMR coverage should be achieved throughout Australia.

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## Acknowledgments

We would like to acknowledge all the school and community health nurses who provided survey data and, in particular, Jenny Sherpherdson who collated data for the Great South Region, Gary Rothernburg who collated data for the metropolitan survey and Judy Donnelly who provided summary data for the South-West survey.

## *CDI* editorial comment

In November 1992, the National Health and Medical Research Council recommended that a second dose of MMR be included in the routine immunisation schedule from this year. This schedule has not yet been implemented in all parts of Australia but is expected to replace rubella-only vaccination in all areas in the near future. The NHMRC has recommended targets of 90% second dose MMR coverage of girls and boys uder 17 years of age by 1996, and near universal coverage by 2000.

# INVASIVE MENINGOCOCCAL DISEASE IN MACKAY, QUEENSLAND

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Over a four week period during June-July 1994, five patients were hospitalised in Mackay (population about 64,500), Queensland, with invasive meningococcal disease (Table). Three of the patients had meningitis and the other two meningococcaemia. Although an elderly patient (A) developed a disabling postmeningococcal arthritis, all eventually made a full recovery.

One of the patients (B) had arrived in Mackay from Brisbane the day prior to the onset of symptoms, and is therefore considered to be an 'imported' case. The other four patients are local residents and all their infections were locally acquired. Three different serogroups were responsible for the four local cases. Serogroup Y disease is rare, and may have indicated an unrecognised complement deficiency in that patient[1]. The two patients (C, D) with serogroup C disease were both young children for whom no common social links could be identified.

Clusters of meningococcal disease of differing serogroups are quite unusual and presumably reflect environmental circumstances conducive to invasive disease. Winter is the peak season for meningococcal infections in Australia[2], and an association between upper respiratory tract infections, particularly influenza, and invasive disease is well recognised[3,4].

There was a considerable amount of influenza-like illness in Mackay at the time of the cluster, and a four month old Mackay child had influenza A virus identified (by an immunofluorescent assay) in a nasopharyngeal aspirate collected in early August. However, neither acute and convalescent sera from one adult patient (E), nor convalescent serum from another (A), showed any evidence of recent influenza, parainfluenza, adenovirus or *Mycoplasma* infection upon serological examination.

Local general practitioners were informed about the cluster when the third locally acquired case (D) was diagnosed. It was recommended that they administer

**Table. Cases of invasive meningococcal disease, Mackay, 1994**

| Patient | Date hospitalised | Age (years) | Sex | Serogroup | Comments |
|---|---|---|---|---|---|
| A | 21.6.94 | 72 | F | Y | Postmeningococcal arthritis |
| B | 22.6.94 | 6.5 | F | B | Acquired in Brisbane |
| C | 28.6.94 | 2 | F | C | |
| D | 2.7.94 | 3 | M | C | No obvious social links |
| E | 21.7.94 | 48 | F | B | |
| F | 26.8.94 | 4 | F | B | South Sea Island descent |
| G | 5.9.94 | 21.5 | F | A, C, Y or W135 | |

parenteral penicillin to any suspect case prior to hospitalisation[5]. The fourth locally acquired case (E) was diagnosed three weeks later, but there was then a five week interval with no further cases. However, since late August there have been two more patients with locally acquired disease. Although both patients are of South Sea Island descent, they were infected with differing serogroups: group B and (using polyvalent antisera) one of group A, C, Y or W135. Updated information is currently being distributed to local doctors.

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## *CDI* editorial comment

Notifications of meningococcal infection have increased in Australia over the last decade. In 1993, there were 378 notifications, the highest number recorded by the National Notifiable Diseases Surveillance System since 1954. (Meningococcal infections were, however, not nationally notifiable during the period 1969 to 1978.) So far this year, there have been 248 notifications, compared with the 208 received by this time last year. There were increases in notifications in the June to August period in Australia overall and in New South Wales, Queensland, South Australia, the Northern Territory, Tasmania and Western Australia. Influenza reported by the *CDI* Virology and Serology Reporting Scheme also increased in all States and Territories during this period.

# *SALMONELLA* TYPHI PHAGE TYPE M3 IN WESTERN AUSTRALIA

*TV Riley*[1], *MJS Ashwell*[2], *W Arrow*[3], *V Wymer*[4] *and P Psaila-Savona*[3]

In late December 1993 the Health Department of Western Australia (HDWA) was notified of a case of typhoid fever in a 55 year old Vietnamese born woman. She had been admitted to Sir Charles Gairdner Hospital with fever and *Salmonella* Typhi was isolated from blood cultures. She had last visited Vietnam 13 months previously and had complained of intermittent fevers since her return. This was the third case of typhoid fever notified to the HDWA in 1993, however, this was the only case of the three in which a history of recent (within the previous three months) overseas travel could not be elicited (one case had visited Indonesia and the other Pakistan).

Up to the end of June, the HDWA had received ten notifications of typhoid fever for 1994. Six of these cases gave travel histories consistent with exposure to *S.* Typhi overseas (Myanmar, Indonesia (four cases) and Pakistan).

The source of infection in the remaining four cases, however, was less clear. All were of Vietnamese origin and, together with the December 1993 case, lived in neighbouring suburbs in the north of Perth. Three had not been overseas for one to five years, and the fourth, a child who had been born in Australia, had never left the country. Details of these four cases and the December 1993 case are given in the Table. Four cases were symptomatic at the time of notification but case 4 was not examined until several weeks after a possible acute episode.

Investigation of each case by an Environmental Health Officer revealed that, although there were associations between some of the cases, a probable source of infection could not be identified. Cases 2, 3 and 5 attended the same school but did not know each other. Case 4, who was detected following routine screening of contacts of case 3, had been living with case 3's family and had apparently cared for him during his illness. She did complain of symptoms compatible with typhoid fever a few weeks prior to detection, but no laboratory testing was done at the time and hence, there is no conclusive evidence of acute illness. Case 1 did not have any known contact with the others. There was no


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**Table. Details of five cases of *S.* Typhi infection detected between December 1993 and May 1994 in Western Australia**

| Case | Date of notification | Sex | Age (years) | Site of isolation of *S.* Typhi | Most recent overseas travel |
|---|---|---|---|---|---|
| 1 | 23.12.93 | F | 55 | Blood | Vietnam 13 months ago |
| 2 | 19.1.94 | F | 8 | Blood | Vietnam 12 months ago |
| 3 | 31.3.94 | M | 5 | Not isolated[1] | Nil |
| 4 | 27.4.94 | F | 21 | Stool | Emigrated from Vietnam 2 years ago |
| 5 | 18.5.94 | M | 18 | Blood | Vietnam 5 years ago |

1. Positive Widal for *S.* Typhi and also positive titres for *S.* Paratyphi A and *S.* Paratyphi B, though he had never been vaccinated nor overseas.

common ready-made food source and each family tended to prepare its own food.

No case was found to be excreting *S.* Typhi on subsequent testing, and no other household contact tested positive for *S.* Typhi.

To investigate possible associations between cases, the four available isolates of *S.* Typhi were sent to the National *Salmonella* Reference Laboratory for phage typing. All were phage type M3. These four isolates of *S.* Typhi phage type M3 are the first isolates of this particular phage type to be recorded in Australia since 1985 (Diane Lightfoot, personal communication). It seems unlikely that their occurrence within a relatively short time period (less than six months), and in such proximity, is coincidental.

Carriage and intermittent excretion of *S.* Typhi over long periods is well recognised. It is possible that four of our cases could have been infected while in Vietnam more than a year ago. However, since *S.* Typhi was isolated from blood cultures in three of these and the incubation period is one to three weeks[1] they must be acute cases. It is possible case 4 was a carrier, although she is more likely to have been an acute case also. It is more likely, therefore, that there has been transmission within the Vietnamese community within Perth.

Unfortunately, both language and cultural differences have been a hindrance to the investigations necessary in this situation. The Environmental Health Officer following up these cases specialises in investigations of typhoid fever. Usually, he involves the whole family as they could also be infected and need to be educated concerning means of transmission. In this investigation children have been acting as interpreters. Having such an illness is embarrassing to Vietnamese patients and consequently they are reluctant to speak in front of their family or to name possible contacts. A Vietnamese health officer has been consulted on cultural matters and will be assisting in further investigations.

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# OVERSEAS BRIEFS

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

## Cholera update

The cholera outbreak in the Republic of Dagestan in the Russian Federation is being brought under control[1]. A total of 634 cases and 18 deaths were reported to 22 August. Cases first occurred in June, as a result of imported infection, and have now been reported from 21 areas. The spread of the disease is being controlled with measures such as improvements to the water supply and sewerage systems in populated areas.

Cases have been reported for June, July and August from Afghanistan, Azerbaijan, Benin, Bolivia, Brazil, Burundi, Cambodia, Cameroon, Cote d'Ivoire, Dagestan, El Salvador, Ghana, Guinea, Hong Kong, India, Kenya, Malawi, Mexico, Moldova, Nepal, Niger, Philippines, Rwanda-Zaire, Somalia, Singapore, Tajikstan and Uganda.

## Influenza update

There was an outbreak of influenza-like illness in Santiago in Chile in June-July, with influenza A identified as the causative virus. Influenza B has been reported from two other regions of the country.

In New Zealand, the incidence of influenza-like illness increased in the southern and central South Island during July. Patients were in all age groups but most were adolescents or adults and more than half were in the age group 20 to 59 years. Influenza A was isolated from 158 patients in all age groups in July. All strains further typed were of the $H_3N_2$ subtype.

In Hong Kong, influenza A $H_3N_2$ has been isolated from sporadic cases in June and July, the first influenza

A detected since September 1993. In Thailand, most influenza isolates this year have been type B. Isolates have been made each month since January and numbers increased markedly in July. Most isolates were from children under the age of 15 years.

### Rift Valley fever in Egypt

The outbreak of Rift Valley fever in Egypt previously reported (*CDI* 1994;**18**:167) has been brought under control[2]. The outbreak had claimed the life of a 17 year old female and had caused high numbers of abortions in cattle and buffalo. Control activities included monitoring and epidemiological investigation, immunisation of animals, restriction of animal movement and vector control, especially in areas where virus activity had been reported. All suspected human cases of fever of unknown aetiology accompanied with encephalitis, visual impairment or haemorrhagic manifestations were investigated serologically for evidence of infection with RVF virus. All suspected animal cases have also been investigated. In addition, large scale serological surveys of flocks of sheep and cattle were undertaken; they have shown no evidence of recent infections. Over 6 million or 90% of the country's domestic animals (cattle, buffalo, sheep and goats) were immunised with inactivated vaccine between April and July 1994 and movement of animals from infected areas was restricted. No cases in humans or animals have been recorded recently, despite the resumption of significant movements between areas.

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## COMMUNICABLE DISEASES SURVEILLANCE

### Virology and Serology Reporting Scheme

There were 1797 reports received in the *CDI* Virology and Serology Reporting Scheme this fortnight (Tables 7, 8 and 9).

- Twenty-three reports of **measles** were received this period, 12 males and 11 females all under the age of 24 years. Diagnosis was by IgM detection (21) and antigen detection (2). Included was a 2 year old unimmunised female with coryza and rash.
- **Rubella** was reported for 25 patients this fortnight, 11 females (10 in the 15 to 44 year age group), and 14 males. Included was a congenitally infected newborn female who had cataracts and was small for gestational age. Diagnosis was by detection of IgM.
- Fourteen reports of **hepatitis A** were received, 11 males and 3 females, age range 1 to 44 years.
- Positive **hepatitis B** serology was reported for 88 patients this fortnight, 49 males and 36 females (3 sex not stated). Fifty-four patients were in the 25 to 44 year age group, and 16 in the 15 to 24 year age group. Included were 6 pregnant females, one haemodialysis patient and a 35 year old male, the index case in a sharps injury incident.
- Positive **hepatitis C** serology was reported for 137 patients this fortnight, 89 males and 44 females (4 sex not stated). One hundred and three reports were for the 25 to 44 year age group, and 15 for the 15 to 24 year age group. Included were 10 injecting drug users, 4 pregnant females and one patient with a malignancy. Also included was an 11 month old female whose mother was a hepatitis C positive injecting drug user.
- Sixty-three reports of **adenovirus** were received this fortnight, 41 virus isolations, 19 antigen detections and 3 single high titres. Included was **adenovirus type 5** isolated from the nasopharynx of a 7 year old female. **Untyped adenovirus** was isolated from the urine of a one month old female with haemorrhagic cystitis and from a postmortem liver specimen from a 13 year old female transplant recipient.
- **Herpes simplex virus type 1** was reported for 142 patients this fortnight, 137 isolations and 5 antigen detections. Included was virus isolation from the ear of a 6 year old male and from the eyes of 26, 28 and 37 year old males.
- There were 73 reports of **cytomegalovirus** (CMV) this fortnight, 60 virus isolations, 1 antigen detection and 12 IgM detections. Included was virus isolation from a placenta specimen (child had congenital disease) and from the nasopharynx of a 30 year old pregnant female. CMV was cultured from the urine of a 5 month old female with thrombocytopaenia and petechiae. This virus was also isolated from 48 and 63 year old transplant recipients, both female, and from a caecum biopsy specimen from a 45 year old HIV positive male. CMV and rhinovirus were isolated from the nasopharynx of a 4 month old male.
- **Varicella-zoster virus** was reported for 19 patients this fortnight, 4 virus isolations, 10 antigen detections and 5 IgM detections.
- Five reports of **parvovirus** were received this fortnight, all diagnosed by IgM detection. Included were 2 females from Victoria, a 32 year old with rash and arthralgia and a 51 year old with arthralgia.

- **Echovirus type 18** was isolated from the nasopharynx of a 2 year old female with a clinical diagnosis of CNS disease.
- **Poliovirus type 2** was isolated from a postmortem spleen specimen from a 42 year old HIV positive male.
- **Influenza A** was reported for 132 patients this fortnight including 22 $H_3N_2$ strains. Forty-three diagnoses were by antigen detection, 43 by virus isolation, 10 by fourfold rise in titre and 35 by single high titre. Included were 66 males and 66 females, 15 in the over 65 year age group. Reports were received from Victoria (62), Western Australia (14), Queensland (24), Tasmania (3), New South Wales (12) South Australia (16) and the ACT (one). The number of reports peaked in July (Figure 1).
- Three reports of **influenza B** were received this period all diagnosed by virus isolation.
- **Parainfluenza virus type 1** was reported for 7 patients this period, 5 under the age of 14 years. Four diagnoses were by virus isolation, 2 by antigen detection and one by fourfold rise in titre. The number of reports has declined markedly since May (Figure 2).
- Nineteen reports of **parainfluenza virus type 3** were received this fortnight, 18 for patients in the one month to 4 year age group. Diagnosis was by virus isolation (8) and antigen detection (11).
- Two hundred and ninety-one reports of **respiratory syncytial virus** were received this fortnight, 197 for patients under one year of age and a total of 260 under the age of 4 years. Diagnosis was by virus isolation (89), antigen detection (188), single high titre (12) and fourfold rise in titre (2). Included was a one year old male heart transplant recipient.
- **Rotavirus** was reported for 271 patients this period, 164 males and 107 females. Two hundred and thirty-three patients were less than 4 years of age, 53 being in the under one year age group. The number of reports continued to rise through the month of August but remain average for the time of year (Figure 3).
- Fifty-six reports of ***Chlamydia trachomatis*** were received this fortnight, 21 males, 33 females and 2 sex unrecorded. Forty-seven patients were in the 15 to 44 year age group. Diagnosis was by culture (42) and antigen detection (14).
- Positive ***Chlamydia psittaci*** serology was reported for a 63 year old male with atypical pneumonia and sepsis.
- Thirty-seven reports of ***Mycoplasma pneumoniae*** were received, 20 females and 17 males, 23 in the 5 to 24 year age group. All diagnoses were by IgM detection.

**Figure 1. Influenza A laboratory reports, 1992 to 1994, by year and month of specimen**

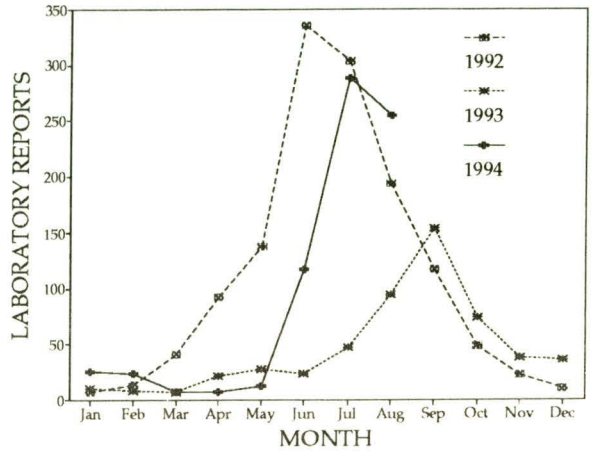



**Figure 2. Parainfluenza virus type 1 laboratory reports, 1992 to 1994, by year and month of specimen collection**

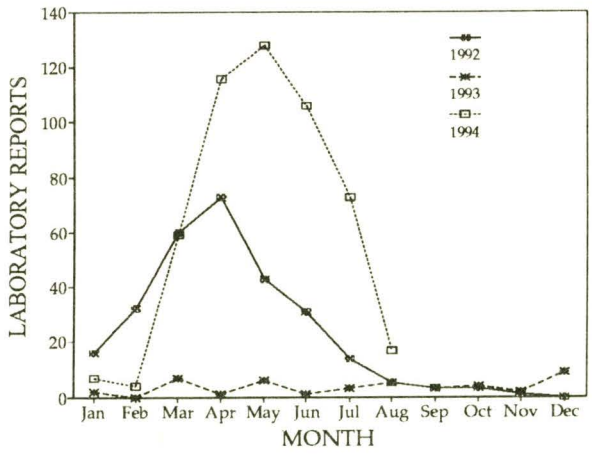



**Figure 3. Rotavirus laboratory reports, 1989-93 average and 1994, by month of specimen collection**

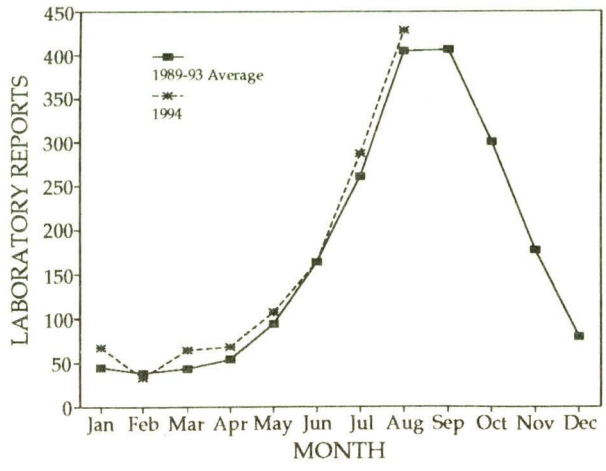
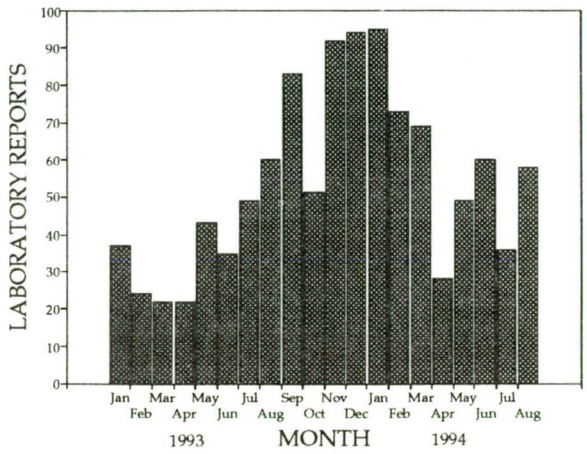


**Figure 4. *Bordetella* species laboratory reports 1993 to 1994 by month of specimen collection**




- **Q fever** was reported for 4 patients this period, 3 males in the age range 25 to 37 years and a female aged 26 years. All diagnoses were by IgM detection.
- Forty-one reports of ***Bordetella*** were received this reporting period, 38 ***Bordetella pertussis***, one ***Bordetella parapertussis*** and two ***Bordetella*** species. Fifteen patients were male and 24 female (2 sex unrecorded), age range one month to 99 years. The number of reports being received remain high (Figure 4).
- Positive **syphilis** serology was reported for 12 patients this period, 7 males and 4 females (one sex not stated).

## Australian Sentinel Practice Research Network

Data for weeks 34 and 35 are included in this issue of *CDI* (Table 1). There were 10,207 consultations reported for week 34 and 9475 for week 35. The rate of influenza declined markedly this fortnight, to the level reported in May this year. Rates fell particularly in New South Wales, Victoria, Queensland, Tasmania and Western Australia. Of the 119 reports in week 35, 64 were for persons in the 15 to 44 year age group (29 males and 35 females) and there were 4 reports for persons over the age of 65 years (2 males and 2 females).

The rate of reporting of pertussis in the last 3 weeks has increased markedly, to the levels reported in the first 9 weeks of the year. In week 35, the cases were 3 males and one female in the 15 to 44 year age group and 3 females in the 5 to 14 year age group. Gastroenteritis continues to be reported at between 10 and 15 cases per 1000 consultations. Thirty-two of the 121 reports in week 35 were for children under the age of 5 years.

## National Influenza Surveillance 1994

*Australian Capital Territory Department of Health; Australian Defence Force; Australian Sentinel Practice Research Network; Communicable Diseases Intelligence Virology and Serology Reporting Scheme Contributing Laboratories; New South Wales Department of Health; Telecom Australia; Victorian Department of Health and Community Services; World Health Organization (WHO) Collaborating Centre for Influenza Reference and Research, Melbourne*

Overall this fortnight, there has been a marked decline in laboratory reports of influenza A, although they continue to be received from all parts of the country. The rate of influenza reporting from sentinel general practitioner surveillance has also declined. Absenteeism rates have remained fairly stable.

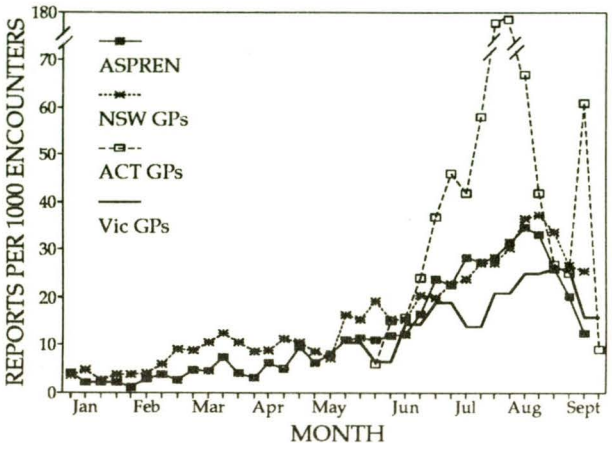
**Sentinel general practitioner surveillance (Figure 5)**

- The **Australian Sentinel Practice Research Network** There were 10,207 consultations reported for week 34 and 9475 for week 35. The rate of influenza declined markedly this fortnight, to the level reported in May this year. Rates fell particularly in New South Wales, Victoria, Queensland, Tasmania and Western Australia. Of the 119 reports in week 35, 64 were for persons in the 15 to 44 year age group (29 males and 35 females) and there were 4 reports for persons over the age of 65 years (2 males and 2 females). The peak of influenza reports recorded by this scheme was at the end of July, very similar to the early August peak of the New South Wales scheme.
- The **Australian Capital Territory Sentinel General Practitioner Scheme** reported on 770 consultations for the week ending 3 September and 451 consultations for the week ending 10 September. There were 47 influenza cases reported for the week end-

**Table 1. Australian Sentinel Practice Research Network, weeks 34 and 35, 1994**

| Condition | Week 34, to 28 August 1994 | | Week 35, to 4 September 1994 | |
|---|---|---|---|---|
| | Reports | Rate per 1000 encounters | Reports | Rate per 1000 encounters |
| Influenza | 206 | 20.2 | 119 | 12.6 |
| Measles | 3 | 0.3 | 2 | 0.2 |
| Chickenpox | 21 | 2.1 | 17 | 1.8 |
| Pertussis | 7 | 0.7 | 7 | 0.7 |
| Gastroenteritis | 116 | 11.4 | 121 | 12.8 |

**Figure 5. Sentinel general practitioner influenza cases per 1000 encounters, by week and scheme**



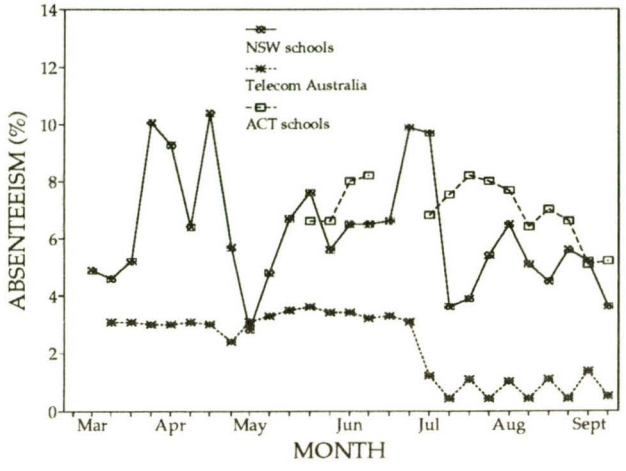

ing 3 September (61 per 1000 consultations) and 4 for the week ending 10 September (9 per 10000 consultations). Apart for the week ending 3 September, influenza reporting rates have declined over the last few weeks.

- **New South Wales** sentinel general practitioners reported for 4103 consultations in the week ending 28 August and for 6932 consultations for the week ending 4 September. Influenza was reported at rates of 26.5 and 25.5 per 1000 consultations, respectively (109 cases and 177 cases). The reporting rates have declined in the last few weeks in parallel with those of ASPREN.
- The **Victorian Sentinel Practitioner Scheme** reported 141 cases of influenza in the fortnight ending 5 August (25 per 1000 consultations) and 166 cases in the fortnight ending 19 August (26 per 1000 consultations). The rate of reporting has increased slightly over the last few weeks.

**Absenteeism surveillance (Figure 6)**

- **Telecom Australia Absenteeism Surveillance** reported absenteeism rates of 1.4% on 31 August and 0.5% on 7 September. There are reporting delays in the Telecom absenteeism surveillance system such that recent data do not reflect total absenteeism. Data for the period March to June are more complete (Figure 6).
- The **Australian Capital Territory Schools Absenteeism Surveillance** reported absenteeism rates of 5.1% on Tuesday 3 September and 5.2% on Tuesday 13 September. The absenteeism has decreased slightly in the last 2 weeks.
- **New South Wales schools absenteeism surveillance** reported absenteeism of 5.6% in the week ending 28 August, 5.2% in the week ending 4 September and 3.6% in the week ending 11 September.

**Figure 6. Absenteeism rates per 100 employees or students, by week and scheme**




The rates reported in this scheme have fluctuated throughout the season.

**Laboratory surveillance**

- The *CDI* **Virology and Serology Reporting Scheme** has received 735 reports of **influenza A** so far this year, 548 other than single high titres. Sixty-four isolates have been identified as $H_3N_2$ subtypes (others not typed). The number of reports continue to decline after peaking in late July (Figure 7). **Influenza A** was reported for 132 patients this fortnight including 22 $H_3N_2$ strains. Forty-three diagnoses were by antigen detection, 43 by virus isolation, 10 by fourfold rise in titre and 35 by single high titre. Included were 66 males and 66 females, 15 in the over 65 year age group. Reports were received from Victoria (62), Western Australia (14), Queensland (24), Tasmania (3), New South Wales (12) South Australia (16) and the ACT (one).

**Figure 7. Influenza A laboratory reports, 1994, by method of diagnosis and week of specimen collection**

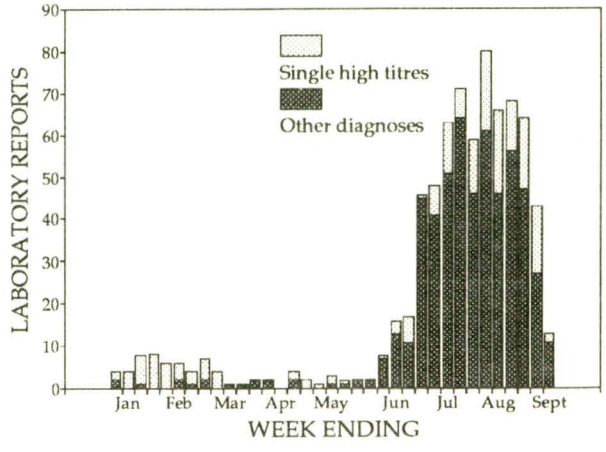
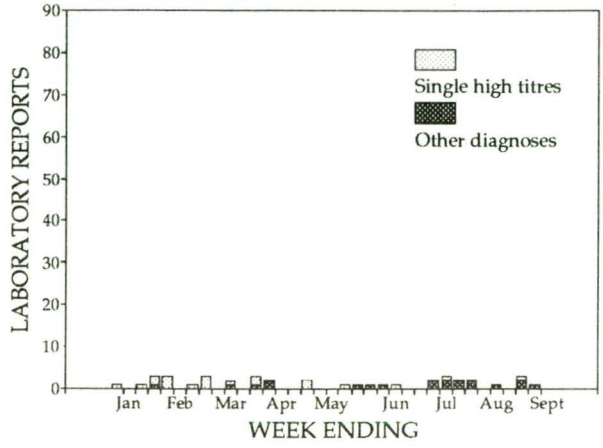


**Figure 8. Influenza B laboratory reports, 1994, by method of diagnosis and week of**




- There have been 41 reports of **influenza B** so far this year, 21 with diagnoses other than single high titre (Figure 8). Three reports of **influenza B** were received this period, all diagnosed by virus isolation.

**Other surveillance**

- **Victorian total deaths surveillance**: there were 1451 deaths reported in Victoria in the fortnight ending 2 September. This was a rate of 3.2 per 10,000, slightly higher than the rates reported in the last 2 fortnights.
- **Victorian hospital admissions**: there were 65 admissions for influenza or pneumonia in the fortnight ending 2 September. This was a rate of 1.1 per 100 patients admitted, slightly higher than rates reported in recent fortnights.

## Sterile Sites Surveillance (LabDOSS)

Data for this fortnight have been provided by 9 laboratories. There were 174 reports of recent sepsis:

**New South Wales**: South West Area Pathology Health Service, Liverpool 24; Prince of Wales Hospital 23.
**Queensland:** Sullivan Nicolaides and Partners 17; Greenslopes Repatriation Hospital 9; Ipswich General Hospital 12; Nambour General Hospital 10.
**ACT:** Woden Valley Hospital 17.
**South Australia:** Institute of Medical and Veterinary Science 55.
**Western Australia:** Princess Margaret Hospital for Children 7.

Organisms reported 5 or more times from blood are detailed in Table 2. There were 10 reports of isolates from CSF and/or meningitis (Table 3). Blood isolates not included in the Tables were:

**Gram positive:** 2 *Corynebacterium jeikeium*, 2 *Corynebacterium* species, 1 *Enterococcus faecalis*, 2 *Enterococcus* species, 4 Group A *Streptococcus*, 2 Group G *Streptococcus*, 1 *Streptococcus mitis*, 2 *Streptococcus sanguis*, 1 Streptococcus *'viridans'*, 3 *Streptococcus* species.

**Gram negative:** 1 *Salmonella* Enteritidis, 2 *Haemophilus influenzae* (not typable in a one year old, type not provided in a 5 year old), 1 *Acinetobacter lwoffi*, 1 *Branhamella catarrhalis*, 1 *Campylobacter* species, 1 *Enterobacter aerogenes*, 2 *Enterobacter cloacae*, 3 *Klebsiella oxytoca*, 4 *Klebsiella* species, 3 *Proteus mirabilis*, 1 *Pseudomonas* species, 1 *Serratia marcescens*, 1 *Serratia liquefaciens*, 1 *Xanthomonas maltophilia*, 1 *Yersinia enterocolitica*.

**Anaerobes:** 2 *Bacteroides fragilis*, 2 *Bacteroides* species, 1 *Clostridium perfringens*.

**Fungi:** 1 *Candida albicans*.

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

| Organism | Clinical information | | | | | | Risk factors | | | | | Total[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bone/Joint | Lower respiratory | Endocarditis | Gastrointestinal | Urinary tract | Skin | Surgery | Immunosuppressed | IV line | Hospital acquired | Neonatal | |
| *Staphylococcus aureus* | 4 | 1 | 3 | | 1 | 3 | 3 | 3 | 2 | | | 24[2] |
| *Staphylococcus* coagulase negative | | 1 | 1 | | | 2 | 2 | 4 | 2 | 1 | | 15 |
| *Streptococcus* group B | | | | | | 1 | 1 | | | | 3 | 6 |
| *Streptococcus pneumoniae* | | 8 | | | | | 1 | 2 | | | | 14 |
| *Escherichia coli* | | | | 4 | 14 | | 2 | 4 | | 1 | 1 | 29 |
| *Klebsiella pneumoniae* | | | | | 2 | | | | 3 | | | 8 |
| *Pseudomonas aeruginosa* | | | | 1 | 1 | | | | 4 | | | 6 |

1. Only organisms with 5 or more reports are included in this table.
2. MRSA 3.

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

| | 15-24 years | 25-34 years | 45-54 years | 55-64 years | 75+ years | Total |
|---|---|---|---|---|---|---|
| *Neisseria meningitidis* | 1[1] | 1 | | | | 2 |
| *Staphylococcus aureus* | | | 2 | | | 2 |
| *Corynebacterium jekeium* | | | 1 | | | 1 |
| *Pseudomonas aeruginosa* | | | 1 | | | 1 |
| *Staphylococcus coagulase negative* | | | 1 | | | 1 |
| *Streptococcus pneumoniae* | | | 1 | 1 | 1 | 3 |

1. Group C.

Most reports were for elderly persons (Figure 9).

**Isolates from sites other than blood or CSF**

**Peritoneal fluid:** 1 *Bacillus* species, 1 *Escherichia coli.*

**Joint fluid:** 1 *Proteus mirabilis, 1 Staphylococcus aureus.*

**Other:** 1 *Nocardia* species (multiple cerebral abscesses), 2 *Escherichia coli,* 1 *Morganella morganii,* 1 MRSA, 1 *Staphylococcus aureus,* 1 *Streptococcus pneumoniae.*

## National Notifiable Diseases Surveillance System, 21 August to 3 September 1994

There were 1761 notifications received in the period (Figure 13 and Tables 4, 5 and 6).

- **Ross river virus infection** notifications are at a low seasonal level, as recorded in previous years (Figure 10). Thirteen notifications of Ross River virus infection were received for the period; 6 cases were male and 7 were female. Recorded ages were between the 10-14 and the 60-64 years age group. Onset dates were March (one), June (2), July (4), and August (6).
- Two cases of **brucellosis** were reported. Both cases were male and they were in the 35-39 and the 50-54 years age groups respectively.
- There were 40 cases of **gonococcal infection** reported; 27 cases were male and 13 were female. Cases were aged between the 10-14 and the 45-49 years age group.
- Reports of ***Haemophilus influenzae* type b infection** continue to decrease (Figure 11). There were 2 notifications received in this period; both cases were male. One case was aged less than one year and the other was aged 4 years. Recorded onset dates were in August.
- Seventy-two notifications of **hepatitis A** were received; 40 cases were male, 29 cases were female, and the sex of 3 cases was not recorded. Cases ranged in age from the 0-4 to the 75-79 years age group with 76% of cases aged less than 35 years.
- Eleven incident cases of **hepatitis B** were reported; five cases were male and six were female. Recorded ages were between the 15-19 and the 65-69 years age group.
- There were 3 notifications of **hydatid infection** received; 2 cases were male and one case was female. Cases were aged between the 35-39 and the 50-54 years age group.
- Five notifications of **legionellosis** were received; 4 cases were male and one case was female. Re-

**Figure 9. LabDOSS reports of blood isolates, by age group**

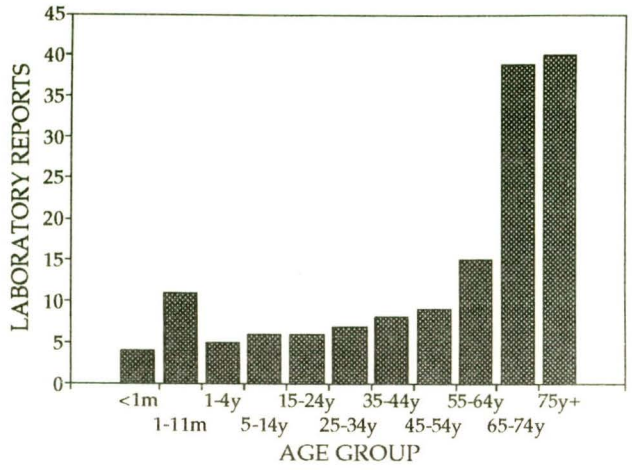



**Figure 10. Ross River virus infection notifications, 1991 to 1994, by month of onset**

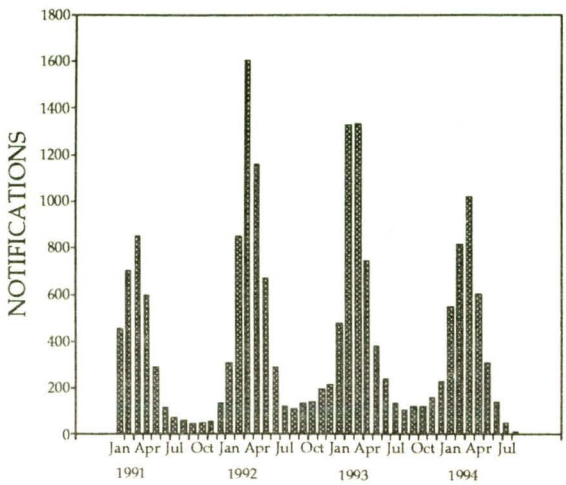
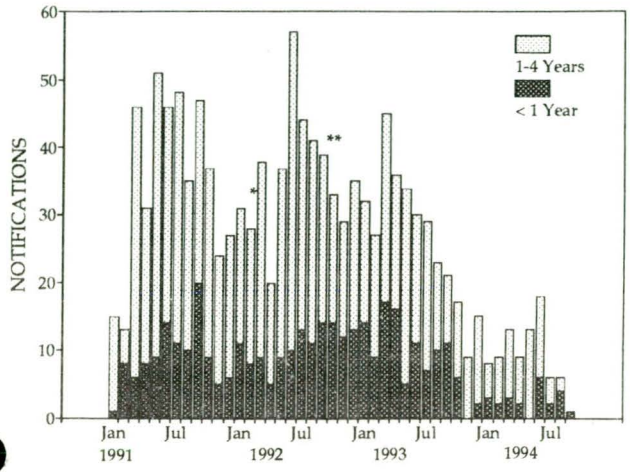


**Figure 11. *Haemophilus influenzae* type b infection notifications, 1991 to 1994, by age group**



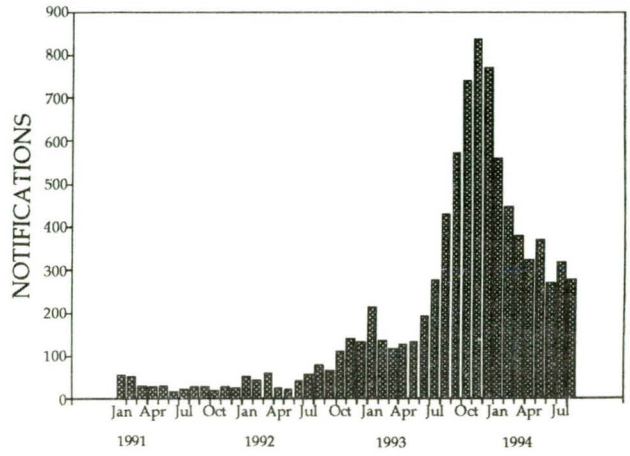

* PRP-D approved in February 1992.
** Infant vaccine approved in September 1992.

corded ages were between the 45-49 and the 70-74 years age group. Cases were resident in the Statistical Divisions of Melbourne (3), Adelaide (one), and Perth (one). Onset dates were in August.

- A single case of **leprosy** was recorded for a female in the 35-39 years age group.
- A single case of **leptospirosis** was notified for a female in the 35-39 years age group resident in rural Victoria.
- Seventeen cases of **malaria** were reported; 13 cases were male and 4 were female. Recorded ages were between the 5-9 and the 50-54 years age group. One case was resident in the 'malaria receptive zone'. Onset dates were July (2) and August (15).
- There were 175 cases of **measles** reported; 81 cases were male and 94 were female. Cases were aged between the 0-4 and the 65-69 years age group with a mean age of 12.6 years. Fifty cases were aged less than 5 years. There were 23 apparent clusters of between 2 and 22 cases each in the same postcode area. Apparent clusters were in New South Wales (4), Victoria (one), Queensland (15), South Australia (2), and the Northern Territory (one).

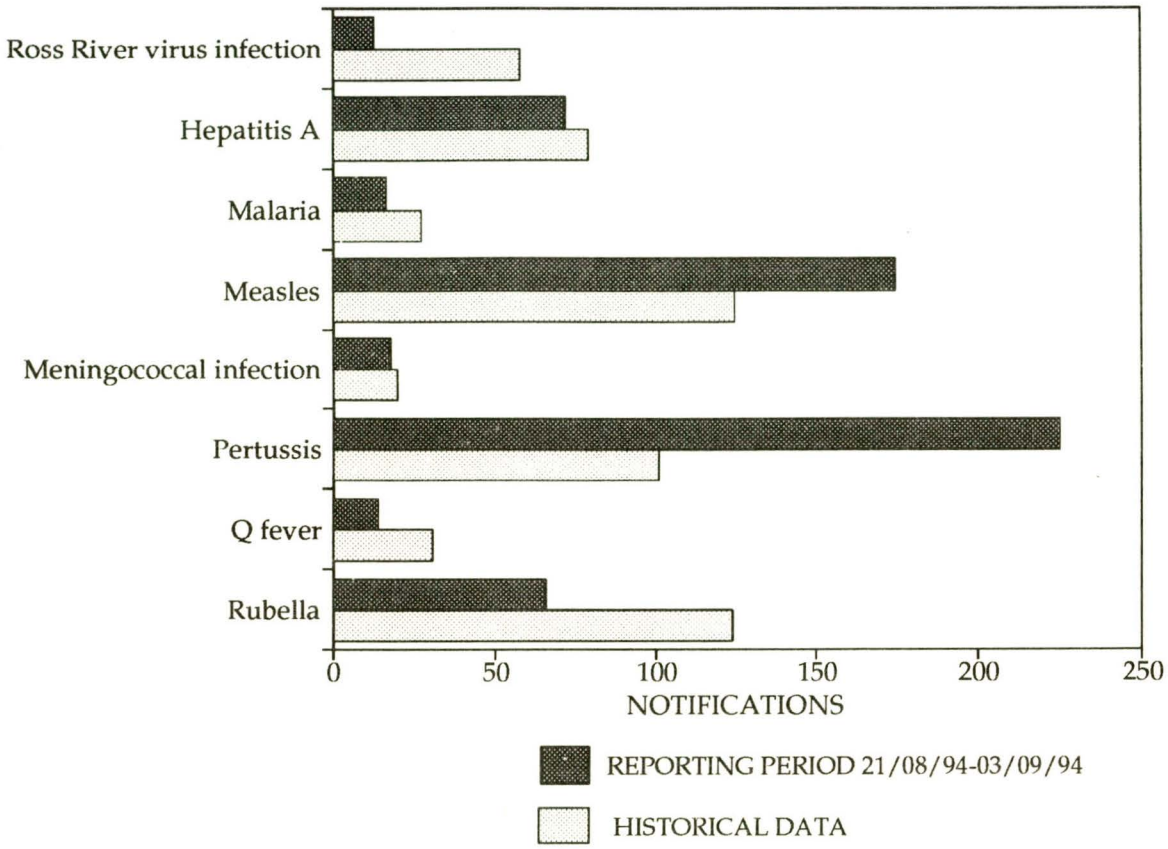
  There has been a measles outbreak of approximately 200 cases in the Alice Springs area of the Northern Territory for the last 9 weeks. The outbreak has been in the urban community predominantly but there has been some spread to outlying Aboriginal communities. Notifications of these cases have not yet been incorporated into the national dataset.
- Eighteen cases of **meningococcal infection** were reported; 12 cases were male and 6 were female. Recorded ages were between the 0-4 and the 50-54 years age group. Onset dates were in July (one), August (16), and September (one). There were no apparent clusters.

**Figure 12. Pertussis notifications, 1991 to 1994, by month of onset**




- The **pertussis** epidemic continues with the number of notifications not falling below about 300 each month (Figure 12). There were 225 notifications for the period. Ninety-six cases were male and 129 were female. Recorded ages were between the 0-4 and the 80-84 years age group with 22 cases aged less than 5 years. There were 33 apparent clusters of between 2 and 13 cases each in the same postcode area. Apparent clusters were in New South Wales (5), Victoria (2), Queensland (10), South Australia (13), and Western Australia (3).
- Fourteen cases of **Q fever** were notified; 11 cases were male and 3 were female. Recorded ages were between the 10-14 and the 45-49 years age group.
- Sixty-six notifications of **rubella** were received; 49 cases were male and 17 cases were female. Recorded ages were between the 0-4 and the 50-54 years age group with 4 cases in females in the 15-44 years age group.
- There were 73 cases of **syphilis** reported; 30 cases were male, 41 cases were female and the sex of 2 cases were unrecorded. Recorded ages were between the 10-14 and the 80-84 years age group.
- A single notification of **tetanus** was received for a female in the 90-94 years age group resident in rural Western Australia.
- Twenty-four cases of **tuberculosis** were reported; 17 cases were male, 6 cases were female, and the sex of one case was unrecorded. Cases were aged between the 10-14 and the 80-84 years age group. Onset dates were in January (one), March (one), April (one), June (one), July (2), August (16), and September (2).
- A single notification of **typhoid** was received for a male in the 35-39 years age group. The onset date was August.

**Figure 13. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]**




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

**Table 4. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 21 August to 3 September 1994**

| DISEASES | ACT | NSW | NT | Qld | SA | Tas | Vic | WA | TOTALS FOR AUSTRALIA[1] This period 1994 | This period 1993 | Year to date 1994 | Year to date 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diphtheria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 |
| *Haemophilus influenzae* b infection | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 12 | 142 | 305 |
| Measles | 13 | 12 | 6 | 129 | 6 | 0 | 6 | 3 | 175 | 199 | 2603 | 1641 |
| Mumps | 0 | 0 | NN | NN | 0 | NN | 0 | 1 | 1 | 0 | 13 | 6 |
| Pertussis | 3 | 41 | 0 | 57 | 64 | 0 | 30 | 30 | 225 | 171 | 3529 | 1409 |
| Poliomyelitis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rubella[2] | 0 | 0 | 1 | 47 | 1 | 0 | 3 | 14 | 66 | 120 | 1069 | 2052 |
| Tetanus | 0 | 0 | 0 | NN | 0 | 0 | 0 | 1 | 1 | 1 | 12 | 9 |

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: CRS only.

NN Not Notifiable.

## Table 5. Notifications of other diseases[1] received by State and Territory health authorities in the period 21 August to 3 September 1994

| DISEASES | ACT | NSW | NT | Qld | SA | Tas | Vic | WA | TOTALS FOR AUSTRALIA[2] This period 1994 | This period 1993 | Year to date 1994 | Year to date 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arbovirus infection | | | | | | | | | | | | |
| Ross River virus infection | 0 | 3 | 0 | 10 | 0 | NN | 0 | 0 | 13 | 47 | 3705 | 4911 |
| Dengue | 0 | - | 0 | 0 | - | NN | 0 | 0 | 0 | 42 | 14 | 615 |
| NEC[3] | 0 | 2 | 0 | 10 | 0 | 0 | 1 | 0 | 13 | 14 | 479 | 437 |
| Campylobacteriosis[4] | 7 | - | 4 | 57 | 80 | 9 | 136 | 36 | 329 | 261 | 6504 | 5230 |
| Chlamydial infection (NEC)[5] | 4 | NN | 6 | 86 | 0 | 4 | 82 | 13 | 195 | 238 | 4381 | 4547 |
| Donovanosis | 0 | NN | 0 | 2 | NN | NN | 0 | 0 | 2 | 1 | 67 | 39 |
| Gonococcal infection[6] | 0 | 4 | 1 | 19 | 0 | 1 | 6 | 9 | 40 | 104 | 1952 | 1983 |
| Hepatitis A | 1 | 17 | 0 | 31 | 3 | 2 | 13 | 5 | 72 | 78 | 1362 | 1381 |
| Hepatitis B incident[7] | 0 | 1 | 1 | 3 | 1 | 1 | 4 | 0 | 11 | 95 | 270 | 1576 |
| Hepatitis B unspecified[7] | | | | | | | | | 0 | | 108 | |
| Hepatitis C incident[7] | - | 0 | 0 | - | 0 | - | - | - | 0 | 407 | 19 | 4775 |
| Hepatitis C unspecified[7] | 16 | | | 90 | | 11 | 157 | 55 | 329 | | 6247 | |
| Hepatitis (NEC) | 0 | 1 | 0 | 0 | 0 | 0 | 7 | NN | 8 | 7 | 38 | 55 |
| Legionellosis | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 5 | 5 | 149 | 126 |
| Leptospirosis | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 99 | 116 |
| Listeriosis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 21 | 33 |
| Malaria | 3 | 6 | 0 | 2 | 1 | 1 | 3 | 1 | 17 | 33 | 501 | 450 |
| Meningococcal infection | 0 | 7 | 0 | 2 | 1 | 1 | 4 | 3 | 18 | 21 | 248 | 208 |
| Ornithosis | 0 | NN | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 66 | 58 |
| Q fever | 0 | 8 | 0 | 3 | 0 | 0 | 2 | 1 | 14 | 51 | 470 | 610 |
| Salmonellosis (NEC) | 0 | 14 | 4 | 25 | 24 | 0 | 27 | 15 | 109 | 115 | 4070 | 3366 |
| Shigellosis[4] | 0 | - | 0 | 6 | 0 | 0 | 0 | 1 | 7 | 20 | 517 | 527 |
| Syphilis | 1 | 31 | 2 | 33 | 0 | 0 | 4 | 2 | 73 | 80 | 1473 | 1563 |
| Tuberculosis | 0 | 5 | 0 | 2 | 3 | 0 | 13 | 1 | 24 | 33 | 729 | 698 |
| Typhoid[8] | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 28 | 49 |
| Yersiniosis (NEC)[4] | 0 | - | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 26 | 299 | 322 |

1. For HIV and AIDS, see Tables 2 and 3 *CDI* 1994;18:409-410. 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. SA, 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. Comparative totals for 1993 comprise incident and unspecified cases.
8. NSW and Vic includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

## Table 6. Notifications of rare[1] diseases received by State and Territory health authorities in the period 21 August to 3 September 1994

| DISEASES | Total this period | Reporting States or Territories | Year to date 1994 |
|---|---|---|---|
| Botulism | | | 0 |
| Brucellosis | 2 | NSW 1, Qld 1 | 14 |
| Chancroid | | | 0 |
| Cholera | | | 3 |
| Hydatid infection | 3 | NSW 2, WA 1 | 33 |
| Leprosy | 1 | WA | 8 |
| Lymphogranuloma venereum | | | 0 |
| Plague | | | 0 |
| Rabies | | | 0 |
| Yellow fever | | | 0 |
| Other viral haemorrhagic fevers | | | 0 |

1. Fewer than 50 cases of each of these diseases were notified each year during the period 1988 to 1993.

**Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 25 August to 7 September 1994, 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 | Qld | SA | Tas | Vic | WA | | | |
| MEASLES, MUMPS, RUBELLA | | | | | | | | | | |
| Measles virus | 1 | | 16 | 3 | | 3 | | 23 | 10.8 | 716 |
| Mumps virus | | | | | | 1 | | 1 | 3.2 | 64 |
| Rubella virus | 1 | 1 | 22 | 1 | | | | 25 | 26.2 | 387 |
| HEPATITIS VIRUSES | | | | | | | | | | |
| Hepatitis A virus | | 3 | 7 | 4 | | | | 14 | 16.3 | 261 |
| Hepatitis B virus | 2 | 29 | 36 | | 2 | 18 | 1 | 88 | 100.8 | 1,731 |
| Hepatitis C virus | 6 | 43 | 34 | 40 | 8 | 6 | | 137 | 169.0 | 4,141 |
| ARBOVIRUSES | | | | | | | | | | |
| Ross River virus | | | 4 | | | | | 4 | 21.7 | 1,430 |
| Barmah Forest virus | | | 4 | | | | | 4 | 5.7 | 188 |
| ADENOVIRUSES | | | | | | | | | | |
| Adenovirus type 1 | | | | 2 | | | | 2 | 4.0 | 47 |
| Adenovirus type 2 | | | | 1 | | | | 1 | 5.5 | 42 |
| Adenovirus type 5 | | | | | | 1 | | 1 | 1.0 | 11 |
| Adenovirus type 8 | | | | | | 1 | | 1 | 2.2 | 66 |
| Adenovirus not typed/pending | 1 | 14 | 18 | 7 | | 13 | 5 | 58 | 51.7 | 901 |
| HERPES VIRUSES | | | | | | | | | | |
| Herpes simplex virus type 1 | | 20 | 56 | 24 | 1 | 41 | | 142 | 144.0 | 3,373 |
| Herpes simplex virus type 2 | | 33 | 60 | 24 | | 26 | 1 | 144 | 185.7 | 3,688 |
| Herpes simplex not typed/pending | 3 | 17 | 3 | | | 2 | 4 | 29 | 33.8 | 489 |
| Cytomegalovirus | | 9 | 39 | | 1 | 17 | 7 | 73 | 78.3 | 1,229 |
| Varicella-zoster virus | | 3 | 8 | 2 | | 6 | | 19 | 30.5 | 716 |
| Epstein-Barr virus | 1 | 4 | 11 | 25 | | 5 | | 46 | 66.7 | 982 |
| OTHER DNA VIRUSES | | | | | | | | | | |
| Parvovirus | | | 3 | | | 2 | | 5 | 5.8 | 54 |
| PICORNA VIRUS FAMILY | | | | | | | | | | |
| Echovirus type 6 | | | | | | 1 | | 1 | 1.5 | 49 |
| Echovirus type 18 | | 1 | | | | | | 1 | .0 | 1 |
| Poliovirus type 2 (uncharacterised) | | 1 | | | | | | 1 | 1.5 | 24 |
| Poliovirus type 3 (uncharacterised) | | | | | | 1 | | 1 | 2.3 | 10 |
| Rhinovirus (all types) | | 5 | 22 | | | 22 | | 49 | 26.2 | 720 |
| Enterovirus not typed/pending | | 2 | 17 | | | 4 | | 23 | 29.0 | 969 |
| ORTHO/PARAMYXOVIRUSES | | | | | | | | | | |
| Influenza A virus | | 11 | 20 | 16 | 3 | 46 | 14 | 110 | 64.5 | 751 |
| Influenza A virus $H_3N_2$ | 1 | 1 | 4 | | | 16 | | 22 | 5.8 | 65 |
| Influenza B virus | | 1 | | | | 2 | | 3 | 40.8 | 110 |
| Influenza virus not typed | | | | | | | 2 | 2 | .2 | 4 |
| Parainfluenza virus type 1 | | | 1 | 3 | | | 3 | 7 | 3.7 | 527 |
| Parainfluenza virus type 3 | | | 4 | 3 | | 2 | 10 | 19 | 26.2 | 228 |
| Parainfluenza virus not typed | | 1 | | | | 1 | 1 | 3 | 2.0 | 59 |
| Respiratory syncytial virus | 8 | 26 | 58 | 45 | 22 | 74 | 58 | 291 | 240.0 | 2,863 |
| OTHER RNA VIRUSES | | | | | | | | | | |
| HIV-1 | | | 4 | | | | | 4 | .7 | 65 |
| Rotavirus | 57 | 104 | 13 | 35 | 2 | 43 | 17 | 271 | 193.7 | 1,344 |

**Table 7. Virology and serology laboratory reports by State or Territory[1] for the reporting period 25 August to 7 September 1994, 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 | Qld | SA | Tas | Vic | WA | | | |
| OTHER | | | | | | | | | | |
| *Chlamydia trachomatis* not typed | | 24 | 12 | 9 | 2 | 8 | 1 | 56 | 103.3 | 1,790 |
| *Chlamydia psittaci* | | | | | | 1 | | 1 | 2.5 | 57 |
| *Chlamydia* species | | 1 | | 2 | | | | 3 | .5 | 8 |
| *Mycoplasma pneumoniae* | | | 24 | 1 | | 12 | | 37 | 96.7 | 708 |
| *Coxiella burnetii* (Q fever) | | 2 | 2 | | | | | 4 | 20.2 | 216 |
| *Rickettsia* spp - other | | | | 1 | | | | 1 | .0 | 9 |
| *Streptococcus* group A | | 1 | 9 | | | | | 10 | 10.2 | 200 |
| *Yersinia enterocolitica* | | | 1 | | | | | 1 | .5 | 16 |
| *Brucella* species | | | 1 | | | | | 1 | .2 | 3 |
| *Bordetella pertussis* | | 3 | | | | 22 | 13 | 38 | 12.2 | 427 |
| *Bordetella parapertussis* | | | | | | | 1 | 1 | .0 | 1 |
| *Bordetella* species | | | 2 | | | | | 2 | 9.7 | 184 |
| *Legionella longbeachae* | | | | | 1 | | | 1 | .2 | 2 |
| *Legionella* species | | 1 | | | | | | 1 | .2 | 3 |
| *Treponema pallidum* | 1 | 11 | | | | | | 12 | 23.5 | 290 |
| *Toxoplasma gondii* | | | 2 | | | 1 | | 3 | 2.0 | 58 |
| TOTAL | 82 | 372 | 517 | 248 | 42 | 398 | 138 | 1,797 | 1,882.5 | 32,277 |

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

**Table 8. Virology and serology laboratory reports by clinical information for the reporting period 25 August to 7 September 1994**

| | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEASLES, MUMPS, RUBELLA | | | | | | | | | | | | |
| Measles virus | | | | 1 | | | 8 | | | | 14 | 23 |
| Mumps virus | | | | | | | | | | | 1 | 1 |
| Rubella virus | | | 1 | | | | 12 | | 1 | | 11 | 25 |
| HEPATITIS VIRUSES | | | | | | | | | | | | |
| Hepatitis A virus | | | | | | 9 | | | | | 5 | 14 |
| Hepatitis B virus | | | | | | 15 | 1 | | | | 72 | 88 |
| Hepatitis C virus | | | | | | 11 | | | | | 126 | 137 |
| ARBOVIRUSES | | | | | | | | | | | | |
| Ross River virus | | | | | | | | | | | 4 | 4 |
| Barmah Forest virus | | | | | | | | | | | 4 | 4 |

**Table 8. Virology and serology laboratory reports by clinical information for the reporting period 25 August to 7 September 1994, continued**

| | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADENOVIRUSES | | | | | | | | | | | | |
| Adenovirus type 1 | | | | 2 | | | | | | | | 2 |
| Adenovirus type 2 | | | | 1 | | | | | | | | 1 |
| Adenovirus type 5 | | | | 1 | | | | | | | | 1 |
| Adenovirus type 8 | | | | | | | | 1 | | | | 1 |
| Adenovirus not typed/pending | | | | 28 | 20 | | | 2 | | | 8 | 58 |
| HERPES VIRUSES | | | | | | | | | | | | |
| Herpes simplex virus type 1 | | | | 11 | | | 64 | 5 | | 35 | 27 | 142 |
| Herpes simplex virus type 2 | | | 1 | 1 | | 1 | 29 | | | 87 | 25 | 144 |
| Herpes simplex not typed/pending | | | | 1 | | | 11 | | | 4 | 13 | 29 |
| Cytomegalovirus | 1 | | 1 | 40 | 1 | | 3 | | | | 27 | 73 |
| Varicella-zoster virus | | | | | | | 13 | | | | 6 | 19 |
| Epstein-Barr virus | | | | 2 | | | | | | | 44 | 46 |
| OTHER DNA VIRUSES | | | | | | | | | | | | |
| Parvovirus | | | | | | | 1 | | 2 | | 2 | 5 |
| PICORNA VIRUS FAMILY | | | | | | | | | | | | |
| Echovirus type 6 | | | | | | | | | | | 1 | 1 |
| Echovirus type 18 | | | | | | | | | | | 1 | 1 |
| Poliovirus type 2 (uncharacterised) | | | | | | | | | | | 1 | 1 |
| Poliovirus type 3 (uncharacterised) | | | | | | | | | | | 1 | 1 |
| Rhinovirus (all types) | | | | 44 | | | | | | | 5 | 49 |
| Enterovirus not typed/pending | | 4 | | 10 | 1 | | | 1 | | | 7 | 23 |
| ORTHO/PARAMYXOVIRUSES | | | | | | | | | | | | |
| Influenza A virus | 1 | | | 83 | | | | | | | 26 | 110 |
| Influenza A virus $H_3N_2$ | | | | 21 | | | | | | | 1 | 22 |
| Influenza B virus | | | | 2 | | | | | | | 1 | 3 |
| Influenza virus not typed | | | | 2 | | | | | | | | 2 |
| Parainfluenza virus type 1 | | | | 7 | | | | | | | | 7 |
| Parainfluenza virus type 3 | | | | 19 | | | | | | | | 19 |
| Parainfluenza virus not typed | | | | 2 | | | | | | | 1 | 3 |
| Respiratory syncytial virus | | | | 276 | | | | | | | 15 | 291 |
| OTHER RNA VIRUSES | | | | | | | | | | | | |
| HIV-1 | | | | | | | | | | | 4 | 4 |
| Rotavirus | | | | 1 | 267 | | | | | | 3 | 271 |

**Table 8. Virology and serology laboratory reports by clinical information for the reporting period 25 August to 7 September 1994, continued**

| | Meningitis | Other CNS | Congenital | Respiratory | Gastrointestinal | Hepatic | Skin | Eye | Muscle/joint | Genital | Other/unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OTHER | | | | | | | | | | | | |
| *Chlamydia trachomatis* not typed | | | | 2 | | | | 1 | | 32 | 21 | 56 |
| *Chlamydia psittaci* | | | | 1 | | | | | | | | 1 |
| *Chlamydia* species | | | | 2 | | | | | | | 1 | 3 |
| *Mycoplasma pneumoniae* | | | | 22 | | | 1 | | | | 14 | 37 |
| *Coxiella burnetii* (Q fever) | | | | | | | | | | | 4 | 4 |
| *Rickettsia* spp - other | | | | | | | | | | | 1 | 1 |
| *Streptococcus* group A | | | | 3 | | | | | 2 | | 5 | 10 |
| *Yersinia enterocolitica* | | | | | 1 | | | | | | | 1 |
| *Brucella* species | | | | | | | | | | | 1 | 1 |
| *Bordetella pertussis* | | | | 35 | | | | | | | 3 | 38 |
| *Bordetella parapertussis* | | | | 1 | | | | | | | | 1 |
| *Bordetella* species | | | | 1 | | | | | | | 1 | 2 |
| *Legionella longbeachae* | | | | 1 | | | | | | | | 1 |
| *Legionella* species | | | | | | | | | | | 1 | 1 |
| *Treponema pallidum* | | | | | | | | | | 1 | 11 | 12 |
| *Toxoplasma gondii* | | | | | | | | | | | 3 | 3 |
| TOTAL | 2 | 4 | 3 | 623 | 290 | 36 | 143 | 10 | 5 | 159 | 522 | 1797 |

**Table 9. Virology and serology laboratory reports by contributing laboratories for the reporting period 25 August to 7 September 1994**

| STATE OR TERRITORY | LABORATORY | REPORTS |
|---|---|---|
| Australian Capital Territory | Woden Valley Hospital, Canberra | 86 |
| New South Wales | Institute of Clinical Pathology & Medical Research, Westmead | 140 |
| | Prince Henry/Prince of Wales Hospitals, Sydney | 75 |
| | Royal Alexandra Hospital for Children, Camperdown | 41 |
| | South West Area Pathology Service, Liverpool | 98 |
| Queensland | Nambour Hospital | 23 |
| | Queensland Medical Laboratory, West End | 316 |
| | State Health Laboratory, Brisbane | 195 |
| South Australia | Institute of Medical and Veterinary Science, Adelaide | 247 |
| Tasmania | Northern Tasmanian Pathology Service, Launceston | 21 |
| | Royal Hobart Hospital, Hobart | 19 |
| Victoria | Commonwealth Serum Laboratories, Melbourne | 16 |
| | Microbiological Diagnostic Unit, University of Melbourne | 6 |
| | Monash Medical Centre, Melbourne | 19 |
| | Royal Children's Hospital, Melbourne | 180 |
| | Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital | 178 |
| Western Australia | Princess Margaret Hospital, Perth | 137 |
| TOTAL | | 1797 |