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Contents:

Overseas Briefs
1. Hajj - vaccination requirements
Emergence of rifampicin resistant strains of *N. meningitidis* in central Australia
Meningococcal meningitis outbreak at Doomadgee, QLD
Recent arbovirus activity in QLD
Australian HIV surveillance report, 28 February 1991

Editor
Dr Robert Hall

OVERSEAS BRIEFS

1. HAJJ - VACCINATION REQUIREMENTS

The Saudi Arabian authorities have advised the following vaccination requirements for the 1991 Hajj:

- All travellers arriving from a country, any part of which is infected by yellow fever, are required to produce a valid yellow fever vaccination certificate, in accordance with the country's normal requirements. Travellers arriving in Saudi Arabia without the required certificate will be vaccinated on arrival and placed under strict surveillance for 6 days from the day of vaccination, but freedom of movement will be permitted.

- Pilgrims and "Umra" visitors are required to produce a certificate of vaccination against meningococcal meningitis issued not more than 2 years and not less than 10 days before arrival in Saudi Arabia. Pilgrims coming from countries with diseases subject to the International Health Regulations and countries where meningitis is endemic shall be examined. Suspect cases shall be isolated and contacts put under observation.

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EMERGENCE OF RIFAMPICIN RESISTANT STRAINS OF NEISSERIA MENINGITIDIS IN CENTRAL AUSTRALIA

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([1]NT Department of Health and Community Services; [2]Menzies School of Health Research, Darwin; [3]Microbiological Diagnostic Unit, Melbourne University)

During the three and a half year period commencing September 1987, there were four waves of meningococcal meningitis in Central Australia, with a total of eighty-two cases. The epidemiological features of the disease, chemoprophylaxis and vaccinations, were reported in the CDI 90/18 (10/9/90). Fifty-five cases had a positive direct smear or culture, eleven cases had positive latex tests for A/C/Y antigen in the cerebrospinal fluid, and 16 were suspected cases. Sixty-four patients were children below fifteen years of age and eighteen were adults. Thirty-seven isolates from CSF or blood were grouped; twenty-nine were group A, six were group C and two were group B.

Rifampicin was routinely given to contacts of definite, probable and suspected cases 12 hourly for 2 days (10 mg/kg per dose for children and 600 mg per dose for adults). Contacts were defined somewhat arbitrarily in the context of extended family networks. Usually 10-25 of the closest contacts of each index case were offered rifampicin.

A unique situation occurred in the remote Aboriginal community of Maryvale (170 km south east of Alice Springs) in November 1989. Its total population at the time was about 140. On 19/10/89, a 45 year old Aboriginal woman from Maryvale was admitted to Alice Springs Hospital with group A meningococcal meningitis. Her immediate contacts (12 adults and 3 children) received a prophylactic course of rifampicin. Three days after admission she received a two day course of rifampicin in hospital and was discharged to Maryvale on 31/10/89.

The senior Aboriginal Health Worker (AHW) at Maryvale developed meningitis on 8/11/89. She received one dose of penicillin before admission to hospital. The CSF contained gram negative intracellular diplococci, but was culture negative. The latex test was A/C/Y positive. She was a contact of the first patient and had received prophylactic rifampicin 14 days before onset of illness.

Because of her unique position as a health worker and as a leading member of the community, it was assumed that she would have had close contact with most residents. Prophylactic rifampicin was therefore given to the all residents in the community (pregnant women were excluded).

Nasopharyngeal swabs were taken from all residents to determine the carrier status before the rifampicin was given. This swabbing exercise was repeated 1 and 2 weeks after the prophylaxis. Swabs were immediately placed into Stuart's transport medium, and taken to the Alice Springs Hospital Laboratory within a few hours. They were plated immediately, and positive isolates of *Neisseria meningitidis* were forwarded to the Microbiological Diagnostic Unit of the University of Melbourne. Meningococci were serogrouped by a standard agglutination test using sera raised in the laboratory. Sensitivity tests were performed using the agar plate incorporation method as standardised for the Australian Gonococcal Surveillance Program[1]. Plates containing the following agents, in milligrams per litre, were included in the panel: penicillin (0.004 - 2), tetracycline (0.06 - 2 & 16), ceftriaxone (0.004 - 0.006), rifampicin (0.125 - 1) and sulphadiazine (2 - 16). The range for rifampicin was adapted from CDC Laboratory Update (CDC-79-73) and for sulphadiazine from the schedule at the Public Health Laboratory, Manchester (CDR, 86/04:3-4).

Results

119, 124 and 116 naso-pharyngeal swabs were taken before, and one and two weeks after prophylaxis respectively. Sixteen swabs (13.3%) grew *N. meningitidis* on the first occasion (Table 1). Six of these were group A, six were group B and two were group C. Two isolates could not be grouped because of bacterial contamination. Two cases with group A had received rifampicin when the first case was detected in the community in October.

One week after prophylaxis, swabs from eight cases were positive for *N. meningitidis*. Six were group A (all resistant to rifampicin *in vitro*), 1 was group B (sensitive to rifampicin) and the other could not be grouped as the culture was contaminated. One person with group A was not in the community when the first set of swabs was taken, nor had he received any rifampicin. Two were new carriers: one had group B, and the other had group A and had also received rifampicin when the initial case was detected in October. Thus, there were five cases who were carrying group A meningococci despite having received rifampicin a week earlier, four of whom had meningococcus before the prophylaxis.

Two weeks after the rifampicin, three cases yielded positive swabs (none could be grouped because of contamination). One was a new carrier who who had not received rifampicin as she was pregnant. The remaining two had positive cultures both before, and one week after prophylaxis. Two other cases who were positive a week earlier could not be re-tested.

Overall, 5 of the 16 initial carriers remained positive one week after rifampicin prophylaxis, and all 5 had rifampicin resistant group A meningococci. The one carrier with rifampicin sensitive group A at the first swabbing was not swabbed one week after prophylaxis, but was culture negative at 2 weeks. There were two other cases

Table 1: Serogroup of *Neisseria meningitidis* and sensitivity to rifampicin

	1st swab (pre-prophylaxis)		2nd swab (1 week)		3rd swab (2 weeks)
Patient number	Culture/ Group	Rifampicin Sensitivity	Culture/ Group	Rifampicin Sensitivity	Culture/ Group
1	A	R	A	R	CON
2	A	R	A	R	ND
3*	A	R	A	R	NG
4	A	R	CON		NG
5*	A	R	NG		NG
6	A	S	ND		NG
7	CON		A	R	CON
8*	NG		A	R	NG
9	ND		A	R	ND
10	B	S	NG		NG
11	B	S	NG		NG
12	B	S	NG		ND
13	B	S	NG		ND
14	B	S	NG		ND
15	B	S	NG		ND
16	NG		B	S	NG
17	C	S	NG		NG
18	C	S	NG		ND
19	CON		NG		NG
20**	NG		NG		CON

* Rifampicin also given 2 weeks earlier.

** Pregnant - rifampicin not given.

CON = Positive but contaminated, so not able to be grouped.

ND = Not Done, NG = No Growth, R = Resistant, S = Sensitive

with rifampicin resistant group A isolates at week 1; one was not tested before prophylaxis and one had been culture negative. By week 2 four of the eight carriers with rifampicin resistant group A had negative swabs, two had positive isolates that could not be grouped and two were not re-tested.

By comparison the six group B and two group C isolates cultured before prophylaxis were sensitive to rifampicin (MIC <0.0125 mg/L), and these carriers were all clear at 1 week. The only group B isolate one week after prophylaxis was in a person who had a negative initial swab; the swab of this carrier was negative at 2 weeks.

Discussion

Chemoprophylaxis with rifampicin is recommended to prevent secondary cases of meningococcal meningitis. Several studies have shown that rifampicin is effective in reducing the nasopharyngeal carriage rate by 80-90% one week after prophylaxis. A recent study in Gloucester reported 96% reduction in carriage one month after prophylaxis.

Rifampicin resistant *N. meningitidis* after prophylaxis has been described previously. This observation indicates greater than 80% rifampicin resistance in group A *N. meningitidis*, which is alarming given the predominance of group A in central Australia since 1987. The second case of meningococcal meningitis in this community received rifampicin two weeks before onset of clinical illness, and therefore appears to be a case of failure of prophylaxis. As her CSF was culture negative, sensitivity to rifampicin could not be tested for. The high incidence of resistance to rifampicin may well be attributed to the use of rifampicin prophylaxis when the first case in the community developed meningitis with a rifampicin sensitive organism.

The 6 group B and 2 group C strains among carriers are of particular interest. During the outbreaks only 2 of the 82 cases have been group B and 4 have been group C infections.

More information is needed to assess the relevance of this observation to other parts of central Australia. All isolates in cases with meningococcal meningitis since November 1989 have been sensitive to rifampicin, but further studies in carriers are needed, and are being planned. If resistance becomes widespread, ceftriaxone or ciprofloxacin (in adults) may have to replace rifampicin as prophylaxis for close contacts.

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CDI EDITORIAL COMMENT

Chemoprophylaxis is administered to contacts of patients with meningococcal meningitis. Increased risk for household contacts acquiring the disease has been shown to be 500 to 800 times greater than in the general population[1]. Definition of a contact person can be difficult in some circumstances.

The decision to administer rifampicin prophylaxis to the entire population of Maryvale (NT) enabled screening of all residents. A carriage rate of 13% was found (16 carriers out of 119 residents). The carriage rate may be higher than this given the difficulties of specimen collection in remote areas. Meningococci do not remain viable on plain swabs for very long. Immediate culture plating gives best results, an alternative is to use charcoal impregnated swabs with Stuart's transport medium.[2]

The meningococci in this study were tested for rifampicin susceptibility at the Microbiologial Diagnostic Unit, University of Melbourne. Isolates exhibiting growth at 1mg/L were considered resistant (personal communication Dr J Forsyth).

Rifampicin resistance was only detected in serogroup A isolates of *Neisseria meningitidis*. In the pre-prophylaxis screening six group A meningococcus carriers were detected. Five of these six carriers were tested at week 1, four remained carriers. It is interesting that at week 2 continued carriage was only detected in one case, this may represent lack of sensitivity of the screening method.

Rifampicin treatment has been reported to result in the emergence of rifampicin resistant *Neisseria meningitidis* in 10 - 27% of patients treated.[3] High level resistance (500 mg/L) was reported in one study of *Neisseria meningitidis* serogroup 29E. Isolates that showed growth at 1mg/L were further tested for rifampicin MIC[4]. Bacteria rapidly develop resistance to rifampicin. It is for this reason that, with the exception of meningitis prophylaxis, rifampicin is not recommended to be administered alone. Rifampicin acts by inhibition of the beta subunit of the DNA dependent RNA polymerase, preventing chain initiation. Resistance develops due to mutuation altering the beta subunit.

Prior to emerging resistance sulfadiazine was used for meningococcal prophylaxis. Other agents that may be used for chemoprophylaxis are ciprofloxacin (safety in children is not established) or intramuscular ceftriaxone. Oral chemoprophylaxis has obvious advantages over intramuscularly administered drugs.

A total of nine carriers of Group A *Neisseria meningitidis* were identified in this study. Despite the incomplete methodological details it is of concern that only one isolate was found to be sensitive to rifampicin in vitro.

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AN EXTRAORDINARY OUTBREAK OF MENINGOCOCCAL MENINGITIS AT DOOMADGEE ABORIGINAL COMMUNITY

(Michael Pearce and John Sheridan, Qld State Health Dept.)

Introduction

In late September and early October 1990, four cases of meningococcal meningitis occurred at the Doomadgee Aboriginal community in the Gulf country of northern Queensland. The simultaneous notification of the second and third cases prompted a mass vaccination campaign of community children. A further eight cases of meningococcal meningitis occurred between October 1990 and April 1991. Of these eight cases, six were children vaccinated in October. This represents an attack rate of 12.6 per 1,000 in a population of 950. No cases of meningococcal meningitis are known to have occurred in the community in the preceding five years.

All 12 patients were Aboriginal children. Mount Isa Base Hospital staff isolated *N. meningitidis* from the cerebrospinal fluid (C.S.F.) of nine of these 12 patients and detected *N. meningitidis* antigen in the C.S.F. of five patients (See table 1). Prompt antimicrobial therapy at

Table 1: Meningococcus cases, Doomadgee. September 1990 - April 1991

Case	Age (years)	Sex	Diagnosis Date	CSF culture *N. menin*	CSF Antigen *N. menin*	Vaccinated
1	3.3	F	24-Sep-90	Yes	No	No
2	5.9	F	29-Sep-90	No	Yes	No
3	6.6	F	29-Sep-90	No	Yes	No
4	9.1	F	05-Oct-90	No	No	No
5	2.2	M	09-Nov-90	Yes	Yes	Yes
6	5.1	F	01-Jan-91	Yes	Yes	Yes
7	3.8	F	10-Feb-91	Yes	Yes	Yes
8	2.0	F	19-Mar-91	Yes	Yes	Yes
9	1.5	M	27-Mar-91	Yes	No	No
10	8.0	M	02-Apr-91	Yes	No	Yes
11	10.2	M	02-Apr-91	Yes	No	Yes
12	12.6	F	11-Apr-91	Yes	No	No

* These isolates were all group C.

Doomadgee Community Hospital prevented successful bacterial isolation in some cases. All meningococci isolated belonged to group C, and the four isolates subjected to antibiotic sensitivity testing were uniformly susceptible to rifampicin.

Following each case of meningococcal meningitis, the patient's relatives and close contacts received rifampicin chemoprophylaxis.

After the second and third cases, the Queensland Health Department and community health workers offered vaccination against *N. meningitidis* groups A and C (Mencevax AC) to all 444 Doomadgee children, 1 - 15 years-old. Of these, 393 were vaccinated in the first week of October. A policy to vaccinate all Doomadgee children with Mencevax AC on turning one-year-old and again at two was introduced in March 1991. Vaccination is also being offered to all children between the age of 1 - 15 years entering Doomadgee.

Two cases of meningococcal type C meningitis also occurred at Camooweal - on 20/9/90 and 18/10/90. Chemoprophylaxis was given to relatives and close contacts of these patients, and a community vaccination programme undertaken. No further cases have been reported from Camooweal.

Because of the high level of social interaction between the Doomadgee and Burketown communities, vaccination against meningococcus groups A and C was offered to children in the Burketown community. There have been no reports of meningococcal meningitis in the Burketown community during 1990 or to early May this year.

Following discussions with the Community Council, staff from the Queensland Department of Health travelled to Doomadgee to help local health workers contain the outbreak. Blanket treatment of the community with rifampicin at 10mg/kg bodyweight b.i.d. for two consecutive days was attempted in the third week of April. It is estimated that 80 - 90% of community members received a full rifampicin course.

Prior to rifampicin treatment, nasopharyngeal swabs were taken for bacterial culture from a stratified cluster sample of 300 community members of all ages. Households (clusters) were stratified by the number of people living in each house. This will allow us to measure the influence of household population on carriage rates. It is intended to serogroup, serotype, assess antibiotic sensitivity and estimate carriage rate of all *N. meningitidis* isolates. Preliminary results suggest that several serogroups are present in the Doomadgee community.

Blood samples were taken from the same community sample, most vaccinated children, and five children who had recently recovered from meningococcal meningitis. These blood samples will be used to determine the proportion of the Doomadgee population with naturally acquired antibody and seroconversion rates following vaccination.

With community consent, we shall return to Doomadgee to take two further series of nasopharyngeal swabs. From the first series we shall measure the impact of blanket rifampicin treatment on nasopharyngeal carriage, and from the second series assess the pattern of nasopharyngeal recolonisation.

We are satisfied that the vaccine was properly handled and administered, and have asked the vaccine manufacturer to check the antigenicity of the vaccine batch used in October.

Dr David Hansman of the Adelaide Children's Hospital and Dr Dennis Jones of Withington Hospital, Manchester, UK have kindly agreed to assist in the investigation of this outbreak. Dr Hansman will serogroup *N. meningitidis* isolates from nasopharyngeal swabs. Dr Dennis Jones will examine sera for *N. meningitidis* antibodies.

ARBOVIRUS ACTIVITY IN QUEENSLAND

(Centre for Arbovirus Reference and Research, Queensland Health Department - Queensland University of Technology)

The number of Ross River virus infections diagnosed at the State Health Laboratory in Queensland increased markedly over the first three months of this year. Fourteen cases of Ross River virus infection were diagnosed in January, rising to 55 during February and 179 during March. The average age of the 179 patients from March was 34 years (range 6 to 69), with a female to male ratio of 1.5:1. The majority of these cases (122) were from Townsville and centres north of Townsville. In addition, 10 isolates of Ross River virus have been obtained from acute phase serum specimens. Five of the patients from whom virus was isolated came from the Cooktown and Cairns region.

State-wide figures show a similar trend with a total of 962 cases of Ross River virus infection notified to the end of March, 1991. The number of notifications for the corresponding 3 months period in each year from 1987 to 1990 were 183, 120, 520 and 173 respectively. The increase in Ross River virus activity this year was predictable following the heavy rainfall and substantial flooding which occurred over much of Queensland during late January and February.

There has not been a corresponding increase in Barmah Forest or flavivirus activity during this period.

Dengue-1 virus was isolated from 2 patients at Thursday Island, one in January and one in February. Three dengue fever patients, who had not travelled outside their local areas, were found on serological grounds to have been infected with Dengue-1. Two of the cases occurred in Townsville, and one in Cairns. Since the outbreak of Dengue-1 in North Queensland in mid 1990, a small number of new cases have been diagnosed almost every month. This is cause for some concern because it suggests that there are sufficient mosquito vectors and susceptible human hosts for dengue to become re-established in Northern Australia.

AUSTRALIAN HIV SURVEILLANCE REPORT VOLUME 7, NUMBER 2 (28 FEBRUARY 1991)

The National Centre in HIV Epidemiology and Clinical Research reports that as of 28 February 1991 a total of 18,025 diagnoses of HIV infection and 2,494 cases of AIDS had been reported in Australia.

For the most recent period, 1 February to 28 February 1991 29 new cases of AIDS and 178 new diagnoses of HIV infection were reported.

The following tables provide more detailed information on a State/Territory basis.

Readers should note that cumulative figures are subject to retrospective revision, which may result in apparent discrepancies between the number of new cases for the current 4 week period and the increment in the cumulative figures from the previous report.

Table 1. New diagnoses of AIDS and deaths from AIDS occurring in the period 1-28 February 1991, by sex and State/Territory in which diagnoses was made.

STATE/ TERRITORY	CASES Male	CASES Female	CASES Total	DEATHS Male	DEATHS Female	DEATHS Total
ACT	0	0	0	0	0	0
NSW	18	0	18	5	0	5
NT	0	0	0	0	0	0
QLD	1	0	1	4	0	4
SA	1	0	1	0	0	0
TAS	0	0	0	0	0	0
VIC	8	0	8	7	0	7
WA	1	0	1	0	0	0
TOTAL	**29**	**0**	**29**	**16**	**0**	**16**

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STATE/	CASES			DEATHS		
TERRITORY	Male	Female	Total	Male	Female	Total
ACT	0	0	0	0	0	0
NSW	18	0	18	5	0	5
NT	0	0	0	0	0	0
QLD	1	0	1	4	0	4
SA	1	0	1	0	0	0
TAS	0	0	0	0	0	0
VIC	8	0	8	7	0	7
WA	1	0	1	0	0	0
TOTAL	**29**	**0**	**29**	**16**	**0**	**16**

Table 2. Cumulative cases of AIDS and deaths from AIDS by sex and State/Territory in which diagnosis was made, to 28 February 1991.

STATE/ TERRITORY	CASES Male	CASES Female	CASES Total	DEATHS Male	DEATHS Female	DEATHS Total
ACT	32	1	33	20	0	20
NSW	1507	46	1553	945	30	975
NT	5	0	5	3	0	3
QLD	186	7	193	121	6	127
SA	87	3	90	42	1	43
TAS	13	1	14	6	1	7
VIC	477	11	488	268	5	273
WA	111	7	118	65	3	68
TOTAL	**2418**	**76**	**2494**	**1470**	**46**	**1516**

Table 3. New diagnoses of HIV infection, period 1-28 February 1991, and cumulative since the introduction of HIV antibody testing to 28 February 1991, by sex and State/Territory.

STATE/ TERRITORY	FEBRUARY 1991[1] Male	FEBRUARY 1991[1] Female	FEBRUARY 1991[1] Total	CUMULATIVE TO 28 FEBRUARY 1991 Male	CUMULATIVE Female	CUMULATIVE Sex Unknown	CUMULATIVE Total
ACT	0	0	0	15	0	97	112
NSW[2]	100	7	114	10308	631	2294	13233
NT	1	0	1	56	5	0	61
QLD	21	0	21	985	38	0	1023
SA[3]	-	-	-	333	27	0	360
TAS	0	0	0	50	3	0	53
VIC[4]	34	1	37	2503	76	2	2581
WA	5	0	5	571	31	0	602
TOTAL[5]	161	8	178	14821	811	2393	18025

1. Dashes indicate counts unavailable for period. Counts for NSW are for January 1991.
2. Total for January includes 7 persons whose sex was unknown. Cumulative counts to 31 January 1991.
3. Cumulative counts to 18 May 1990.
4. Total for February includes 2 persons whose sex was unknown.
5. Total for February includes 9 persons whose sex was unknown.

CDI REPORTING SCHEME

VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTS

There were 897 reports processed for the latest period (24 April to 7 May 1991).

Q fever was reported on 8 occasions during the period, 5 from NSW and the remainder from Victoria (2) and Western Australia. Ages ranged from 19 to 40 years and no occupational exposure details were available.

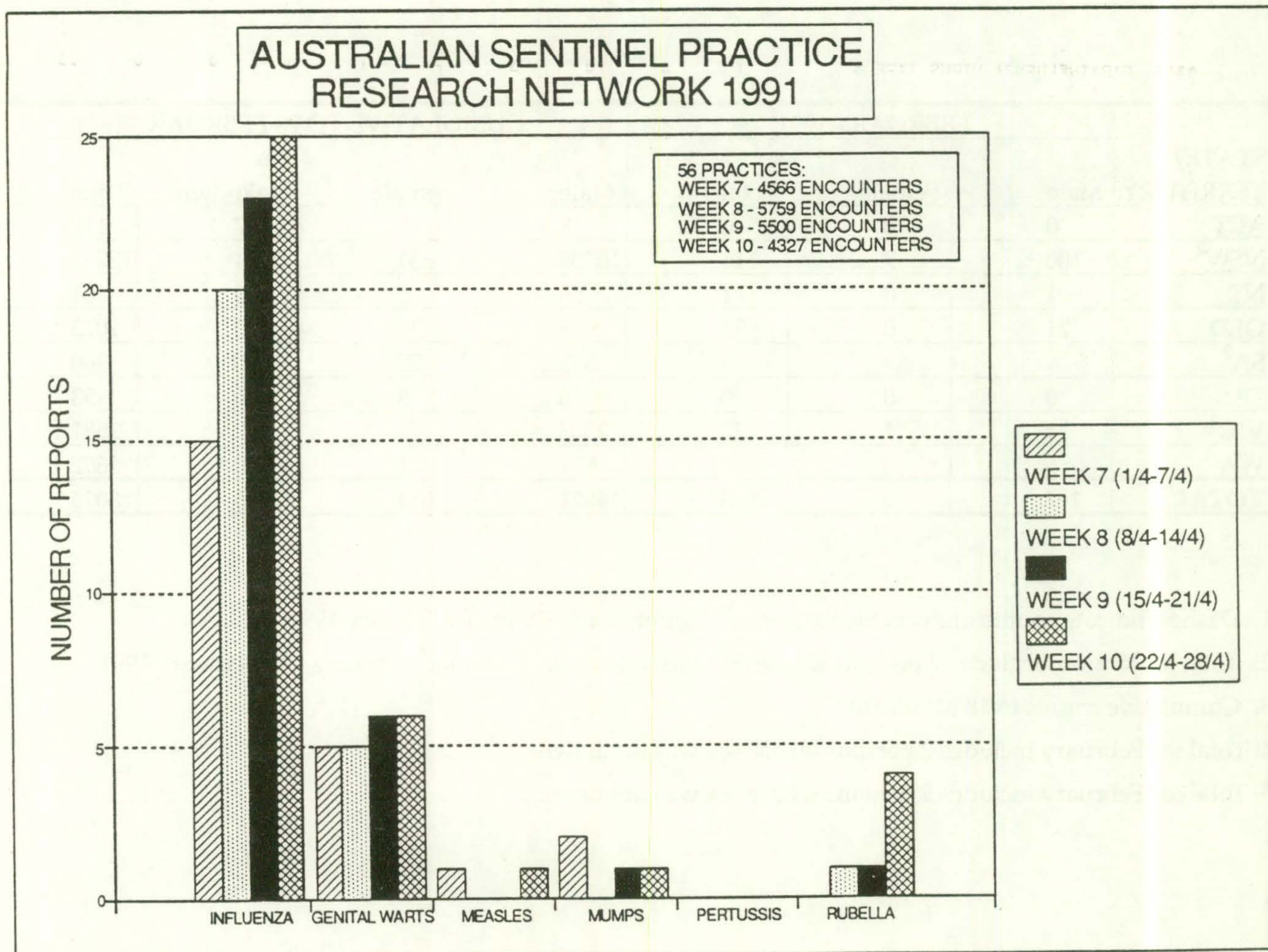
A case of **psittacosis** was reported. The patient, a 35 year old female, was admitted to hospital following 6 days of fever and sweating and a dry cough for 2 days. The preliminary diagnosis was atypical pneumonia.

The diagnosis was confirmed by seroconversion for IgG antibodies to *Chlamydia psittaci* by immunofluorescence. The patient had home contact with a budgie and lives in close proximity to a large aviary which contained a substantial number of sick and dead birds at the time of her illness.

NON-VIRAL PATHOGEN REPORTS

A second case of **tetanus** has been reported by Dr P Collignon, Royal Canberra Hospital (South).

A 49 year old glass blower from a country town in NSW presented to his general practitioner with jaw stiffness and acute asthma. Three days later he was admitted to the community hospital and transferred to Royal Canberra Hospital (South) with worsening trismus. There was no obvious wound site, but a history of a scratch by a dog was elucidated. He had not consumed any medications, and immunisation history was incomplete. The trismus continued and abdominal wall and extensor muscle spasms developed, autonomic function has remained normal. The patient is currently managed by sedation paralysis and ventilation. Treatment administered includes penicillin, diazepam, morphine, tetanus immunoglobulin, and tetanus toxoid.



AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 24/04/91 TO 07/05/91

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)

		019	065	066	110	111	112	114	115	116	TOTAL
0100	ADENOVIRUS NOT TYPED	1	7	6	5	6	2	5	4	0	36
0101	ADENOVIRUS TYPE 1	3	0	0	3	1	1	1	0	0	9
0102	ADENOVIRUS TYPE 2	2	0	0	0	3	3	0	0	0	8
0103	ADENOVIRUS TYPE 3	2	0	0	2	1	1	0	0	0	6
0104	ADENOVIRUS TYPE 4	0	0	0	0	0	2	0	0	0	2
0105	ADENOVIRUS TYPE 5	0	0	0	0	0	1	0	0	0	1
0108	ADENOVIRUS TYPE 8	1	0	0	0	0	0	0	0	0	1
0109	ADENOVIRUS TYPE 9	1	0	0	0	0	0	0	0	0	1
0111	ADENOVIRUS TYPE 11	1	0	0	0	0	0	0	0	0	1
0113	ADENOVIRUS TYPE 13	0	0	0	0	0	1	0	0	0	1
0119	ADENOVIRUS TYPE 19	0	0	0	0	0	1	0	0	0	1
0126	ADENOVIRUS TYPE 26	3	0	0	0	0	0	0	0	0	3
0137	ADENOVIRUS TYPE 37	1	0	0	0	0	0	0	0	0	1
0145	ADENOVIRUS TYPE 45	1	0	0	0	0	0	0	0	0	1
0147	ADENOVIRUS TYPE 47	1	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	2	0	0	0	6	0	1	0	0	9
0203	INFLUENZA B VIRUS	0	0	0	2	0	0	0	0	0	2
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	1	0	0	0	0	0	0	1
0302	PARAINFLUENZA VIRUS TYPE 2	1	0	0	2	0	0	0	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	1	0	0	3	7	1	1	0	0	13
0399	PARAINFLUENZA VIRUS TYPING PEN	0	0	3	0	4	0	0	0	0	7
0400	RESPIRATORY SYNCYTIAL VIRUS (R	1	1	1	1	2	1	3	2	0	12
0500	RHINOVIRUS (ALL TYPES)	5	1	0	0	13	4	1	2	0	26
0600	MYCOPLASMA PNEUMONIAE	2	3	0	4	3	1	0	0	0	13
0700	ORNITHOSIS-PSITTACOSIS	2	0	0	0	0	0	0	0	0	2
0809	COXSACKIEVIRUS A9	1	0	0	0	0	0	0	0	0	1
0902	COXSACKIEVIRUS B2	1	0	0	0	0	1	1	0	0	3
0904	COXSACKIEVIRUS B4	0	0	0	0	0	6	0	0	0	6
0905	COXSACKIEVIRUS B5	2	0	0	0	0	0	0	0	0	2
1005	ECHOVIRUS TYPE 5	0	0	0	0	1	0	0	0	0	1
1011	ECHOVIRUS TYPE 11	0	0	0	0	0	1	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	0	0	0	5	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	1	0	0	0	0	2	0	0	0	3
1102	POLIOVIRUS TYPE 2	0	0	0	0	0	2	0	0	0	2
1200	MUMPS VIRUS	1	1	0	0	0	1	0	0	0	3
1300	HERPES VIRUS GROUP - NOT TYPED	6	4	0	0	0	0	0	0	0	10
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	2	1	0	17	1	0	6	27
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	5	5	0	21	0	8	0	0	0	39
1303	VARICELLA-ZOSTER VIRUS	4	3	0	1	0	4	0	1	0	13
1306	HERPES SIMPLEX TYPE 1	43	33	0	14	0	4	0	27	0	121
1307	HERPES SIMPLEX TYPE 2	38	44	0	18	0	14	0	29	0	143
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	0	1	0	0	1
1401	COXIELLA BURNETII	2	1	0	0	0	5	0	0	0	8
1502	PICORNIA VIRUS - NOT TYPED = E	0	9	0	0	0	0	0	9	0	18
1521	MEASLES VIRUS	5	1	0	1	3	2	0	0	0	12
1532	HEPATITIS B ANTIGEN	7	22	0	1	0	11	0	22	2	65
1535	HEPATITIS A ANTIBODY	0	2	0	1	0	1	0	0	0	4
1536	HEPATITIS C VIRUS	0	12	0	0	0	0	2	0	0	14
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	0	46	0	9	1	22	2	10	5	95
1556	CMV - CYTOMEGALOVIRUS	29	5	8	0	3	6	1	13	0	65
1562	REOVIRUS (ALL TYPES)	0	0	0	0	0	1	0	0	0	1
1564	ROTAVIRUS	0	0	18	5	15	1	3	0	0	42
1565	CALICI VIRUS	0	0	0	0	0	2	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	0	4	0	0	4
9721	HTLV-1	0	1	0	0	0	0	0	0	0	1
9981	DENGUE TYPE 1	0	1	0	0	0	0	0	0	0	1
9990	AUSTRALIAN ENCEPHALITIS	0	2	0	0	0	0	0	0	0	2
9992	ROSS RIVER VIRUS	13	3	0	2	0	0	0	0	0	18
9994	SMALL VIRUS (LIKE) PARTICLE	1	0	0	0	0	1	1	0	0	3
TOTAL		190	207	39	96	74	131	28	119	13	897

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES BY STATE OF CONTRIBUTING LABORATORY

PERIOD 24/04/91 TO 07/05/91

NSW: ICPMR; PHH/POW; RACH; ST GEORGE HOSP, KOGARAH; ROYAL NEWCASTLE HOSP.
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	ACT	TOTAL
0100	ADENOVIRUS NOT TYPED	7	7	4	13	5	0	36
0101	ADENOVIRUS TYPE 1	2	4	0	0	3	0	9
0102	ADENOVIRUS TYPE 2	3	5	0	0	0	0	8
0103	ADENOVIRUS TYPE 3	1	3	0	0	2	0	6
0104	ADENOVIRUS TYPE 4	2	0	0	0	0	0	2
0105	ADENOVIRUS TYPE 5	1	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	0	1	0	0	0	0	1
0109	ADENOVIRUS TYPE 9	0	1	0	0	0	0	1
0111	ADENOVIRUS TYPE 11	0	1	0	0	0	0	1
0113	ADENOVIRUS TYPE 13	1	0	0	0	0	0	1
0119	ADENOVIRUS TYPE 19	1	0	0	0	0	0	1
0126	ADENOVIRUS TYPE 26	0	3	0	0	0	0	3
0137	ADENOVIRUS TYPE 37	0	1	0	0	0	0	1
0145	ADENOVIRUS TYPE 45	0	1	0	0	0	0	1
0147	ADENOVIRUS TYPE 47	0	1	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	1	8	0	0	0	0	9
0203	INFLUENZA B VIRUS	0	0	0	0	2	0	2
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	0	1	0	0	1
0302	PARAINFLUENZA VIRUS TYPE 2	0	1	0	0	2	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	2	8	0	0	3	0	13
0399	PARAINFLUENZA VIRUS TYPING PEN	0	4	0	3	0	0	7
0400	RESPIRATORY SYNCYTIAL VIRUS (R	4	3	2	2	1	0	12
0500	RHINOVIRUS (ALL TYPES)	5	18	2	1	0	0	26
0600	MYCOPLASMA PNEUMONIAE	1	5	0	3	4	0	13
0700	ORNITHOSIS-PSITTACOSIS	0	2	0	0	0	0	2
0809	COXSACKIEVIRUS A9	0	1	0	0	0	0	1
0902	COXSACKIEVIRUS B2	2	1	0	0	0	0	3
0904	COXSACKIEVIRUS B4	6	0	0	0	0	0	6
0905	COXSACKIEVIRUS B5	0	2	0	0	0	0	2
1005	ECHOVIRUS TYPE 5	0	1	0	0	0	0	1
1011	ECHOVIRUS TYPE 11	1	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	5	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	2	1	0	0	0	0	3
1102	POLIOVIRUS TYPE 2	2	0	0	0	0	0	2
1200	MUMPS VIRUS	1	1	0	1	0	0	3
1300	HERPES VIRUS GROUP - NOT TYPED	0	6	0	4	0	0	10
1301	HERPES SIMPLEX VIRUS - NOT TYP	18	0	0	2	1	6	27
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	8	5	0	5	21	0	39
1303	VARICELLA-ZOSTER VIRUS	4	4	1	3	1	0	13
1306	HERPES SIMPLEX TYPE 1	4	43	27	33	14	0	121
1307	HERPES SIMPLEX TYPE 2	14	38	29	44	18	0	143
1399	HERPES VIRUS TYPING PENDING	1	0	0	0	0	0	1
1401	COXIELLA BURNETII	5	2	0	1	0	0	8
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	9	9	0	0	18
1521	MEASLES VIRUS	2	8	0	1	1	0	12
1532	HEPATITIS B ANTIGEN	11	7	22	22	1	2	65
1535	HEPATITIS A ANTIBODY	1	0	0	2	1	0	4
1536	HEPATITIS C VIRUS	2	0	0	12	0	0	14
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	24	1	10	46	9	5	95
1556	CMV - CYTOMEGALOVIRUS	7	32	13	13	0	0	65
1562	REOVIRUS (ALL TYPES)	1	0	0	0	0	0	1
1564	ROTAVIRUS	4	15	0	18	5	0	42
1565	CALICI VIRUS	2	0	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	4	0	0	0	0	0	4
9721	HTLV-1	0	0	0	1	0	0	1
9981	DENGUE TYPE 1	0	0	0	1	0	0	1
9990	AUSTRALIAN ENCEPHALITIS	0	0	0	2	0	0	2
9992	ROSS RIVER VIRUS	0	13	0	3	2	0	18
9994	SMALL VIRUS (LIKE) PARTICLE	2	1	0	0	0	0	3
TOTAL		159	264	119	246	96	13	897

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 24/04/91 TO 07/05/91

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	9	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	2	6	0	0	0	22	0	0	0	0	30
0101	ADENOVIRUS TYPE 1	0	3	0	0	0	2	0	0	0	1	6
0102	ADENOVIRUS TYPE 2	3	3	0	0	0	1	0	0	0	0	7
0103	ADENOVIRUS TYPE 3	0	2	0	0	0	1	0	0	0	0	3
0105	ADENOVIRUS TYPE 5	0	1	0	0	0	0	0	0	0	0	1
0109	ADENOVIRUS TYPE 9	0	0	0	0	0	1	0	0	0	0	1
0113	ADENOVIRUS TYPE 13	0	0	0	0	0	1	0	0	0	0	1
0119	ADENOVIRUS TYPE 19	0	0	0	0	0	1	0	0	0	0	1
0126	ADENOVIRUS TYPE 26	0	1	0	0	0	2	0	0	0	0	3
0145	ADENOVIRUS TYPE 45	0	0	0	0	0	1	0	0	0	0	1
0147	ADENOVIRUS TYPE 47	0	0	0	0	0	1	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	3	0	0	0	2	0	0	0	0	5
0203	INFLUENZA B VIRUS	0	1	0	0	0	0	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	1	0	0	0	0	0	0	0	0	1
0302	PARAINFLUENZA VIRUS TYPE 2	0	3	0	0	0	0	0	0	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	0	12	0	0	0	0	0	0	0	0	12
0399	PARAINFLUENZA VIRUS TYPING PEN	0	6	0	0	1	0	0	0	0	0	7
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	12	0	0	0	0	0	0	0	0	12
0500	RHINOVIRUS (ALL TYPES)	1	21	0	0	0	0	0	0	0	1	23
0600	MYCOPLASMA PNEUMONIAE	1	11	0	0	0	0	0	0	0	0	12
0700	ORNITHOSIS-PSITTACOSIS	0	2	0	0	0	0	0	0	0	0	2
0809	COXSACKIEVIRUS A9	0	0	0	1	0	0	0	0	0	0	1
0902	COXSACKIEVIRUS B2	2	0	0	1	0	0	0	0	0	0	3
0904	COXSACKIEVIRUS B4	2	0	0	2	0	2	0	0	0	0	6
0905	COXSACKIEVIRUS B5	0	1	0	0	1	0	0	0	0	0	2
1005	ECHOVIRUS TYPE 5	0	1	0	0	0	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	0	1	2	0	2	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	0	1	0	0	0	2	0	0	0	0	3
1200	MUMPS VIRUS	1	1	0	1	0	0	0	0	0	0	3
1300	HERPES VIRUS GROUP - NOT TYPED	2	0	4	1	0	0	0	0	0	1	8
1301	HERPES SIMPLEX VIRUS - NOT TYP	4	1	0	0	0	0	0	0	0	7	12
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	12	4	0	0	0	0	1	1	0	0	18
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	0	0	12	12
1306	HERPES SIMPLEX TYPE 1	1	10	0	0	0	0	0	0	1	77	89
1307	HERPES SIMPLEX TYPE 2	0	1	0	0	0	0	0	0	0	66	67
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	0	0	0	0	1	1
1401	COXIELLA BURNETII	4	0	0	0	0	0	0	0	0	0	4
1502	PICORNIA VIRUS - NOT TYPED = E	2	2	0	1	0	9	0	0	0	1	15
1521	MEASLES VIRUS	1	0	0	0	0	0	0	0	0	7	8
1532	HEPATITIS B ANTIGEN	37	0	0	0	0	0	27	0	0	0	64
1535	HEPATITIS A ANTIBODY	2	0	0	0	0	0	2	0	0	0	4
1536	HEPATITIS C VIRUS	11	0	0	0	0	0	1	0	0	0	12
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	9	1	0	0	0	0	0	0	0	1	11
1556	CMV - CYTOMEGALOVIRUS	3	23	0	0	0	1	1	0	2	1	31
1562	REOVIRUS (ALL TYPES)	0	0	0	0	0	1	0	0	0	0	1
1564	ROTAVIRUS	0	1	0	0	0	40	0	0	0	0	41
1565	CALICI VIRUS	0	0	0	0	0	2	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	1	3	0	0	0	0	0	0	0	0	4
9721	HTLV-1	1	0	0	0	0	0	0	0	0	0	1
9981	DENGUE TYPE 1	1	0	0	0	0	0	0	0	0	0	1
9990	AUSTRALIAN ENCEPHALITIS	0	0	2	0	0	0	0	0	0	0	2
9992	ROSS RIVER VIRUS	6	0	0	0	0	0	0	0	0	1	7
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	3	0	0	0	0	3
TOTAL		109	138	7	9	2	97	32	1	3	177	575

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 24/04/91 TO 07/05/91

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	17	18	19	20	21	TOTAL
0100	ADENOVIRUS NOT TYPED	2	0	0	0	0	0	1	0	3	0	6
0101	ADENOVIRUS TYPE 1	0	0	0	0	0	0	0	0	3	0	3
0102	ADENOVIRUS TYPE 2	0	0	0	0	0	0	0	1	0	0	1
0103	ADENOVIRUS TYPE 3	2	0	1	0	0	0	0	0	0	0	3
0104	ADENOVIRUS TYPE 4	2	0	0	0	0	0	0	0	0	0	2
0108	ADENOVIRUS TYPE 8	1	0	0	0	0	0	0	0	0	0	1
0111	ADENOVIRUS TYPE 11	0	0	0	0	0	0	0	0	1	0	1
0137	ADENOVIRUS TYPE 37	1	0	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	1	0	0	0	1	0	2	0	4
0203	INFLUENZA B VIRUS	0	0	0	0	0	0	1	0	0	0	1
0303	PARAINFLUENZA VIRUS TYPE 3	0	0	0	0	0	0	1	0	0	0	1
0500	RHINOVIRUS (ALL TYPES)	0	0	0	0	0	0	2	0	1	0	3
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	0	0	1	0	1
1011	ECHOVIRUS TYPE 11	0	0	0	0	0	0	1	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	0	0	0	0	0	0	0	0	2	2
1300	HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	0	0	0	0	2	0	2
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	15	0	0	0	0	0	0	0	0	15
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	18	1	0	0	1	0	1	0	21
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	0	1	0	1
1306	HERPES SIMPLEX TYPE 1	7	21	0	0	0	0	1	1	2	0	32
1307	HERPES SIMPLEX TYPE 2	0	73	0	0	0	0	0	0	2	0	75
1401	COXIELLA BURNETII	0	0	0	0	0	0	0	2	2	0	4
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	0	0	0	2	1	0	3
1521	MEASLES VIRUS	0	0	0	0	1	0	0	3	0	0	4
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	0	0	1	0	0	1
1536	HEPATITIS C VIRUS	0	0	0	0	0	0	0	0	2	0	2
1541	CHLAMYDIA TRACHOMATIS - UNSPEC	4	80	0	0	0	0	0	0	0	0	84
1556	CMV - CYTOMEGALOVIRUS	0	1	0	1	1	2	1	0	27	0	33
1564	ROTAVIRUS	0	0	0	0	0	0	1	0	0	0	1
9992	ROSS RIVER VIRUS	0	0	0	0	8	0	0	2	1	0	11
TOTAL		19	190	20	2	10	2	11	12	52	2	320