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Communicable Diseases Intelligence

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Contents:

VIRUS REPORTING SCHEME - A total of 1213 notifications were received this period. Patterns suggested by the reports comprised a sustained reduction in the number of cases of respiratory tract infections (258 reports compared with 203, 275 and 404 for the previous three periods) following epidemic activity this winter of influenza viruses A and B, respiratory syncytial virus and M. pneumoniae. Reports of M. pneumoniae infections continued to be high (77 compared with 67, 68 and 86), but many of the influenza A virus reports were retrospective serological confirmations of cases occurring in August and September. The reports were also connotative of the beginning of the expected seasonal rise of parainfluenza virus type 3 infections (26 compared with 15, 8 and 12). Infections were principally in children, although the State Health Laboratory, Brisbane, reported a seroconversion by CF in a 24 year old male with meningoencephalitis.

- The State Health Laboratory Services, Perth, identified specific IgM against dengue virus type 1 in a 33 year old female who had recently returned from Thailand. The two indigenous dengue cases reported by the State Health Laboratory, Brisbane, were residents of Cairns and Townsville.

Other reports of interest include:

- Cryptococcus albidus was isolated recently by Fairfield Hospital, Melbourne, from sputum and rib case abscess of a 57 year old male admitted with an unusual lung lesion and a lump on his rib cage. The patient worked as a night watchman in a pigeon-infested warehouse complex.

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DENGUE SURVEILLANCE - NORTH QUEENSLAND

(Contributed by P. Barker-Hudson, Queensland Institute of Medical Research (QIMR), Townsville, and B.H. Kay, QIMR, Brisbane).

The first indication of the reintroduction of dengue was recorded in July 1981 in a 46 year old female from Cairns[1]. Active and passive surveys have shown that the primary mosquito vector, Aedes aegypti has a wide breeding distribution in Queensland[2], extending as far south as Dirranbandi, 80Km north of the New South Wales border (E.N. Marks, QIMR, personal communication). However, the 375 autochthonous confirmed cases reported to date by the State Health Laboratory, Brisbane, have all emanated from north-east Queensland.

The North Queensland Mosquito Program commenced on 8 February 1982, following the appointment of a QIMR medical entomologist at Townsville. The aims of the program are -

- Surveillance of the potential mosquito vectors of arbovirus infections in Townsville and the Ross River Dam area.
- Surveillance of Ae. aegypti at Cairns and Townsville airports.
- Liaison with health surveyors, organisation of a mosquito control course and the initiation of public awareness and participation campaigns.
- Serological monitoring of arbovirus activity using sentinel chickens and other animal species.

The City of Townsville and adjoining Thuringowa Shire have high residential populations (>100 000) together with areas of significant industrial and commercial development in 36 delineated suburbs. In order to obtain a more definite picture of dengue virus transmission in the area, a telephone survey of approximately 40 listed general practitioners was made in mid-May. Of the 100 cases that had been diagnosed clinically during February-May, only 17 were confirmed serologically and 18 notified to the State Health Department and local authority Health Department. Of the 54 cases where information was available, 44% and 24% were patients in the two adjoining residential areas of Belgian Gardens and North Ward respectively. The remaining 32% of cases were scattered throughout 11 suburbs. The monthly distribution of these cases suggested that transmission in the Townsville area was more intense in March (10 cases), April (24) and May (12) when the prevailing climate was characteristically tropical i.e. wet, hot and humid.

Since Townsville, and other centres in Northern Queensland, are now at disease control status, rather than at control of nuisance mosquitoes, it is imperative that the medical profession adhere to the directives stated in the Health Act with respect to notifiable diseases such as dengue, epidemic polyarthritis and Australian encephalitis. These diseases are notifiable when there are reasonable grounds for suspicion on clinical symptoms alone. The average two month delay whilst awaiting serological confirmation to the local authority chief health surveyor earlier this year severely handicapped the application of immediate disease control measures, the delineation of priority risk areas and the definition of patterns of disease transmission. Although delayed serological confirmation of diagnosis is of little clinical use, the data are of epidemiological significance.

Several agencies have conducted surveys for the detection of mosquito breeding in artificial containers in 26 Townsville suburbs. In May over 700 premises in 24 suburbs were inspected utilising personnel from the Fourth Preventive Medicine Platoon, Australian Army Reserves, Brisbane; the Townsville City Council Health Department and the QIMR. Ae. aegypti larvae were detected in premises in 19 suburbs, although the negative findings for four of the reportedly free suburbs was likely to be a reflection of the smaller sample of buildings inspected rather than the absence of the vector species. The surveys also established the widespread distribution of Ae. notoscriptus., with immature stages being detected in artificial containers in 16 of the 26 suburbs appraised. However, circumstantial evidence over many years since the failure of the attempted dengue transmission experiments in 1919 by Cleland, Bradley and McDonald[3] make it unlikely that this species could serve as a dengue vector. Although it was not possible to compute reliable indices for larval prevalences due to the low number of premises inspected per suburb (average 23 buildings/suburb), the data for North Ward, Mudingburra, Pimlico and Hyde Park indicated a high risk for dengue virus transmission should an infective person be in that area (Table 1).

TABLE 1 Indices of prevalence of Ae. aegypti in Townsville suburbs March and July 1982

Suburb	Month[a]	No. premises inspected	House index[b]	Container index[c]	Breteau index[d]	Risk factor[e]
North Ward	March	32	34.4	21.9	50.0	high
	July	48	25.0	31.2	50.0	high
Mudingburra	March	13	46.2	22.9	84.6	high
	July	22	31.8	16.0	54.6	high
Pimlico	March	14	57.1	33.3	114.3	high
	July	33	50.3	16.5	69.7	high
Hyde Park	March	16	50.0	31.0	56.3	high
	July	22	18.1	15.0	50.0	high

(a) March - wet season.
July - dry season.

(b) House index - percentage of houses that have positive containers.

(c) Container index - percentage of water-holding (wet) containers that are positive.

(d) Breteau index - number of positive containers per 100 houses.

(e) Risk factor - based on vector density (WER (1972) 47:73).

Since low rainfall precipitation was recorded during the two months prior to the latter survey, the high larval indices obtained during July reflected the utilisation of specific types of water-bearing containers for breeding (e.g. plant pot bases, bottles and vases used for growing water plants and vessels used for striking plant cuttings). While there may be low level (or interrupted) transmission during these dry, cooler winter months, the larval indices would enable a rapid build-up of the Ae. aegypti population with the onset of the wet, warm, humid summer season expected in November.

During March and July, larval breeding surveys were carried out in six hospitals and homes for the aged. Breeding was detected in four establishments, sometimes restricted to definitive areas. Details of each finding were forwarded to the respective institutions together with the appropriate advice on mosquito control/prevention measures where indicated. Hundred metre buffer zones will be established around the buildings. Similar operations will be done in all Townsville school premises. Townsville airport premises are being maintained free of water-bearing containers, and a surveillance program using a system of oviposition traps is in operation. A 400 metre buffer-zone has been created, and will be surveyed two to three times a year.

Larval surveys have also been conducted at Thursday Island, Cairns and Weipa:

Thursday Island - A follow-up survey for container-breeding mosquitoes was undertaken during 18-26 April in the residential "indicator" areas delineated in January 1982[2]. A total of 117 premises were visited, of which 111 were checked both indoors and outdoors. Fifty-six premises were positive for Ae. aegypti. Larval indices for the three recent surveys are detailed in Table 2.

TABLE 2 Indices of prevalence of Ae. aegypti on Thursday Island

Month	Premise index	Container index	Breteau index
October 1981	15.9	12.0	20.0
January 1982	48.2	27.2	112.3
April 1982	50.2	22.2	141.4

Although the April premise index paralleled the previous data for January, the rise in the Breteau index reflected an increase in the utilisation of available water-bearing containers. 79.6% of all mosquito breeding occurred in wet containers that could be categorised as garden accessories/ornaments, water storage containers, discarded household items and disposable rubbish. Plant pots, plant pot bases and plant bottles accounted for only 19.7% of breeding sites.

Cairns - During 1-4 June, a mosquito breeding survey was conducted in the suburbs of Edge Hill, Whitfield, Bayview Heights and Paramatta Park (Table 3). Both indoor and outdoor areas were inspected in every fourth house in which there was an occupant.

TABLE 3 Indices of prevalence of Ae. aegypti in Cairns, 1-4 June, 1982

Suburb	No. of premises inspected	Premise index	Container index	Breteau index
Paramatta Park	96	27.1	23.1	37.5
Bayview Heights	25	24.0	11.5	36.0
Edge Hill/Whitfield	41	12.0	7.7	12.2

Pot plant bases, vases and plastic containers were the main sources of Ae. aegypti breeding. Two man-biting collections were done in the Cairns botanical gardens during late afternoon. Ae. funereus was the predominant pest, and no Ae. aegypti mosquitoes were taken.

Weipa - During January - April 1982, four clinical diagnoses of dengue fever were made at Weipa, although all had contracted their infection at Thursday Island. Accordingly, a survey of the most likely Ae. aegypti breeding sites was conducted during 21-23 April. Immature mosquitoes were collected from a variety of habitats (e.g. large tyres used on bauxite carriers, disused machinery, drums, a swimming pool and fish pond), but none were Ae. aegypti.

Surveys of the main centres will now be made on a regular basis to assess the progress of the community awareness programs, and to facilitate the planning of future control strategies.

References

1. CDI (1981) 81/14 : 1
2. CDI (1982) 82/4 : 2
3. Aedes (Finlaya) notoscriptus: In The Culicidae of the Australasian Region. Volume 2 (1982). Commonwealth Department of Health, Australia : 196

ARBOVIRUS SURVEILLANCE IN THE MURRAY-RIVERINA REGION, NEW SOUTH WALES (1981-82)

(Contributed by H. Naim, J. Wild, C.R. Boughton and R.A. Hawkes, Arbovirus Research Unit, School of Microbiology, University of New South Wales, Sydney).

During the summer of 1981-82, in a collaborative project between the Arbovirus Research Unit and the New South Wales Health Commission, four chicken flocks (each of 12-14 birds) were established at Wentworth, Deniliquin, Albury and Griffith to act as sentinel hosts for prevalent arbovirus activity. The birds were bled weekly from early February to the end of March. Sera were tested by haemagglutination-inhibition (HI) test against 11 arbovirus antigens (Table 1).

TABLE 1 Antigens used in arbovirus surveillance program

Alphaviruses	Flaviviruses
Sindbis*	Sepik*
Ross River*	Saumarez Reef
Getah	Murray Valley encephalitis*
	Kunjin *
	Alfuy
	Stratford
	Kokobera
	Edge Hill

* known to be associated with human disease.

Seroconversions were reported by telephone and later in writing. Results were generally available within one week of receipt of specimens. A summary of the results is presented in Table 2.

TABLE 2 HI antibody status of the sentinel chicken flocks

Town	No. in flock	Reactivity	Prior Infection A	Prior Infection B	No. susceptible	No. converters	Virus
Deniliquin	14	Alphavirus	0	0	14	0	-
		Flavivirus	1	0	13	0	Kokobera
Albury	14	Alphavirus	0	0	14	1	Sindbis
		Flavivirus	0	0	14	0	-
Wentworth	12	Alphavirus	4	2	6	1	Sindbis
		Flavivirus	0	0	12	0	-
Griffith	14	Alphavirus	12	0	2	2	Sindbis
		Flavivirus	0	1	13	5	{3 Kunjin (d) {2 indeterminat (c)

A - antibody present in first sample tested.

B - test invalidated by poor serum sample or lack of specimen.

c - similar antibody titres to several flaviviruses.

d - antibody titres four-fold or higher against Kunjin virus.

There was no evidence of prevalent arbovirus activity at Deniliquin, although one bird demonstrated prior infection with Kokobera virus. The flocks at Albury and Wentworth both indicated alphavirus (Sindbis) activity during the survey period. The Sindbis seroconversions occurred around 8-12 February. Griffith was found to be a focus of both alpha- and flavivirus activity. Five of the 13 seronegative birds exhibited seroconversion to flaviviruses (three in the first week and one in each of the succeeding two weeks). The response to the multiple antigens was too broad to identify the infecting virus in two chickens, but the three seroconversions that occurred between 22 February-3 March demonstrated unequivocal identity against Kunjin or a closely related virus. This definition of diagnosis would not have been possible had Murray Valley encephalitis (MVE) antigen alone been used as a broad-reacting representative of the flavivirus group, and the findings justified the use of a panel of virus antigens for surveillance programs. The two Sindbis conversions occurred in mid or late February (two weeks later than those at Albury and Wentworth). The other 12 birds possessed pre-existing Sindbis antibody, and had been infected either prior to establishment, or in the period between setting out and the first sampling.

In late 1981, a group of arbovirus seronegative blood donors was compiled in Griffith. They were then tested for antibody each time they presented for blood donation. Of the approximately 100 tested, four demonstrated flavivirus infection sometimes between the summer (December 1981-February 1982) and winter (May-June, 1982) donations, indicating a human as well as animal arbovirus epidemiology. Because of the protracted periods between infection and subsequent sampling, the HI antibody patterns were too broad to define the infecting virus. More specific serological tests are underway.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

REPORTING PERIOD - 14/10/82 - 27/10/82 BULLETIN NUMBER . 82/22
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	14	1				7	4	1	27
0101 ADENOVIRUS TYPE 1	4	1	1	2	4	4		2	18
0102 ADENOVIRUS TYPE 2	1		2	2	6	1		1	13
0103 ADENOVIRUS TYPE 3	1								1
0105 ADENOVIRUS TYPE 5	1			1				1	3
0108 ADENOVIRUS TYPE 8								1	1
0109 ADENOVIRUS TYPE 9								2	2
0119 ADENOVIRUS TYPE 19	3							4	7
0199 ADENOVIRUS TYPING PENDING			4		6				10
0201 INFLUENZA A VIRUS	15		4			10	32		61
0202 INFLUENZA A VIRUS SUBTYPE H3N2				2		3	6		11
0203 INFLUENZA B VIRUS	5		1				6	4	16
0301 PARAINFLUENZA VIRUS TYPE 1	2					1			3
0302 PARAINFLUENZA VIRUS TYPE 2				1				1	2
0303 PARAINFLUENZA VIRUS TYPE 3		1	1	1	12		7	4	26
0399 PARAINFLUENZA VIRUS TYPING PENDING							1		1
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)	1	4		2	2	2	3	11	25
0500 RHINOVIRUS (ALL TYPES)	7		2	1	14	1	1	2	28
0600 MYCOPLASMA PNEUMONIAE	25	2	3	3	2	3	27	12	77
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED								2	2
0809 COXSACKIEVIRUS A9				3					3
0816 COXSACKIEVIRUS A16		1							1
0904 COXSACKIEVIRUS B4						1			1
0905 COXSACKIEVIRUS B5					2				2
1006 ECHOVIRUS TYPE 6			2						2
1011 ECHOVIRUS TYPE 11			1					16	17
1014 ECHOVIRUS TYPE 14								1	1
1017 ECHOVIRUS TYPE 17	1								1
1022 ECHOVIRUS TYPE 22		2		1			1		4
1099 ECHOVIRUS TYPING PENDING					1				1
1100 POLIOVIRUS NOT TYPED						1			1
1101 POLIOVIRUS TYPE 1						2		1	3
1102 POLIOVIRUS TYPE 2						1			1
1104 POLIOVIRUS-VACCINAL STRAIN			2		9				11
1200 MUMPS VIRUS	7	1				3	2	2	15
1300 HERPES VIRUS GROUP-NOT TYPED	18			4		2			24
1301 HERPES SIMPLEX VIRUS NOT-TYPED		3		3				71	77
1302 EPSTEIN-BARR VIRUS (EB VIRUS)	6			1				3	10
1303 VARICELLA-ZOSTER VIRUS	1		1			2	2		6
1306 HERPES SIMPLEX TYPE 1	7		12	21		5	20		65
1307 HERPES SIMPLEX TYPE 2	99		16	60		11	39		225
1399 HERPES VIRUS TYPING PENDING			9		6	2			17
1401 COXIELLA BURNETI	4					1	6		11
1515 CONTAGIOUS PUSTULAR DERMATITIS (ORF VIRUS)	1								1
1521 MEASLES VIRUS				6	3		3		12
1522 RUBELLA VIRUS			1	4	6		4	5	20
1532 HEPATITIS B ANTIGEN	49		3	31		25	9	3	120
1535 HEPATITIS A ANTIBODY	12	1		4		6	4	13	40
1541 CHLAMYDIA A - C TRACHOMATIS	29		2					48	79
1556 CMV - CYTOMEGALOVIRUS	5			13	7	4	3	5	37
1563 CORONAVIRUS				4					4
1564 ROTAVIRUS	5	18	7	3		8	3	6	50
1599 ENTEROVIRUS TYPING PENDING		1	2		5		1		9
POXVIRUS GROUP NOT TYPED				1					1
ROSS RIVER VIRUS							2		2
ASTROVIRUS	1								1
SMALL VIRUS (LIKE) PARTICLE				1					1
DENGUE							2	1	3
Total	324	36	76	175	85	106	188	223	1,213

PERIOD : 14/10/82 to 27/10/82 .... 82/22
Viral Identifications by Clinical Information Table 1.
Code 00,99 -No ill or data; 01,02,11,12 -Respiratory; E3 -Encephalitis; 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	Respiratory	Encephalitis	Meningitis	Paralysis	CNS other unspec	GI	Hepatic	CVS	Urinary	Skin/mucs memb
0101 ADENOVIRUS TYPE 1.....		9				2	4				
0102 ADENOVIRUS TYPE 2.....		6	1			1	3				1
0105 ADENOVIRUS TYPE 5.....	1	2				1					
0201 INFLUENZA A VIRUS.....		51		1							2
0202 INFLUENZA A VIRUS SUBTYPE H3N2		11									
0203 INFLUENZA B VIRUS.....	1	11				1					1
0301 PARAINFLUENZA VIRUS TYPE 1....		3									
0302 PARAINFLUENZA VIRUS TYPE 2....	1	1									
0303 PARAINFLUENZA VIRUS TYPE 3....	1	19	1	2							1
0399 PARAINFLUENZA VIRUS TYPING PENDING.....		1									
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....		24				1			2		
0500 RHINOVIRUS (ALL TYPES).....	1	24		1							
0600 MYCOPLASMA PNEUMONIAE.....	8	59		1	1						1
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED.....	1										1
0809 COXSACKIEVIRUS A9.....	2			1							
0816 COXSACKIEVIRUS A16.....											1
0904 COXSACKIEVIRUS B4.....	1										
0905 COXSACKIEVIRUS B5.....		1			1						
1006 ECHOVIRUS TYPE 6.....							2				
1011 ECHOVIRUS TYPE 11.....		2		11							1
1017 ECHOVIRUS TYPE 17.....							1				
1022 ECHOVIRUS TYPE 22.....		2		1							
1101 POLIOVIRUS TYPE 1.....		3									
1102 POLIOVIRUS TYPE 2.....							1				
1104 POLIOVIRUS-VACCINAL STRAIN....		4					6				
1200 MUMPS VIRUS.....		1		2							
1301 HERPES SIMPLEX VIRUS NOT-TYPED	5		2	1							44
1302 EPSTEIN-BARR VIRUS (EB VIRUS).	1							3	1		
1303 VARICELLA-ZOSTER VIRUS.....	1										4
1306 HERPES SIMPLEX TYPE 1.....		7		1						2	28
1307 HERPES SIMPLEX TYPE 2.....		1									12
1515 CONTAGIOUS PUSTULAR DERMATITIS (ORF VIRUS).....											1
1521 MEASLES VIRUS.....		2									12
1522 RUBELLA VIRUS.....					1						16
1532 HEPATITIS B ANTIGEN.....	59							56			
1535 HEPATITIS A ANTIBODY.....	10							29			
1556 CMV - CYTOMEGALOVIRUS.....	7	12			1			3		3	1
1563 CORONAVIRUS.....		2					1				
1564 ROTAVIRUS.....							50				
ASTROVIRUS							1				
SMALL VIRUS (LIKE) PARTICLE							1				
DENGUE											2
Total.....	100	258	4	22	4	6	70	91	3	5	129

PERIOD : 14/10/82 to 27/10/82 ... 82/22
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		1	
0102 ADENOVIRUS TYPE 2.....							1	1		1
0103 ADENOVIRUS TYPE 3.....	1									
0108 ADENOVIRUS TYPE 8.....	1									
0109 ADENOVIRUS TYPE 9.....	1	1								
0119 ADENOVIRUS TYPE 19.....	4	3								
0201 INFLUENZA A VIRUS.....			1		1		4	5		
0202 INFLUENZA A VIRUS SUBTYPE H3N2								1		
0203 INFLUENZA B VIRUS.....				1	1			4		
0303 PARAINFLUENZA VIRUS TYPE 3....				1			2	1		
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....					1			1		
0500 RHINOVIRUS (ALL TYPES).....							1			1
0600 MYCOPLASMA PNEUMONIAE.....			1		2		1	7	2	
1011 ECHOVIRUS TYPE 11.....								3		
1014 ECHOVIRUS TYPE 14.....							1			
1022 ECHOVIRUS TYPE 22.....									1	
1104 POLIOVIRUS-VACCINAL STRAIN....								1		1
1200 MUMPS VIRUS.....			10						2	
1301 HERPES SIMPLEX VIRUS NOT-TYPED		32							1	
1302 EPSTEIN-BARR VIRUS (EB VIRUS).		1	2	1				1		
1303 VARICELLA-ZOSTER VIRUS.....									1	
1306 HERPES SIMPLEX TYPE 1.....	3	23						6		
1307 HERPES SIMPLEX TYPE 2.....		212				1				
1401 COXIELLA BURNETI.....							3	7	2	
1521 MEASLES VIRUS.....								1		
1522 RUBELLA VIRUS.....					1			2	2	
1532 HEPATITIS B ANTIGEN.....								1	4	
1535 HEPATITIS A ANTIBODY.....								2		
1541 CHLAMYDIA A - C TRACHOMATIS...		79								
1556 CMV - CYTOMEGALOVIRUS.....		1		1		1	2	2	3	
1563 CORONAVIRUS.....			1					1		
ROSS RIVER VIRUS					2					
DENGUE					1		1	1		
Total.....	10	352	15	4	9	2	17	48	19	3