Communicable Diseases Intelligence

Bulletin number 80/1

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This issue has a newly designed front page incorporating the Australian Commonwealth Arms to signify that CDI is an Australian Government publication distributed overseas (about 10% of the circulation of 750 goes overseas).

Because CDI was not published during the holiday season, this issue contains virus tables for the two periods, December 13-26, 1979, and December 27 to January 9, 1980. As from this issue, a virus x "symptomatology" table will replace the previous "source tissue" table. This latter and various other tabulations will continue to be compiled each quarter and available without charge to those who indicate interest. Also attached is a table listing total new virus identifications x laboratories received by CDI during 1979, regardless of date of collection of specimen.

Virus reports for the two periods - 834 and 663. Total 1497. Those of interest include:

. Ross River Virus - 35 reports, 26 of which were from South Australia. This State reported only one isolation in the preceding period, and none in the corresponding periods in 1978.

  This Institute of Medical and Veterinary Science, Adelaide, reports that the majority of cases have occurred at Meningie, which is situated near the mouth of the river Murray, with a few cases upstream. However three cases have also been reported from Cummins in the centre of the Eyre Peninsula. Whether these people had visited the region more usually associated with this infection has not yet been established.

. Echovirus type 11 - 170 reports indicating its continued activity in all States. A recent Canada Diseases Weekly Report 5(52):1 notes a similar epidemic of aseptic meningitis in the Saskatoon area associated with Echo 11, during the period May to October 1979, with a mixed Echo 11 and Echo 7 outbreak in Ontario and Quebec.

. Coxsackie virus type B_4 - 18 and 20 isolations reported during the last two periods compared with 12 and 6 in the preceding two periods.

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.

VIRUSES IN WATER AND SEWAGE AND THEIR SIGNIFICANCE (contributed by L. Irving, Virology Department, Fairfield Hospital, at the request of the Editor - summary of an article in "Water", J. of Australian Water and Wastewater Assoc., September 1979, by the same author)

In the middle of the 19th century, men such as John Snow and William Budd showed that enteric diseases could be spread by faecal contamination of water. Gradually it became obvious that the introduction of effective sewage and the supply of pure water could bring epidemics of water-borne bacterial infections under control. More recently there has been a growing interest in the presence of human enteric viruses in sewage, wastewater and surface waters. The extent of this viral contamination of the water we use for drinking, recreation or agriculture and the public health significance of our consequent exposure to potential pathogens has not yet been fully assessed.

Enteroviruses, adenoviruses, reoviruses and recently rotaviruses have been detected by laboratory tests in domestic wastewater, while the presence of hepatitis A virus is indicated by abundant epidemiological evidence. A patient with an enteroviral infection may excrete $> 10^6$ infectious particles per gm of faeces and several different types of enteroviruses are always circulating in any community. In temperate climates a seasonal incidence of enteroviral infections occurs, usually with a peak in the hotter months of the year. Because of this epidemiological pattern, the enterovirus input into sewage varies in type and concentration. Many figures are quoted - as high as 500,000 IU (infectious units) per l from Israel[1] and ranging from 50 - 210,000 IU per l in the United States[2]. In Europe a peak of 10,000 IU per l in September is given[3], while in Melbourne 200 - 5,000 IU per l has been recorded[4].

Adenoviruses have been reported in up to 25% of United States[5] and 100% of Melbourne sewage samples[4], while 57% of United States[5] and 92% of Melbourne[4] sewage samples have yielded reoviruses. The use of different laboratory techniques contributes to the variation in these figures.

All these viruses are able to survive conventional sewage treatments and even though significant amounts may be removed, no treatment process currently employed is capable of removing all viruses. Some virus will persist after final chlorination, since chlorination as practised in conventional treatment does not produce substantial inactivation of viruses even when bacteria are extensively killed[3, 1]. In a twelve month study, findings from a large activated sludge purification plant near Melbourne showed that only 93% of enteroviruses, 79% of adenoviruses and 42% of reoviruses were removed after secondary sedimentation[4] and these viruses could also be detected in the final chlorinated effluent.

Depending on many factors such as temperature, sunlight and inorganic composition of the water, viruses may survive for surprisingly long periods, approaching six months in some reports[1]. Our environment is, in this way, being continually seeded with human viruses, which have even been detected in the drinking water supplied to large modern cities. In

Paris in the 1960's, a study found that 18% of 200 samples of drinking water tested were positive for virus; in Russia viruses have been isolated from the distribution system of Moscow's muncipal supply on several occasions. In Romania, South Africa and recently in the United States similar reports have been made[1].

The full significance of this contamination of our surroundings on the overall pattern of viral infections is not really known. There is no doubt that outbreaks of hepatitis A have occurred as a result of sewage contamination of drinking water and shellfish grown in contaminated water. Some of these outbreaks have been widespread and dramatic, such as the New Delhi episode in 1955-56. More recently, hepatitis outbreaks associated with drinking water have mainly involved smaller municipal supplies and probably many represent human error as well as inadequate technology.

Gastroenteritis is frequently reported as a water-borne infection, but the aetiology of these outbreaks, which often involve holiday camps or smaller supplies, have largely not been determined. The recent development of tests to diagnose infections due to rotavirus and Norwalk agent may soon reveal that some of these episodes are due to viruses, as a number of the cases of food poisoning due to oysters, which occurred in Australia in 1977, seem to have been due to Norwalk agent. Also a retrospective survey in North America has produced evidence that 8 of 25 outbreaks of gastroenteritis were due to Norwalk agent and one of the 25 was caused by rotavirus[6].

The role which water plays in endemic viral infections (as opposed to outbreaks or epidemics) is hard to evaluate. A low level of viral contamination in a municipal water supply would mean that a number of immune and non-immune people could ingest an infective dose. Among the susceptibles thus exposed most infections would probably be subclinical and those few who developed overt illness could present with different symptoms. Unless virological tests were available it may not be obvious that the same virus is involved. Both clinical and subclinical sufferers could spread the disease to contacts and widely dispersed infections would not be associated with a water-borne source.

It is difficult to determine what constitutes the minimal infective dose of virus for man as experiments using virulent virus with non-immune humans have serious ethical implications. Even though, on the average, a much larger dose would be required, there is some evidence to suggest that for some viruses, in a susceptible host, the infective dose may be as low as one infectious particle. This indicates that drinking water should ideally be free from viruses. Although some workers have postulated that small amounts of virus in drinking water may provide an immunising dose, such uncontrolled administration of a non-attenuated vaccine would never be tolerated.

As civilizations have developed and hygiene improved, there has been an obvious and parallel improvement in community health but with less exposure to infectious agents and the consequent change in disease

patterns, another effect can be seen. In times past, those of the population who survived childhood would have had high levels of immunity to many enteric organisms. Now the levels of immunity to some infections are much less. In Melbourne 20 years ago 80% of the 40-year olds had antibody to hepatitis A, now only 60% are immune(7). In other studies the degree of affluence of a community is mirrored by the hepatitis A antibody status. In Costa Rica, with poor socioeconomic circumstances 90% of the population are immune to hepatitis A by their 10th birthday, while in Corpus Christi, Texas, and Melbourne, two typical cities of the western world, only 40% are immune at twice that age.

The problem of sewage pollution of surface water with the potential risk of drinking water drawn from this source is one side of the picture. On the other hand, water is a precious commodity of which Australia and other countries have short supplies. Urbanization, industrialization and increasing population lead to ever increasing demands for more water, so that treated effluent being discharged into the ocean is a waste of a potential resource. There are many industrial and agricultural processes where perhaps good use could be made of this water and its nutrient, with conservation of fresh water for domestic supplies. First, however, it is necessary to ensure that in each situation the use of this reclaimed water is safe from the public health point of view. Around the world, much thought is being given to the problem of deliberate re-use of treated effluent.

References

1. Bull. Wld. Hlth. Organ. (1978) 56, (4): 499-508
2. J. Environ. Eng. Div. (1976) February: 29
3. Manual on Analysis for Water Pollution Control - WHO/EURO (1978): 341
4. Fairfield Hospital (unpublished data).
5. Appl. Micro. (1972) 24: 510-512
6. J. Infect. Dis. 139, No. 5: 564
7. Correspondence. J. Infect. Dis. (1978) 138, (3): 425

VARICELLA ZOSTER IMMUNE GLOBULIN

Zoster immune globulin (ZIG) has been prepared by the Commonwealth Serum Laboratories (CSL) since 1971. It has proved of value in combating varicella/zoster infection in high-risk patients, usually immunosuppressed children who have been exposed to chickenpox (varicella) or shingles (zoster) within the preceding 72 hours.

An urgent call for donations of blood or plasma for the production of ZIG from adult patients recovering from either shingles or chickenpox has been made by CSL[1, 2]. CSL now indicates that the response has not been as good as was hoped, and stocks continue to be low.

In general criteria for release of ZIG in the prophylaxis of variella

follow those of the United States[3]; these are

I. One of the following underlying illnesses or conditions
   A. Leukaemia or lymphoma
   B. Congenital or acquired immunodeficiency
   C. Under immunosuppressive medication
   D. Newly born of mother with varicella

II. One of the following types of exposure to varicella or zoster patient
   A. Household contact
   B. Playmate contact (1 hour play indoors)
   C. Hospital contact (in same 2- to 4-room bedroom or adjacent beds in a large ward)
   D. Newborn contact (newborn whose mother contracted varicella less than 5 days before delivery or within 48 hours after delivery)

III. Negative or unknown prior disease history

IV. Age of less than 15 years

V. The request for treatment must be initiated within 72 hours of exposure.

An appropriate newborn contact includes infants whose mothers develop the varicella rash up to but not including the fifth day before delivery, or within 48 hours after delivery. Such infants have a 30% mortality rate[4, 5]. No mortality has been associated with infants whose mothers contract varicella 5 or more days before delivery.

Whilst CSL agrees in principle with the above criteria, stocks have never been sufficient for it to release ZIG for other than category I (including newborn contacts).

Potential donors, up to eight weeks after the onset of their illness and particularly those in the early post-convalescent period (one to four weeks after the onset of the rash) should be referred to the Blood Transfusion Service.

References

1. M.J.A. (1979) 2 : 604
2. A.M.A. Gazette (1979) 235 : 17
3. MMWR (1979) 28 (49): 589
4. J. Infect. Dis. (1974) 129 : 215-217
5. Gershon, A. (1975). ed. Symposium on infections of the fetus and newborn infant. Alan R. Liss, New York. pp88-89

RECALL OF MEASLES VACCINE

During post release testing in Australia, it has been found that a proportion of the vials of measles vaccine currently in use in this country are below the specified level of potency.

Tests undertaken by the manufacturer and the National Biological

Standards Laboratory in Melbourne (NBSL) indicate that the batch is heterogenous, with estimates of sub-potency varying as shown in the table below. The manufacturer's agents have consequently recalled the affected batch.

Assay Results on Batch of Measles Vaccine

Sample details		Test results		
Designation	Representative of:	Laboratory	No. of vials tested	No. sub-potent
Pre-release sample	whole batch	Company	9	0
" "	" "	NBSL	3	0
Retention "	" "	Company	25	1
		TOTALS	37	1
Post-complaint "	(vaccine supplied) (to Australia)	NBSL	66	15
		Company	30	3
		TOTALS	96	18

There was thus one sub-potent vial amongst 34 tested by the manufacturer in pre-release and retention samples, but there were 18 sub-potent vials amongst post-complaint samples. Statistical analysis (Fisher's exact test) of these results provided strong evidence of heterogeneity ($P = 0.015$). The sub-potent vials showed deficiencies of up to 1 $\log_{10}$ below the minimum acceptable level of 3 $\log_{10}$ units/dose.

Distribution of the batch by the Commonwealth Serum Laboratories to New South Wales, Northern Territory and Western Australia commenced on or soon after 21 August, and to Queensland, South Australia and Tasmania on 17 September 1979.

As immunisation with fully potent vaccine results in only approximately 80% to 85% seroconversion rates in children immunised at 12 months of age (the usual immunisation age in Australia), it is estimated that some 30-40% of infants immunised with this batch may not be protected. Progressively higher rates could be anticipated for children at a more advanced age at the time of injection.

However it will be impossible to identify unprotected children without serological testing, which is considered unjustifiable.

It is suggested therefore that children who were less than 15 months old at the time of immunisation could be accepted as those most likely to have failed to achieve a satisfactory response and that these could be offered re-immunisation on request.

A convenient time to offer this would be when they attend for their 18 month booster CDT injections unless local outbreaks indicate earlier action is warranted in some areas.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

1A

REPORTING PERIOD - 27-12-79 . 9-1-80 BULLETIN NUMBER 80.1

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

VIRUS OR VIRAL ANTIGEN	ICPMM (NSW)/ NVB (ACT)	RMRC (NSW)	PHH/ PCN (NSW)	FAIM-FIELD (VIC)	MCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
0100 ADENOVIRUS NOT TYPED	5				2	2	11		20
0101 ADENOVIRUS TYPE 1					2				2
0102 ADENOVIRUS TYPE 2					2	2			4
0103 ADENOVIRUS TYPE 3	1					2			3
0104 ADENOVIRUS TYPE 4						4			4
0105 ADENOVIRUS TYPE 5				1					1
0108 ADENOVIRUS TYPE 8				2					2
0119 ADENOVIRUS TYPE 19								5	5
0199 ADENOVIRUS TYPING PENDING		1			6	4			11
0201 INFLUENZA A VIRUS						1			1
0203 INFLUENZA B VIRUS		1							1
0301 PARAINFLUENZA VIRUS TYPE 1	1							1	2
0302 PARAINFLUENZA VIRUS TYPE 2				3	6				9
0303 PARAINFLUENZA VIRUS TYPE 3	2			1	4	4	2	1	14
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)	1	6			1	1			9
0500 RHINOVIRUS (ALL TYPES)					9	4	3		16
0600 MYCOPLASMA PNEUMONIAE				2		3	2	2	9
0700 ORNITHOSIS-PSITTACOSIS	1								1
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED								2	2
0809 COXSACKIEVIRUS A9	1								1
0902 COXSACKIEVIRUS B2	1								1
0904 COXSACKIEVIRUS B4				1	3	5	7	3	19
1003 ECHOVIRUS TYPE 3								1	1
1011 ECHOVIRUS TYPE 11	20	4		24	1	3	30	1	83
1015 ECHOVIRUS TYPE 15	2								2
1016 ECHOVIRUS TYPE 16								1	1
1020 ECHOVIRUS TYPE 20								1	1
1022 ECHOVIRUS TYPE 22								1	1
1030 ECHOVIRUS TYPE 30				1					1
1099 ECHOVIRUS TYPING PENDING							3		3
1101 POLIOVIRUS TYPE 1						1	1	3	5

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 2 A

REPORTING PERIOD - 27-12-79 . 9-1-80 BULLETIN NUMBER 80.1
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES-CONTINUED

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW)/ MVE (ACT)	BMRC (NSW)	PHR/ POW (NSW)	PAIR-FIELD (VIC)	MCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
1102 POLIOVIRUS TYPE 2						1			1
1103 POLIOVIRUS TYPE 3							1		1
1104 POLIOVIRUS-VACCINAL STRAIN	1				3				4
1200 MUMPS VIRUS	2	4		1	2		3		12
1300 HERPES VIRUS GROUP-NOT TYPED	1			1		4			5
1301 HERPES SIMPLEX VIRUS-NOT TYPED	1	2		2	6		13	40	64
1303 VARICELLA-ZOSTER VIRUS		1		1			1	1	4
1306 HERPES SIMPLEX TYPE 1	4			6		8			18
1307 HERPES SIMPLEX TYPE 2	22			10		7		1	40
1399 HERPES VIRUS TYPING PENDING			2			3		2	7
1401 COXIELLA BURNETI	1						6		7
1515 CONTAGIOUS PUSTULAR DERMATITIS (ORF VIRUS)						1			1
1541 MEASLES VIRUS				2	1		3		6
1522 RUBELLA VIRUS				5	1	6	3	20	35
1530 HEPATITIS A VIRUS								6	6
1531 HEPATITIS B VIRUS	2								2
1532 HEPATITIS B ANTIGEN		5	3	23		4	4	13	52
1535 HEPATITIS A ANTIBODY						2			2
1541 CHLAMYDIA A - TRIC TYPE	15							32	47
1556 CMV - CYTOMEGALOVIRUS		2		24	2	1	3	8	40
1564 ROTAVIRUS					7	1		8	16
1566 NORWALK AGENT					1				1
1599 ENTEROVIRUS TYPING PENDING		6			8	2	1		17
ROSS RIVER VIRUS						17	4		21
ASTROVIRUS					3			1	4
SMALL VIRUS (LIKE) PARTICLE					1				1
PARAMYXO					2				2
Total	83	32	5	110	73	93	101	154	651

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 3A

PERIOD : 27/12/79 to 9/11/80 ... Bulletin Number 80.1

Viral Identifications by Clinical Information Table 1.
Code 00,99 -No ill or data; 01,02,11,12 -Respiratory; 03 -Encephalitis; 03 -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
0100 ADENOVIRUS NOT TYPED	3	4					5	1			1
0101 ADENOVIRUS TYPE 1		1				1					
0102 ADENOVIRUS TYPE 2		1		1			1				
0103 ADENOVIRUS TYPE 3				1							
0104 ADENOVIRUS TYPE 4							2				
0105 ADENOVIRUS TYPE 5									1		
0119 ADENOVIRUS TYPE 19	5										
0201 INFLUENZA A VIRUS		1									
0203 INFLUENZA B VIRUS		1									
0301 PARAINFLUENZA VIRUS TYPE 1	1	1									
0302 PARAINFLUENZA VIRUS TYPE 2		8		1							
0303 PARAINFLUENZA VIRUS TYPE 3	1	13									
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)		8									
0500 RHINOVIRUS (ALL TYPES)		8									
0600 MYCOPLASMA PNEUMONIAE	1	6					1		1		
0700 ORNITHOSIS-PSITTACOSIS		1									
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED		1		1			1				
0809 COXSACKIEVIRUS A9				1							
0902 COXSACKIEVIRUS B2	1										
0904 COXSACKIEVIRUS B4	4	5	1	5		2	1				
1003 ECHOVIRUS TYPE 3							1				
1011 ECHOVIRUS TYPE 11	14	9		39		2	6				1
1016 ECHOVIRUS TYPE 16						1					
1020 ECHOVIRUS TYPE 20							1				
1022 ECHOVIRUS TYPE 22		1									
1030 ECHOVIRUS TYPE 30		1									

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 4A

PERIOD : 27/12/79 to 9/1/80 ... Bulletin Number 80.1

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.-CONTINUED

Virus or Viral Antigen	No-ill or data	Respiratory	Encephalitis	Meningitis	Paralysis	CNS other unspec	GI	Hepatic	CVS	Urinary	Skin/mucs memb
1101 POLIOVIRUS TYPE 1						2	3				
1102 POLIOVIRUS TYPE 2							1				
1103 POLIOVIRUS TYPE 3							1				
1104 POLIOVIRUS-VACCINAL STRAIN	2						1				
1200 HERPES VIRUS	1			9							
1300 HERPES VIRUS GROUP-NOT TYPED											1
1301 HERPES SIMPLEX VIRUS-NOT TYPED	34	2									13
1303 VARICELLA-ZOSTER VIRUS											4
1306 HERPES SIMPLEX TYPE 1										2	9
1307 HERPES SIMPLEX TYPE 2											1
1315 CONTAGIOUS PUSTULAR DERMATITIS (ORF VIRUS)											1
1521 MEASLES VIRUS		1		2							3
1522 RUBELLA VIRUS											31
1530 HEPATITIS A VIRUS	1							5			
1531 HEPATITIS B VIRUS								2			
1532 HEPATITIS B ANTIGEN	15							36		1	
1535 HEPATITIS A ANTIBODY								2			
1541 CHLAMYDIA A - TRIC TYPE	32										
1556 CMV - CYTOMEGALOVIRUS	10	5		1	1	2				4	
1564 ROTAVIRUS	7						9				
1566 NORWALK AGENT		1									
ROSS RIVER VIRUS											3
ASTROVIRUS	3						1				
SMALL VIRUS (LIKE) PARTICLE	1										
PARAMYXO	1										
Total	137	79	1	61	1	10	35	46	2	7	68

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 5A

PERIOD : 27/12/79 to 9/1/80 ...
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
0100 ADENOVIRUS NOT TYPED		1						5		
0101 ADENOVIRUS TYPE 1								2		
0102 ADENOVIRUS TYPE 2					1					
0103 ADENOVIRUS TYPE 3	2									
0104 ADENOVIRUS TYPE 4	1							1		
0108 ADENOVIRUS TYPE 8	2									
0303 PARAINFLUENZA VIRUS TYPE 3							1			
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)							1			
0500 RHINOVIRUS (ALL TYPES)							1			
0600 MYCOPLASMA PNEUMONIAE								1	1	
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED								1		
0904 COXSACKIEVIRUS B4								3		
1011 ECHOVIRUS TYPE 11			1				7	7		1
1015 ECHOVIRUS TYPE 15							2			
1104 POLIOVIRUS-VACCINAL STRAIN										1
1200 MUMPS VIRUS			1				1			
1301 HERPES SIMPLEX VIRUS-NOT TYPED	1	12						2		
1306 HERPES SIMPLEX TYPE 1	1	6					1	1		
1307 HERPES SIMPLEX TYPE 2		39								
1401 COXIELLA BURNETI					1			6	1	
1521 MEASLES VIRUS								2	1	
1522 RUBELLA VIRUS			6		5					
1541 CHLAMYDIA A - TRIC TYPE		15								
1556 CMV - CYTOMEGALOVIRUS		1		1		5		1	11	
ROSS RIVER VIRUS					17			1		
Total	7	74	8	1	24	5	14	33	14	2

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 1 B

REPORTING PERIOD - 13-12-79 - 26-12-79 BULLETIN NUMBER 79-26
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	3		3		3	3	7		19
0101 ADENOVIRUS TYPE 1				1		1			2
0102 ADENOVIRUS TYPE 2				1		2			3
0103 ADENOVIRUS TYPE 3	2								2
0105 ADENOVIRUS TYPE 5				3		1			4
0107 ADENOVIRUS TYPE 7				2					2
0108 ADENOVIRUS TYPE 8				2					2
0116 ADENOVIRUS TYPE 16						1			1
0119 ADENOVIRUS TYPE 19	2								2
0199 ADENOVIRUS TYPING PENDING			1		8	6			15
0201 INFLUENZA A VIRUS			1						1
0203 INFLUENZA B VIRUS				1			1		2
0301 PARAINFLUENZA VIRUS TYPE 1			1						1
0302 PARAINFLUENZA VIRUS TYPE 2					4				4
0303 PARAINFLUENZA VIRUS TYPE 3	2			1	9	1	4		17
0399 PARAINFLUENZA VIRUS TYPING PENDING						3			3
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)	1					5	1		7
0500 RHINOVIRUS (ALL TYPES)			1	1	8	6			16
0600 MYCOPLASMA PNEUMONIAE	1		2	1		10	3	3	20
0700 ORNITHOSIS-PSITTACOSIS	4		1						5
0801 COXSACKIEVIRUS A1	1								1
0802 COXSACKIEVIRUS A2	1								1
0803 COXSACKIEVIRUS A3	1								1
0805 COXSACKIEVIRUS A5	1								1
0809 COXSACKIEVIRUS A9	1			1			3		5
0903 COXSACKIEVIRUS B3	1	1		1				1	4
0904 COXSACKIEVIRUS B4				6		7	4	1	18
1009 ECHOVIRUS TYPE 9				1					1
1011 ECHOVIRUS TYPE 11	18	1	17	29	5	10	5	1	86
1022 ECHOVIRUS TYPE 22		1		1	10				12
1025 ECHOVIRUS TYPE 25	1								1
1101 POLIOVIRUS TYPE 1				1					1

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 2B

REPORTING PERIOD - 13·12-79 -26·12·79 BULLETIN NUMBER 79·26
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES-CONTINUED

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
1102 POLIOVIRUS TYPE 2						1	1		2
1103 POLIOVIRUS TYPE 3	1					1			2
1104 POLIOVIRUS-VACCINAL STRAIN						1			1
1200 MUMPS VIRUS	6	3	7	12		4	1	1	34
1300 HERPES VIRUS GROUP-NOT TYPED				3	1	5		2	11
1301 HERPES SIMPLEX VIRUS-NOT TYPED	13	1	1	2	3		17	20	57
1302 EPSTEIN-BARR VIRUS (EB VIRUS)				1				2	3
1303 VARICELLA-ZOSTER VIRUS	2					2	1		5
1306 HERPES SIMPLEX TYPE 1	6		7	9		15			37
1307 HERPES SIMPLEX TYPE 2	33		6	25		8			72
1399 HERPES VIRUS TYPING PENDING			4			4			8
1401 COXIELLA BURNETI	22					2	9		33
1514 MOLLUSCUM CONTAGIOSUM						2			2
1521 MEASLES VIRUS	1		1	3		5	1		11
1522 RUBELLA VIRUS	3			1		11	9	9	33
1530 HEPATITIS A VIRUS			1					12	13
1532 HEPATITIS B ANTIGEN	3	2	8	20		2		11	46
1535 HEPATITIS A ANTIBODY						7			7
1541 CHLAMYDIA A - TRIC TYPE			3			3		62	68
1556 CMV - CYTOMEGALOVIRUS	4	2	9	28	1	6	2	9	61
1564 ROTAVIRUS	4		3	4	1	8		5	25
1566 NORWALK AGENT					1				1
1599 ENTEROVIRUS TYPING PENDING		9	2		7	6			24
ROSS RIVER VIRUS			1			9	2	2	14
ASTROVORUS					1				1
SMALL VIRUS (LIKE) PARTICLE	3								3
Total	141	20	80	161	62	158	71	141	834

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 3B

REPORTING PERIOD - 13-12-79 - 26-12-79 BULLETIN NUMBER 79-26
VIRAL IDENTIFICATIONS CATEGORISED INTO SOURCE SPECIMENS

VIRUS OR VIRAL ANTIGEN	PA	BL	NA	CS	SK	EY	UR	BR	GE	OT	TOTAL
0100 ADENOVIRUS NOT TYPED	8	7	3							1	19
0101 ADENOVIRUS TYPE 1	1		1								2
0102 ADENOVIRUS TYPE 2	1		2								3
0103 ADENOVIRUS TYPE 3			2								2
0105 ADENOVIRUS TYPE 5	1		3								4
0107 ADENOVIRUS TYPE 7	1		1								2
0108 ADENOVIRUS TYPE 8						2					2
0116 ADENOVIRUS TYPE 16	1										1
0119 ADENOVIRUS TYPE 19						2					2
0199 ADENOVIRUS TYPING PENDING	4		6			3	1			1	15
0201 INFLUENZA A VIRUS		1									1
0203 INFLUENZA B VIRUS		2									2
0301 PARAINFLUENZA VIRUS TYPE 1			1								1
0302 PARAINFLUENZA VIRUS TYPE 2			4								4
0303 PARAINFLUENZA VIRUS TYPE 3		4	13								17
0399 PARAINFLUENZA VIRUS TYPING PENDING			3								3
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)		1	6								7
0500 RHINOVIRUS (ALL TYPES)	1		16								17
0600 MYCOPLASMA PNEUMONIAE		20									20
0700 ORNITHOSIS-PSITTACOSIS		5									5
0801 COXSACKIEVIRUS A1		1									1
0802 COXSACKIEVIRUS A2		1									1
0803 COXSACKIEVIRUS A3		1									1
0805 COXSACKIEVIRUS A5		1									1
0809 COXSACKIEVIRUS A9	2		1	2							5
0903 COXSACKIEVIRUS B3	1	1	1	1							4
0904 COXSACKIEVIRUS B4	3	1	12	1		1	1				19
1009 ECHOVIRUS TYPE 9			1								1
1011 ECHOVIRUS TYPE 11	32		36	32		1	1			2	104
1022 ECHOVIRUS TYPE 22	11		2								13
1025 ECHOVIRUS TYPE 25										1	1
1101 POLIOVIRUS TYPE 1			1								1
1102 POLIOVIRUS TYPE 2	1		1								2

AUSTRALIA COMMUNICABLE DISEASES INTELLIGENCE 1c

PERIOD : January 1979 TO 31 December 1979 .
All cases reported during the year 1979 .
VIRAL IDENTIFICATIONS BY LABORATORIES...

VIRUS OR VIRAL ANTIGEN	JCPMR (NSW) / WVH (ACT)	RAHC (NSW)	PMH/ POW (NSW)	FAIR-FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
0100 ADENOVIRUS NOT TYPED	65	3	54	34	36	68	155	51	466
0101 ADENOVIRUS TYPE 1	3	1	2	36	29	32		10	113
0102 ADENOVIRUS TYPE 2	10	3	13	43	32	59		23	183
0103 ADENOVIRUS TYPE 3	11	1	2	3	11	12		24	64
0104 ADENOVIRUS TYPE 4				3	1	13		2	19
0105 ADENOVIRUS TYPE 5	2	1	2	18	16	31		14	84
0106 ADENOVIRUS TYPE 6			6			4		2	12
0107 ADENOVIRUS TYPE 7	4	4	4	53	39	23		13	140
0108 ADENOVIRUS TYPE 8				5					5
0109 ADENOVIRUS TYPE 9	1			1				1	3
0110 ADENOVIRUS TYPE 10		1	1						2
0111 ADENOVIRUS TYPE 11	7			1		1		1	10
0113 ADENOVIRUS TYPE 13						1			1
0114 ADENOVIRUS TYPE 14			6					1	7
0115 ADENOVIRUS TYPE 15	1								1
0116 ADENOVIRUS TYPE 16						2			2
0119 ADENOVIRUS TYPE 19	2			22		8		52	84
0121 ADENOVIRUS TYPE 21						1		1	2
0129 ADENOVIRUS TYPE 29						1			1
0130 ADENOVIRUS TYPE 30						1			1
0131 ADENOVIRUS TYPE 31					2				2
0199 ADENOVIRUS TYPING PENDING	2	8	21	2	145	61			239
0201 INFLUENZA A VIRUS	135	7	38	70	34	38	114	32	468
0202 INFLUENZA A VIRUS SUBTYPE H3N2				1		1			2
0203 INFLUENZA B VIRUS	11	3	3	8	3	8	25	125	186
0204 INFLUENZA C VIRUS							10		10
0301 PARAINFLUENZA VIRUS TYPE 1	10	14	5	31	138	47	41	25	311
0302 PARAINFLUENZA VIRUS TYPE 2		1		6	21	26	30		84
0303 PARAINFLUENZA VIRUS TYPE 3	4	14	2	11	111	71	48	36	297
0304 PARAINFLUENZA VIRUS TYPE 4						1			1
0399 PARAINFLUENZA VIRUS TYPING PENDING				1		43	5		49

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 2c

PERIOD : January 1979 TO 31 December 1979 .
All cases reported during the year 1979 .
VIRAL IDENTIFICATIONS BY LABORATORIES...-CONTINUED

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
0400 RESPIRATORY SYNCYTIAL VIRUS (RS) ...	34	102	35	94	328	248	255	108	1,204
0500 RHINOVIRUS (ALL TYPES)	5	1	2	72	107	65	46	16	314
0600 MYCOPLASMA PNEUMONIAE	303	17	75	63	14	193	282	119	1,066
0700 ORNITHOSIS-PSITTACOSIS	52		13	27		14		7	113
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED	1					1	12	12	26
0801 COXSACKIEVIRUS A1	2								2
0802 COXSACKIEVIRUS A2	1								1
0803 COXSACKIEVIRUS A3	1				1				2
0804 COXSACKIEVIRUS A4			2						2
0805 COXSACKIEVIRUS A5	1								1
0809 COXSACKIEVIRUS A9	16	2	2	11	2	2	12		47
0810 COXSACKIEVIRUS A10	1								1
0816 COXSACKIEVIRUS A16	4			2		1	3		10
0821 COXSACKIEVIRUS A21				1					1
0899 COXSACKIEVIRUS GROUP A TYING PENDING						1	4		5
0900 COXSACKIEVIRUS GROUP B - NOT TYPED.			1					1	2
0901 COXSACKIEVIRUS B1	2		2	6	5	15		3	33
0902 COXSACKIEVIRUS B2	4	3		1		2	33	4	47
0903 COXSACKIEVIRUS B3	12	7	2	13	8	32	17	7	98
0904 COXSACKIEVIRUS B4	25	10	8	26	17	20	17	33	156
0905 COXSACKIEVIRUS B5	1					2			3
0906 COXSACKIEVIRUS B6				3		3			6
1000 ECHOVIRUS NOT TYPED						6	29	3	38
1001 ECHOVIRUS TYPE 1		1	3		1				5
1002 ECHOVIRUS TYPE 2								1	1
1003 ECHOVIRUS TYPE 3	4	2	18	6	2	7	8	3	50
1004 ECHOVIRUS TYPE 4	2							2	4
1005 ECHOVIRUS TYPE 5	3	1	2	7		2	2		17
1006 ECHOVIRUS TYPE 6		2				13			15

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 3c

PERIOD : January 1979 TO 31 December 1979 .
All cases reported during the year 1979 .
VIRAL IDENTIFICATIONS BY LABORATORIES...-CONTINUED

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW) / WVH (ACT)	RAHC (NSW)	PRH/ POW (NSW)	FAIR-FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
1007 ECHOVIRUS TYPE 7	2			4		3	3		12
1009 ECHOVIRUS TYPE 9				1	1	3			5
1011 ECHOVIRUS TYPE 11	63	20	34	137	53	88	42	90	527
1013 ECHOVIRUS TYPE 13	3	1	1					5	10
1014 ECHOVIRUS TYPE 14	1	2		2		4	7	2	18
1015 ECHOVIRUS TYPE 15	5					1	2	1	9
1016 ECHOVIRUS TYPE 16		1				6		1	8
1017 ECHOVIRUS TYPE 17	4						1	1	6
1018 ECHOVIRUS TYPE 18	5			10		1		3	19
1019 ECHOVIRUS TYPE 19	1		5			1	1	1	9
1020 ECHOVIRUS TYPE 20			2				2	3	7
1021 ECHOVIRUS TYPE 21	3					2	2	1	8
1022 ECHOVIRUS TYPE 22	2	4	17	10	37	10	1	2	83
1023 ECHOVIRUS TYPE 23			5					1	6
1024 ECHOVIRUS TYPE 24				7					7
1025 ECHOVIRUS TYPE 25	3					2	2		7
1026 ECHOVIRUS TYPE 26						1			1
1027 ECHOVIRUS TYPE 27	1					7	2	1	11
1030 ECHOVIRUS TYPE 30	37	8	16	66	30	15	23	5	200
1031 ECHOVIRUS TYPE 31	2		2			2	2	1	9
1032 ECHOVIRUS TYPE 32			1						1
1033 ECHOVIRUS TYPE 33	2		4		1	11			18
1034 ECHOVIRUS TYPE 34						1			1
1099 ECHOVIRUS TYPING PENDING	10	3	12		3		29	4	61
1101 POLIOVIRUS TYPE 1	2	1		7	5	12	18	18	63
1102 POLIOVIRUS TYPE 2	3	6		7	6	23	18	5	68
1103 POLIOVIRUS TYPE 3	2	1		5	5	18	8	7	46
1104 POLIOVIRUS-VACCINAL STRAIN	1		23		58	9			91
1105 POLIOVIRUS SABIN						1			1
1199 POLIOVIRUS TYPING PENDING		4							4
1200 MUMPS VIRUS	108	28	51	97	11	24	119	32	470

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 4c

PERIOD : January 1979 TO 31 December 1979 .
All cases reported during the year 1979 .
VIRAL IDENTIFICATIONS BY LABORATORIES...-CONTINUED

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
1300 HERPES VIRUS GROUP-NOT TYPED	26	1		49	4	46		10	136
1301 HERPES SIMPLEX VIRUS-NOT TYPED	243	16	163	32	90	22	502	715	1,783
1302 EPSTEIN-BARR VIRUS (EB VIRUS)	1			8		25		7	41
1303 VARICELLA-ZOSTER VIRUS	54	4	29	16		34	22	6	165
1306 HERPES SIMPLEX TYPE 1	143	13	15	318		263		1	753
1307 HERPES SIMPLEX TYPE 2	886		26	491		248		2	1,653
1399 HERPES VIRUS TYPING PENDING	17		20	12	2	67		7	125
1401 COXIELLA BURNETI	168		3	213		63	364	4	815
1502 PICORNA VIRUS-NOT TYPED								29	29
1512 VACCINIA VIRUS		1	1	7			3	2	14
1514 MOLLUSCUM CONTAGIOSUM				1		4		4	9
1515 CONTAGIOUS PUSTULAR DERMATITIS (ORF VIRUS)	3			5		6			14
1521 MEASLES VIRUS	35		19	66	20	58	67	4	269
1522 RUBELLA VIRUS	46	7	10	59	4	109	120	154	509
1530 ARBOVIRUS A VIRUS	1		1					84	86
1532 HEPATITIS B ANTIGEN	25	6	184	640		200	189	269	1,513
1533 HEPATITIS B ANTIBODY						47	7	50	104
1535 HEPATITIS A ANTIBODY	1					48		5	54
1541 CHLAMYDIA A - TRIC TYPE	194		21			21		617	853
1543 CHLAMYDIA A - LGV TYPE			1					2	3
1553 LCM - LYMPHOCYTIC CHORIOMENINGITIS VIRUS							2		2
1555 PAPOVAVIRUS GROUP (PAPILLOMA-HUMAN WART)	2					1			3
1556 CMV - CYTOMEGALOVIRUS	140	22	82	221	63	82	64	82	756
1562 ADENOVIRUS (ALL TYPES)	1					6		5	12
1563 CORONAVIRUS	4			1				1	6
1564 ROTAVIRUS	301	38	120	63	78	284	2	67	953
1565 CALICI VIRUS	3						1		4
1566 NORWALK AGENT	13			2	1	6			22

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE 5 c

PERIOD : January 1979 TO 31 December 1979 .
All cases reported during the year 1979 .
VIRAL IDENTIFICATIONS BY LABORATORIES...-CONTINUED

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW) / WVH (ACT)	RAHC (NSW)	PHD/ POW (NSW)	FAIR-FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
1969 ENTEROVIRUS TYPE 69				1					1
1971 ENTEROVIRUS TYPE 71 (sRCH)				29	8	2			39
1999 ENTEROVIRUS TYPING PENDING	11	41	96	2	264	129	35		578
ARBO. GROUP A. ...				1					1
AUSTRALIAN ENCEPHALITIS								3	3
ROSS RIVER VIRUS	1		1	6		30	439	35	512
ALPHAVIRUS	5				2				7
SMALL VIRUS (LIKE) PARTICLE	52			4	5	31	1		93
DENGUE				5			8		13
KUNJIN VIRUS							1		1
ARBO. GROUP B. ...				9					9
Total	3,378	437	1,289	3,295	1,854	3,257	3,257	3,081	19,848