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

THE ROLE OF ENTEROHAEMORRHAGIC *ESCHERICHIA COLI* SEROTYPES OTHER THAN O157:H7 AS CAUSES OF DISEASE IN AUSTRALIA

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Introduction

The causal relationship of shiga toxin of *Shigella dysenteriae* and shiga-like toxins (SLT-I and SLT-II) of enterohaemorrhagic *Escherichia coli* (EHEC) to haemorrhagic colitis (HC), haemolytic uraemic syndrome (HUS), and thrombotic thrombocytopenic purpura (TTP) is now well established[1-4] and the mechanisms of pathogenesis are also now understood[5]. Overseas cases of HUS and HC, especially from Northern America, have been predominantly associated with EHEC serotype O157:H7[2-4]. Because of the apparent increasing importance of EHEC in human disease, an *E. coli* reference laboratory was set up at the Victorian Infectious Diseases Reference Laboratory (VIDRL), Fairfield Hospital, to study strains submitted from various sources in Australia. In addition, candidate EHEC strains were sent to the Adelaide Children's Hospital for genetic detection of SLTs. This paper reports our findings.

Methods

Faeces and strains of *E. coli* isolated from cases of disease occurring in various States and the Northern Territory were submitted to VIDRL for serotyping and verocytotoxin assays and to the Women's and Children's Hospital, Adelaide for SLT gene detection. Methods of isolation of EHEC, serotyping and toxin testing have been published elsewhere[6,7,8].

Results

The results represent our findings on strains submitted to Fairfield since 1987. Table 1 shows *E. coli* O157 identifications together with verocytotoxicity and SLT-I and SLT-II production. Only one human isolate in this series was O157:H7.

Table 2 shows serogroups other than O157 associated with human cases. The majority of SLT and *E. coli* strains isolated from Australian HC and HUS cases belonged to serotypes other than O157:H7. Other less

Table 1. *E. coli* O157 identifications[1]

Year	State	Diagnosis	Serotype	Sorbitol	Verocytotoxicity	SLT-I	SLT-II
1988	Vic	BD[2]	O157:H-	+	+		
1988	Vic	HUS	O157:H-	+	+		
1988	Vic (bovine)	Healthy	O157:H40	+	-		
1988	Vic (bovine)	Healthy	O157:H-	+	-		
1988	Vic (bovine)	Healthy	O157:H-	+	-		
1988	Vic (bovine)	Healthy	O157:H-	-	-		
1988	Vic (bovine)	Healthy	O157:H-	-	-		
1988	Vic/Thailand	D[3]	O157:H19	+	-		
1988	Vic/Thailand	D	O157:H45	+	-		
1988	Vic/Thailand	D	O157:H45	+	-		
1988	Vic/Thailand	D	O157:H45	+	-		
1989	NT	D	O157:H-	-	+		
1989	Vic	BD	O157:H-	-	+		
1989	Vic	BD	O157:H-	-	+		
1990	Vic	HUS	O157:H-	-	+	+	-
1991	Vic	HUS	O157:H-	-	+	+	-
1991	Vic	BD	O157:H-	-	+	+	-
1991	Vic	HUS	O157:H-	-	+	+	-
1992	Vic	HUS	O157:H-	-	+	-	+
1992	Vic	HUS	O157:H7	-	+	+	+
1993	Vic (pig)	Scours	O157:HR	-	-	-	-

1. Human isolates except where otherwise stated.
2. BD Bloody diarrhoea.
3. Diarrhoea.

Table 2. Enterohaemorrhagic *Escherichia coli* (EHEC) isolated from human cases

Year	State	Diagnosis	Serotype	Sorbitol	Verocytotoxicity	SLT-I	SLT-II
1987[1]	WA	HUS	O111:H2	+	+		
1987[1]	WA	HUS	O111:H2	+	+		
1989[2]	NSW	HUS	O111:H-	+	+		
1990[3]	Vic	HUS	O165:H-	+	+	-	+
1990	Vic	SIDS[4]	O46:H31	+	+	+	+
1991	Vic	HUS	O111:H-	+	+	+	+
1991	Vic	HUS	O98:H-	+	+	+	+
1991	SA	HUS	O111:H-	+	+	+	-
1992	Vic	HUS	O111:H8	+	+	+	+
1992	Vic	HUS	O112ab:H2	+	+	+	+
1992	Vic	HUS	O26:H11	+	+	+	-
1993	Vic	HUS	O91:H10	+	+	-	+
1993	Vic	HUS	O146:H8	+	+	+	+
1994	SA	HUS	O48:H21	+	+	+	+
1994	SA	HUS	O111:H-	+	+	+	+

1. Gunzberg et al[9].
2. Pryor et al[10].
3. This patient also yielded O157:H- (SLT-I +ve).
4. SIDS Sudden Infant Death Syndrome.

well recognised serotypes (for example O111:H-) were responsible for a greater proportion of the HC and HUS cases in this series.

Discussion

The majority of the isolates submitted to the VIDRL Fairfield Hospital *E. coli* reference laboratory were obtained from patients with haemorrhagic colitis or haemolytic uraemic syndrome. The obviously low proportion of O157:H7 amongst these cases is noteworthy and indicates that, up to the present time, this serotype has played an insignificant role in EHEC-associated disease in Australia. Nevertheless, its role in the future may become more important. The relatively common finding of O111:H- as a cause of HC and HUS in this series is also noteworthy and suggests this serotype could be important in the future. Furthermore, it is important to note that the cases of HUS admitted to hospital have been very severely affected, requiring admission to intensive care, multiple haemodialysis and long periods of hospitalisation; all incurring substantial costs. Thus the EHEC strains extant in Australia are responsible for disease no less severe than that observed overseas in cases caused by O157:H7. Further, it is clear that SLT genes are widely distributed among various serotypes of *E. coli* in this country and it is possible that transmission of phage encoded SLT genes to native strains of *E. coli* could occur.

Given these Australian data, a case could be put that the diagnostic, epidemiological and public health approaches to HC and HUS in other countries that currently focus on *E. coli* O157:H7 could be broadened to include other methodologies that would encompass all EHEC.

The current diagnostic focus on O157:H7 might be inappropriate in this context as screening methods (such as sorbitol MacConkey agar, designed to pick up O157:H7 strains) may indeed miss a good proportion of SLT positive strains which are usually sorbitol +/SLT+. A case, therefore, could be made for screening by PCR of primary faecal cultures and of other material (for example food [meat], water) for SLT genes or directly for SLTs. Indeed, a survey of Australian uncooked meat performed in Canada, using an SLT enzyme immunoassay, showed the presence of EHECs of various serotypes[11]; this could represent a health problem if such products are inadequately cooked. SLT-gene and direct toxin assay screening techniques have been shown to be extremely sensitive and useful as a broad brush to find potential disease-producing EHEC and would reduce the chances of missing EHECs present in low numbers[10]. Serotyping of SLT positive isolates could be a useful adjunct to this approach, both for epidemiological investigations as well as to correlate our findings with those overseas. An increasing number of different EHEC serotypes is being described globally.

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DIRECT AND INDIRECT COSTS OF AN OUTBREAK OF ROTAVIRUS IN A CHILD-CARE CENTRE

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Studies conducted in Scandinavia[1] and the United States[2-4] have demonstrated the importance of rotavirus as a cause of cases and outbreaks of gastroenteritis in child-care centres. Moreover, rotavirus is a major cause of acute illness resulting in hospitalisation of young children in industrialised societies[5,6]. We estimated that the infection was responsible for approximately 4,000 hospital admissions of under-five year old children in New South Wales in 1991[6]. A recent report looked at the impact of a rotavirus outbreak in a child-care centre in terms of absenteeism of children from the centre[7]. The present paper extends that work by examining the costs of a rotavirus outbreak in child care in terms of health cost and indirect costs. Indirect costs were ascribed to parental time lost from work to care for those children excluded from care and also to gastroenteritis in secondary household cases.

Outbreak notification

The nursery supervisor of a local child-care centre contacted the Public Health Unit of the Eastern Sydney Area Health Service on 26 July 1994 to seek advice regarding management of an apparent outbreak of gastroenteritis affecting the nursery over the previous one to two weeks. The nursery cared for children up to the age of two years, who were generally not yet toilet trained. Two children had been admitted to The Prince of Wales Children's Hospital with gastroenteritis, and rotavirus antigen detected in the faeces. An immediate visit was made to the child-care centre in order to assess the situation and to provide advice about management of the outbreak.

Investigation and management

Information was sought about illness among staff and children in the nursery, about food handling practices and whether other classes may also have been affected. The detailed daily attendance registers of the nursery and toddlers' class provided precise figures on daily absenteeism in each class. Parents of children with gastroenteritis were also asked to complete a brief self-administered questionnaire seeking information about the child's illness, parents' lost time from work and the occurrence of other household cases.

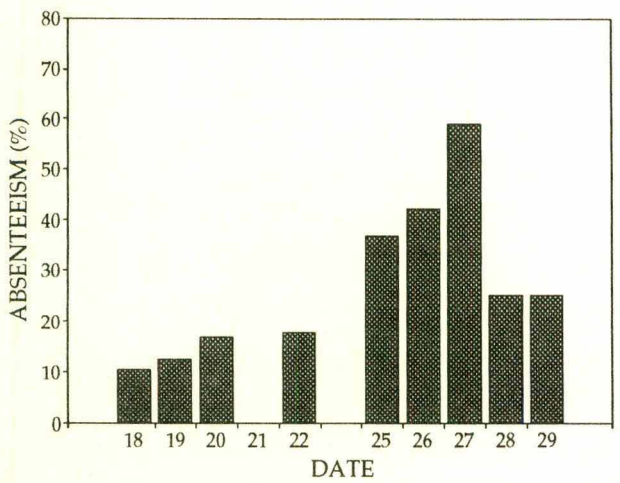
Control measures included emphasising the importance of handwashing, provision of handwashing posters, improved cleaning of potentially contaminated surfaces, informing parents of the outbreak and the need for infection control measures, enforcement of exclusion of children and staff with diarrhoea, and minimising mixing of staff or children from different classes. A stool sample was collected from a child who had been allowed to return to the nursery but still appeared to be suffering from diarrhoea. This sample was tested in the Enteric Laboratory, The Prince of Wales Hospital, and proved positive for rotavirus antigen.

Results of investigation

Staff revealed that the nursery had places for 20 children per day; approximately 35 were enrolled during the week and they were cared for by seven members of staff. Meals were bought in from outside the centre, so that staff were involved only in distribution of the food rather than in food preparation. One member of the nursery staff had missed work on Friday 22 July be-

cause of an illness labelled by her doctor as 'viral gastroenteritis' and had returned to work well on the following Monday. Examination of the nursery attendance register showed that absenteeism rose from 18 July, peaked on 27 July and fell by 29 July (Figure), when cases of chickenpox began to cause increased absenteeism in the centre. The toddlers' class had a similar pattern of absenteeism (data not shown) whereas the preschool class, attended by three to five year olds, reported no cases of gastroenteritis. The register suggested that up to 16 children were absent from the nursery as a result of gastroenteritis between 18 July and 29 July, the period used to define the outbreak.

Figure. Absenteeism in the nursery class, 18 to 29 July 1994, by date



Questionnaires were returned by parents of 13 nursery children with gastroenteritis, of whom onset dates for eleven fell with in the specified fortnight. Of the eleven children, there were six girls and five boys; their mean age was 1.2 years (range 0.7 to 1.5 years). The most common symptoms reported were diarrhoea (10 children) and vomiting (eight), whilst parents reported dehydration in four. The mean number of days missed from care was 3.1 (range 1.0 to 10.0 days). The mean number of visits to the doctor was 2.5 (range 1 to 5) estimated to cost $52 per affected child (based on the Medicare schedule fee for a standard consultation of $21). Four children required oral medication including a proprietary oral rehydration solution, metoclopramide and paracetamol. Two children required admission to hospital, for two and four days, and both received intravenous fluids for rehydration. Hospitalisations for gastroenteritis in children under 10 years of age (defined as Diagnosis Related Group 331) have recently been given Australian costings of $500-600 per bed day.

In order to care for the children whilst sick, mothers missed a mean of 2.0 days from work (range 0 to 10.0 days) and fathers missed a mean of 1.6 days (range 0 to 10 days). Five households reported cases of gastroenteritis in seven family members (one mother, four fathers and two sisters) in addition to the children attending the centre. Their illness onset dates ranged from 11 days before to 10 days after the onset in the child at the centre. Four of these household cases, those following the cases in the children at the centre, reported illness lasting two to six days and consequently absence from work of nil, two and six days (three affected fathers) or from school of a day (an affected sister).

Discussion

Previous studies examining the causes of gastroenteritis in child care during a full year have ascribed 20-40% of outbreaks to rotavirus[2,4]. No costing have yet been carried out of rotavirus infection in child care. A study from Texas Children's Hospital found that rotavirus related admissions lasted a mean of 5.3 days and were responsible for 3% of annual bed days[5]. The costs of these admissions were estimated to be US$1,500,000 per million head of population[5]. No reports have yet been published which describe either the medical costs of rotavirus infection in children NOT admitted to hospital or the clearly substantial indirect costs of rotavirus infection among children attending formal child care. The present study suggests that large indirect costs accrue; based on parents' lost work time of 3.6 days per affected child, these costs averaged $430[8], to which the cost of lost time related to illness among secondary household cases must be added. More complete studies of the costs of rotavirus infection using greater numbers of children are urgently needed. This will allow cost benefit analyses to be performed prior to the introduction of rotavirus vaccines, presently undergoing clinical trials in Australia and overseas.

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CRYPTOSPORIDIOSIS IN A CHILD DAY-CARE CENTRE

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On 30 November 1994, the supervisor of a child day-care centre in north Queensland advised the Tropical Public Health Unit in Cairns of an outbreak of diarrhoea in the centre. Her primary concern was that seven of the eight children in the nursery (aged less than 15 months) were symptomatic.

Investigation

Faecal samples were collected from all eight nursery children; oocysts of *Cryptosporidium parvum* were identified, using a modified acid-fast strain, in the faeces of all seven symptomatic children. (One child was also shedding *Giardia lamblia* cysts, and *Salmonella* species was also cultured from the faeces of another.) The eighth (asymptomatic) child had been away from the centre in the previous two weeks for family reasons.

The first two affected nursery children (onset of diarrhoea 10 and 15 November) developed persistent diarrhoea (duration six and five weeks' respectively); the diarrhoea in the other five nursery children lasted for seven to 21 days.

The parents of all children enrolled at the centre were informed of the outbreak, and given information about cryptosporidiosis and the hygiene measures that needed to be reinforced[1]. Because it was apparent that cryptosporidiosis was already widespread in the centre (see below), no attempt was made to exclude any child with diarrhoea. The parents of the asymptomatic nursery child were given the option of leaving the child with the other symptomatic children, or keeping the child away until the diarrhoea in the other children had ceased.

The centre enrolled 52 children, and they were allocated to three groups: nursery children (eight children aged less than 15 months), toddlers (10 children aged between 15 months and 2½ years) and older children (34). Although the three age groups did not mix together, they changed rooms and playing areas daily. Four nursery children had five older siblings, one in the toddler group and four in the older group. All four of these nursery children were positive for *C. parvum* and all five older siblings had had a recent history of a diarrhoeal illness.

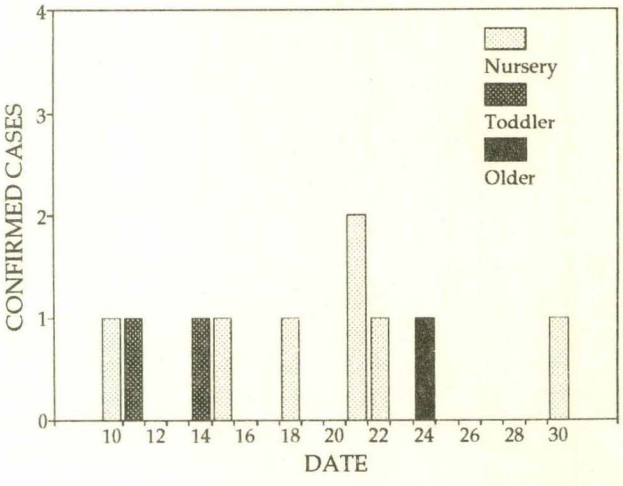
In reviewing the centre's records it was apparent that the centre had experienced a considerable burden of diarrhoeal illness over the preceding two months. Most of the cases of diarrhoea in October occurred in the first three weeks of that month, and most of the children affected then also had vomiting. They therefore could have been infected by rotavirus, which was circulating in the community at that time.

There were then two relatively 'diarrhoea-free' weeks. From about 8 November diarrhoeal illness was again seen at the centre, but it was no longer obviously associated with vomiting. A total of 15 (83%) of the 18 nursery and toddler children had diarrhoea in November documented in the centre's records; daily records were not kept for the older children. We also found that two of the symptomatic toddler group children had had cryptosporidiosis diagnosed (by private laboratories) on 14 and 22 November respectively; the centre's supervisor had not been previously informed of these two diagnoses.

One further case of cryptosporidiosis was confirmed after the nursery cases were diagnosed: a 2½ year old (in the older group) with onset of diarrhoea on 24 November was diagnosed 12 days later on 6 December.

There were therefore ten confirmed cases of cryptosporidiosis at the centre, and we assume it was the cause of the diarrhoea in the other symptomatic children in November. It was first diagnosed in a centre

Figure. Confirmed cases of cryptosporidiosis diarrhoea in the day-care centre attendee children, 10 to 30 November 1994, by date and group



attendee (toddler group) on 14 November (the day he became symptomatic).

The earliest onset of diarrhoea in a confirmed case of cryptosporidiosis in a centre attendee was 10 November (Figure), in a nursery group child who was diagnosed 20 days later. This child had been on a farm about a week beforehand, raising the possibility that he introduced the infection, which has an incubation period of about one to 12 days (average about seven days), and is communicable from the onset of symptoms. However, over the next four days two toddler group children became symptomatic with confirmed cryptosporidiosis. At about the same time (between 10 and 16 November) another four toddler group children also had diarrhoea. Although these children were not investigated, it is likely that they too had cryptosporidiosis. If so, it is possible that the infection was established in the toddler group prior to being transferred to, and subsequently established in, the nursery group.

Comment

A significant feature of the complex life cycle of *C. parvum* is the thick-walled, environmentally-resistant oocyst[2]. The oocyst is resistant to most common disinfectants[2], such as the 10% ammonia product used at the centre. It is also resistant to commercial bleach. Although waterborne transmission of *C. parvum* is a well-recognised problem[2], the children at the centre drank only boiled water, and there was no paddling pool at the centre.

Another feature of cryptosporidiosis is a low infective dose, similar to that documented for other highly transmissible enteric pathogens, such as rotavirus and *Shigella*[3]. Zoonotic transmission of *C. parvum* can occur[2], but there was no pet in the centre. The absence of other obvious modes of transmission leads us to believe that substantial child-to-child transmission occurred within the age groups.

Because the three age groups at the centre did not mix together, it seems likely that child-to-child transmission between siblings (in different groups) at home may have contributed to the dispersal of the infection between the age groups at the centre. Environmental contamination with *C. parvum* oocysts may also have contributed to the dispersal between the three age groups, which changed rooms every day.

A cause for concern during this outbreak was that a considerable number of children with diarrhoea attended the centre during the latter half of November. These children, although undiagnosed at the time, were almost certainly shedding *C. parvum* oocysts. The centre's supervisor was aware of the minimum recommended exclusion period for children with diarrhoea[1], but encountered predictable[1,3] difficulties in implementing exclusion recommendations:

i) children with an acute onset of diarrhoea were not always picked up promptly when parents/guardians were requested to do so,

ii) several parents denied their children had diarrhoea and returned their previously excluded children prematurely despite requests not to do so,

iii) the supervisor was not informed of the two initial toddler group cryptosporidiosis diagnoses, resulting in a delay of a week before the cause of the outbreak was recognised,

iv) there was no direct liaison between doctors assessing excluded children and the centre's supervisor, and

v) several children received inappropriate clearance certificates, causing conflict with the supervisor's requests.

Strategies will be developed in an attempt to minimise such difficulties in the future. For example, the centre's written exclusion policy[1] and the handwritten handwashing policy will be more actively promoted. Also, local medical practitioners will be informed about the need for the exclusion of children with diarrhoea until it has ceased, and the need for them to liaise with child care supervisors before issuing clearance certificates.

In otherwise healthy children, diarrhoeal illness due to *C. parvum* usually lasts less than two weeks[2]. However, two of the affected nursery-group children developed persistent diarrhoea (five and six weeks' duration) as a consequence of their *C. parvum* infection. *C. parvum* is recognised as being an important cause of persistent diarrhoea (more than three weeks' duration) in children in developing countries[4]. The severity of cryptosporidiosis in immunocompromised persons is well recognised[2]; no such persons were known to be associated with the centre.

Authorities in the United States consider cryptosporidiosis to be an 'emerging infectious disease threat', thereby emphasising its recent recognition as a pathogen of considerable public health importance[5]. Recent waterborne, foodborne and swimming pool-associated outbreaks of cryptosporidiosis have been described from north America[6-8]. Because surveillance is essential for the prompt recognition, investigation and control of such outbreaks, consideration should be given to making cryptosporidiosis a notifiable disease in Australia.

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SURVEILLANCE DATA IN *CDI*

Jenny Hargreaves, Margaret Curran, Leigh Trevillian and Helen Longbottom; AIDS and Communicable Diseases Branch, Department of Human Services and Health

Communicable Diseases Intelligence publishes reports from several national communicable diseases surveillance schemes on a regular basis. These surveillance schemes are conducted to monitor the occurrence of communicable diseases in Australia, to detect trends and to highlight needs for further investigation or for the implementation or modification of control measures.

Surveillance has been defined by the World Health Organization as the 'continuing scrutiny of all aspects of the occurrence and spread of disease that are pertinent to effective control'; it is characterised by 'methods distinguished by their practicability, uniformity, and frequently by their rapidity, rather than complete accuracy'[1]. Although some surveillance schemes aim for complete case ascertainment, the majority include only a sample of all cases of the conditions under surveillance, and these samples are subject to systematic and other biases. Results generated from surveillance schemes must therefore be interpreted with caution, particularly when comparing results between schemes, between different geographical areas or jurisdictions and over time. Surveillance data may therefore also differ from data on communicable diseases which may be gathered in other settings.

The major features of the surveillance schemes for which *CDI* publishes regular reports in the *Communicable Diseases Surveillance* section are described below. Other surveillance schemes for which *CDI* also publishes or reproduces reports include the National Mycobacterial Surveillance System (conducted under the auspices of the Communicable Diseases Network Australia New Zealand and described in *CDI* 1994;**18**:330-337), national *Mycobacterium tuberculosis* laboratory surveillance (described in *CDI* 1994;**18**:337-339), the National *Neisseria* Network's Australian Gonococcal Surveillance Programme and Meningococcal Isolate Surveillance, and the National *Salmonella* Surveillance Scheme (human isolates).

National Notifiable Diseases Surveillance System

The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia New Zealand (CDNANZ), and is the continuation of the national compilation of notifiable diseases which have been published since 1917.

The System coordinates the national surveillance of 42 communicable diseases or disease groups notified under public health legislation to the State and Territory health authorities. Under this scheme, computerised anonymous line listings of each notification are supplied by the States and Territories to the Network secretariat at the Department of Human Services and Health for publication in *CDI*. Data collected for each notification include a unique identification number, State or Territory, disease, date of onset, date of notification to the relevant health authority, sex, age, Aboriginality, postcode of residence, and confirmation status (as defined by each State or Territory). Date of onset, sex, age, Aboriginality, postcode of residence and confirmation status are nonmandatory data items and are supplied only if known. Each fortnight, State and Territory health authorities report notifications received for the entire calendar year; the reports therefore include notifications for both the current reporting period and updated notifications for all previous reporting periods in the year.

The notifiable diseases data are presented each fortnight in the first three tables at the end of the *Communicable Diseases Surveillance* section of *CDI*. Cases reported to State and Territory health authorities in the current reporting period are listed by State or Territory, and totals for Australia are presented for the current period, the equivalent period of the previous year, the current year to date and equivalent year to date total for the previous year.

The first table includes the eight diseases preventable by vaccines recommended by the National Health and Medical Research Council (NHMRC) for routine child-

hood immunisation. The third table includes eleven diseases that are only rarely notified (fewer than 50 cases notified each year in the previous five years). Notifications of the remaining 25 diseases are presented in the second table. HIV infection and AIDS notifications are not routinely tabulated; surveillance for these conditions is conducted separately and reported in the *HIV and AIDS Surveillance* reports.

A commentary on the notifications received accompanies the tables in each issue, and appears as the last text item in the *Communicable Diseases Surveillance* section. Age and sex distributions and geographical analysis are included and graphs are used to present time trends. Also included each issue is a graph of notifications of eight selected diseases for the current fortnight and the comparative historical data (averages of the number of notifications in nine previous two-week reporting periods: the corresponding periods of the last three years and the periods immediately preceding and following those). The delay between the end of the reporting period to the date of publication in *CDI* is 16 days.

Notifications compiled in the National Notifiable Diseases Surveillance System are influenced by various factors, so the data must be interpreted with caution, especially when comparisons are made between States and Territories and with data from previous years. Although the NHMRC has recommended a uniform list and uniform case definitions for all the notifiable diseases, each health authority determines which diseases are notifiable and which notifications are accepted, using its own criteria. The sources of notifications differ among the States and Territories; notifications may be required from treating clinicians, diagnostic laboratories and/or hospitals, and in some cases, different diseases are notifiable from different sources. The proportion of cases notified is not known with certainty for any disease, and may vary among diseases and over time; serious, rare diseases may be more likely to be notified than common diseases without serious clinical features.

CDI Laboratory Reporting Schemes

There are two *CDI* Laboratory Reporting Schemes: the Virology and Serology Reporting Scheme (LabVISE) and the Laboratory Database of Organisms from Sterile Sites (LabDOSS). The *CDI* Laboratory Reporting Schemes rely on the voluntary participation of laboratories and we gratefully acknowledge their contributions.

Virology and Serology Reporting Scheme (LabVISE)

The Virology and Serology Laboratory Reporting Scheme began operating in 1977. The Scheme comprises nineteen sentinel laboratories from all States and the Australian Capital Territory which contribute data on the laboratory diagnosis of viruses and other organisms. Laboratories elect to submit data either on computer disk using LabVISE software (written in Epi Info), or on paper forms in the same format. Each record includes laboratory, specimen collection date, name code, specimen source, the agent detected and the method of diagnosis (compulsory fields), and also optionally specimen laboratory code number, sex, date of birth (or age), postcode, clinical diagnosis, risk factors and comments.

Reports are submitted, collated and analysed and published in the *Communicable Diseases Surveillance* section of *CDI* each fortnight. Each fortnight's report includes three summary tables at the end of the section. The first table lists the agents by group (measles-mumps-rubella, hepatitis viruses, arboviruses, and others) and State or Territory. Also included are the national totals for the reporting fortnight, an historical national average of the reports in six previous two-week reporting periods (the corresponding periods of the last two years and the periods immediately preceding and following those), and the total reports published in *CDI* in the current year. The second table lists the organisms grouped by clinical information as supplied in the laboratory reports, and the total for the reporting fortnight. The third table shows total reports for the fortnight by contributing laboratory. The delay between date of specimen collection and date of publication ranges from two weeks to several months. A commentary on the laboratory reports is produced in each issue of *CDI* (as the first text item in the *Communicable Diseases Surveillance* section) and includes the observation of recent trends (with accompanying graphical presentation) and further details of interesting cases.

Data derived from this scheme must be interpreted with caution as the number and type of reports received is subject to a number of biases including the location of participating laboratories, the availability of diagnostic services, and diagnostic practices.

Sterile Sites Surveillance (LabDOSS)

The Laboratory Database of Organisms from Sterile Sites (LabDOSS) was introduced in January 1992 and monitors significant isolates from normally sterile sites. It is used on a national basis to compile more detailed information than is available to the National Notifiable Diseases Surveillance System on infections such as those caused by *Haemophilus influenzae* type b. It also collects information on diseases which are not notifiable, such as meningitis caused by *Streptococcus pneumoniae* and by *Cryptococcus neoformans*.

Twenty laboratories from around Australia contribute reports to this scheme. As for LabVISE, each report includes the laboratory identification, the date of specimen collection, the organism identification, and data on the source specimen and any identification methods used supplementary to the isolation. The reports usually contain the postcode of the patient, data on the patient's age and sex, and information on the clinical diagnosis and risk factors, and can also contain additional relevant information as comments. Partial or coded specimen and patient identification is also included to enable further follow-up with laboratories, as required, and duplicate reports to be deleted or amalgamated.

The LabDOSS reports received with specimen collection dates on or after the first day of the month prior to the *CDI* publication date are published as Sterile Sites Surveillance (LabDOSS) in the Communicable Diseases Surveillance section of *CDI*. Reports for earlier months are merged into the main LabDOSS report compilation for the year.

Organisms (or genus groups) reported five or more times from blood are presented in a table which details the total number of reports for the fortnight, and selected information on the reported clinical information and risk factors. Other organisms reported fewer than five times from blood are listed in the text. CSF isolates and meningitis reports are tabulated by organism and age group, or listed as text. Isolates from other sites, such as peritoneal dialysate and joint fluid are also listed. Commentary and other information, such as outbreaks, is included as appropriate.

As for LabVISE, the number of reports of isolates made to LabDOSS is influenced by various factors, including the number, type and location of participating laboratories, and current diagnostic techniques and habits, as well as the actual occurrence of infections. These factors must always be taken into account and the data interpreted with appropriate caution. The delay between the date of specimen collection and the date of publication ranges from two weeks to two months.

Australian Sentinel Practice Research Network

The Research and Health Promotion Unit of the Royal Australian College of General Practitioners operates a national network of sentinel general practices which report a number of conditions each week. Each fortnight, the communicable diseases under surveillance in this scheme (defined in *CDI* 1994;**18**:147) are reported in the *Communicable Diseases Surveillance* section of *CDI*. A table is produced showing the number of reports of communicable diseases for the previous two reporting weeks, and the rate of reporting per 1000 consultations in the sentinel practices. Brief comments on the reports accompany the table. Currently there are about 75 practices in the Network, located as detailed in *CDI* 1994;**18**:148, reporting on about 10,000 consultations each week.

Sentinel Chicken Surveillance Programme

The Sentinel Chicken Surveillance Programme is coordinated by Annette Broom of the Arbovirus Research Laboratory in Department of Microbiology at the University of Western Australia. The Programme is used to provide an early warning of increased flavivirus activity by monitoring flavivirus seroconversions in chickens in sentinel flocks in Western Australia, the Northern Territory, Victoria, Queensland and New South Wales. Data from this scheme are published monthly over the summer/wet season period of the year in the *Communicable Diseases Surveillance* section of *CDI*. Details of the locations of the chicken flocks and other information on scheme were published in *CDI* 1992;**16**:55, *CDI* 1992;**16**:169 and *CDI* 1993;**17**:123.

HIV and AIDS Surveillance

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), in collaboration with State and Territory health authorities and the Commonwealth of Australia.

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

Two tables on HIV infection diagnoses, AIDS diagnoses and AIDS deaths are published monthly in the *Communicable Diseases Surveillance* section of *CDI*. The first details new diagnoses of HIV infection and AIDS and deaths from AIDS occurring in the reporting month, by sex and State or Territory of diagnosis, and national totals for the month, the equivalent month of the previous year, and the current and previous years to date. The second is a tabulation of the cumulative HIV diagnoses, AIDS diagnoses and AIDS deaths reported, by sex and State or Territory.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting period, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infections and AIDS is published in the quarterly *Australian HIV Surveillance Report*, available from the NCHECR.

National Influenza Surveillance

Influenza surveillance in Australia is based on several schemes collecting a range of data which can be used to measure influenza activity. From autumn to spring, the results of each of the schemes are published together in the *Communicable Diseases Surveillance* section of *CDI* as *National Influenza Surveillance* to facilitate a national view of influenza activity. Fortnightly reports include all data received in the two weeks preceding publication so information from the individual surveillance schemes does not always refer to the same time periods.

In 1994, four sentinel general practitioner schemes contributed reports of influenza-like illness from a total of about 25,000 consultations per week: the Australian Sentinel Practice Research Network, the Australian Capital Territory Sentinel General Practice Scheme, the New South Wales Sentinel General Practice Scheme and the Victorian Sentinel General Practice Scheme.

The number of cases of influenza and the total consultations for each week are reported and a graph depicts the data for the season to date.

Absenteeism surveillance encompasses reports of the proportion of the 65,000 employees in Telecom Australia absent on sick leave on one day each week, and the proportion of students absent from a selection of schools in the Australian Capital Territory and in New South Wales, also on one day each week. A graph of all absenteeism data reported for the year is also published.

The *CDI* Virology and Serology Reporting Scheme contributes laboratory reports of influenza diagnoses, reported by week of specimen collection, virus type and method of diagnosis, and depicted in graphs of the data for the year to date. The WHO Collaborating Centre for Influenza Reference and Research at the Commonwealth Serum Laboratories, Melbourne provides information on antigenic analysis of isolates received from Australia and also from New Zealand, other countries of the region and South Africa.

The Victorian Department of Health and Community Services contributes data on hospital admissions for influenza and/or pneumonia and the total deaths and death rate recorded in Victoria each fortnight, reported as text. It is expected that total deaths information from other jurisdictions will be able to be incorporated into the National Influenza Surveillance for 1995.

Reference

1. Last JM. *A dictionary of epidemiology.* New York: Oxford University Press, 1988.

OVERSEAS BRIEFS

In the last two weeks, the following information has been supplied by the World Health Organization (WHO), the United States' Centers for Disease Control and Prevention and the Institut Pasteur, Paris.

Yellow fever in Nigeria

An outbreak of yellow fever has been reported from Imo State in Nigeria. As of 12 December, there had been 120 cases and 80 deaths. The government has taken measures for prevention and control; an immunisation campaign was started in affected villages and surrounding areas. The WHO advises all travellers to Nigeria to be vaccinated against yellow fever.

Erythromycin-resistant *Bordetella pertussis* in the United States

In June 1994, a case of pertussis caused by a *Bordetella pertussis* strain resistant to erythromycin was reported to the Arizona Department of Health Services[1]. Susceptibility testing at the United States' Centers for Disease Control and Prevention (CDC) confirmed that the isolate was highly resistant to erythromycin with a minimum inhibitory concentration (MIC) of >64 μg/mL. The MIC of erythromycin against *B. pertussis* usually ranges from 0.02 μg/mL to 0.1 μg/mL.

The resistant strain was isolated from a two month old Arizona male who had onset of cough on 16 May 1994. Oral erythromycin estolate therapy was commenced after *B. pertussis* infection was diagnosed by direct fluorescent antibody testing on 26 May, and continued for 12 days. Paroxysmal cough and episodes of cyanosis, apnea and bradycardia persisted and on 8 June, *B. pertussis* was isolated from nasopharyngeal secretions. Intravenous erythromycin therapy was commenced, however, nasopharyngeal cultures obtained on 13, 16 and 20 June remained positive for the organism. Susceptibility testing at the hospital suggested that the organism was resistant to erythromycin but susceptible to trimethoprim-sulfamethoxazole; the infant was commenced on this drug, improved rapidly and a nasopharyngeal culture on 25 June was negative.

Enhanced surveillance for pertussis was established from late June in the infant's county and surrounding areas to detect cases of pertussis and to obtain *B. pertussis* isolates. In addition to the index case, *B. pertussis* was isolated from 42 persons. One isolate was inadvertently discarded and the remaining 41 were susceptible to erythromycin.

Preliminary results of studies at CDC suggest that the mechanism of resistance to erythromycin does not involve ribosomal ribonucleic acid methylation, which has been documented in streptococcal and staphylococcal resistance to erythromycin.

Influenza in the Northern Hemisphere

By mid-December, there had been no increases in indicators of influenza epidemic activity in Europe. Sporadic cases of influenza A had been reported from Slovakia, Finland, France, and sporadic cases of influenza B had been reported from England and Wales (similar to the strain included in the vaccine for the northern hemisphere winter), the Russian Federation (similar to B/Quingdao/102/91), Finland and Portugal.

In the Americas, sporadic cases of influenza A and influenza B have been reported from Chile and Canada. In the United States, 13 States have reported sporadic influenza A activity, one (New York) has reported regional activity and there have been isolates of influenza A.

Cholera update

An outbreak of cholera has been reported from Cape Verde, with 30 cases and four deaths reported as of 30 November. The Shinyanga Region of Tanzania has recently been declared infected.

Cholera cases have been reported for September, October and November from Algeria, Albania, Benin, Brazil, Burundi, Chad, Costa Rica, Dagestan, Djibouti, El Salvador, Gaza, Ghana, Guinea, Guinea Bissau, Hong Kong, India, Italy, Laos, Moldova, Mozambique, Morocco, Niger, Philippines, Romania, Sierra Leone, Singapore, Somalia, Tanzania and Ukraine.

Reference

1. Centers for Disease Control and Prevention. Erythromycin-resistant *Bordetella pertussis* - Yuma County, Arizona, May-October 1994. *MMWR Morb Mortal Wkly Rep* 1994;43:807-810.

CDI NOTICES TO READERS

Contributions

CDI publishes contributed reports on the occurrence of and risk factors for communicable diseases in Australia which have a public health relevance and can be used to inform and assist those with responsibility for communicable disease control. Contributions which deal with any relevant aspect of the surveillance and control of communicable diseases in Australia are invited. They can be in the form of short or longer articles, short reports of emergent surveillance results (around a paragraph in length) for inclusion in *Communicable Diseases Surveillance*, or case reports, if they illustrate a point of public health importance. Coordinators of communicable disease surveillance schemes or registers other than those for which *CDI* already publishes reports are also invited to contribute data or reports for publication.

Text is acceptable as hard copy or on floppy disk in any of the common word processing formats. When data are presented in graphs, it is preferred that the relevant details are also included in tabular form to allow production of graphs in house style.

Authors are responsible for the content of articles in *CDI* and opinions expressed are those of the authors and not necessarily those of the Department of Human Services and Health or of the Communicable Diseases Network Australia New Zealand.

Participation in *CDI* Laboratory Reporting Schemes

We invite laboratories in the public and private sector making diagnoses in virology or serology laboratories or identifying organisms from normally sterile sites to participate in the *CDI* Laboratory Reporting Schemes. Expansion of the Schemes would improve their ability to reflect the current epidemiology of communicable diseases in Australia. Participation of private sector laboratories would be particularly welcome.

Software for reporting can be supplied free of charge, or reports can be contributed on paper forms or, by arrangement, in other computer formats. The supplied computerised reporting systems can be run on any IBM compatible computer, and by those with minimal computer experience. They have been written in Epi Info, a public domain program which combines word processing, database management, statistical analysis and graphics. Limited customisation and support is available, including modification of the systems to meet the individual needs of laboratories. The programs can be used by laboratories to store and analyse both the data that are sent to *CDI* and any supplementary data which are collected.

For more information please contact:

Margaret Curran (LabVISE) (06) 289 7416
Leigh Trevillian (LabDOSS) (06) 289 7217
David Evans (computer systems) (06) 289 7155.

CDI Bulletin Board System (*CDI*-BBS) and Internet/AARNet access

Parts of *Communicable Diseases Intelligence* and other regularly updated information on communicable diseases are available through the Canberra based *Communicable Diseases Intelligence* Bulletin Board System and through other bulletin boards throughout Australia which are connected to the Australian Disaster Management Information Network (ADMIN). This computer based system makes the *Communicable Diseases Intelligence*'s data more freely and quickly available to those who require timely updates on communicable disease activity in Australia and around the world.

Bulletins currently available on the system include the text for the Overseas Briefs, *CDI* Notices to Readers and Communicable Diseases Surveillance sections from the latest *Communicable Diseases Intelligence*, and the latest tables from ASPREN, the Virology and Serology Reporting Scheme and the National Notifiable Diseases Surveillance System. Also included are the latest annual reports of the National Notifiable Diseases Surveillance System, the Virology and Serology Reporting Scheme and the Sterile Sites Surveillance Scheme (LabDOSS). A travel health menu has been set up and information should be incorporated soon. Future contents will also include other recent data on communicable diseases in Australia, and recommendations for malaria chemoprophylaxis.

The Canberra based *CDI*-BBS (accessible on telephone number (06) 281 6695; or, from outside Australia, by the

appropriate international access code, followed by 61 6 281 6695), has a menu of bulletins which can be used to access *CDI* and other information.

Other bulletin board sites where *CDI* is available are:

- Melbourne, Victoria (ADMIN) (03) 684 6627
- Mt Macedon, Victoria (ADMIX) (054) 262 594
- Victorian Institute of Forensic Pathology, Victoria (VIFP) (03) 682 1332
- Perth, Western Australia (Health Department of Western Australia) (09) 222 4403
- Sydney, New South Wales (New South Wales SES BBS) (02) 477 5551
- Adelaide, South Australia (SASES BBS) (08) 410 4910

A registration form is required for the Perth site. It can be obtained from Gaye Sweeney on (09) 222 4305, or from the Manager, Information Services, Health Department of Western Australia, 189 Royal Street, East Perth, WA 6004. A fee is required. The Sydney and Adelaide sites are on-line; *CDI* has not yet been transferred to these sites but will be in the near future.

To connect to the bulletin boards, a computer, a modem and communications software (for example NetComm, Telix or Procomm) are required. Modem/communications software settings used are:

Speed	up to 9600 baud on the Canberra BBS, higherspeeds may be available on other BBSs
Data size	8
Parity	none
Stop bits	1

Steps to use the bulletin boards are:

1. Set up a dial-up service in your own communications software.
2. Dial the relevant BBS.
3. Answer the 'logon' questions as either a new or existing user.
4. At the Main Menu, select 'F' for File Areas (and use 'Area change', if necessary, to move to *Communicable Diseases Intelligence*. On the Canberra BBS, 'B' can also be selected for the latest bulletins).
5. Select 'File titles', and press * for new bulletins or to view all files.
6. Select 'View files' to view the contents of a bulletin.
7. Select 'Download (receive)' to transfer a file to your PC. (Select the appropriate protocol, for example, Z for Z-modem, and type in the name of the required file, then press <enter> twice to begin the download. If using X-modem, use your communications software to choose an appropriate file to 'receive' the *CDI* bulletin.)
8. To 'Logoff', select 'G' for Goodbye. Then answer 'Y' to disconnect, and 'N' to exit, or 'Y' if you need to leave a message.

CDI is also available via Internet and AARNet through site 'FTP.VIFP.MONASH.EDU.AU' using id 'ANONYMOUS' and directory 'PUB/ADMIN/CDI'. The files available are in the format:

TOPIC1.* - text of the *CDI* articles and the Communicable Diseases Surveillance section

TOPIC2.* - Virology and Serology Reporting Scheme tables

TOPIC3.* - National Notifiable Diseases Surveillance System tables

TOPIC6.* - ASPREN table.

The * indicates the 1994 day number of the *CDI* issue, for example, TOPIC1.052 is the text from *CDI* for the issue dated 21 February 1994, and TOPIC1.066 is the text from *CDI* for the issue dated 7 March 1994. (Because the information is copied to the Bulletin Board (BBS) every week and *CDI* is published fortnightly, there will usually be two files for each topic, for example, TOPIC1.059 represents the text for 28 February 1994, however, because *CDI* is not published on that date, it would be the same as TOPIC1.052.)

The above site can also be accessed by direct modem link by dialling (03) 682 1332 (VIFP-BBS, Melbourne).

Further information about these systems can be obtained from David Evans on (06) 289 7155.

CDI on HealthROM

In addition to the fortnightly publication in hard copy and on the *CDI* Bulletin Board System, *CDI* is included on a quarterly basis on HealthROM. HealthROM is an Australian CD-ROM reference source of publications and citations produced by the Information Resources Section of the Department of Human Services and Health in collaboration with the National Health and Medical Research Council, the Australian Institute of Health and Welfare, the Alcohol and Drug Council of Australia and the National Library of Australia.

It covers the broad field of public and environmental health, HIV/AIDS and communicable diseases, clinical medicine, alcohol and drug use, nutrition, therapeutic goods, family health research and sports medicine. It includes over 100 full text publications, including *CDI*, as well as directories, reports, bibliographies and databases of citations from the professional literature. Facilities include search, print and save functions which operate across the range of full text and citation entries.

HealthROM costs $250 per annum for individuals, $350 for corporations and libraries, and $500 to $700 for network subscriptions (for four quarterly updates). DOS (386 with 1.8 Meg RAM), WINDOWS (4 Meg RAM) and Macintosh versions are available. Enquiries

should be directed to John Holgate, phone (06) 289 8488 or fax (06) 289 7102.

International Workshop on Creutzfeldt-Jakob Disease (CJD)

An International Workshop on Creutzfeldt-Jakob Disease (CJD) is to be held on Sunday 28 May and Monday 29 May 1995 at the Park Royal Melbourne, Little Collins Street, Melbourne. The Workshop is jointly sponsored by the Commonwealth Department of Human Services and Health and the CJD Case Registry at The University of Melbourne.

CJD is a rare but important disease. As a transmissible 'protein-only' disorder, it is scientifically challenging. Themes to be covered at the Workshop include:

- the clinical spectrum of CJD and variant sub-types,
- worldwide epidemiology and pathology; phenotypic-genotypic correlations,
- advances in diagnostic methods, including genetic screens for susceptibility,
- the nature of infectivity; accumulation of amyloid protein in the brain,
- scrapie and bovine spongiform encephalopathy; the risk of zoonotic transmission,
- infection control guidelines; management of persons at risk from iatrogenic and genetic CJD,
- prospects of future rational therapeutic advances and research strategies.

Invited experts and discussants include Dr Paul Brown (NIH, Bethesda, United States), Dr Robert Will (National CJD Surveillance Unit, Edinburgh, United Kingdom), Dr Steven Collins (CJD Case Registry, Melbourne), Dr Tetsuyuki Kitamoto (Neurological Institute, Kyushu University, Fukuoka, Japan), Professor Konrad Beyreuther (Center for Molecular Biology, Heidelberg), Mr John Wilesmith (Central Veterinary Laboratory, Surrey, United Kingdom, courtesy of the Australian Veterinary Association), Dr Dominique Dormont (Atomic Energy Commission, Fontenay-aux-Roses, France), Professor Michael Preece (Institute of Child Health, London, United Kingdom).

The registration fee is $200 and includes the Workshop Dinner on 28 May. The number of participants will be limited to about 50 to facilitate group discussion. Further information can be obtained from the convenor:

Professor Colin L Masters
Department of Pathology
The University of Melbourne
Parkville VIC 3052
Phone (03) 344 5868

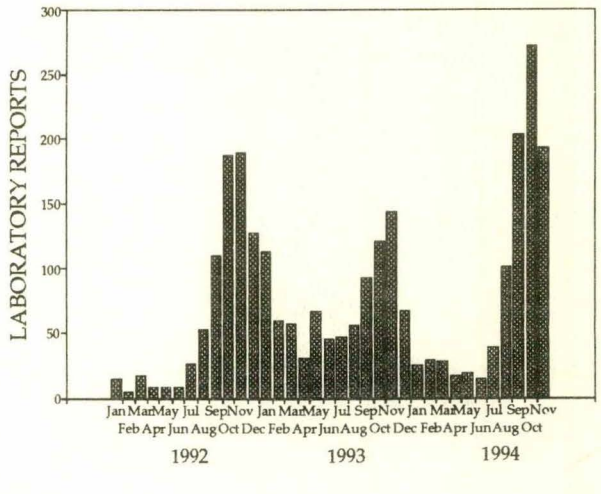
COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 1097 reports received in the *CDI* Virology and Serology Reporting Scheme for this reporting period (Tables 9, 10 and 11).

- Seventeen reports of **measles** were received this period, 10 males and 7 females, thirteen in the 5 to 24 year age group. All diagnoses were by specific IgM detection.
- **Rubella** was reported for 76 patients this fortnight, 19 females (12 in the 15 to 44 year age group) and 57 males. Diagnosis was by IgM detection (74), fourfold rise in titre (one) and antigen detection (one). The number of reports received remains high (Figure 1).
- Twelve reports of **hepatitis A** were received this period, for 6 males and 6 females.
- Positive **hepatitis B** serology was reported for 47 patients this fortnight, 23 males and 22 females (2 sex not stated). Twenty-five patients were in the 25 to 44 year age group and 8 in the 15 to 24 year age group. Included were 5 pregnant women.
- Positive **hepatitis C** serology was reported for 164 patients this fortnight, 107 males and 49 females (8 sex not stated). One hundred and fourteen reports were for the 25 to 44 year age group, and 19 for the 15 to 24 year age group. Included were 4 injecting drug users, one pregnant female, one patient who was also positive for hepatitis B and one with thalassemia major.
- **Ross river virus** infection was reported for 22 patients this period, 21 from Western Australia and one from South Australia, all with specimen collec-

Figure 1. Rubella laboratory reports, 1992 to 1994, by month of specimen collection



tion dates in mid-November. Included were 15 males and 7 females, age range 19 to 89 years. All diagnoses were presumptive (IgM detected).

- Ten reports of **Barmah Forest** virus were received this fortnight, one from New South Wales, one from the Northern Territory and the remainder from Queensland, all with specimen collection dates in mid-November. Six patients were male and 4 female and all were in the 19 to 55 year age group. All diagnoses were by IgM detection.
- Forty-three reports of **adenovirus** were received this fortnight, 15 virus isolations, 22 antigen detections, one fourfold rise in titre and 5 single high titres. **Adenovirus type 22** was isolated from the nasopharynx of a 21 year old male with pneumonia.
- **Herpes simplex virus type 1** was reported for 137 patients this fortnight, 131 virus isolations and 6 antigen detections. Included were 2 transplant recipients, one HIV positive patient and one (other) immunocompromised patient.
- Ninety-one reports of **herpes simplex virus type 2** were received this fortnight diagnosed by virus isolation (87) and antigen detection (4).
- There were 49 reports of **cytomegalovirus** (CMV) this fortnight, 35 virus isolations, 11 IgM detections and 3 single high titres. Included was IgM detected in the serum of a 29 year old pregnant female. Also included were 5 transplant recipients, 3 HIV positive patients and 5 patients with a malignancy.
- **Varicella-zoster virus** was reported for 21 patients this period. Diagnosis was by virus isolation (5), antigen detection (12) and IgM detection (4). Included was a pregnant female.
- Thirty-four reports of **Epstein-Barr virus** were received this fortnight, 15 males and 19 females, 13 in the 15 to 24 year age group.
- **Polyomavirus** was isolated from the urine of a 6 year old male bone marrow transplant recipient.
- **Coxsackievirus A9** was isolated from the urine and faeces of a pregnant female from Victoria at 30 weeks' gestation. Symptoms reported were fever, abdominal pain and headache.
- Three reports of **coxsackievirus B3** were received including a 15 month old male from New South Wales with a clinical diagnosis of pneumonia.
- Five reports of **echovirus type 6** were received this period for 3 females (all with meningitis) and 2 males. All were in the one to 35 year age range.
- **Echovirus type 30** was reported for 9 patients this fortnight all with meningitis. Included were 7 cases from the Bowral area of New South Wales with specimen collection dates in mid-November. A total of 3 males and 6 females were affected, including 2 family clusters. All were in the 8 months to 25 years age range. There has been a slight increase in the number of reports of this virus received since September, although numbers remain below those of this time last year (Figure 2).
- Nineteen reports of **untyped enterovirus** were received this period diagnosed by virus isolation (12), nucleic acid detection (one) and single high titre (6).
- **Rhinovirus** was reported for 32 patients, 18 of whom were under the age of one year, a total of 24 being in the under 4 years age group. Diagnosis was by virus isolation in all cases.
- **Influenza A** was reported for 6 patients this fortnight, 2 females and 4 males, all diagnosed by single high titre.
- Twenty-seven reports of **parainfluenza virus type 3** were received for this period, 10 virus isolations and 17 antigen detections. Twenty-three patients were under the age of 4 years, 10 being in the under one year age group. More reports have been received for males than for females so far for 1994 (Figure 3), the under one year age groups being most commonly reported.

Figure 2. Echovirus type 30 laboratory reports, 1993 to 1994, by month of specimen collection

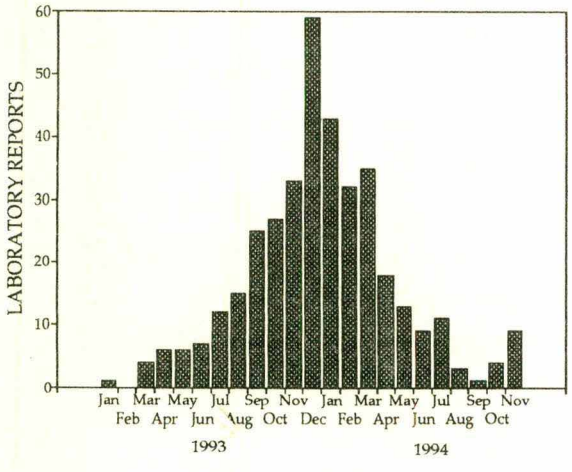
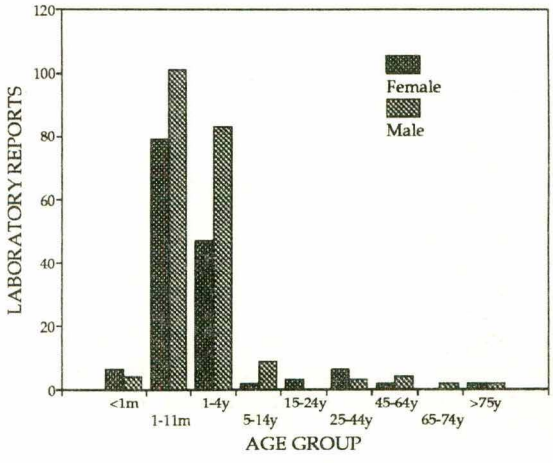


Figure 3. Parainfluenza virus type 3 laboratory reports, 1994, by age group and sex



- **Respiratory syncytial virus (RSV)** was reported for 15 patients this fortnight, 24 of whom were under the age of 4 years. Included was a 6 month old male from whom adenovirus type 2 was also isolated.
- **Rotavirus** was reported for 58 patients this period, 32 males and 25 females (one sex not stated). Forty-three patients were less than 4 years of age, 13 being in the under one year age group.
- **Astrovirus** was detected by electron microscopy in the faeces of a 5 year old New South Wales male with gastroenteritis.
- Seventy-two reports of ***Chlamydia trachomatis*** were received this fortnight including 31 males and 41 females. Forty-eight patients were in the 15 to 24 year age group and 21 in the 25 to 44 year age group. Diagnosis was by culture (18), antigen detection (45) and nucleic acid detection (9).
- Thirteen reports of ***Mycoplasma pneumoniae*** were received this period, for 3 males and 10 females, 5 under the age of 14 years.
- ***Coxiella burnetii*** (Q fever) was reported for 13 patients, 6 females and 7 males, all in the age range 19 to 55 years. Diagnosis was by IgM detection (6) and fourfold rise in titre (7). Fourteen reports of ***Bordetella*** were received this fortnight, 9 ***Bordetella pertussis*** (one antigen detection and 8 IgA detections), 4 ***Bordetella*** species (one IgA detection and 3 IgM detections) and one ***Bordetella parapertussis*** (antigen detection).
- Positive **syphilis** serology was reported for 15 patients this period, 9 males and 6 females.

Australian Sentinel Practice Research Network

Data for week 48 (ending 4 December), week 49 (ending 11 December), week 50 (ending 18 December) and week 51 (ending 25 December) are included in this issue of *CDI* (Table 1). There were 8365, 8654, 8148 and 7531 consultations reported, respectively. The rate of reporting of influenza has now decreased to that reported last summer (Figure 4), after the peak in August. The rates of reporting of both chickenpox and pertussis have increased over the last few months.

HIV and AIDS Surveillance

Methodological note

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

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly *Australian HIV Surveillance Report*, available from the National

Figure 4. ASPREN reports of influenza per 1000 consultations, 1994, by week

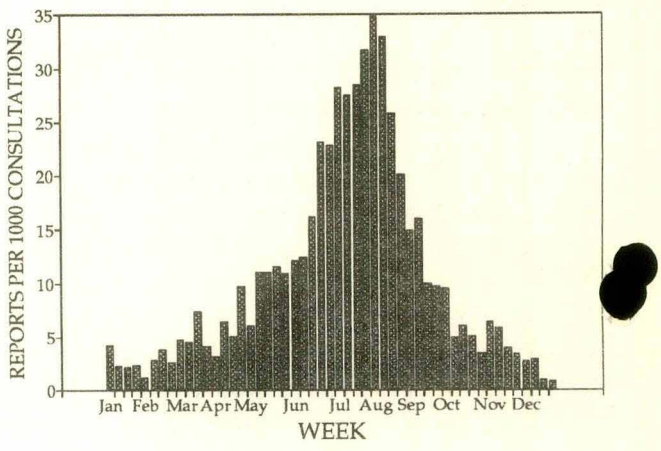


Table 1. Australian Sentinel Practice Research Network, weeks 48, 49, 50 and 51, 1994

Condition	Week 48, to 4 December 1994		Week 49, to 11 December 1994		Week 50, to 18 December 1994		Week 51, to 25 December 1994	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	22	2.6	25	2.9	8	1.0	6	0.8
Measles	1	0.1	2	0.2	0	0	2	0.3
Chickenpox	29	3.5	24	2.8	29	3.6	42	5.6
Pertussis	3	0.4	7	0.8	8	1.0	1	0.1
Gastroenteritis	116	13.9	120	13.9	125	15.3	139	18.5

Table 2. New diagnoses of HIV infection, new diagnoses of AIDS and deaths from AIDS occurring in the period 1 to 31 August 1994, by sex and State or Territory of diagnosis

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA			
										This period 1994	This period 1993	Year to date 1994	Year to date 1993
HIV diagnoses	Female	0	5	0	2	0	0	1	0	8	8	54	53
	Male	1	30	1	21	0	0	12	0	65	85	590	655
	Sex not reported	0	0	0	0	0	0	0	0	0	2	10	8
	Total[1]	1	35	1	23	0	0	13	0	73	95	654	720
AIDS diagnoses	Female	0	0	0	1	0	0	1	0	2	7	12	28
	Male	0	25	0	4	4	0	16	0	49	65	378	466
	Total[1]	0	25	0	5	4	0	17	0	51	72	392	496
AIDS deaths	Female	0	0	0	0	0	0	0	0	0	1	17	12
	Male	0	17	0	3	5	0	10	0	35	45	343	357
	Total[1]	0	17	0	3	5	0	10	0	35	46	360	371

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

Table 3. Cumulative diagnoses of HIV infection, diagnoses of AIDS and deaths following AIDS to 31 August 1994, by sex and State or Territory

		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	AUSTRALIA
HIV diagnoses	Female	12	513	4	82	40	3	147	53	854
	Male	145	9490	75	1420	513	68	3091	677	15479
	Sex not reported	0	2043	0	2	0	0	44	0	2089
	Total[1]	157	12054	79	1508	553	71	3289	731	18442
AIDS diagnoses	Female	2	103	0	22	13	2	34	10	186
	Male	58	2954	21	480	221	25	1086	208	5053
	Total[1]	60	3063	21	504	234	27	1126	218	5253
AIDS deaths	Female	2	67	0	14	10	2	15	3	113
	Male	40	2022	16	325	138	20	827	136	3524
	Total[1]	42	2094	16	340	148	22	845	139	3646

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

Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Telephone: (02) 332 4648 Facsimile: (02) 332 1837.

HIV and AIDS diagnoses and AIDS deaths reported for August 1994 and cumulative to 31 August 1994, as reported to 30 November 1994, are included in this issue of *CDI* (Tables 2 and 3).

Sterile Sites Surveillance (LabDOSS)

Data for the four week reporting period have been provided by 15 laboratories. There were 337 reports of recent significant sepsis:

Australian Capital Territory: Woden Valley Hospital 18.
New South Wales: ICPMR, Westmead 22; John Hunter Hospital 52; Liverpool Hospital 27; Royal North Shore Hospital 43; Royal Prince Alfred Hospital 25.
Queensland: Central Queensland Pathology Laboratory 1; Ipswich General Hospital 7; Sullivan, Nicolaides and Partners 18.
South Australia: Institute of Medical and Veterinary Science 46.
Western Australia: Princess Margaret Hospital for Children 8; Sir Charles Gairdner Hospital 2.
Northern Territory: Alice Springs Hospital 16.
Tasmania: Northern Tasmanian Pathology Service 24; Royal Hobart Hospital 28.

Organisms reported 5 or more times from blood are detailed in Table 4. Other blood isolates were:

Gram positive: 1 *Bacillus cereus*, 2 *Corynebacterium* species, 2 *Enterococcus* species, 1 *Lactobacillus acidophilus*, 2 *Listeria monocytogenes*, 1 *Streptococcus* Group A, 1 *Streptococcus* Group G, 2 *Streptococcus* 'milleri', 1 *Streptococcus sanguis*, 2 *Streptococcus* 'viridans'.

Gram negative: 3 *Acinetobacter* species, 1 *Aeromonas hydrophila* (in a septic 4 year old female from Tasmania), 1 *Alcaligenes denitrificans*, 1 *Branhamella catarrhalis*, 1 *Campylobacter jejuni*, 2 *Campylobacter* species, 2 *Citrobacter diversus* (in a 75 year old immunocompromised female with a diverticular abscess, and in a 58 year old male with a skin wound and HIV infection, both from New South Wales), 1 *Citrobacter freundii*, 1 *Enterobacter aerogenes*, 2 *Enterobacter* species, 1 *Flavobacterium* spe-

Table 4. 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	
Enterococcus faecalis			1	2			2	2		7		9
Staphylococcus aureus	4	1	2	1		18	8	14	5	20		53[2]
Staphylococcus epidermidis				2		1	1	3	5	2	3	18
Staphylococcus coagulase negative		2				1		5		6	1	18
Streptococcus Group B						3		2	2	1		6
Streptococcus pneumoniae		11			1	2		4		2		22
Streptococcus species		1	3	1	1			4		2		10
Enterocobacter cloacae	1			3			2	3	1	2		7
Escherichia coli		1		9	25	2	2	13	1	6		59
Klebsiella oxytoca				3				2	1	2		5
Klebsiella pneumoniae				2	3	1	3	5	1	4		15
Proteus mirabilis					3	2	1		1	2		7
Pseudomonas aeruginosa				5	3	1	2	5	1	6		13

1. Only organisms with 5 or more reports are included in this table.
2. MRSA 6.

cies, 1 *Haemophilus influenzae* (type a or c-f, in a 40 year old male with pneumonia, from Alice Springs), 1 *Haemophilus parainfluenzae*, 1 *Klebsiella* species, 1 *Plesiomonas shigelloides* (in a 81 year old male, from Tasmania, with cholangitis), 2 *Morganella morganii*, 2 *Neisseria meningitidis* (no serogroups available; in a 6 year old male with chronic meningococcaemia with rash; and in a 42 year old female with fever, no symptoms or signs of meningitis and reporting a risk factor of an intravenous line, both from New South Wales), 1 *Neisseria* species, 1 *Pasteurella multocida* (in a 42 year old female, with Klippel-Trenaunay Syndrome, following a cat scratch to the neck, from New South Wales), 1 *Proteus* species, 1 *Shigella* species, 1 *Vibrio* species (in a 80 year old female, from the Australian Capital Territory, with no reported risk factors).

Anaerobes: 3 *Bacteroides fragilis*, 1 *Bacteroides ovatus*, 1 *Bacteroides* species, 1 *Clostridium perfringens*, 2 *Clostridium* species.

Fungi: 3 *Candida* albicans, 1 *Cryptococcus neoformans* var *neoformans* (in a 77 year old female, from Queensland, with no risk factors who subsequently died).

There were 17 blood isolates from patients aged less than one year and 176 from patients aged 55 years and over (Figure 5).

Hospital acquired blood isolates

A total of 75 blood isolates were reported as hospital acquired. The six most commonly reported organisms were: 7 *Enterococcus faecalis*; 6 *Escherichia coli*; 4 *Klebsiella pneumoniae*; 6 *Pseudomonas aeruginosa*; 20 *Staphylococcus aureus* (including 6 MRSA); 6 *Staphylococcus* coagulase negative.

Meningitis and/or CSF isolate reports

There were 13 reports of meningitis and/or CSF isolates (Table 5). Two isolates were *Cryptococcus neoformans* var *neoformans*, reported in a 41 year old male and a 50 year old male, both HIV positive and from New South Wales. One isolate was *Enterococcus* species in a 56 year old female from New South Wales.

Figure 5. LabDOSS reports of blood isolates, by age group

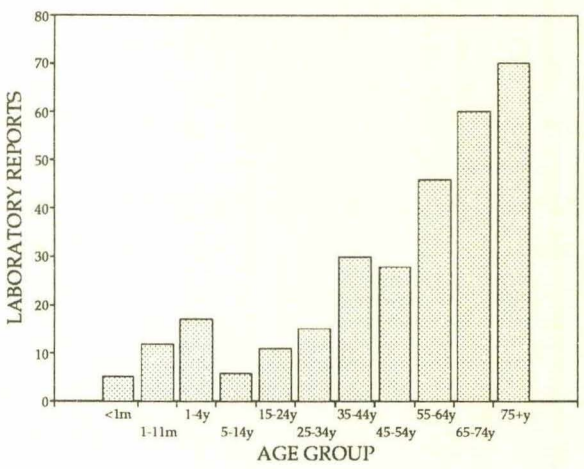


Table 5. LabDOSS reports of meningitis and/or CSF isolates, by organism and age group

	<1 month	1-11 months	1-4 years	5-14 years	15-24 years	35-44 years	45-54 years	55-64 years	65-74 years	Unknown	Total
Enterococcus species								1			1
Escherichia coli	1										1
Haemophilus influenzae		1									1
Listeria monocytogenes										1	1
Neisseria meningitidis			1								1
Staphylococcus aureus					1				1		2
Staphylococcus epidermidis				1							1
Streptococcus Group B					1						1
Streptococcus pneumoniae			2								2
Cryptococcus neoformans var *neoformans*						1	1				2

This isolate was reported as hospital acquired with a risk factor of an intravenous line. There was one *Escherichia coli*, reported in a one day old male with neonatal sepsis from Western Australia. *Haemophilus influenzae* type b was reported in a three month old male from Tasmania. *Listeria monocytogenes* was reported in an immunocompromised adult male from the Australian Capital Territory. One isolate was *Neisseria meningitidis* (no serogroup available) reported in a three year old male from Western Australia. Two isolates were *Staphylococcus aureus*, a 74 year old male from New South Wales with phlebitis, and a 23 year old New South Wales female with a CSF leak and a risk factor of trauma. *Streptococcus* Group B was also isolated from the CSF of this 23 year old patient. *Staphylococcus epidermidis* was reported in a ten year old female with a risk factor of neurological surgery, from Tasmania. Two isolates were *Streptococcus pneumoniae*, a four year old male from Western Australia with no risk factors reported; and a septic one year old male from Tasmania.

Isolates from sites other than blood or CSF

Joint fluid: 9 *Staphylococcus aureus.*

Pleural fluid: 2 *Klebsiella oxytoca*, 1 *Staphylococcus aureus*, 1 *Staphylococcus* coagulase negative, 1 *Streptococcus sanguis*, 1 *Streptococcus* species.

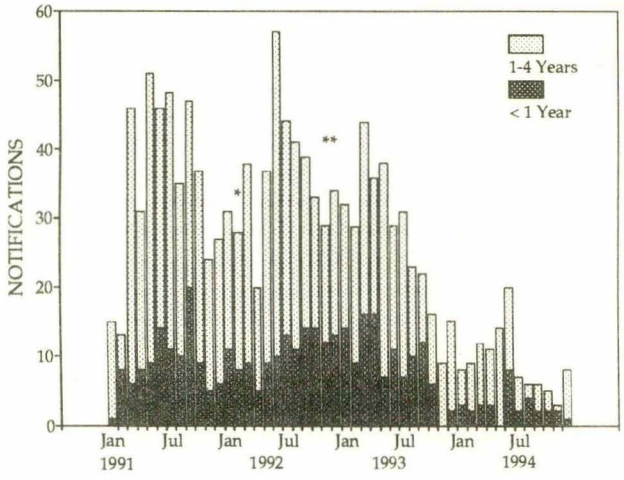
Other: 1 *Enterobacter* species, 1 *Enterococcus faecalis*, 1 *Neisseria gonorrhoeae* (in a 37 year old female with bilateral Bartholin's cysts, from Northern Territory), 4 *Staphylococcus aureus*, 1 *Staphylococcus* coagulase negative, 1 *Streptococcus* Group G.

National Notifiable Diseases Surveillance System, 27 November to 24 December 1994

There were 3657 reports received for this four week reporting period (Tables 6, 7 and 8 and Figure 9). No new notifications were received from Western Australia for this period. Reports received from the Northern Territory and Queensland were for the period 27 November to 10 December 1994 only.

- Forty-four notifications of **Ross River virus infection** were received; 18 cases were male and 23 were female. The cases were aged between the 15-19 and the 90-94 years age groups. Recorded onset dates were in October (3), November (37), and December (4). Fifteen cases in November occurred in the same Statistical Division in Queensland.
- There were 4 cases of **brucellosis** reported. All cases occurred in Queensland, all had recorded onset dates in November and all were male. Two cases occurred in the same postcode area. Cases were aged in the 20-24, 25-29 and 45-49 years age groups.
- There were 761 reports of **campylobacteriosis**; 414 cases were male, 337 cases were female, and the sex of 10 cases was unrecorded. Cases were aged between the 0-4 and the 90-94 years age groups with 25% of cases aged less than 5 years.
- Ninety-one notifications of **gonococcal infection** were received; 64 cases were male and 27 were female. Recorded ages were between the 0-4 and the 50-54 years age groups.
- The number of cases of ***Haemophilus influenzae* type b** reported remains low (Figure 6). There were 4 notifications received in the period, 3 males and one female. Cases were aged in the 0-4 (3 cases) and 35-39 (one case) years age groups.
- Twelve incident cases of **hepatitis B** were reported; 6 cases were male and 5 were female and sex was unrecorded for one case. Recorded ages were between the 15-19 and the 45-49 years age groups.
- There were 9 notifications of **hydatid infection** received in the period: 6 cases were male, two female and the sex of one case was unrecorded. Recorded ages were between the 50-54 years age group and the 95-99 years age group. Eight cases were reported by Victoria and one by New South Wales.

Figure 6. *Haemophilus influenzae* type b notifications by age group and month of



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

- Nine notifications of **legionellosis** were received; 6 cases were male and 3 were female. Recorded ages were between the 0-4 years and the 70-74 years age groups.
- Seven cases of **leptospirosis** were reported. Six cases were males and one was female. Recorded ages were between the 15-19 and the 55-59 years age groups.
- There were 7 notifications of **listeriosis** received. Four cases were male and three cases were female. Recorded ages were between the 0-4 and the 80-84 years age groups.
- Twenty-seven cases of **malaria** were reported; 19 cases were male and 8 were female. Recorded ages were between the 5-9 and the 65-69 years age groups. Onset dates were in July (1), September (2), October (7), November (11) and December (6).
- The **measles** epidemic continues with 386 cases notified for the period (Figure 7). One hundred and ninety-nine cases were male, 185 were female, and the sex of two cases was unrecorded. The cases were aged between the 0-4 and the 55-59 years age groups with a mean age of 10.5 years. Twenty-two cases were reported for children aged less than one year. Measles activity increased in the Northern Territory with 29 cases reported.
- Twenty-two cases of **meningococcal infection** were reported; 11 cases were male and 11 were female. Cases were aged from the 0-4 to the 65-69 years age groups with 15 cases aged less than 25 years. There was one apparent cluster of 2 cases with onset dates within one day and who were resident in the same postcode area in New South Wales.
- The **pertussis** epidemic continues with 320 cases reported for the period (Figure 8). One hundred and forty-seven cases were male, 171 were female and the sex of two cases was unknown. Cases were aged between the 0-4 and the 80-84 years age groups with 16 cases aged less than one year. Forty-two per cent of the cases were reported by in Queensland.
- Thirty-nine cases of **Q fever** were reported; 32 cases were male and 7 were female. Fifteen cases were resident in the same Statistical Division in northern New South Wales. Recorded ages were between the 10-14 and the 65-69 years age groups.
- There were 369 notifications of **rubella** received; 251 cases were male, 117 cases were female, and the sex of one case was unrecorded. The cases were aged between the 0-4 and the 80-84 years age groups with 55 cases reported for females in the 15-44 years age group. Eighty-seven per cent of the cases were reported by Queensland.
- There were 279 notifications of **salmonellosis (not elsewhere classified)**; 138 cases were male, 131 cases were female, and the sex of 10 cases was unrecorded. Cases were aged between 0-4 and the 85-89 years age groups with 39% of cases in the 0-4 years age group.

Figure 7. Notifications of measles by month of onset, January 1992 to December 1994

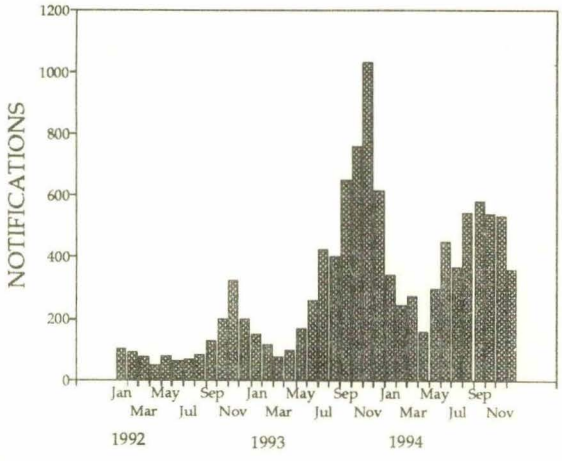
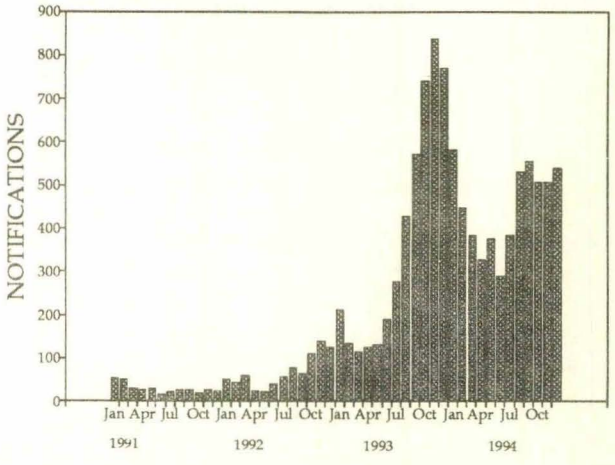
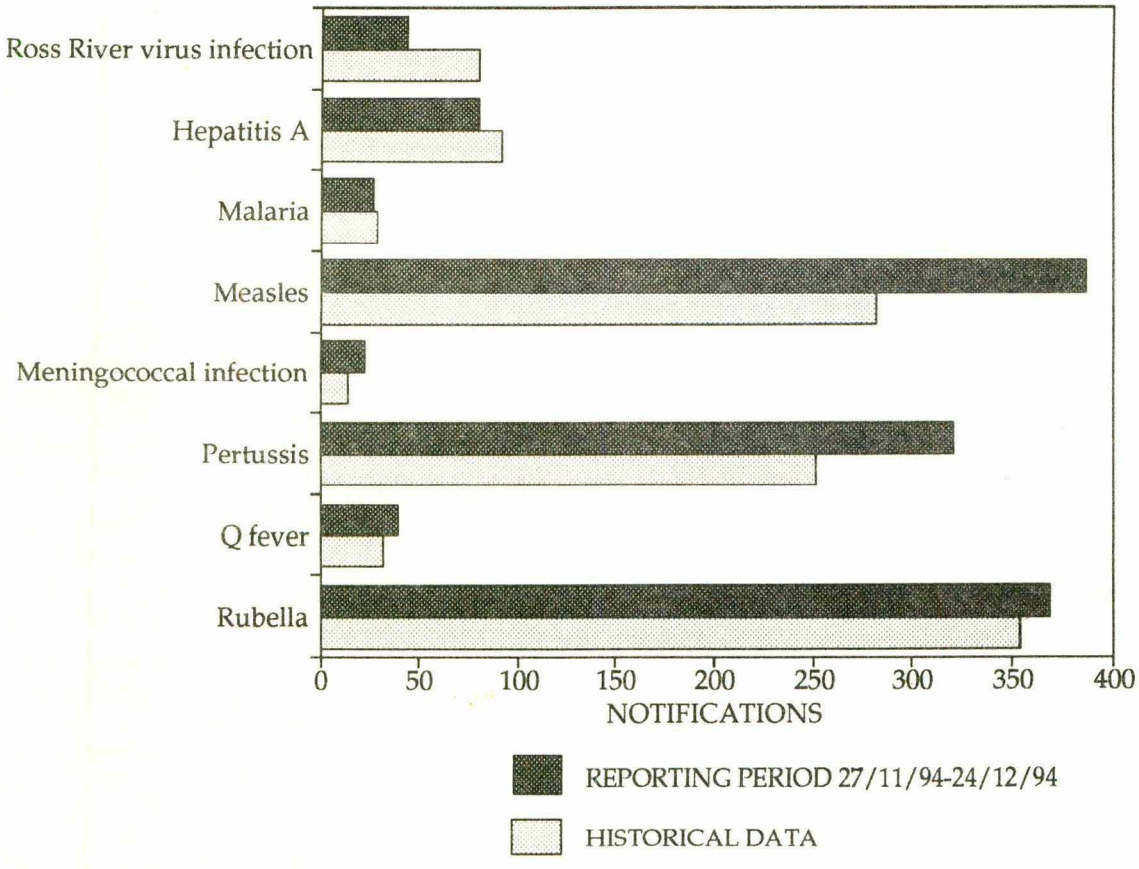


Figure 8. Notifications of pertussis by month of onset, January 1991 to December 1994



- One hundred and three cases of **syphilis** were reported; 63 cases were male, 38 were female and the sex of two cases was unrecorded. Recorded ages were between the 10-14 and the 80-84 years age groups.
- There was a single case of **tetanus** reported, in a male in the 75 to 79 years age group in New South Wales.
- There were 79 notifications of **tuberculosis** received; 46 cases were male, 29 cases were female and the sex of 4 cases was unrecorded. Recorded ages were between the 15-19 and the 95-99 years age groups.
- Thirty-one notifications of **yersiniosis** were received; 17 cases were male and 14 were female. Recorded ages were between the 0-4 and the 50-54 years age groups.

Figure 9. 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 4-week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 6. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 27 November to 24 December 1994

DISEASES	ACT	NSW	NT[3]	Qld[3]	SA	Tas	Vic	WA[3]	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	24	1
Haemophilus influenzae b infection	0	0	0	1	1	0	2	0	4	15	171	382
Measles	18	227	29	89	4	1	18	0	386	720	4693	4496
Mumps	0	0	NN	NN	1	NN	0	0	1	6	28	27
Pertussis	1	53	32	134	43	15	40	2	320	726	5419	3922
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella[3]	9	1	0	320	3	0	32	4	369	434	2963	3794
Tetanus	0	1	0	NN	0	0	0	0	1	0	17	10

1. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
2. Tas: CRS only.
3. Notifications for the Northern Territory, Queensland and Western Australia were not received for the whole reporting period.

NN Not Notifiable.

Table 7. Notifications of other diseases[1] received by State and Territory health authorities in the period 27 November to 24 December 1994

DISEASES	ACT	NSW	NT[8]	Qld[8]	SA	Tas	Vic	WA[8]	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	37	0	-	4	0	44	149	3930	5419
Dengue	0	0	0	0	0	-	0	0	0	1	17	689
NEC[3]	0	1	3	24	0	0	1	0	29	36	591	576
Campylobacteriosis[4]	27	-	10	137	172	74	337	4	761	771	9972	8046
Chlamydial infection (NEC)[5]	4	NN	16	125	27	38	77	1	288	568	6126	6474
Donovanosis	0	NN	0	1	NN	NN	0	0	1	9	109	67
Gonococcal infection[6]	0	12	17	42	7	1	11	1	91	245	2714	2792
Hepatitis A	0	30	1	33	6	0	10	0	80	171	1824	1999
Hepatitis B incident	0	0	1	2	5	0	4	0	12	27	334	276
Hepatitis C incident	-	0	0	-	0	-	-	-	0	2	20	30
Hepatitis C unspecified	38			145		0	302	6	491	645	8675	7502
Hepatitis (NEC)	1	0	0	0	1	0	2	NN	4	7	49	70
Legionellosis	0	1	0	0	2	0	6	0	9	19	207	172
Leptospirosis	0	0	0	3	2	0	2	0	7	18	128	177
Listeriosis	0	1	0	4	0	0	2	0	7	5	33	53
Malaria	1	9	0	9	4	0	4	0	27	49	708	686
Meningococcal infection	1	9	1	7	2	0	2	0	22	29	385	373
Ornithosis	0	NN	0	0	2	1	8	0	11	10	90	98
Q fever	0	18	0	12	0	0	9	0	39	66	633	885
Salmonellosis (NEC)	3	33	20	80	46	9	88	0	279	420	5321	4679
Shigellosis[4]	0	-	4	9	7	0	11	0	31	43	695	703
Syphilis	0	30	16	37	1	1	17	1	103	202	2175	2295
Tuberculosis	2	19	0	8	4	1	45	0	79	78	1087	1067
Typhoid[7]	0	0	0	0	0	0	0	0	0	9	38	71
Yersiniosis (NEC)[4]	0	-	0	18	11	0	2	0	31	39	405	458

1. For HIV and AIDS, see Tables 2 and 3. For rarely notified diseases, see Table 7.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. Tas: includes Ross River virus and dengue.
4. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
5. WA: genital only.
6. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
7. NSW, Vic: includes paratyphoid.
8. Notifications for the Northern Territory, Queensland and Western Australia were not received for the whole reporting period.

NN Not Notifiable.

NEC Not Elsewhere Classified.

Table 8. Notifications of rare[1] diseases received by State and Territory health authorities in the period 27 November to 24 December 1994

DISEASES	Total this period	Reporting States or Territories	Year to date 1994
Botulism	0		0
Brucellosis	4	Qld	31
Chancroid	0		0
Cholera	0		3
Hydatid infection	9	NSW 1, Vic 8	55
Leprosy	0		10
Lymphogranuloma venereum	0		0
Plague	0		0
Rabies	0		0
Yellow fever	0		0
Other viral haemorrhagic fevers	0		0

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

Table 9. Virology and serology laboratory reports by State or Territory[1] for the reporting period 1 to 28 December 1994, historical data[2], and total reports published for 1995

	State or Territory[1]							Total this fortnight	Historical data[2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic			
MEASLES, MUMPS, RUBELLA										
Measles virus	1	1		12	1		2	17	74.0	17
Mumps virus					1		1	2	3.5	2
Rubella virus		2		73			1	76	89.3	76
HEPATITIS VIRUSES										
Hepatitis A virus		6		4	1		1	12	19.2	12
Hepatitis B virus	1	26		12			8	47	99.7	47
Hepatitis C virus	4	72		27	40		21	164	212.5	164
ARBOVIRUSES										
Ross River virus				21	1			22	41.0	22
Barmah Forest virus		1	1	8				10	7.2	10
ADENOVIRUSES										
Adenovirus type 1							1	1	6.8	1
Adenovirus type 2							1	1	7.5	1
Adenovirus type 22							1	1	.0	1
Adenovirus not typed/pending	1	16		1	15		7	40	75.7	40
HERPES VIRUSES										
Herpes simplex virus type 1	1	6		38	42		50	137	201.0	137
Herpes simplex virus type 2		4	1	38	22		26	91	250.7	91
Herpes simplex not typed/pending	3	15		3	2		2	25	33.0	25
Cytomegalovirus		22			1	2	24	49	78.0	49
Varicella-zoster virus		2		9	5		5	21	44.7	21
Epstein-Barr virus		7		13	8		6	34	87.8	34
Herpes virus group - not typed		1						1	1.8	1

Table 9. Virology and serology laboratory reports by State or Territory[1] for the reporting period 1 to 28 December 1994, historical data[2], and total reports published for 1995, continued

	State or Territory[1]							Total this fortnight	Historical data[2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic			
OTHER DNA VIRUSES										
Papovavirus group							1	1	.2	1
Parvovirus					1			1	6.2	1
PICORNA VIRUS FAMILY										
Coxsackievirus A9							1	1	2.0	1
Coxsackievirus B3		1					2	3	.0	3
Coxsackievirus B5							1	1	3.2	1
Echovirus type 3		1						1	.0	1
Echovirus type 6							5	5	.2	5
Echovirus type 30		9						9	12.7	9
Poliovirus type 1 (uncharacterised)		1					1	2	2.2	2
Rhinovirus (all types)		7			2		23	32	55.7	32
Enterovirus not typed/pending		8	1	4			6	19	60.8	19
ORTHO/PARAMYXOVIRUSES										
Influenza A virus		5		1				6	19.2	6
Parainfluenza virus type 2					1			1	1.0	1
Parainfluenza virus type 3		8			1		18	27	28.5	27
Parainfluenza virus typing pending		1					1	2	1.0	2
Respiratory syncytial virus		1			1	2	11	15	22.0	15
OTHER RNA VIRUSES										
HIV-1				2				2	3.5	2
Rotavirus	3	31			10	4	10	58	73.8	58
Astrovirus		1						1	.0	1
Small virus (like) particle		2					1	3	1.8	3
OTHER										
Chlamydia trachomatis not typed	1	5		47	7	1	11	72	130.8	72
Chlamydia psittaci					3		4	7	4.8	7
Mycoplasma pneumoniae	1	1		4	1	1	5	13	84.0	13
Coxiella burnetii (Q fever)		7		4	1		1	13	21.5	13
Streptococcus Group A		1		3				4	12.7	4
Yersinia enterocolitica		9						9	.2	9
Brucella species		1						1	.8	1
Bordetella pertussis		1					8	9	17.8	9
Bordetella parapertussis				1				1	.0	1
Bordetella species				4				4	23.2	4
Cryptococcus species		2						2	.8	2
Leptospira species		1		1				2	.7	2
Treponema pallidum		14					1	15	16.0	15
Toxoplasma gondii		1						1	2.0	1
Schistosoma species							1	1	.0	1
Echinococcus granulosus		1					1	2	.8	2
TOTAL	16	301	3	330	167	10	270	1,097	1,943.7	1,097

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 reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 10. Virology and serology laboratory reports by clinical information for the reporting period 1 to 28 December 1994

	Encephalitis	Meningitis	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA												
Measles virus							7				10	17
Mumps virus											2	2
Rubella virus				3	1		29		4		39	76
HEPATITIS VIRUSES												
Hepatitis A virus					1	3				1	7	12
Hepatitis B virus						11					36	47
Hepatitis C virus					1	16					147	164
ARBOVIRUSES												
Ross River virus							2		3		17	22
[illegible]armah Forest virus				1					3		6	10
ADENOVIRUSES												
Adenovirus type 1				1								1
Adenovirus type 2	1											1
Adenovirus type 22				1								1
Adenovirus not typed/pending				10	17			2			11	40
HERPES VIRUSES												
Herpes simplex virus type 1				5			71	4		34	23	137
Herpes simplex virus type 2							18			68	5	91
Herpes simplex not typed/pending							8	1		9	7	25
Cytomegalovirus			2	14	1		1	3			28	49
Varicella-zoster virus							19				2	21
Epstein-Barr virus	1										33	34
Herpes virus group - not typed							1					1
OTHER DNA VIRUSES												
Papovavirus group											1	1
[illegible]arvovirus							1					1
[illegible]ICORNA VIRUS FAMILY												
Coxsackievirus A9											1	1
Coxsackievirus B3		1		2								3
Coxsackievirus B5		1										1
Echovirus type 3		1										1
Echovirus type 6		3		1				1				5
Echovirus type 30		9										9
Poliovirus type 1 (uncharacterised)				1	1							2
Rhinovirus (all types)				28		1					3	32
Enterovirus not typed/pending		3		3							13	19

Table 10. Virology and serology laboratory reports by clinical information for the reporting period 1 to 28 December 1994, continued

	Encephalitis	Meningitis	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
ORTHO/PARAMYXOVIRUSES												
Influenza A virus											6	6
Parainfluenza virus type 2				1								1
Parainfluenza virus type 3				25							2	27
Parainfluenza virus typing pending				1							1	2
Respiratory syncytial virus				15								15
OTHER RNA VIRUSES												
HIV-1											2	2
Rotavirus					57						1	58
Astrovirus					1							1
Small virus (like) particle					3							3
OTHER												
Chlamydia trachomatis not typed				1						43	28	72
Chlamydia psittaci				5							2	7
Mycoplasma pneumoniae				9							4	13
Coxiella burnetii (Q fever)									1		12	13
Streptococcus Group A											4	4
Yersinia enterocolitica											9	9
Brucella species											1	1
Bordetella pertussis				8							1	9
Bordetella parapertussis				1								1
Bordetella species				2							2	4
Cryptococcus species											2	2
Leptospira species											2	2
Treponema pallidum											15	15
Toxoplasma gondii											1	1
Schistosoma species											1	1
Echinococcus granulosus											2	2
TOTAL	2	18	2	138	83	31	157	11	11	155	489	1097

Table 11. Virology and serology laboratory reports by contributing laboratories for the reporting period 1 to 28 December 1994

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Canberra	14
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	32
	Prince Henry/Prince of Wales Hospitals, Sydney	134
	Royal Alexandra Hospital for Children, Camperdown	41
	Royal Prince Alfred Hospital, Camperdown	28
	South West Area Pathology Service, Liverpool	37
Queensland	Queensland Medical Laboratory, West End	327
	State Health Laboratory, Brisbane	34
South Australia	Institute of Medical and Veterinary Science, Adelaide	166
Tasmania	Northern Tasmanian Pathology Service, Launceston	8
Victoria	Microbiological Diagnostic Unit, University of Melbourne	11
	Monash Medical Centre, Melbourne	26
	Royal Children's Hospital, Melbourne	94
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	145
TOTAL		1097