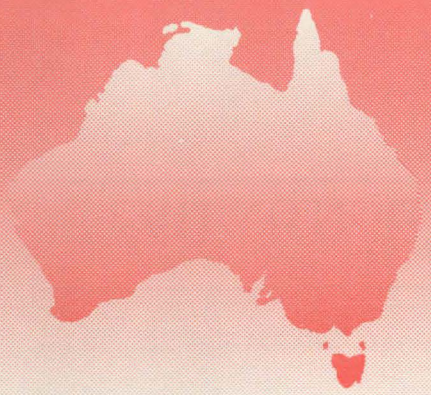


COMMUNICABLE DISEASES INTELLIGENCE

ISSN 0725-3141 VOLUME 15 NUMBER 21 21 October 1991

CONTENTS

Editor: Robert Hall

Editorial Staff: Jenny Hargreaves, Evon Bowler, Leslee Roberts, Anura Ponnuthurai, Marcus Hodge and Lenore Cupitt.

CDI is produced fortnightly by:

Communicable Diseases Section
Department of Health, Housing and Community Services
GPO Box 9848 Canberra ACT 2601.
Fax: (06) 289 7802 Telephone: (06) 289 1555

Contributions covering any aspect of communicable diseases are invited, and do not usually preclude publication elsewhere.

Opinions expressed in CDI are those of the authors and not necessarily those of the Department of Health, Housing and Community Services or other Communicable Diseases Network - Australia affiliates. Figures given may be subject to revision.

Consent for copying in all or part can be obtained from:

Manager, AGPS Press
Australian Government Publishing Service,
PO Box 84, Canberra ACT 2600

DEPARTMENT OF HEALTH, HOUSING AND COMMUNITY SERVICES

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

BRUCELLOSIS: PRELIMINARY COMMUNICATION ON THE CHANGING EPIDEMIOLOGY IN QUEENSLAND

(Dr Jenny Robson, Microbiologist and Infectious Disease Physician, Drs Sullivan, Nicolaides & Partners Pathology, Queensland)

Introduction

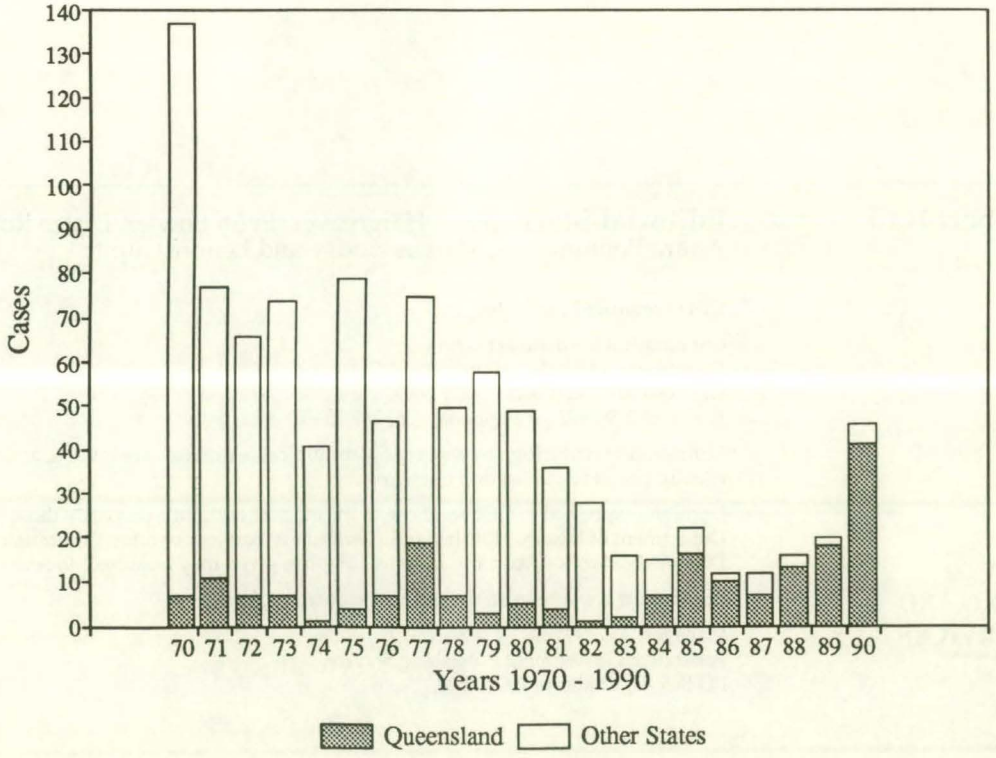
Of the six species of *Brucella*, three are normally found in Australia: *Brucella abortus* in cattle, *Brucella suis* in swine, and *Brucella ovis* in sheep. In past years, most cultures recovered from human infection have been *Brucella abortus*, acquired as a result of occupational exposure to cattle[1]. Lesser numbers of *Brucella suis* have been reported. *Brucella ovis* does not normally affect man, but causes disease in sheep. Occasional cases of *Brucella melitensis* from goats have occurred, particularly in migrants and travellers from endemic regions such as the Mediterranean and South America. Infrequently, laboratory acquired melitensis infections have also occurred in Australia.

For many reasons, but particularly because of the threat of loss of export markets, Australia conducted an eradication program for *Brucella abortus* in cattle. This National Brucellosis and Tuberculosis Eradication Campaign began in 1970 and has been extremely successful, achieving its goal earlier than anticipated: in July 1989 Australia was declared free of bovine brucellosis. Ongoing serological monitoring of all slaughtered cattle in abattoirs continues to occur with a traceback system of tailtagging allowing for identification, slaughter and culture of 'serological reactors'. Concurrent with the pasteurisation of domestic milk, reduction of brucella in dairy herds, and eradication from beef cattle, the notification of human brucellosis dropped from a high of 137 in 1970 to less than 20 cases each year in the mid-1980's (Figure 1)[2].

Methods

It is with this background that our laboratory, which services metropolitan and coastal Queensland as far north as Maryborough, central and western Queensland as far north as Winton, as well as parts of northern New South Wales, noted what appeared to be a larger than usual number of serological specimens consistent with acute infection with *Brucella*. As a result, retrospective cases back to November 1989 and prospective cases up to and including August 1991 were investigated. All cases were individually contacted for assessment, which included a questionnaire on clinical symptoms, occupation, recreational activities, treatment and response to treatment, relapse rate, and complications, together with long term follow up.

Figure 1. Queensland and National brucellosis notifications, 1970-1990, by year



Cases were initially identified serologically, with high titres in the microscopic agglutination test (≥80) and the complement fixation test. (Any titre is regarded as being possibly significant in the latter.) It very soon became apparent that there was a common pattern of exposure in all of these patients. This was contact with feral swine.

Both serological tests use *Brucella abortus* as the cross reacting antigen to detect antibodies to all species except *Brucella canis*. Because of this cross reactivity, the tests are unable to differentiate the species involved. It was important therefore, to obtain cultures to confirm an early suspicion that the aetiology was *Brucella suis*.

Results

To date we have accumulated 31 cases over a 22 month period. All but one case were male. Twenty-six were Caucasian and five were Maoris. Five cases came from metropolitan Brisbane and worked in feral pig factories: three as skinners, one as a supervisor in the boning room and the one female patient worked as a packer of feral pig meat. The remainder of the cases came from Winton (8), Muttaburra (1), Longreach (1), Barcaldine (3), Blackall (3), Tambo (1), Charleville (1), Surat (1), Roma (4), Glenmorgan (1), Dayboro (1), and Mackay (1). Seven of these were professional kangaroo and feral pig shooters. Although the remainder undertook a variety of occupations, every one was involved in the recreational pursuit of kangaroos and feral pigs. The patient from Dayboro made frequent pig shooting excursions to the Charleville region. One patient had not shot a pig for over a year prior to his acute illness in deference to his pet pig dogs who were frequently injured. He did however help his mates unload feral pig carcasses at the freeze box. Another patient only went shooting infrequently. He had had no exposure for several months prior to his clinical illness which was compatible with acute brucellosis. *Brucella suis* was grown from his blood cultures which suggests that, on occasions, the incubation period can be quite prolonged.

All patients had a clinical illness and serological titres consistent with active brucellosis. On 12 occasions we were able to obtain blood cultures once the serology became available. Nine patients had positive cultures, and all were identified and confirmed as *Brucella suis* by the National Brucellosis Reference Laboratory, Australian Animal Health Laboratory (AAHL), Geelong. The three patients with negative blood cultures had been commenced on antibiotic therapy to which *Brucella* may have been sensitive prior to the blood culture collection. One patient with positive blood cultures had commenced doxycycline 24 hours previously.

The husband of the female patient in this series also had a positive culture for *Brucella suis*, isolated at Queensland Medical Laboratories. The patient from Mackay had *Brucella suis* cultured from splenic tissue after undergoing a splenectomy for multiple splenic abscesses.

Some of the eleven culture-positive patients had had exposure to kangaroos (7 patients), dogs (8 patients), cattle (3 patients), goats (2 patients) and domestic pigs (2 patients), but they all had had exposure to feral pigs.

More complete data on clinical symptoms, treatment, relapse rate and complications have been submitted for publication elsewhere.

Discussion

In 1990, 46 cases of brucellosis were notified in Australia, and 41 of these came from Queensland (Figure 1). This is a 2-3 fold increase compared to recent years and this trend is in keeping with what has been observed in our laboratory, which accounted for over 40% of the notifications. Our survey strongly suggests that a large proportion of the current cases of brucellosis is due to *Brucella suis* infection. Information from AAHL supports this. For 1989/90, AAHL reports five *Brucella suis* and one *Brucella melitensis* human isolates and for 1990/91, nine *Brucella suis* and one *Brucella melitensis*. These include the 11 isolates mentioned in this series.

Why the apparent increase in the last few years when pig shooting has been a recreational activity in Queensland for many years? In recent years the export of field-shot game meat - a highly prized delicacy in West Germany and France - has grown in Queensland. Posters and advertisements occur throughout country Queensland encouraging hunters to bring home the bacon. Returns of between 60c - $1.50/kg of wild pig are substantial incentive. The pigs are shot, dogged, or trapped and then gutted with their viscera and skin left intact. The carcass is transported to a central freeze box and subsequently distributed to a limited number of wild game exporting abattoirs (3-4 premises licensed in Queensland). The pig skinner earns $1.00/pig and skins on average 100/day. In removing the gut these hunters are frequently covered with blood and sprayed with urine and genital discharges, all of which contain brucellae in infected animals. Every patient claimed that they frequently had cuts and abrasions on their hands for a variety of reasons, and none wore gloves up until the time of diagnosis.

What is the evidence that feral pigs are infected? In 1976, Norton and Thomas found 13 of 38 feral pigs killed near Ayr to give positive serological reactions for brucellosis and *Brucella suis* was isolated from one[3]. A serological survey of feral pigs from the Callide-Dawson area around Rockhampton showed 57% seropositivity to brucellosis[4]. Serological studies on the domestic pig population suggest that the infection is rare in domestic piggeries at present.

An interrelated problem is that infection with *Brucella suis* can occur in cattle[5]. Although this species is not pathogenic in cattle, low levels of brucellar antibodies may be detected on serological screening and this is proving to be a major nuisance to the eradication program. It is unlikely that cattle transiently infected with *Brucella suis* will ever be a major reservoir for infection in man. Swine, in contrast to cattle, excrete *Brucella suis* not only at the time of abortion or parturition, but at all times in the urine and genital secretions, and the organ-

ism is often found in lymph nodes throughout the body[6].

Conclusions

There appears to be an increasing incidence of brucellosis in Queensland. The evidence is that *Brucella suis* is the responsible pathogen and that feral pigs are the major reservoir.

REFERENCES

1. Stevenson WJ, Hughes KL. *Synopsis of zoonoses in Australia*. 2nd edition. Australian Government Publishing Service. Canberra 1988.
2. Australian Bureau of Statistics. *Year Book Australia 1970-1990*. ABS. Canberra.
3. Norton JH and Thomas A. Brucella suis in feral pigs. *Aust Vet J* 1976;**52**:293-4.
4. Noble JH. *Implications of Brucella suis on the National Brucellosis Eradication Campaign and in the commercial pig industry*:55-56. PhD Thesis.
5. Cook DR, Noble JH. Isolation of *Brucella suis* from cattle. *Aust Vet J* 1984;**61**:263-4.
6. Sutherland AK. Some veterinary aspects of the prevention of brucellosis. *Med J Aust* 1950;**2**:715-7.

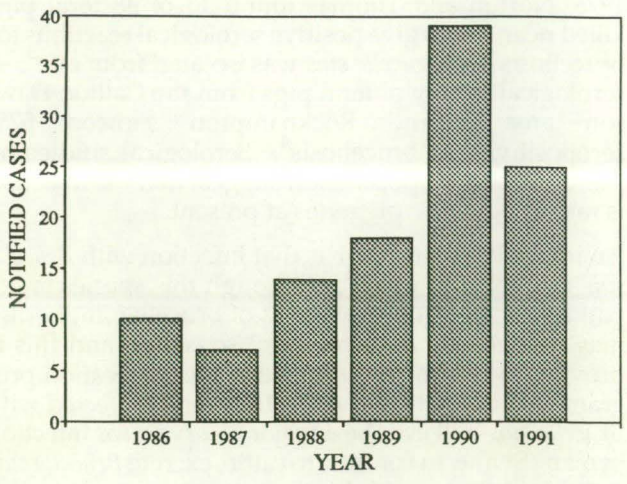
BRUCELLOSIS - QUEENSLAND

(Dr Gerard Neville and Mr Michael Pearce (NCEPH), Queensland Health)

The disease brucellosis is widely regarded as an occupational hazard. Historically, when *Brucella abortus* infection was common in Australian cattle, human brucellosis was usually the result of infection with *B. abortus*. Following the success of the National Brucellosis and Tuberculosis Eradication Campaign, the Queensland cattle herd was declared free of *B. abortus* on 1 January 1989. Only two breakdowns have occurred since this date - on adjacent properties near Springsure in central Queensland.

Despite the declaration of freedom from *B. abortus* and the preceding decline in *B. abortus* infections in the Queensland cattle population, annual notifications of human brucellosis in Queensland increased steadily from January 1985 to August 1991 and an outbreak occurred in 1990 (Figure 1).

Figure 1. Annual notifications of brucellosis in Queensland, 1986-1991*



* Expected total for 1991, based on average monthly trends (1986-1990) and 1991 notifications.

Brucellosis in Queensland exhibits strong geographical and seasonal patterns of distribution. The average annual incidence of brucellosis is highest in central and south-west Queensland, and is particularly high in the Central West Statistical Division (Table 1, Figure 2). The onset of brucellosis is most common from August to January (Figure 3). The disease usually occurs in males - of the 100 cases notified from January 1986 to August 1991, 92% were males. The great majority (86%) of people affected were 15-45 years old (Figure 4). There are no records of brucellosis in 0-15 year olds since 1985.

There were 39 notified cases of brucellosis in Queensland during 1990. (Initially, 41 cases of brucellosis had been reported for Queensland in the National Notifiable Diseases Scheme, however two cases were subsequently found to be unlikely to have been brucellosis.)

Table 1. Average annual incidence of Brucellosis in Queensland Statisitical Divisions, 1986-1990

No.	ABS Statistical Division	Notifications/10^6 person-years
1	Brisbane	1.05
2	Moreton	1.03
3	Wide Bay Burnett	1.84
4	Darling Downs	6.25
5	South West	17.48
6	Fitzroy	10.23
7	Central West	212.43
8	Mackay	3.86
9	Northern	2.35
10	Far North	0.93
11	North West	2.16

Figure 2. Average annual incidence of brucellosis in Queensland Statistical Divisions, 1986-1990

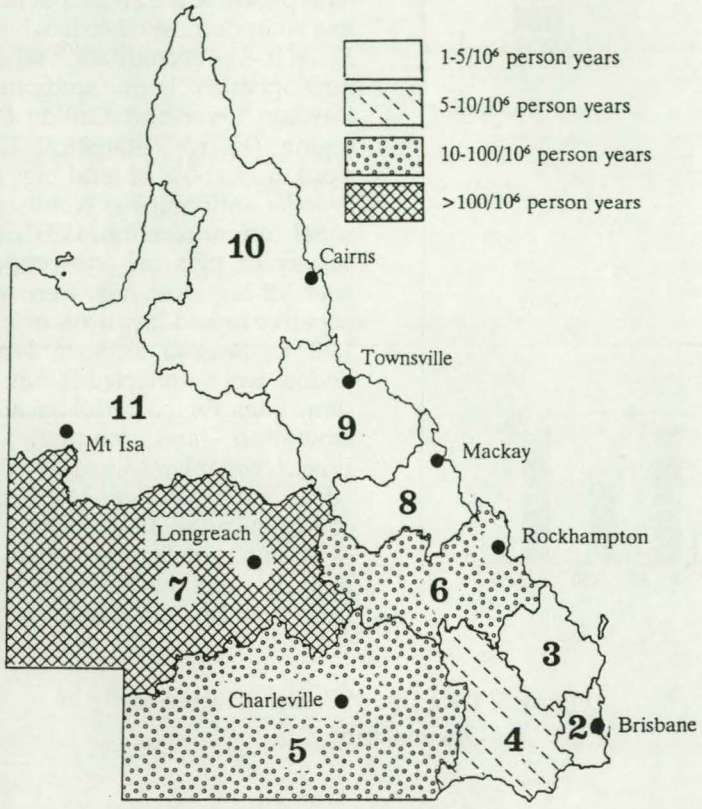
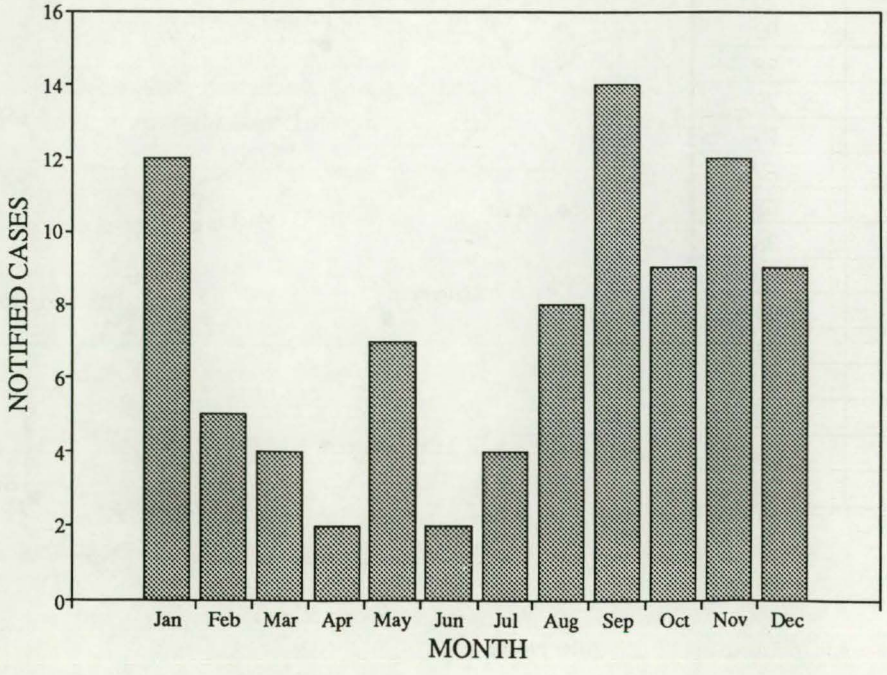


Figure 3. Notifications of brucellosis by month, Queensland, 1986-1990



Twenty-four cases that satisfied a modified Health and Welfare Canada case definition* for brucellosis[1] were further investigated by Queensland Department of Health. A summary of presenting clinical signs and symptoms is given in Table 2. In each case, the attending doctor had taken blood for serological examination. Agglutination test (AGGS) titres were all >320 with one exception. All patients from whom *Brucella* organisms were isolated had AGGS titres >320. Complement fixation tests (CFT), which were not always performed, gave titres of <128 in many cases even in patients from whom Brucella organisms were isolated. Specimens for bacterial culture were taken from 12 patients and 75% of these yielded *Brucella* organisms: one *B. abortus*, five *B. suis* and three unspeciated.

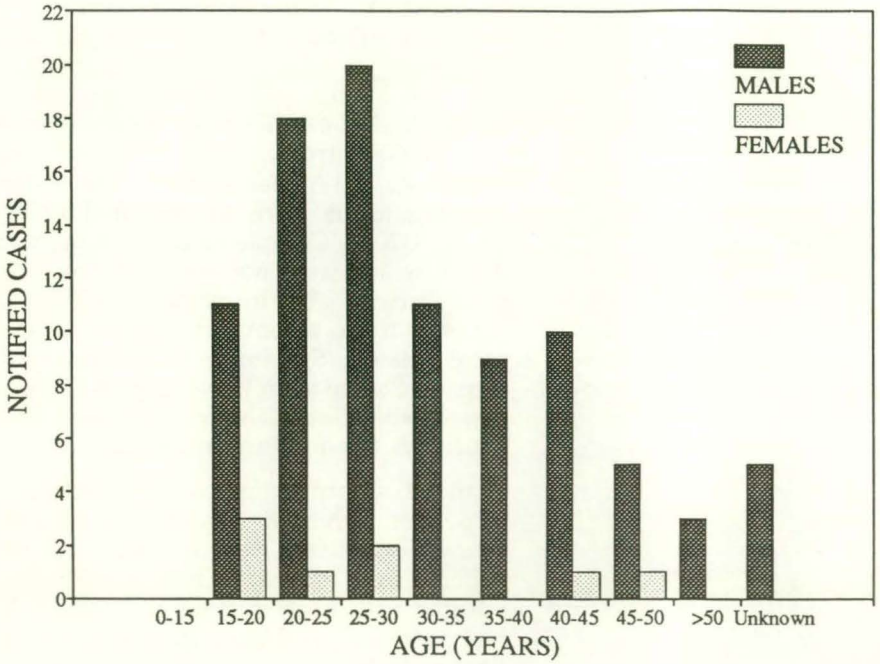
Of the 24 cases investigated, 22, including all those from which *B. suis* and unspeciated *Brucella* organisms were isolated, had not suffered from brucellosis before; the patient infected with *B. abortus* did not know if he had previously had brucellosis, and one patient had a history of brucellosis.

Seventeen of the 24 patients were known to have dealt with pig carcasses in the three months before developing clinical brucellosis; one claimed to have had no contact with pigs and the history of pig exposure in the other 6 cases was unknown. With one exception, all patients from whom *B. suis* or unspeciated *Brucella* organisms were isolated are known to have butchered or skinned feral or domestic pigs in the three months before the onset of their illness.

Eleven of the patients had contact with cattle in the three months prior to having brucellosis, including two from whom *B. suis* was isolated; eight, including one from whom *B. suis* was isolated, had had no contact with cattle in the same period and the history of exposure to cattle of the remaining five was unknown. The one patient from whom *B. abortus* was cultured had not had contact with cattle during the three months before his illness (Table 3).

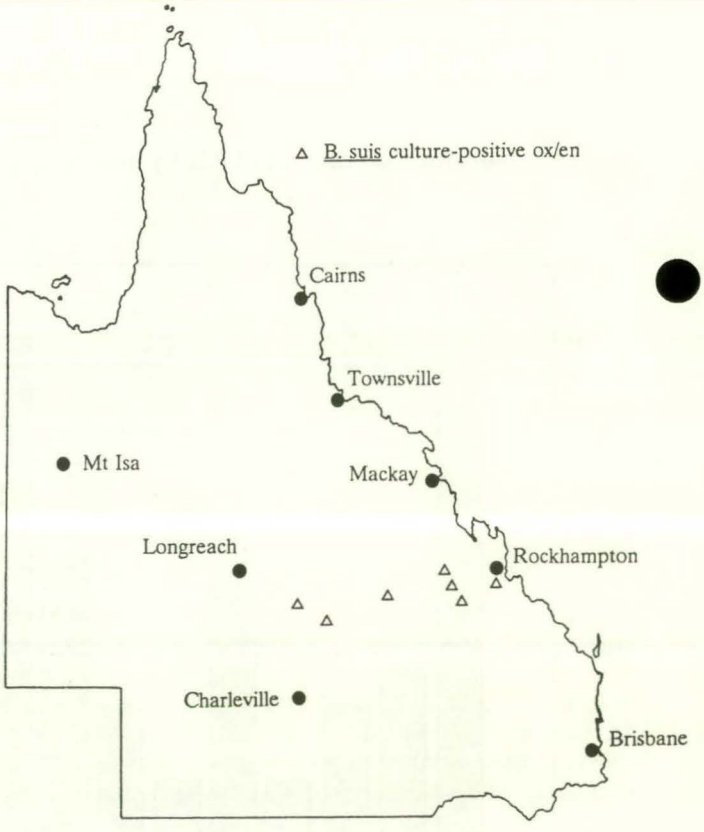
To date only *B. suis* biotype 1 has been detected in Australia (T Forman, personal communication 1991). *B. suis* biotype 3 occurs in Papua New Guinea[2]. Pigs and cattle infected with *B. suis* have been detected in several areas of

Figure 4. Notifications of brucellosis, Queensland, January 1986 to August 1991, by sex and age at onset



Queensland (Figures 5 and 6). Work by Queensland Department of Primary Industries suggests that *B. suis* infection is common in feral pigs in some areas, but much less so in domestic herds where a *Brucella* -free accreditation scheme now operates. In one study in the Dawson River and Callide Dam region (Fitzroy Statistical Division), up to 50% of feral pigs had *Brucella* antibodies (J Noble, personal communication, 1991). In a survey of pigs on one property near Mt Isa, most pigs were seronegative or had low titres of 1:8 to 1:32 to *Brucella* antigen; lymph nodes were collected from the same pigs for bacteriological examination and culture, but *Brucella* organisms were never isolated (P Willett, personal communication 1991). Cattle, rodents and rabbits may carry *B. suis* biotype[1], but the risk to humans from such carriers is unknown.

Figure 5. Location of *B. suis* infected cattle in Queensland*



* After Noble, 1989 [2].

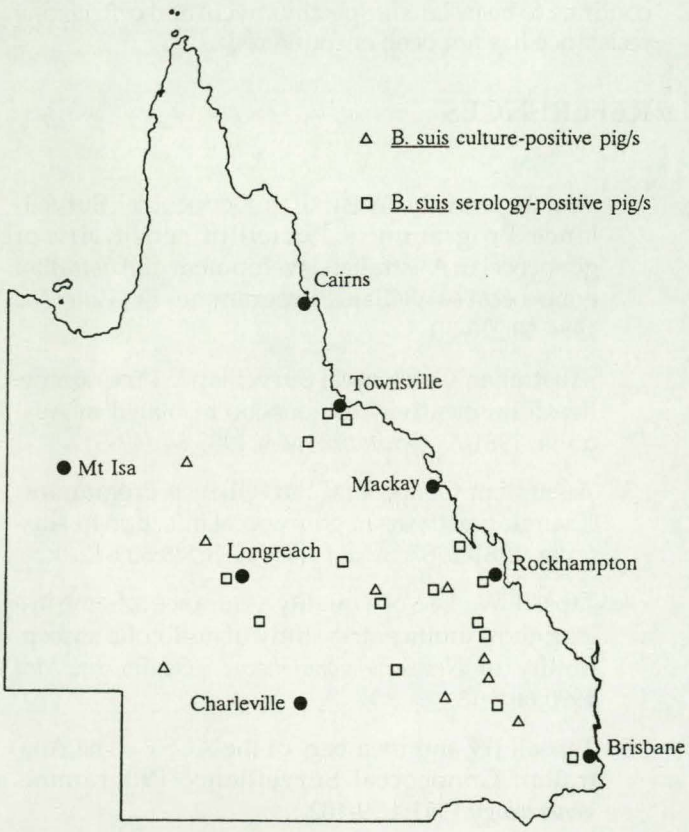
Table 2. Clinical signs and symptoms of 24 notified cases of brucellosis, Queensland, 1990

Clinical sign or symptom	Number of cases	% of cases
Fever	23	96
Malaise	22	92
Weakness	21	88
Headache	19	79
Sweating	19	79
Myalgia	16	67
Weight loss	15	63
Hepatomegaly	9	38
Arthralgia	7	29
Lymphadenopathy	5	21
Splenomegaly	5	21
Cough	4	17
Vomiting	4	17
Localised infection	2	8
Rash	1	4

Table 3. Exposure to pigs and cattle recorded for the investigated patients

Culture Attempted	Organism Isolated	Total	Pig Exposure			Cattle Exposure		
			Yes	No	Unknown	Yes	No	Unknown
+	*B. suis*	5	5	0	0	2	1	2
	B. abortus	1	0	0	1	0	1	0
	Brucella sp (undefined)	3	2	0	1	2	0	1
	no isolation	3	2	0	1	1	2	0
-	-	12	7	1	4	6	4	2
Total		24	17	1	6	11	8	5

Figure 6. Location of *B. suis* infected pigs in Queensland*



*After Noble, 1989[2].

B. suis infection of feral pigs appears to be common in many parts of Queensland, particularly central and western districts, and evidence suggests *B. suis* is now the most common cause of brucellosis in Queensland. Laboratory workers and people involved in skinning, butchering and handling the carcasses of infected animals seem to be at most risk of contracting brucellosis.

Unfortunately, a good species-specific serological test for *Brucella* antibodies is not currently available in Australia. Diagnosis at the species level is still dependent on culture, which was undertaken in only 50% of cases in this survey. However, the survey recovery rate of 75% suggests that samples for bacteriological culture should be taken routinely when brucellosis is suspected.

* NOTE

Health and Welfare Canada use the following case definition for brucellosis.

Clinically compatible symptoms with one of the following:

1. A positive culture for a species of *Brucella*.
2. Detection of *Brucella* antigen.
3. Four-fold or greater change in the serological titre against *Brucella* to >1/80 by Standard Tube Agglutination (STA) or equivalent between acute and convalescent serum specimens obtained two or more weeks apart, and studied in the same laboratory.
4. A single significantly high titre against *Brucella* (1/160). [We used a value of 1/128 for AGGS or CFT].

REFERENCES

1. Anonymous. Canadian communicable disease surveillance system. Disease-specific case definitions and surveillance methods. *Canada Diseases Weekly Report* 1991; **17(S3)**:13.
2. Noble JH. *The Implications of Brucella suis on the National Brucellosis Eradication Campaign and in the commercial pig Industry*: 61, 71. Senior Thesis (internal). Queensland Department of Primary Industries, Biloela. 1989.

GONOCOCCAL SURVEILLANCE - AUSTRALIA, 1 APRIL - 30 JUNE 1991

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

This report on the penicillin sensitivity of 345 strains of gonococci isolated throughout Australia in the three months to June 1991 completes 10 years of surveillance of gonococcal antimicrobial sensitivity in Australia by the AGSP. During this period, over 37,000 isolates of *Neisseria gonorrhoeae* have been examined by participating laboratories and the results of these examinations have been reported in the *CDI* over the past decade. Other reviews of the AGSP activity have occurred periodically in various publications[1-5] and meetings.

Profound changes in the antibiotic sensitivity of gonococci isolated in Australia have occurred in the past decade. These have been manifested most dramatically by the plasmid mediated enzymic inactivation of the penicillins, that is, penicillinase producing *N. gonorrhoeae* (PPNG), and more recently by chromosomally controlled mechanisms which increase levels of intrinsic resistance. These changes in antibiotic resistance have occurred when the incidence of the diseases is falling steadily[3,5].

Interestingly data generated in this quarter indicate that further significant changes in chromosomally mediated resistance patterns are emerging (Table). There is an increase in the number of fully sensitive strains in both Sydney and Melbourne, the percentage of such isolates in Sydney (22.6) being the highest rate for a considerable period.

Intrinsically resistant strains (MIC 1.0 mg/L or above) represent approximately 9% of isolates in Sydney in this quarter, but although strains of this type were also isolated in most other centres, they represented only a very small proportion of all isolates in other areas.

With regard to PPNG, a steady decline in both the total number of lactamase-producing strains and in the incidence of endemic transmission of PPNG has been noted. The number of PPNG isolated in Australia in this quarter was 42 or 12.1% of all strains isolated. However, only six such infections were acquired locally. Twenty one infections with PPNG were acquired at a variety of South-East Asian locations and in 15 instances the origin of the infection was unknown. For the first time in a considerable period there were no locally acquired PPNG infections in Sydney.

A few cases of high level tetracycline resistance have been reported, and strains less sensitive to the quinolone antibiotics ciprofloxacin and norfloxacin continue to be isolated. Spectinomycin and ceftriaxone resistance has not been encountered.

REFERENCES

1. Members of the Australian Gonococcal Surveillance Programme. Penicillin sensitivity of gonococci in Australia: development of Australian gonococcal surveillance programme. *Br J Vener Dis* 1984;60:226-30.
2. Australian Gonococcal Surveillance Programme. Penicilln sensitivity of gonococci isolated in Australia, 1981-6. *Genitourin Med* 1988;64:147-51.
3. Australian Gonococcal Surveillance Programme. Changing patterns in gonococcal infection in Australia, 1981-1987. *Med J Aust* 1988;149:609-12.
4. Tapsall JW. Use of a quality assurance scheme in a long-term multicentric study of antibiotic susceptibility of *Neisseria gonorrhoeae*. *Genitourin Med* 1990;66:8-13.
5. Tapsall JW and members of the AGSP. The Australian Gonococcal Surveillance Programme. *Venereology* 1991;4:99-102.

Table. Penicillin sensitivity of isolates of *N. gonorrhoeae*, 1 April - 30 June 1991*

Centre	Percentage of isolates		
	Sensitive	Less Sensitive	PPNG
Brisbane	12.9 (21)	51 (55.6)	14.3 (15)
Sydney	22.6 (11)	60 (47)	6 (25)
Melbourne	15.7 (6.2)	52 (54)	20.6 (24.7)

* Figures in parentheses represent data from the equivalent period in 1990

Sensitive MIC, 0.004 - 0.016 mg/L

Less Sensitive MIC, 0.06 - 0.25 mg/L

PPNG, penicillinase producing *N. gonorrhoeae*

UPDATE ON HEPATITIS A IN VICTORIA

(Dr Tony Stewart, Health Department, Victoria)

The outbreak of hepatitis A that has affected Melbourne this year is continuing. As of 30 September, there have been 243 notifications of acute or subclinical infection to Health Department Victoria for 1991.

In the epidemic curve for 1991 (Figure 1), the right hand bars in each pair represent numbers of cases in females, while the left hand bars are total male cases. The bottom (black) portions of these bars represent those males that have been identified as homosexual by call back to the notifying doctor. The upper portions include heterosexual males and males for which no information is available (and may therefore include some homosexual males). The low incidence of hepatitis A in males identified as homosexual prior to May reflects the difficulty in call back rather than the actual incidence.

Of the 243 notifications, 45 (18.0%) were female and 197 (81.5%) were male. Sex was not specified in one case. The male to female ratio of cases for the year is 4.7:1. This has become higher in the latter months (12.3:1 in July). Of the 198 cases in males, at least 89 (44.0%) are in homosexuals.

The outbreak is predominantly affecting homosexual males. The age distribution in this group shows a marked peak in the 15 to 45 year old age groups (Figure 2). Analysis by place of residence shows that most reports are from the Melbourne metropolitan region.

The female cases are spread more uniformly across the State. In this group there was a small peak in May (12 cases) which tapered off in June and was back to basal levels by July. These cases may represent secondary spread from the main outbreak.

Some of the rise in notifications may reflect increased testing in the wake of the publicity given to this outbreak. There has been a genuine and continuing increase in the number of clinical cases in gay men. The public health measures so far employed are being enhanced to control of the transmission of hepatitis A in the homosexual community.

Figure 1. Hepatitis A notifications in Victoria, 1991, by month of onset and sex

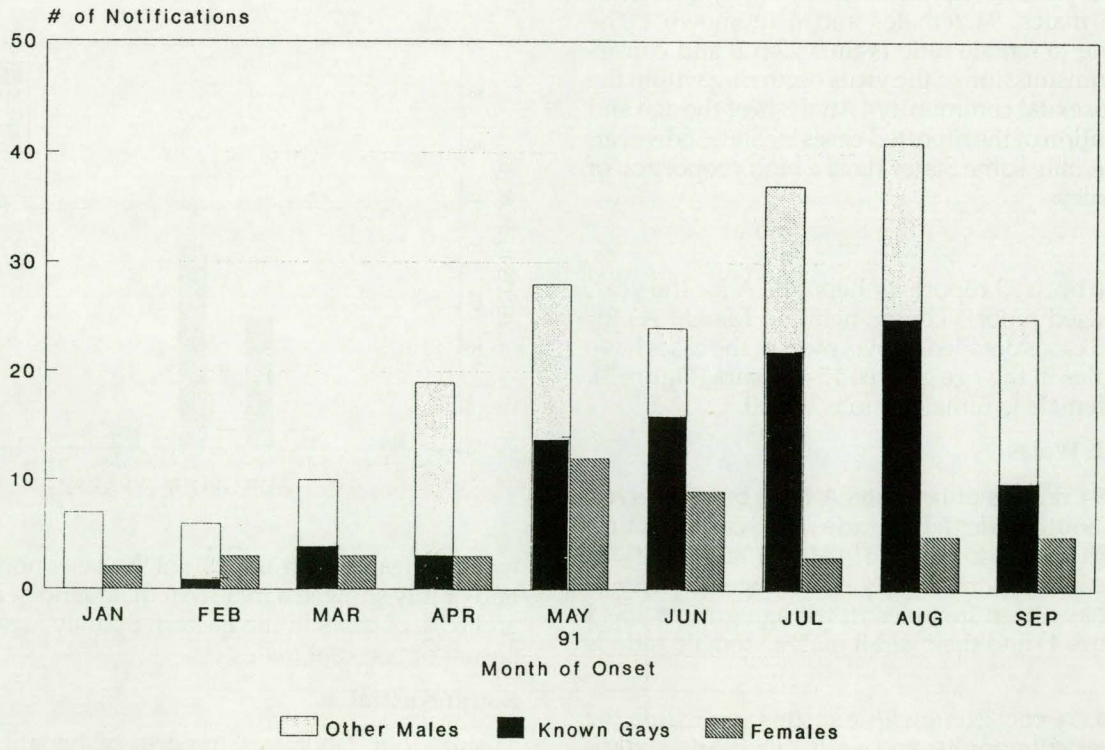
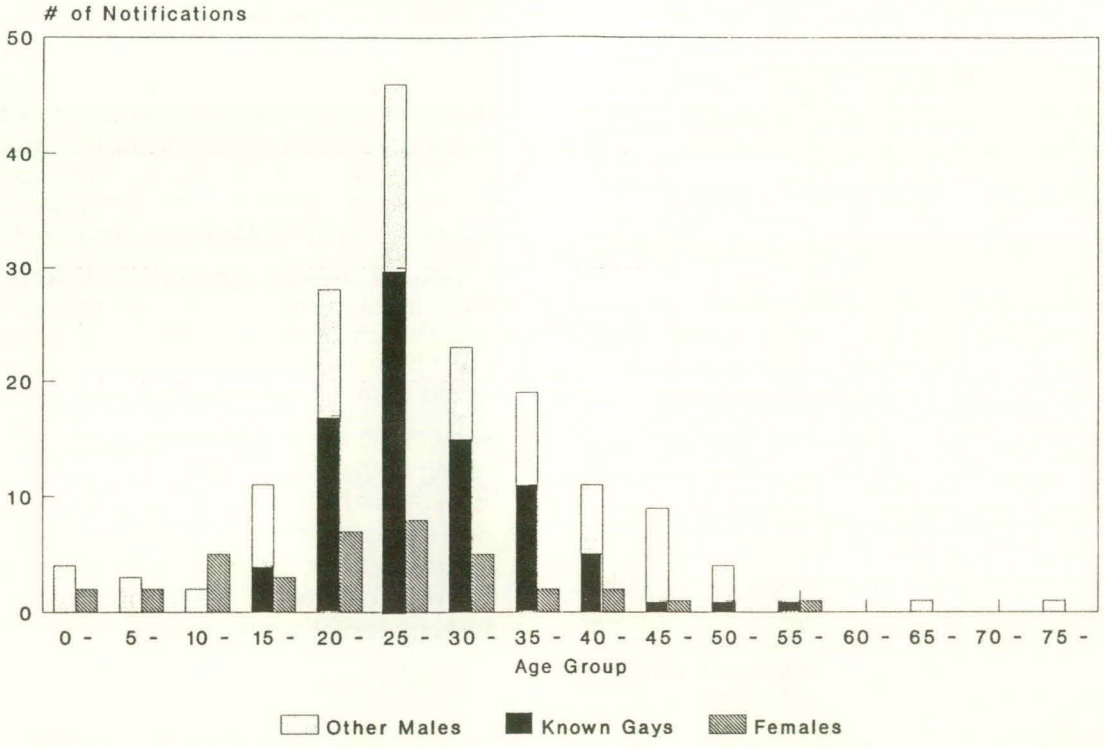


Figure 2. Hepatitis A notifications in Victoria, 1991, by age group and sex



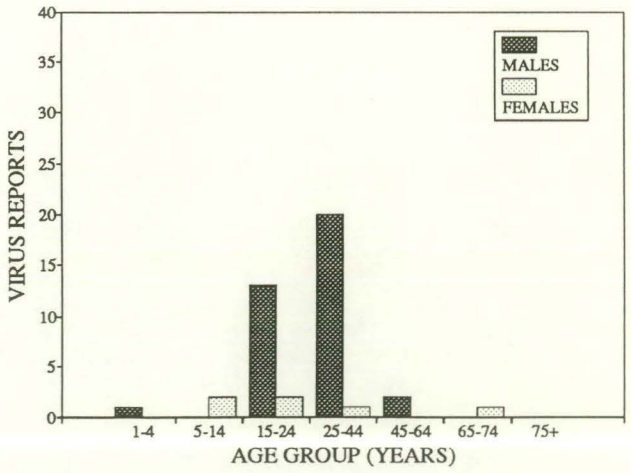
CDI Editorial Comment

The *CDI* Laboratory Reporting Schemes have now received 326 reports of hepatitis A this year. Of these, 226 have been males, 94 females and 6 unknown. The overall male to female ratio is thus 2.4:1.0 and consistent with transmission of the virus occurring within the male homosexual community. Analysis of the age and sex distribution of the reported cases by State, however, reveals that only some States have a high proportion of cases in males.

Victoria

There have been 53 reports of hepatitis A for the year, with increased reports commencing in March. As for the notified cases detailed above, most of the cases have been in males in the age groups 15-44 years (Figure 3). The overall male to female ratio is 6.4:1.0.

Figure 3. Hepatitis A reports, Victoria, 1991, by age group and sex



New South Wales

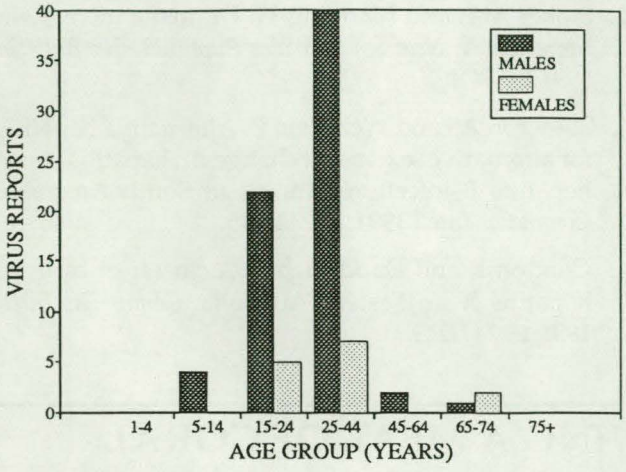
A total of 94 reports of hepatitis A have been received from New South Wales laboratories this year. The number of reports began to increase in March, and there was a small peak in reports in July. The large majority of the cases have been in males in the age groups 15-44 years (Figure 4) and the overall male to female ratio is 5.1:1.0.

These data are consistent with transmission within the homosexual community and with this year's significant outbreak of hepatitis A in the male homosexual community in the Eastern, Central and Southern Sydney Areas. By the end of August, 474 cases of hepatitis A had been notified to the New South Wales Department of Health[1]. An analysis of the cases notified to the end of July showed a male to female ratio of almost 3:1, and 63% of cases in the Eastern Sydney area in homosexual or bisexual males[2].

South Australia

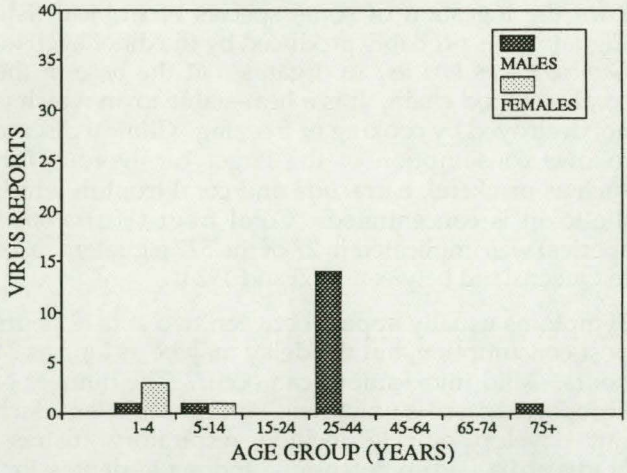
Twenty-four laboratory reports of hepatitis A have been received from South Australia this year. Although the number of reports is small, the distribution of cases by age group and sex (Figure 5) shows a high proportion of cases in adult males, and is consistent

Figure 4. Hepatitis A reports, New South Wales, 1991, by age group and sex



with the sex distribution of cases notified in the State this year[3]. The overall male to female ratio is 2.8:1.0.

Figure 5. Hepatitis A reports, South Australia, 1991, by age group and sex

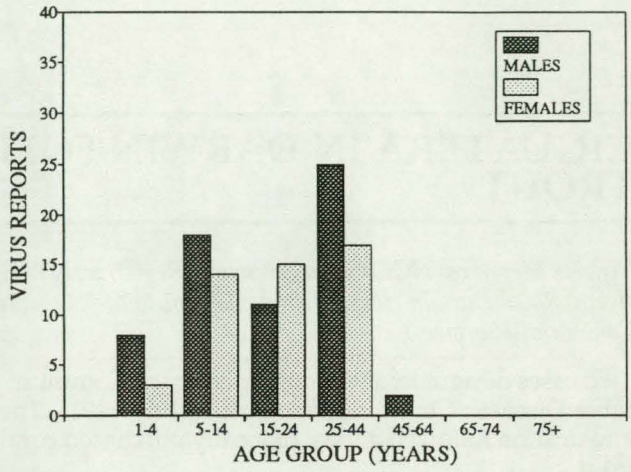


Western Australia

With 117 reports, Western Australia has the largest number of hepatitis A reports made through the *CDI* Laboratory Reporting Schemes this year. The pattern of cases reported from this State is different from those in Victoria, New South Wales and South Australia. Small peaks were recorded in February and May, consistent with the usual seasonality of the disease in Western Australia, and with the greater rate of contraction of the disease in summer months when people are commonly engaged in outdoor activities and fly numbers are greater[4].

The age and sex distribution of the cases (Figure 6) does not show a large proportion of cases in adult males. Thirty-seven per cent were in children less than 15 years old, the overall male to female ratio is 1.3:1.0, and in the 15-44 year age group, it is 1.1:1.0.

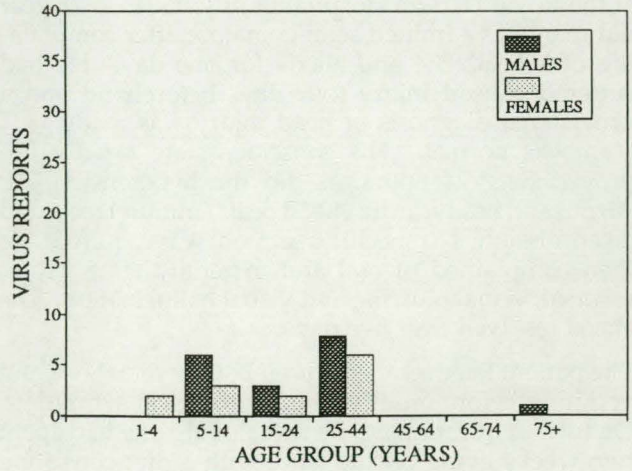
Figure 6. Hepatitis A reports, Western Australia, 1991, by age group and sex



Queensland

Although only 33 reports of hepatitis A have been received from Queensland laboratories, it appears that the sex and age distribution of the cases is similar to that in Western Australia (Figure 7). Thirty-three per cent

Figure 7. Hepatitis A reports, Queensland, 1991, by age group and sex



of the cases have been in children under the age of 15 years, and the overall male to female ratio is 1.3:1.0. As for Western Australia, these data do not suggest any association between cases of the disease and the State's homosexual community.

Tasmania, the ACT and the Northern Territory

A total of only 5 reports have been received from laboratories in these areas of Australia, so it is not possible to determine sex and age distributions.

REFERENCES

1. Anonymous. Infectious diseases. *New South Wales Public Health Bulletin* 1991;2:94.
2. Stokes M-L and Manning W. Dramatic increase in hepatitis A. *New South Wales Public Health Bulletin* 1991;2:77-78.
3. Cameron AS and Weinstein P. Alternative hepatitis for alternative sex: recent changes in hepatitis A and hepatitis B infection patterns in South Australia. *Comm Dis Intell* 1991;15:244-245.
4. Condon R and Dandridge S. A cluster of cases of hepatitis A in Western Australia. *Comm Dis Intell* 1991;15:247-249.

CIGUATERA IN DARWIN FOLLOWING A MEAL OF CORAL TROUT

(Angela Merianos, NCEPH Epidemiology Registrar, NT Department of Health and Community Services; Jim Burrows, Physician, Royal Darwin Hospital; and Mahomed Patel, Director, Communicable Diseases Centre, NT Department of Health and Community Services)

Two cases of ciguatera were reported to the Communicable Diseases Centre, Darwin, on 18 July 1991. The intoxication followed a meal of locally purchased coral trout.

Both patients experienced nausea, vomiting, mild diarrhoea, abdominal cramps, pruritis and paraesthesia in the face and extremities. Temperature reversal, manifested as burning of the mouth and skin on contact with cold water, was a prominent and early feature in both cases. This symptom is considered pathognomonic of ciguatera. The first case developed facial tingling within one hour of eating the fish. Her flatmate, who ate a smaller portion, became symptomatic with vomiting and diarrhoea within three hours. She complained of severe myalgia in addition to her other symptoms.

A further case of ciguatera intoxication was identified at the Royal Darwin Hospital in July, 1991. A 23 year old man was admitted semi-comatose after complaining of a headache and ataxia for one day. He had suffered a head injury four days beforehand and a provisional diagnosis of head injury was made. CT scan was normal. His conscious state rapidly improved over 24 hours, as did the hypotension (BP 90/50) and bradycardia (40-50 beats/minute) recorded on admission. No specific treatment was required. He then complained of oral and extremity temperature reversal, visual blurring and visual hallucination. The ataxia resolved over five days.

The patient later recalled a brief bout of diarrhoea and vomiting before onset of the neurological symptoms. On further questioning, he revealed that he had spent two weeks living off the land, with a diet consisting mainly of coral reef fish caught off the Coburg Peninsula, NT. He had last eaten fish 12-24 hours and chicken two hours prior to the onset of his illness.

Comment

Ciguatera is a distinctive food intoxication which follows the ingestion of some species of tropical fish. Ciguatoxin is probably produced by the dinoflagellate *Gambierdiscus toxicus*, an organism at the base of the coral reef food chain. It is a heat-stable toxin which is not destroyed by cooking or freezing. Clinical disease follows consumption of the larger carnivorous fish such as mackerel, barracuda and coral trout in which the toxin is concentrated. Coral trout (*Plectropomus* species) was implicated in 27 of the 527 ciguatera cases in Queensland between 1965 and 1984[1].

Symptoms usually appear between two and 12 hours post-consumption, but the delay may be as long as 24 hours. Mild intoxications can occur. The number of unreported cases is unknown. Serious sequelae which can develop quickly include respiratory distress, bradycardia and hypotension, and acute depression. Hospital admission for observation is recommended in the first 24 hours of ciguatera. Marked improvement in symptoms has been reported after early administration of mannitol[2,3].

In the Northern Territory, ciguatera has been associated with fish caught in the Gulf of Carpentaria near Nhulunbuy (Gove), Borroloola, and Groote Eylandt. The principal ciguateric species include Spanish mackerel, barracuda, coral trout, red emperor and some varieties of cod. Ciguateric fish usually weigh over 2.5kg. Seven to 10 cases occur each year following consumption of fish caught in these waters. Many of these patients become symptomatic after returning

with their frozen catch to Queensland (Dr G Broadbent, Townsville, personal communication).

Physicians in non-endemic areas should consider the diagnosis of ciguatera in patients presenting with acute gastroenteritis associated with neurological symptoms in patients who have recently eaten fish caught in the tropics or northern Australia.

REFERENCES

1. Gillespie NC, Lewis RJ, Pearn JH *et al.* Ciguatera in Australia. Occurrence, clinical features, pathophysiology and management. *Med J Aust* 1986;**145**:584-590.
2. Palafox NA, Jain LG, Pinano AZ *et al.* Successful treatment of ciguatera food poisoning with intravenous mannitol. *JAMA* 1988;**259**:2740-2742.
3. Pearn JH, Lewis RJ, Ruff T *et al.* Ciguatera and mannitol: experience with a new treatment regimen. *Med J Aust* 1989;**151**:77-80.

OVERSEAS BRIEFS

In the last two weeks, the following information regarding cholera cases and recently infected areas has been supplied by the World Health Organization and the Pan American Health Organization (PAHO).

Cholera in Africa Update

From 28 May to 18 August, there were 3,503 cases and 126 deaths in **Benin**. The Department de l'Atacora has been added to the country's infected areas.

Burkino Faso reported 98 cases and 4 deaths for the period 30 August to 19 September.

There were 968 cases and 39 deaths reported from **Chad** for the period 9 to 29 September.

Ghana reported a total of 831 cases and 41 deaths occurring from 30 August to 19 September.

All areas of **Kenya** were removed from the list of infected areas on 3 October.

From 27 July to 19 September, there were 1,489 cases and 154 deaths reported for **Mozambique**.

Niger reported 244 cases and 27 deaths for the period 30 August to 19 September.

Cholera in the Americas Update

Bolivia has reported a further 12 cases and 1 death for the period 18 September to 1 October, and 18 cases and 1 death for the period 2 to 10 October.

In **El Salvador**, 62 cases and 5 deaths were reported from 22 September to 5 October. The central, Occidental and Oriental Regions have been declared infected.

Guatemala reported a further 76 cases and 2 deaths for the period 8 to 14 September.

Panama has issued revised figures for the period 10 to 21 September: 178 cases and 3 deaths. From 22 September to 5 October there were another 286 cases and 9 deaths.

In **Chile**, the cholera epidemic has ceased. The last cases there were reported on 22 May. A total of 41 cases, 38 hospitalisations and 2 deaths were recorded.

In **Peru**, by the end of August, the cholera epidemic had affected at least 1.5% of the country's population, with 256,343 cases, 97,422 hospitalisations and 2,453 deaths. In August, the incidence fell to 1,200 cases per week, as compared to the 15,000 to 20,000 weekly cases reported in February 1991. Intense transmission of the disease is reported to continue in remote Departments such as Loreto, where the case fatality rate is 2.8%, compared to 0.5% in areas of the coast. For the period 12 to 19 September, 2,185 cases and 18 deaths were reported.

Ecuador is the other American country which has been severely affected by the epidemic. At 17 August, there had been 35,587 cases, 27,866 hospitalisations and 576 deaths. In July and August, an average of 800 cases were still being reported each week.

Clinical manifestations of *V. cholerae* O1 infection in the Americas have varied from asymptomatic infections (75%) and mild diarrhoea up to the severest clinically identifiable forms (5%). On the basis of the way in which the epidemic has evolved in the Americas this year, the PAHO fears that the disease may extend to yet further countries of the region in coming months and may become endemic in some areas.

Cholera in Asia Update

There were a further 5 cases reported from the **Republic of Korea** for the period 3 to 16 September. On 3 October, however, all areas of Korea were removed from the infected area list.

Sri Lanka declared all its territory free of cholera on 3 October 1991.

In **Iraq**, there were 144 cases and 2 deaths reported for the period 21 August to 11 September, and 68 cases and 2 deaths for the period 12 to 25 September.

Nepal reported 472 cases and 2 deaths for the period 14 June to 10 September.

Cholera in Europe Update

Romania reported a further 5 cases for the period 17 to 19 September, and 34 cases with 2 deaths for the period 20 September to 2 October.

The **Ukranian SSR** reported 32 cases to the end of September in the Nicolaev region, which has now been declared infected.

Measles in New Zealand Update

The measles epidemic is continuing in New Zealand, with 339 cases reported in the week ending 27 September and 352 cases in the week ending 4 October. This brought the total number of cases reported since late June to 6,257. A total of 180 measles-associated hospitalisations have also been reported, however, this is presumed to be an underestimate of the total due to under-reporting.

Overall, the epidemic has continued to include a large number of cases occurring in adolescents and young adults. The Auckland Area Health Board reported the highest number of cases (1,876 at 27 September), followed by Wellington (1,263), Waikato (674), Bay of Plenty (396) and Tairawhiti (377). The highest cumulative incidence rate was in Tairawhiti (835.9 cases per 100,000 population).

Yellow Fever in Nigeria

There were 180 cases of yellow fever and 77 deaths in Nigeria during the period 1 April to 31 August. Most cases occurred in Bendel State, but 6 cases and 4 deaths occurred in Plateau State, which was declared infected on 3 October.

Plague in Madagascar

Twenty cases of plague, with 12 deaths, were reported for the period 15 July to 20 August from the Mahajanga Province of Madagascar.

COMMUNICABLE DISEASES SURVEILLANCE

There were 54 reports of influenza received this period. They included the first report of **influenza C** received since 1987. The patient was a 7 year old boy who had had upper respiratory tract disease. This virus is typically involved only in sporadic cases and minor localised outbreaks[1].

Fifty-one of the remaining influenza reports were of **influenza B**. Seven of these were identified as 'Yamagata-like' and one was 'Vic/2/87-like'. Five were in patients aged 65 years or older.

Influenza B reports peaked in August and now total 265 for 1991. It appears that ASPREN reports of consultations for influenza also peaked in August-September, although late reports will probably increase the figures for recent weeks (Figure 1).

A total of 11 cases of **rubella** was reported. One patient was a 10 year old boy who developed encephalitis four days after clinical rubella, was comatose for 36 hours and then made an abrupt and complete recovery. The other patients included one woman of child-bearing age (15 years). Six cases were from South Australia.

A total of 271 reports of **respiratory syncytial virus** were received this fortnight, bringing the total for the year to 2245. Now that the figures for September are more complete, it is clear that the peak for this year has passed in New South Wales and the ACT, Victoria and Queensland. However, the number of reports in Western Australia and South Australia continue to rise, with 50 and 60 reports, respectively, this fortnight.

A further 260 reports of **rotavirus** were received this fortnight. Large numbers of cases were again recorded from laboratories in Sydney (74 cases), Queensland (96 cases), Adelaide (43 cases) and Canberra (12 cases). The total for the year is now 1981, the highest number ever recorded for this virus (Figure 2).

Twenty-six reports of **varicella-zoster virus** (chicken pox) were received this period. The patients included a six day old male whose cord blood had a high titre of varicella zoster virus antibodies, a pregnant 16 year old female, and a 36 year old male with herpes zoster ophthalmitis.

There were 5 reports of **Q fever** this fortnight, all from New South Wales. No exposure details were provided for any of the patients.

Measles was reported in a further 13 patients, bringing the total for the year to 190 reports. Twelve of the reports were from laboratories in Melbourne.

There were 66 reports of **hepatitis C**. The patients included a 13 year old female with Von Willebrand's disease and 7 patients who had a history of injecting drug use.

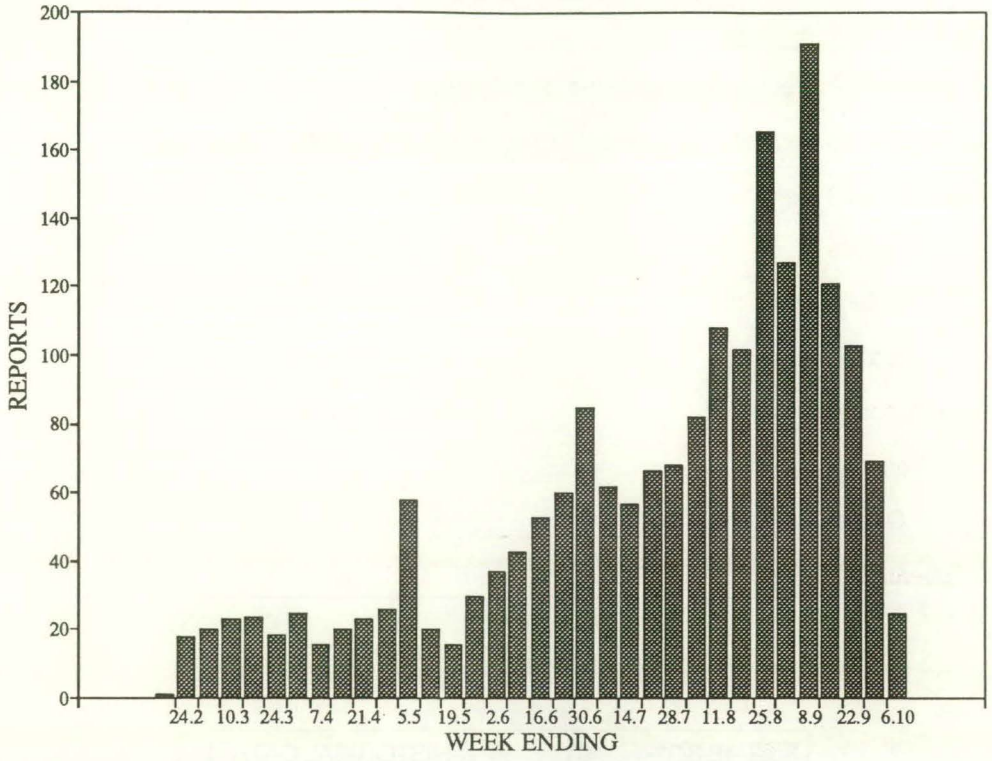
There was one report of **dengue** virus (not typed), identified in a patient described as a 'traveller'.

A case of ***Campylobacter fetus* subsp *fetus*** was reported. The organism was isolated from the blood of a 33 year old woman after fetal intrauterine death, pyrexia and purulent discharge.

One case of ***Neisseria meningitidis* group B** meningitis was reported in a male in the age group 1-12 months. The organism was isolated from a sample of CSF.

There was one report of ***Escherichia coli*** isolated from blood and CSF of a male aged less than one month. Such neonatal infection is usually acquired from the birth canal and manifests in the first week of life[1].

Figure 1. ASPREN consultations for influenza 1991, by week*

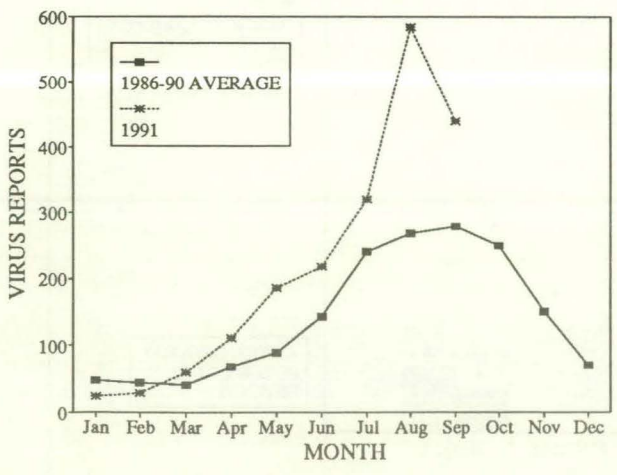


Note. ASPREN figures may be subject to revision. The number of practices submitting reports each week can vary.

In addition to the tables of virus reports, this issue of *CDI* includes tables detailing reports received of 'non-viral' pathogens (pages 396-398) for sample collection dates from 1 January to 31 March 1991.

Included are 144 reports of **malaria** from the State Health Laboratory Brisbane. Ninety of these were ***Plamodium vivax*** and 54 were ***P. falciparum***, more than double the number of cases of malaria reported in the previous 3 months (38 *P. vivax* and 24 *P. falciparum*).

Figure 2. Rotavirus reports, 1986-1990 average and 1991



This is typical of the pattern seen for Australian diagnoses of malaria, which occur at a greater rate in the first half of each year, and is related to patterns of travel and seasonality of malaria in the countries of origin of the infection[2].

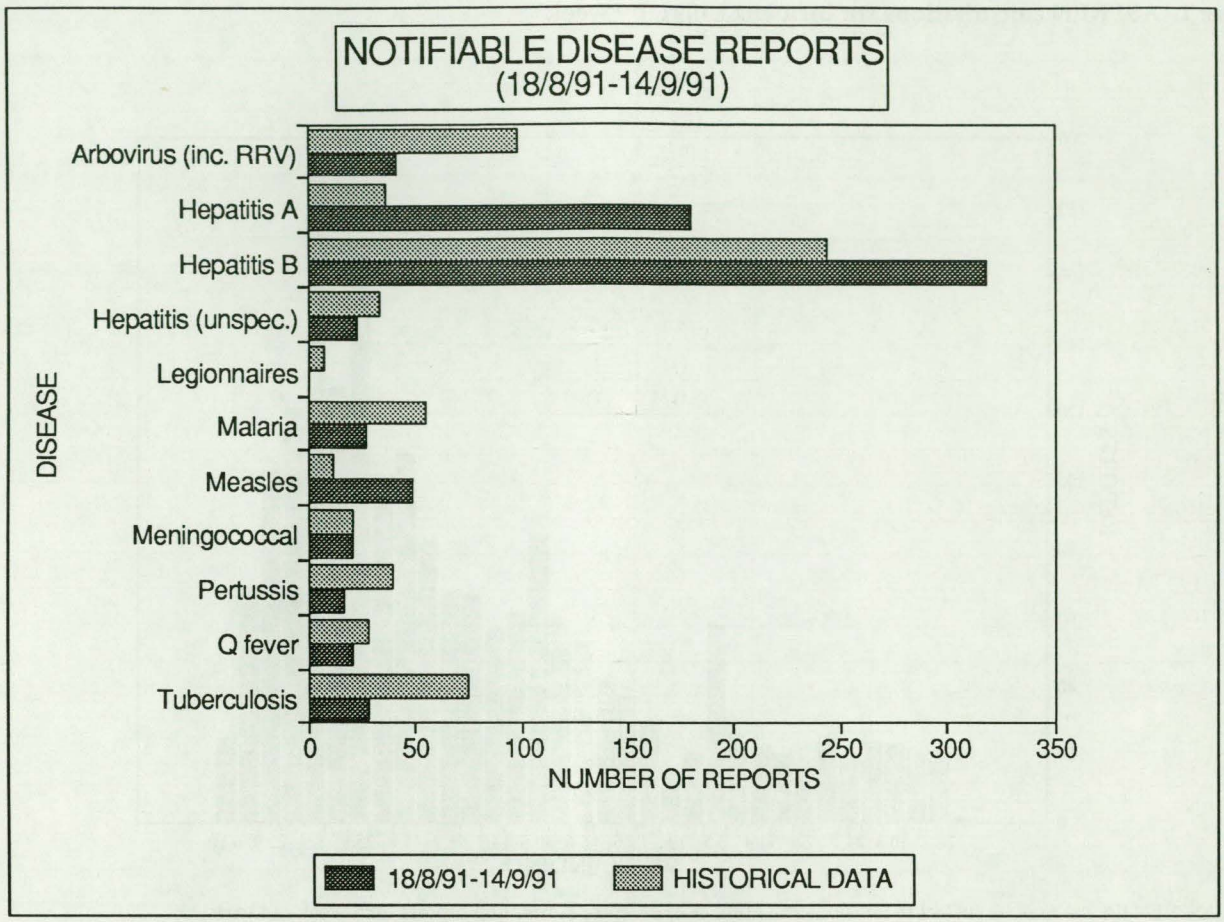
Also included are 8 reports of ***Echinococcus granulosus***, about the same number as reported in the previous 3 months (7 cases).

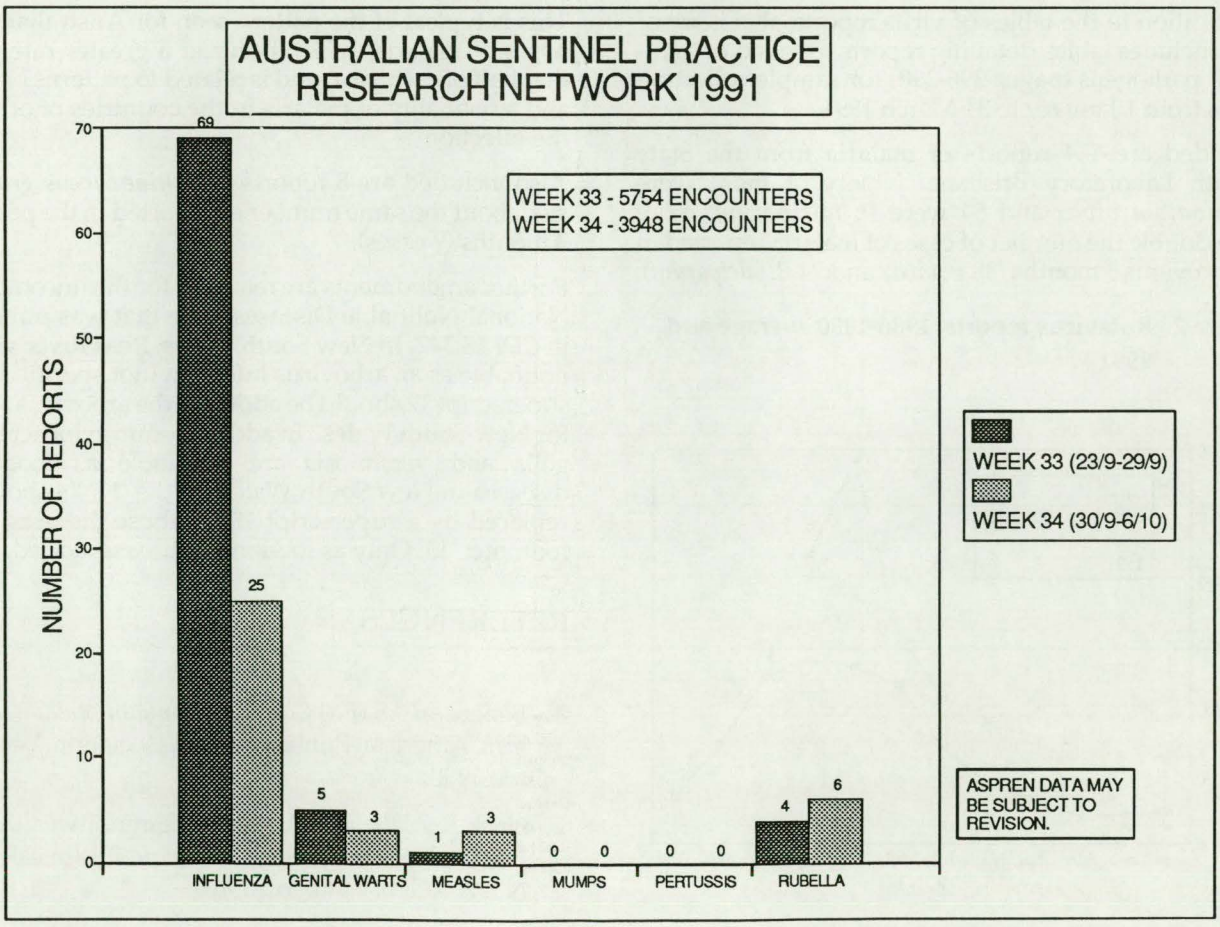
Further amendments are required for the uncompleted National Notifiable Diseases table that was published in *CDI* **15**:342. In New South Wales, Ross River virus is notifiable as an arbovirus infection (not specified), so a superscript 12 should be added to the arbovirus square for New South Wales. In addition, campylobacter, shigella and yersiniosis are notifiable as foodborne diseases in New South Wales, so the 'NN's should be replaced by a superscript 13 for those diseases and a footnote: '13. Only as foodborne disease' added.

REFERENCES

1. Benenson AS (Ed) *Control of communicable diseases in man.* American Public Health Association. Washington 1990.

2. Black R. *Malaria in Australia.* Commonwealth Institute of Health Tropical Medicine Technical Paper No. 7. AGPS. Canberra 1981.


NOTIFIABLE DISEASE REPORTS
(18/8/91-14/9/91)
Arbovirus (inc. RRV)
Hepatitis A
Hepatitis B
Hepatitis (unspec.)
Legionnaires
Malaria
Measles
Meningococcal
Pertussis
Q fever
Tuberculosis
DISEASE
0
50
100
150
200
250
300
350
NUMBER OF REPORTS
18/8/91-14/9/91
HISTORICAL DATA


AUSTRALIAN SENTINEL PRACTICE
RESEARCH NETWORK 1991
WEEK 33 - 5754 ENCOUNTERS
WEEK 34 - 3948 ENCOUNTERS
NUMBER OF REPORTS
70
60
50
40
30
20
10
0
69
25
5
3
1
3
0
0
0
0
4
6
INFLUENZA
GENITAL WARTS
MEASLES
MUMPS
PERTUSSIS
RUBELLA
WEEK 33 (23/9-29/9)
WEEK 34 (30/9-6/10)
ASPREN DATA MAY
BE SUBJECT TO
REVISION.

National Notifiable Diseases Reports 18/8/91-14/9/91

DISEASES	ACT	NSW*	NT	QLD	SA	TAS	VIC	WA	TOTAL
Arbovirus Infections (ns)	0	2[12]	NN	1	0[12]	1	0	NN	4
Ross River Virus	NN	NN	4	32	NN	NN	1	1	38
Dengue fever	NN	NN	0	1	NN	NN	NN	NN	1
Brucellosis	0	0	0	4	0	0	2	0	6
Campylobacter	5	0[13]	5	166	149	26	82	70	503
Chancroid	0	NN	0	0	NN	NN	0	0	0
Chlamydia	8[1]	NN	17	118	66**[1]	0	23	0[1]	232
Cholera	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	2	0	0	0	0	0
Donovanosis	0	NN	1	0	NN	NN	0	0	1
Gonococcal diseases[2]	1	9	45	22	3**	2	2	40	124
Haemophilus influenzae b	2	5	NN	8	0[5]	0[8]	11[10]	NN	26
HIV infection	0[3]	0	0	0	8	0	NN	0[6]	8
Hydatid disease	0	0	0	1	0	0	0	0	1
Legionnaires disease	NN	0	0	0	0	0	0	0	0
Leprosy	0	0	0	0	0	0	0	0	0
Leptospirosis	0	0	0	1	0	0	2	0	3
Listeriosis	NN	0	NN	1	1	0	2	0	4
Lymphogranuloma venereum	0	NN	0	0	0	NN	0	NN	0
Malaria	1	10	1	9	0	1	1	4	27
Measles	4	14	0	11	9	0	11	0	49
Meningococcal infections	1	7	0	3	1	2	3	5	22
Ornithosis	0	NN	1	0	0	0	0	0	1
Pertussis	NN	0	0	13	1	0	3	1	18
Plague	0	0	0	0	0	NN	0	0	0
Poliomyelitis	0	0	0	0	0	0	0	0	0
Q fever	0	6	0	15	0	0	0	0	21
Rabies	NN	NN	0	0	0	0	0	0	0
Rubella[4]	1	2	0[4B]	14	10[4A]	0[4B]	9[4A]	0[4B]	36
Salmonella	2	21	13	46	29	7	18	47	183
Shigella	1	0[13]	18	8	8	0	3	13	51
Syphilis	0	21	27	24	3**	0	1	24	100
Tetanus	0	0	0	NN	0	0	0	1	1
Tuberculosis	0	11	0	5	6	0	0	6	28
Typhoid	0	0	0	0	1	0	0[11]	0	1
Viral haemorrhagic fever	NN	0	0	0	0[7]	0[9]	0	0[7]	0
Viral hepatitis (unspecified)	NN	21	0	2	0	0	0	NN	23
Hepatitis A	2	88	3	15	16	1	44	11	180
Hepatitis B	1	37	4	134	1	5	97	40	319
Hepatitis C	2	3	NN	102	NN	2	36	NN	145
Yellow fever	0	0	0	0	0	0	0	0	0
Yersiniosis	NN	0[13]	0	15	6	0	3	0	24

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
6. AIDS, ARC and LAS only
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 infections
13. Only as 'foodborne disease'

NN Not notifiable

* data for August 1991

** data for the period between 20/8/91-20/9/91

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 25/09/91 TO 08/10/91

CODE 018 - MICROBIOLOGICAL DIAGNOSTIC UNIT, UNIVERSITY OF MELBOURNE (VIC)
CODE 019 - FAIRFIELD HOSPITAL, MELBOURNE (VIC)
CODE 065 - STATE HEALTH LABORATORY SERVICES, PERTH (WA)
CODE 066 - PRINCESS MARGARET HOSPITAL, PERTH (WA)
CODE 110 - INSTITUTE OF MEDICAL & VETERINARY SCIENCE, ADELAIDE (SA)
CODE 111 - ROYAL CHIDLDRENS HOSPITAL, MELBOURNE (VIC)
CODE 112 - INSTITUTE OF CLINICAL PATHOLOGY & MEDICAL RESEARCH, WESTMEAD (NSW)
CODE 114 - ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, CAMPERDOWN (NSW)
CODE 115 - STATE HEALTH LABORATORY, BRISBANE (QLD)
CODE 116 - WODEN VALLEY HOSPITAL, GARRAN (ACT)
CODE 270 - TAMWOTH LAB, NEW ENGLAND PATHOLOGY (NSW)
CODE 400 - DR TB LYNCH, PATHOLOGIST, ROCKHAMPTON (QLD)
CODE RHH - ROYAL HOBART HOSPITAL (TAS)
CODE TPL - TOOWOOMBA PATHOLOGY LABORATORY (QLD)

	018	019	065	066	110	111	112	114	115	116	270	400	RHH	TPL	TOTAL
0100 ADENOVIRUS NOT TYPED	0	0	4	1	13	0	3	0	7	0	0	0	0	0	28
0101 ADENOVIRUS TYPE 1	0	3	0	0	0	0	0	0	0	1	0	0	0	0	4
0102 ADENOVIRUS TYPE 2	0	1	0	0	0	0	3	0	0	0	0	0	0	0	4
0103 ADENOVIRUS TYPE 3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
0105 ADENOVIRUS TYPE 5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
0108 ADENOVIRUS TYPE 8	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
0109 ADENOVIRUS TYPE 9	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
0128 ADENOVIRUS TYPE 28	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
0129 ADENOVIRUS TYPE 29	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
0199 ADENOVIRUS TYPING PENDING	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
0201 INFLUENZA A VIRUS	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
0203 INFLUENZA B VIRUS	0	11	0	0	8	5	17	2	7	1	0	0	0	0	51
0204 INFLUENZA C VIRUS	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
0301 PARAINFLUENZA VIRUS TYPE 1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	4
0302 PARAINFLUENZA VIRUS TYPE 2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	4
0303 PARAINFLUENZA VIRUS TYPE 3	0	1	1	0	11	5	4	1	4	1	0	0	0	0	28
0399 PARAINFLUENZA VIRUS TYPING PEN	0	0	0	1	0	2	0	0	0	0	0	0	0	0	3
0400 RESPIRATORY SYNCYTIAL VIRUS (R	0	17	6	44	60	16	16	8	74	6	20	2	1	1	271
0500 RHINOVIRUS (ALL TYPES)	0	4	1	0	3	4	2	1	5	0	0	0	0	0	20
0600 MYCOPLASMA PNEUMONIAE	0	5	2	0	9	3	2	1	0	0	0	1	0	0	23
0700 ORNITHOSIS-PSITTACOSIS	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
0809 COXSACKIEVIRUS A9	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
0904 COXSACKIEVIRUS B4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1006 ECHOVIRUS TYPE 6	0	0	0	0	0	0	2	1	0	0	0	0	0	0	3
1011 ECHOVIRUS TYPE 11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1022 ECHOVIRUS TYPE 22	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1030 ECHOVIRUS TYPE 30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1101 POLIOVIRUS TYPE 1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
1102 POLIOVIRUS TYPE 2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1103 POLIOVIRUS TYPE 3	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
1300 HERPES VIRUS GROUP - NOT TYPED	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
1301 HERPES SIMPLEX VIRUS - NOT TYP	0	1	0	3	0	0	13	3	0	6	0	0	0	0	26
1302 EPSTEIN-BARR VIRUS (EB VIRUS)	0	3	6	0	18	2	7	4	0	0	0	25	0	0	65
1303 VARICELLA-ZOSTER VIRUS	0	4	6	0	5	1	9	0	0	1	0	0	0	0	26
1306 HERPES SIMPLEX TYPE 1	0	30	13	0	21	3	5	0	23	0	1	0	3	0	99
1307 HERPES SIMPLEX TYPE 2	0	34	37	0	31	0	20	0	21	0	0	0	2	0	145
1399 HERPES VIRUS TYPING PENDING	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
1401 COXIELLA BURNETII	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
1502 PICORNA VIRUS - NOT TYPED = EN	0	0	3	0	0	0	2	1	8	0	0	0	0	0	14
1514 MOLLUSCUM CONTAGIOSUM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1521 MEASLES VIRUS	0	7	0	0	0	5	0	1	0	0	0	0	0	0	13
1522 RUBELLA VIRUS	0	1	1	0	6	0	1	0	0	0	0	2	0	0	11
1532 HEPATITIS B ANTIGEN	0	11	7	0	0	0	34	0	32	4	0	6	3	0	97
1535 HEPATITIS A ANTIBODY	0	7	1	0	1	0	9	0	3	0	0	1	0	0	22
1536 HEPATITIS C VIRUS	0	0	24	0	15	0	0	1	0	8	0	3	15	0	66
1537 HEPATITIS, DELTA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1541 CHLAMYDIA TRACHOMATIS - UNSPEC	15	0	20	0	22	0	8	1	16	0	1	0	3	13	99
1542 CHLAMYDIA TRACHOMATIS - A-K	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
1556 CMV - CYTOMEGALOVIRUS	0	26	4	5	3	7	1	2	34	0	0	4	3	0	89
1563 CORONAVIRUS	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
1564 ROTAVIRUS	0	1	3	6	43	14	19	5	0	12	50	84	11	12	260
1565 CALICI VIRUS	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
1566 NORWALK AGENT	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
1599 ENTEROVIRUS TYPING PENDING	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
9902 POXVIRUS GROUP NOT TYPED	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9903 NON-A, NON-B HEPATITIS (OTHER)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9992 ROSS RIVER VIRUS	0	0	0	0	0	0	2	0	0	0	0	9	0	0	11
9993 ASTROVIRUS	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
9994 SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
9995 DENGUE NOT TYPED	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9996 PARAMYXO	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	15	188	143	65	273	73	210	34	236	40	72	148	43	26	1566

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES BY STATE OF CONTRIBUTING LABORATORY

PERIOD 25/09/91 TO 08/10/91

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	QLD	WA	SA	TAS	ACT	TOTAL
0100	ADENOVIRUS NOT TYPED	3	0	7	5	13	0	0	28
0101	ADENOVIRUS TYPE 1	0	3	0	0	0	0	1	4
0102	ADENOVIRUS TYPE 2	3	1	0	0	0	0	0	4
0103	ADENOVIRUS TYPE 3	0	5	0	0	0	0	0	5
0105	ADENOVIRUS TYPE 5	1	0	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	0	5	0	0	0	0	0	5
0109	ADENOVIRUS TYPE 9	2	0	0	0	0	0	0	2
0128	ADENOVIRUS TYPE 28	1	1	0	0	0	0	0	2
0129	ADENOVIRUS TYPE 29	2	0	0	0	0	0	0	2
0199	ADENOVIRUS TYPING PENDING	0	4	0	0	0	0	0	4
0201	INFLUENZA A VIRUS	0	0	0	1	1	0	0	2
0203	INFLUENZA B VIRUS	19	16	7	0	8	0	1	51
0204	INFLUENZA C VIRUS	0	0	1	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	0	3	1	0	0	4
0302	PARAINFLUENZA VIRUS TYPE 2	0	0	0	2	2	0	0	4
0303	PARAINFLUENZA VIRUS TYPE 3	5	6	4	1	11	0	1	28
0399	PARAINFLUENZA VIRUS TYPING PEN	0	2	0	1	0	0	0	3
0400	RESPIRATORY SYNCYTIAL VIRUS (R	44	33	77	50	60	1	6	271
0500	RHINOVIRUS (ALL TYPES)	3	8	5	1	3	0	0	20
0600	MYCOPLASMA PNEUMONIAE	3	8	1	2	9	0	0	23
0700	ORNITHOSIS-PSITTACOSIS	0	2	0	0	0	0	0	2
0809	COXSACKIEVIRUS A9	0	3	0	0	0	0	0	3
0904	COXSACKIEVIRUS B4	0	0	0	1	0	0	0	1
1006	ECHOVIRUS TYPE 6	3	0	0	0	0	0	0	3
1011	ECHOVIRUS TYPE 11	1	0	0	0	0	0	0	1
1022	ECHOVIRUS TYPE 22	0	0	0	1	0	0	0	1
1030	ECHOVIRUS TYPE 30	1	0	0	0	0	0	0	1
1101	POLIOVIRUS TYPE 1	2	0	0	0	0	0	0	2
1102	POLIOVIRUS TYPE 2	1	0	0	0	0	0	0	1
1103	POLIOVIRUS TYPE 3	1	1	0	0	0	0	0	2
1300	HERPES VIRUS GROUP - NOT TYPED	0	2	0	1	0	0	0	3
1301	HERPES SIMPLEX VIRUS - NOT TYP	16	1	0	3	0	0	6	26
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	11	5	25	6	18	0	0	65
1303	VARICELLA-ZOSTER VIRUS	9	5	0	6	5	0	1	26
1306	HERPES SIMPLEX TYPE 1	6	33	23	13	21	3	0	99
1307	HERPES SIMPLEX TYPE 2	20	34	21	37	31	2	0	145
1399	HERPES VIRUS TYPING PENDING	0	1	0	0	0	0	0	1
1401	COXIELLA BURNETII	5	0	0	0	0	0	0	5
1502	PICORNA VIRUS - NOT TYPED = EN	3	0	8	3	0	0	0	14
1514	MOLLUSCUM CONTAGIOSUM	0	0	1	0	0	0	0	1
1521	MEASLES VIRUS	1	12	0	0	0	0	0	13
1522	RUBELLA VIRUS	1	1	2	1	6	0	0	11
1532	HEPATITIS B ANTIGEN	34	11	38	7	0	3	4	97
1535	HEPATITIS A ANTIBODY	9	7	4	1	1	0	0	22
1536	HEPATITIS C VIRUS	1	0	3	24	15	15	8	66
1537	HEPATITIS, DELTA	0	0	0	0	0	1	0	1
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	10	15	29	20	22	3	0	99
1542	CHLAMYDIA TRACHOMATIS - A-K	0	0	10	0	0	0	0	10
1556	CMV - CYTOMEGALOVIRUS	3	33	38	9	3	3	0	89
1563	CORONAVIRUS	3	0	0	0	0	0	0	3
1564	ROTAVIRUS	74	15	96	9	43	11	12	260
1565	CALICI VIRUS	5	0	0	0	0	0	0	5
1566	NORWALK AGENT	2	0	0	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	1	1	0	0	0	0	0	2
9902	POXVIRUS GROUP NOT TYPED	0	1	0	0	0	0	0	1
9903	NON-A, NON-B HEPATITIS (OTHER)	0	0	0	0	0	1	0	1
9992	ROSS RIVER VIRUS	2	0	9	0	0	0	0	11
9993	ASTROVIRUS	4	0	0	0	0	0	0	4
9994	SMALL VIRUS (LIKE) PARTICLE	1	0	0	0	0	0	0	1
9995	DENGUE NOT TYPED	0	1	0	0	0	0	0	1
9996	PARAMYXO	0	0	1	0	0	0	0	1
TOTAL		316	276	410	208	273	43	40	1566

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

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1

PERIOD 25/09/91 TO 08/10/91

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	6	7	8	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	1	11	0	0	0	13	0	0	0	25
0101	ADENOVIRUS TYPE 1	0	1	0	0	0	1	0	0	0	2
0102	ADENOVIRUS TYPE 2	1	1	0	0	0	2	0	0	0	4
0105	ADENOVIRUS TYPE 5	0	1	0	0	0	0	0	0	0	1
0109	ADENOVIRUS TYPE 9	0	0	0	0	0	2	0	0	0	2
0128	ADENOVIRUS TYPE 28	0	0	0	0	0	1	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	1	1	0	1	0	0	0	0	3
0201	INFLUENZA A VIRUS	0	2	0	0	0	0	0	0	0	2
0203	INFLUENZA B VIRUS	1	36	0	0	0	0	0	0	0	37
0204	INFLUENZA C VIRUS	1	0	0	0	0	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	4	0	0	0	0	0	0	0	4
0302	PARAINFLUENZA VIRUS TYPE 2	0	3	0	0	0	0	0	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	1	26	0	0	0	0	0	0	0	27
0399	PARAINFLUENZA VIRUS TYPING PEN	0	3	0	0	0	0	0	0	0	3
0400	RESPIRATORY SYNCYTIAL VIRUS (R	4	260	0	0	0	1	0	0	0	265
0500	RHINOVIRUS (ALL TYPES)	1	18	0	0	0	0	0	0	1	20
0600	MYCOPLASMA PNEUMONIAE	1	18	0	0	1	0	0	0	0	20
0809	COXSACKIEVIRUS A9	0	2	0	1	0	0	0	0	0	3
1006	ECHOVIRUS TYPE 6	1	1	0	0	0	1	0	0	0	3
1011	ECHOVIRUS TYPE 11	0	0	0	0	0	0	0	0	1	1
1022	ECHOVIRUS TYPE 22	0	1	0	0	0	0	0	0	0	1
1030	ECHOVIRUS TYPE 30	0	0	0	0	0	1	0	0	0	1
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	1	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	0	0	0	0	1	0	0	0	1
1103	POLIOVIRUS TYPE 3	0	1	0	0	0	1	0	0	0	2
1300	HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	1	0	0	0	2	3
1301	HERPES SIMPLEX VIRUS - NOT TYP	3	1	1	0	0	0	0	0	8	13
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	14	6	0	0	0	1	3	0	1	25
1303	VARICELLA-ZOSTER VIRUS	3	0	0	0	0	0	0	0	21	24
1306	HERPES SIMPLEX TYPE 1	2	2	0	0	0	0	1	0	63	68
1307	HERPES SIMPLEX TYPE 2	3	0	0	0	0	0	0	1	67	71
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	0	0	0	1	1
1502	PICORNA VIRUS - NOT TYPED = EN	1	5	0	1	0	6	0	0	0	13
1514	MOLLUSCUM CONTAGIOSUM	0	0	0	0	0	0	0	0	1	1
1521	MEASLES VIRUS	0	0	0	0	0	0	0	0	11	11
1522	RUBELLA VIRUS	2	2	1	0	0	0	0	0	2	7
1532	HEPATITIS B ANTIGEN	48	0	0	0	0	0	47	0	0	95
1535	HEPATITIS A ANTIBODY	11	0	0	0	0	0	10	0	0	21
1536	HEPATITIS C VIRUS	50	0	0	0	0	0	4	0	0	54
1537	HEPATITIS, DELTA	1	0	0	0	0	0	0	0	0	1
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	2	0	0	0	0	0	0	0	0	2
1542	CHLAMYDIA TRACHOMATIS - A-K	2	0	0	0	0	0	0	1	0	3
1556	CMV - CYTOMEGALOVIRUS	5	36	0	0	0	3	0	7	1	52
1563	CORONAVIRUS	0	0	0	0	0	3	0	0	0	3
1564	ROTAVIRUS	26	0	0	0	0	232	0	0	0	258
1565	CALICI VIRUS	0	0	0	0	0	5	0	0	0	5
1566	NORWALK AGENT	0	0	0	0	0	2	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	0	1	0	0	0	0	0	0	0	1
9701	HIV-1	3	0	0	0	0	0	0	0	0	3
9902	POXVIRUS GROUP NOT TYPED	0	0	0	0	0	0	0	0	1	1
9992	ROSS RIVER VIRUS	2	0	0	0	0	0	0	0	0	2
9993	ASTROVIRUS	0	0	0	0	0	4	0	0	0	4
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	1	0	0	0	1
9996	PARAMYXO	0	1	0	0	0	0	0	0	0	1
TOTAL		190	444	3	2	3	282	65	9	181	1179

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 25/09/91 TO 08/10/91

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 - CONGENTIAL
18. CODE P8 - PUO
19. CODE G8 - FEVER/MALAISE
20. CODE 09 - OTHER
21. CODE A1 - SIDS

		12	13	14	15	16	18	19	20	21	TOTAL
0100	ADENOVIRUS NOT TYPED	2	0	0	0	0	0	1	0	0	3
0101	ADENOVIRUS TYPE 1	1	0	0	0	0	0	0	1	0	2
0103	ADENOVIRUS TYPE 3	5	0	0	0	0	0	0	0	0	5
0108	ADENOVIRUS TYPE 8	5	0	0	0	0	0	0	0	0	5
0128	ADENOVIRUS TYPE 28	0	0	0	0	0	0	0	1	0	1
0129	ADENOVIRUS TYPE 29	0	0	0	0	0	0	0	2	0	2
0199	ADENOVIRUS TYPING PENDING	1	0	0	0	0	0	0	0	0	1
0203	INFLUENZA B VIRUS	0	0	0	0	1	5	8	0	0	14
0302	PARAINFLUENZA VIRUS TYPE 2	0	0	0	0	0	0	0	1	0	1
0303	PARAINFLUENZA VIRUS TYPE 3	0	0	0	0	0	0	0	1	0	1
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	0	0	0	0	1	0	4	1	6
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	1	2	0	3
0700	ORNITHOSIS-PSITTACOSIS	0	0	0	0	0	0	0	2	0	2
0904	COXSACKIEVIRUS B4	0	0	0	0	0	0	0	0	1	1
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	0	0	0	1	1
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	11	0	0	0	0	0	2	0	13
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	24	3	0	2	6	5	0	40
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	2	0	2
1306	HERPES SIMPLEX TYPE 1	6	18	0	1	0	2	0	4	0	31
1307	HERPES SIMPLEX TYPE 2	1	70	0	0	0	0	0	3	0	74
1401	COXIELLA BURNETII	0	0	0	0	0	1	3	1	0	5
1502	PICORNA VIRUS - NOT TYPED = EN	0	0	0	0	0	0	1	0	0	1
1521	MEASLES VIRUS	0	0	0	0	0	0	1	1	0	2
1522	RUBELLA VIRUS	0	0	1	0	1	0	0	2	0	4
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	0	0	1	0	1
1535	HEPATITIS A ANTIBODY	0	0	0	0	0	0	0	1	0	1
1536	HEPATITIS C VIRUS	0	1	0	0	0	0	0	8	0	9
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	2	94	0	0	0	0	0	0	0	96
1542	CHLAMYDIA TRACHOMATIS - A-K	0	6	0	0	0	0	0	1	0	7
1556	CMV - CYTOMEGALOVIRUS	1	2	2	1	0	2	2	26	1	37
1564	ROTAVIRUS	0	0	0	0	0	0	1	1	0	2
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	1	0	0	0	1
9992	ROSS RIVER VIRUS	0	0	1	0	4	1	0	1	0	7
9995	DENGUE NOT TYPED	0	0	0	0	0	0	1	0	0	1
TOTAL		24	202	28	5	6	15	25	73	4	382

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

NON-VIRAL PATHOGEN IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

SAMPLE COLLECTION DATE: JANUARY - MARCH 1991

CODE 019 - FAIRFIELD HOSPITAL, MELBOURNE (VIC)
CODE 112 - INSTITUTE OF CLINICAL PATHOLOGY & MEDICAL RESEARCH, WESTMEAD (NSW)
CODE 115 - STATE HEALTH LABORATORY, BRISBANE (QLD)
CODE 400 - DR TB LYNCH, PATHOLOGIST, ROCKHAMPTON (QLD)
CODE 420 - NAMBOUR GENERAL HOSPITAL (QLD)
CODE HOB - HOBART PATHOLOGY LABORATORY (TAS)
CODE RHH - ROYAL HOBART HOSPITAL (TAS)
CODE TPL - TOOWOOMBA PATHOLOGY LABORATORY (QLD)

		019	112	115	400	420	HOB	RHH	TPL	TOTAL
AE00	AEROMONAS SPECIES	0	0	0	19	0	0	0	0	19
AS00	ASPERGILLUS SPECIES	0	0	4	0	0	5	0	0	9
BL01	BLASTOCYSTIS HOMINIS	0	0	0	6	0	0	0	0	6
BO01	BORDETELLA PERTUSSIS	0	0	0	11	0	0	0	3	14
BT00	BACTEROIDES SPECIES	0	0	0	0	1	0	0	0	1
CA00	CANDIDA SPECIES	0	0	146	0	0	3	0	1	150
CB01	CORYNEBACTERIUM DIPHTHERIAE	0	0	0	1	0	0	0	0	1
CL00	CLOSTRIDIUM SPECIES	0	0	0	1	0	0	0	0	1
CL02	CLOSTRIDIUM PERFRINGENS	0	0	0	2	0	0	0	0	2
CL03	CLOSTRIDIUM DIFFICILE	0	0	0	1	0	0	0	0	1
CM00	CAMPYLOBACTER SPECIES	0	0	0	39	0	63	0	0	102
CM01	CAMPYLOBACTER JEJUNI	0	0	0	0	0	0	2	19	21
CR00	CRYPTOCOCCUS SPECIES	0	0	4	1	0	0	0	0	5
CT00	CRYPTOSPORIDIUM SPECIES	0	0	0	7	0	0	0	16	23
CT01	CAT SCRATCH DISEASE	0	0	0	1	0	0	0	0	1
EC01	ECHINOCOCCUS GRANULOSUS	0	0	7	0	0	0	0	0	7
EN00	ENTEROBACTER SPECIES	0	0	0	0	0	0	0	1	1
EP00	EPIDERMIDOPHYTON SPECIES	0	0	2	8	0	1	0	0	11
ER02	ENTEROCOCCUS FAECIUM	0	0	0	0	0	0	0	1	1
ES01	ESCHERICHIA COLI	0	0	0	16	3	0	0	15	34
ET01	ENTEROBIUS VERMICULARIS	0	0	0	6	0	0	0	0	6
GI01	GIARDIA LAMBLIA	0	0	4	30	0	3	0	13	50
HE01	HELICOBACTER PYLORI	0	0	0	2	0	0	0	0	2
HM02	HAEMOPHILUS INFLUENZAE	0	0	0	1	1	0	0	3	5
HM03	HAEMOPHILUS PARAINFLUENZAE	0	0	0	0	0	0	0	1	1
KL00	KLEBSIELLA SPECIES	0	0	0	0	0	0	0	1	1
KL01	KLEBSIELLA PNEUMONIAE	0	0	0	0	0	0	0	1	1
LE00	LEGIONELLA SPECIES	0	0	6	0	0	0	0	0	6
LE01	LEGIONELLA PNEUMOPHILA	0	3	1	0	0	0	0	0	4
LS00	LEPTOSPIRA SPECIES	0	1	8	0	0	0	0	0	9
LS03	LEPTOSPIRA ICTEROHAEMORRHAGIAE	0	0	1	0	0	0	0	0	1
LS04	LEPTOSPIRA POMONA	0	5	2	0	0	0	0	0	7
LS05	LEPTOSPIRA AUTUMNALIS	0	0	1	0	0	0	0	0	1
LS06	LEPTOSPIRA GRIPPOTYPHOSA	0	2	0	0	0	0	0	0	2
LS07	LEPTOSPIRA HARDJO	0	7	4	0	0	0	0	0	11
MA01	MALASSEZIA FURFUR	0	0	0	11	0	0	0	0	11
MI00	MICROSPORUM SPECIES	0	0	1	7	0	12	0	3	23
MY00	MYCOBACTERIUM SPECIES	0	0	0	1	0	0	0	0	1
NE01	NEISSERIA GONORRHOEAE	0	0	0	4	0	1	0	0	5
NE02	NEISSERIA MENINGITIDIS	0	0	0	0	2	0	1	1	4
NOTL	NOT LISTED	0	0	0	2	0	0	0	0	2
PA00	PASTEURELLA SPECIES	0	0	0	1	0	0	0	0	1
PA01	PASTEURELLA MULTOCIDA	0	0	0	2	0	0	0	0	2
PI00	PLEISOMONAS SPECIES	0	0	0	1	0	0	0	0	1
PL00	PLASMODIUM SPECIES	0	0	1	0	0	0	0	0	1
PL01	PLASMODIUM FALCIPARUM	0	0	54	1	0	0	0	0	55
PL02	PLASMODIUM VIVAX	0	0	90	3	0	0	0	0	93
PR00	PROTEUS SPECIES	0	0	0	0	0	1	0	2	3
PS00	PSEUDOMONAS SPECIES	0	0	0	1	2	0	0	2	5
PS01	PSEUDOMONAS AERUGINOSA	0	0	0	0	1	0	0	0	1
SA00	STAPHYLOCOCCUS SPECIES	0	0	0	0	0	3	0	3	6
SA01	STAPHYLOCOCCUS AUREUS	0	0	0	2	1	0	0	8	11
SA02	STAPHYLOCOCCUS EDIPERMIDIS	0	0	0	1	0	0	0	1	2
SE00	STREPTOCOCCUS SPECIES	0	0	0	0	4	0	2	2	8
SE01	STREPTOCOCCUS PNEUMONIAE	0	0	0	1	1	0	0	3	5
SE04	STREPTOCOCCUS GROUP B	0	0	0	0	1	0	0	1	2
SE08	STREPTOCOCCUS GROUP G	0	0	0	2	0	0	0	0	2
SH04	SHIGELLA SONNEI (A	0	0	0	0	0	0	0	1	1
SL00	SALMONELLA SPECIES	0	0	0	44	1	23	2	24	94
SS00	SERRATIA SPECIES	0	0	0	1	0	0	0	0	1
TC01	TRICHOMONAS VAGINALE	0	0	7	8	0	7	0	2	24
TI00	TRICHOPHYTON SPECIES	0	0	8	48	0	13	0	5	74
TP01	TOXOPLASMA GONDII	4	4	3	6	0	0	0	0	17
TR01	TREPONEMA PALLIDUM	0	0	82	7	0	0	0	2	91
VI03	VIBRIO PARAHAEMOLYTICUS	0	0	0	1	0	0	0	0	1
VN01	VINCENT'S ORGANISMS	0	0	0	3	0	0	0	0	3
YE01	YERSINIA ENTEROCOLITICA	0	0	0	17	0	0	0	1	18
TOTAL		4	22	436	327	18	135	7	136	1085

NB: NUMBERS MAY CHANGE AT A LATER DATE AS A RESULT OF LATE REPORTING

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

NON-VIRAL PATHOGEN IDENTIFICATIONS CATEGORISED BY SOURCE SPECIMENS - PART 1

SAMPLE COLLECTION DATE: JANUARY - MARCH 1991

BL - WHOLE BLOOD; BR - BRONCHIAL WASHINGS OR ASPIRATE; CS - CEREBROSPINAL FLUID;
EY - EYE; FA - FAECES/RECTUM; GE - GENITAL SWAB; LE - LEUCOCYTES;
NA - NASOPHARYNGEAL SWAB; PD - PERITONEAL DIALYSIS FLUID; PF - PERICARDIAL,
PLEURAL OR JOINT FLUID; PU - PUS; SA - SALIVA; SK - SKIN; SM - SERUM;
SP - SPUTUM; SS - SKIN SCRAPINGS; TH - THROAT; UR - URINE;

POSTMORTEM OR BIOPSY SPECIMENS: MB - BLOOD, BONE MARROW; MD - DIGESTIVE TRACT;
MH - HEART; MK - KIDNEY; ML - LIVER; MN - BRAIN, SPINAL CORD; MP - LUNGS;
MR - RESPIRATORY TRACT; MS - SPLEEN, LYMPH NODES; MO - OTHER POSTMORTEM/BIOPSY
SPECIMEN

		BL	BR	CS	FA	GE	LE	PF	PU	SK	SM	TOTAL
AE00	AEROMONAS SPECIES	0	0	0	14	0	0	0	3	0	0	17
AS00	ASPERGILLUS SPECIES	0	0	0	0	0	0	0	0	4	0	4
BL01	BLASTOCYSTIS HOMINIS	0	0	0	6	0	0	0	0	0	0	6
BO01	BORDETELLA PERTUSSIS	0	0	0	0	0	0	0	0	0	14	14
BT00	BACTEROIDES SPECIES	1	0	0	0	0	0	0	0	0	0	1
CA00	CANDIDA SPECIES	1	1	0	0	118	3	0	0	10	0	133
CB01	CORYNEBACTERIUM DIPHTHERIAE	0	0	0	0	0	0	0	1	0	0	1
CL00	CLOSTRIDIUM SPECIES	0	0	0	0	0	0	0	1	0	0	1
CL03	CLOSTRIDIUM DIFFICILE	0	0	0	1	0	0	0	0	0	0	1
CM00	CAMPYLOBACTER SPECIES	1	0	0	101	0	0	0	0	0	0	102
CM01	CAMPYLOBACTER JEJUNI	0	0	0	21	0	0	0	0	0	0	21
CR00	CRYPTOCOCCUS SPECIES	0	0	1	0	0	0	0	0	1	3	5
CT00	CRYPTOSPORIDIUM SPECIES	0	0	0	23	0	0	0	0	0	0	23
EC01	ECHINOCOCCUS GRANULOSUS	0	0	0	0	0	0	0	0	0	7	7
EN00	ENTEROBACTER SPECIES	1	0	0	0	0	0	0	0	0	0	1
EP00	EPIDERMIDOPHYTON SPECIES	0	0	0	0	0	0	0	0	3	0	3
ER02	ENTEROCOCCUS FAECIUM	1	0	0	0	0	0	0	0	0	0	1
ES01	ESCHERICHIA COLI	19	0	0	15	0	0	0	0	0	0	34
GI01	GIARDIA LAMBLIA	0	0	0	50	0	0	0	0	0	0	50
HM02	HAEMOPHILUS INFLUENZAE	3	0	2	0	0	0	0	0	0	0	5
HM03	HAEMOPHILUS PARAINFLUENZAE	0	0	1	0	0	0	0	0	0	0	1
KL00	KLEBSIELLA SPECIES	1	0	0	0	0	0	0	0	0	0	1
KL01	KLEBSIELLA PNEUMONIAE	1	0	0	0	0	0	0	0	0	0	1
LE00	LEGIONELLA SPECIES	0	0	0	0	0	0	0	0	0	6	6
LE01	LEGIONELLA PNEUMOPHILA	0	0	0	0	0	0	0	0	0	4	4
LS00	LEPTOSPIRA SPECIES	0	0	0	0	0	0	0	0	0	9	9
LS03	LEPTOSPIRA ICTEROHAEMORRHAGIAE	0	0	0	0	0	0	0	0	0	1	1
LS04	LEPTOSPIRA POMONA	0	0	0	0	0	0	0	0	0	7	7
LS05	LEPTOSPIRA AUTUMNALIS	0	0	0	0	0	0	0	0	0	1	1
LS06	LEPTOSPIRA GRIPPOTYPHOSA	0	0	0	0	0	0	0	0	0	2	2
LS07	LEPTOSPIRA HARDJO	0	0	0	0	0	0	0	0	0	11	11
MI00	MICROSPORUM SPECIES	0	0	0	0	0	0	0	0	14	0	14
NE01	NEISSERIA GONORRHOEAE	0	0	0	0	5	0	0	0	0	0	5
NE02	NEISSERIA MENINGITIDIS	2	0	2	0	0	0	0	0	0	0	4
PA01	PASTEURELLA MULTOCIDA	0	0	0	0	0	0	0	0	1	0	1
PI00	PLEISOMONAS SPECIES	0	0	0	1	0	0	0	0	0	0	1
PL00	PLASMODIUM SPECIES	1	0	0	0	0	0	0	0	0	0	1
PL01	PLASMODIUM FALCIPARUM	54	0	0	0	0	0	0	0	0	1	55
PL02	PLASMODIUM VIVAX	93	0	0	0	0	0	0	0	0	0	93
PR00	PROTEUS SPECIES	3	0	0	0	0	0	0	0	0	0	3
PS00	PSEUDOMONAS SPECIES	4	0	0	0	0	0	0	1	0	0	5
PS01	PSEUDOMONAS AERUGINOSA	1	0	0	0	0	0	0	0	0	0	1
SA00	STAPHYLOCOCCUS SPECIES	6	0	0	0	0	0	0	0	0	0	6
SA01	STAPHYLOCOCCUS AUREUS	10	0	0	0	0	0	0	1	0	0	11
SA02	STAPHYLOCOCCUS EDIPERMIDIS	2	0	0	0	0	0	0	0	0	0	2
SE00	STREPTOCOCCUS SPECIES	7	0	0	0	0	0	0	0	0	0	7
SE01	STREPTOCOCCUS PNEUMONIAE	2	0	2	0	0	0	1	0	0	0	5
SE04	STREPTOCOCCUS GROUP B	1	0	0	0	0	0	0	0	0	0	1
SE08	STREPTOCOCCUS GROUP G	1	0	0	0	0	0	1	0	0	0	2
SH04	SHIGELLA SONNEI	0	0	0	1	0	0	0	0	0	0	1
SL00	SALMONELLA SPECIES	3	0	0	90	0	0	0	0	0	0	93
SS00	SERRATIA SPECIES	1	0	0	0	0	0	0	0	0	0	1
TC01	TRICHOMONAS VAGINALE	0	0	0	0	20	0	0	0	0	0	20
TI00	TRICHOPHYTON SPECIES	0	0	0	0	0	0	0	0	24	0	24
TP01	TOXOPLASMA GONDII	0	0	0	0	0	0	0	0	0	16	16
TR01	TREPONEMA PALLIDUM	0	0	0	0	0	0	0	0	0	90	90
VI03	VIBRIO PARAHAEMOLYTICUS	0	0	0	0	0	0	0	1	0	0	1
YE01	YERSINIA ENTEROCOLITICA	0	0	0	18	0	0	0	0	0	0	18
TOTAL		220	1	8	341	143	3	2	8	57	172	955

NB: NUMBERS MAY CHANGE AT A LATER DATE AS A RESULT OF LATE REPORTING

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

NON-VIRAL PATHOGEN IDENTIFICATIONS CATEGORISED BY SOURCE SPECIMENS - PART 2

SAMPLE COLLECTION DATE: JANUARY - MARCH 1991

BL - WHOLE BLOOD; BR - BRONCHIAL WASHINGS OR ASPIRATE; CS - CEREBROSPINAL FLUID;
EY - EYE; FA - FAECES/RECTUM; GE - GENITAL SWAB; LE - LEUCOCYTES;
NA - NASOPHARYNGEAL SWAB; PD - PERITONEAL DIALYSIS FLUID; PF - PERICARDIAL,
PLEURAL OR JOINT FLUID; PU - PUS; SA - SALIVA; SK - SKIN; SM - SERUM;
SP - SPUTUM; SS - SKIN SCRAPINGS; TH - THROAT; UR - URINE;

POSTMORTEM OR BIOPSY SPECIMENS: MB - BLOOD, BONE MARROW; MD - DIGESTIVE TRACT;
MH - HEART; MK - KIDNEY; ML - LIVER; MN - BRAIN, SPINAL CORD; MP - LUNGS;
MR - RESPIRATORY TRACT; MS - SPLEEN, LYMPH NODES; MO - OTHER POSTMORTEM/BIOPSY
SPECIMEN

		SP	SS	TH	UR	OT	MD	MO	MC	MY	TOTAL
AE00	AEROMONAS SPECIES	0	0	0	0	2	0	0	0	0	2
AS00	ASPERGILLUS SPECIES	1	0	0	0	4	0	0	0	0	5
CA00	CANDIDA SPECIES	6	0	7	2	2	0	0	0	0	17
CL02	CLOSTRIDIUM PERFRINGENS	0	0	0	0	2	0	0	0	0	2
CT01	CAT SCRATCH DISEASE	0	0	0	0	0	0	0	0	1	1
EP00	EPIDERMIDOPHYTON SPECIES	0	8	0	0	0	0	0	0	0	8
ET01	ENTEROBIUS VERMICULARIS	0	0	0	0	0	0	6	0	0	6
HE01	HELICOBACTER PYLORI	0	0	0	0	0	2	0	0	0	2
MA01	MALASSEZIA FURFUR	0	11	0	0	0	0	0	0	0	11
MI00	MICROSPORUM SPECIES	0	9	0	0	0	0	0	0	0	9
MY00	MYCOBACTERIUM SPECIES	1	0	0	0	0	0	0	0	0	1
PA00	PASTEURELLA SPECIES	0	0	0	0	1	0	0	0	0	1
PA01	PASTEURELLA MULTOCIDA	1	0	0	0	0	0	0	0	0	1
SE00	STREPTOCOCCUS SPECIES	0	0	0	0	0	0	0	1	0	1
SE04	STREPTOCOCCUS GROUP B	0	0	0	0	1	0	0	0	0	1
SL00	SALMONELLA SPECIES	0	0	0	1	0	0	0	0	0	1
TC01	TRICHOMONAS VAGINALE	0	0	0	2	2	0	0	0	0	4
TI00	TRICHOPHYTON SPECIES	0	50	0	0	0	0	0	0	0	50
TP01	TOXOPLASMA GONDII	0	0	0	0	0	0	0	0	1	1
TR01	TREPONEMA PALLIDUM	0	0	0	0	1	0	0	0	0	1
VN01	VINCENT'S ORGANISMS	0	0	3	0	0	0	0	0	0	3
TOTAL		9	78	10	5	15	2	6	1	2	128

NB: NUMBERS MAY CHANGE AT A LATER DATE AS A RESULT OF LATE REPORTING