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CONTENTS

ARTICLES

	Page
An Outbreak of Meningococcal Disease on the New South Wales Central Coast, 1991	26
<i>Neisseria meningitidis</i> Groups B and C, Victoria	28
Meningococcal Infections, Western Australia, 1991	29
Meningococcal Infection - National Notifiable Diseases Data	31
Australian Gonococcal Surveillance Programme Report, July to September 1991	36
A Case of Diphtheria in Western Australia	37
HIV Surveillance Report, 31 December 1991	37

OVERSEAS BRIEFS

39

COMMUNICABLE DISEASES SURVEILLANCE

40

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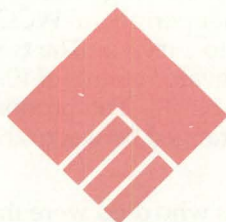
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**DEPARTMENT OF
HEALTH, HOUSING AND
COMMUNITY SERVICES**

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

AN OUTBREAK OF MENINGOCOCCAL DISEASE ON THE NEW SOUTH WALES CENTRAL COAST, 1991

(David Plummer, Clinical Microbiologist, Central Coast Area Health Service¹; Bruce Beaman, Senior Scientist in Microbiology, Gosford Hospital; Roderick Kennedy, Director, Central Coast Public Health Unit; Lucy Cook, Nurse Consultant, Central Coast Public Health Unit)

Between 1 February 1991 and 10 September 1991, Central Coast Area Health Service in New South Wales admitted eight persons with serious meningococcal infections.

All the patients were female, seven of the infections occurred between June and September and the ages of the patients admitted ranged between 3 months and 84 years with a mean of 28.5 years.

The fifth and seventh patients in the series died following fulminant infections (aged 38 and 84). There were two patients who had a prolonged recovery complicated by the development of joint effusions, and one of these also developed pericardial and pleural effusions. These were the four older patients of the series (35 or older). The four patients who were aged 16 or less made uncomplicated recoveries (Table 1).

Table 1. Age of patient and outcome

Age of Patient	Outcome
3 months	Uneventful recovery
6 months	Uneventful recovery
4 years, 9 months	Uneventful recovery
16 years	Uneventful recovery
35 years	Complicated recovery
38 years	Died
50 years	Complicated recovery
84 years	Died

Symptoms

The average duration of symptoms prior to admission was 2.8 days. For the four persons who made an uneventful recovery the average was 1.5 days (range 1 to 3 days) and for the persons who died, the average was 2.0 days (1 day and 3 days). This contrasted with the 5.5 day average (4 days, 7 days) for the duration of symptoms for the two patients who had a complicated recovery. Presenting symptoms included myalgias/artralgias, headache, vomiting, sore throat, fever and rash.

Seven of the eight cases had a rash including the two people who died. Two of the rashes were initially thought to be maculopapular and later appeared to be petechial. The person with no rash had had 2 days treatment with antibiotics prior to presentation. There was a rough correlation between the description of the

rash on the day of presenting and the platelet count (Table 2).

Table 2. Type of rash of presentation, platelet count and outcome

Type of Rash on Presentation	Platelet Count ($10^9/L$)	Outcome
Haemorrhagic	18	Died
Purpuric	83	Died
Petechial	237	Complicated recovery
Petechial	273	Complicated recovery
Purpuric	278	Uneventful recovery
None	300	Uneventful recovery
Maculopapular then petechial	315	Uneventful recovery
Maculopapular then petechial	316	Uneventful recovery

Fever was not a prominent feature at presentation: three patients were febrile and five were not. One of the patients who died was febrile ($38.4^{\circ}C$). (The other patient who died was afebrile in casualty when in shock, but had been febrile at the local medical officer prior to presenting and was febrile again ($38.2^{\circ}C$) during resuscitation.) The other two patients with fever made an uneventful recovery. The patients with complicated recoveries were both afebrile on presentation.

Laboratory findings

Full blood examinations were taken on presentation. All white cell counts (WCC) were elevated on admission: the mean was $23.1 \times 10^9/L$ and the range was 10.4 to $50.1 \times 10^9/L$. Patients with higher peripheral WCCs on presentation were more likely to survive. The two patients who died had modestly elevated counts of 10.4 and $15.6 \times 10^9/L$, respectively (Table 3). The proportion of neutrophils for the patients ranged between 60% and 97%, with a mean of 84%.

Platelet counts for the two patients who died were the lowest of the group: 18 and $83 \times 10^9/L$, respectively, whereas the lowest count within the surviving group was $237 \times 10^9/L$ (Table 3).

Blood cultures were done for seven patients and were positive for *Neisseria meningitidis* in three, including the two who died. CSF was collected from the six patients

1. Current address: Sydney Hospital

Table 3. Peripheral white cell count and outcome

Peripheral White Cell Count ($10^9/L$)	Outcome
10.4	Died
13.7	Uneventful recovery
15.6	Died
19.6	Complicated recovery
20.4	Complicated recovery
21.8	Uneventful recovery
32.8	Uneventful recovery
50.1	Uneventful recovery

who survived. Evidence of meningitis was present in all CSF specimens, with WCCs ranging from $414 \times 10^6/L$ to $16,850 \times 10^6/L$ (mean $7,360 \times 10^6/L$). Protein levels were raised in all six specimens and glucose levels were low in five of the six.

Five patients had urine samples tested for meningococcal antigen. The two who were positive had also had a positive blood culture and one of them died.

Four of the six had positive CSF cultures and four had positive CSF meningococcal antigen tests. One was positive for antigen alone and another was positive for culture alone (Table 4).

Five of the six isolates were group C meningococci. The other was described as nontypeable by the reference laboratory at Westmead. It too may have been group C, both on epidemiological grounds and because the corresponding urine antigen test for A,C,Y,W135 was positive. All organisms were fully sensitive.

Management

Meningococcal infection was diagnosed by clinical presentation and culture in six people, by clinical presentation and CSF antigen in one and by clinical presentation alone in one. Both patients who were culture negative were given antibiotics prior to obtaining specimens, both had abnormal CSFs with raised polymorphs and raised protein levels, and both survived.

All patients were treated with penicillin and seven of the eight were also given a third generation cephalosporin. Treatment continued for between 10 to 14 days in those who survived.

Table 4. Culture and antigen test results

Test	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8
CSF culture	pos	pos	neg	pos	neg	pos		
Blood Culture	pos	neg		neg	neg	neg	pos	pos
CSF antigens	pos	pos	pos	neg	neg	pos		
Urine antigens			neg	pos	neg		pos	neg
Prior antibiotics	no	no	yes	no	yes	no	no	no

Two of the six survivors had recovery complicated by troublesome joint effusions and one also had pleural and pericardial effusions. Aspirates from the pleural and joint effusions from one of these patients were sterile.

Despite exhaustive investigations no epidemiological links were found between the cases. Close contacts of seven of the eight patients are known to have subsequently received rifampicin.

Discussion

In this small outbreak of serious group C *N. meningitidis* infection, the average age of infection was higher than is usual for endemic disease, and mortality or other complications occurred in the four people who were 35 or over. Such increases in the age of *N. meningitidis* cases may signal the onset of epidemics¹.

A range of symptoms occurred prior to presentation. Atypical (non-petechial) rashes have been described by some workers², and two of the patients in this series had rashes which were initially maculopapular but soon evolved into more typical petechial patterns. There was a reasonable correlation between platelet count and the description of the rash on presentation; the two rashes that seemed to evolve from an initial maculopapular pattern had the highest initial platelet counts. Clearly platelet counts do not need to be below normal for the rash to be described as petechial or purpuric.

It has been suggested that the mortality during an epidemic in western countries is around 8 to 10%³, yet the mortality of this outbreak was 25%. It is noteworthy that the deaths in this series were the fifth and seventh cases and therefore the outcome may well be attributable to the nature of the illness rather than a low index of suspicion of the staff. Being female was clearly a high risk factor for infection. Older age, higher temperature on day one, lower peripheral white cell count and lower platelet counts all seemed to correlate with poor outcome.

The duration of symptoms prior to presentation did not predict mortality but did seem to correlate with the development of late sequelae. Late sequelae including joint and pericardial effusions have been well documented^{4,5} and may have an immunological origin.

Although at first it would appear that death and complications seemed to be part of a continuum, they may reflect two different processes. In particular, the people who died suffered from a sudden onset

overwhelming infection whereas those who survived to develop complications did not present with fulminant infection and had comparatively long periods with symptoms prior to seeking treatment.

Two patients received antibiotics prior to samples being taken for culture and their cultures were sterile. They were included in this report because one had documented meningitis with a classic rash during an outbreak, and the other had a positive CSF meningococcal antigen test. It would seem that cultures do rapidly become negative following antibiotics. While criticism is often directed at practitioners who administer antibiotics prior to making the diagnosis, it is worth noting that meningococcal sepsis can indeed be a fulminant disease and both people who were 'pre-treated' survived.

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NEISSERIA MENINGITIDIS GROUPS B AND C, VICTORIA

(Reproduced with permission from *Vic Bug Issue No 4/91 (August 1991)*, Victorian Hospital Pathogens Surveillance Scheme of the Standing Committee on Infection Control, Microbiological Diagnostic Unit, University of Melbourne)

During the three year period July 1988 to June 1991 inclusive, the Victorian Hospital Pathogens Surveillance Scheme received 198 reports of *Neisseria meningitidis* from blood and CSF infections.

During the first 12 month period, group C was the predominant isolate (C 51%, B 29% of total *N. meningitidis* isolates) (Figure 1). From July to December 1989 there was a significant increase in the number of group B and C isolates (50 compared with 20 for the corresponding period of 1988). (There were 6 isolates of other groups in both periods.) The ratio of group B to total isolates did not alter (29% in July to December 1988; 30% in July to December 1989) and the proportion of Group C increased by less than 10% (51%

Figure 1. Reports of *Neisseria meningitidis*, by two month periods, July 1988 to June 1991

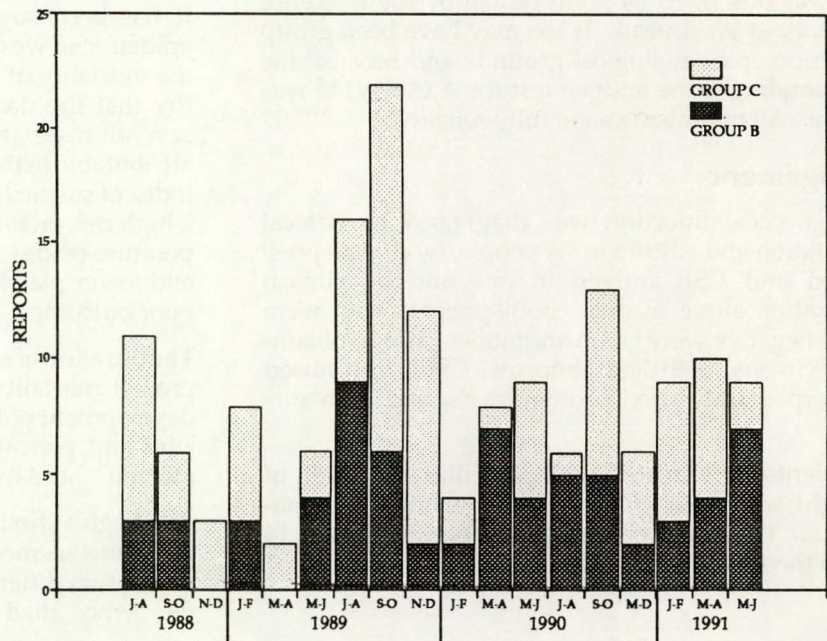
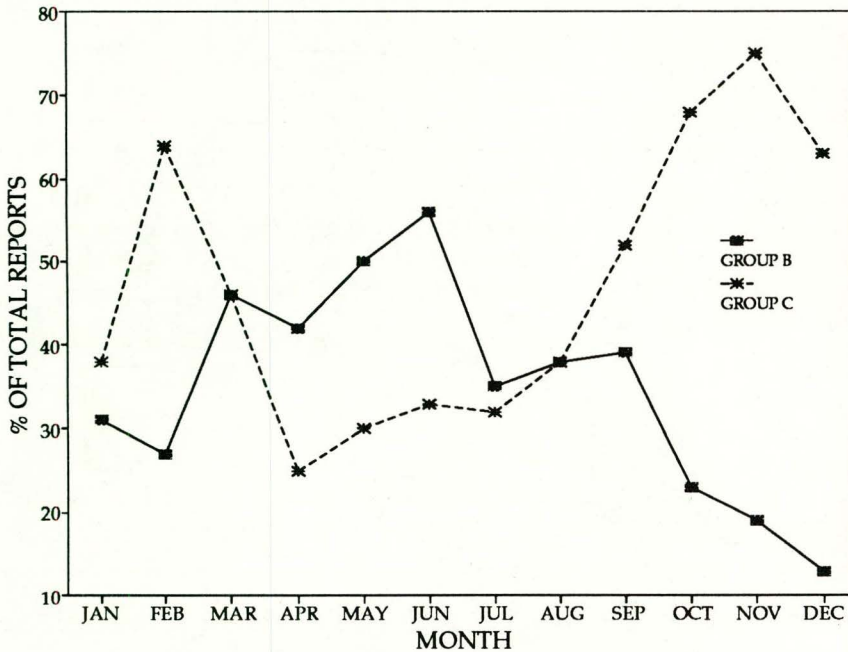


Table. Group B and group C isolates as a proportion of total *Neisseria meningitidis* isolates, by six-month periods, July 1988 to June 1991

Group	Percentage of Total Isolates					
	Jul 1988 - Dec 1988	Jan 1989 - Jun 1989	Jul 1989 - Dec 1989	Jan 1990 - Jun 1990	Jul 1990 - Dec 1990	Jan 1991 - Jun 1991
B	23	37	30	43	38	48
C	54	47	59	27	41	48

Figure 2. *Neisseria meningitidis* group B and group C isolates, as percentages of total isolates, average for each month during the 3 year period July 1988 to June 1991



to 59%). During the following 18 month period, January 1990 to July 1991, the rate of isolation appeared to level out.

The proportion of isolates (% of total *Neisseria* isolates) by 6 month groups shows the changing balance of groups B and C over the three year period (Table).

When the three figures are compiled for group B and for group C, a difference in seasonal variation between the groups is apparent (Figure 2). This suggests that there is a greater incidence of group B *N. meningitidis* in autumn to mid-winter, with group C being predominant in spring through to autumn. It will be interesting to see if the pattern continues and whether the proportions of groups B and C change again.

MENINGOCOCCAL INFECTIONS, WESTERN AUSTRALIA, 1991

(Based on *Invasive Meningococcal Infection, Western Australian Notifiable Diseases Bulletin 1(11):4-6*)

There was a total of 40 cases of invasive meningococcal infection notified to the Health Department of Western Australia during 1991.

Figure 1. Invasive meningococcal infection, by month of onset of illness, Western Australia, 1991

The largest numbers of cases occurred from early to mid-winter through to late spring (Figure 1), following the pattern for the period 1986-1990¹. The cases in winter and spring have tended to occur in the south of the State. In the northern tropical area of the State, cases have instead been associated with the wet season over the summer period and cases occur sporadically in the central arid zones of the State.

Cases occurred scattered throughout the ten Western Australian Health Regions (Figure 2) in 1991, with the highest numbers of cases in the South Metropolitan Region (11 cases), the

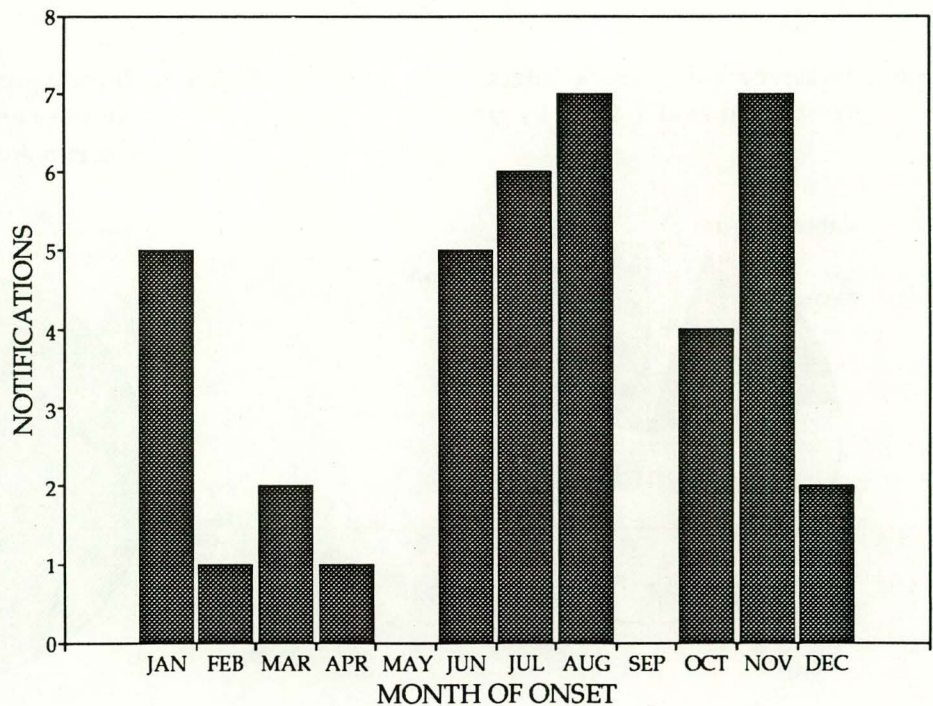


Figure 2. Distribution of cases of invasive meningococcal infection, by serogroup and Health Region, Western Australia, 1991

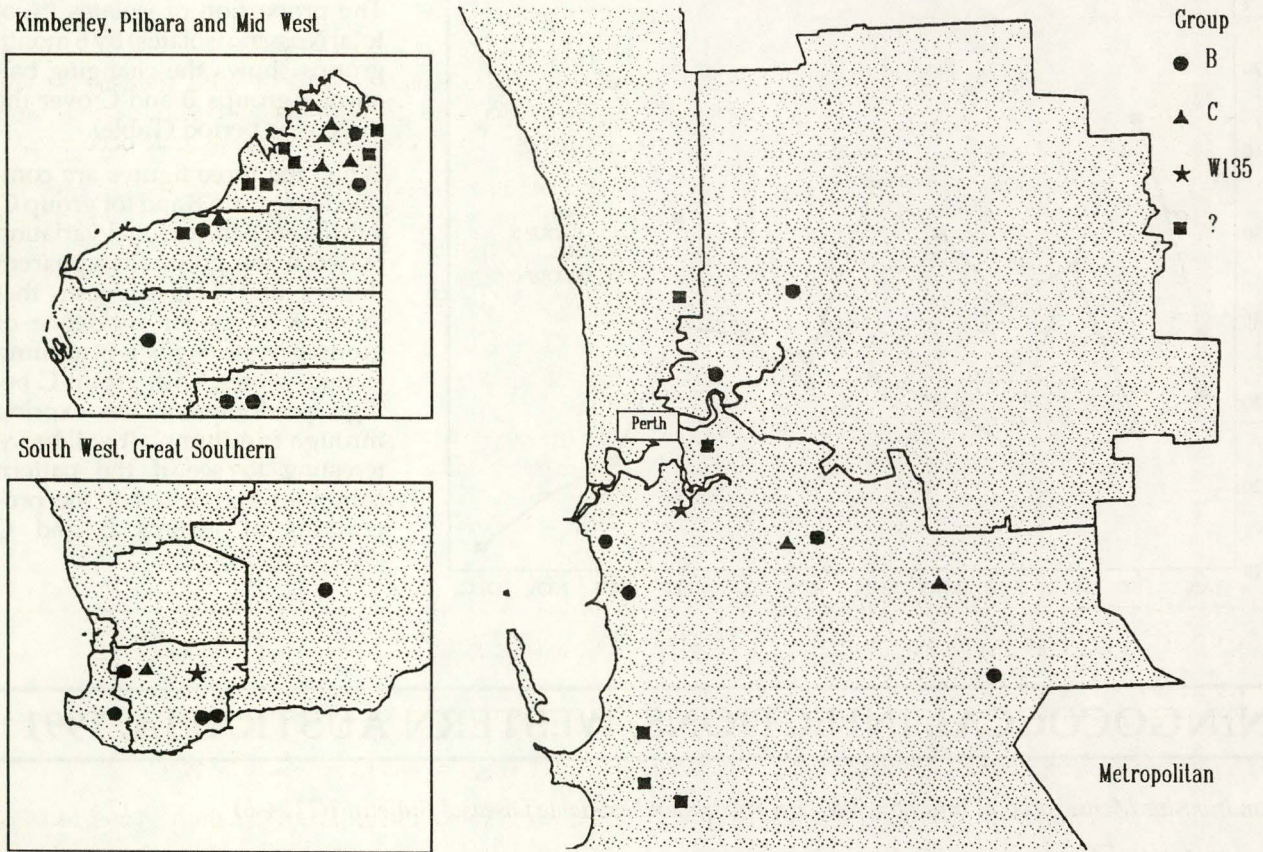


Figure 3. Invasive meningococcal infection Western Australia, 1991, by group

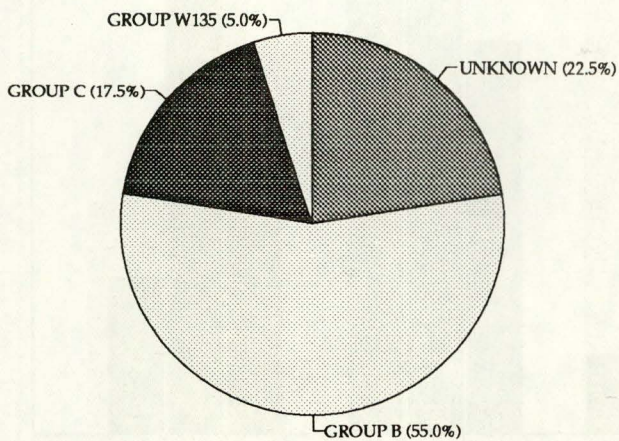


Figure 4. Clinical presentations of patients with invasive meningococcal infection, Western Australia, 1991

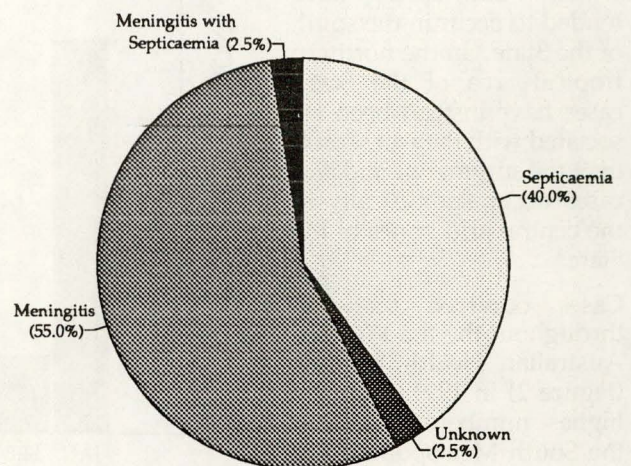
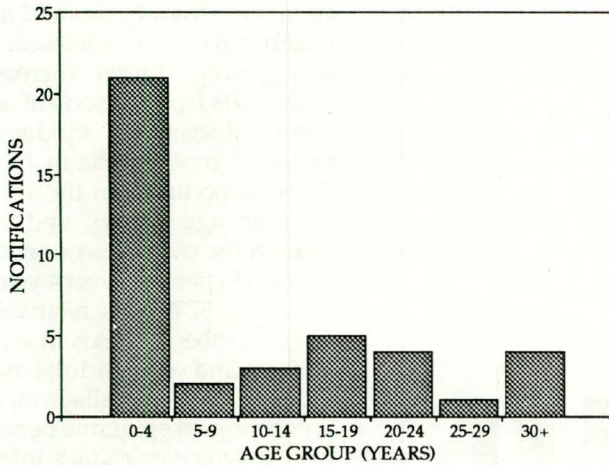


Figure 5. Notified cases of invasive meningococcal infection, Western Australia, 1991, by age group and sex



Kimberley Region (13 cases) and the Great Southern Region (5 cases).

Twenty-two of the cases were group B, and group C and group W135 cases are also known to have occurred (Figure 3).

Just over half the cases presented with meningitis, although there was one patient with meningitis with septicaemia, and 16 patients with septicaemia alone (Figure 4). Six deaths are known to have occurred.

Most of the cases occurred in young children aged less than 5 years (Figure 5). There were more cases in females (21) than in males (19). This is not usual for meningococcal infections, but has been associated with the disease in Western Australia.

Reference

1. Invasive meningococcal infection. *Western Australian Notifiable Diseases Bulletin* 1991;1(1-6):4.

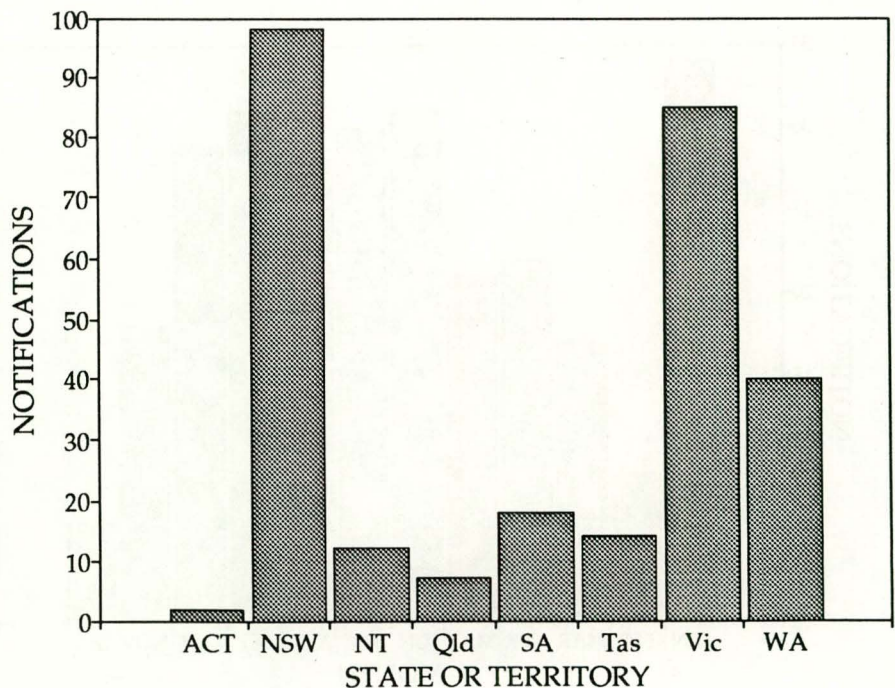
MENINGOCOCCAL INFECTION - NATIONAL NOTIFIABLE DISEASES DATA

(Jenny Hargreaves, Communicable Diseases Section, Department of Health, Housing and Community Services)

Meningococcal infection is a notifiable disease in all States and Territories of Australia. In 1991, a total of 276 cases were notified in the National Notifiable Diseases Scheme, with the largest number of cases being reported from the two most populous States: New South Wales and Victoria (Figure 1).

the cases occurred in children less than 5 years old, and 30% were in children less than 2 years old. The three States which had more than 20 notifications each (New South Wales, Victoria and Western Australia) had pro-

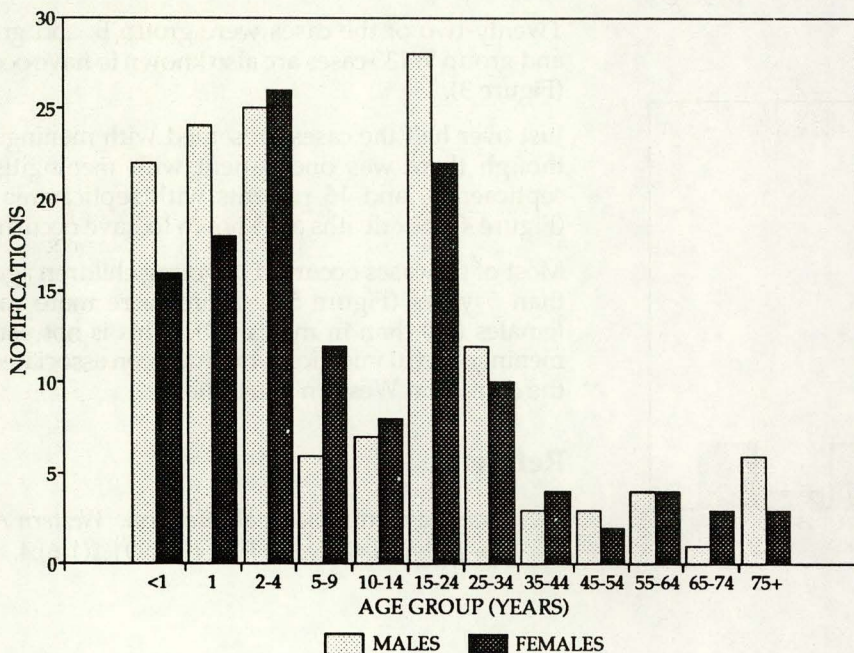
Figure 1. Meningococcal infection notifications, 1991, by State and Territory



The overall notification rate for Australia was 1.60 cases per 100,000 population, which is within the reported range for rates of endemic meningococcal infection in industrialised countries¹. The highest rates of notification were in the Northern Territory (7.58 per 100,000 population), Tasmania (3.05) and Western Australia (2.42). (Rate calculations for 1991 are based on the Australian Bureau of Statistics' estimated resident populations on 31 December 1990.)

The age distribution of the notified cases was bimodal (Figure 2), with peaks in the 0 to 4 years and the 15 to 24 years age groups. Overall, 48% of

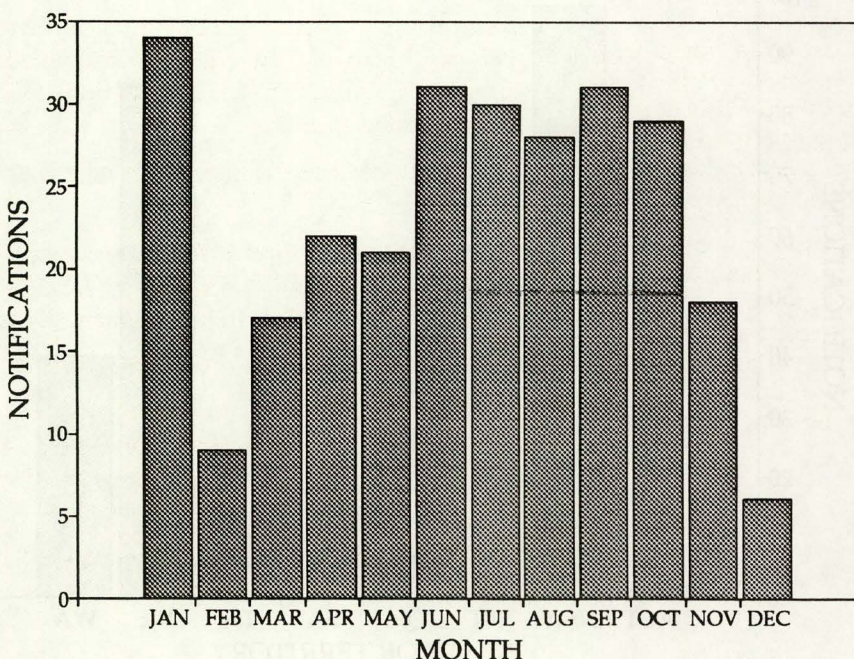
Figure 2. Meningococcal infection notifications, 1991, by age group and sex



portions of cases in children less than 5 years old that were close to the overall proportion for Australia (59%, 48% and 52% respectively). The other areas of Australia had smaller proportions of notifications in this age group.

Meningococcal disease is primarily a disease of young children², and it is expected that, during endemic disease periods in industrialised countries, a large proportion of cases will occur in children less than 5 years old. In the United States, for example, 51% of

Figure 3. Meningococcal infection notifications, 1991, by month of onset of disease



cases occurring in 1981 were in children less than 5 years old¹.

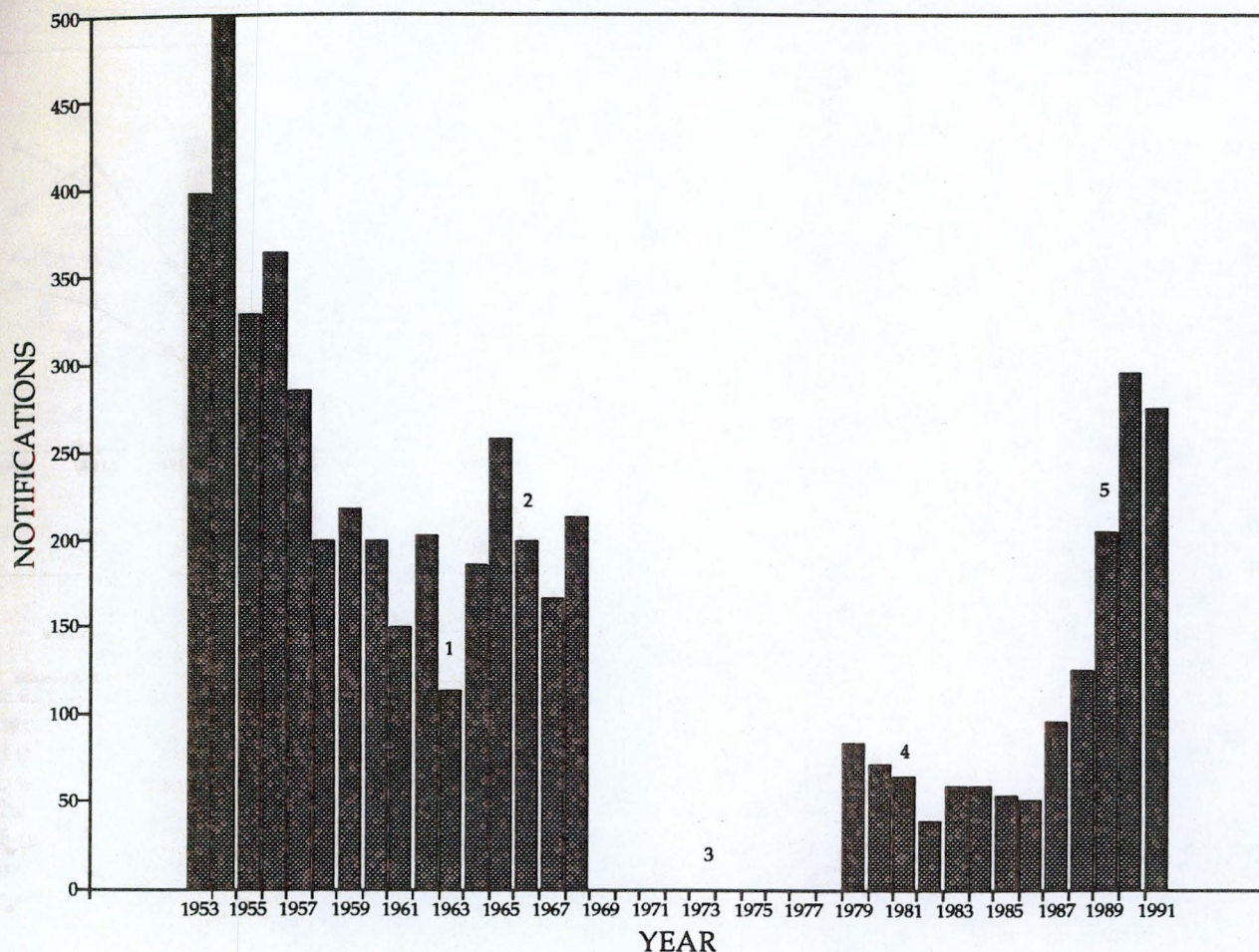
It has been suggested that the proportion of cases in persons aged more than 4 years and the number of cases in adolescents and young adults increase with shifts from periods of endemic disease to epidemic periods³. In Australia in 1991, 72 cases occurred in the 15 to 34 year age group, and although the overall proportion of cases in persons over 4 years was only 52%, this relatively large number of cases in adolescents and young adults may indicate that Australia is in, or is entering an epidemic period for *Neisseria meningitidis* infections. Unfortunately, 1991 was the first year that age data were collected nationally for the Notifiable Diseases, so there are no comparable data

from previous years. Such data are to be collected from now on, however, and may prove useful in forecasting or identifying epidemic periods in the future. There were more cases in males than in females in 1991 (ratio 1.11:1.00), particularly in children aged less than 2 years (ratio 1.35:1.00). This difference in attack rates between the sexes is typical for this disease².

The seasonal distribution of 1991 cases shows a broad peak of notifications with onset of symptoms from June to October (Figure 3) and corresponds with the peak in

New South Wales notifications. This peak in winter-spring is typical for the disease in temperate areas², and has been documented in the United States and in the United Kingdom⁴. The high number of cases with onset of symptoms in January is not so typical. Six of the cases were from Western Australia and may have been associated with a peak in the north of that State in the tropical wet season. Eleven of the cases were from Victoria and may have been associated with the spring-summer-autumn peak in group C disease recently documented in that State⁵.

Figure 4. Meningococcal infection notifications, 1953 to 1991, by year



- 1. Jan - Jun 1963 only.
- 2. Data for 1964 to 1968 is for the financial years 1963-64 to 1967-68.
- 3. Not notifiable nationally 1969-1978 inclusive.
- 4. Not notifiable in NSW 1967-1981 inclusive.
- 5. Not notifiable in Tasmania 1979-1989 inclusive.

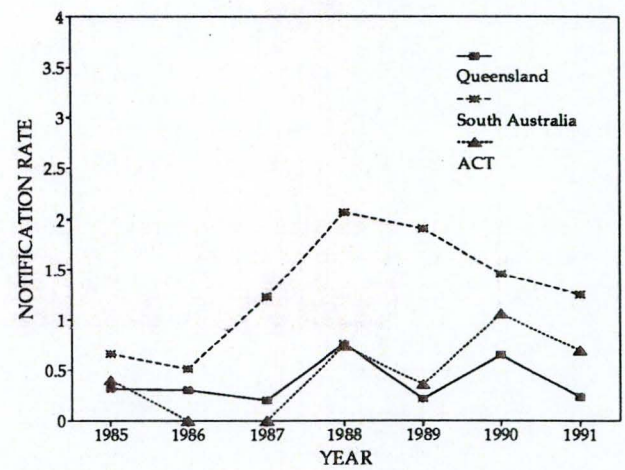
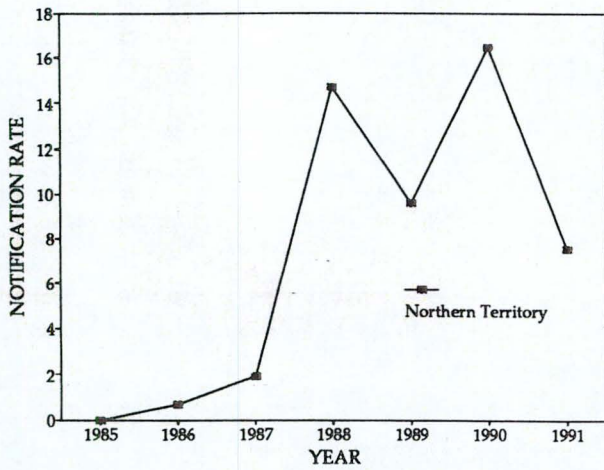
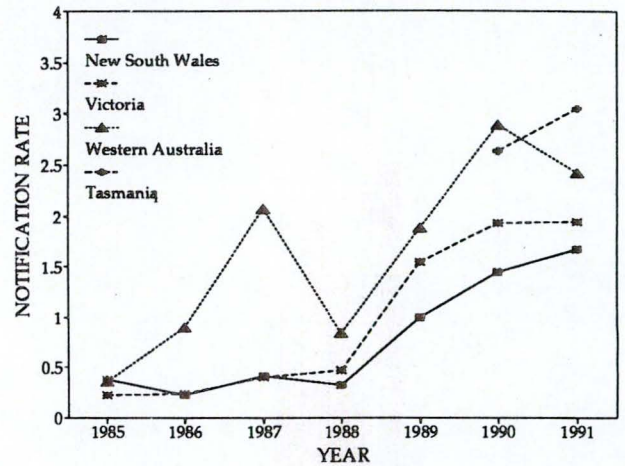
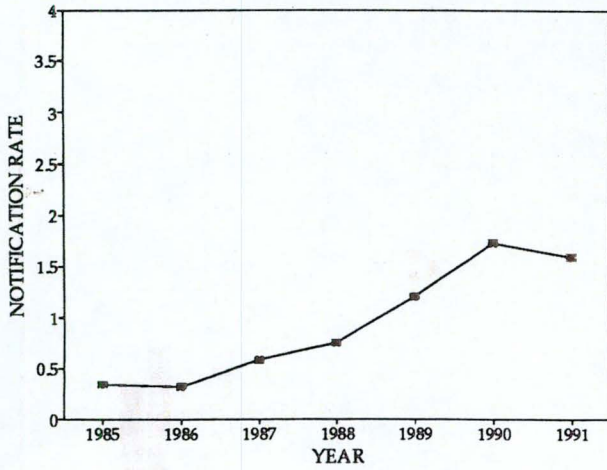
The total for 1991 notifications was similar to that for 1990, and those for several years in the 1950s and 1960s (Figure 4). In the late 1970s and the early 1980s, low numbers of notifications were recorded, but, beginning with 1987, the number of notifications rose substantially, as did the notification rate for Australia overall (Figure 5). (Rate calculations for 1985 to 1990 are based on the Australian Bureau of Statistics' mean estimated resident populations for the years ended 31 December 1985 to 1990, respectively.)

The rates have risen over the last seven years in Tasmania, Victoria, Western Australia, New South Wales and the Northern Territory, and are now at levels that indicate that meningococcal infection activity may be considered to be epidemic in some areas. The rates in South Australia and the Australian Capital Territory have also risen since 1985 but have not shown a distinctive upward trend as in Tasmania, Victoria, Western Australia, New South Wales and the Northern Territory.

The increased numbers of notifications of meningococcal infection in recent years could be attributed to the recent changes in legislative requirements for notifying diseases in several of the States and Territories. However, increases have been reported from other sources of data as well. The numbers of patients from whom *N. meningitidis* was isolated from CSF or blood at the Royal Children's Hospital in Melbourne averaged less than 10 each year in the period 1969 to 1975, then decreased to less than 5 per year between 1975 and 1987. In 1988, however, there were 11 isolates of the organism and in 1989 there were 31^{6,7}.

Evidence from Australian Bureau of Statistics' data on deaths from meningococcal infections also indicates that the recent increase in meningococcal infection notifications is a true reflection of an increase in the incidence of the disease. The number of deaths was at a low level during the late 1980s, but increased in parallel with the increase in the notifications during the late 1980s to reach a total of 38 in 1990 (Figure 6).

Figure 5. Meningococcal infection notification rates per 100,000 population, 1985 to 1991, for Australia and the States and Territories



1. Please note that the scale for the graph for the Northern Territory is different to those for the other graphs, and that the disease only became notifiable in Tasmania in 1990.

Figure 6. Meningococcal infection deaths in Australia, 1979 to 1990, by year

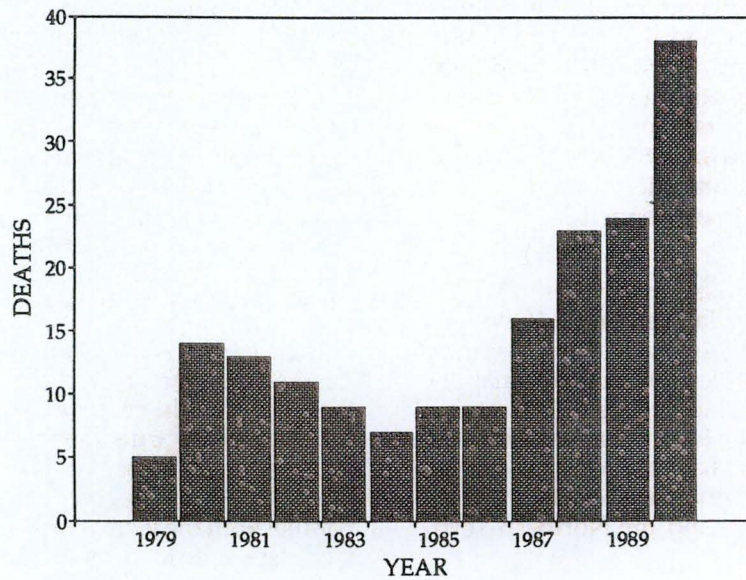
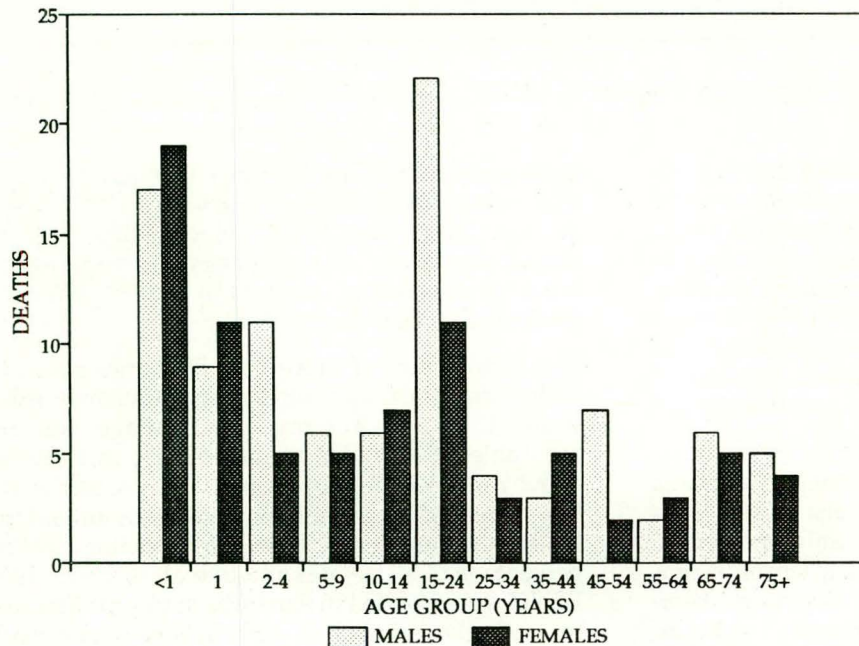


Figure 7. Meningococcal infection deaths, 1979-1990, by age group and sex



There is no effective vaccine against group B organisms, but a vaccine against groups A and C is available in Australia. The NHMRC recommends its use for control of outbreaks caused by organisms of group A or C. It also recommends that close contacts of cases in outbreaks should receive rifampicin chemoprophylaxis to eliminate or prevent development of the meningococcal carrier state. Further details on the recommendations for vaccine and chemoprophylactic use are contained in *Immunisation Procedures* (Reference 8), available from Australian Government Bookshops.

The age and sex distribution of the deaths recorded between 1979 and 1990 also shows a great similarity to that of the cases notified in 1991 (Figure 7). It is bimodal, with peaks in the less than 5 years age group and in the 15 to 24 years age group. Over the 12 year period, 40% of the deaths occurred in children aged less than 5 years and 32% were in children aged less than 2 years. The male to female ratio was 1.23:1.00.

As a proportion of the number of cases notified from 1979 to 1990 inclusive (1201 cases), the 178 deaths represent a death rate of 14.8%. For 1990, the death rate calculated in the same way was 13%. (These are likely to be overestimates of the true death rates, as meningococcal deaths are more likely to have been included in the deaths data than meningococcal infections are to be included in the Notifiable Diseases data. Indeed, these rates are higher than the 8 to 10% 'expected' for endemic disease in industrialised countries. Higher death rates have however been associated with epidemic meningococcal activity so it is possible that this higher calculated death rate indicates the presence of some 'epidemic' activity in Australia in recent years.)

National Notifiable Diseases data unfortunately do not include information on the group of *N. meningitidis* organisms identified for the notified cases, but it is thought that about 50% of cases are caused by group B organisms⁸. In 1991, 48% of cases reported to the Victorian Hospitals Surveillance Scheme for January to June were group B⁵, and 55% of cases notified in Western Australia were group B⁹.

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GONOCOCCAL SURVEILLANCE - AUSTRALIA: 1 JULY - 30 SEPTEMBER 1991

(Contributed by the Australian Gonococcal Surveillance Programme - AGSP. Co-ordinator, Dr JW Tapsall, The Prince of Wales Hospital, Sydney, NSW, 2031)

This report provides details of the sensitivity to penicillin of 452 strains of *Neisseria gonorrhoeae* examined by participating laboratories throughout Australia in the September quarter of 1991. The number of strains examined represents a slight increase over the 414 strains examined in the corresponding period of 1990 and a considerable increase on the 345 gonococci examined in the June quarter in 1991. Increased numbers of strains are isolated in warmer months and this pattern is therefore not unusual.

It has been the practice of the AGSP to categorise strains as penicillinase producers (PPNG) or else as fully sensitive, less sensitive or relatively resistant to penicillin. The criteria for categorising the intrinsic (chromosomally mediated) resistance to penicillin have been modified in this report. When AGSP reports first began in CDI in 1981, most strains were distributed in a bi-modal fashion which correlated with the categories 'fully sensitive' and 'less sensitive'. The minimal inhibitory concentrations (MIC) of penicillin which defined these categories were 0.004 - 0.016 and 0.06 - 0.5 mg/L respectively. Over the past decade there has been a decrease in antibiotic sensitivity of the gonococcus and this previously marked bi-modal distribution largely disappeared. Consequently, the categorisation of chromosomal resistance will henceforth be slightly changed and fully sensitive strains will comprise those with an MIC of 0.03 mg/L or less, less sensitive strains will be

those with an MIC in the range 0.06 to 0.5 mg/L and relatively resistant strains those with an MIC of 1 mg/L or more, other than PPNG which will still be represented separately. For purposes of comparison, data from corresponding quarters in earlier years will be presented in a similar fashion.

The distribution of strains in Brisbane, Sydney and Melbourne (the only centres with sufficient numbers of strains to analyse in terms of percentage) is shown in the Table. Somewhat paradoxically, in view of the above remarks, the proportion of fully sensitive strains has increased over the past twelve months. Importantly, the number of PPNG has declined as both a percentage of all isolates and in real numbers. Only 33 PPNG were isolated in Australia in this quarter in 1991. In 1990, the number of PPNG isolated in the same period was 47, and in 1989 the number was 85. In 24 of the infections with PPNG, the source of acquisition was determined and approximately half were acquired locally and half overseas. In Sydney, strains resistant to penicillin by chromosomal mechanisms (sometimes called CMRNG) outnumber PPNG. Together CMRNG and PPNG account for approximately 25% of all isolates in Sydney. A few relatively resistant strains were found in Melbourne but were not seen in the other centres. PPNG were also recorded in Adelaide and Perth, as well as in Sydney, Melbourne and Brisbane.

Table. Penicillin sensitivity of isolates of *N. gonorrhoeae*, 1 July - 30 September, 1991

Centre	Percentage of isolates ¹							
	Sensitive ²		Less Sensitive ³		Relatively Resistant ⁴		PPNG ⁵	
Brisbane	17.3	(20.2)	74.1	(65.5)	0	(1.3)	8.6	(13)
Sydney	16.5	(4.6)	58.3	(56.1)	15.8	(20.3)	9.4	(19)
Melbourne	31.2	(9.3)	55.9	(65.4)	3.2	(13.3)	9.7	(12)

1. Figures in parentheses are equivalent data for the September quarter 1990.
2. Sensitive MIC \leq 0.03 mg/L.
3. Less Sensitive MIC = 0.06 - 0.5 mg/L.
4. Relatively Resistant MIC \geq 1 mg/L.
5. PPNG = penicillinase producing *Neisseria gonorrhoeae*.

A CASE OF DIPHTHERIA IN WESTERN AUSTRALIA

(Dr J Gill, Health Department of Western Australia, and Dr A Keil, Royal Perth Hospital)

The first case of diphtheria in Western Australia in 18 years has been reported.

The patient is a 20 year old male who was admitted to hospital on 11 January 1992. The diagnosis was not confirmed until 16 January, because the presentation was unusual. The patient was apparently fully immunised as an infant, but the date of his last diphtheria booster is unknown. In 1986 he was vaccinated for tetanus following an injury but it is unclear whether ADT was used.

The patient went on a cruise to Suva and Noumea from Sydney in late November 1991. During a pre-embarkation day in Sydney, he used a new pair of shoes bought in Perth and developed a blister on his right heel. He did not have any treatment for the heel lesion, which became pustular and healed very slowly over more than two weeks.

He returned to Sydney on 3 December and to Perth on 6 December 1991. Approximately two weeks later, and after his heel lesion had cleared, he developed a blister on his right fifth toe.

He returned to work on 19 December 1991. He was quite well until 7 January 1992 when he developed a high fever, sweats, rigors, headache, anorexia and a slight sore throat. He consulted his doctor who considered, after extensive investigations, that the patient had a viral infection, and no specific treatment was ordered. The peripheral blood showed some atypical monocytes at that stage but Epstein-Barr virus tests were negative.

The symptoms persisted and on 11 January the patient developed joint tenderness of both ankles and knees and of the right shoulder and wrist. He was admitted to Royal Perth Hospital for investigation of this arthralgia and for extensive serological screening. Tests for Ross River virus, hepatitis B, dengue, chlamydia, cytomegalovirus, leptospirosis, typhoid, syphilis and

HIV were all negative. Blood cultures were taken on 13 January and all four sets grew Gram positive rods which were later confirmed to be *Corynebacterium diphtheriae*.

Whilst in hospital the patient developed aortic incompetence, first degree heart block and left ventricular dilatation, suggesting endocarditis and a cardiomyopathy. The smear taken from his toe initially grew *Staphylococcus aureus* and *Streptococcus pyogenes*, and not *C. diphtheriae*, however, the Gram stain showed Gram positive rods consistent with *C. diphtheriae*, and subsequent plating of the swab on tellurite medium has grown a couple of colonies suggestive of the organism.

The *C. diphtheriae* strain is non-toxigenic. The nasopharyngeal swabs taken when the patient was admitted to hospital did not grow any organisms.

No carriers have been detected from 63 of the patient's close contacts and diphtheria vaccinations have been updated.

No other cases have been reported so far.

CDI Editorial Comment

Diphtheria is a notifiable disease in all States and Territories of Australia. Prior to the widespread use of diphtheria vaccine, thousands of cases were notified in Australia each year. In 1991, only 8 cases were notified, and since 1979, there has been a total of only 192 cases. One hundred and seventy-five of these were from the Northern Territory, where the cutaneous form of diphtheria occurs.

A brief report of five isolates of non-toxigenic *Corynebacterium diphtheriae* identified recently in New South Wales was in *CDI* 15:277. In common with the patient detailed above, the five patients all had endocarditis, and there was one possible and one proven case of septic arthritis associated with the infections.

AUSTRALIAN HIV SURVEILLANCE REPORT, VOLUME 7 NUMBER 12 (31 DECEMBER 1991)

The National Centre in HIV Epidemiology and Clinical Research reports that as of 30 November 1991, a total of 15,458 diagnoses of HIV infection and 3068 cases of AIDS had been reported in Australia. For the most recent period, 1 November to 30 November 1991, 22 new cases of AIDS and 56 new diagnoses of HIV infection were reported.

The following tables provide more detailed information on a State/Territory basis (Tables 1 and 2).

The cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new cases for the reporting month and the increment in the cumulative figure from the previous report.

Table 1. New diagnoses of AIDS and deaths from AIDS occurring during the period 1 November to 30 November 1991, and cumulative diagnoses to 30 November 1991, by sex and State/Territory in which diagnosis was made

State/ Territory	November 1991		Cumulative diagnoses to 30 November 1991					
	Total Cases ¹	Total Deaths ¹	Cases			Deaths		
			Male	Female	Total	Male	Female	Total
ACT ²	1	2	36	2	38	25	1	26
NSW ³	8	11	1802	56	1860	1149	36	1185
NT	1	0	10	0	10	3	0	3
Qld	2	0	234	9	243	151	7	158
SA	1	0	117	5	122	59	1	60
Tas	0	0	15	1	16	10	1	11
Vic ⁴	8	1	623	13	637	393	6	399
WA	1	0	134	8	142	80	3	83
Total	22	14	2971	94	3068	1870	55	1925

1. All males unless otherwise specified.

2. The new diagnosis in ACT was a female.

3. One new diagnosis in NSW was a female. Cumulative cases of AIDS for NSW include 2 persons whose sex was reported as transsexual.

4. Cumulative cases of AIDS for Victoria include 1 person whose sex was reported as transsexual.

Table 2. Number of new diagnoses of HIV infection in the period 1 November to 30 November 1991 and cumulative diagnoses since the introduction of HIV antibody testing to 30 November 1991, by sex and State/Territory

State/ Territory	November 1991 Total ¹	Cumulative diagnoses to 30 November 1991			
		Male	Female	Sex not reported	Total
ACT	0	19	0	97	116
NSW ²	7	7962	407	1992	10361
NT	1	58	6	0	64
Qld ³	17	1123	47	0	1170
SA ⁴	0	338	28	0	366
Tas	0	52	3	0	55
Vic ⁵	35	2508	96	74	2678
WA	3	616	32	0	648
Total⁶	56	12676	619	2163	15458

1. All males unless otherwise specified.

2. Counts were unavailable for NSW for November 1991. Cumulative total for NSW is to 31 October 1991.

3. One new diagnosis in Queensland was a female.

4. Cumulative total for SA does not include new diagnoses during the period 18 May 1990 to 9 September 1991.

5. Total for Victoria for November includes 4 females and 1 person whose sex was not reported.

6. Total for Australia for November includes 1 person whose sex was not reported (and 5 females). Cumulative total for persons whose sex was not reported includes 10 persons whose sex was reported as transsexual.

OVERSEAS BRIEFS

In the last two weeks, the following information regarding cholera and influenza has been supplied by the World Health Organization and by the Institut Pasteur, Paris.

Cholera Update

The World Health Organization received reports of a total of 506,798 cases and 16,705 cholera deaths from 1 January to 19 December 1991. This is more cases than were reported in the past 5 years combined and 1991 was by far the worst year on record since the current pandemic of cholera started 30 years ago.

Seventy per cent of cases were reported from 13 Latin American countries, with the largest numbers reported from Peru (297,672 cases and 2,829 deaths), Ecuador (42,173 cases and 635 deaths) and Colombia (11,041 cases and 203 deaths). Africa was the next most heavily affected continent, with 19 countries reporting cases. The largest numbers were from Nigeria (56,352 cases and 7,289 deaths), Chad (13,409 cases and 1,313 deaths), Ghana (12,670 cases and 391 deaths) and Zambia (11,789 cases and 996 deaths). The remaining cases were reported from 13 Asian countries, Romania and the Ukraine.

While control measures implemented in Latin American countries kept the proportion of fatal cases around 1%, in African countries, almost one in 10 cholera patients died. Nine African countries reported fatality rates of 8% or more.

In the last two weeks, cases were reported for October, November and December from Angola, Ghana and Uganda in Africa. No newly infected areas were reported.

In the Americas, cases were reported from Panama for January. Venezuela has reported its first cases, with 12 cases (7 imported) from 4 to 27 December. Tachira and Zulia States have been declared infected. Honduras also reported cases for December and the Department of Choluteca has been declared infected.

India has reported 301 cases for October and 619 cases for November 1991.

Yellow fever in Bolivia

Bolivia has reported cases of yellow fever which occurred from January to May 1991. There was a total of 83 cases and 53 deaths in the Departments of Cochabamba, La Paz and Santa Cruz.

Influenza in the Northern Hemisphere Update

Influenza activity remained high in the second week in January in the United States with mortality from influ-

enza and pneumonia above the level expected for the season.

In Europe, influenza activity has reached epidemic proportions in France and in Geneva, Switzerland. Influenza A(H3N2) predominates and has been detected in many countries. There has been newly identified influenza A activity in Croatia, Czechoslovakia and Spain.

Elsewhere, there has been influenza A(H3N2) in Canada, Egypt and the Russian federation, and influenza A(H1N1) in Japan.

Measles in Nauru and the Federated States of Micronesia

The Nauru government has reported an outbreak of measles which started in November 1991 and is still continuing. Over 200 cases have been reported to date among children between 1 and 8 years of age.

An outbreak of measles has also been reported from Kosrae State of the Federated States of Micronesia. Between 3 January and 12 January 1992, 14 cases of measles were reported. There are indications that these cases are epidemiologically linked to the outbreak in Nauru.

Measles in New Zealand Update

The number of measles cases reported in New Zealand is currently at a reduced level (during the summer holidays), with only 165 cases reported in the three weeks 21 December 1991 to 10 January 1992. The total number of reported cases for the epidemic now stands at 9,298, with 230 hospitalisations.

Kala-azar in India and Sudan

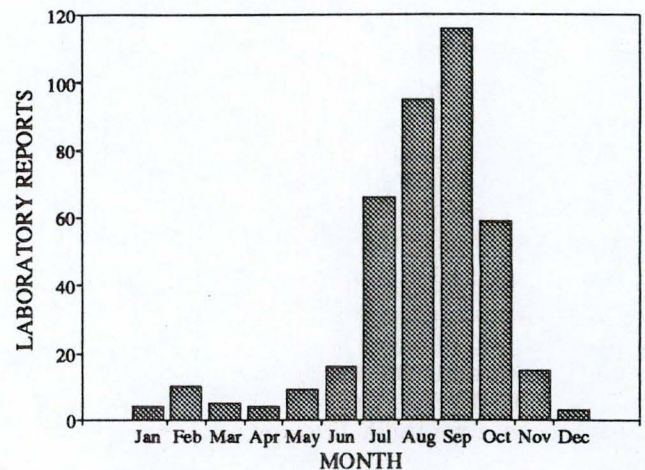
There is currently an epidemic of kala-azar (visceral leishmaniasis) occurring in the north-eastern Indian State of Bihar. Thirty-eight of Bihar's 42 districts are involved, and 250,000 to 300,000 persons are believed to have the infection. The problem of the epidemic is being confounded by emerging resistance of the sand-fly vector, *Phlebotomus argentipes* to DDT, and resistance of the parasite to antimonial drugs.

An epidemic of kala-azar is also occurring in southern Sudan. Tens of thousands of deaths are believed to have occurred over the past 5 years and between 300,000 and 400,000 persons are believed to be at risk of infection. Attempts to control the epidemic have been hampered by the civil war in the country.

COMMUNICABLE DISEASES SURVEILLANCE

- The Ross River virus season still appears to be very quiet. Only three reports were received this period, all identified in Western Australia in December.
- There were 12 reports of *Mycoplasma pneumoniae* infection, with 5 from Victoria.
- Fourteen reports of parainfluenza type 3 were received: 11 from Victoria and 3 from New South Wales. Encephalitis was the reported symptom for a 1 year old male. The virus was identified in a nasopharyngeal specimen.
- Reports of influenza of all types have decreased substantially. This fortnight there were only reports of 2 influenza B identifications, one from Victoria and one from Western Australia. There have been very few reports of this virus in the last few months (Figure 1).
- There were 54 reports of cytomegalovirus infection. Included was a fetus with hydrocephalus. The virus was isolated from placenta and lung postmortem samples. Four other infants were reported as having congenital CMV infection. One was a one day old female from whose saliva and urine the virus was isolated. Her mother had been febrile at 33 weeks gestation. The others were a 1 year old male and a 1 year old female from whose urine the virus was isolated, and a three month old female with cardiomyopathy. An 11 weeks pregnant woman was another of the patients this fortnight.
- A total of 24 reports of hepatitis C were received. Four patients had a history of injecting drug use.
- One further case of coxsackievirus type B5 infection was reported, from the Australian Capital Territory. The patient was a 5 year old male who had meningitis. The virus was isolated from his CSF.
- Twenty-one further reports of varicella zoster virus were received. They included 9 from New South

Figure 1. Influenza B laboratory reports, 1991, by month of onset of symptoms



Wales, and 10 from Victoria. Encephalitis was the reported symptom for two of the patients, and an 11 month old patient was reported as having varicella zoster rash and *Haemophilus influenzae* meningitis.

- Three other reports of *Haemophilus influenzae* infection were received. All three patients were in the age group 1 to 4 years: a female and a male with meningitis, and a male with septicaemia.
- There were 3 reports of Q fever during this reporting period: 3 from New South Wales, 1 from Victoria and 1 from South Australia. The patient from South Australia was described as a meat worker who had not been vaccinated against the disease. The patient from Victoria was described as an abattoir worker.

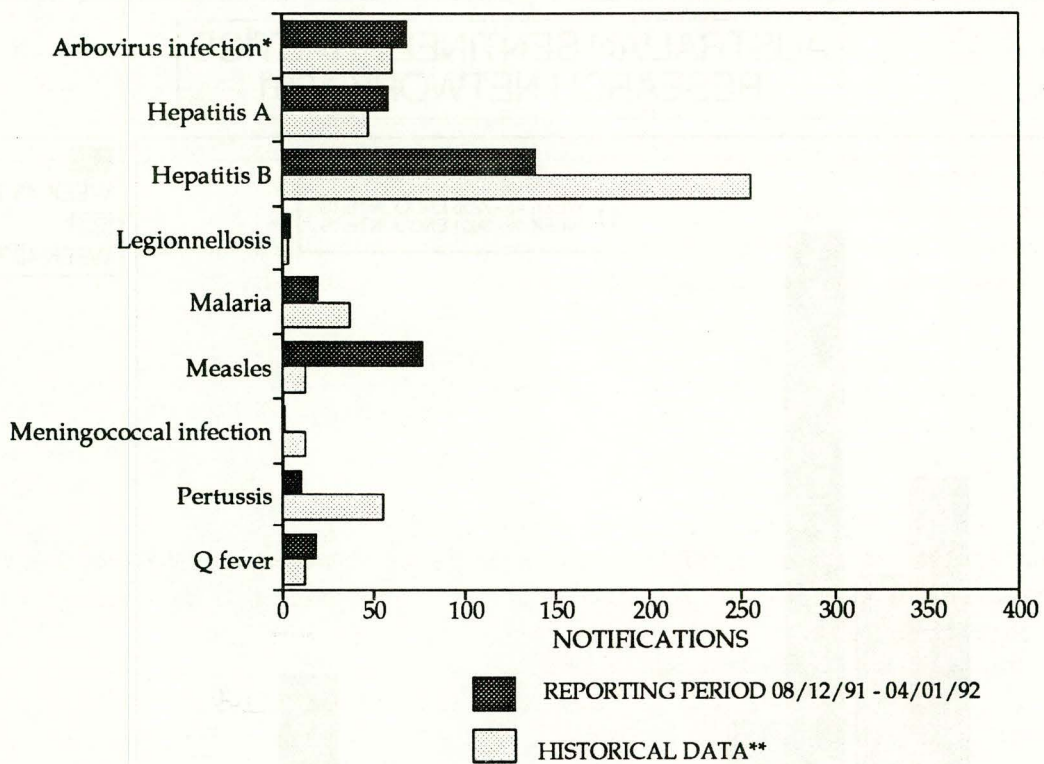
National Notifiable Diseases Reports

The graph of selected National Notifiable Diseases Reports for the current reporting period and comparable historical data is presented in Figure 2. Measles notifications are higher this period than the historical average and hepatitis B and pertussis notifications are lower. The higher historical figure for pertussis is a

reflection of the pertussis epidemic in most parts of Australia over the summer of 1989-90.

The National Notifiable Diseases table is on page 43 of this issue. New South Wales data for the period were not available at the time of publication.

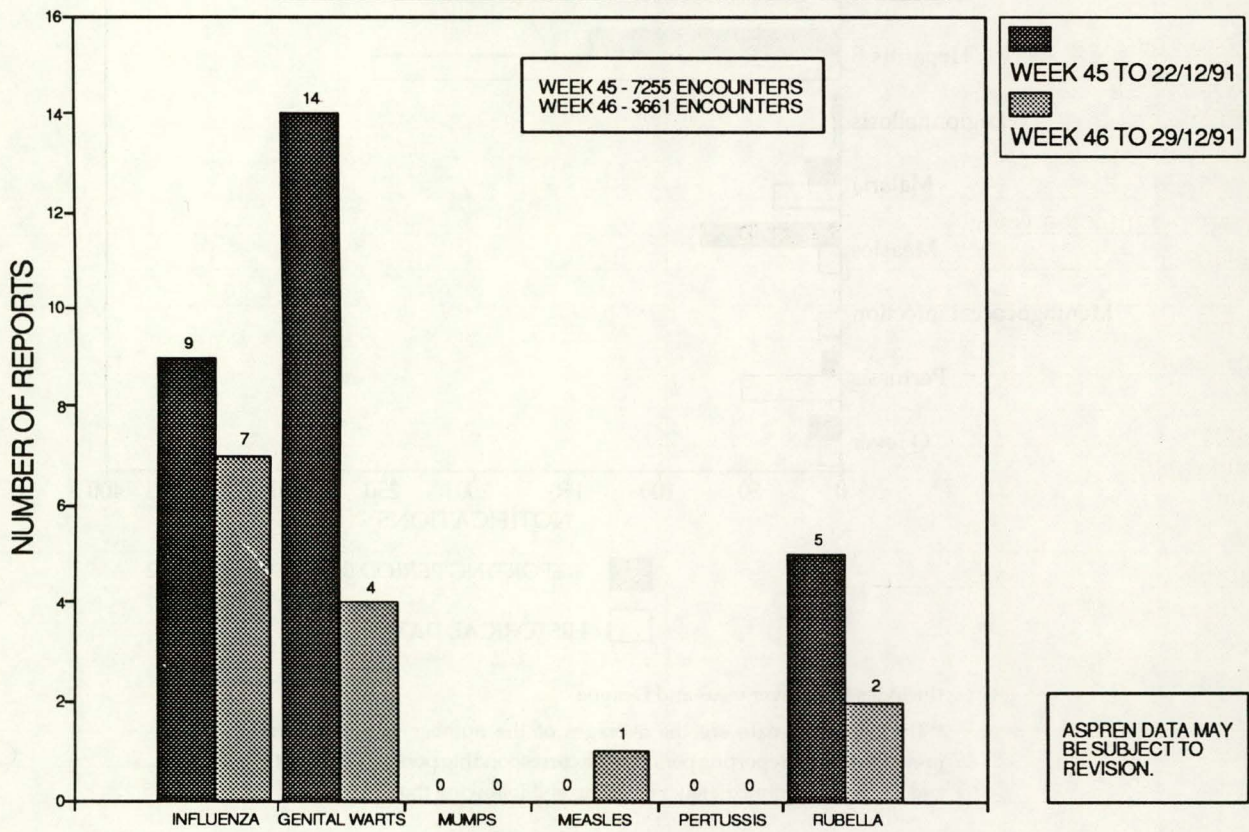
Figure 2. National Notifiable Diseases Reports, 8 December 1991 to 4 January 1992, and Historical Data



*Includes Ross River virus and Dengue

**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.

AUSTRALIAN SENTINEL PRACTICE RESEARCH NETWORK 1991



National Notifiable Diseases Reports 08/12/91 - 04/01/92

DISEASES	ACT	NSW*	NT	QLD	SA	TAS	VIC	WA	TOTAL
Arbovirus Infections (NEC)	0	¹²	NN	4	0 ¹²	0	0	0	4
Ross River Virus Infection	NN	NN	0	41	NN	NN	0	23	64
Dengue	NN	NN	0	1	NN	NN	NN	NN	1
Brucellosis	0		0	1	0	0	0	0	1
Campylobacteriosis	NN	NN ¹³	3	258	69	74	199	56	659
Chancroid	0	NN	0	0	NN	NN	0	0	0
Chlamydial infection (NEC)	3 ¹	NN	11	204	0 ¹	22	0	0 ¹	240
Cholera	0		0	0	0	0	0	0	0
Diphtheria	0		0	0	0	0	0	0	0
Donovanosis	0	NN	0	0	NN	NN	0	1	1
Gonococcal infection ²	1		9	32	0	1	0	46	89
Haemophilus influenzae b	NN		NN	5	0 ⁵	0 ⁸	5 ¹⁰	NN	10
HIV infection ¹⁴	1 ³		0	0	2	0	0	0	3
Hydatid infection	0		0	2	0	0	0	0	2
Legionellosis	NN		0	3	0	0	2	0	5
Leprosy	0		0	0	0	0	0	1	1
Leptospirosis	0		0	1	0	0	4	0	5
Listeriosis	NN		NN	1	NN	0	1	0	2
Lymphogranuloma venereum	0	NN	0	0	NN	NN	0	NN	0
Malaria	0		1	15	1	0	1	2	20
Measles	16		0	15	24	1	18	3	77
Meningococcal infection	0		0	0	1	0	1	0	2
Ornithosis	2	NN	0	0	5	0	4	0	11
Pertussis	NN		0	4	2	0	3	2	11
Plague	0		0	0	0	NN	0	0	0
Poliomyelitis	0		0	0	0	0	0	0	0
Q fever	0		0	11	4	0	4	0	19
Rabies	NN	NN	0	0	0	0	0	0	0
Rubella ⁴	1		0 ^{4B}	10	20 ^{4A}	0 ^{4B}	18 ^{4A}	0 ^{4B}	49
Salmonella (NEC)	2		12	114	18	10	32	27	215
Shigellosis	0	NN ¹³	5	7	7	0	4	8	31
Syphilis	0		8	26	0	0	0	20	54
Tetanus	0		0	NN	0	0	0	0	0
Tuberculosis	0		0	2	2	0	3	2	9
Typhoid	0	¹¹	0	1	0	0	2 ¹¹	2	5
Viral haemorrhagic fever	NN		0	0	0 ⁷	0 ⁹	0	0 ⁷	0
Viral hepatitis (NEC)	NN		0	31	0	0	1	NN	32
Hepatitis A	0		5	19	3	2	24	5	58
Hepatitis B	1		0	69	3	0	41	24	138
Hepatitis C	7		NN	283	NN	2	16	NN	308
Yellow fever	0		0	0	0	0	0	0	0
Yersiniosis	NN	NN ¹³	0	14	3	0	3	0	20

1. Trachoma only

2. In NT, Qld, SA and Vic, gonococcal ophthalmia neonatorum is also notifiable; numbers may include both

3. AIDS only 4. Rubella only unless otherwise specified

4A. Rubella and CRS 4B. CRS only

5. Only as 'bacterial meningitis'; meningococcal infection is separately notified

7. Marburg, Ebola and Lassa fevers only

8. Only as 'non-meningococcal meningitis'

9. Marburg, Ebola, Crimean-Congo and Lassa fevers only

10. Epiglottitis and meningitis only

11. Typhoid and paratyphoid included.

12. Includes Ross River Virus and Dengue

13. Only as 'foodborne disease' or as 'gastroenteritis in an institution'

14. More complete data on new HIV infections are presented in the monthly Australian HIV Surveillance Report

NEC Not Elsewhere Classified

NN Not notifiable

* Data for NSW for the period was unavailable at the time of publication

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES BY STATE OF CONTRIBUTING LABORATORY

PERIOD 1/01/92 TO 14/01/92

NSW: ICPMR; PHH/POW; RACH; ST GEORGE HOSP, KOGARAH; ROYAL NEWCASTLE HOSP; TAMWRTH LAB.
 VIC: FAIRFIELD; RCH; MDU, UNI MELB.
 QLD: STATE LAB, BRIS; TOOWOOMBA PATH LAB; ROYAL BRIS HOSP; DR TB LYNCH, PATHOLOGIST, ROCKHAMPTON.
 WA: STATE LAB, PERTH; PMH.
 SA: IMVS.
 TAS: ROYAL HOBART HOSP; DIAGNOSTIC SERVICES, LAUNCESTON; LAUNCESTON GEN HOSP; DIAGNOSTIC SERVICES, HOBART; HOBART PATH; MERSEY GEN HOSP, LATROBE.
 ACT: WVH.

	NSW	VIC	WA	SA	TOTAL
0100 ADENOVIRUS NOT TYPED	2	4	10	0	16
0101 ADENOVIRUS TYPE 1	9	1	0	0	10
0102 ADENOVIRUS TYPE 2	6	0	0	0	6
0103 ADENOVIRUS TYPE 3	0	2	0	0	2
0106 ADENOVIRUS TYPE 6	1	0	0	0	1
0108 ADENOVIRUS TYPE 8	1	0	0	0	1
0111 ADENOVIRUS TYPE 11	2	1	0	0	3
0119 ADENOVIRUS TYPE 19	1	0	0	0	1
0128 ADENOVIRUS TYPE 28	0	1	0	0	1
0199 ADENOVIRUS TYPING PENDING	0	3	0	3	6
0203 INFLUENZA B VIRUS	0	1	1	0	2
0301 PARAINFLUENZA VIRUS TYPE 1	0	4	3	0	7
0302 PARAINFLUENZA VIRUS TYPE 2	0	1	1	0	2
0303 PARAINFLUENZA VIRUS TYPE 3	3	11	0	0	14
0399 PARAINFLUENZA VIRUS TYPING PEN	0	3	0	0	3
0400 RESPIRATORY SYNCYTIAL VIRUS	0	9	4	1	14
0500 RHINOVIRUS (ALL TYPES)	8	7	5	0	20
0600 MYCOPLASMA PNEUMONIAE	2	6	3	1	12
0700 CHLAMYDIA PSITTACI (ORNITHOSIS)	0	1	0	0	1
0816 COXSACKIEVIRUS A16	1	0	0	0	1
0905 COXSACKIEVIRUS B5	1	0	0	0	1
1005 ECHOVIRUS TYPE 5	2	0	0	0	2
1006 ECHOVIRUS TYPE 6	1	0	0	0	1
1009 ECHOVIRUS TYPE 9	1	0	0	0	1
1011 ECHOVIRUS TYPE 11	0	1	0	0	1
1017 ECHOVIRUS TYPE 17	1	0	0	0	1
1101 POLIOVIRUS TYPE 1 (UNCHARACTER)	3	0	0	0	3
1102 POLIOVIRUS TYPE 2 (UNCHARACTER)	2	0	0	0	2
1200 MUMPS VIRUS	0	1	0	0	1
1300 HERPES VIRUS GROUP - NOT TYPED	0	2	1	0	3
1301 HERPES SIMPLEX VIRUS - NOT TYP	18	0	0	0	18
1302 EPSTEIN-BARR VIRUS	13	10	10	9	42
1303 VARICELLA-ZOSTER VIRUS	9	10	2	0	21
1306 HERPES SIMPLEX VIRUS TYPE 1	8	46	22	3	79
1307 HERPES SIMPLEX VIRUS TYPE 2	29	39	39	8	115
1366 HERPES VIRUS TYPE 6	1	0	0	0	1
1401 COXIELLA BURNETII	3	1	0	1	5
1502 ENTEROVIRUS - NOT TYPED	0	0	6	0	6
1521 MEASLES VIRUS	0	3	0	0	3
1532 HEPATITIS B ANTIGEN	24	7	3	0	34
1535 HEPATITIS A ANTIBODY	7	0	1	2	10
1536 HEPATITIS C VIRUS	0	0	16	8	24
1541 CHLAMYDIA TRACHOMATIS (UNSPECI)	0	0	20	7	27
1556 CYTOMEGALOVIRUS	7	36	10	1	54
1563 CORONAVIRUS	0	1	0	0	1
1564 ROTAVIRUS	0	6	3	5	14
1571 ENTEROVIRUS TYPE 71 (BCR)	0	1	0	0	1
1599 ENTEROVIRUS TYPING PENDING	3	6	0	0	9
1700 PARVOVIRUS	0	2	0	0	2
9992 ROSS RIVER VIRUS	0	0	3	0	3
9994 SMALL VIRUS (LIKE) PARTICLE	0	2	0	0	2
TOTAL	169	229	163	49	610

NOTE: DIRECT COMPARISON BETWEEN STATES IS NOT POSSIBLE SINCE:
 - SOME STATES HAVE MORE THAN ONE CONTRIBUTING LABORATORY; AND
 - INTERSTATE REFERRALS OCCUR REGULARLY.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 1/01/92 TO 14/01/92

019 - FAIRFIELD HOSPITAL, MELBOURNE (VIC)
 065 - STATE HEALTH LABORATORY SERVICES, PERTH (WA)
 066 - PRINCESS MARGARET HOSPITAL, PERTH (WA)
 110 - INSTITUTE OF MEDICAL & VETERINARY SCIENCE, ADELAIDE (SA)
 111 - ROYAL CHILDRENS HOSPITAL, MELBOURNE (VIC)
 112 - INSTITUTE OF CLINICAL PATHOLOGY & MEDICAL RESEARCH, WESTMEAD (NSW)
 114 - ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, CAMPERDOWN (NSW)

	019	065	066	110	111	112	114	TOTAL
0100 ADENOVIRUS NOT TYPED	1	1	9	0	3	0	2	16
0101 ADENOVIRUS TYPE 1	1	0	0	0	0	6	3	10
0102 ADENOVIRUS TYPE 2	0	0	0	0	0	5	1	6
0103 ADENOVIRUS TYPE 3	2	0	0	0	0	0	0	2
0106 ADENOVIRUS TYPE 6	0	0	0	0	0	1	0	1
0108 ADENOVIRUS TYPE 8	0	0	0	0	0	1	0	1
0111 ADENOVIRUS TYPE 11	1	0	0	0	0	2	0	3
0119 ADENOVIRUS TYPE 19	0	0	0	0	0	1	0	1
0128 ADENOVIRUS TYPE 28	1	0	0	0	0	0	0	1
0199 ADENOVIRUS TYPING PENDING	1	0	0	3	2	0	0	6
0203 INFLUENZA B VIRUS	1	1	0	0	0	0	0	2
0301 PARAINFLUENZA VIRUS TYPE 1	0	0	3	0	4	0	0	7
0302 PARAINFLUENZA VIRUS TYPE 2	0	0	1	0	1	0	0	2
0303 PARAINFLUENZA VIRUS TYPE 3	3	0	0	0	8	3	0	14
0399 PARAINFLUENZA VIRUS TYPING PEN	0	0	0	0	3	0	0	3
0400 RESPIRATORY SYNCYTIAL VIRUS	4	0	4	1	5	0	0	14
0500 RHINOVIRES (ALL TYPES)	3	5	0	0	4	8	0	20
0600 MYCOPLASMA PNEUMONIAE	3	3	0	1	3	2	0	12
0700 CHLAMYDIA PSITTACI (ORNITHOSIS)	1	0	0	0	0	0	0	1
0816 COXSACKIEVIRUS A16	0	0	0	0	0	1	0	1
0905 COXSACKIEVIRUS B5	0	0	0	0	0	1	0	1
1005 ECHOVIRUS TYPE 5	0	0	0	0	0	1	1	2
1006 ECHOVIRUS TYPE 6	0	0	0	0	0	0	1	1
1009 ECHOVIRUS TYPE 9	0	0	0	0	0	1	0	1
1011 ECHOVIRUS TYPE 11	1	0	0	0	0	0	0	1
1017 ECHOVIRUS TYPE 17	0	0	0	0	0	1	0	1
1101 POLIOVIRUS TYPE 1 (UNCHARACTER)	0	0	0	0	0	3	0	3
1102 POLIOVIRUS TYPE 2 (UNCHARACTER)	0	0	0	0	0	1	1	2
1200 MUMPS VIRUS	1	0	0	0	0	0	0	1
1300 HERPES VIRUS GROUP - NOT TYPED	2	1	0	0	0	0	0	3
1301 HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	0	17	1	18
1302 EPSTEIN-BARR VIRUS	10	10	0	9	0	13	0	42
1303 VARICELLA-ZOSTER VIRUS	9	2	0	0	1	9	0	21
1306 HERPES SIMPLEX VIRUS TYPE 1	39	22	0	3	7	8	0	79
1307 HERPES SIMPLEX VIRUS TYPE 2	39	39	0	8	0	29	0	115
1366 HERPES VIRUS TYPE 6	0	0	0	0	0	0	1	1
1401 COXIELLA BURNETII	1	0	0	1	0	3	0	5
1502 ENTEROVIRUS - NOT TYPED	0	6	0	0	0	0	0	6
1521 MEASLES VIRUS	3	0	0	0	0	0	0	3
1532 HEPATITIS B ANTIGEN	7	3	0	0	0	24	0	34
1535 HEPATITIS A ANTIBODY	0	1	0	2	0	7	0	10
1536 HEPATITIS C VIRUS	0	16	0	8	0	0	0	24
1541 CHLAMYDIA TRACHOMATIS (UNSPECI)	0	19	1	7	0	0	0	27
1556 CYTOMEGALOVIRUS	34	3	7	1	2	6	1	54
1563 CORONAVIRUS	1	0	0	0	0	0	0	1
1564 ROTAVIRUS	1	0	3	5	5	0	0	14
1571 ENTEROVIRUS TYPE 71 (BCR)	1	0	0	0	0	0	0	1
1599 ENTEROVIRUS TYPING PENDING	0	0	0	0	6	0	3	9
1700 PARVOVIRUS	2	0	0	0	0	0	0	2
9992 ROSS RIVER VIRUS	0	3	0	0	0	0	0	3
9994 SMALL VIRUS (LIKE) PARTICLE	2	0	0	0	0	0	0	2
TOTAL	175	135	28	49	54	154	15	610

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1

PERIOD 1/01/92 TO 14/01/92

1. CODE 00, 99 - NO ILL OR DATA
 2. CODE 01, 02, 11, 12 - RESPIRATORY
 3. CODE E3 - ENCEPHALITIS
 4. CODE M3 - MENINGITIS
 5. CODE 04 - PARALYSIS
 6. CODE 05, 13 - CNS OTHER UNSPEC
 7. CODE 07, 49 - GASTRO INTESTINAL
 8. CODE 17, 47 - HEPATIC
 9. CODE 19 ... - CVS
 10. CODE 89 ... - URINARY TRACCT
 11. CODE 06 ... - SKIN MUCOUS

	1	2	3	4	5	6	7	8	9	11	TOTAL
0100 ADENOVIRUS NOT TYPED	0	7	0	0	0	0	8	0	0	0	15
0101 ADENOVIRUS TYPE 1	1	3	0	0	0	0	5	0	0	0	9
0102 ADENOVIRUS TYPE 2	1	1	0	0	0	0	2	0	0	0	4
0106 ADENOVIRUS TYPE 6	0	1	0	0	0	0	0	0	0	0	1
0108 ADENOVIRUS TYPE 8	1	0	0	0	0	0	0	0	0	0	1
0119 ADENOVIRUS TYPE 19	0	0	0	0	0	0	1	0	0	0	1
0128 ADENOVIRUS TYPE 28	0	0	0	0	0	0	1	0	0	0	1
0199 ADENOVIRUS TYPING PENDING	0	5	0	0	0	0	0	0	0	0	5
0203 INFLUENZA B VIRUS	0	2	0	0	0	0	0	0	0	0	2
0301 PARAINFLUENZA VIRUS TYPE 1	0	7	0	0	0	0	0	0	0	0	7
0302 PARAINFLUENZA VIRUS TYPE 2	0	2	0	0	0	0	0	0	0	0	2
0303 PARAINFLUENZA VIRUS TYPE 3	0	13	1	0	0	0	0	0	0	0	14
0399 PARAINFLUENZA VIRUS TYPING PEN	0	3	0	0	0	0	0	0	0	0	3
0400 RESPIRATORY SYNCYTIAL VIRUS	0	12	0	0	0	0	0	0	0	0	12
0500 RHINOVIRUS (ALL TYPES)	0	13	0	1	0	0	0	0	0	2	16
0600 MYCOPLASMA PNEUMONIAE	1	6	0	0	0	0	0	0	0	0	7
0700 CHLAMYDIA PSITTACI (ORNITHOSIS)	0	1	0	0	0	0	0	0	0	0	1
0816 COXSACKIEVIRUS A16	0	0	0	0	0	0	0	0	0	1	1
0905 COXSACKIEVIRUS B5	0	0	0	1	0	0	0	0	0	0	1
1005 ECHOVIRUS TYPE 5	1	0	0	1	0	0	0	0	0	0	2
1006 ECHOVIRUS TYPE 6	0	0	0	1	0	0	0	0	0	0	1
1009 ECHOVIRUS TYPE 9	0	0	0	0	0	0	1	0	0	0	1
1101 POLIOVIRUS TYPE 1 (UNCHARACTER)	1	0	0	0	0	0	2	0	0	0	3
1102 POLIOVIRUS TYPE 2 (UNCHARACTER)	0	0	0	0	0	0	1	0	0	0	1
1300 HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	0	0	0	0	0	3	3
1301 HERPES SIMPLEX VIRUS - NOT TYP	7	0	0	1	1	0	0	0	0	5	14
1302 EPSTEIN-BARR VIRUS	6	8	0	0	0	0	0	3	0	0	17
1303 VARICELLA-ZOSTER VIRUS	0	0	2	0	0	0	0	0	0	18	20
1306 HERPES SIMPLEX VIRUS TYPE 1	3	2	0	0	0	0	0	0	0	45	50
1307 HERPES SIMPLEX VIRUS TYPE 2	3	0	0	0	0	0	0	0	0	40	43
1366 HERPES VIRUS TYPE 6	0	0	0	0	0	0	0	0	0	1	1
1401 COXIELLA BURNETII	1	0	0	0	0	0	0	0	0	0	1
1502 ENTEROVIRUS - NOT TYPED	3	0	0	1	0	0	1	0	0	0	5
1521 MEASLES VIRUS	0	0	0	0	0	0	0	0	0	2	2
1532 HEPATITIS B ANTIGEN	22	0	0	0	0	0	0	5	0	0	27
1535 HEPATITIS A ANTIBODY	3	0	0	0	0	0	0	7	0	0	10
1536 HEPATITIS C VIRUS	22	0	0	0	0	0	0	2	0	0	24
1556 CYTOMEGALOVIRUS	4	14	0	0	0	1	1	0	2	0	22
1563 CORONAVIRUS	0	0	0	0	0	0	1	0	0	0	1
1564 ROTAVIRUS	0	0	0	0	0	0	14	0	0	0	14
1571 ENTEROVIRUS TYPE 71 (BCR)	0	0	0	0	0	0	0	0	0	1	1
1599 ENTEROVIRUS TYPING PENDING	1	2	0	1	0	0	1	0	0	1	6
9992 ROSS RIVER VIRUS	1	0	0	0	0	0	0	0	0	0	1
9994 SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	0	2	0	0	0	2
TOTAL	82	102	3	7	1	1	41	17	2	119	375

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 1/01/92 TO 14/01/92

12. CODE 10 - EYE
 13. CODE 59 - GENITAL
 14. CODE 39 - ENDOCRINE/SALIVARY GL.
 15. CODE 38 - RETICULO-ENDOTHELIAL
 16. CODE 29 - MUSCLE/JOINT
 17. CODE 69 - CONGENITAL
 18. CODE P8 - PUO
 19. CODE G8 - FEVER/MALAISE
 20. CODE 09 - OTHER
 21. CODE A1 - SIDS

	12	13	14	15	16	17	18	19	20	21	TOTAL
0100 ADENOVIRUS NOT TYPED	0	0	0	0	0	0	0	0	1	0	1
0101 ADENOVIRUS TYPE 1	0	0	0	0	0	0	0	0	1	0	1
0102 ADENOVIRUS TYPE 2	0	0	0	0	0	0	1	1	0	0	2
0103 ADENOVIRUS TYPE 3	2	0	0	0	0	0	0	0	0	0	2
0111 ADENOVIRUS TYPE 11	0	0	0	0	0	0	0	0	3	0	3
0199 ADENOVIRUS TYPING PENDING	0	0	0	0	0	0	0	0	1	0	1
0400 RESPIRATORY SYNCYTIAL VIRUS	0	0	0	0	0	0	2	0	0	0	2
0500 RHINOVIRUS (ALL TYPES)	0	0	0	0	0	0	0	0	2	2	4
0600 MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	2	0	3	0	5
1011 ECHOVIRUS TYPE 11	0	0	0	0	0	0	0	1	0	0	1
1102 POLIOVIRUS TYPE 2 (UNCHARACTER	0	0	0	0	0	0	0	0	1	0	1
1200 MUMPS VIRUS	0	0	0	0	0	0	0	0	1	0	1
1301 HERPES SIMPLEX VIRUS - NOT TYP	0	1	0	0	0	0	0	0	3	0	4
1302 EPSTEIN-BARR VIRUS	0	0	10	4	0	0	2	2	6	0	24
1303 VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	0	1	0	1
1306 HERPES SIMPLEX VIRUS TYPE 1	3	24	0	0	0	0	1	0	1	0	29
1307 HERPES SIMPLEX VIRUS TYPE 2	0	72	0	0	0	0	0	0	0	0	72
1401 COXIELLA BURNETII	0	0	0	0	0	0	2	0	2	0	4
1502 ENTEROVIRUS - NOT TYPED	0	0	0	0	0	0	0	1	0	0	1
1521 MEASLES VIRUS	0	0	0	0	0	0	0	1	0	0	1
1541 CHLAMYDIA TRACHOMATIS (UNSPECI	5	22	0	0	0	0	0	0	0	0	27
1556 CYTOMEGALOVIRUS	1	0	0	0	0	3	3	3	21	0	31
1599 ENTEROVIRUS TYPING PENDING	0	0	0	0	0	0	3	0	0	0	3
1700 PARVOVIRUS	0	0	0	0	0	0	0	0	2	0	2
9992 ROSS RIVER VIRUS	0	0	0	0	2	0	0	0	0	0	2
TOTAL	11	119	10	4	2	3	16	9	49	2	225