ISSN 0725-3141

Communicable Diseases Intelligence

Bulletin number 82/4
Issue date: 26 February 1982

Contents.

VIRUS REPORTING SCHEME - A total of 745 reports were received this period. Reports of interest include:

. Arbovirus infections - The three dengue infections reported by the State Health Laboratory, Brisbane, comprised a 31 year old male from Cairns, and a 17 year old female and 15 year old male who had been on Thursday Island eight and ten days respectively prior to onset.

Confirmed and clinical cases of epidemic polyarthritis were reported from four States indicating the beginning of the seasonal rise. Fifty reports were received compared with 18, 3 and 15 (two periods) for the previous four periods. Six of the seven clinical cases reported by Fairfield Hospital, Melbourne, emanated from Mildura (3), Deniliquin (1), Horsham (1) and Echuca (1); two of the three cases reported by the Institute of Medical and Veterinary Science, Adelaide, were from Keith and Loxton; and the State Health Laboratory Services, Perth, reported one case in a 25 year old male from the metropolitan suburb of Kingsley. The age distribution of the 39 cases reported by the State Health Laboratory, Brisbane, ranged from 13 to 70 years.

. Conjunctivitis - The three adenovirus type 19 isolations reported by Fairfield Hospital were typed as a cross between adenovirus type 19 and type 37 (see CDI 81/16). The laboratory also isolated adenovirus type 17 from an 18 year old female with conjunctivitis. The CDI has only received one previous report of this serotype from a patient with fever/malaise (see CDI 81/17). The three *C. trachomatis* eye infections included a neonate and two children aged seven and ten years.

. Adenovirus reports associated with less common presentations include the isolation by the State Health Laboratory Services, Perth, of adenovirus type 3 from genital sources of a 24 year old male, and adenovirus type 2 from the nasal aspirate of a 15 year old male with an encephalopathy.

. Cytomegalovirus was isolated by Fairfield Hospital from the urine of a two year old girl suffering from deafness, squint and some brain damage following a prenatal infection with the virus.

The Bulletin is compiled and distributed by the Environmental Health Branch, Department of Health, P.O. Box 100, Woden, A.C.T. 2606, Australia, and is available on request.
Contributions are solicited, and do not preclude later publication elsewhere.

Figures given may be subject to revision.

DENGUE OUTBREAK - THURSDAY ISLAND

(Contributed by B.H. Kay, P.J. Walker, J.F. Douglas, J.R. Murray, I.D. Fanning and P. Mottram, Queensland Institute of Medical Research, and N. Stallman, State Health Laboratory, Brisbane).

On 28 October 1981, a team comprising an entomologist, a parasitologist, five State and district health inspectors and two Torres Shire Council employees were sent to Thursday Island in Torres Strait to investigate an outbreak of suspected dengue fever.

Since the early cases were not diagnosed, and many patients did not present at the hospital for treatment, the extent of the infection was difficult to determine. Accordingly, several media releases were made to increase public awareness, and a questionnaire was circulated to ascertain whether the residents had read a Health Education Council brochure on dengue, and to record the number of residents and possible dengue infections or other sicknesses in each house. Blood samples were then taken from suspected dengue patients for serology and virus isolation. Every island residence was also inspected for mosquito larvae breeding in artificial containers such as rain-water tanks, 44 gallon drums, tyres and water containers for pot plants. Positive sites were treated with either Abate granular insecticide or kerosene, or by emptying.

The earliest cases detected by serology occurred on 9-13 September. Approximately 200 clinical cases were identified by the end of December. Typical symptoms included high biphasic fever (40-41°C), headache, malaise and body aches especially in the back and legs. A rash developed on the upper trunk which spread to the limbs at the end of convalescence. Only one episode each of diarrhoea and haematuria were recorded. No deaths were attributed to dengue infection. Adults were the most severely affected, although some had mild symptoms; children had few or mild sequelae.

During 3-4 November, a malathion adult mosquito fogging was conducted in the town area of Thursday Island. A similar fogging was done on neighbouring Horn Island on 4 November. The number of reported cases fell to two to three per week by the third and fourth week after the control program. However, following the rains that fell over the Christmas period, clinical cases increased to approximately ten per week by 18 January 1982.

Aedes aegypti larvae were identified from 81 of 120 samples collected in a survey of 400 residences (see Table 1). The high rates of Ae. aegypti on Thursday Island were due to the presence of rainwater tanks in approximately half of the houses. The island has many underground wells and supplies of water additional to that provided by reticulation are maintained to offset shortages in the dry season. Other species collected were Culex annulirostris (6), Cx. quinquefasciatus (43), Ae. tremulus (4) and Toxorhynchites speciosus (3). Despite two Council refuse and rubbish collections during 1981, backyard and even indoor water containers were plentiful.

Among the adult mosquitoes collected, Ae. vigilax was the predominant night-biting species, although Cx. quinquefasciatus commonly fed indoors late in the evening and just prior to

dawn. Day-biting mosquitoes were not common, probably due to the strong winds during the survey. Of the 85 specimens collected, 22.4% were Ae. aegypti which are being processed for virus isolation. No viruses have been isolated in the C6/36 Ae. albopictus cell line or in suckling mice to date.

TABLE 1 Number of mosquitoes collected from Thursday Island — (29 October - 10 November 1981)

Species	Larvae(1)	Adults
Aedes aegypti	81	19
Ae. tremulus	4	2
Ae. vigilax	-	30
Culex annulirostris	6	4
Cx. quinquefasciatus	43	30
Toxorhynchites speciosus	3	-
TOTAL	120	85

(1) Some collections contained two or three species.

Table 2 illustrates the prevalence indices of Ae. aegypti on the island. For purposes of tabulation the indices were determined for three easily divisible areas of the island i.e. Tamwoy town, central town area and Rosehill.

TABLE 2 Indices of prevalence of Ae. aegypti on Thursday Island — (29 October - 10 November 1981)

Index	Tamwoy town	Town area	Rosehill	Average
House(1)	28.7	12.1	14.3	15.9
Container(2)	13.6	11.8	8.0	12.0
Breteau(3)	38.0	15.0	14.0	20.0

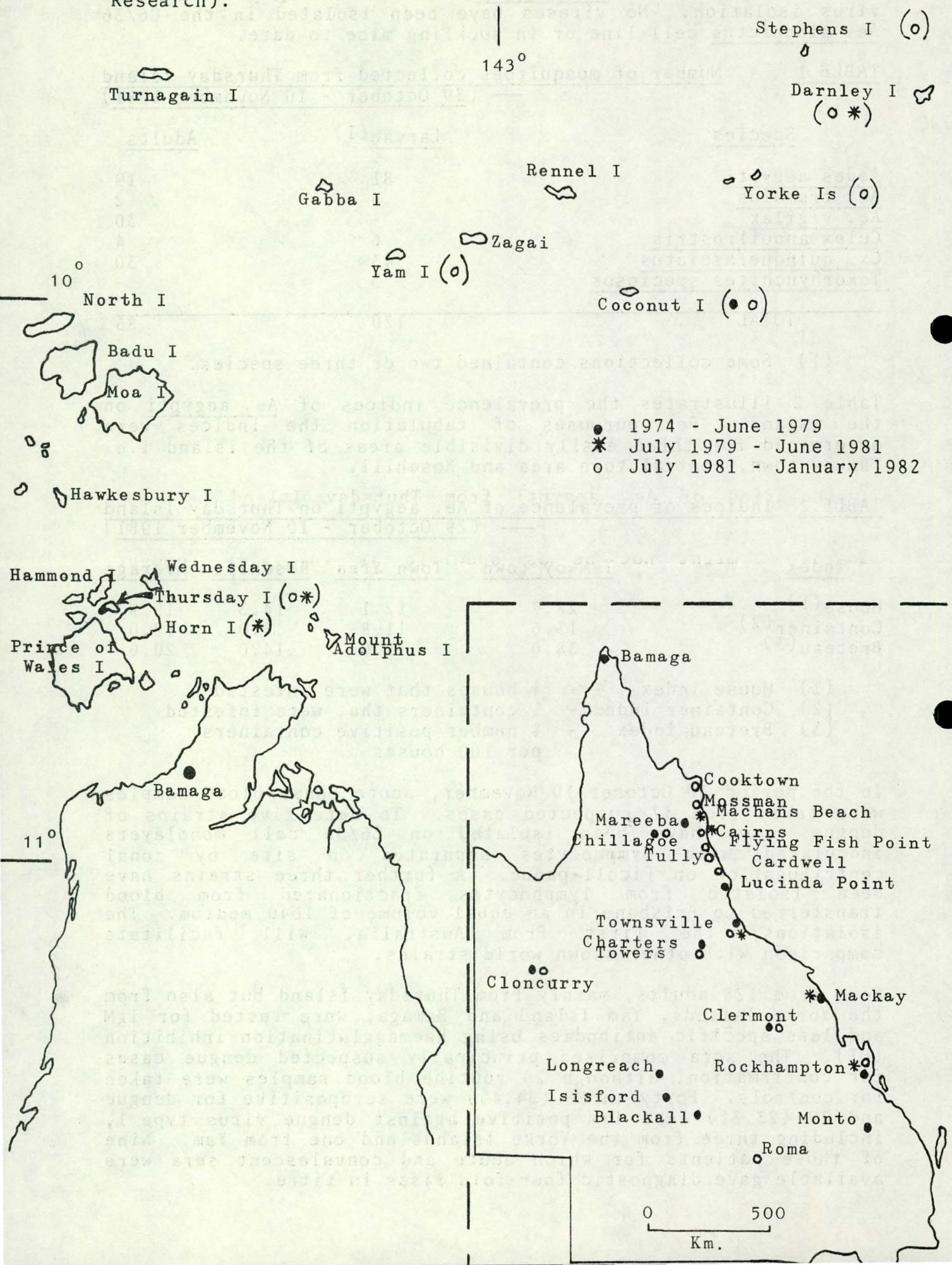
(1) House index - % houses that were infested
(2) Container index - % containers that were infested
(3) Breteau index - % number positive containers per 100 houses

In the period 30 October-10 November, acute phase blood samples were taken from 47 suspected cases. To date five strains of dengue virus have been isolated on C6/36 cell monolayers inoculated with lymphocytes separated on site by zonal centrifugation on Ficoll-paque. A further three strains have been isolated from lymphocytes fractionated from blood transferred to Brisbane in an equal volume of 1640 medium. The isolations, the first from Australia, will facilitate comparison with other known world strains.

Sera from 125 adults, mainly from Thursday Island but also from the Yorke Islands, Yam Island and Bamaga, were tested for IgM and less specific antibodies using haemagglutination inhibition (HI). The sera comprised principally suspected dengue cases for confirmation, although 20 routine blood samples were taken for controls. Forty-three (34.4%) were seropositive for dengue and 29 (23.3%) were IgM positive against dengue virus type 1, including three from the Yorke Islands and one from Yam. Nine of those patients for which acute and convalescent sera were available gave diagnostic four-fold rises in titre.

FIGURE 1 Ae. aegypti in the Torres Strait Islands and Queensland

(Compiled by E.N. Marks, Queensland Institute for Medical Research).



On 17 November, a serological survey was also conducted on 193 primary school children. Twenty-four (12.4%) and 22 (11.4%) were positive by HI against dengue and Ross River viruses respectively. Eight had positive IgM against dengue virus type 1 indicating recent infection. These children will be bled again in April to ascertain the extent of the infection throughout the 1981-82 summer.

Confirmed cases of dengue were also recorded on the islands of Badu, Yorke, Yam and Coconut. Ae. aegypti larvae were collected from Darnley, Stephen, Murray, Coconut, Yorke and Yam, but not from the islands of Moa, Badu and Kuban (see Figure 1). On the mainland, cases reported to CDI have emanated from Cairns (13 and 1 clinical); Townsville (4 and 1 clinical); Innisfail (1 clinical) and Chillagoe (1 clinical).

Between 25-29 January 1982, a second investigative team resurveyed the Ae. aegypti breeding sites on Thursday Island. Following the heavy December rains, all backyard rubbish and small containers had been filled, with a concomitant increase in Ae. aegypti breeding. The 141 larvae collected comprised Ae. aegypti (128), Ae. tremulus (1), Cx. annulirostris (2), Cx. quinquefasciatus (15) and Toxorhynchites speciosus (5). The average prevalence indices rose from a house index of 15.9 to 48.2, a container index of 12.0 to 27.2 and a Breteau index of 20 to 112.3.

A population of Ae. aegypti from Thursday Island has been colonised to examine vector competence, since recent data have suggested that the association of dengue with Aedes (Stegomyia) mosquitoes might not be as specific as initially thought. Dengue virus has been isolated from Ae. (Finlaya) niveus group mosquitoes in Malaysian forests, and from Cx. annulirostris and Ae. (Ochlerotatus) vigilax in New Caledonia. Also in view of the proven ability of members of the scutellaris group to transmit dengue virus (Ae. scutellaris, Ae. polynesiensis, Ae. haekanssoni and Ae. rotumae) the potential of Ae. katherinensis and Ae. scutellaris scutellaris to act as vectors could change the disease epidemiology in northern Australia.

RABIES SURVEILLANCE

Since the last suspected rabies incident at the turn of this century which involved a child and a pig in Tasmania, Australia has remained free of the disease. However, a history of an animal bite or scratch sustained abroad can be of concern to the general practitioner, microbiologist and clinician because the possibility of rabies exposure often requires special experience to assess the epidemiological situation and risk of infection.

The main rabies vectors and reservoir species are carnivores of the Orders Canidae (dogs, foxes, jackals, wolves), Mustelidae (skunks, weasels, stoats, badgers), Viverridae (mongooses and meerkats) and Chiroptera (bats): Travellers to countries where rabies is endemic should be educated to seek local medical help if they are bitten, licked or scrached by an animal. Action may then be taken to confirm rabies in the animal and commence post-bite prophylaxis if indicated. In reporting an animal bite or scratch at home it is important to obtain as many of the following particulars as possible (1). Some of the particulars are needed for tracing purposes, others help in deciding what specific treatment, if any, should be advised; name, age, weight and address of the person bitten; part of body bitten (or scratched) with description of injury; where

and when the incident took place, description of the animal, including behaviour at the time, history of vaccination against rabies and name and address of owner; and whether the incident was reported to a doctor or police abroad.

The Merieux human diploid cell vaccine has been available in Australia for the past three years [2], although an authority to use the vaccine must still be sought from the Commonwealth Department of Health in Canberra or in the appropriate State capital city.

Table 1 lists the rabies free countries recorded in the WHO World Survey of Rabies XVIII (for the years 1976-77), although it must be noted that not all countries returned the survey questionnaires.

TABLE 1 Rabies-free Countries

Africa	America	Europe[1]	Oceania	Asia
Lesotho	Bahamas	United Kingdom	Australia	Bahrein
	Barbados	Sweden	New Zealand	Brunei
	Jamaica	Finland	Papua New Guinea	Hong Kong
	Martinique	Gibraltar	Fiji	Japan
	Surinam	Iceland	Guam	Qatar
	Uruguay	Malta	New Caledonia	Singapore
	Antigua	Portugal		
	Dominica	Norway		
	Montserrat	Cyprus		
	St Kitts			
	St Lucia			
	Turks and Caicos Islands			

1. Among the 18 countries participating in the European Rabies Surveillance System, only the UK, Finland and Sweden continued to be rabies free in 1980.[3] No cases were reported from Bulgaria, Greece, the Netherlands or Portugal. Norway reported cases for the first time, 17 animals on a remote island 1000 km north of the mainland.

References

1. BMJ (1980) 281 : 462
2. CDI (1980) 80/16 : 2
3. CDR (1981) 81/16 : 1

ERRATUM

In CDI 82/2 page 1, it was stated that there had been one seroconversion against Kunjin virus among the sentinel chickens established at Echuca in March 1981. This statement was a misinterpretation of a single HI titre of 1/40 against Kunjin virus on 16 March. Subsequent serology tests on this bird were negative.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

1

REPORTING PERIOD - 4/2/82 - 17/2/82 BULLETIN NUMBER - 82/4

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW)/ WVH (ACT)	RAHC (NSW)	PHH/ POW (NSW)	FAIR-FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
0100 ADENOVIRUS NOT TYPED	9					1	6	1	17
0101 ADENOVIRUS TYPE 1			1					1	2
0102 ADENOVIRUS TYPE 2						2		2	4
0103 ADENOVIRUS TYPE 3			1	1				1	3
0105 ADENOVIRUS TYPE 5						1		1	2
0108 ADENOVIRUS TYPE 8				1					1
0117 ADENOVIRUS TYPE 17				1					1
0119 ADENOVIRUS TYPE 19	1			3					4
0199 ADENOVIRUS TYPING PENDING			2		7	1		1	11
0203 INFLUENZA B VIRUS					1	1			2
0301 PARAINFLUENZA VIRUS TYPE 1					2	2			4
0302 PARAINFLUENZA VIRUS TYPE 2					1	1			2
0303 PARAINFLUENZA VIRUS TYPE 3					4		1	5	10
0399 PARAINFLUENZA VIRUS TYPING PENDING						2			2
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)					1		2	1	4
0500 RHINOVIRUS (ALL TYPES)				1	12		3		16
0600 MYCOPLASMA PNEUMONIAE	6	1		4			8	4	23
0700 ORNITHOSIS-PSITTACOSIS	2			2				3	7
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED							1		1
0809 COXSACKIEVIRUS A9	2								2
0816 COXSACKIEVIRUS A16	1								1
0904 COXSACKIEVIRUS B4	1		2				1	3	7
0905 COXSACKIEVIRUS B5	2	3		6			2		13
1006 ECHOVIRUS TYPE 6				1					1
1009 ECHOVIRUS TYPE 9								1	1
1017 ECHOVIRUS TYPE 17		1					4		5
1022 ECHOVIRUS TYPE 22		1					1		2
1025 ECHOVIRUS TYPE 25								1	1
1030 ECHOVIRUS TYPE 30								3	3
1031 ECHOVIRUS TYPE 31								1	1
1099 ECHOVIRUS TYPING PENDING					2				2

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 2

REPORTING PERIOD - 4/2/82 - 17/2/82 BULLETIN NUMBER - 82/4

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES-CONTINUED

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW)/ WHO (ACT)	RAHC (NSW)	PHH/ PDW (NSW)	FAIRFIELD (VIC)	RCH (VIC)	IBVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
1101 POLIOVIRUS TYPE 1							1	1	2
1104 POLIOVIRUS-VACCINAL STRAIN			2						2
1200 MUMPS VIRUS	11			2		2	4	4	23
1300 HERPES VIRUS GROUP-NOT TYPED	19			3		5			27
1301 HERPES SIMPLEX VIRUS NOT-TYPED		3		1				32	36
1302 EPSTEIN-BARR VIRUS (EB VIRUS)	11								11
1303 VARICELLA-ZOSTER VIRUS	1			1		1		1	4
1306 HERPES SIMPLEX TYPE 1	7		2	5		25	19		58
1307 HERPES SIMPLEX TYPE 2	47			26		12	19		104
1399 HERPES VIRUS TYPING PENDING			12		5	6			23
1401 COXIELLA BURNETI	3					1	2		6
1502 PICORNA VIRUS-NOT TYPED								1	1
1521 MEASLES VIRUS	3	1		1	2	1	3		11
1522 RUBELLA VIRUS	2			3			3	2	10
1532 HEPATITIS B ANTIGEN	4		8			27	6	12	57
1535 HEPATITIS A ANTIBODY	8		3	8		3	5	6	33
1541 CHLAMYDIA A - C TRACHOMATIS	14	1	7			1		47	70
1556 CMV - CYTOMEGALOVIRUS			4	7	1	1		11	24
1562 REOVIRUS (ALL TYPES)						1			1
1564 ROTAVIRUS	2	3	2		9	4		3	23
1599 ENTEROVIRUS TYPING PENDING		1	8		1				10
ARBO. GROUP A. (UNSPECIFIED)				7					7
ROSS RIVER VIRUS						3	39	1	43
SMALL VIRUS (LIKE) PARTICLE	1								1
DENGUE							3		3
Total	157	15	54	84	48	104	133	150	745

3

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 4/2/82 to 17/2/82 .... 82/4

Viral Identifications by Clinical Information Table 1.
Code 00,99 -No ill or data; 01,02,11,12 -Respiratory; E3 -Enceph-alitis; M3 -Meningitis; 04 -Paralysis; 05,13 -CNS other unspec.; 07,49 -GI; 17,47 -Hepatic; 19 -CVS; 89 -Urinary; 06 -Skin/mucous.

VIRUS OR VIRAL ANTIGEN	No-ill or data	Respir atory	Enceph alitis	Mening -itis	Para- lysis	CNS other unspec	GI	Hepa -tic	CVS	Urin -ary	Skin/ mucs memb
0101 ADENOVIRUS TYPE 1.....		1					1				
0102 ADENOVIRUS TYPE 2.....		2	1				1				
0103 ADENOVIRUS TYPE 3.....		1									
0105 ADENOVIRUS TYPE 5.....	1	1									
0203 INFLUENZA B VIRUS.....		1									
0301 PARAINFLUENZA VIRUS TYPE 1....		4					1				
0302 PARAINFLUENZA VIRUS TYPE 2....		1									1
0303 PARAINFLUENZA VIRUS TYPE 3....		5									
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....		4									
0500 RHINOVIRUS (ALL TYPES).....		10									2
0600 MYCOPLASMA PNEUMONIAE.....	3	19									
0700 ORNITHOSIS-PSITTACOSIS.....	1	5							1		
0809 COXSACKIEVIRUS A9.....				1							
0816 COXSACKIEVIRUS A16.....											1
0904 COXSACKIEVIRUS B4.....	1	1		2			1				
0905 COXSACKIEVIRUS B5.....	2			9			1				1
1006 ECHOVIRUS TYPE 6.....				1							
1009 ECHOVIRUS TYPE 9.....											1
1017 ECHOVIRUS TYPE 17.....		1		1							1
1022 ECHOVIRUS TYPE 22.....		1					1				
1030 ECHOVIRUS TYPE 30.....	2					1					
1104 POLIOVIRUS-VACCINAL STRAIN....							2				
1200 MUMPS VIRUS.....	2	2		6							
1301 HERPES SIMPLEX VIRUS NOT-TYPED	1			1		1	1				19
1302 EPSTEIN-BARR VIRUS (EB VIRUS).	4							1			
1305 VARICELLA-ZOSTER VIRUS.....				1							4
1306 HERPES SIMPLEX TYPE 1.....		2	3							1	32

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 4

PERIOD : 4/2/82 to 17/2/82 .... 82/4

Viral Identifications by Clinical Information Table 1.
Code 00,99 -No ill or data; 01,02,11,12 -Respiratory; 03 -Enceph-
alitis; 03 -Meningitis; 04 -Paralysis; 05,13 -CNS other unspec.;
07,49 -GI; 17,47 -Hepatic; 19 -CVS; 89 -Urinary; 06 -Skin/mucous.-CONTINUED

VIRUS OR VIRAL ANTIGEN	No ill or data	Respir -atory	Enceph -alitis	Mening -itis	Para- lysis	CNS other unspec	GI	Hepa -tic	CVS	Urin -ary	Skin/ mucs memb
1507 HERPES SIMPLEX TYPE 2.....		1									7
1401 COXIELLA BURNETI.....		1					1	1	1		
1521 MEASLES VIRUS.....											11
1522 RUBELLA VIRUS.....	1										8
1532 HEPATITIS B ANTIGEN.....	32							20			
1535 HEPATITIS A ANTIBODY.....	7							26			
1541 CHLAMYDIA A - C TRACHOMATIS...		1									
1556 CMV - CYTOMEGALOVIRUS.....	9	1	1							4	1
1564 ROTAVIRUS.....							23				
ARBO. GROUP A.(UNSPECIFIED).....											7
ROSS RIVER VIRUS	30										3
SMALL VIRUS (LIKE) PARTICLE							1				
DENGUE	2										
Total.....	98	65	5	22		2	34	48	2	5	99

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 5

PERIOD : 4/2/82 to 17/2/82 ... 82/4

Viral Identifications by Clinical Information Table 2.
Code 10 -Eye; 59 -Genital; 39 -Endo/sal gland;
38 -RES; 29 -Muscle/joint; 69 -Congenital; P8 -PUO;
G8 -Fever/malaise; 09 -Other; A1 -SIDS ...

VIRUS OR VIRAL ANTIGEN	Eye	Genital	Endo/sal gland	RES	Muscle/joint	Congenital	PUO	Fever/malaise	Other	SIDS
0101 ADENOVIRUS TYPE 1.....	1									
0103 ADENOVIRUS TYPE 3.....	1	1								
0108 ADENOVIRUS TYPE 8.....	1									
0117 ADENOVIRUS TYPE 17.....	1									
0119 ADENOVIRUS TYPE 19.....	4									
0203 INFLUENZA B VIRUS.....								1		
0303 PARAINFLUENZA VIRUS TYPE 3....							2	1		1
0500 RHINOVIRUS (ALL TYPES).....							2			
0600 MYCOPLASMA PNEUMONIAE.....							1			
0809 COXSACKIEVIRUS A9.....										1
0904 COXSACKIEVIRUS B4.....							1	1		
0905 COXSACKIEVIRUS B5.....							1			
1009 ECHOVIRUS TYPE 9.....								1		
1017 ECHOVIRUS TYPE 17.....							1	2		
1031 ECHOVIRUS TYPE 31.....							1			
1101 POLIOVIRUS TYPE 1.....						1	1			
1200 MUMPS VIRUS.....			10				1	3		
1301 HERPES SIMPLEX VIRUS NOT-TYPED	1	14								
1302 EPSTEIN-BARR VIRUS (EB VIRUS).			4					2	1	
1306 HERPES SIMPLEX TYPE 1.....	2	20								
1307 HERPES SIMPLEX TYPE 2.....		96								
1401 COXIELLA BURNETI.....							2	1		
1521 MEASLES VIRUS.....								2		
1522 RUBELLA VIRUS.....			1					2	1	
1532 HEPATITIS B ANTIGEN.....					1					
1541 CHLAMYDIA A - C TRACHOMATIS...	3	65								
1556 CMV - CYTOMEGALOVIRUS.....				2		5	1	3	1	
ARBO. GROUP A.(UNSPECIFIED).....					6			1		
ROSS RIVER VIRUS					12			1		
DENGUE								1		
Total.....	14	196	15	2	19	6	14	22	5	