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Communicable Diseases Intelligence

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Contents:

VIRUS REPORTING SCHEME - A total of 1410 reports were processed, but because of mail service disruptions data from two laboratories were deferred and other laboratories included reports from the previous period.

- Epstein Barr virus (EBV) infection was reported by the Royal Childrens Hospital, Melbourne, following the transformation of cord leucocytes inoculated with gargle specimens taken from two women with Sjogren's syndrome. The use of cord leucocytes for the detection of EBV represents a notable change from the isolation of the virus from peripheral leucocytes by culture techniques. Sjogren's syndrome, which is thought to be a form of collagen disease, occurs in post-menopausal women and includes xerostomia, keratoconjunctivitis sicca and rheumatoid arthritis.

- Parvovirus specific IgM by ELISA was reported by the Royal Alexandra Hospital for Children, Sydney, in three children aged three and five years and three months. The infant presented with thrombocytopenia. The tests were performed at the Department of Bacteriology, University of Sydney. Parvovirus infections have been associated recently with erythema infectiosum or fifth disease (see CDI 83/14).

- A diagnosis of humidifier fever on the basis of symptoms with precipitins was made recently by the State Health Laboratory Services, Perth. Humidifier fever is an uncommon condition (CDR (1984) 84/14: 1), with symptoms varying from a cough illness with headache and malaise to an unpleasant influenza-like illness with high fever, cough and dyspnoea. Symptoms usually begin about 4-6 hours after the start of a working shift and resolve over 24 hours. The findings on physical examination are of fever with bilateral inspiratory crackles over the lower zones of both lungs; pulmonary function tests usually show the characteristic pattern of a restrictive defect with a defect in gas transfer. Unlike extrinsic allergic alveolitis, no radiological abnormalities are found even after prolonged exposure and in the presence of severe disease. The specific cause has not been identified although bronchial provocation studies have shown that some humidification waters contain the agent. A variety of organisms, including free-living amoebae, Bacillus subtilis and a flavobacterium have been implicated as the cause on the basis of aerobiological and serological evidence, but these have not been confirmed by provocation studies.

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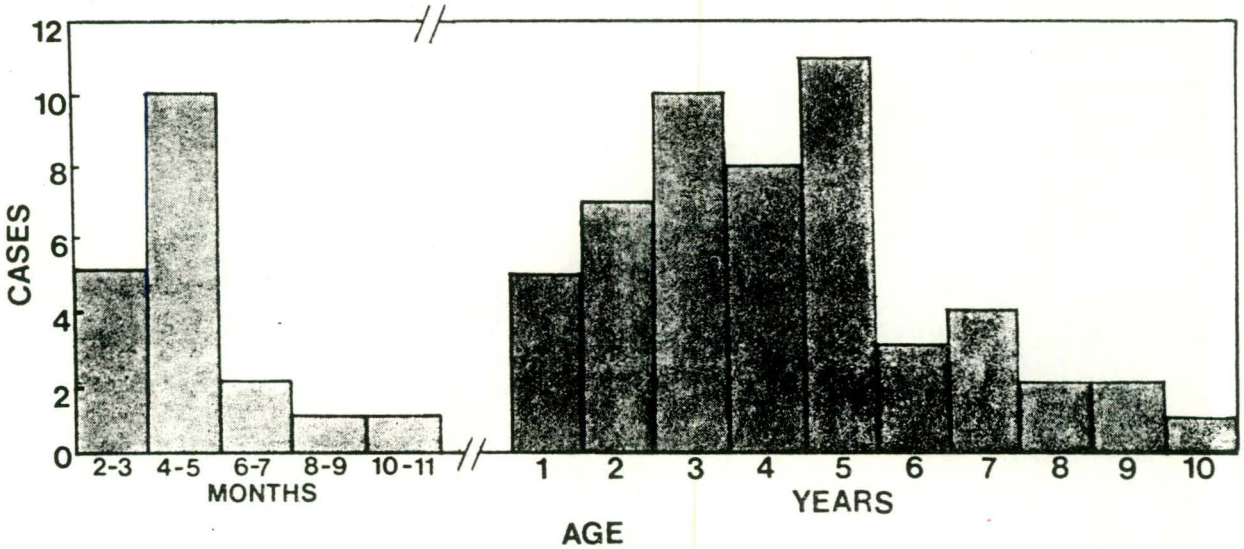
PERTUSSIS SURVEILLANCE - SOUTH AUSTRALIA

(Contributed by B. Mathison and A.S. Cameron, Communicable Disease Control Unit, South Australian Health Commission, Adelaide.)

Thirty-eight cases of pertussis were notified in South Australia in 1983 compared with 31 in 1982. A further 69 cases have been notified this year to date, but the pertussis epidemic, which has been evident since December 1983, is now waning. The cases had a male:female sex ratio of 1:1.08, with 68% of them laboratory-confirmed. The majority of the cases were reported by the Adelaide Childrens Hospital. Immunisation histories were available for approximately half of the cases; 23 were fully immunised, seven were partially immunised and six had not received pertussis vaccination. The age distribution up to ten years of 72 recent cases is shown in Figure 1.

FIGURE 1. Age distribution of 72 cases of pertussis (December 1983 - April 1984)



Many children were too young to be protected by immunisation, whereas other infections would relate to dwindling immunity with age. However, the abrupt decrease in incidence from age six years is not readily explained, but may reflect an inappropriateness of the antigens in the current vaccine for the circulating strains of Bordetella pertussis.

Editorial Comment

Hospitalisation rates and the complication rates for hospitalised children verify that pertussis can be severe, with substantial health impact particularly in the very young. Controlling a pertussis outbreak by Triple antigen (diphtheria, tetanus and pertussis vaccine) immunisation is difficult for several reasons. A total of at least three doses is required for optimal protection. Serological and epidemiological data suggest that a single dose of vaccine is rarely protective; laboratory data suggest that two doses may confer protection in a small proportion of children, although clinical data corroborating this finding are lacking.[2] Control of a pertussis outbreak by the institution and provision of a community-wide immunisation program on an urgent basis is difficult and may not be feasible. During a recent pertussis epidemic in Oklahoma County, USA, efforts to identify and contact inadequately immunised children and the provision of special immunisation clinics resulted in only 15% of the identified children receiving a Triple antigen dose.[3]

Erythromycin prophylaxis has been recommended for preventing transmission in certain household members or other close contacts of pertussis patients, [4] but it is of uncertain value. [5] Erythromycin has no role in pre-exposure community-wide prophylaxis during an outbreak. Emphasis should continue to be directed to ensuring that the maximal number of children are always up-to-date for Triple antigen through routine age appropriate vaccination, since pertussis outbreaks are easier to prevent than control.

The US Immunization Practices Advisory Committee (ACIP), after reviewing the available data concerning the risks of pertussis disease and pertussis vaccine to infants and children, has recently updated their recommendations for deferral of vaccination. [6] On available evidence, the ACIP does not consider a family history of convulsion to be a contraindication to receipt of pertussis vaccine. However, a personal history of prior convulsion should be evaluated to determine a possible evolving neurological disorder before initiating or continuing immunisation with vaccines containing a pertussis component. If such disorders are found, the infants or children should be given combined diphtheria and tetanus toxoid (CDT) instead of Triple antigen. When Triple antigen immunisations are deferred because of histories of convulsion(s), the decision to proceed with Triple antigen immunisation can usually be made within the next few months. For infants who have received fewer than three doses of Triple antigen, such a decision in most instances should be made no later than at one year of age. Following individual assessment, it may be decided to proceed with Triple antigen, because infants and young children with convulsive disorders also appear to be at higher risk of adverse outcomes if they contract pertussis disease. For infants and children with stable neurological conditions, including well-controlled seizures, the benefits of pertussis immunisation outweigh the risks, and such children may be vaccinated. The occurrence of single seizures (temporarily unassociated with Triple antigen) in infants and young children, while necessitating evaluation, need not contraindicate Triple antigen immunisation, particularly if the seizures can be satisfactorily explained. As with all infants or children with one or more febrile seizures, consideration of continuous anticonvulsant prophylaxis may be warranted.

Hypersensitivity to vaccine components, presence of an evolving neurological disorder, or a history of a severe reaction (usually within 48 hours) following a previous dose all remain definite contraindications to the receipt of pertussis vaccine. Severe reactions include collapse or shock, persistent screaming episodes, temperature 40.5°C (105°F) or greater, convulsion(s) with or without accompanying fever, severe alterations of consciousness, generalised and/or local neurological signs, or systemic allergic reactions. Although haemolytic anaemia and thrombocytopenic purpura have previously been considered contraindications by the ACIP, the evidence of a causal link between these conditions and pertussis vaccination is not sufficient to retain them as contraindications.

Recent research and clinical application in Japan suggest that an acellular pertussis vaccine may be both safer and as effective as the current whole bacterial product. [7] The component vaccine contains the two main protective antigens - filamentous haemagglutinin (F-HA) and leucocytosis-promoting

factor (LPF-HA) [8] - prepared from the culture supernatant of the B. pertussis strain Tohama which has been reported to be serotype 1,2. [9] Pertussis pathogenesis has been hypothesised to be a two stage process; [10] an initial adhesion and proliferation of bacilli fixed to cilia of the respiratory epithelium (which would be prevented if anti-F-HA antibodies were in sufficient quantities), followed by the elaboration of metabolites, particularly the biologically active and toxic LPF-HA, which enter the circulation and reach their target organs where they produce biological reactions that constitute the signs and symptoms of pertussis. Accordingly, a sufficient amount of circulating anti-LPF-HA antibodies could neutralise these reactions and prevent symptoms.

Although an important contribution, the preliminary pertussis vaccine trials have also been interpreted with some caution. [11] Only 5000 children were vaccinated, only half of them received component vaccine, and only 36 of these were exposed in the home to an infection thought to be pertussis. Even though the incidence of local side-effects was far less than the incidence with whole cell vaccine, it is too early to say that protection was as good. In addition, most of the vaccinees were over 12 months of age, and the lack of antigen 3 in the vaccine could result in vaccine failures. [12]

The current precautions and contra-indications to the routine use of pertussis vaccine in Australia are detailed in the National Health and Medical Research Council publication "Immunisation Procedures" (1982), Australian Government Publishing Service, Canberra.

References

1. MMWR (1982) 31 : 333.
2. J. Pediat. (1971) 79 : 197.
3. MMWR (1984) 33 : 2.
4. MMWR (1981) 30 : 392, 401.
5. Lancet (1981) 1 : 772.
6. MMWR (1984) 33 : 169.
7. Lancet (1984) 1 : 122.
8. Infect. Immun. (1981) 31 : 1223.
9. Microbiol. Immunol. (1982) 26 : 965.
10. Rev. Inf. Dis. (1979) 1 : 401.
11. Lancet (1984) 1 : 456.
12. WHO Expert Committee on Biological Standardisation, 30th Report. WHO Technical Report Series (1979) no. 638 : 65.

PROSPECTIVE EVALUATION OF HEALTH-CARE WORKERS EXPOSED VIA PARENTERAL OR MUCOUS-MEMBRANE ROUTES TO BLOOD AND BODY FLUIDS OF PATIENTS WITH AIDS

(Based on MMWR (1984) 33 : 181)

In August 1983, Centers for Disease Control (CDC) initiated propective surveillance of health-care workers with documented parenteral or mucous-membrane exposures to potentially infectious body fluids from patients with definite or suspected AIDS. By 31 December 1983, 51 health-care workers with such exposures were enrolled in the surveillance registry through the auspices of participating hospitals, other health care institutions and health departments in the USA. None of these workers has developed signs or symptoms suggestive of AIDS. All but one of these workers had been followed for less than 12 months.

Exposures occurred between April 1981 and November 1983, with the length of follow-up of exposed health-care workers ranging from 1-32 months by 31 December 1983 (mean 5.5 months). Twenty-four of the exposed workers were nurses; nine were physicians; five were phlebotomists; three were respiratory therapists; and the remaining ten were health-care workers with less patient contact, such has laboratory and maintenance personnel. Eighty percent were white, and 75% were female. Ages ranged from 18-51 years (mean 29 years).

The majority of exposures occurred in direct patient-care areas. Twenty-seven exposures occurred in patients' rooms or on wards, and 12 occurred in intensive-care units. Seven incidents took place in laboratories, and five occurred in operating rooms or morgues. The types of exposures were: needlestick injuries (65%); cuts with sharp instruments (16%); mucosal exposure (14%); and contamination of open skin lesions with potentially infective body fluids (6%). Post-exposure treatment consisted of local care only in 41%; administration of hepatitis B immune globulin (HBIG) alone or in combination with immune globulin (IG) or tetanus (Td) prophylaxis in 24%; IG alone or with Td in 31%; and Td only in 4%. Among the 12 exposed health-care workers receiving HBIG, three were exposed to AIDS patients reported positive for hepatitis B surface antigen.

The principal goal of this surveillance project is to evaluate the risk, if any, to health-care workers exposed to potentially infectious materials from AIDS patients. Epidemiological evidence is consistent with the hypothesis that AIDS is caused by a transmissible infectious agent. AIDS appears to be transmitted by intimate sexual contact or by percutaneous inoculation of blood or blood products. There is no evidence of transmission through casual contact with affected individuals or by airborne spread, and there are no cases of AIDS among health-care workers that can definitely be ascribed to specific occupational exposures. The risk of AIDS transmission to health-care workers through percutaneous or mucosal inoculation of blood or body fluids from AIDS patients remains undefined, although currently available epidemiological data suggest that the risk of transmission, if any, is small.

Editorial Comment

Infection control guidelines for preventing AIDS in health-care workers have been published by the National Health and Medical Research Council. [1] The recommendations are designed to minimise the risk of mucosal or parenteral exposure to potentially infectious material from AIDS patients. Based on descriptions of the incidents supplied to CDC, over one-third of the exposures among the 51 health-care workers might have been prevented by following their recommended precautions.

References

1. Infection Control Guidelines - Acquired Immune Deficiency Syndrome (AIDS), and conditions which may be related to it. National Health and Medical Research Council, October 1983.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

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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	5		9	1	6		9		30
0101 ADENOVIRUS TYPE 1	1			1					2
0102 ADENOVIRUS TYPE 2				2	2				4
0103 ADENOVIRUS TYPE 3				3	1			3	7
0105 ADENOVIRUS TYPE 5					3				3
0106 ADENOVIRUS TYPE 6					4				4
0108 ADENOVIRUS TYPE 8	3		3						6
0119 ADENOVIRUS TYPE 19				4					4
0137 ADENOVIRUS TYPE 37								9	9
0199 ADENOVIRUS TYPING PENDING			3		5				8
0201 INFLUENZA A VIRUS			2						2
0203 INFLUENZA B VIRUS							1	1	2
0301 PARAINFLUENZA VIRUS TYPE 1				1	1		1	1	4
0302 PARAINFLUENZA VIRUS TYPE 2				2	7				9
0303 PARAINFLUENZA VIRUS TYPE 3					3		1		4
0399 PARAINFLUENZA VIRUS TYPING PENDING					5				5
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)	3		4		2		5	1	15
0500 RHINOVIRUS (ALL TYPES)			1	9	8		2	1	21
0600 MYCOPLASMA PNEUMONIAE	1		25	6	3		10		45
0700 ORNITHOSIS-PSITTACOSIS								2	2
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED							2		2
0816 COXSACKIEVIRUS A16							3		3
0902 COXSACKIEVIRUS B2			1				1		2
0905 COXSACKIEVIRUS B5	1			2					3
1000 ECHOVIRUS NOT TYPED							7		7
1003 ECHOVIRUS TYPE 3							1		1
1005 ECHOVIRUS TYPE 5								1	1
1007 ECHOVIRUS TYPE 7	1						3		4
1009 ECHOVIRUS TYPE 9	1			5					6
1011 ECHOVIRUS TYPE 11				1					1
1016 ECHOVIRUS TYPE 16							1		1
1017 ECHOVIRUS TYPE 17	2			1					3
1022 ECHOVIRUS TYPE 22							1		1
1024 ECHOVIRUS TYPE 24	1								1
1101 POLIOVIRUS TYPE 1	1		1					2	4
1103 POLIOVIRUS TYPE 3	2								2
1104 POLIOVIRUS-VACCINAL STRAIN			5						5
1200 MUMPS VIRUS	2		2	4	2				10
1300 HERPES VIRUS GROUP-NOT TYPED	24		4	1					29
1302 EPSTEIN-BARR VIRUS (EB VIRUS)	4		1		2			8	15
1303 VARICELLA-ZOSTER VIRUS	1		5				3		9
1306 HERPES SIMPLEX TYPE 1	1		18	50			30	7	106
1307 HERPES SIMPLEX TYPE 2	94		13	103			95	15	320
1399 HERPES VIRUS TYPING PENDING				1	5				6
1401 COXIELLA BURNETI	2		1				8		11
1502 PICORNA VIRUS-NOT TYPED			12					1	13
1514 MOLLUSCUM CONTAGIOSUM								1	1
1521 MEASLES VIRUS				1					1
1522 RUBELLA VIRUS			1	3			2		6
1532 HEPATITIS B ANTIGEN	70		24	51	1		24	8	178
1535 HEPATITIS A ANTIBODY	6		2	5			12	5	30
1541 CHLAMYDIA A - C TRACHOMATIS	35		9				68	57	169
1556 CMV - CYTOMEGALOVIRUS	9		3	29	4		6	2	53
1563 CORONAVIRUS								1	1
1564 ROTAVIRUS	9		16	4	26		1		56
1599 ENTEROVIRUS TYPING PENDING			15		7				22
9901 ARBO. GROUP A.(UNSPECIFIED)				2					2
9902 POXVIRUS GROUP NOT TYPED				1					1
9992 ROSS RIVER VIRUS			22				112	1	135
9995 DENGUE							1		1
9997 KUNJIN VIRUS							1		1
9998 ARBO. GROUP B.							1		1
Total	279		202	293	97		412	127	1,410

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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/mucs memb
0100 ADENOVIRUS NOT TYPED.....							2				
0101 ADENOVIRUS TYPE 1.....							2				
0102 ADENOVIRUS TYPE 2.....		1					2				1
0103 ADENOVIRUS TYPE 3.....		2					1				
0105 ADENOVIRUS TYPE 5.....		2					1				
0106 ADENOVIRUS TYPE 6.....	1	3									
0108 ADENOVIRUS TYPE 8.....	1										
0119 ADENOVIRUS TYPE 19.....		1									
0201 INFLUENZA A VIRUS.....		2						1			
0203 INFLUENZA B VIRUS.....		2									
0301 PARAINFLUENZA VIRUS TYPE 1....		4									
02 PARAINFLUENZA VIRUS TYPE 2....		9									
0303 PARAINFLUENZA VIRUS TYPE 3....		4									
10 RESPIRATORY SYNCYTIAL VIRUS (RS).....		14									
0500 RHINOVIRUS (ALL TYPES).....		19		1		1					1
0600 MYCOPLASMA PNEUMONIAE.....		40							1		
0700 ORNITHOSIS-PSITTACOSIS.....		2									
0816 COXSACKIEVIRUS A16.....											3
0902 COXSACKIEVIRUS B2.....		1		1							
0905 COXSACKIEVIRUS B5.....				3			1				
1003 ECHOVIRUS TYPE 3.....		1									
1007 ECHOVIRUS TYPE 7.....	2						2				
1009 ECHOVIRUS TYPE 9.....		1		4							1
1011 ECHOVIRUS TYPE 11.....		1									1
1016 ECHOVIRUS TYPE 16.....	1										
1017 ECHOVIRUS TYPE 17.....	1			2			1				
1022 ECHOVIRUS TYPE 22.....									1		
1101 POLIOVIRUS TYPE 1.....		1					3				
1103 POLIOVIRUS TYPE 3.....							1				
1104 POLIOVIRUS-VACCINAL STRAIN....							5				
1200 MUMPS VIRUS.....	2			4				1			
1300 HERPES VIRUS GROUP-NOT TYPED..											1
1302 EPSTEIN-BARR VIRUS (EB VIRUS).	5	1	1					1			1
1303 VARICELLA-ZOSTER VIRUS.....			1								6
1306 HERPES SIMPLEX TYPE 1.....	5	7	1			1					50
1307 HERPES SIMPLEX TYPE 2.....	12					1					36
1401 COXIELLA BURNETI.....	1							1			
02 PICORNA VIRUS-NOT TYPED.....							7				
1514 MOLLUSCUM CONTAGIOSUM.....											1
1521 MEASLES VIRUS.....											1
1522 RUBELLA VIRUS.....	1										5
1532 HEPATITIS B ANTIGEN.....	89							84			1
1535 HEPATITIS A ANTIBODY.....	2							26			
1541 CHLAMYDIA A - C.TRACHOMATIS...	5										
1556 CMV - CYTOMEGALOVIRUS.....	10	10			4			1		8	
1563 CORONAVIRUS.....		1									
1564 ROTAVIRUS.....		2					54	1			
9901 ARBO. GROUP A.(UNSPECIFIED)...	1										
9992 ROSS RIVER VIRUS.....	30										32
9998 ARBO. GROUP B.	1										
Total.....	170	131	3	15	4	3	82	116	2	8	141

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

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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		
0102 ADENOVIRUS TYPE 2.....								2		
0103 ADENOVIRUS TYPE 3.....	4						1	1		
0105 ADENOVIRUS TYPE 5.....								1		
0108 ADENOVIRUS TYPE 8.....	5									
0119 ADENOVIRUS TYPE 19.....	2	2								
0137 ADENOVIRUS TYPE 37.....	2	7								
0203 INFLUENZA B VIRUS.....								2		
0301 PARAINFLUENZA VIRUS TYPE 1....								1		
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....							1			
0500 RHINOVIRUS (ALL TYPES).....							1	2		
0600 MYCOPLASMA PNEUMONIAE.....							1	4		
1005 ECHOVIRUS TYPE 5.....								1		
1009 ECHOVIRUS TYPE 9.....			1					1		
1024 ECHOVIRUS TYPE 24.....								1		
1103 POLIOVIRUS TYPE 3.....								1		
1200 MUMPS VIRUS.....			5					1		
1302 EPSTEIN-BARR VIRUS (EB VIRUS).			4	1			1	2		
1303 VARICELLA-ZOSTER VIRUS.....				1				1		
1306 HERPES SIMPLEX TYPE 1.....	3	37		1				4	1	
1307 HERPES SIMPLEX TYPE 2.....	1	271				1			1	
1401 COXIELLA BURNETI.....							3	7		
1522 RUBELLA VIRUS.....								1		
1532 HEPATITIS B ANTIGEN.....		1							4	
1535 HEPATITIS A ANTIBODY.....					1				1	
1541 CHLAMYDIA A - C.TRACHOMATIS...	2	162				1				
1556 CMV - CYTOMEGALOVIRUS.....		5		2		5		6	8	1
1564 ROTAVIRUS.....							1	1		
9901 ARBO. GROUP A.(UNSPECIFIED)...					1					
9992 ROSS RIVER VIRUS.....		3			92			13		
9995 DENGUE.....								1		
9997 KUNJIN VIRUS.....					1					
Total.....	19	488	10	5	95	7	9	55	15	1