



Communicable Diseases Intelligence

Bulletin number 85/5

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VIRUS REPORTING SCHEME - A total of 1,158 reports were processed for this period.

Three cases of Q fever were reported - an abattoir worker in South Australia, a butcher in the metropolitan area of Sydney and the third in New South Wales (detailed patient history, including occupational exposure, not available).

A case of dengue fever (serotype 3) was reported by the State Health Laboratory, Brisbane in a 53 year old male who had recently returned from Kiribati. This case is of interest since the majority of indigenous dengue fever cases in Australia are due to serotype 1 or 2.

Ross River Virus infections were reported from Queensland (50), Western Australia (7), New South Wales (2), and Northern Territory (1).

25 cases of rubella were reported compared with 66 in the previous period and 15 in the period prior to that.

Six cases of Mycoplasma pneumoniae were reported, two children (aged 6 and 7 from New South Wales), two adults from Western Australia, one adult from the Northern Territory and a case from the Northern Territory where the age was not available.

- . During the recent sewage workers strike in Sydney, the Institute of Clinical Pathology and Medical Research, Sydney, conducted a survey of the virus pollution at several locations along the Georges River and at city beaches. Six isolations of poliovirus type 1 and one of type 3 (all vaccine strains) were made from nine samples. Despite the exposure risk, reports of cases and outbreaks of enteric disease in sewage workers are rare and anecdotal (California Morbidity (1984) No. 33), and the prevention of illness from enteric pathogens through barrier techniques (frequent handwashing and industrial protective clothing) have been shown to reduce the risk of faecal-oral infection to virtually zero. Tetanus-diphtheria boosters every ten years are generally the only recommended vaccines. No cases of occupationally-acquired poliomyelitis in sewage workers have been recognised in the past 20 years.

FUTURE TYPHOID AND CHOLERA VACCINES

A number of bacterial diseases are well controlled by the use of toxoid vaccines, but the structural and antigenic complexity of bacteria have either complicated conventional approaches to vaccine development in some (leprosy, gonococcal infections) or resulted in vaccines exhibiting low efficacy and acceptability in others (tuberculosis, pertussis, typhoid and cholera). Although the rates of domestically acquired typhoid and cholera are negligible in Australia, there is a risk of acquiring illness during international travel to endemic areas. Indeed, consideration of travel usually provides a good opportunity to review a person's immunisation status and administer primary series or booster doses (e.g. poliomyelitis) if needed, or selectively immunise against yellow fever, rabies, cholera and typhoid, or administer immune globulin to prevent hepatitis A.⁽¹⁾

TYPHOID - Typhoid vaccination is not required for international travel, but it is recommended for persons who plan to travel, work or reside in areas of the world that are highly endemic for typhoid. Typhoid is prevalent in many countries of Africa, Asia and Central and South America; therefore immunisation is suggested for travellers to the smaller cities and villages or rural areas off the usual tourist itinerary, and to areas that are having outbreaks. During 1977-1979, citizens travelling to Mexico and Asia accounted for 50% and 20% respectively of typhoid acquired during foreign travel from the USA.⁽²⁾ Travel to India accounted for 15%. Only 29(7%) of the 404 subjects with foreign-acquired cases of typhoid who had a known vaccination history had been vaccinated within two years prior to their present illness. Similarly, a Canadian study reported that only half the travellers to tropical areas were following a satisfactory typhoid vaccine schedule, and 30% suitable schedule for cholera vaccine.⁽³⁾ Also travellers received cholera immunisation when going to areas where the risk of disease would be minimal.

The present adult typhoid immunisation regimen consists of a primary series of two 0.5ml doses of vaccine given sc four weeks apart. This has been shown to protect 70-90% of recipients. Booster doses (also effected by 0.1ml id) should be given at least every three years to persons with continued or repeated exposure. Even after typhoid vaccination, food and water must be selected carefully in endemic areas. Vaccination often results in 1-2 days of discomfort at the site of injection. The local reaction may be accompanied by fever, malaise, and headache. A history of severe local or systemic reaction following a previous dose contraindicates further vaccination. It is also prudent on theoretical grounds to avoid vaccinating pregnant women, or persons suffering or convalescing from an acute or chronic illness.

Although the currently available parenteral typhoid vaccines are effective⁽⁴⁾, they are not widely used because the undesirable side-effects. Therefore, the development of a safe, effective oral vaccine has generally been considered the ultimate goal, since acquired immunity appears to depend on cellular mechanisms. Such a vaccine may be available for wide scale public health use in the near future. The vaccine, developed at the Swiss Serum and Vaccine Institute, Berne, Switzerland, is made from the Salmonella typhi strain Ty 21a, which is a stable double mutant of the wild-type Ty 2 strain

which lacks the enzyme UDP-galactose-4-epimerase. The current commercially available vaccine formulation incorporates 10^9 organisms in a gelatin capsule and is given along with 0.8g of sodium bicarbonate to neutralise gastric acidity. The safety of this vaccine has been demonstrated by work in adult volunteers in the USA⁽⁵⁾, and large field trials in children in Egypt^(6,7) and Chile. After three years of observation in 16,486 children who were given 3 doses of the attenuated strain in the Egyptian trial, a protection rate of 96% afforded by the vaccine was calculated⁽⁷⁾. The Chilean field trials initiated in May 1982, should provide additional information on efficacy, and whether protection can be achieved with the more practical enteric-coated vaccine capsules and with only one or two vaccine doses.

CHOLERA - Cholera continues to be a health risk in Africa and Asia, although persons who follow the usual tourist itinerary and who use tourist accommodation in countries affected by cholera are at virtually no risk of infection. The traveller's best protection against cholera is avoiding potentially contaminated food and water. Cholera immunisation is consequently not routinely recommended for travellers to countries not requiring immunisation as a condition for entry.⁽¹⁾

The primary cholera immunisation course consists of two doses of vaccine administered sc at an interval of 14-28 days. The certificate is valid only for six months. Vaccination often results in 1-2 days of pain, erythema and induration at the injection site. The local reaction may be accompanied by fever, malaise, and headache, but serious reactions, including neurological reactions, are extremely rare. There is no specific information on the safety of cholera vaccine during pregnancy.

The currently available parenteral vaccine has been shown in field trials to be only about 50% effective in preventing clinical illness for a period of 3-6 months, and does not prevent disease transmission. The diarrhoeal syndrome induced by colonisation of the human small bowel by either biotype of Vibrio cholerae is caused by the action of a potent enterotoxin. The toxin consists of a single protein A subunit (MW 27,000) which stimulates adenylate cyclase activity, and five identical B subunits (MW 11,600) which bind to the toxin's cell surface receptor, ganglioside GM₁⁽⁸⁾. The accumulation of cyclic AMP in the intestinal mucosa leads to the severe fluid loss characteristic of cholera. Neutralising antibodies raised against the holotoxin react mainly with the B subunit.⁽⁹⁾

Since parenterally administered, killed whole - cell and toxoid vaccines lack the ability to induce local immune responses in the intestine,⁽¹⁰⁾ the use of attenuated, nontoxigenic mutants of V. cholerae as live oral cholera vaccines has considerable potential. However, genetic instability⁽¹¹⁾ or poor colonising ability⁽¹²⁾ has usually frustrated their use in the field. Also attenuation by chemical mutagenesis (e.g. A⁻B⁺ V. cholerae strain, Texas Star-SR by nitrosoguanidine) suffers from the intrinsic disadvantage of unrecognised mutations that contribute to immunity. However, the application of recombinant DNA techniques has allowed the construction of live attenuated V. cholerae strains by deleting the genes encoding the enterotoxin in vitro from cloned vibrio chromosomal DNA, and introducing the resulting mutations into

the chromosome of a vibrio strain of proven immunogenicity.(13, 14) Clinical studies are underway to assess the safety and efficacy of these novel vaccines in man, and one oral cholera vaccine candidate is planned to be tested in a large scale field trial in Bangladesh beginning in late 1984.(15)

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AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

REPORTING PERIOD - 14/2/85 - 27/2/85 BULLETIN NUMBER 85/5
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW)/ MVH (ACT)	RAHC (NSW)	PHH/ POM (NSW)	FAIR- FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
0100 ADENOVIRUS NOT TYPED.....	3	2	3		3	6	14	1	32
0101 ADENOVIRUS TYPE 1.....	1					4		1	6
0102 ADENOVIRUS TYPE 2.....	1				6			2	9
0103 ADENOVIRUS TYPE 3.....	1	2	4	1	1	4		11	24
0105 ADENOVIRUS TYPE 5.....					3	1			4
0106 ADENOVIRUS TYPE 6.....					1		1		2
0107 ADENOVIRUS TYPE 7.....								2	2
0108 ADENOVIRUS TYPE 8.....	1								1
0109 ADENOVIRUS TYPE 9.....	1								1
0119 ADENOVIRUS TYPE 19.....	1								1
0137 ADENOVIRUS TYPE 37.....								3	3
0199 ADENOVIRUS TYPING PENDING.....		1			2	3		1	7
0201 INFLUENZA A VIRUS.....							1	2	3
0202 INFLUENZA A VIRUS SUBTYPE H3N2.....					1				1
0203 INFLUENZA B VIRUS.....	1								1
0301 PARAINFLUENZA VIRUS TYPE 1.....						2			2
0302 PARAINFLUENZA VIRUS TYPE 2.....					1		3		4
0303 PARAINFLUENZA VIRUS TYPE 3.....	1	1	2		2	1			7
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)...	1				2	2		3	8
0500 RHINOVIRUS (ALL TYPES).....	1			1	12	2	1		17
0600 MYCOPLASMA PNEUMONIAE.....	1		1					4	6
0809 COXSACKIEVIRUS A9.....	2				1	1		2	6
0904 COXSACKIEVIRUS B4.....								1	1
0905 COXSACKIEVIRUS B5.....		1		1		1		2	5
1000 ECHOVIRUS NOT TYPED.....							1		1
1003 ECHOVIRUS TYPE 3.....	1								1
1007 ECHOVIRUS TYPE 7.....	5				1	1	3		10
1009 ECHOVIRUS TYPE 9.....				1			2		3
1015 ECHOVIRUS TYPE 15.....		1							1
1020 ECHOVIRUS TYPE 20.....					2			1	3
1030 ECHOVIRUS TYPE 30.....				1					1
1100 POLIOVIRUS NOT TYPED.....			1		1		1		3
1101 POLIOVIRUS TYPE 1.....				1					1
1102 POLIOVIRUS TYPE 2.....						2		2	4
1103 POLIOVIRUS TYPE 3.....				1					1
1104 POLIOVIRUS-VACCINAL STRAIN.....						1			1
1200 MUMPS VIRUS.....	3		1	1				1	6
1300 HERPES VIRUS GROUP-NOT TYPED.....	14		3					5	22
1302 EPSTEIN-BARR VIRUS (EB VIRUS).....	11					3		9	23
1303 VARICELLA-ZOSTER VIRUS.....	8							1	9
1306 HERPES SIMPLEX TYPE 1.....	14			41		32	25	20	132
1307 HERPES SIMPLEX TYPE 2.....	90			41		25	62	67	285
1399 HERPES VIRUS TYPING PENDING.....				2	1				3
1401 COXIELLA BURNETI.....	1		1			1			3
1402 OTHER RICKETTSIAE.....			1						1
1502 PICORNA VIRUS-NOT TYPED.....	6		10				1	1	18
1521 MEASLES VIRUS.....					1				1
1522 RUBELLA VIRUS.....	9		4			4	2	6	25
1531 HEPATITIS B VIRUS.....	1			36					37
1532 HEPATITIS B ANTIGEN.....	89		9	7	1	9	10	4	129
1541 CHLAMYDIA A - C TRACHOMATIS.....	43		7	6			33	52	141
1556 CMV - CYTOMEGALOVIRUS.....	2		3	10	4	2	4	4	29
1564 ROTAVIRUS.....	1	3	4	6	5	3		2	24
1599 ENTEROVIRUS TYPING PENDING.....		2	15		5				22
9992 ROSS RIVER VIRUS.....						1	52	7	60
9993 ASTROVIRUS.....							1		1
9994 SMALL VIRUS (LIKE) PARTICLE.....				3					3
9995 DENGUE.....							1		1
Total.....	314	13	69	160	56	111	218	217	1,158

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 14, 2, 85 to 27, 2, 85

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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/ mucous memb
0100 ADENOVIRUS NOT TYPED.....			8				11				
0101 ADENOVIRUS TYPE 1.....			5								
0102 ADENOVIRUS TYPE 2.....			5			1	3				
0103 ADENOVIRUS TYPE 3.....	1	7	1	1			1				
0105 ADENOVIRUS TYPE 5.....		2					3				
0108 ADENOVIRUS TYPE 8.....	1										
0109 ADENOVIRUS TYPE 9.....							1				
0201 INFLUENZA A VIRUS.....	1	3									
0202 INFLUENZA A VIRUS SUBTYPE H3N2		1									
0203 INFLUENZA B VIRUS.....		1									
0301 PARAINFLUENZA VIRUS TYPE 1....		2									
0302 PARAINFLUENZA VIRUS TYPE 2....		4									
0303 PARAINFLUENZA VIRUS TYPE 3....		5			1				1		
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....		8									
0500 RHINOVIRUS (ALL TYPES).....		15									1
0600 MYCOPLASMA PNEUMONIAE.....		5									
0809 COXSACKIEVIRUS A9.....		2						1			
0904 COXSACKIEVIRUS B4.....					1						
0905 COXSACKIEVIRUS B5.....					2		2				
1000 ECHOVIRUS NOT TYPED.....							1				
1003 ECHOVIRUS TYPE 3.....					1						
1007 ECHOVIRUS TYPE 7.....	2	3				1		1			
1009 ECHOVIRUS TYPE 9.....					2		1				
1015 ECHOVIRUS TYPE 15.....	1										
1020 ECHOVIRUS TYPE 20.....		2									
1030 ECHOVIRUS TYPE 30.....					1						
1100 POLIOVIRUS NOT TYPED.....							2				
1102 POLIOVIRUS TYPE 2.....		2					1				
1104 POLIOVIRUS-VACCINAL STRAIN....							1				
1200 MUMPS VIRUS.....	2			3							
1300 HERPES VIRUS GROUP-NOT TYPED..	2					1				1	15
1302 EPSTEIN-BARR VIRUS (EB VIRUS).	2	2						3			
1303 VARICELLA-ZOSTER VIRUS.....	1										8
1306 HERPES SIMPLEX TYPE 1.....	8	5									71
1307 HERPES SIMPLEX TYPE 2.....	12	2									74
1502 PICORNA VIRUS-NOT TYPED.....	1	2					11				
1521 MEASLES VIRUS.....											
1522 RUBELLA VIRUS.....	4	1	1								11
1531 HEPATITIS B VIRUS.....	18							20			
1532 HEPATITIS B ANTIGEN.....	75	1						43			
1541 CHLAMYDIA A - C.TRACHOMATIS...	2									1	
1556 CMV - CYTOMEGALOVIRUS.....	3	5						1		4	
1564 ROTAVIRUS.....							22				
1599 ENTEROVIRUS TYPING PENDING....							1				
9992 ROSS RIVER VIRUS.....	8	2									22
9994 SMALL VIRUS (LIKE) PARTICLE...							3				
9995 DENGUE.....											1
Total.....	144	100	2	12		3	64	69	1	6	204

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 14, 2, 85 to 27, 2, 85 ...

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.....	8				1				1	
0101 ADENOVIRUS TYPE 1.....							1			
0102 ADENOVIRUS TYPE 2.....	1								1	
0103 ADENOVIRUS TYPE 3.....	11						3	1	1	
0106 ADENOVIRUS TYPE 6.....								1		
0107 ADENOVIRUS TYPE 7.....	2									
0119 ADENOVIRUS TYPE 19.....	1									
0137 ADENOVIRUS TYPE 37.....		3								
0199 ADENOVIRUS TYPING PENDING.....		1								
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....					1					
0500 RHINOVIRUS (ALL TYPES).....										1
0600 MYCOPLASMA PNEUMONIAE.....								2		
0809 COXSACKIEVIRUS A9.....							1		2	
0905 COXSACKIEVIRUS B5.....								1	1	
1007 ECHOVIRUS TYPE 7.....							1		2	1
1020 ECHOVIRUS TYPE 20.....								1		1
1101 POLIOVIRUS TYPE 1.....								1		
1102 POLIOVIRUS TYPE 2.....									1	
1103 POLIOVIRUS TYPE 3.....						1				
1200 MUMPS VIRUS.....			1						1	
1300 HERPES VIRUS GROUP-NOT TYPED..									2	
1302 EPSTEIN-BARR VIRUS (EB VIRUS).				13			2	4		
1303 VARICELLA-ZOSTER VIRUS.....							1			
1306 HERPES SIMPLEX TYPE 1.....	4	43						1	3	
1307 HERPES SIMPLEX TYPE 2.....		201				1	1		3	
1401 COXIELLA BURNETI.....					1		2			
1402 OTHER RICKETTSIAE.....							1			
1502 PICORNA VIRUS-NOT TYPED.....							2		2	
1522 RUBELLA VIRUS.....			2	1	3				4	
1531 HEPATITIS B VIRUS.....	1									
1532 HEPATITIS B ANTIGEN.....					4		1	1	6	
1541 CHLAMYDIA A - C.TRACHOMATIS...		137							1	
1556 CMV - CYTOMEGALOVIRUS.....		1	2		1	2		4	8	
1564 ROTAVIRUS.....		1							1	
9992 ROSS RIVER VIRUS.....				1	45	5		8		
9993 ASTROVIRUS.....					1					
9995 DENGUE.....					1					
Total.....	28	387	18	2	58	9	16	25	40	3