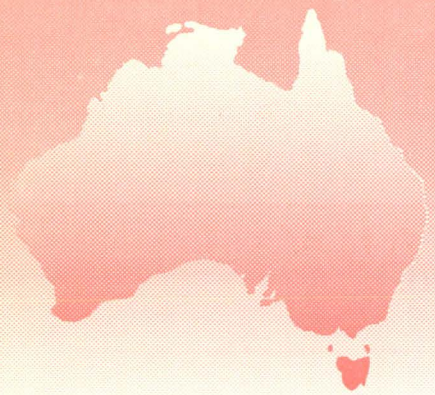

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CONTENTS

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DEPARTMENT OF HEALTH, HOUSING, LOCAL GOVERNMENT AND COMMUNITY SERVICES

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

HEPATITIS E IN THE NORTHERN TERRITORY: A LOCALLY ACQUIRED CASE AND PRELIMINARY EVIDENCE SUGGESTING ENDEMIC DISEASE.

Francis Bowden[1], Vicki Krause[1], James Burrow[2], Bart Currie[2], Timothy Heath[2], Dale Fisher[2], Marc Le Mire[2], Stephen Locarnini[3], Chris Mansell[3], Suellen Nicholson[3], Barbara Demediuk[4]

Introduction

Recently a case of hepatitis E virus (HEV) infection was reported in Australia in a traveller returning from Pakistan[1]. We now report two cases of HEV acquired within Australia, one considered to be confirmed and another considered highly likely to be a case. The implications of the detection of these two individuals are discussed.

Case 1

The patient is a 57 year old non-Aboriginal woman who has travelled and worked in remote Aboriginal communities in the Top End of the Northern Territory for several years, including up until one month prior to her first presentation. She had no history of blood transfusions nor of injecting drug use. She travelled to Hawaii in February 1993. She presented to Royal Darwin Hospital on 15 October 1993 with a four week history of malaise and alcohol intolerance and a two week history of dark urine and pale stools. In the week preceding admission she developed increasing jaundice, anorexia and weight loss. She had no fevers, but described transient arthralgias involving the knees and ankles. There was no history of diarrhoea.

On examination she was jaundiced and her liver was slightly tender but not enlarged. The spleen was impalpable. There were no signs of chronic liver disease. Liver function tests on admission: AST 1233 U/L (normal range 0-40), ALT 1762 U/L (5-44), bilirubin 186 mmol/L (0-20) and alkaline phosphatase 110 U/L (39-117). Liver ultrasound was normal. Serology for hepatitis A (HAV) IgM, hepatitis B (HBV) (surface antigen, core IgM antibody, surface antibody), hepatitis C (HCV), Epstein-Barr virus IgM and cytomegalovirus IgM was negative. No auto-antibodies were detected. Ceruloplasmin and alpha-1 antitrypsin were within normal limits. Serum ferritin was 3,135 mg/L (18-200), with a saturation ratio of 0.94 (0.2-0.5) and a total iron binding capacity of 48 mmol/L (45-81), which was attributed to an acute phase reaction rather than haemochromatosis. HEV serology using the commercial Genelabs EIA and 'in-house' tests at the Victorian Infectious Diseases Reference Laboratory (VIDRL) was positive on the first and subsequent samples taken. The results are summarised in the Table.

Her clinical course has been protracted with persisting cholestatic jaundice and malaise 14 weeks after the onset of the illness. Endoscopic retrograde cholecystopancreatography (ERCP) performed at the Royal Melbourne Hospital excluded an extrahepatic cause of jaundice. Liver biopsy revealed cholestatic hepatitis.

Case 2

A 20 year old pregnant Aboriginal woman from East Arnhem Land presented with fever, jaundice and hepatosplenomegaly in June 1993. Her AST was 1800 U/L (0-40). Her jaundice never completely resolved and in July she had an incomplete septic abortion at six weeks' gestation. In August her jaundice increased and progressive hepatic encephalopathy ensued. Copper and iron studies were normal and alpha-1 antitrypsin levels were within normal range. Serology showed evidence of past infection with HAV and HBV. Antibodies to HCV were not detected. Screening for HEV was negative using the commercially available test. Liver biopsy revealed submassive necrosis with some degeneration and non-specific changes in keeping with drug or viral injury.

Table. Serological results for Case 1

Specimen date	Genelabs EIA*	VIDRL Anti-HEV IgG (synthetic peptide)** (OD)	Western Blot** (ORF2 and 3)
12/10/93	Positive (3.4)	Positive (0.77)	Positive
8/11/93	Positive (2.8)	Positive (0.82)	Positive
30/11/93	Positive (1.4)	Positive (0.70)	Positive

* This is the commercially available kit for the detection of HEV IgG.

** These tests have been developed at VIDRL.

1. Disease Control, Northern Territory Department of Health and Community Services, Darwin.
2. Royal Darwin Hospital.
3. Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital, Victoria.
4. Royal Melbourne Hospital.

Her condition continued to deteriorate and she died in November 1993 as a consequence of sub-acute fulminant hepatic failure despite intensive intervention. Following her death, repeat testing of two serum samples using 'in-house' tests at VIDRL was equivocal for HEV on EIA and positive on Western Blot.

Discussion

Case 1 is the first reported locally acquired case of HEV detected in Australia and Case 2 suggests that the disease is endemic in parts of the Northern Territory. Further epidemiological, virological, serological and molecular studies are underway to confirm that HEV is the agent responsible. Patient 1 returned from Hawaii over six months prior to the onset of hepatitis which is outside the accepted incubation period of HEV (two to nine weeks) and there was no history of contact with an imported case (or with our second case). The failure to detect HEV antibodies in the second case using the Genelabs kit raises some uncertainty concerning the diagnosis but may reflect the presence of a different strain of the virus or a related calicivirus. Preliminary results of a sero-survey of the Top End of the Northern Territory suggest that HEV is present in several remote Aboriginal communities (unpublished data).

HEV, although an enterically transmitted pathogen, is epidemiologically distinct from HAV. Most outbreaks of HEV overseas have been related to a common source, usually a contaminated water supply, and secondary cases are rare[2]. It is not clear if long term immunity always follows acute disease[3,4]. HEV may cause serious illness and the mortality rate in pregnant women may be as high as 20%.

This appears to be a newly introduced infection in the Northern Territory but testing of stored serum (currently underway) will further elucidate this. Over 95% of remote Aboriginals have been infected with HAV by the age of five years (unpublished data). HEV should now be considered in any person in the Northern Territory presenting with an undiagnosed hepatitic illness.

The epidemiology of HEV in Australia is not clear and, although likely to be faecal-oral, the exact mode of transmission in our two cases in uncertain. However, it is important to recognise the potential for contamination of local water supplies which could result in epidemics of HEV in areas such as the Northern Territory.

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SOME OCCUPATIONAL EXPOSURES TO HEPATITIS A

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A large, slowly evolving community-wide epidemic of hepatitis A has been occurring in Far North Queensland (population approximately 205,700) for over a year (Figure). Several common-exposure foci have been identified within the epidemic and human normal immunoglobulin has been used to control transmission in those settings[1,2]. However, several recent episodes emphasise the need for immunisation for those at occupational risk of either exposure to, or transmission of, the hepatitis A virus.

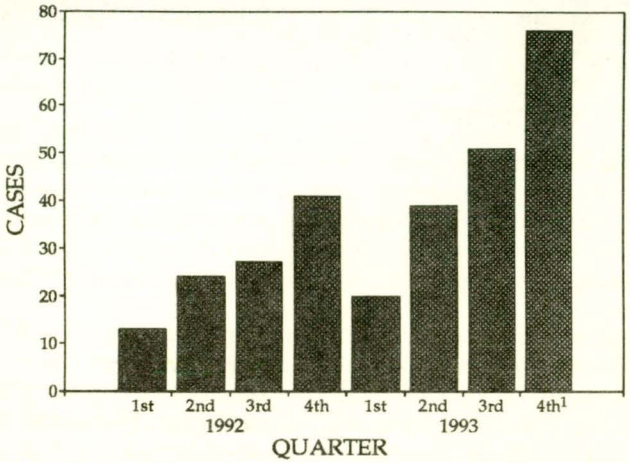
Episode 1

In late May an 11 year old child with Down's syndrome was notified as having acute hepatitis A. The child attended a special education unit that catered specifically for intellectually disabled children aged between five and 11 years of age. Because it was recognised that such children may have suboptimal personal hygiene practices, immunoglobulin was administered to the six staff members and to the 14 other children at the facility. There were no further cases associated with the facility.

Episode 2

In mid-September an 89 year old resident of a nursing home was notified as having hepatitis A. The patient never left the home and she had no local relatives. However, no kitchen, domestic or volunteer staff member was recognised as having had either hepatitis A or jaundice, or as having been off sick with an unexplained illness in the two months prior to the onset of illness in the index case. Similarly none of the other 110 residents of the home, including those recently discharged, were known to have had symptoms or signs of hepatitis A. Therefore the source of the infection remains unknown.

Figure. Hepatitis A notifications, Queensland Peninsula and Torres Strait Region, 1992 to 1993, by quarter[1]



1. The total for the fourth quarter of 1993 is provisional.

The patient was considerably debilitated, and she was incontinent of faeces. Immunoglobulin was given to 41 nursing staff who had had direct contact with the patient in the fortnight prior to the onset of jaundice and in the subsequent week. Because all but four of the other residents of the home were over 65 years of age, it was assumed that the majority had preexisting immunity, and therefore they were not offered immunoglobulin.

Episode 3

In the same week in mid-September a 31 year old woman with hepatitis A was notified. She was employed in a large supermarket delicatessen where she handled foods such as cold meats and pre-prepared salads on a daily basis. Neither a recent routine inspection nor a repeat inspection (in the week following the diagnosis) revealed any food handling or food storage problems at the delicatessen. Immunoglobulin was administered to the nine other delicatessen staff members.

The woman had a 3½ year old daughter who attended a local day-care centre; the daughter had had no obvious symptoms or illness in the preceding two months. On the same day that the woman's illness was notified, the owner/director of the centre was reported as having hepatitis A. The index case's daughter was subsequently tested and found to be hepatitis A IgM positive.

The three epidemiologically-linked cases indicated that hepatitis A was probably being transmitted among the children enrolled at the day-care centre. There were 95 enrolled children ranging in age from 2½ to five years. None of the children were still wearing nappies, but the staff indicated that faecal 'accidents' occurred not infrequently. Immunoglobulin was administered to the remaining nine staff members and to 85 (89%) of the enrolled children. A further four cases associated with the centre (three children, one adult) occurred in the three weeks following the mass administration of immunoglobulin.

Comment

Outbreaks of hepatitis A in facilities where there may be inadequate personal hygiene are well recognised. Examples of such facilities include institutions for the intellectually disabled[3] and child day-care centres, particularly those that enrol children still in nappies[2].

The United Kingdom's recommendations for the use of the hepatitis A vaccine suggest that 'consideration' be given to immunisation of staff in facilities for the 'mentally handicapped' and staff in child day-care centres[4]. Although day-care staff who care for children still in nappies are at particular risk of exposure to hepatitis A virus, it is clear that outbreaks can occur in facilities caring for older children, such as pre-schools[5], and therefore 'consideration' should perhaps be given to the immunisation of all susceptible child-care staff.

Common-source outbreaks of foodborne hepatitis A are usually due to contamination of food by an infected food handler[6]. Provided that food handlers maintain high standards of personal hygiene and food handling practice, the risk of transmission to patrons or customers is probably very small[7]. Regardless, when hepatitis A is diagnosed in a food handler, it is recommended that immunoglobulin be administered to all other food handlers employed at the food outlet[7].

Although some authorities have suggested that food handlers should be considered for immunisation with the hepatitis A vaccine[8], it is difficult to envisage how this could be implemented. Nevertheless large restaurant and food retail chains could consider hepatitis A immunisation for their food handling staff to protect their patrons or customers.

The risk of occupationally-acquired hepatitis A among hospital staff is greatest among registered nurses. Infants and children with clinically inapparent infection are the usual source of infection in hospital settings[9], thus the maintenance of universal infection control precautions is important at all times. There are numerous anecdotal reports of hepatitis A in nursing staff working in paediatric wards in hospitals in central and northern Australia, where the majority of the patients are Aboriginal children[10]. The hepatitis A vaccine should therefore be considered for susceptible nursing staff working in such paediatric wards.

In summary, hepatitis A vaccine should be given to susceptible staff who care for the intellectually disabled and to susceptible child-care staff, and it could be considered for some food handlers and for some health care workers. In these circumstances hepatitis A is an occupational health issue, and therefore the costs of immunisation should be borne by the employer.

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Addendum

After this report was submitted, yet another two child day-care centres - a total of four in Far North Queensland in 15 months - became the foci of hepatitis A. Also, a second facility for the intellectually disabled (a residential facility) developed an internal hepatitis A problem, and another food handler (a restaurateur) developed hepatitis A. In all these circumstances the control measures detailed above were used.

HEPATITIS A IN A COMMUNITY OF PERSONS WITH DEVELOPMENTAL DISABILITIES IN WESTERN SYDNEY

Jane C Bell[1,2], *Evelyn B Crewe*[3], *Anthony G Capon*[1]

Introduction

On 2 February 1993 the Virology Department at the Institute of Clinical Pathology and Medical Research, Westmead Hospital (ICPMR) notified the Western Sector Public Health Unit in western Sydney of a case of acute hepatitis A in a child living in a centre for persons with developmental disabilities. Within two weeks of this case, a further six residents in the same unit as the original case (Unit H) became ill, and hepatitis A IgM was detected, indicating current or recent infection.

After receiving the initial notifications we contacted the centre. We sought to limit the outbreak, to identify further cases, and to detect possible sources of infection.

Outbreak control and investigation

The centre cares for approximately 270 residents with severe developmental disabilities in 11 residential units and employs about 410 staff. Residents are children, adolescents and young adults, and the majority are long term residents at the centre. The centre also provides temporary care for some other clients. Residents are housed according to type of disability. Unit H specifically cares for children and adolescents.

Staff at the centre tightened their hygiene practices and access to Unit H was limited. All permanent residents in Unit H were tested for hepatitis A virus antibodies (anti-HAV). Staff and other residents in Unit H and close contacts of the cases were given human immunoglobulin.

Medical and nursing staff closely monitored all of the centre's residents for clinical evidence of hepatitis A. Nursing staff collected blood samples from all residents over three days. Administrative staff provided a list of permanent residents in each residential unit, and residents' dates of birth and dates of admission to the centre. Staff were asked to contact their own doctor or medical staff at the centre if they developed any signs or symptoms of illness.

We actively sought cases outside the centre. We contacted all centres, hostels and respite care homes for persons with developmental disabilities in the western Sydney area, as well as the Department of Community Services and other Public Health Units in New South Wales. We contacted recent and new hepatitis A cases

1. Western Sector Public Health Unit, North Parramatta, New South Wales.
2. National Centre for Epidemiology and Population Health, Australian National University, Canberra.
3. Institute of Clinical Pathology and Medical Research, Westmead Hospital, Westmead, New South Wales.

to ask about contact with persons with developmental disabilities.

Sera from all permanent residents and from nine other cases were tested for anti-HAV (IgM and total antibody) at the ICPMR. Anti-HAV were determined using a radioimmunoassay (RIA) technique (HAVAB-M and HAVAB, Abbott Laboratories, Chicago). Sera for the 20 other cases were tested in other laboratories in the Sydney area. We defined recent or current infection as anti-HAV IgM positive, and previous infection as total anti-HAV positive and anti-HAV IgM negative.

Results

We obtained demographic information for 266 (98.5%) of the permanent residents at the centre. Ninety (34%) residents were female, and 176 (66%) were male. Their ages ranged from eight to 40 years (mean age 25 years). They had lived at the centre between less than one year and 30 years (mean 14 years). Compared with other residents, those in Unit H were younger (mean age 13.5 years, $p<0.05$) and had lived at the centre for less time (mean 4 years, $p<0.05$).

A total of 14 cases was connected with the centre. Serological testing revealed that two of the 13 permanent residents in Unit H had past HAV infection. All 11 susceptible residents in Unit H developed symptoms

Figure 1. Thirty-one symptomatic hepatitis A cases linked with persons with developmental disabilities, December 1992 to March 1993, by week of onset

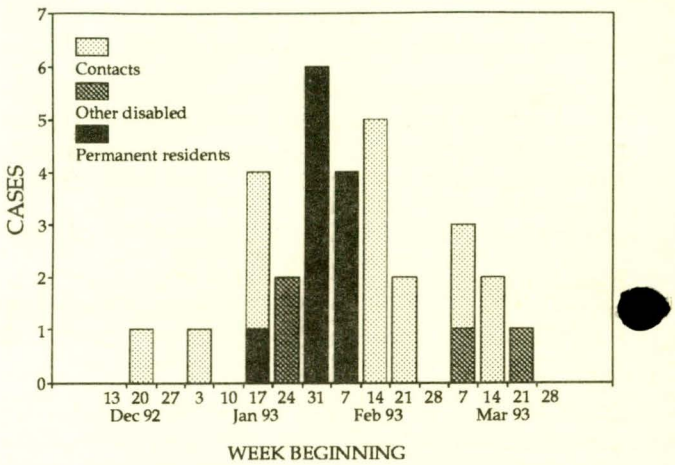
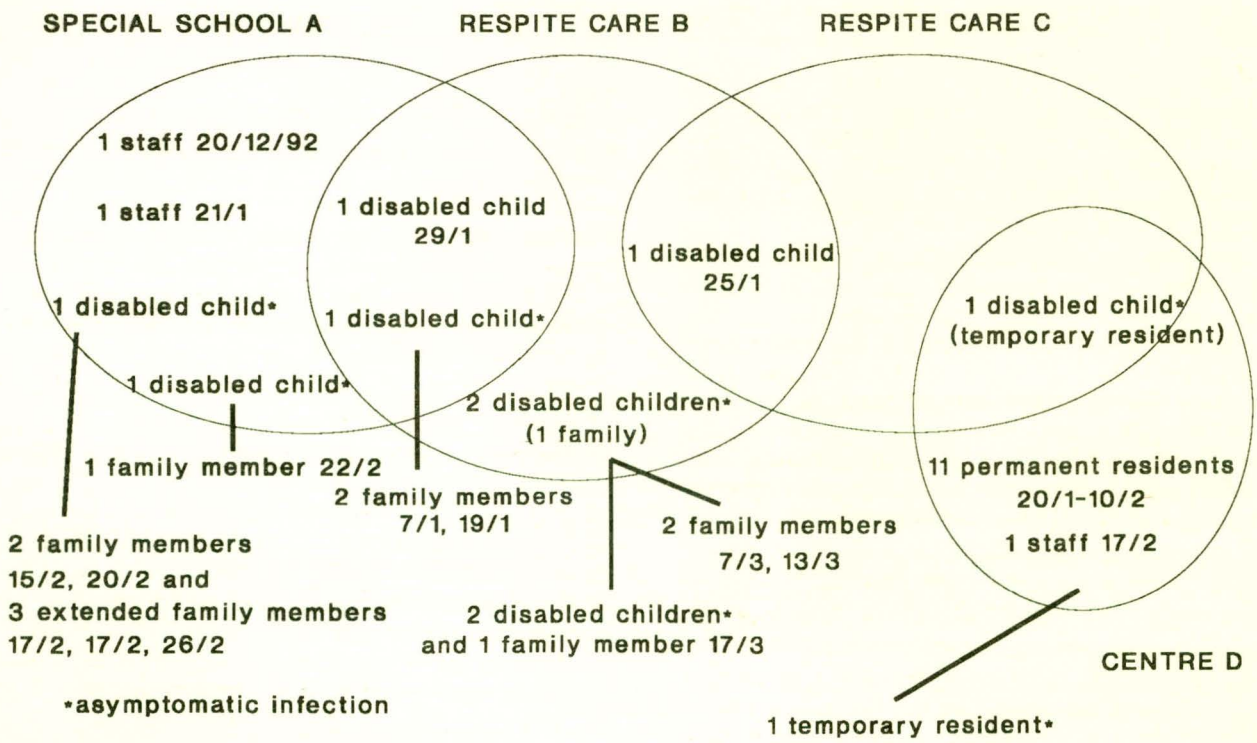


Figure 2. Links between 36 hepatitis A cases and 4 institutions caring for persons with developmental disabilities in western Sydney, December 1992 to March 1993



1. Dates of illness onset (1993 unless stated) are indicated for those with symptomatic infection.

consistent with acute hepatitis A and anti-HAV IgM was detected. During January, four temporary care residents stayed in Unit H. Three were tested for anti-HAV. Although none had been symptomatic, two were anti-HAV IgM positive and the third showed evidence of past HAV infection. We were unable to test the fourth temporary care resident. A nurse working in Unit H became ill four weeks after the first case and anti-HAV IgM was detected. Many of the other staff who worked in Unit H were tested for anti-HAV. No data are available on the numbers tested, or their results.

Blood samples were collected from 259 of the 270 (96%) permanent residents. Serological testing revealed evidence of past HAV infection in 117 residents. With the 11 cases from Unit H, a total of 128 (49%) showed serological evidence of past or current HAV infection.

In addition to the 14 cases connected with Unit H, active surveillance revealed another 26 cases of acute HAV infection linked with people with developmental disabilities.

Of all 40 cases, 24 occurred in children with developmental disabilities and 16 in other persons, including four nursing or teaching staff caring for children with developmental disabilities. Nine asymptomatic infections were discovered in children with developmental disabilities. Two were the temporary care residents from Unit H who were anti-HAV IgM positive and the other seven were identified after a family member was diagnosed with HAV infection. Not all household contacts were tested for anti-HAV, so we could not determine a household attack rate.

Onset of illness for the thirty-one cases with symptomatic infection occurred over a period of four months (Figure 1).

There were epidemiological links between 36 of the 40 cases (Figure 2); cases were linked to the centre, a special school and two respite care centres. No direct epidemiological link could be found for four cases. Three were disabled children and one was a staff member from a special school.

Discussion

It is likely that permanent residents at the centre were exposed to HAV through contacts with temporary care clients. Cases in the community occurred earlier than those in the centre and two of the temporary care residents who stayed in Unit H in January were anti-HAV IgM positive. The nurse from Unit H probably became infected after the residents became ill.

HAV transmission in the centre was unlikely to have been food or waterborne. Meals were prepared in a central kitchen, and distributed to all units and the water supply was common to all units, but cases were confined to Unit H. HAV was probably transmitted between residents in this unit by the faecal-oral route. The behaviours of the residents would have made this likely.

All 11 cases in permanent residents were symptomatic, compared with four of the 13 other cases in children with developmental disabilities. This difference probably relates to awareness of the HAV infection and constant vigilance for clinical signs in residents at the centre. If people cannot communicate easily, mild illness may not be recognised by carers, particularly if carers are unaware of circulating virus. Expression of clinical hepatitis A is age-related. About 40 to 50% of children 10 to 14 years old are symptomatic[1]. There was no difference in mean age between permanent residents with hepatitis A, and other cases with developmental disabilities.

That asymptomatic infections were only recognised in young people with developmental disabilities reflects a detection bias. Developmentally disabled contacts of cases were tested for anti-HAV, whereas other contacts of cases were warned of the symptoms and asked to seek medical care if they became ill. Asymptomatic cases in other persons were more likely to have been missed.

In developed countries such as Australia, hepatitis A occurs mainly in travellers, in outbreaks in child day-care centres, institutions, and in certain population groups such as injecting drug users and homosexual men[2,3,4]. HAV is an important hazard to health care workers. Carers of faecally incontinent people, and others in contact with them, are also at increased risk of HAV infection.[5]

Conclusion

In this outbreak, 24 children with developmental disabilities, four employed carers of these children and 12 of their family contacts acquired HAV infection. Also, more than half of the permanent residents of the centre were susceptible to HAV infection. A safe and efficacious hepatitis A vaccine is now available in Australia[6,7]. People with disabilities, their carers, and family members are obvious target groups for hepatitis A immunisation.

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INVASIVE MENINGOCOCCAL DISEASE IN AN ABORIGINAL COMMUNITY IN NORTH QUEENSLAND

J Hanna, Centre for Disease Control, Tropical Public Health Unit, Cairns; D Alexander, Northern Regional Health Authority, Townsville

In late August 1993, a 9½ year old Aboriginal boy from a remote community (population about 1,000) in north Queensland developed fulminating septicaemia. He died two weeks later; the organism responsible was identified from blood cultures as *Neisseria meningitidis* group C. Twenty-seven extended family contacts, and seven classroom contacts were given rifampicin chemoprophylaxis and the tetravalent meningococcal vaccine. (The youngest contact was three years of age.)

On 21 December 1993 a 10 month old Aboriginal girl from the same community was clinically diagnosed as having meningitis. Although her CSF was virtually normal (upon microscopy and biochemistry), it tested positive for combined *N. meningitidis* groups A, C, Y and W135 antigens. The organism was not able to be cultured for further identification. The child responded well to antibiotic therapy. Her extended family contacts were given intramuscular ceftriaxone chemoprophlyaxis (see below); the meningococcal vaccine was administered to all contacts over one year of age.

On Boxing Day 1993 a 3½ year old Aboriginal boy from the same community was diagnosed as having bacterial meningitis; the following day the organism was identified as *N. meningitidis* with a positive latex test for combined groups A, C, Y, W135 antigens. (It was later confirmed to be group C.) The child's family contacts received ceftriaxone and vaccine as above; he responded well to treatment.

The two cases occurring almost simultaneously prompted a mass meningococcal immunisation program at the community, with the target groups being all children one to 15 years of age (inclusive), older family contacts of the two cases and several older immunocompromised adults. The vaccine was despatched from Melbourne on 27 December, arriving at the community the next day. That day 309 (94%) of the target childhood population was immunised, with all 329 children being immunised by the end of 30 December. Approximately 30 children were away from the community at the time (on Christmas holidays), but it is intended that they be immunised upon their return.

Comment

Rifampicin has long been regarded as the 'first line' antibiotic for chemoprophylaxis of meningococcal infections. However, authorities in the United Kingdom have recently recommended intramuscular ceftriaxone as an alternative to rifampicin, particularly 'when compliance is in doubt'[1]. There were two practical problems with rifampicin chemoprophylaxis at the Aboriginal community in September:

i) inadequate compliance with the four dose regimen in some of the contacts, and

ii) deliberate attention-seeking rifampicin overdosage in three young adults.

Following that experience the alternative ceftriaxone regimen was recommended for the contacts of the subsequent two patients. The ceftriaxone was easy to administer and was well accepted by the contacts; we believe that intramuscular ceftriaxone is preferable to rifampicin for chemoprophylaxis of meningococcal infections in high risk Aboriginal communities where problems with compliance are likely.

It is now recognised that even with adequate chemoprophylaxis, household contacts remain at increased risk of meningococcal disease for several months[2]. Authorities in New Zealand[3], the United Kingdom[4] and several other European countries now recommend that close contacts of an index case (with disease caused by a vaccine preventable serogroup) be given meningococcal vaccine along with chemoprophylaxis. The National Health and Medical Research Council is currently considering a policy of immunisation of close contacts. Because Aboriginal children seem to be at increased risk of not only acquiring meningococcal infection, but also of developing more severe disease, and because Aboriginal communities seem to be at increased risk of sustaining epidemic meningococcal disease[5,6,7] we chose to offer the vaccine to the close

contacts of the index cases. Similarly, although it is usually recommended that school contacts of an index case should not be offered chemoprophylaxis or vaccination[8], we recognise the strong peer-group bonds between Aboriginal children, and chose to give the classroom contacts of the initial case both chemoprophylaxis and vaccine.

It is often difficult to decide when to commence mass meningococcal immunisation. As a guideline, 'two epidemiologically-linked cases (of the same vaccine preventable group) occurring within a four week period' was found to be of use during a large epidemic of meningococcal disease that occurred in central Australian Aboriginal communities in the late 1980s[5]. We used this same guideline and therefore recommended mass immunisation after two non-group B cases occurred within a week. Despite these cases occurring over the Christmas period, the vaccine was able to be obtained and administered promptly, so that the target population was virtually completely immunised before New Year's Day, 1994.

Finally, in 1991 six cases of meningococcal disease occurred in Aboriginal children (at another community in the same region) who had been immunised several months previously[6]. The cause of these apparent vaccine failures remains unknown. However, because the meningococcal vaccine is extraordinarily robust, being able to withstand 45°C for up to a month[9], they are unlikely to be due to vaccine cold-chain failures.

Obviously, ongoing surveillance for further cases of meningococcal disease at the community, and at surrounding communities with social and cultural links to the index community, will be of vital importance.

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SURVEILLANCE DATA IN *CDI*

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CDI publishes reports from several communicable diseases surveillance schemes on a regular basis. These, and other communicable diseases surveillance activities are conducted to monitor the occurrence of communicable diseases, 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 control'; it is characterised by 'methods distinguished by their practicability, uniformity, and frequently by their rapidity, rather than complete accuracy'[1]. All surveillance schemes encompass 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 are described below. Surveillance schemes which are not covered but for which *CDI* also publishes or reproduces reports include the National Tuberculosis Reporting Scheme, the Australian Malaria Register (both conducted under the auspices of the Communicable Diseases Network Australia New Zealand), the Australian Gonococcal Surveillance Programme (soon to be expanded to surveillance for all *Neisseria* species), the Victorian Influenza Surveillance Scheme and the National Salmonella Surveillance Scheme (human isolates).

Operators of other communicable disease surveillance schemes and/or registers who would like to contribute

their data to be published in *CDI* are invited to contact the Editor at the address on the front page.

National Notifiable Diseases Surveillance System

This scheme is the continuation of reports of notifiable diseases which have been published since 1917. Under this scheme, modified anonymous line listings of each case of a total of 44 notifiable communicable diseases are supplied to *CDI* on a voluntary basis by all States and Territories. Data collected for each notification comprise: 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, whether confirmed (as defined by each State or Territory) and period of transmission to *CDI*. Date of onset, sex, age, Aboriginality, postcode of residence and confirmation are nonmandatory data items and are supplied only if known. State and Territory health authorities supply data each fortnight for the entire year and these data include both notifications for the current reporting period and corrections 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 for the current period are listed by State or Territory, and totals for Australia are presented for the current period, the equivalent period of the preceding year, the current year to date and equivalent year to date total for the preceding year.

The first table includes the eight diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation. The third table includes nine diseases that are only rarely notified (fewer than 50 cases notified each year in the previous five years). The remaining 25 diseases are presented in the second table. (HIV infection notifications are not routinely tabulated; HIV infections are included in the HIV and AIDS Surveillance reports.)

A commentary on the results accompanies the tables in each issue, and appears as the last text item in the *Communicable Diseases Surveillance* section. Geographical analysis is included, based on postcode of residence, for most purposes recoded to Statistical Division as defined by the Australian Bureau of Statistics.

Also included each issue is a graph of notifications of 11 selected diseases for the current fortnight and the comparative historical data (averages of the number of notifications in 6 previous 2-week reporting periods: the corresponding periods of the last two 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.

An annual report is compiled for each year's notifications, usually several months into the following year to allow for late reports to be received.

The number of notifications made in the National Notifiable Diseases Surveillance System is influenced by various factors, so the data must be interpreted with caution. First, the proportion of cases notified is not known with certainty for any disease, and may vary among diseases and over time; serious, rare diseases are more likely to be notified than common diseases without serious clinical features. Second, although the NHMRC has recommended a uniform list and uniform case definitions for all the notifiable diseases, the lists of notifiable diseases and surveillance case definitions vary among the States and Territories, and each health authority determines which notifications are accepted, using its own criteria. Third, 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. Comparisons made between States and Territories and with data from previous years must therefore be made with caution.

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).

Virology and Serology Reporting Scheme (LabVISE)

The Virology and Serology Reporting Scheme has been operating since 1977, and covers viruses, chlamydias, coxiellas, rickettsias, mycoplasmas and other organisms diagnosed in virology and serology laboratories.

Eighteen sentinel laboratories from around Australia contribute reports to this scheme. Each report includes the laboratory identification, the date of specimen collection, the organism identification, and data on the source specimen and methods of isolation, direct identification and serology, as appropriate. 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.

Three summary tables are produced and published in each issue of *CDI* from these data, and appear as the last three tables in the *Communicable Diseases Surveillance* section of *CDI*. The first two list the organism identifications by organism group (measles-mumps-rubella, hepatitis viruses, arboviruses, and others). The first table presents the data by State and Territory. Also included are the national totals for the reporting fortnight, an historical national average of the reports in 6 previous 2-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 the date of specimen collection and the date of publication ranges from about two weeks to a few months.

A commentary on the laboratory virology and serology reports is produced each issue, and appears as the first text item in the *Communicable Diseases Surveillance* section. An annual report is compiled for each year, based on the date of specimen collection. It is usually published several months into the following year, to allow for late reports to be received.

The number and diagnostic precision of reports of disease agents made in the virology and serology scheme 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.

LabDOSS

The Laboratory Database of Organisms from Sterile Sites (LabDOSS) 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*.

Nineteen 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 for the year to date, 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.

Annual reports for aspects of LabDOSS are published each year. As the Scheme expands, these reports will become more comprehensive.

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.

The *CDI* Laboratory Reporting Schemes rely on the voluntary participation of laboratories and we acknowledge their contributions with gratitude. The participation of additional laboratories in both the public and private sectors in these schemes is invited (see *CDI* Notice to Readers in this issue).

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* 1993;**17**:37) 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 70 practices in the Network, located as detailed in *CDI* 1993;**17**:37. Delay between the last reporting day and the day of publication for this scheme is eight days.

Sentinel Chicken Surveillance Programme

The Sentinel Chicken Surveillance Programme is coordinated by John Mackenzie and Annette Broom of the Department of Microbiology at the University of Western Australia, and is used to provide an early warning of increased flavivirus activity. Data on flavivirus seroconversions in sentinel chicken flocks in Western Australia, the Northern Territory, Victoria, Queensland and New South Wales 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 infections and AIDS diagnoses and 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, 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 since the introduction of HIV antibody testing, 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 in the quarterly *Australian HIV Surveillance Report*, published by the NCHECR.

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 and the Institut Pasteur, Paris.

Influenza in the Northern Hemisphere

Influenza activity is being reported from several countries in the Northern Hemisphere. In Europe, confirmed influenza A is spreading over several countries: Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Italy, Netherlands, Norway, Spain and Sweden. The peak seemed to have been reached by the end of December for other countries such as France and the United Kingdom. Isolates further investigated have been influenza A H_3N_2, resembling A/Beijing/32/92, the strain recommended for the northern 1993-94 winter vaccine, and for the 1994 winter in Australia.

In the United States, activity has been increasing. By the end of December, there had been widespread activity in Florida and Oregon, regional activity reported from six States and sporadic activity from 25. Death rates had been above normal and 112 isolates had been identified as influenza A by mid-December.

Cholera Update

Khorasan Province in Iran has recently been declared cholera infected. In Pakistan, Kohat, Mansehra and Swabi Districts in the North West Frontier Province, Rawalpindi/Islamabad District in Punjab Province and Karachi City in Sind Province have been removed from the list of infected areas.

Cases of cholera have been reported for October, November and December from Belize, Bolivia, Brazil, Costa Rica, Cote d'Ivoire, Djibouti, Ecuador, El Salvador, Guatemala, Honduras, India, Indonesia, Hong Kong, Mexico, Mozambique, Nicaragua, Pakistan and Tajikistan.

Plague in Peru

Peru has recently reported 228 cases of plague and 16 deaths from the Cajamarca and Piura Departments. Most of the reports (186 cases and 11 deaths) were from the San Miguel Province in Cajamarca Department.

CDI NOTICES TO READERS

Contributions

CDI publishes reports on communicable diseases which have a public health relevance, for example, timely accounts of communicable diseases events which can be used to inform and assist those with responsibility for disease control. Authors are therefore invited to submit contributions which deal with any relevant aspect of the surveillance and control of communicable diseases in Australia. Contributions 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.

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 take responsibility 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; Publication in *CDI* does not necessarily preclude authors from arranging later publication of their material elsewhere.

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. The computerised reporting systems can be used on any IBM compatible computer, and by those with minimal computer experience. They have been written in EpiInfo, a public domain program which combines word processing, database management, statistical analysis and graphics. Limited customisation and support is available, so that the systems can be modified to meet the individual needs of laboratories, whilst retaining the capability of generating reports to contribute to *CDI*. Laboratories can use the programs 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
Leslee Roberts (LabDOSS) (06) 289 7217
David Evans (Systems) (06) 289 7155.

CDI Bulletin Board System (*CDI*-BBS)

Parts of *Communicable Diseases Intelligence* and other regularly updated information on communicable diseases are available through the *Communicable Diseases Intelligence* Bulletin Board System. 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.

The phone number for the system is (06) 281 6695, or from outside Australia, the appropriate international access code, followed by 61 6 281 6695. To access the system, a computer, a modem and communications software (for example NetComm, Telix or Procomm) are required. The recommended configuration is service type BBSANSI, speed 1200, 2400 or 9600 BAUD, data size - 8, parity - none, stopbits - 1. It will also support 'error correction'.

Follow these steps to gain access to the system:

1. Set up a dial-up service in your own communications software.
2. Dial the *CDI*-BBS, and note the ring and connection sounds.
3. Answer the 'Logon' questions as either a new or existing user. Most users will select 'G' for graphics screen when asked which screen configuration is required.
4. At the Main Menu, select 'B' for Bulletins.
5. Select the required option from the Bulletin Menu, for example '1' for the 'Latest *CDI*'.
6. To print the bulletin, select 'Print Capture' from your own software **before selecting the bulletin**. (Remember to disable the 'Print Capture' option afterwards.)
7. To download a bulletin to a file on your computer, there are two options, provided that you have set up a download directory in your communications software:

   i) select 'File areas' (and use 'Area change', if necessary, to move to area 20, *Communicable Diseases Intelligence* Bulletins),

   select 'File titles' and press <enter> to select 'all' files, taking note of the file names (for example TOPIC1.TXT),

   select 'Download (receive)',

select the appropriate protocol (for example 'Z' for Z-modem) and type in name of file required, then press <enter> to start the download.

(NOTE. If using X-modem, use your communications software to choose an appropriate file for receipt of the *CDI* Bulletin file.)

or,

ii) select 'File text' from your own software **before selecting the bulletin** to enable download of the text as you view the bulletin on the screen. (Remember to disable the 'File text' option afterwards.) This option is slower.

8. For Help, select '?' in any section.
9. To 'Logoff', select 'G' for 'Goodbye' and 'Y' to disconnect. If you want to leave a message, enter 'Y', otherwise answer 'N' to the 'Leave message' questions.

Bulletins currently available on the system include the text for the Overseas Briefs, *CDI* Notices to Readers and Communicable Diseases Surveillance 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 Virology and Serology Reporting Scheme and the National Notifiable Diseases Surveillance System.

Future contents will include other recent data on communicable diseases in Australia, and information on travel health, including recommendations for malaria chemoprophylaxis.

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

COMMUNICABLE DISEASES SURVEILLANCE

Virology and Serology Reporting Scheme

There were 2605 reports received in the *CDI* Virology and Serology Reporting Scheme for this reporting period (Tables 7, 8 and 9). Since *CDI* was not published on 27 December, this issue includes more reports than usual. Some laboratories have contributed data for a four week period, whilst more reports with collection dates in 1993 are expected over the next few reporting periods.

- There were 207 reports of **measles** (198 from Queensland) this period bringing the total with onset dates in 1993 to 700, more than ever previously recorded in the Scheme (Figure 1). One report was of a four month old male, and another was of a 13 year old female with encephalitis.
- During 1993 an increased number of cases of **mumps** was reported, 74 reported for 1993 so far. One this fortnight was a 2 year old male with pneumonia.
- **Rubella** was reported for 106 patients (31 from New South Wales and 41 from Queensland) this period, including a 29 year old pregnant female and 15 other females in the 15 to 44 year age group. The total for 1993 is now 836 (Figure 2).
- A total of 427 reports of **Hepatitis A** has been received for 1993.

Figure 1. Measles laboratory reports, 1982 to 1993, by year of specimen collection

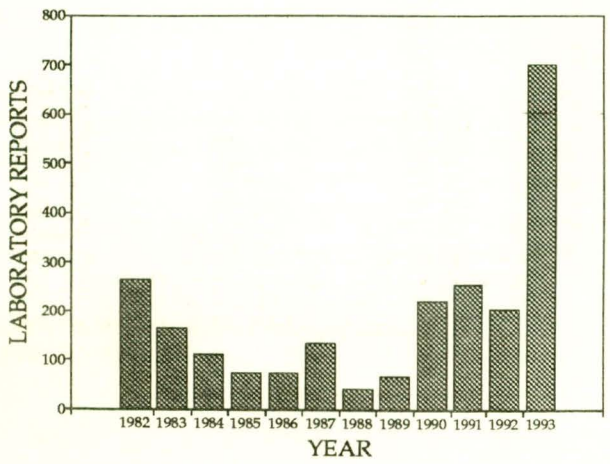
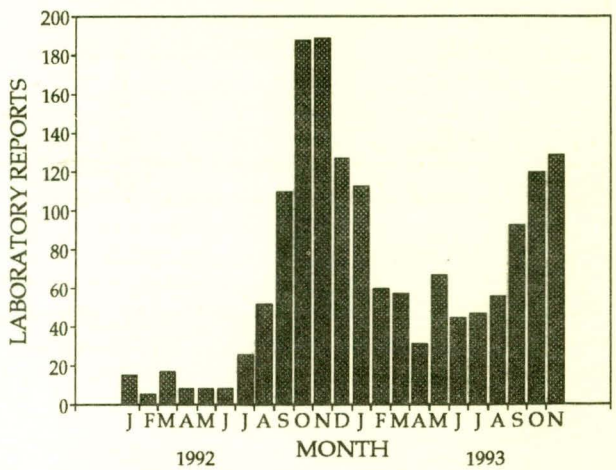


Figure 2. Rubella laboratory reports, 1992 to 1993 by month of specimen collection

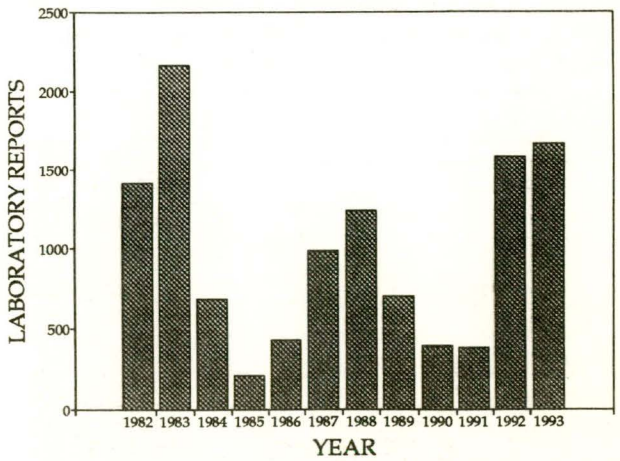


- **Ross River virus** infection was reported for 112 patients this period (specimen collection dates in October, November and December 1993). A total of 106 was from Queensland, and three each were from South Australia and New South Wales. All were presumptive diagnoses.
- There were 16 cases of **Barmah Forest virus** reported, all presumptive diagnoses from Queensland with specimen collection dates from October to December.
- Three cases of eye disease due to **adenovirus type 8** were reported from Victoria. One patient was a sixty year old male with chronic follicular conjunctivitis and another a 55 year old male diagnosed with severe membranous conjunctivitis, having recently visited Taiwan. No clinical information is available for the third case which was a sixty five year old female.
- There were 87 reports of **cytomegalovirus (CMV)** this fortnight. Included were several isolates of interest, one from a post mortem specimen from a 9 month old female who had died of SIDS, a second from the urine of an 18 month old female with nerve deafness and a third from a broncheolar lavage specimen from a 22 year old female following a heart/lung transplant. CMV was also isolated from a three month old set of twins (saliva from one child and urine from the other).
- **Herpes simplex** virus IgM was reported in a newborn male from Western Australia.
- There was a report of **Epstein Barr Virus** (IgM positive) in a 6 year old female with a fever following a liver transplant.
- Two cases of **echovirus type 5** were reported from South Australia, one from the urine of a one month old male who died, and the second from the CSF of a 21 year old male with meningitis.
- Five cases of **echovirus type 11**, two with meningitis, were reported this period, bringing the total for 1993 to 113. This virus was reported from the ACT, New South Wales, Queensland, Victoria, South Australia and Western Australia in 1993 (Table 1).
- **Echovirus type 30** was reported for 11 patients, 10 of which were from Victoria.
- An untyped **enterovirus** was isolated from the faeces of a 32 year old female with a diagnosis of pericarditis.
- **Influenza** activity remains unusually high for the time of year. There were 104 reports this fortnight, 47 of **untyped influenza A** (4 isolations, 5 antigen detections, 4 fourfold changes ,33 single high titres and 1 IgM detection) and 57 reports of **influenza B** (2 isolations, 1 antigen detection, 5 fourfold changes, 3 IgM and 46 single high titres).
- A slight spring peak has been observed in the incidence of **parainfluenza virus type 3.** Twenty two cases have been reported this period (4 isolations, 5 antigen detections and 13 single high titres).
- A case of **Norwalk agent** infection was reported in a 5 month old female from New South Wales with gastrointestinal disease.
- ***Chlamydia trachomatis*** was detected by DNA probe in a 36 year old female with genital disease. This is the first diagnosis of this organism by nucleic acid detection reported to the Scheme.
- ***Mycoplasma pneumoniae*** was reported for 99 patients this fortnight. A total of 1668 reports has now been received for 1993 (Figure 3).

Table 1. Echovirus type 11 isolates by State or Territory for 1993

State or Territory	Laboratory reports
ACT	7
New South Wales	60
Queensland	1
South Australia	2
Victoria	32
Western Australia	11
Total	113

Figure 3. *Mycoplasma pneumoniae* reports, by year of specimen collection, 1982 to 1993



- There were 76 ***Bordetella*** reports this reporting period (21 *Bordetella pertussis* and 55 *Bordetella* species) bringing the total for 1993 to 547 (Figure 4).
- A report was received of a fourfold antibody rise to ***Leptospira*** species in a banana worker with encephalitis from Queensland. The patient was a 31 year old male.
- Positive **syphilis** serology was reported in a 13 year old male, and in a 78 year old female with suspected neurosyphilis.
- Sixty-five cases of **Q fever** were reported this period. Of these, 47 were from Queensland, including one dairy farmer and 3 meatworkers.

Australian Sentinel Practice Research Network

Data for three weeks are presented in this issue of *CDI* (Table 2). There was a total of 5830 patient encounters in Week 50, 5841 in Week 51 and 4441 in Week 52. The rate of reporting of measles decreased in Weeks 51 and 52 compared with the higher than usual rates recorded for Weeks 47 to 50.

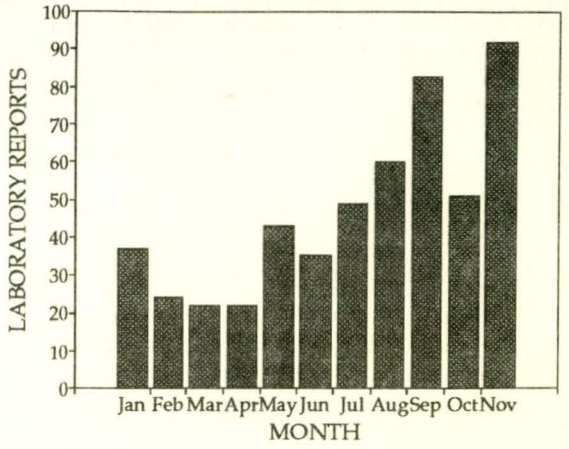
Sterile Sites Surveillance (LabDOSS)

Data for this fortnight have been provided by six laboratories. A total of 152 reports has been included: Liverpool Hospital 22, Royal North Shore Hospital 41, Northern Tasmanian Pathology Service 18, Central Queensland Pathology Service 4,Toowoomba General Hospital 26, Institute of Medical and Veterinary Science, Adelaide 39, Woden Valley Hospital ACT 2.

Organisms reported 5 or more times from blood are detailed in Table 3. Other blood isolates not included in Table 3 were:

Gram positive: 1 *Listeria monocytogenes* (41 year old HIV positive male), 3 *Streptococcus pneumoniae* (22 year old male, 73 year old female and 79 year old male), 2 *Streptococcus* Group B (2 month old female and 61 year old female), 1 *Streptococcus* Group G, 1 *Streptococcus* 'milleri', 1 *Streptococcus mitis*, 1 *Streptococcus sanguis*, 1 *Streptococcus* 'viridans', 1 *Corynebacterium jeikeium* species, 3 *Enterococcus* species (2 *faecalis*).

Figure 4. *Bordetella* laboratory reports for 1993 by month of specimen collection



Gram negative: 1 *Capnocytophaga* DF1 (43 year old male, agranulocytosis), 1 *Haemophilus influenzae* serotype e (65 year old female with lower respiratory tract infection), 4 *Acinetobacter* species (1 *A. calcoaceticus*, 1 *A. calcoaceticus* var *anitratus*), 1 *Haemophilus parainfluenzae*, 1 *Serratia* species, 2 *Morganella morganii*, 2 *Proteus mirabilis*.

Anaerobes: 1 *Bacteroides fragilis*.

Fungi: 3 *Candida* species (1 *C. albicans*, 1 *C. glabrata*, 1 *C. tropicalis*).

Most reports were in patients over the age of 65 year (Figure 5).

CSF and/or meningitis reports

There were four reports of isolates from CSF and/or meningitis (Table 4).

Isolates from sites other than blood or CSF

Joint fluid: 6 *Staphylococcus aureus*, 1 *Enterobacter aerogenes*.

Peritoneal dialysate: 1 *Acinetobacter* species, 1 *Bacillus cereus*, 1 *Enterococcus faecalis*, 1 *Escherichia coli*, 1 *Morganella morganii*, 1 *Providencia* species, 2 *Staphylococcus aureus*, 2 coagulase negative *Staphylococcus*.

Table 2. Australian Sentinel Practice Research Network, Weeks 50, 51 and 52, 1993

Condition	Week 50, to 12 December 1993		Week 51, to 19 December 1993		Week 52, to 26 December 1993	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	19	3.3	4	0.7	6	1.4
Measles	5	0.9	2	0.3	0	0
Rubella	1	0.2	1	0.2	1	0.2
Pertussis	1	0.2	0	0	3	0.7
Genital herpes	2	0.3	2	0.3	2	0.5
Gastroenteritis	90	15.4	90	15.4	76	17.1

Table 3. LabDOSS reports of blood isolates, by organism and clinical information

Organism	Clinical Information						Risk Factors					Total[1]	Total reported for 1993
	Bone/Joint	Lower respiratory	Endocarditis	Gastrointestinal	Urinary Tract	Skin	Surgery	Immunosuppressed	IV line	Hospital acquired	Neonatal		
Staphylococcus aureus[2]	1	1		1	2	9	1	7	3	2		26	714
Staphylococcus coagulase negative[3]						1	3	4	2			11	478
Escherichia coli				8	15	2	5	5				31	738
Enterobacter species[4]				2	1		2	1				6	101
Klebsiella species[5]		1		3	6		2	1				13	335
Pseudomonas aeruginosa				2	2	1	2	1		1		7	169

1. Only organisms with 5 or more reports are included in this table.
2. MRSA 2.
3. *Staphylococcus epidermidis* 9.
4. *Enterobacter cloacae* 4, *E. aerogenes* 1.
5. *Klebsiella pneumoniae* 6, *K. oxytoca* 2.

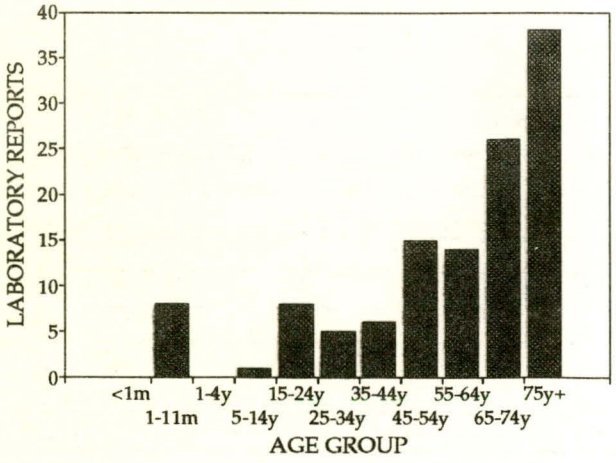
Table 4. LabDOSS meningitis reports, by organism and age group

	1-11 months	1-4 years	15-24 years	25-34 years	65-74 years	Total	Total reported for 1993
Neisseria meningitidis group C			1	1		2[1]	
Neisseria meningitidis group B	1					1[2]	34
Streptococcus pneumoniae					1	1	16

1. NSW, November 1993.
2. Tasmania, November, 1993.

Other: 1 *Mycobacterium avium* (lung fine needle aspirate), 1 Group G *Streptococcus* (endopthalmitis), 1 *Staphylococcus aureus*, 1 *Streptococcus sanguis*, 1 *Streptococcus* species, 1 *Escherichia coli*.

Figure 5. LabDOSS blood isolates, by age group



National Notifiable Diseases Surveillance System, 28 November to 25 December 1993

This period comprised 4 weeks rather than the usual fortnight and this commentary, Tables 5, 6 and 7 and Figure 10 should be interpreted allowing for the longer reporting period. A total of 5,054 reports was received during the extended period (Tables 5, 6 and 7, and Figure 10). Reports were not available from the Northern Territory for the period 11 to 25 December 1993.

- **Ross River virus infection** was notified for 144 cases during the period. These comprised reports for 71 males and females and sex was not recorded for 2 cases. Recorded ages ranged from the 10-14 to the 80-84 years age groups. Onset dates were recorded as June (one), August (one), October (6), November (71) and December (65).
- There was a single case of **dengue** notified, in a female in the 20-24 years age group resident in the Townsville area. The onset date recorded was in November.
- Two cases of **cholera** were reported, for a male in the 25-29 years age group and a female in the 0-4

years age group. They were not apparently epidemiologically linked.

- **Gonococcal infection** was notified for 147 cases. Sexes recorded were 98 males, 48 females and sex was not reported in one case. They were aged between the 10-14 years and the 75-79 years age groups.
- There has been a sustained reduction of reports of ***Haemophilus influenzae* type b infection**. Fourteen notifications of Hib infection were received to bring the total for the year (to 25 December 1993) to 393 notified cases (Figure 6). For the year to 25 December 1992 there were 501 notified cases, whereas in the period 28 November to 25 December 1992 there were 44 notified cases. In the current period there were 5 males and 9 females. A single case was aged less than one year and 12 were less than 5 years. The other cases were in the 5-9 years (one) and 90-94 years (one) age groups. Recorded onset dates for cases aged less than 5 years were January (one), March (one), May (one), November (6) and December (4). There were no apparent clusters.
- A total of 160 notifications of **hepatitis A** were received this period. They were for 84 males, 75 females and sex was not recorded for one case. Ages ranged from the 0-4 to the 75-79 years age groups. Peak ages were in the 10-14 years (23 cases), 20-24 years (19 cases) and the 25-29 years (19 cases) age groups.
- **Hepatitis B** was notified for 158 cases this period. In New South Wales, South Australia and Victoria only incident cases (representing new infections) are reported to the NNDSS. A total of 14 incident cases was reported from these States, for 7 males, in the 15-19 (2), 20-24 (3) and 30-34 (2) years age groups, and 7 females, in the 5-9 (one), 20-24 (3), 30-34 (one) and the 50-54 (one) years age groups.
- Two notifications of **hydatid infection** were received. Both were for males, in the 15-19 and the 40-44 years age groups. They were residents of rural New South Wales and Melbourne.
- Sixteen notifications of **legionellosis** were received, for 12 males, 3 females and sex as not recorded in one case. Ages ranged from the 15-19 to the 80-84 years age groups.
- A single case of **leprosy** was notified, for a female in the 30-34 years age group resident in the Kimberley statistical division in Western Australia.
- Fifteen cases of **leptospirosis** were reported this period. All were for males, between the 15-19 and the 55-59 years age groups. They were for residents of rural statistical divisions in New South Wales, Tasmania and Victoria.
- A total of 43 cases of **malaria** was notified, 30 for males and 13 for females. Recorded ages ranged from the 0-4 to the 70-74 years age groups. One was for a resident of the 'malaria receptive zone'.
- The **measles** epidemic is continuing, with 641 cases notified this (extended) period. The total for the year to 25 December 1993 is 4,339, compared with 1,400 for the equivalent period in 1992 (Figures 7 and 10). Of these cases, 324 were males, 315 were females and sex was not recorded in 2. Thirty-one of the cases were aged less than one year, and the mean age was 12.2 years.
- Twenty-six notifications of **meningococcal infection** were received, for 15 males and 11 females. Six cases had recorded ages in the 0-4 years age group and the oldest case was in the 90-94 years age group. There were no apparent clusters of cases.

Figure 6. *Haemophilus influenzae* type b infection notifications, January 1992 to November 1993, by month of onset and age group

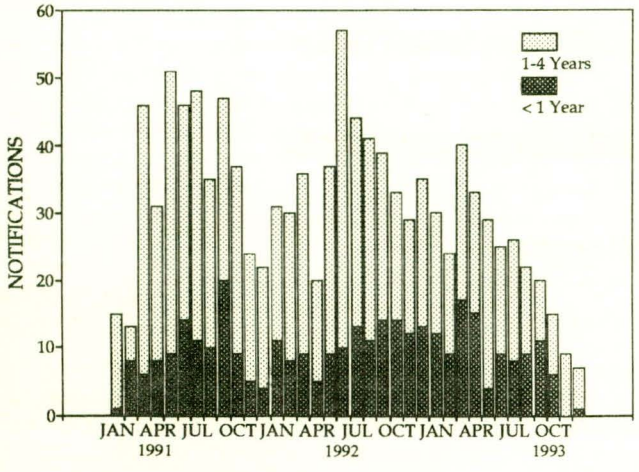


Figure 7. Measles notifications by month of onset, January 1992 to December 1993

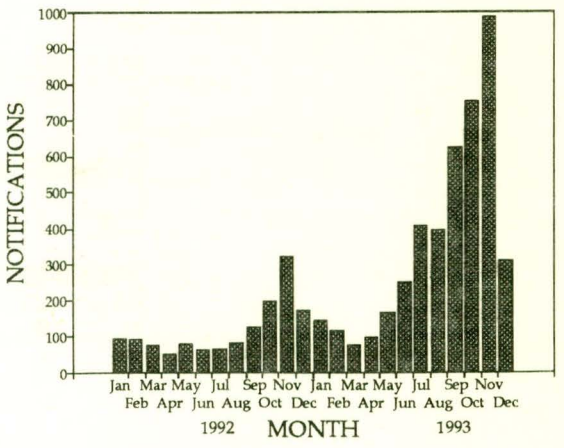


Figure 8. Pertussis notifications by period of onset, January 1985 to December 1993

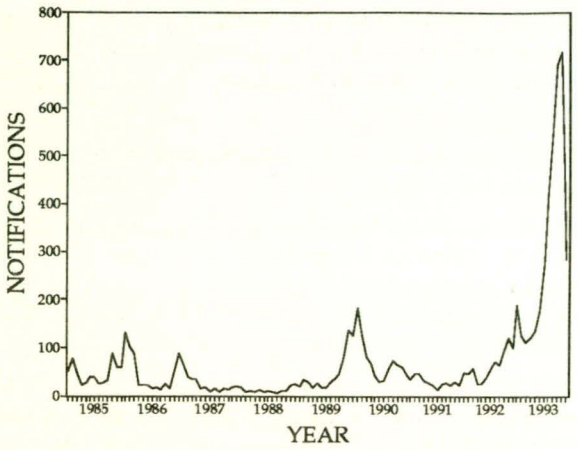
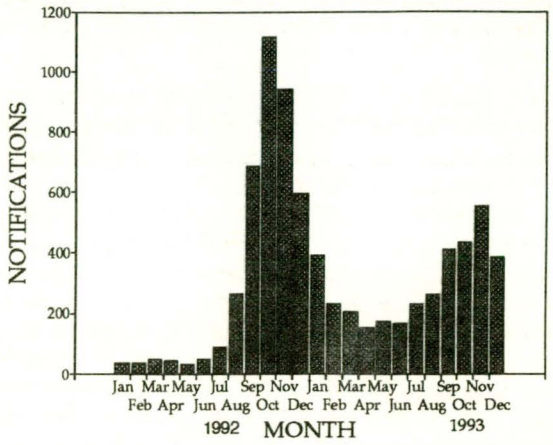
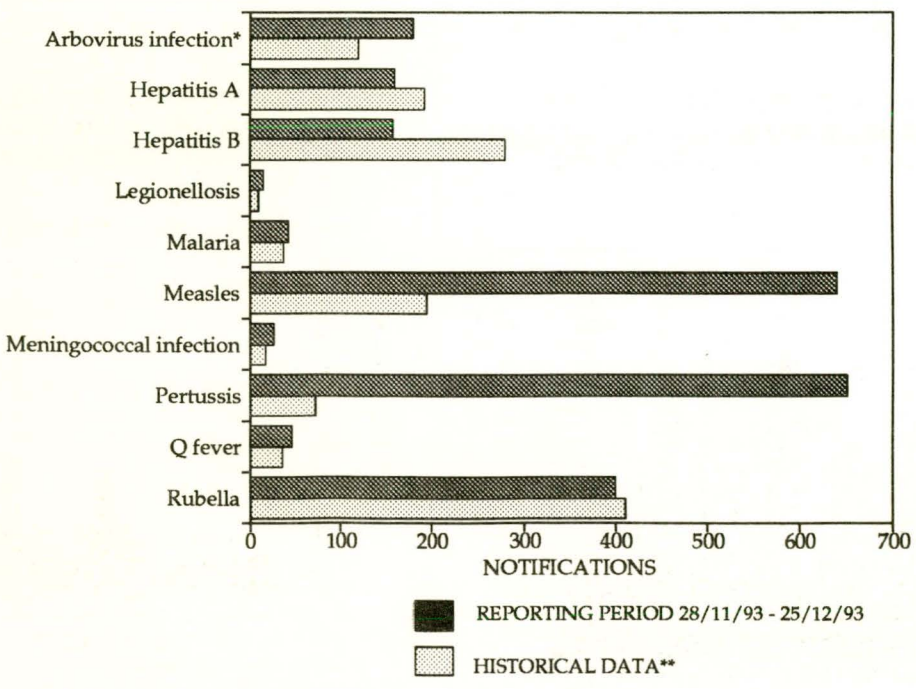


Figure 9. Rubella notifications by month of onset, January 1992 to December 1993



- The **pertussis** epidemic is continuing. There were 652 cases notified this (extended) period, bringing the total to 25 December 1993 to 3,826, compared with 725 to 25 December 1993 (Figures 8 and 10). Thirty-two of these cases were aged less than one year, 91 were aged less than 5 years and ages ranged up to the 90-94 years age group.
- There were 46 notifications of **Q fever**, 44 for males and 2 for females. Ages ranged from the 15-19 to the 65-69 years age groups.
- The **rubella** epidemic is continuing. There were 401 notified cases this (extended) period, to bring the total for the year to 25 December 1993 to 3,623, compared with the 3,747 cases in the equivalent period in 1992, which was an epidemic year (Figures 9 and 10). There were 265 males, 135 females and sex was not recorded for one case. The mean age of cases was 40.8 years and there were 50 reports for females in the 15-44 years age group.
- There were 124 notifications of **syphilis** received. Of these, 54 were for males, 65 were for females and sex was not recorded for 5 cases. Ages ranged from less than one year (2 cases) to the 80-84 years age group.

Figure. Selected National Notifiable Diseases Surveillance System reports, and historical data **



* Includes Ross River virus and Dengue

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

- There were 54 notifications of **tuberculosis**, 29 males and 23 females. Ages ranged from the 10-14 to the 85-89 years age groups. Recorded onset dates were April (one), July (one), August (one), September (3), October (5), November (21) and December (21).
- There were 2 cases of **typhoid** notified, both for males, in the 5-9 years age group in the Sydney statistical division and of unrecorded age in the Brisbane statistical division.

Table 5. Notifiable Diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation for the reporting period 28 November to 25 December 1993

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This Period 1993	This Period 1992	Year to Date 1993	Year to Date 1992
Diphtheria	0	0	0	0	0	0	0	0	0	0	39	14
Haemophilus influenzae b infection[2]	1	1	0	1	1	0	9	1	14	44	393	501
Measles	6	298	2	302	0	15	12	6	641	205	4339	1400
Mumps	0	3	NN	NN	0	NN	0	1	4	1	22	23
Pertussis	2	201	0	121	251	0	47	30	652	135	3826	725
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella[3]	11	54	5	109	37	0	26	159	401	795	3623	3747
Tetanus	0	0	0	NN	0	0	0	0	0	0	8	14

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

NN Not Notifiable.

Table 6. Other Notifiable Diseases[1], for the reporting period 28 November to 25 December 1993

DISEASES	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2] This Period 1993	This Period 1992	Year to Date 1993	Year to Date 1992
Arbovirus infection (NEC)[3]	0	0	1	25	0	2	5	0	33	29	576	302
Ross River virus infection	0	19	3	113	2	NN	2	5	144	162	5399	5614
Dengue	0	-	0	1	-	NN	0	NN	1	11	692	366
Campylobacteriosis[4]	25	-	6	203	166	70	211	61	742	947	7988	9022
Chlamydial infection (NEC)[5]	3	1	2	200	109	9	94	59	477	474	6381	6272
Donovanosis	0	NN	0	4	NN	NN	0	1	5	5	63	75
Gonococcal infection[6]	1	17	8	48	12	0	14	47	147	204	2683	2877
Hepatitis A	0	29	0	119	0	0	10	2	160	187	1965	2092
Hepatitis B	11	9	0	108	1	2	4	23	158	383	2291	5196
Hepatitis C	33	1	NN	211	1	25	284	54	609	711	7529	8765
Hepatitis (NEC)	0	0	0	2	0	0	2	NN	4	11	68	69
Legionellosis	0	6	0	1	4	1	1	3	16	14	158	184
Leptospirosis	0	1	0	0	0	2	12	0	15	23	173	159
Listeriosis	0	0	NN	0	1	0	4	0	5	1	52	38
Malaria	1	22	0	9	0	1	9	1	43	41	671	708
Meningococcal infection	0	12	0	3	0	0	6	5	26	20	369	289
Ornithosis	0	NN	0	0	2	1	0	1	4	6	95	93
Q fever	0	33	0	12	0	0	1	0	46	52	854	543
Salmonellosis (NEC)	4	61	8	150	29	8	80	31	371	283	4588	4581
Shigellosis[4]	0	-	3	7	6	0	6	9	31	79	694	690
Syphilis	0	62	4	43	5	0	0	10	124	181	2177	2680
Tuberculosis	2	17	0	7	4	1	22	1	54	98	966	963
Typhoid[7]	0	1	0	1	0	0	0	0	2	5	36	50
Yersiniosis (NEC)[4]	0	-	0	27	6	0	5	0	38	40	458	563

1. For HIV and AIDS, see Tables 2 and 3, *CDI* 1993;17:609. 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. SA, Tas: includes Ross River virus and dengue.
   WA: includes 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 and Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

Table 6. Rarely Notified Diseases[1] for the reporting period 28 November to 25 December 1993

DISEASES	Total This Period	Reporting States or Territories	Year to Date 1993
Botulism	0		0
Brucellosis	0		18
Chancroid	0		1
Cholera	2	NSW 1, Qld 1	6
Hydatid infection	2	NSW 1, Vic 1	31
Leprosy	1	WA	13
Lymphogranuloma venereum	0		1
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 1987 to 1992.

Table 7. Laboratory reports by State or Territory[1] for the reporting period 2 to 29 December 1993, historical data[2], and total reports published for 1994

	State or Territory[1]								Total this fortnight	Historical data[2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
MEASLES, MUMPS, RUBELLA											
Measles virus		6		198			2	1	207	14.8	207
Mumps virus				9			1		10	2.0	10
Rubella virus		31		46	11			18	106	58.5	106
HEPATITIS VIRUSES											
Hepatitis A virus		3		8			1	1	13	22.3	13
Hepatitis B virus		13		31	8		18	20	90	101.2	90
Hepatitis C virus	9	23		72	83	34	11	68	300	114.7	300
ARBOVIRUSES											
Ross River virus		3		106	3				112	18.0	112
Barmah Forest virus				16					16	2.5	16
Dengue type 2				9					9	.7	9
Dengue type 3				2					2	.2	2
Dengue not typed				2					2	1.7	2
Flavivirus (unspecified)				1					1	1.5	1
ADENOVIRUSES											
Adenovirus type 1		3			1		2		6	8.5	6
Adenovirus type 2					1				1	10.2	1
Adenovirus type 3		2							2	6.2	2
Adenovirus type 4							1		1	6.3	1
Adenovirus type 5					1				1	2.2	1
Adenovirus type 8							3		3	1.7	3
Adenovirus not typed/pending		5		42	16		6	21	90	56.2	90
HERPES VIRUSES											
Herpes simplex virus type 1		30		81	47	3	38	16	215	172.8	215
Herpes simplex virus type 2	2	38		104	51		28	27	250	212.7	250
Herpes simplex not typed/pending	3	26	1	7	1		3	5	46	32.2	46
Cytomegalovirus	1	12		51	4		11	8	87	83.8	87
Varicella-zoster virus		4		38	6		7	7	62	32.5	62
Epstein-Barr virus	1	2		44	33		12	20	112	78.5	112
Herpes virus group - not typed					1		1		2	3.3	2

Table 7. Laboratory reports by State or Territory[1] for the reporting period 2 to 29 December 1993, historical data[2], and total reports published for 1994, continued

	State or Territory[1]								Total this fortnight	Historical data[2]	Total reported this year
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA			
PICORNA VIRUS FAMILY											
Coxsackievirus A9							1		1	1.3	1
Coxsackievirus A16		1					1		2	1.0	2
Coxsackievirus B1							1		1	2.8	1
Coxsackievirus B5							1		1	4.2	1
Echovirus type 5					2				2	.5	2
Echovirus type 11		2					1	2	5	.5	5
Echovirus type 14		1							1	1.3	1
Echovirus type 30					1		10		11	.2	11
Poliovirus type 3 (uncharacterised)						1			1	1.2	1
Rhinovirus (all types)				3	3		24	9	39	42.7	39
Enterovirus not typed/pending		3	1	9			33	7	53	42.2	53
ORTHO/PARAMYXOVIRUSES											
Influenza A virus				29	8		3	7	47	6.8	47
Influenza B virus				49	3	1	4		57	4.5	57
Parainfluenza virus type 1				8	1				9	2.5	9
Parainfluenza virus type 2								1	1	2.2	1
Parainfluenza virus type 3		1		10	4		3	4	22	34.8	22
Respiratory syncytial virus		15		7	3	1	5	24	55	19.7	55
OTHER RNA VIRUSES											
HIV-1				4		1		1	6	2.2	6
Rotavirus	2	41			16	8	6	7	80	88.8	80
Norwalk agent		1							1	1.0	1
Small virus (like) particle		1							1	2.5	1
OTHER											
Chlamydia trachomatis not typed	3	6		56	23	3	2	28	121	128.2	121
Chlamydia psittaci					1		5		6	6.5	6
Chlamydia species				1					1	.0	1
Mycoplasma pneumoniae	1	2		78	8	1	6	3	99	67.2	99
Coxiella burnetii (Q fever)		18		47					65	9.5	65
Rickettsia prowazeki				1					1	.0	1
Rickettsia spp - other		2		3					5	.0	5
Streptococcus group A		4		20					24	5.7	24
Yersinia enterocolitica				1					1	.0	1
Bordetella pertussis		1		7			13		21	1.5	21
Bordetella species		11		43	1				55	8.5	55
Legionella species				1					1	.2	1
Cryptococcus species				3					3	.3	3
Leptospira icterohaemorrhagiae				1			1		2	.0	2
Leptospira pomona				1					1	.0	1
Leptospira hardjo		1		8					9	.2	9
Leptospira species		1		2					3	.0	3
Treponema pallidum		8		29					37	8.8	37
Toxoplasma gondii		1		2					3	1.5	3
Echinococcus granulosus				5					5	.0	5
TOTAL	22	322	2	1295	341	53	265	305	2,605	1,545.8	2,605

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

Table 8. Laboratory reports by clinical information for the reporting period 2 to 29 December 1993

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
MEASLES, MUMPS, RUBELLA													
Measles virus	1		1		7	1		77		2		118	207
Mumps virus					1							9	10
Rubella virus					3			33		3		67	106
HEPATITIS VIRUSES													
Hepatitis A virus							9					4	13
Hepatitis B virus						2	10					78	90
Hepatitis C virus							25				1	274	300
ARBOVIRUSES													
Ross River virus					3			4		24		81	112
Barmah Forest virus										3		13	16
Dengue type 2												9	9
Dengue type 3												2	2
Dengue not typed												2	2
Flavivirus (unspecified)												1	1
ADENOVIRUSES													
Adenovirus type 1					3				2			1	6
Adenovirus type 2					1								1
Adenovirus type 3					1							1	2
Adenovirus type 4					1								1
Adenovirus type 5									1				1
Adenovirus type 8									3				3
Adenovirus not typed/pending		1			37	15		2	5			30	90
HERPES VIRUSES													
Herpes simplex virus type 1					5			98	3		79	30	215
Herpes simplex virus type 2				1				29			183	37	250
Herpes simplex not typed/pending	1							25	2		1	17	46
Cytomegalovirus			1	2	17	3	3	1				60	87
Varicella-zoster virus	1				1			44				16	62
Epstein-Barr virus					4		3	3		3		99	112
Herpes virus group - not typed												2	2
PICORNA VIRUS FAMILY													
Coxsackievirus A9												1	1
Coxsackievirus A16								2					2
Coxsackievirus B1					1								1
Coxsackievirus B5		1											1
Echovirus type 5		1										1	2
Echovirus type 11		2			1							2	5
Echovirus type 14						1							1
Echovirus type 30		10				1							11
Poliovirus type 3 (uncharacterised)					1								1
Rhinovirus (all types)					33			1				5	39
Enterovirus not typed/pending		26	1		7	4		2			1	12	53
ORTHO/PARAMYXOVIRUSES													
Influenza A virus		1	1		23	1				1		20	47
Influenza B virus		2	2		17	2	1	1		2		30	57

Table 9. Laboratory reports by clinical information for the reporting period 2 to 29 December 1993, continued

	Encephalitis	Meningitis	Other CNS	Congenital	Respiratory	Gastrointestinal	Hepatic	Skin	Eye	Muscle/joint	Genital	Other/unknown	Total
Parainfluenza virus type 1					4							5	9
Parainfluenza virus type 2					1								1
Parainfluenza virus type 3					14	1						7	22
Respiratory syncytial virus					52							3	55
OTHER RNA VIRUSES													
HIV-1												6	6
Rotavirus						76						4	80
Norwalk agent						1							1
Small virus (like) particle						1							1
OTHER													
Chlamydia trachomatis not typed									2		103	16	121
Chlamydia psittaci					1							5	6
Chlamydia species												1	1
Mycoplasma pneumoniae					52	1		1				45	99
Coxiella burnetii (Q fever)					4	3	3			6		49	65
Rickettsia prowazeki												1	1
Rickettsia spp - other												5	5
Streptococcus group A					5			2				17	24
Yersinia enterocolitica						1							1
Bordetella pertussis					19							2	21
Bordetella species					29							26	55
Legionella species					1								1
Cryptococcus species												3	3
Leptospira icterohaemorrhagiae												2	2
Leptospira pomona												1	1
Leptospira hardjo							1	1				7	9
Leptospira species												3	3
Treponema pallidum											8	29	37
Toxoplasma gondii										1		2	3
Echinococcus granulosus							1					4	5
TOTAL	3	44	6	3	349	114	56	326	18	45	376	1265	2605

Table 10. Laboratory reports by contributing laboratories for the reporting period 2 to 29 December 1993

STATE OR TERRITORY	LABORATORY	REPORTS
Australian Capital Territory	Woden Valley Hospital, Canberra	18
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	99
	Royal Alexandra Hospital for Children, Camperdown	22
	South West Area Pathology Service, Liverpool	59
	Tamworth Laboratory, New England Pathology	75
Queensland	Queensland Medical Laboratory, West End	930
	State Health Laboratory, Brisbane	444
South Australia	Institute of Medical & Veterinary Science, Adelaide	339
Tasmania	Northern Tasmanian Pathology Service, Launceston	12
	Royal Hobart Hospital	37
Victoria	Microbiological Diagnostic Unit, University of Melbourne	2
	Monash Medical Centre, Melbourne	20
	Royal Children's Hospital, Melbourne	85
	Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital	156
Western Australia	Princess Margaret Hospital, Perth	69
	State Health Laboratory Services, Perth	238
TOTAL		2605