



# Communicable Diseases Intelligence

Bulletin number 86/3

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- . AIDS International Situation.
- . AIDS Update - United States.
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- . Legionnaires' disease and spa use.

Editor: Dr I F Cook

VIRUS REPORTING SCHEME - A total of 1,125 reports were processed for this period.

There has been evidence of an increase in Mycoplasma pneumoniae activity during this period (16 reports compared with an average of 8 for the past five reporting periods). One patient, a 63 year old male, had respiratory and gastrointestinal symptoms, the latter manifest as watery diarrhoea.

Ross River virus activity showed an apparent decline during this reporting period (10 reports compared with an average of 20 for the past five reporting periods). Most of the cases were reported in Victorians, resident in the Murray Valley.

Herpes simplex type 1 was isolated from: . the broncho-alveolar washing of an immunosuppressed 35 year old male with a lower respiratory tract infection . the nasal aspirate of an 8 year old female who presented with meningitis and an upper respiratory tract infection.

ANNOUNCEMENTS - WHO BULLETIN

WHO has commenced publishing a quarterly bulletin "Eastern Mediterranean Region Epidemiological Bulletin". The bulletin presents articles and data on aspects of diseases of particular interest to the EM region. Readers who have a special interest in the area may obtain copies, free of charge, on request from: The Editor, EMR Epidemiological Bulletin, WHO Regional Office for the Eastern Mediterranean, PO Box 1517, Alexandria - 21511, Egypt.

- ADVANCE NOTICE

Australian Scientific Congress on Sexually Transmissible Diseases (including AIDS) hosted by the VENEREOLOGY SOCIETY OF NEW SOUTH WALES on behalf of THE NATIONAL VENEREOLOGY COUNCIL OF AUSTRALIA at Westmead Hospital, Sydney on 15-17 August, 1986

- Papers and Poster presentations invited - Enquiries to Conveners:

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Contributions are solicited, and do not preclude later publication elsewhere.

Material appearing in the Bulletin may be quoted provided suitable acknowledgment is made.

Figures given may be subject to revision.

AIDS- INTERNATIONAL TRAVEL AND THE CURRENT POSITION IN SOME COUNTRIES. (Based on WER, 1986, 61:21-28)

International Travel

At a meeting of Directors of WHO Collaborating Centres on AIDS held in Geneva from 16 to 18 December 1985, a number of Member States have sought the World Health Organisation's advice on certificates guaranteeing that a person is free from AIDS, AIDS-related complex, or HTLV-III infection for international travel. It was concluded that testing of international travellers and certification are not warranted as measures to prevent HTLV-III transmission. Reference was also made to Article 81 of the International Health Regulations (1969) which stated that "no health document, other than those provided for in the regulations, shall be required in international traffic". Thus it was pointed out that there is no provision for any certificate guaranteeing that a person entering any country or coming from any country is free from a given disease.

Current Position in some countries

JAPAN

- . A reporting scheme involving some 574 hospitals through local government authorities has confirmed AIDS in 11 cases, including 1 foreigner, as of 31 October 1985. Six cases were in homosexual males and 5 in haemophiliacs. Six patients have died including 2 homosexuals and 4 haemophiliacs.

FRENCH POLYNESIA

- . Although no cases of AIDS or AIDS-related complex had been reported as up to 4 October 1985, a serological survey identified the presence of antibody to HTLV-III in 80 homosexual men, 29 female prostitutes and 33 recipients of blood transfusion.
- . To minimise the potential spread of AIDS, the screening of blood donations for HTLV-III antibody by the Blood Transfusion Centre and the careful monitoring of the exposed population has been instituted.

GHANA

- . None of the 310 persons in Accra belonging to groups at high risk of acquiring AIDS has antibody to HTLV-III in tests with the indirect immunofluorescence antibody technique performed at the Noguchi Memorial Institute for Medical Research at the University of Ghana.

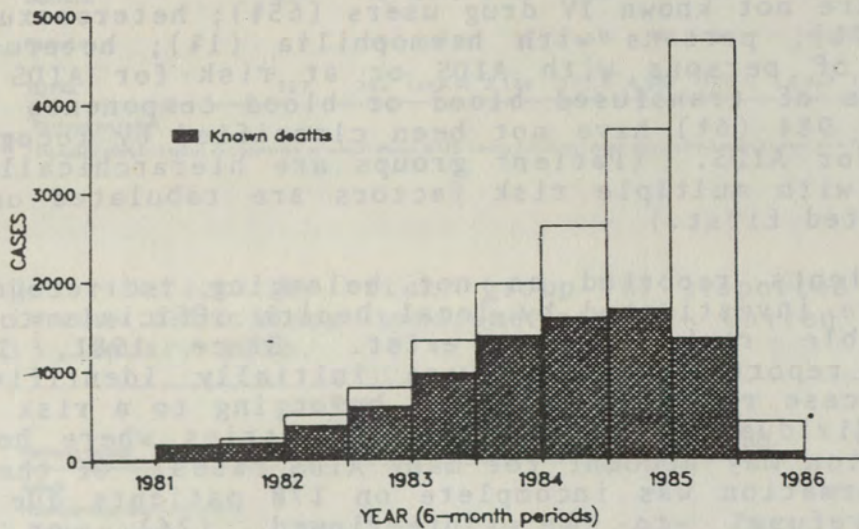
ETHIOPIA

- . As of 9 January 1986, no cases of AIDS had been reported. However, an AIDS alertness and prevention program has been instituted. A task force has also been created to coordinate local epidemiological research, to be conducted within the context of priorities set for tropical and other communicable diseases, and other research activities on AIDS, in collaboration with WHO international reference laboratories.

UPDATE: ACQUIRED IMMUNE DEFICIENCY SYNDROME - UNITED STATES  
(Based on MMWR (1986) 35: 17-21)

Between 1 June 1981 and 13 January 1986, physicians and health departments in the United States notified Communicable Diseases Centre (CDC) of 16,458 patients (16,227 adults and 231 children) meeting the acquired immune deficiency syndrome (AIDS) case definition for national reporting (1-3). Of these, 8,361 (51% of the adults and 59% of the children) are reported to have died, including 71% of patients diagnosed before July 1984. The number of cases reported each 6 month period continues to increase (Figure 1), although not exponentially, as evidenced by the lengthening case-doubling times (Table 1). Cases have been reported from all 50 states, the District of Columbia, and three U.S. territories.

FIGURE 1: AIDS cases and known deaths, by 6 month period of report - United States, 1981 - 13 January 1986.



\*Data incomplete

TABLE 1: AIDS cases, by date of report and doubling time - United States, 1981 - 13 January 1986.

Cumulative cases reported	Date	Doubling time (months)
129	September 1981	—
257	February 1982	5
514	July 1982	5
1,029	January 1983	6
2,057	August 1983	7
4,115	April 1984	8
8,229	February 1985	10
16,458	January 1986	11

Adult patients. Among adult AIDS patients, 60% were white; 25%, black; and 14%, Hispanic. Ninety percent were 20-49 years old, and 93% were men. Although the race, age and sex distribution of adult AIDS patients has remained relatively constant over time, significant changes have occurred in the distribution of specific diseases reported. Pneumocystis carinii pneumonia (PCP) continues to be the most common opportunistic infection reported among AIDS patients, accounting for 43% of reported opportunistic diseases; incidence of PCP continues to increase relative to other reported opportunistic diseases among AIDS patients (p 0.0001). PCP accounted for 35% of the diagnosed AIDS-associated diseases before January 1984 and 47% of those diagnosed from January 1985 to December 1985. The increase in PCP was associated with a decrease in Kaposi's sarcoma (KS),

the second most common AIDS-associated opportunistic disease. Before December 1984, KS accounted for 21% of reported diagnoses; between January 1985 and December 1985, KS accounted for 13% of reported diagnoses. Among all AIDS patients, 63% have been diagnosed with PCP; 24%, with KS; 14%, with candida oesophagitis; 7%, with cytomegalovirus (CMV) infections; 7%, with cryptococcosis; 4%, with chronic herpes simplex; 4%, with cryptosporidiosis; 3%, with toxoplasmosis; and 3%, with other opportunistic diseases only. These values tend to underestimate the number of diseases diagnosed in a given patient, because health-care providers frequently do not provide follow-up information on diseases that occur after the case has initially been reported.

A total of 15,243 (94%) AIDS patients can be placed in groups that suggest a possible means of disease acquisition: men with homosexual or bisexual orientation who have histories of using intravenous (IV) drugs (8% of cases); homosexual or bisexual men who are not known IV drug users (65%); heterosexual IV drug users (17%); persons with haemophilia (1%); heterosexual sex partners of persons with AIDS or at risk for AIDS (1%); and recipients of transfused blood or blood components (2%). The remaining 984 (6%) have not been classified by recognised risk factors for AIDS. (Patient groups are hierarchically ordered; patients with multiple risk factors are tabulated only in the group listed first.)

AIDS patients reported as not belonging to recognised risk groups are investigated by local health officials to determine if possible risk factors exist. Since 1981, 1,206 AIDS patients reported to CDC were initially identified on the original case report form as not belonging to a risk group. Of these individuals, 398 were from countries where heterosexual transmission may account for many AIDS cases. Of the remaining 808, information was incomplete on 178 patients due to: death (116), refusal to be interviewed (24), or loss to follow-up (38). Two hundred and ninety seven cases are still under investigation. Interviews or other follow-up information were available on the remaining 333 patients. Based on this information, risk factors were ultimately identified in 197 (59%) individuals; 25 (8%) were found not to meet the criteria of the surveillance definition for AIDS and no risk was identified on 111 (33%) AIDS patients. In interviews of the 111 patients for whom no risk was identified, 39(35%) gave histories of gonorrhoea and/or syphilis, indicating that these AIDS patients were at risk for other sexually transmitted infections. Of 57 men interviewed, 15 (26%) gave histories of sexual contact with a female prostitute.

Reported cases have increased in all patient groups (Table 2). The relative proportion of AIDS cases among most risk groups has remained stable (Table 3). The proportion of AIDS cases associated with blood transfusions has increased from 1% to 2% ( $p = 0.015$ ). Due to the long period between infection with human T-lymphotropic virus type III (HTLV-III) and development of AIDS, the impact of serologic screening of blood donations and deferral of those at increased risk cannot be expected to be reflected yet in national AIDS reporting. In the groups not classified by recognised risk factors, the proportion of AIDS patients born outside the United States has declined from 4% to 2% ( $p = 0.0001$ ).

**TABLE 2:** Acquired immune deficiency syndrome cases reported by year and annual percentage increases by patient group - United States to January 13, 1986.

Patient group	Before	1/14/82-		1/14/83-		1/14/84-		1/14/85-		Total
	1/14/82	1/13/83	(% Inc)*	1/13/84	(% Inc)*	1/13/85	(% Inc)*	1/13/86	(% Inc)*	
	No.	No.		No.		No.		No.		
<b>Adult</b>										
Homosexual bisexual men and IV drug users	16	66	(312.5)	211	(219.7)	418	(98.1)	599	(43.3)	1,310
Homosexual bisexual men not IV drug users	178	473	(165.7)	1,341	(183.5)	2,939	(119.2)	5,669	(92.9)	10,600
IV drug users	22	138	(527.3)	392	(184.1)	785	(100.3)	1,429	(82.0)	2,766
Hemophilia patients	0	7	(0.0)	10	(42.9)	38	(280.0)	69	(81.6)	124
Heterosexual contacts	1	10	(900.0)	18	(80.0)	53	(194.4)	100	(88.7)	182
Transfusion recipients	0	6	(0.0)	28	(366.7)	56	(100.0)	171	(205.4)	261
None of the above/other										
No identified risks.	3	28	(833.3)	76	(171.4)	131	(72.4)	348	(165.6)	586
Born outside U.S.†	7	48	(585.7)	85	(77.1)	114	(34.1)	144	(26.3)	398
<b>Subtotal</b>	<b>227</b>	<b>776</b>	<b>(241.9)</b>	<b>2,161</b>	<b>(178.5)</b>	<b>4,534</b>	<b>(109.8)</b>	<b>8,529</b>	<b>(88.1)</b>	<b>16,227</b>
<b>Pediatric</b>	<b>0</b>	<b>16</b>	<b>(0.0)</b>	<b>35</b>	<b>(118.8)</b>	<b>48</b>	<b>(37.1)</b>	<b>132</b>	<b>(175.0)</b>	<b>231</b>
<b>TOTAL</b>	<b>227</b>	<b>792</b>	<b>(248.9)</b>	<b>2,196</b>	<b>(177.3)</b>	<b>4,582</b>	<b>(108.7)</b>	<b>8,661</b>	<b>(89.0)</b>	<b>16,458</b>

\*Percent increase

†Includes persons born in countries in which most AIDS cases have not been associated with known risk factors

**TABLE 3:** Distribution by risk group of reported acquired immune deficiency syndrome cases - United States to 13 January 1986.

Patient group	Before		1/14/84-		1/14/85-		Total	
	1/14/84	(%)	1/13/85	(%)	1/13/86	(%)	No.	(%)
<b>Adult</b>								
Homosexual bisexual men and IV drug users	293	(9.3)	418	(9.2)	599	(7.0)	1,310	(8.1)
Homosexual bisexual men not IV drug users	1,992	(63.0)	2,939	(64.8)	5,669	(66.5)	10,600	(65.3)
IV drug users	552	(17.4)	785	(17.3)	1,429	(16.8)	2,766	(17.0)
Hemophilia patients	17	(0.5)	38	(0.8)	69	(0.8)	124	(0.8)
Heterosexual contacts	29	(0.9)	53	(1.2)	100	(1.2)	182	(1.1)
Transfusion recipients	34	(1.1)	56	(1.2)	171	(2.0)	261	(1.6)
None of the above/other								
No identified risks.	107	(3.4)	131	(2.9)	348	(4.1)	586	(3.6)
Born outside U.S.*	140	(4.4)	114	(2.5)	144	(1.7)	398	(2.5)
<b>Subtotal</b>	<b>3,164</b>	<b>(100.0)</b>	<b>4,534</b>	<b>(100.0)</b>	<b>8,529</b>	<b>(100.0)</b>	<b>16,227</b>	<b>(100.0)</b>
<b>Pediatric</b>								
Parent with AIDS or at increased risk for AIDS	38	(74.5)	40	(83.3)	97	(73.5)	175	(75.8)
Hemophilia patients	3	(5.9)	1	(2.1)	7	(5.3)	11	(4.8)
Transfusion recipients	6	(11.8)	6	(12.5)	21	(15.9)	33	(14.3)
None of the above/other	4	(7.8)	1	(2.1)	7	(5.3)	12	(5.2)
<b>Subtotal</b>	<b>51</b>	<b>(100.0)</b>	<b>48</b>	<b>(100.0)</b>	<b>132</b>	<b>(100.0)</b>	<b>231</b>	<b>(100.0)</b>
<b>TOTAL</b>	<b>3,215</b>	<b>(100.0)</b>	<b>4,582</b>	<b>(100.0)</b>	<b>8,661</b>	<b>(100.0)</b>	<b>16,458</b>	<b>(100.0)</b>

\*Includes persons born in countries in which most AIDS cases have not been associated with known risk factors

Paediatric patients. Among 231 AIDS patients under 13 years old, 19% were white; 60%, black; and 20%, Hispanic. Fifty five percent were male. Fifty eight percent were diagnosed with PCP; 19%, with disseminated CMV; 15%, with candida oesophagitis; 6%, with cryptosporidiosis; 4%, with KS; and 22%, with other opportunistic diseases only. One hundred and seventy four (75%) paediatric patients came from families in which one or both parents had AIDS or were at increased risk for developing AIDS; 33 (14%) had received transfusions of blood or blood components before onset of illness, and 11 (5%) had haemophilia. Risk-factor information on the parents of the 13 (6%) remaining cases is incomplete. Although 57% of paediatric patients have been reported within the last year, 72% were actually diagnosed before 1985. Paediatric patients have been reported from 23 states, Washington, D.C., and Puerto Rico; cases reported per state ranged from one to 91 (median three). Seventy five percent of the cases have been reported from New York, Florida, New Jersey and California.

MMWR Editorial Note: The incidence of AIDS continues to increase. In 1982, 747 cases were reported; in 1983, 2,124 were reported (a 184% increase); in 1984, 4,569 were reported (a 115% increase); and in 1985, 8,406 were reported (an 84% increase). From analyses of past trends, further increases are expected for 1986; however, the percentage increase in 1986 is likely to be smaller than that noted in 1985.

The number of AIDS cases that have not been classified into previously identified risk groups is not increasing proportionately faster than the number of cases in identified risk groups. Past experience would suggest that many cases currently under investigation will be reclassified.

Currently reported AIDS cases have resulted from HTLV-III exposure up to 7 years before diagnosis<sup>(4)</sup>; the possibility of longer incubation periods cannot be excluded. Since HTLV-III infection persists in an individual, persons previously infected continue to remain at risk for developing AIDS. Due to the long period between infection and development of AIDS, transfusion-associated cases are expected to continue<sup>(4)</sup>. However, voluntary donor deferral by those at increased risk for AIDS and serological testing of donated blood and plasma for HTLV-III antibody implemented in March 1983 and spring 1985, respectively have greatly reduced the potential for HTLV-III transmission through transfusion<sup>(4-6)</sup>.

The increase in previously diagnosed paediatric AIDS cases reported within the past year reflects improved reporting as well as inclusion in the case definition of histologically confirmed diagnoses of chronic lymphoid interstitial pneumonitis in children under 13 years of age<sup>(3)</sup>. Since most paediatric AIDS cases result from perinatal transmission of HTLV-III, the race/ethnicity and geographical distribution of paediatric AIDS patients is similar to that of reported AIDS cases among adult females.

Planned prospective studies of incidence and prevalence of HTLV-III infection should determine whether current reports of patients meeting the AIDS case definition for national reporting accurately reflect the distribution of infected persons. Persons meeting the AIDS case definition are only a small percentage of all persons infected with HTLV-III<sup>(7)</sup>.

CDC uses the existing case definition for surveillance purposes, because other manifestations of HTLV-III infection are less specific and less likely to be consistently reported nationally.

#### REFERENCES:

1. MMWR (1984) 32:688-91.
2. Am J Med (1984) 76:493-500.
3. MMWR (1985) 34:373-5.
4. JAMA (1985) 254:2913-7.
5. MMWR (1983) 32:101-4.
6. MMWR (1985) 34:477-8.
7. Science (1985) 229:1362-7.

#### AIDS SURVEILLANCE

##### 1) AUSTRALIA

To 29 January 1986, 159 cases of AIDS fulfilling the criteria of case definition have been reported to the AIDS Task Force. The distribution of those patients by disease category, risk group, age and State or Territory of notification are shown below.

Table 1: AIDS patients by disease category.

DISEASE CATEGORY	CASES	DEATHS
Opportunistic infection (OI)	115	50
Kaposi's Sarcoma (KS)	27	10
O.I. & K.S.	5	3
Others	10	5
No Data	2	2
<u>TOTAL</u>	<u>159</u>	<u>70</u>

Table 2: AIDS patients by risk category

RISK GROUP	CASES	DEATHS
Homo/Bisexual	139	57
IV Drug Users	-	-
Haemophiliacs	3	3
Transfusion (only)	12	7
Homo/Bisexual & IV Drug User	2	2
No known risk factor	1	-
Heterosexual	2	1
<u>TOTAL</u>	<u>159</u>	<u>70</u>

Table 3: AIDS patients by age

AGE (yrs)	CASES
0-9	4
10-19	1
20-29	35
30-39	62
40-49	41
50-59	11
60+	3
No data	2
<u>TOTAL</u>	<u>159</u>

Table 4: AIDS patients by State/Territory of notification

STATE/TERRITORY	CASES	DEATHS
NSW	109	43
VIC	20	10
QLD	16	10
WA	11	5
TAS	1	1
NT	2	1
SA	-	-
ACT	-	-
<u>TOTAL</u>	<u>159</u>	<u>70</u>

The number of new cases reported for the last five quarters are shown in Table 5.

Table 5: New cases reported per quarter.

QUARTER	NO OF CASES
1.10.84 - 31.12.84	21
1. 1.85 - 31. 3.85	20
1. 4.85 - 30. 6.85	30
1. 7.85 - 30. 9.85	23
1.10.85 - 31.12.85	30

#### LEGIONNAIRES' DISEASE ASSOCIATED WITH SPA USE (Based on CDR (1985) 50: 3-4)

Following a report in July 1984 of 2 cases of Legionnaires' disease in a hotel in Brighton, an investigation was made to find other cases associated with the hotel and to identify the source of infection.

Originally built in 1938 with several extensions added later, the hotel accommodates about 700 mainly middle aged and elderly guests in the summer months. In 1984 an outdoor swimming pool was covered in and 2 small spa pools were installed.

Definitions and case finding: Legionnaires' disease was suspected in patients who had pneumonia but no laboratory evidence of infection with microorganisms other than legionella. Legionnaires' disease was confirmed when a person had pneumonia and showed a  $\geq 4$ -fold rise in immunofluorescent (IF) antibody titre against a legionella formalised yolk sac antigen. If the antibody titre was  $\geq 64$  in convalescent specimens, but a  $\geq 4$ -fold rise was not demonstrated, it was considered as presumptive evidence of legionella infection. Pontiac fever was diagnosed in persons who had fever, generalised aches and pains in the absence of pneumonia and had a convalescent IFA titre of  $\geq 64$ .

An examination was made of records in the hotel, from the time of its opening for the season in April until the end of July, and serum specimens were collected from guests who requested a visit by a general medical practitioner or reported illness to hotel staff during their stay.

Case-control study: the object of the case control study was to identify the source of infection. No cases of Legionnaires' disease associated with Brighton in 1984 were found other than those among guests staying at the hotel. The case definitions above were applied to persons staying at the hotel from the time of its opening in April to 31 July 1984. 5 controls matched for age, sex and week of stay at the hotel were selected together with a further 5 controls from guests who stayed at the hotel over the same period. The sampling frame was the hotel booking list. A standardised questionnaire was used to enquire about symptoms, date of onset, exposure to potential sources of infection and history of smoking and chronic respiratory disease. Each case was interviewed personally as well as one matched control, while the remaining controls had the questionnaire administered by post. Two groups of cases were studied in the statistical analyses; firstly all suspected cases of Legionnaires' disease and secondly a smaller group of combined confirmed and presumptive cases of Legionnaires' disease.

Environmental studies: a detailed engineering and microbiological survey was made of all water systems in the hotel including the tanks, calorifiers, hot and cold taps and showers, the swimming pool and the 2 spas. There was no air conditioning or ventilation system.

The outbreak: 26 cases of pneumonia were found in association with the hotel, 21 of whom were identified by the retrospective case-searching; 8 were confirmed cases and 8 presumptive cases of Legionnaires' disease. 7 guests had illness which fulfilled the case definition for Pontiac fever. There was one death in a man aged 74 years with pneumonia, but no specimens were available for serology and a post-mortem examination was not done. The ages of the pneumonia cases ranged from 42-74 years (median 60 years); 20 were male and 6 female. All consulted a doctor during their illness and 14 were admitted to hospital. The interval between arriving at the hotel and the onset of symptoms varied from 1-10 days.

Case control study: in the case control study 95 (90%) of 105 matched controls and 92 (88%) of 105 unmatched controls returned questionnaires giving an overall response rate of 89%. 21 matched and 18 unmatched controls who had symptoms during or within two weeks of their stay were removed from the control groups before analysis. History of exposure to possible sources of legionella infection were compared in cases and unmatched controls by means of Fishers exact test. Significant differences were found for swimming pool and spa use between cases and controls (table). An attempt was made to assess the independence of risk associated with the spas or swimming pool but most people had used both. Of the 4 who had not swam but had used the spas, 3 were ill, and of the 3 that swam but reported that they had not used the spas only one was ill, but 2 had sat close to the spas.

Table  
History of exposure to potential source of legionella  
in 21 cases of pneumonia and unmatched controls

	Cases		Controls		Fishers exact *probability
	Exposed	Not exposed	Exposed	Not exposed	
Wall whirlpool	13	8	18	52	0.006
Centre whirlpool	12	9	12	55	0.002
Either whirlpool†	17	4	20	47	0.00008
Swimming pool	15	6	19	45	0.002
Bath	11	9	37	15	NS
Shower	2	17	14	39	NS
Drinking tap water	8	12	37	35	NS

\* 2-tailed

† 'Not known' values omitted

† Odds ratio for either whirlpool use (estimate of relative risk) = 11 (95% confidence limits 3-35)

When cases and matched controls were analysed using the  $\chi^2$  for variable matching, similar significant differences were seen for the use of the swimming pool and spas, but again it was not possible to assess independent risk. Of those who used the spas, time spent in the water and the time of the day when the spa was used, was not significantly different when cases and both matched and unmatched controls were compared. When cases and matched controls were analysed by their smoking history a significantly higher proportion of cases were smokers.

The analysis was repeated with the 16 cases of Legionnaires' disease and matched and unmatched controls. Highly significant associations were again found with spa or swimming pool use, but as before it was not possible to determine independent risk because of small numbers.

Environmental studies: Legionella pneumophila serogroup 1 was isolated from the 2 spas and both hot and cold water systems in the hotel. In both spa samples the total coliform organisms and E. coli were greater than 1000/100mL and Pseudomonas aeruginosa was isolated.

The hot and cold water systems in the hotel were generally well maintained. The swimming pool was chlorinated automatically and a log was kept of treatment and the result of testing for free residual chlorine, pH and temperature. On the first day of investigation, the free residual chlorine level in the swimming pool was found to be 2.5mg/L, the pH 8.4 and the temperature 20°C.

The spas were poorly maintained and a log of water treatment and test results was not kept. Both spas had usually been dosed manually each day with sodium bromide and the oxidising agent potassium peroxymonosulphate together with a clarifying agent and scale inhibitor. At some time, prior to recognition of the outbreak, the hotel's supply of these chemicals ran out and the treatment changed to once daily manual dosing with sodium hypochlorite solution to achieve an initial level of 5mg/L free residual chlorine. On the first day of investigation no free residual chlorine was detected in either spa; the temperature in one was 36°C and the other 35°C. On inspection all filters were clogged with hair and other debris.

Control measures: control measures were implemented as soon as the water samples had been collected for microbiological examination. The spas were treated by superchlorination and then taken out of use. As a precautionary measure the hot and cold water systems were chlorinated continuously to achieve 1-2mg/L free residual chlorine at taps and showers and the hot water circulated at temperatures between 50 and 60°C. No cases have occurred in association with the hotel since 13 July 1984.

Discussion This report describes an outbreak of Legionnaires' disease and Pontiac fever, the extent of which was determined as a result of extensive case searching. Because of the largely retrospective nature of the investigation, attempts to obtain clinical isolates were unsuccessful. The findings of the epidemiological investigation, however, together with the environmental microbiology results, strongly suggest that the spas in the hotel were the source of this outbreak of

legionellosis. The apparent association with use of the swimming pool may be explained by the fact that most spa users also swam in the swimming pool. The maintenance, treatment and routine microbiological testing of the swimming pool was satisfactory and L. pneumophila was not isolated.

Once daily chemical treatment regimes for heavily used, commercial spas must be open to question. The method used at the time of the outbreak, of a single chlorination each morning to 5mg/L, would have had only a transient effect on microbial growth. A requirement to keep a log of treatment, filter changes, pH and free residual halogen would have demonstrated the inadequacy of the regime to those responsible for pool maintenance. There have been many reports of infections, particularly those caused by Pseudomonas aeruginosa associated with inadequately treated spas.

## AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

REPORTING PERIOD - 20/1/86 - 2/2/86 BULLETIN NUMBER 86/3  
 VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

VIRUS OR VIRAL ANTIGEN	ICPMR		PHH/	FAIR-			STATE	STATE	Total
	(NSW)/ WVH (ACT)	RAHC (NSW)	POW (NSW)	FIELD (VIC)	RCH (VIC)	IMVS (SA)	LAB (QLD)	LAB (WA)	
0100 ADENOVIRUS NOT TYPED.....	2		6	1	2		5	1	17
0101 ADENOVIRUS TYPE 1.....	1			1		1		1	4
0102 ADENOVIRUS TYPE 2.....				2				1	3
0103 ADENOVIRUS TYPE 3.....				1		3			4
0199 ADENOVIRUS TYPING PENDING.....					6				6
0201 INFLUENZA A VIRUS.....	2	1							3
0203 INFLUENZA B VIRUS.....	2			3					5
0301 PARAINFLUENZA VIRUS TYPE 1.....					1				1
0303 PARAINFLUENZA VIRUS TYPE 3.....				1	7	4		2	14
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)...	1		1		1		2	1	6
0500 RHINOVIRUS (ALL TYPES).....			1	4	15	6	3		29
0600 MYCOPLASMA PNEUMONIAE.....	11	1	1	1		1		1	16
0700 ORNITHOSIS-PSITTACOSIS.....	3		1	4		1			9
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED.....							1		1
0816 COXSACKIEVIRUS A16.....				1					1
0904 COXSACKIEVIRUS B4.....	3	2		2					7
1002 ECHOVIRUS TYPE 2.....								2	2
1005 ECHOVIRUS TYPE 5.....		1							1
1007 ECHOVIRUS TYPE 7.....				1				3	4
1011 ECHOVIRUS TYPE 11.....	1								1
1014 ECHOVIRUS TYPE 14.....								1	1
1020 ECHOVIRUS TYPE 20.....	4							2	6
1100 POLIOVIRUS NOT TYPED.....			1						1
1101 POLIOVIRUS TYPE 1.....	1			2		1			4
1102 POLIOVIRUS TYPE 2.....		2							2
1103 POLIOVIRUS TYPE 3.....	1								1
1200 MUMPS VIRUS.....	1			2					3
1300 HERPES VIRUS GROUP-NOT TYPED.....	26			3				2	31
1301 HERPES SIMPLEX VIRUS NOT-TYPED.....		2							2
1302 EPSTEIN-BARR VIRUS (EB VIRUS).....	13	1	3					4	21
1303 VARICELLA-ZOSTER VIRUS.....	2	1		3		1		1	8
1306 HERPES SIMPLEX TYPE 1.....	28			35	1	17	53	24	158
1307 HERPES SIMPLEX TYPE 2.....	109		1	66		8	68	38	290
1399 HERPES VIRUS TYPING PENDING.....					4				4
1401 COXIELLA BURNETI.....	1			1					2
1502 PICORNA VIRUS-NOT TYPED.....	5		13					3	21
1521 MEASLES VIRUS.....	1			1					2
1522 RUBELLA VIRUS.....	11	1	2	9	1	1		1	26
1530 HEPATITIS A VIRUS.....		1							1
1532 HEPATITIS B ANTIGEN.....	51		4	17		38	8	14	132
1535 HEPATITIS A ANTIBODY.....	4		2	3			3	20	32
1541 CHLAMYDIA A - C TRACHOMATIS.....	49		3			40	2	55	149
1556 CMV - CYTOMEGALOVIRUS.....	6	1	2	15	5	5		4	38
1563 CORONAVIRUS.....				1				1	2
1564 ROTAVIRUS.....	9	1	3		2	4			19
1599 ENTEROVIRUS TYPING PENDING.....			12		8				20
9992 ROSS RIVER VIRUS.....			1	6				3	10
9994 SMALL VIRUS (LIKE) PARTICLE.....	4	1							5
Total.....	352	16	57	186	53	131	145	185	1,125

## AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 20/1/86 - 2/2/86

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	Respir atory	Enceph alitis	Mening -itis	Para- lysis	CNS other unspec	GI	Hepa -tic	CVS	Urin -ary	Skin/ muc memb
0101 ADENOVIRUS TYPE 1.....			3					1			
0102 ADENOVIRUS TYPE 2.....			2					1			
0103 ADENOVIRUS TYPE 3.....			1								1
0201 INFLUENZA A VIRUS.....	1		1							1	
0203 INFLUENZA B VIRUS.....	1		4							1	
0301 PARAINFLUENZA VIRUS TYPE 1....			1								
0303 PARAINFLUENZA VIRUS TYPE 3....			14				1				
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....			6								
J500 RHINOVIRUS (ALL TYPES).....			10								
0600 MYCOPLASMA PNEUMONIAE.....	2		11				1				
0700 ORNITHOSIS-PSITTACOSIS.....	1		5			2					
0800 COXSACKIEVIRUSES GROUP A - NOT TYPED.....											1
0816 COXSACKIEVIRUS A16.....											1
0904 COXSACKIEVIRUS B4.....	1	1		3							1
1002 ECHOVIRUS TYPE 2.....							2				
1005 ECHOVIRUS TYPE 5.....							1				
1007 ECHOVIRUS TYPE 7.....				2		1					
1011 ECHOVIRUS TYPE 11.....				1							
1014 ECHOVIRUS TYPE 14.....							1				
1020 ECHOVIRUS TYPE 20.....	1	1					3				
1101 POLIOVIRUS TYPE 1.....			2				2				
1102 POLIOVIRUS TYPE 2.....				1							
1103 POLIOVIRUS TYPE 3.....	1										
1200 MUMPS VIRUS.....	1						1				
1301 HERPES SIMPLEX VIRUS NOT-TYPED				1			1				
1302 EPSTEIN-BARR VIRUS (EB VIRUS)..	5	1						2			
1303 VARICELLA-ZOSTER VIRUS.....											7
1306 HERPES SIMPLEX TYPE 1.....	12	9		1				1		2	72
1307 HERPES SIMPLEX TYPE 2.....	14	2			1		1				46
1502 PICORNA VIRUS-NOT TYPED.....		3				1	14			1	
1522 RUBELLA VIRUS.....	3		1					1			15
1530 HEPATITIS A VIRUS.....								1			
1532 HEPATITIS B ANTIGEN.....	45							79			
1535 HEPATITIS A ANTIBODY.....	1							30			
1541 CHLAMYDIA A - C.TRACHOMATIS...	1							1			
1556 CMV - CYTOMEGALOVIRUS.....	2	10		1						2	1
1563 CORONAVIRUS.....							1				
1564 ROTAVIRUS.....	1						17				
9992 ROSS RIVER VIRUS.....											5
9994 SMALL VIRUS (LIKE) PARTICLE...							5				
Total.....	94	87	2	9	1	4	53	115	3	4	150

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

REPORTING PERIOD - 20/1/86 - 2/2/86

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 20/1/86 - 2/2/86

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	Gen-ital	Endo/sal gland	RES	Muscle/joint	Con-genital	PUO	Fever/malaise	Other	SIDS
0102 ADENOVIRUS TYPE 2.....								1		
0103 ADENOVIRUS TYPE 3.....							1	1		
0203 INFLUENZA B VIRUS.....							1			
0500 RHINOVIRUS (ALL TYPES).....								3		
0600 MYCOPLASMA PNEUMONIAE.....			1		1		2		1	
0700 ORNITHOSIS-PSITTACOSIS.....							1		1	
0904 COXSACKIEVIRUS B4.....							1	1		
1007 ECHOVIRUS TYPE 7.....			1				1			
1020 ECHOVIRUS TYPE 20.....								1		
1102 POLIOVIRUS TYPE 2.....									1	
1200 MUMPS VIRUS.....			2							
1300 HERPES VIRUS GROUP-NOT TYPED..									1	
1302 EPSTEIN-BARR VIRUS (EB VIRUS)..			12	1				2		
1303 VARICELLA-ZOSTER VIRUS.....								1	1	
1306 HERPES SIMPLEX TYPE 1.....	2	64							2	1
1307 HERPES SIMPLEX TYPE 2.....		232	1							
1401 COXIELLA BURNETI.....								1	1	
1502 PICORNA VIRUS-NOT TYPED.....					1			2		
1521 MEASLES VIRUS.....					1				1	
1522 RUBELLA VIRUS.....		1			2	3		2	5	
1532 HEPATITIS B ANTIGEN.....									8	
1535 HEPATITIS A ANTIBODY.....								1		
1541 CHLAMYDIA A - C.TRACHOMATIS...	1	148								
1556 CMV - CYTOMEGALOVIRUS.....		2				2	5	1	14	
1563 CORONAVIRUS.....				1						
1564 ROTAVIRUS.....									1	
9992 ROSS RIVER VIRUS.....					8			2		
Total.....	3	447	17	2	13	5	12	19	37	1

## NOTIFIABLE DISEASES REPORTED IN AUSTRALIA

Period 9  
11 August 1985 to 7 September 1985 Bulletin ..86/3.

Disease	N.S.W.	VIC	QLD	S.A.	W.A.	TAS.	N.T.	A.C.T.	Total	CUMULATIVE TOTAL TO DATE FOR YEAR
Amoebiasis		1							1	22
Ankylostomiasis			1	3			N.N.		4	31
Anthrax									-	-
Arbovirus infection	3		367						370	443
Brucellosis	1		2						3	12
Campylobacter infections	66	N.N.	N.N.	80	7	N.N.	2	N.N.	155	1520
Chancroid	1			N.N.	2	N.N.			3	8
Cholera									-	-
Congenital rubella syndrome		N.N.	N.N.	1	N.N.	N.N.	N.N.	N.N.	1	1
Diphtheria			1				2		3	9
Donovanosis		N.N.	1	1	3	N.N.			5	57
Giardiasis	29	N.N.	N.N.	58	N.N.	N.N.	N.N.	N.N.	87	828
Genital herpes	74	N.N.	3	25	N.N.	N.N.	3		105	1173
Gonococcal ophthalmia neonatorum		N.N.	N.N.		N.N.	N.N.		N.N.	-	5
Gonorrhoea	101	68	58	45	109	4	67	4	456	5486
Hepatitis A (infectious)	19	7	15	12	5		6		64	508
Hepatitis B (serum)	43	16	18	5	26		7	1	116	*1117
Hepatitis - unspecified	2	1		1		N.N.			4	74
Hydatid disease	1		1			1			3	7
Lassa Fever		N.N.	N.N.			N.N.	N.N.	N.N.	-	1
Legionnaires' disease			N.N.			N.N.		N.N.	-	16
Leprosy	1								1	30
Leptospirosis	3	1	2	2					8	147
Lymphogranuloma venereum		N.N.	N.N.	N.N.	N.N.	N.N.			-	3
Malaria	3	5	52	1	4	1	4	2	72	* 458
Marburg Disease		N.N.	N.N.			N.N.	N.N.	N.N.	-	-
Meningococcal infections	2	6	3		1	N.N.			12	41
Non-specific urethritis	281	N.N.	N.N.	95	N.N.	N.N.		N.N.	376	3314
Ornithosis		1							1	7
Pertussis (whooping cough)	4	14	N.N.	9	N.N.	N.N.	N.N.	N.N.	27	350
Plague									-	-
Poliomyelitis									-	-
Q. fever	1		5	5			N.N.		11	143
Rabies		N.N.	N.N.	N.N.		N.N.	N.N.	N.N.	-	-

2.

DISEASE	N.S.W.	VIC	QLD	S.A.	W.A.	TAS.	N.T.	A.C.T.	Total	CUMULATIVE TOTAL TO DATE FOR YEAR
Salmonella Infections	31	13	14	17	7	6	14	2	104	1990
Shigella Infections	14	1	7		5		11		38	536
Smallpox									-	-
Syphilis	41	9	14	7	32		77		180	1630
Tetanus			1	1					2	8
Trachoma		N.N.				N.N.	N.N.		-	4
Tuberculosis (all forms)	22	24	18	8	9		2	N.N.	83	*770
Typhoid fever		1	3						4	23
Typhus (all forms)	1								1	5
Vibrio parahaemolyticus infections		N.N.	N.N.			N.N.		N.N.	-	4
Yellow Fever									-	-
Yersinia enterocolitica Infections	4	N.N.	N.N.			N.N.		N.N.	5	29

(Note: Data collected under the Notifiable Diseases Returns may bear little or no correlation to that collected under the QDF laboratory scheme. Whilst the latter is a sampling program, the Notifiable Diseases data is dependent upon voluntary reporting by medical practitioners etc.)

N.N. Not Notifiable

* Malaria	+32	Queensland
Tuberculosis (all forms)	- 1	A.C.T.
- " -	- 1	South Australia
Hepatitis B (Serum)	- 3	South Australia
Arbovirus infection	+353	Queensland (1/1/85 to 10/8/85)