



# Communicable Diseases Intelligence

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## Contents;

- Skin rash associated with use of spa-whirlpools - NSW.
- Kaposi's sarcoma, Pneumocystis pneumonia and opportunistic infections.

## VIRUS REPORTING SCHEME

A total of 1277 reports were received this period.

- influenza virus infections - Of the 439 respiratory tract infections reported, 169 were attributed to influenza viruses. Whereas influenza B virus infections (with isolates resembling B/Singapore/222/79) were notified from Victoria, New South Wales, Queensland and South Australia in patients of all ages, 92% of the influenza A virus infections (with isolates resembling A/Bangkok/1/79) emanated from the Royal Children's Hospital and Fairfield Hospital, Melbourne. The single isolate reported by the State Health Laboratory, Brisbane, cultured from a 43 year old male with haematuria and upper respiratory tract symptoms, exhibited a closer HI homology to A/Bangkok/2/80 than A/Shanghai/31/80. Although A/Shanghai/31/80 exhibits an asymmetric antigenic difference from A/Bangkok/1/79 (MMWR (1982) 31: 110) there is no evidence that such minor variants have achieved predominance or been responsible for major outbreaks, and the prevalence of antibody to A/Bangkok/1/79 and A/Shanghai/31/80 appears to be similar in the general population of the USA and UK. Fairfield Hospital isolated influenza virus from two patients who subsequently died; influenza A virus (H<sub>3</sub>N<sub>2</sub>) from the nasal aspirate of a 69 year old female, and influenza B virus from the respiratory tract of a 62 year old male with laryngotracheobronchitis without pus and partial chronic obstructive airways disease.
- Polio virus type 3, RCT/40 negative, was isolated by Woden Valley Hospital, Canberra, from the CSF of a male neonate that had a low grade fever within a few hours after birth. No abnormalities of the CSF were detected. The baby recovered rapidly and was not affected clinically. The young mother remained well during this period with no evidence of infection. Unlike other enteroviruses causing aseptic meningitis, polioviruses are rarely isolated from the CSF. Two CSF isolations of poliovirus (both type 3) were reported to CDI in 1981.
- Edwardsiella tarda was isolated by the State Health Laboratory Services, Perth, from the faeces of a child from Hall's Creek. Over 100 cases of this rarely encountered organism have now been diagnosed in Western Australia. Waterfowl and reptiles, particularly snakes in freshwater-associated habitats, commonly harbour this Enterobacteriaceae genus.

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SKIN RASH ASSOCIATED WITH USE OF SPA-WHIRLPOOLS - NSW

(Contributed by A.G. Bernard, Division of Analytical Laboratories, Health Commission of New South Wales).

In September 1981 several cases of skin rash amongst visitors to the Snowy Mountains resorts were reported to the Health Commission of New South Wales. The cases were confined to guests at two lodges that had spa-whirlpools, and only to those people who had used those spas. Pseudomonas aeruginosa was isolated from the skin lesions of one of the patients, from water samples taken from the spa-pools of both lodges and from swabs taken from the walls of one of the spas. Neither of the pools had been operated in accordance with the Health Commission of New South Wales Interim Standard for Spa Pool Water Quality<sup>(1)</sup> with respect to the level of water disinfection. Both the isolates from the patient and the relevant spa pool were serotyped as Habs type 0:6.

Outbreaks of spa-pool associated dermatitis caused by P. aeruginosa have been reported since 1975,<sup>(2-7)</sup> and have involved the serotypes 0:11;<sup>(2-6)</sup> 0:4<sup>(2)</sup> and 0:9.<sup>(7)</sup> The outbreaks have been attributed to inadequate disinfection of the spa-pool water, the area immediately surrounding the spa-pool and lack of proper maintenance of spa-pool equipment. There have been no known reports of outbreaks occurring at facilities in which the pool water has been continuously maintained at pH 7.2-7.8 with free residual chlorine levels of at least 1.0 mg/L.

The serological typing of P. aeruginosa is usually based on the identification of heat stable somatic antigens that reside on the lipopolysaccharide.<sup>(8)</sup> The Habs system has now been proposed as the basis for an international system termed the International Antigenic Typing System (IATS), and incorporates the 12 serotypes of the Habs system and five additional types.<sup>(9)</sup> The distribution of the various serotypes for several countries is listed in Table 1.

TABLE 1 Global incidence of P. aeruginosa somatic serotypes<sup>(10-12)</sup>

<u>Country</u>	<u>Host</u>	<u>Most frequent "0" serotypes in order</u>	<u>% isolation of these serotypes</u>
Germany	Mostly human	6, 5, 1, 3	70%
Norway	Mostly animal (bovine)	6, 3, 14	80%
France	Majority human	5, 6, 1, 8	60%
Hungary	Waters	6, 1, 3, 11	70%
	Sewage	1, 6, 3, 11	70%
	Human	6, 2, 8, 11	70%
Israel	Human	3, 11, 2, 6	60%
UK and "others"	Human, animal, plant, water, milk	6, 2, 1, 5	60%
S.E. Asia	Majority human	5, 6, 1, 8	60%
U.S.A.	Human, animal	2, 6, 11, 1	80%

The table indicates that P. aeruginosa serotype 0:6 is a common isolate from a variety of sources. Since the serotypes 0:6 and 0:11 have been isolated subsequently by this laboratory from spa-pool water samples submitted for routine analysis without any associated complaints of skin infection, it is surprising that other cases of P. aeruginosa type 0:6 folliculitis related to spa and pool use have not been reported. P. aeruginosa type 0:6 has also been isolated from a creek water sample that was submitted in relation to a "chickenpox-like" rash in two children.

#### Editorial Comment

Outbreaks of rash and otitis externa caused by P. aeruginosa have also occurred in swimmers in ineffectively chlorinated pools contaminated with the organism.<sup>(13,14)</sup> In a recent survey in Melbourne of bacteria in private swimming pools treated with either chlorine or Baquacil, viable counts of bacteria greater than 200/mL were common.<sup>(15)</sup> P. aeruginosa was detected in 7% of the chlorine-treated pools, but in none of the Baquacil-treated pools. Although in the survey Baquacil was less effective than chlorine in controlling the general microbial flora, it generally remained above the minimum recommended concentration for approximately 14 days between routine additions. On the other hand, chlorine can dissipate from the pool within hours of addition on hot sunny days. Owners need to be aware that their pools can harbour potentially pathogenic bacteria, viruses and protozoa unless biocides are constantly maintained at the correct concentration.

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#### KAPOSI'S SARCOMA, PNEUMOCYSTIS PNEUMONIA AND OPPORTUNISTIC INFECTIONS.

Kaposi's sarcoma (KS), first described in 1872, is a complex neoplasm whose cell of origin might derive from endothelial cells and/or the mononuclear phagocytic system, and is manifested primarily by multiple vascular nodules in the skin and other organs. The course may range from indolent, with only skin manifestations, to fulminant, with extensive visceral involvement.<sup>(1)</sup> Accurate incidence and mortality rates are not available for the USA, but the annual incidence has been estimated to be between 0.02-0.06 per 100000, affecting primarily elderly males and exhibiting a chronic clinical course.<sup>(2,3)</sup> However, the disease has a higher incidence in renal transplant recipients<sup>(4)</sup> and patients receiving immunosuppressive therapy,<sup>(5)</sup> and also occurs in an endemic

belt across equatorial Africa, commonly affecting children and young adults.(2)

During 1981 increasing numbers of cases of KS and opportunistic infections were identified in the USA, initially among male homosexuals. In the period 1 June 1981 - 28 May 1982, the CDC Task Force on Kaposi's Sarcoma and Opportunistic Infections received 355 reports of KS and/or serious opportunistic infections (KS/OI) in previously healthy persons aged between 15-60 years.(6) The opportunistic infections included Pneumocystis carinii pneumonia (PCP), necrotizing toxoplasmosis of the CNS, cryptococcal meningitis, gastrointestinal candidiasis and disseminated infections with Mycobacteriaceae and herpes simplex. Many patients had positive cultures or serological evidence of infection with cytomegalovirus (CMV). Cases were defined as illness in a person who had either biopsy-proven KS or biopsy- or culture-proven, life-threatening opportunistic infection, was under 60 years of age and had no history of either immunosuppressive underlying illness or immunosuppressive therapy. Of these cases, 79% were in male homosexuals (or bisexuals), 12% in male heterosexuals, 6% in males of unknown sexual orientation and 4% in female heterosexuals. The median age at onset of symptoms was 36.0 years for homosexual men, 31.5 years for heterosexual men and 29.0 years for women.

Of the 152 reported PCP cases, 77% were in homosexual males, 17% in heterosexual males and 5.2% in heterosexual females; 14% of the homosexual males had used intravenous drugs at some time compared with 63% of the heterosexual males and 57% of the females. An unexpected cluster of nine cases in homosexual males (six with KS; three with PCP) was also reported in Los Angeles and Orange counties, California.(7) Similar reports of these disorders and infections have also been recorded among male homosexuals in Europe.(8,9)

Between March 1981 - January 1982, CDC received five reports (four from San Francisco, one from Chicago) of diffuse, undifferentiated non-Hodgkins lymphoma in homosexual males.(10) This second unusual malignancy, a B-cell lymphoma, has a crude estimated incidence rate of 0.06-0.21/100000 population/year.(11) Case reports of other malignancies affecting the homosexual population including carcinoma of the distal rectum(12) and squamous cell carcinoma of the oral cavity(13,14) have also been published. The excess of carcinoma of the anus and distal rectum appeared to antedate the recognition of KS/OI syndrome.(15) Furthermore, CDC reported that many KS/OI patients had a history of persistent, unexplained, generalized lymphadenopathy and reactive hyperplasia in lymph nodes on biopsy.(16)

However, not all KS/OI cases have been explained on the basis of sexual orientation or "recreational drug" abuse. A total of 34 cases (30 in males) of KS/OI have been recognized among Haitians residing in the USA with no history of underlying immunosuppressive therapy or disease.(17) Although the in-vitro immunological findings and the high mortality rate (approximately 50%) were similar to the pattern observed for the other groups, none of the 23 Haitian males questioned reported homosexual activity, and only one of 26 gave a history of IV drug abuse. Ten patients also present with disseminated tuberculosis. To further complicate the epidemiology, three cases of PCP have been reported in patients with haemophilia A without underlying disease.(18) Haemophilia A is a

sex-linked, inherited disorder characterised by a deficiency in Factor VIII activity, and is treated with intravenous administration of exogenous Factor VIII. This may either be a cryoprecipitate made from individual units of fresh frozen plasma or lyophilized Factor VIII concentrate manufactured from plasma pools collected from as many as a thousand or more donors. Factor VIII antigen, a specific marker of endothelial cells, has been demonstrated by immunoperoxidase techniques in cells cultured from Kaposi's sarcoma tissue.<sup>(19,20)</sup> Neoplastic cells may synthesise proteins not associated with their histological type, but apart from supporting an endothelial origin of the neoplasm, the reason for this expression is unclear.

Although these contemporary diseases appear to be multifactorial with several determinants contributing to the total case load, one common denominator is a severe immune dysfunction.<sup>(21-23)</sup> However, both the aetiology of this acquired cellular immunodeficiency and the full range of the potential outcomes i.e. opportunistic infections and tumours, have yet to be determined. Immunological studies have shown reductions of the T-lymphocyte helper subsets, reduced proliferative responses, decreased natural killer cell activities and impaired monocyte functions.

Several hypotheses have been proposed as causing this immune suppression. An investigation of 20 homosexual men with histologically confirmed KS and 40 matched homosexual controls revealed a significant association between KS and chronic use of amyl nitrite, a history of mononucleosis and sexual activity in the year before onset of the disease.<sup>(24)</sup> It was suggested that amyl nitrite sniffing may either cause the immunosuppression directly, allow expression of a sexually transmitted oncogenic virus, the operation of an unknown carcinogenic agent otherwise controlled by the immune system, or by acting as a direct or metabolically activated carcinogen. Amyl nitrite use may also be a non-causal but surrogate variable with a sexually-transmitted infection being the sole causal factor. Cytomegalovirus is commonly found in healthy homosexual men, and the virus has been shown to induce transient abnormalities of *in vitro* cellular immune function in otherwise healthy human hosts.<sup>(25,26)</sup> Enteric transmission of CMV via semen may also promote this immune dysfunction. Furthermore, CMV DNA sequences, virus-specific RNA and CMV-determined nuclear antigen(s) have been detected in KS biopsies.<sup>(27)</sup> An infectious aetiology is also supported by the identification of the cluster of KS/OI cases in California determined on the basis of sexual contact,<sup>(7)</sup> and the three cases of PCP among patients with haemophilia A.<sup>(18)</sup> However, whether this unidentified agent causes the malignancies as well as the cellular immunodeficiency is not known. Multiple and repetitive infections may also predispose to immunodeficiency, since the numbers of self-reported histories of gonorrhoea, syphilis, condylomata acuminata, amoebiasis and *Giardia lamblia* infections are elevated among KS/OI patients. Any of these hypotheses could explain the apparent geographical clustering of this new disease entity to the large cities, since the prevalences of sexually transmitted diseases in general and in homosexual males in particular, are correlated with city size.

The Editor would be interested in receiving information on any Australian cases of opportunistic infections or Kaposi's sarcoma among persons who do not have underlying disease and are not on immunosuppressive therapy.

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AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

1

REPORTING PERIOD - 22/7/82 - 4/8/82 BULLETIN NUMBER  
 VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

82/16

VIRUS OR VIRAL ANTIGEN	ICPER	RAHC	PHH/	FAIR-	RCH	IMVS	STATE	STATE	Total
	(NSW)/ WVH (ACT)	(NSW)	POW (NSW)	FIELD (VIC)	(VIC)	(SA)	LAB (QLD)	LAB (WA)	
0100 ADENOVIRUS NOT TYPED.....	23					1	7	2	33
0101 ADENOVIRUS TYPE 1.....				2	1	2			5
0102 ADENOVIRUS TYPE 2.....	3		2	1	5	3			14
0103 ADENOVIRUS TYPE 3.....				1		1			2
0105 ADENOVIRUS TYPE 5.....	1					1			2
0114 ADENOVIRUS TYPE 14.....								1	1
0119 ADENOVIRUS TYPE 19.....	1			4					5
0199 ADENOVIRUS TYPING PENDING.....			2		1	9			12
0201 INFLUENZA A VIRUS.....				5			1		6
0202 INFLUENZA A VIRUS SUBTYPE H3N2.....		2		17	24		1		44
0203 INFLUENZA B VIRUS.....	18	14		34	25	7	21		119
0301 PARAINFLUENZA VIRUS TYPE 1.....						1	1	1	3
0302 PARAINFLUENZA VIRUS TYPE 2.....	1			1	2		1	1	6
0303 PARAINFLUENZA VIRUS TYPE 3.....						2			2
0399 PARAINFLUENZA VIRUS TYPING PENDING.....						1			1
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)....	22	18	1	35	47	34	7	9	173
0500 RHINOVIRUS (ALL TYPES).....	5			5	6	6	9	1	32
0600 MYCOPLASMA PNEUMONIAE.....		1		2	1	6	16	5	31
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED.....								1	1
0809 COXSACKIEVIRUS A9.....							1		1
0905 COXSACKIEVIRUS B5.....	1		1		2				4
1005 ECHOVIRUS TYPE 5.....								1	1
1007 ECHOVIRUS TYPE 7.....	1								1
1011 ECHOVIRUS TYPE 11.....								7	7
1024 ECHOVIRUS TYPE 24.....								2	2
1029 ECHOVIRUS TYPE 29.....								1	1
1101 POLIOVIRUS TYPE 1.....		3		1		2		2	6
1102 POLIOVIRUS TYPE 2.....	1								1
1103 POLIOVIRUS TYPE 3.....	2					1			3
1104 POLIOVIRUS-VACCINAL STRAIN.....	5		1		4				10
1200 HEMPS VIRUS.....	6		1	5	1	2		1	16

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

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REPORTING PERIOD - 22/7/82 - 4/8/82 BULLETIN NUMBER - 82/16  
 VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES-Continued

VIRUS OR VIRAL ANTIGEN	ICPMA (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.....	23			4		7			34
1301 HERPES SIMPLEX VIRUS NOT-TYPED.....		1		4				45	50
1302 EPSTEIN-BARR VIRUS (EB VIRUS).....	2	1	2	1				1	7
1303 VARICELLA-ZOSTER VIRUS.....			1	2		1	2	1	7
1306 HERPES SIMPLEX TYPE 1.....	5			24		13	18		60
1307 HERPES SIMPLEX TYPE 2.....	49			34		25	31		139
1399 HERPES VIRUS TYPING PENDING.....			5	4	4	7			20
1401 COXIELLA BURNETI.....	1					2	12		15
1521 MEASLES VIRUS.....					1				1
1522 RUBELLA VIRUS.....				6			1		7
1532 HEPATITIS B ANTIGEN.....	17		8	32		18	4		79
1535 HEPATITIS A ANTIBODY.....	5		2			10	3	4	24
1541 CHLAMYDIA A - C TRACHOMATIS.....	18							56	74
1556 CMV - CYTOMEGALOVIRUS.....	4			16	8	4	7	3	42
1564 ROTAVIRUS.....	14	20	14		6	24	3	6	87
1599 ENTEROVIRUS TYPING PENDING.....		1		1	3	1			6
ROSS RIVER VIRUS .....				39			10		49
ASPROVIRUS .....	7							1	8
SMALL VIRUS (LIKE) PARTICLE .....	3			1					4
DENGUE .....							16		16
KUNJIN VIRUS .....							1		1
Total.....	238	61	40	281	141	191	173	152	1,277



AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

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PERIOD : 22/7/82 to 4/8/82 ....

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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.-Continued

VIRUS OR VIRAL ANTIGEN	No-ill or data	Respir atory	Enceph alitis	Mening -itis	Para- lysis	CNS other unspec	GI	Hepa -tic	CVS	Urin -ary	Skin/ muc mem
1306 HERPES SIMPLEX TYPE 1.....	1	6				4				2	25
1307 HERPES SIMPLEX TYPE 2.....	1	1									8
1401 COXIELLA BURNETI.....		1									
1521 MEASLES VIRUS.....											1
1522 RUBELLA VIRUS.....	1	1									4
1532 HEPATITIS B ANTIGEN.....	4							34			
1535 HEPATITIS A ANTIBODY.....	2							21			
1556 CMV - CYTOMEGALOVIRUS.....	2	15						1		8	1
1564 ROTAVIRUS.....	6						82				
1566 MORWALK AGENT.....										1	
ROSS RIVER VIRUS .....	3										3
ASTROVIRUS .....							8				
SMALL VIRUS (LIKE) PARTICLE .....							4				
DENGUE .....	3										8
KUNJIN VIRUS .....	1										
Total.....	63	439	1	9		9	108	56	3	14	96



AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

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PERIOD : 22/7/82 to 4/8/82 ...

82/16

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;

68 -Fever/malaise; 09 -Other; A1 -SIDS ...

-Continued

VIRUS OR VIRAL ANTIGEN	Eye	Gen-ital	Endo/sal gland	RES	Muscle/joint	Con-genital	PUO	Fever/malaise	Other	SIDS
1541 CHLAMYDIA A - C TRACHOMATIS....		74								
1556 CMV - CYTOMEGALOVIRUS.....		1	1	2		3		4	6	1
ROSS RIVER VIRUS .....					41			5		
DENGUE .....					6			9		
Total.....	12	230	15	3	49	3	10	56	21	8