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Communicable Diseases Intelligence

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VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTING SCHEME: A total of 1463 reports were processed during this period.

Seven cases of Q fever were reported through the CDI reporting scheme during this period; ages ranged from 22 to 58 years. No occupational data were available. An additional two cases of Q fever were reported by Dr B Lynch, Pathologist, of Rockhampton; one male and one female, both graziers.

Herpes simplex virus type 1 was isolated from:

- the brain biopsy of a 58 year old male with encephalitis whose CT scan showed a temporal lobe abnormality; the patient was being treated with acyclovir;
- liver and gut postmortem specimens from a 56 year old male who died 17 days after a renal transplant;
- CSF and nasal aspirate from a neonate with fatal hepato-renal syndrome who died at 10 days of age; HSV1 was also isolated from postmortem lung tissue.

Cytomegalovirus was isolated from the breast milk of a woman with primary CMV infection, 2 months after delivery.

Influenza A/Tiawan/1/86(H1N1) was isolated from two boys aged 7 and 11 years, and influenza A/Vic/7/87(H3N2) from 3 children - two boys and a girl aged 5 years, 5 months and 4 months.

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An increase in activity of parainfluenza type 1 has been observed compared to 1987. Incidence data for parainfluenza type 1 in the months of January to May for 1987 and 1988 are shown in Figure 1. As data for late June are still being received this has not been included in this figure. Eighty-nine per cent of parainfluenza type 1 cases have been in children under 5 years of age (see Figure 2). No significant increase has been observed in the incidence of parainfluenza types 2 and 3 at this stage.

Figure 1: Cases of parainfluenza type 1, January to May, 1987 and 1988

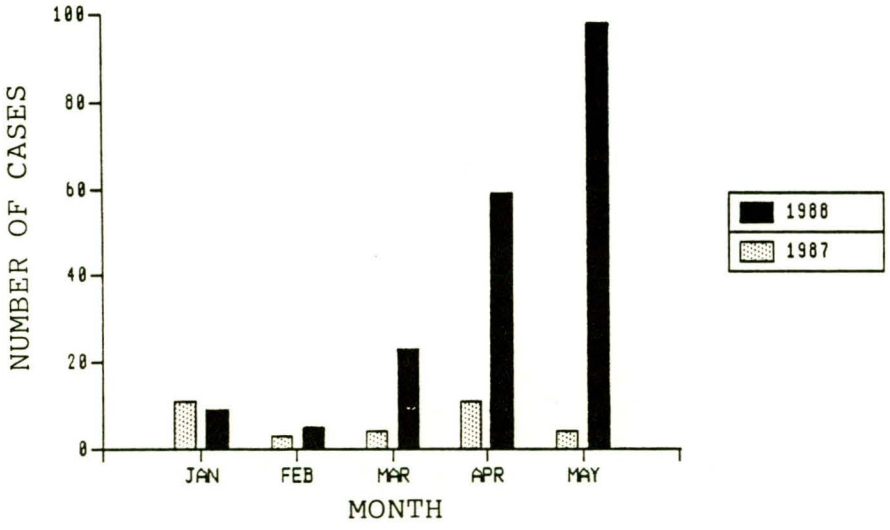
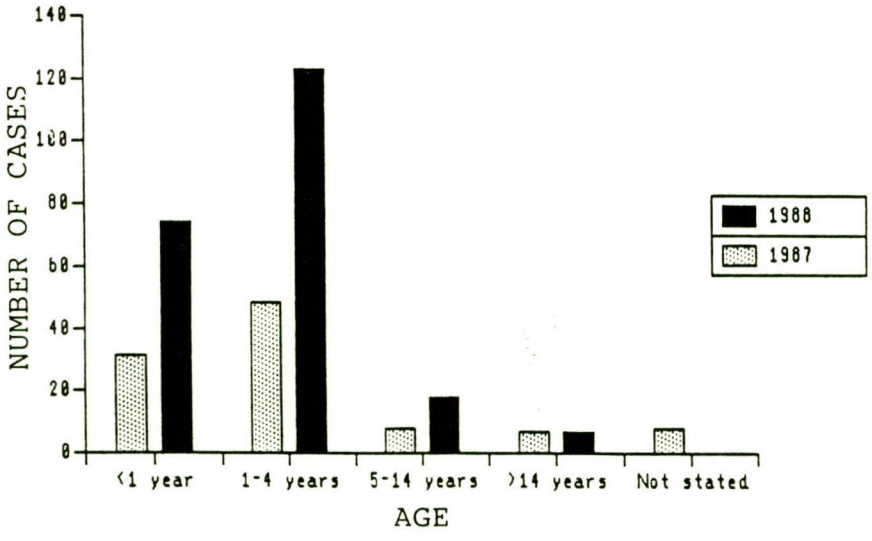


Figure 2: Age distribution of parainfluenza type 1, 1987 and 1988*



* This data covers January to December 1987, and January to June 1988.

LEGIONNAIRES' DISEASE IN VICTORIA 1987

(Contributed by Dr S. Ng, District Health Officer, Health Department of Victoria)

Seven cases of Legionnaires' disease were notified in Victoria in 1987.

The cases were sporadically distributed over the year; the male/female ratio was 6.1:1 and the mean age was 65.8 years.

The sources of infection were not defined in four cases; in the other cases, two were nosocomially acquired and the other was associated with the epidemic in Wollongong, New South Wales.

Extensive epidemiological investigations of the two nosocomial cases failed to identify the source of the infection in one patient, but in the other *Legionella pneumophila* serogroup 6 was isolated from a cooling tower servicing the operating theatre. This same species and serogroup was cultured from a specimen of sputum from the patient who was in hospital for elective surgery.

The case fatality rate was 28.5% (2/7). The deaths occurred in the patients with nosocomial infection, one with immunosuppression due to steroid treatment for hepatitis with cirrhosis, and the other an asthmatic who developed pneumonia post-operatively. Both patients were males.

In five of the cases the presenting condition was pneumonia. In the remaining two cases the main complaints were persistent severe fatigue, muscular pains and weakness. However, radiological investigation of these cases showed pulmonary infection.

L pneumophila continues to account for the majority of cases in Victoria. All seven cases in 1987 were caused by *L pneumophila*.

A review of the forty two cases which occurred in Victoria in the last five years (1983 - 1987) showed that 38/42 cases (90.5%) were caused by *L pneumophila* with serogroup 1 responsible for more than half the cases (20/42). *L micdadei*, *L bozemanii* serogroup 2 and *L longbeachae* serogroup 2 accounted for the remaining 9.5%.

CDI Editorial Comment

In Australia, Legionnaires' disease usually occurs as sporadic cases or small circumscribed epidemics. A large outbreak of Legionnaires' disease (44 confirmed cases including 9 deaths) occurred in Wollongong, NSW, in April 1987[1] and an outbreak occurred in Adelaide, SA, in December 1985 to January 1986 (19 confirmed cases including 1 death; in another two deaths Legionnaires' disease was suspected)[2]. Cases of Legionnaires' disease notified to State and Territory health authorities from 1981-1987 are shown in Table 1. A review of Legionnaires' disease in Victoria for 1983-1985 has been published previously in the CDI[3].

The National Health and Medical Research Committee is currently revising Australian guidelines for the control of Legionella and Legionnaires' disease.

Table 1: Cases of Legionnaires' disease notified in States and Territories of Australia, 1981-1987.

Year	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
1981	NN	3	NN	14	NN	NN	NN	NN	17
1982	2	-	NN	15	NN	NN	NN	NN	17
1983	4	8	NN	9	NN	NN	NN	NN	21
1984	7	4	NN	2	NN	NN	NN	NN	13
1985	16	4	NN	5	3	NN	-	NN	28
1986	25	11	NN	28	4	NN	-	NN	68
1987	82	7	NN	3	4	NN	-	NN	96

NN = Not notifiable.

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AIDS UPDATE - INTERNATIONAL

(Based on WER (1988) 63: 203-5)

Country/Area	Number of cases	Date of report
Africa		
Algeria	13	26.03.88
Angola	6	26.09.86
Benin	9	31.12.87
Botswana	16	27.01.88
Burkina Faso	26	30.06.87
Burundi	1 156	29.02.88
Cameroon	25	05.03.87
Cape Verde	4	30.04.87
Central African Republic	254	31.10.86
Chad	1	13.11.86
Comoros	1	31.05.88
Congo	1 250	09.12.87
Côte d'Ivoire	250	20.11.87
Djibouti	—	01.10.87
Egypt	5	31.01.88
Equatorial Guinea	—	16.05.88
Ethiopia	37	29.04.88
Gabon	18	31.03.88
Gambia	35	08.03.88
Ghana	145	25.05.87
Guinea	4	12.11.87
Guinea-Bissau	16	20.11.87
Kenya	1 497	31.12.87
Lesotho	2	27.11.87
Liberia	2	11.03.88
Libyan Arab Jamahiriya	—	31.12.87
Madagascar	—	25.04.87
Malawi	583	31.10.87
Mali	29	14.01.88
Mauritania	—	13.11.86
Mauritius	1	12.03.88
Morocco	9	31.12.87
Mozambique	9	30.04.88
Niger	9	14.10.87
Nigeria	11	31.03.88
Reunion	3	28.04.88
Rwanda	901	30.11.87
Sao Tomé and Principe	1	11.02.88
Senegal	66	04.12.87
Seychelles	—	13.11.86
Sierra Leone	3	04.05.88
Somalia	—	31.12.87
South Africa	120	19.04.88
Sudan	23	20.03.88
Swaziland	7	01.07.87
Togo	2	10.12.87
Tunisia	19	30.01.88
Uganda	2 369	31.10.87
United Republic of Tanzania	1 608	17.10.87
Zaire — Zaire	335	30.06.87
Zambia — Zambie	754	28.04.88
Zimbabwe	119	30.04.88
Total	11 753	

Country/Area	Number of cases	Date of report
Americas		
Anguilla	—	31.03.88
Antigua and Barbuda	3	30.06.87
Argentina	163	31.03.88
Bahamas	188	31.03.88
Barbados	55	31.12.87
Belize	7	31.12.87
Bermuda	75	30.09.87
Bolivia	6	22.01.88
Brazil	2 956	02.04.88
British Virgin Islands	—	31.03.87
Canada	1 775	27.04.88
Cayman Islands	3	31.12.87
Chile	69	31.03.88
Colombia	174	31.12.87
Costa Rica	43	31.12.87
Cuba	27	31.12.87
Dominica	4	31.12.87
Dominican Republic	504	31.03.88
Ecuador	39	31.03.88
El Salvador	23	31.12.87
French Guiana	113	31.03.88
Grenada	8	31.12.87
Guadeloupe	74	31.12.87
Guatemala	34	31.12.87
Guyana	14	31.12.87
Haiti	1 374	31.03.88
Honduras	109	31.03.88
Jamaica	56	31.03.88
Martinique	38	31.12.87
Mexico	1 302	01.04.88
Montserrat	—	30.09.87
Nicaragua	—	31.12.87
Panama	30	31.12.87
Paraguay	8	31.12.87
Peru	69	31.12.87
Saint Kitts and Nevis	1	30.09.87
Saint Lucia	10	31.12.87
Saint Vincent and the Grenadines	8	31.12.87
Suriname	9	31.12.87
Trinidad and Tobago	227	31.12.87
Turks and Caicos Islands	5	31.12.87
United States of America	65 099	20.06.88
Uruguay	20	31.03.88
Venezuela	140	31.12.87
Total	74 862	

Country/Area	Number of cases	Date of report
Asia		
Afghanistan	—	31.12.87
Bahrain	—	31.12.87
Bangladesh	—	14.04.87
Bhutan	—	14.04.87
Brunei Darussalam	—	08.09.87
Burma	—	14.04.87
China	2	08.09.87
China (Province of Taiwan)	1	26.01.86
Cyprus	3	01.06.87
Democratic People's Republic of Korea	—	10.05.88
Democratic Yemen	—	31.12.87
Hong Kong	12	26.04.88
India	9	09.05.87
Indonesia	1	21.04.87
Iran (Islamic Republic of)	—	31.12.87
Iraq	—	31.12.87
Israel	58	31.03.88
Japan	66	19.01.88
Jordan	3	24.12.87
Kuwait	1	31.12.87
Lebanon	5	31.12.87
Malaysia	3	31.01.88
Maldives	—	30.06.87
Mongolia	—	31.12.87
Nepal	—	09.05.87
Pakistan	1	31.12.87
Philippines	13	07.04.88
Qatar	32	31.12.87
Republic of Korea	3	23.04.88
Singapore	4	31.01.88
Sri Lanka	2	19.05.88
Syrian Arab Republic	3	20.03.88
Thailand	12	12.10.87
Turkey	9	31.05.88
Viet Nam	—	08.09.87
Yemen	—	31.12.87
Total	**243**	
Europe		
Albania	—	31.03.88
Austria	176	03.05.88
Belgium	340	01.05.88
Bulgaria	1	31.12.87

Country/Area	Number	Date of report
Europe *(contd)*		
Czechoslovakia	10	31.03.88
Denmark	263	01.05.88
Finland	27	31.03.88
France	3 628	31.03.88
German Democratic Republic	6	31.12.87
Germany, Federal Republic of	2 091	31.05.88
Greece	106	31.03.88
Hungary	12	06.05.88
Iceland	5	01.05.88
Ireland	37	31.03.88
Italy	1 865	30.04.88
Luxembourg	10	01.05.88
Malta	10	22.04.88
Monaco	1	31.12.87
Netherlands	526	01.06.88
Norway	81	18.05.88
Poland	3	06.05.88
Portugal	125	01.05.88
Romania	4	12.04.88
San Marino	—	18.02.88
Spain	1 126	01.04.88
Sweden	197	31.05.88
Switzerland	439	31.03.88
USSR	4	31.12.87
United Kingdom	1 463	30.04.88
Yugoslavia	38	31.03.88
Total	**12 594**	
Oceania		
Australia	872	06.06.88
Cook Islands	—	08.09.87
Fiji	—	08.09.87
French Polynesia	1	31.01.88
Kiribati	—	18.01.88
Mariana Islands	—	05.08.87
New Caledonia and Dependencies	—	08.09.87
New Zealand	84	13.06.88
Papua New Guinea	—	08.09.87
Samoa	—	08.09.87
Solomon Islands	—	08.09.87
Tonga	1	06.10.87
Tuvalu	—	08.09.87
Vanuatu	—	31.03.88
Total	**958**	
World total — Total mondial	**100 410**	

UNIVERSAL PRECAUTIONS FOR PREVENTION OF TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS, HEPATITIS B VIRUS, AND OTHER BLOODBORNE PATHOGENS IN HEALTH-CARE SETTINGS

(Based on MMWR 24 June 1987, Vol 37, No 24)

In August 1987, the Centers for Disease Control, Atlanta, Georgia (CDC) recommended that blood and body fluid precautions be consistently used for all patients regardless of their bloodborne infection status. This is referred to as "Universal Blood and Body Fluid Precautions" or "Universal Precautions." Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus (HBV), and other bloodborne pathogens.

Universal precautions are intended to prevent parenteral, mucous membrane, and nonintact skin exposures of health-care workers to bloodborne pathogens. In addition, immunisation with HBV vaccine is recommended as an important adjunct to universal precautions for health-care workers who have exposures to blood [3,4].

Since the recommendations for universal precautions were published in August 1987, CDC and the Food and Drug Administration (FDA) have received requests for clarification of the following issues:

1) body fluids to which universal precautions apply;
2) use of protective barriers;
3) use of gloves for venepuncture;
4) selection of gloves for use while observing universal precautions; and
5) need for making changes in waste management programs as a result of adopting universal precautions.

Body Fluids to Which Universal Precautions Apply

Universal precautions apply to:

. blood;
. semen
. vaginal secretions
. tissues
. cerebrospinal fluid (CSF);
. synovial fluid;
. pleural fluid;
. peritoneal fluid;
. pericardial fluid;
. amniotic fluid; and
. other body fluids containing visible blood.

Occupational transmission of HIV and HBV to health-care workers by blood has been documented[4,5]. **Blood is the single most important source of HIV, HBV, and other bloodborne pathogens in the occupational setting. Infection control efforts for HIV, HBV, and other bloodborne pathogens must focus on preventing exposures to blood as well as on delivery of HBV immunisation.**

Although both semen and vaginal secretions have been implicated in the sexual transmission of HIV and HBV, they have not been implicated in occupational transmission from patient to health-care worker. This observation is not unexpected, since exposure to semen in the usual health-care setting is limited, and the routine practice of wearing gloves for performing vaginal examinations protects health-care workers from exposure to potentially infectious vaginal secretions.

The risk of transmission of HIV and HBV from fluids such as CSF, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid is unknown; epidemiological studies in the health-care and community setting are currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial, and amniotic fluid[6-8], and HBsAg has been detected in synovial fluid, amniotic fluid, and peritoneal fluid[9-11]. One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration[12]. Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

Body Fluids to Which Universal Precautions Do Not Apply

Universal precautions do not apply to:

- feaces;
- nasal secretions;
- sputum;
- sweat;
- tears;
- urine; and
- vomitus,

unless they contain visible blood.

The risk of transmission of HIV and HBV from these fluids and materials is extremely low or nonexistent. HIV has been isolated and HBsAg has been demonstrated in some of these fluids; however, epidemiological studies in the health-care and community setting have not implicated these fluids or materials in the transmission of HIV and HBV infections[13,14]. **Some of the above fluids and excretions represent a potential source for nosocomial and community-acquired infections with other pathogens, and recommendations for preventing the transmission of nonbloodborne pathogens have been published**[2].

Precautions for Other Body Fluids (Human Breast Milk and Saliva) in Special Settings

Human breast milk has been implicated in perinatal transmission of HIV, and HBsAg has been found in the milk of mothers infected with HBV[10,13]. However, occupational exposure to human breast milk has not been implicated in the transmission of HIV nor HBV infection to health-care workers. Moreover, the health-care worker will not have the same type of intensive exposure to breast milk as the nursing neonate. Whereas universal precautions do not apply to human breast milk, gloves may be worn by health-care workers in situations where exposures to breast milk might be frequent, for example, in breast milk banking.

Saliva of some persons infected with HBV has been shown to contain HBV-DNA at concentrations 1/1,000 to 1/10,000 of that found in the infected person's serum[15]. HBsAg-positive saliva has been shown to be infectious when injected into experimental animals and in human bite exposures[16-18]. However, HBsAg-positive saliva has not been shown to be infectious when applied to oral mucous membranes in experimental primate studies[18] or through contamination of musical instruments or cardiopulmonary resuscitation dummies used by HBV carriers[19,20]. Epidemiological studies of nonsexual household contacts of HIV-infected patients, including several small series in which HIV transmission failed to occur after bites or after percutaneous inoculation or contamination of cuts and open wounds with saliva from HIV-infected patients, suggest that the potential for salivary transmission of HIV is remote[5,13,14,21,22]. One case report from Germany has suggested the possibility of transmission of HIV in a household setting from an infected child to a sibling through a human bite[23]. The bite did not break the skin or result in bleeding. Since the date of seroconversion to HIV was not known for either child in this case, evidence for the role of saliva in the transmission of virus is unclear[23].

Another case report suggested the possibility of transmission of HIV from husband to wife by contact with saliva during kissing[24]. However, follow-up studies did not confirm HIV infection in the wife[21].

Universal precautions do not apply to saliva. General infection control practices already in existence - including the use of gloves for digital examination of mucous membranes and endotracheal suctioning, and handwashing after exposure to saliva - should further minimise the minute risk, if any, for salivary transmission of HIV and HBV[1,25]. Gloves need not be worn when feeding patients and when wiping saliva from skin.

Special precautions, however, are recommended for dentistry[1]. Occupationally acquired infection with HBV in dental workers has been documented[4], and two possible cases of occupationally acquired HIV infection involving dentists have been reported[5,26]. During dental procedures, contamination of saliva with blood is predictable, trauma to health-care workers' hands is common, and blood spattering may occur. Infection control precautions for dentistry minimise the potential for nonintact skin and mucous membrane contact of dental health-care workers to blood-contaminated saliva of patients. In addition, the use of gloves for oral examinations and treatment in the dental setting may also protect the patient's oral mucous membranes from exposures to blood, which may occur from breaks in the skin of dental workers' hands.

Use of Protective Barriers

Protective barriers reduce the risk of exposure of the health-care worker's skin or mucous membranes to potentially infectious materials. For universal precautions, protective barriers reduce the risk of exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. Examples of protective barriers include gloves, gowns, masks, and protective eyewear. Gloves should reduce the incidence of contamination of hands, but they cannot prevent penetrating injuries due to needles or other sharp instruments. Masks and protective eyewear or face shields should reduce the incidence of contamination of mucous membranes of the mouth, nose, and eyes.

Universal precautions are intended to supplement rather than replace recommendations for routine infection control, such as handwashing and using gloves to prevent gross microbial contamination of hands[27]. Because specifying the types of barriers needed for every possible clinical situation is impractical, some judgement must be exercised.

The risk of nosocomial transmission of HIV, HBV, and other bloodborne pathogens can be minimised if health-care workers use the following general guidelines:

1. Take care to prevent injuries when:

   - using needles, scalpels, and other sharp instruments or devices;
   - handling sharp instruments after procedures;
   - cleaning used instruments;
   - disposing of used needles.

Do not recap used needles by hand.

Do not remove used needles from disposable syringes by hand.

Do not bend, break, or otherwise manipulate used needles by hand.

Place used disposable syringes and needles, scalpel blades, and other sharp items in puncture-resistant containers for disposal. Locate the puncture-resistant containers as close to the use area as is practical.

2. Use protective barriers to prevent exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. The type of protective barrier(s) should be appropriate for the procedure being performed and the type of exposure anticipated.

3. Immediately and thoroughly wash hands and other skin surfaces that are contaminated with blood, body fluids containing visible blood, or other body fluids to which universal precautions apply.

The August 1987 publication[1] should be consulted for general information and specific recommendations not addressed in this article.

Glove Use for Venepuncture

Gloves should reduce the incidence of blood contamination of hands during venepuncture (drawing blood samples), but they cannot prevent penetrating injuries caused by needles or other sharp instruments.

The likelihood of hand contamination with blood containing HIV, HBV, or other bloodborne pathogens during venepuncture depends on:

. the skill and technique of the health-care worker;

. the frequency with which the health-care worker performs the procedure (other factors being equal, the cumulative risk of blood exposure is higher for a health-care worker who performs more procedures);

. whether the procedures occurs in a routine or emergency situation (where blood contact may be more likely); and

. the prevalence of infection with bloodborne pathogens in the patient population.

The likelihood of infection after skin exposure to blood containing HIV and HBV will depend on:

. the concentration of virus (viral concentration is much higher for hepatitis B than for HIV);

. the duration of contact;

. the presence of skin lesions on the hands of the health-care worker; and

. the immune status of the health-care worker (for HBV).

Although not accurately quantified, the risk of HIV infection following intact skin contact with infective blood is certainly much less than the 0.5% risk following percutaneous needlestick exposures[5]. In universal precautions, all blood is assumed to be potentially infective for bloodborne pathogens, but in certain settings (eg volunteer blood-donation centers) the prevalence of infection with some bloodborne pathogens (eg HIV, HBV) is known to be very low. Some institutions have relaxed recommendations for using gloves for venepuncture procedures by skilled blood collectors in settings where the prevalence of bloodborne pathogens is known to be very low.

Institutions that judge that routine gloving for all blood collections is not necessary should periodically reevaluate their policy. Gloves should always be available to health-care workers who wish to use them for venepuncture.

In addition, the following general guidelines apply:

1. Use gloves for performing venepuncture when the health-care worker has cuts, scratches, or other breaks in his/her skin.

2. Use gloves in situations where the health-care worker judges that hand contamination with blood may occur, for example, when performing venepuncture on an uncooperative patient.

3. Use gloves for performing finger and/or heel sticks on infants and children.

4. Use gloves when persons are receiving training in venepuncture.

Selection of Gloves

Medical gloves include those marketed as sterile surgical or nonsterile examination gloves made of vinyl or latex. General purpose utility ('rubber') gloves are also used in the health-care setting, but they are not promoted for medical use. There are no reported differences in barrier effectiveness between intact latex and intact vinyl used to manufacture gloves. Thus, the type of gloves selected should be appropriate for the task being performed.

The following general guidelines are recommended:

1. Use sterile gloves for procedures involving contact with normally sterile areas of the body.

2. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other patient care or diagnostic procedures that do not require the use of sterile gloves.

3. Change gloves between patient contacts.

4. Do not wash or disinfect surgical or examination gloves for reuse. Washing with surfactants may cause 'wicking', ie. the enhanced penetration of liquids through undetected holes in the glove. Disinfecting agents may cause deterioration.

5. Use general-purpose utility gloves (eg, rubber household gloves) for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored, or if they have punctures, tears, or other evidence or deterioration.

Waste Management

Universal precautions are not intended to change waste management programs previously recommended by CDC for health-care settings[1]. Policies for defining, collecting, storing, decontaminating, and disposing of infective waste are generally determined by institutions in accordance with state and local regulations.

MMWR Editorial Note:

Implementation of universal precautions does not eliminate the need for other category- or disease-specific isolation precautions, such as enteric precautions for infectious diarrhoea or isolation for pulmonary tuberculosis[1,2]. In addition to universal precuations, detailed precautions have been developed for the following procedures and/or settings in which prolonged or intensive exposures to blood occur: invasive procedures, dentistry, autopsies or morticians' services, dialysis, and the clinical laboratory. These detailed precautions are found in the 21 August 1987, 'Recommendations for Prevention of HIV Transmission in Health-Care Settings'[1]. In addition, specific precautions have been developed for research laboratories[28].

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CONTACT TRACING FOR PREVENTING HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION - USA

(Based on MMWR 1 July 1988, Vol. 37, No. 25)

Contact tracing, known as partner notification in the USA, has been a component of sexually transmitted disease (STD) control programs for many years [1], and is a means to identify and target risk-reduction education to individuals at high risk for contracting or transmitting HIV infection. When applied to HIV infection, the term 'contact' includes not only sexual contacts but also intravenous drug users who share needles. Contact tracing for HIV infection or acquired immune deficiency syndrome (AIDS), as for all STDs, is highly confidential and depends upon the voluntary cooperation of the patient. Centers for Disease Control (CDC) currently recommends the following: 'Persons who are HIV-antibody positive should be instructed in how to notify their partners and to refer them for counselling and testing. If they are unwilling to notify their partners or if it cannot be assured that their partners will seek counselling, physicians or health department personnel should use confidential procedures to assure that the partners are notified' [3].

Two complementary notification processes can be used to identify contacts, patient referral and provider referral. With patient referral, HIV-infected patients choose to inform their own contacts directly of their risk of infection. Trained health department personnel can help instruct patients how to inform sexual and needle-sharing contacts sensitively about their potential risk for infection. With provider referral, infected patients request assistance in notifying some or all of their contacts; they voluntarily provide names, descriptions, and addresses so that the notification process can be carried out by trained health department staff. This process is designed to protect the anonymity of patients; their names are never revealed to sexual or needle-sharing contacts.

In the AIDS prevention and surveillance projects supported by CDC, states have been required to implement procedures for confidential notification of sexual and needle-sharing contacts of AIDS patients and HIV-seropositive individuals. All these states currently counsel HIV-infected clients seen in public counselling and testing sites about ways to reduce the risk of transmitting HIV. These states also counsel HIV-infected clients about the need to inform sexual and needle-sharing contacts of their risk of infection. Forty-eight states of the USA, Puerto Rico, the Virgin Islands, and the District of Columbia offer provider referral upon request by clients (Table 1). The other two states authorise notification by

Table 1: Contact tracing activities, for sexual and needle-sharing contacts of persons with AIDS or HIV infection, by state

State	Patient Referral*	Provider Referral on Request+	Provider Referral Emphasised#	Targeted Provider Referral@
Alabama	yes	yes	yes	no
Alaska	yes	yes	no	no
Arizona	yes	yes	yes	no
Arkansas	yes	yes	no	no
California	yes	yes	no	no
Colorado	yes	yes	yes	no
Connecticut	yes	yes	no	no
Delaware	yes	yes	no	no
District of Columbia	yes	yes	no	no
Florida	yes	yes	yes	no
Georgia	yes	no	no	yes
Hawaii	yes	yes	yes	no
Idaho	yes	yes	yes	no
Illinois	yes	yes	no	no
Indiana	yes	yes	no	no
Iowa	yes	yes	yes	no
Kansas	yes	yes	no	no
Kentucky	yes	yes	yes	no
Louisiana	yes	yes	no	no
Maine	yes	yes	no	no
Maryland	yes	yes	yes**	no
Massachusetts	yes	yes	no	no
Michigan	yes	yes	no	no
Minnesota	yes	yes	no	no
Mississippi	yes	yes	no	no
Missouri	yes	yes	no	no
Montana	yes	yes	no	no
Nebraska	yes	no	no	yes
Nevada	yes	yes	no	no
New Hampshire	yes	yes	no	no
New Jersey	yes	yes	yes	no
New Mexico	yes	yes	no	no
New York City	yes	yes	yes	no
New York State	yes	yes	yes	no
North Carolina	yes	yes	yes	no
North Dakota	yes	yes	no	no
Ohio	yes	yes	no	no
Oklahoma	yes	yes	no	no
Oregon	yes	yes	no	no
Pennsylvania	yes	yes	no	no
Puerto Rico	yes	yes	no	no
Rhode Island	yes	yes	no	no
South Carolina	yes	yes	yes	no
South Dakota	yes	yes	yes	no
Tennessee	yes	yes	no	no
Texas	yes	yes	no	no
Utah	yes	yes	no	no
Vermont	yes	yes	no	no
Virgin Islands	yes	yes	no	no
Virginia	yes	yes	no	no
Washington	yes	yes	no	no
West Virginia	yes	yes	no	no
Wisconsin	yes	yes	no	no
Wyoming	yes	yes	no	no

* infected patients are urged to inform their own sexual and needle-sharing contacts.

\+ Services of health department staff are made available to patients who request referral by a third party for certain contacts.

\# Referral by health department staff will be provided for all contacts when requested by index patients.

@ Health department contact tracing limited to specific types of contacts, eg, women of childbearing age, prostitutes, private physician patients, victims of rape or incest, etc.

** Baltimore, Maryland.

health department personnel when female contacts may not have known that a risk factor existed and/or in cases of rape or sexual abuse. Fifteen states have contact tracing programs that encourage provider referral for all patients.

Contact tracing in Colorado, Idaho, South Carolina, Virginia

Data are available to CDC from contact tracing activities in four states.

Colorado emphasises provider referral as the preferred method for notifying all sexual and needle-sharing contacts of HIV-infected individuals. From January 1986 to December 1987, 282 index patients were offered contact tracing services. They identified 508 contacts, of whom 414 (81%) were located; of these 414, 44 (11%) had previously tested positive for HIV antibody and were not contacted. Of the remaining 370 identified contacts, 296 (80%) underwent counselling and testing; 74 (20%) were counselled but refused testing. Forty-five (15%) of those 296 newly tested were positive for HIV antibody. None had previously been reported to the state.

Idaho has instituted a contact tracing program that emphasises provider referral. Of 120 HIV-positive index patients identified since the program began in 1985, 97 (81%) have received counselling about contact tracing. These patients requested assistance to notify 118 contacts. Fifty-nine contacts (50%) were located, and all accepted counselling and testing; 23 (39%) were found to be infected with HIV.

In 1987, South Carolina initiated contact tracing activities emphasising provider referral. In one rural county where only one case of HIV infection and no cases of AIDS had been previously reported, 90 sexual contacts, 69 of whom were county residents, were named by a single HIV-infected homosexual male[3]. Of the 68 county residents who consented to testing, 12 contacts (18%) were infected with HIV.

Virginia currently provides contact tracing services to HIV-infected patients who request assistance with notifying certain contacts. From September 1986 through December 1987, 387 (81%) of the 479 individuals who tested positive for HIV antibody at STD clinics returned for test results and were offered contact tracing services. Of these, 230 patients (59%) chose provider referral to notify their contacts.

A total of 318 contacts were located and accepted counselling and testing; 44 (14%) were found to be positive for HIV infection. In addition to being sexual or needle-sharing contacts of HIV-infected persons, 38 (87%) of the infected contacts belonged to other high-risk groups: 72% were at risk through homosexual/bisexual behaviour, and 15% through intravenous drug use.

MMWR Editorial Note:

Contact tracing, with emphasis on provider referral, became an integral strategy for national syphilis control in the mid-1940s after penicillin became widely available. Subsequently, it has been used in STD control programs for gonorrhoea and chlamydia[1,4]. Provider referral has been to shown be effective, but costly[5], in controlling focal outbreaks of infections due to antibiotic-resistant gonococcal

strains[6] and in targeting endemically infected core groups in specific high-risk populations[7,8]. Because of resource limitations, patient referral, rather than provider referral, has played an increasingly important role in STD control.

When the contact tracing model is applied to the control of HIV infection, certain differences must be considered. The incubation period for HIV is long; therefore, sexual contacts or needle-sharing contacts from months or years earlier may potentially have been the sources of infection. Contact tracing for patients with hepatitis B, which has an epidemiological pattern similar to that of HIV infection, has proven-difficult because of the prolonged period of infectivity, the large number of anonymous sexual contacts among many homosexual men, and the inaccessibility of the intravenous drug-using population[9].

The assurance of confidentiality and protection against discrimination, which are critical in dealing with any STD, have become legal issues in the case of HIV infection[10,11]. These issues may influence the success of programs based on patient referral alone[12]. Confidentiality is essential to ensure that individuals at risk continue to seek counselling, testing, or contact tracing services.

Contact tracing data from several states reveal a high seroprevalence rate, ranging from 11% to 39%, among persons identified as sexual or needle-sharing contacts, many of whom are themselves engaging in high-risk behaviour. By identifying such individuals, the contact tracing process can target risk-reduction messages to those at greatest risk of acquiring or transmitting infection. Thus, contact tracing provides both primary and secondary prevention of HIV infection.

Notification of unsuspecting contacts is especially important because it enables persons who may not have been reached through other AIDS education programs to receive risk-reduction education. For example, the contact tracing process can identify female and male contacts of intravenous drug users or female contacts of bisexual males who may have been exposed to HIV infection but who may be unaware of their risk. Contact tracing activities targeted toward women of childbearing age contribute additionally by potentially preventing the perinatal transmission of HIV[13].

Homosexual men who voluntarily request counselling and HIV testing may be at lower risk for infection than those who have refused testing[14]. Through the contact tracing process, these high-risk contacts who otherwise might not request risk-reduction education can receive counselling. Also, counselling of contacts provides an opportunity to offer other beneficial services to those at risk, including drug treatment, STD treatment, tuberculosis testing and treatment, adult immunisations, psychosocial support services, and contraceptive counselling.

The type of contact tracing services provided by different health departments will depend on local resources and the number of seropositive persons identified. In San Francisco, which has high rates of infection among homosexual men, provider referral for all contacts of homosexual men was not thought to be feasible because of the excessive cost and personnel required. However, the San Francisco Health

Department did notify heterosexual sexual contacts of AIDS patients and received excellent cooperation from both patients and named contacts[15]. The San Francisco experience demonstrates the feasibility of targeted tracing for identifying infected women of childbearing age to prevent perinatal transmission of HIV infection.

State and local health departments in the USA are encouraged to develop evaluation programs to identify the most effective contact tracing strategies for different clinical and sociocultural settings in both areas with high and low HIV seroprevalence rates.

REFERENCES

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AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

TOTAL VIRAL ISOLATIONS BASED ON DATE OF REPORTING
PERIOD - FORTNIGHTLY
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

Period 29-6-88 to 12-7-88.

1. CODE 019 - FAIRFIELD(VIC)
2. CODE 065 - STATE LAB(WA)
3. CODE 110 - IMVS(SA)
4. CODE 111 - RCH(VIC)
5. CODE 112 - ICPMR(NSW) WWH(ACT)
6. CODE 113 - PHH POW(NSW)
7. CODE 114 - RAHC(NSW)
8. CODE 115 - STATE LAB(QLD)

		019	065	110	111	112	113	114	115	TOTAL
0100	ADENOVIRUS NOT TYPED	1	7	16	5	1	0	0	22	52
0101	ADENOVIRUS TYPE 1	1	0	1	0	0	0	0	0	2
0102	ADENOVIRUS TYPE 2	1	1	4	0	3	0	0	0	9
0103	ADENOVIRUS TYPE 3	0	0	4	0	0	0	0	0	4
0104	ADENOVIRUS TYPE 4	1	0	0	0	1	0	0	0	2
0106	ADENOVIRUS TYPE 6	0	1	0	0	1	0	0	0	2
0107	ADENOVIRUS TYPE 7	0	0	1	0	2	0	0	0	3
0108	ADENOVIRUS TYPE 8	0	0	1	0	0	0	0	0	1
0111	ADENOVIRUS TYPE 11	0	0	0	0	1	0	0	0	1
0135	ADENOVIRUS TYPE 35	1	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	0	2	0	0	1	0	3
0201	INFLUENZA A VIRUS	2	9	2	0	3	0	0	0	16
0202	INFLUENZA A VIRUS SUBTYPE H3N2	0	0	0	0	3	0	0	0	3
0203	INFLUENZA B VIRUS	0	0	1	0	0	0	0	0	1
0206	INFLUENZA A H1N1	0	0	1	0	2	0	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	9	2	2	16	2	0	2	9	42
0302	PARAINFLUENZA VIRUS TYPE 2	5	0	2	10	0	0	0	1	18
0303	PARAINFLUENZA VIRUS TYPE 3	1	0	6	1	2	0	1	0	11
0399	PARAINFLUENZA VIRUS TYPING PEN	0	0	0	0	0	0	0	8	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	24	24	40	42	30	0	20	73	253
0500	RHINOVIRUS (ALL TYPES)	4	1	2	8	2	0	0	10	27
0600	MYCOPLASMA PNEUMONIAE	18	0	15	10	16	0	1	0	60
0700	ORNITHOSIS-PSITTACOSIS	2	0	1	0	2	0	0	0	5
0805	COXSACKIEVIRUS A5	0	1	0	0	0	0	0	0	1
0809	COXSACKIEVIRUS A9	4	0	0	0	7	0	2	0	13
0816	COXSACKIEVIRUS A16	1	0	0	0	0	0	0	0	1
0902	COXSACKIEVIRUS B2	0	1	1	0	3	0	0	0	5
0905	COXSACKIEVIRUS B5	1	0	0	0	9	0	0	0	10
1000	ECHOVIRUS NOT TYPED	0	1	0	0	0	0	0	0	1
1001	ECHOVIRUS TYPE 1	0	0	0	0	1	0	0	0	1
1004	ECHOVIRUS TYPE 4	1	0	2	0	0	0	0	0	3
1006	ECHOVIRUS TYPE 6	1	1	0	0	0	0	0	0	2
1007	ECHOVIRUS TYPE 7	0	1	0	0	0	0	0	0	1
1009	ECHOVIRUS TYPE 9	0	1	0	0	1	0	0	0	2
1014	ECHOVIRUS TYPE 14	0	1	1	0	0	0	0	0	2
1015	ECHOVIRUS TYPE 15	0	0	0	0	1	0	0	0	1
1018	ECHOVIRUS TYPE 18	0	0	0	0	1	0	0	0	1
1030	ECHOVIRUS TYPE 30	6	0	0	0	0	0	0	0	6
1101	POLIOVIRUS TYPE 1	0	2	0	0	1	0	1	0	4
1102	POLIOVIRUS TYPE 2	0	0	0	0	0	0	1	0	1
1103	POLIOVIRUS TYPE 3	0	0	1	0	0	0	0	0	1
1200	MUMPS VIRUS	0	0	0	0	2	0	0	0	2
1300	HERPES VIRUS GROUP - NOT TYPED	2	3	0	0	22	1	0	0	28
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	0	0	1	0	1
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	1	1	1	0	0	0	0	3
1303	VARICELLA-ZOSTER VIRUS	6	2	2	0	2	0	0	0	12
1306	HERPES SIMPLEX TYPE 1	43	10	30	0	20	0	0	53	156
1307	HERPES SIMPLEX TYPE 2	66	30	10	0	102	0	0	78	286
1399	HERPES VIRUS TYPING PENDING	4	2	0	4	0	0	0	0	10
1401	COXIELLA BURNETI	0	0	0	0	7	0	0	0	7
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	1	0	0	14	15
1521	MEASLES VIRUS	1	0	0	0	0	0	0	0	1
1522	RUBELLA VIRUS	1	0	2	1	0	0	0	0	4
1532	HEPATITIS B ANTIGEN	17	0	7	0	44	0	0	6	74
1535	HEPATITIS A ANTIBODY	0	0	1	0	1	0	0	1	3
1541	CHLAMYDIA A - C. TRACHOMATIS	8	33	8	0	21	0	0	19	89
1556	CMV - CYTOMEGALOVIRUS	26	15	6	6	6	0	1	13	73
1564	ROTAVIRUS	2	22	34	29	2	0	1	4	94
1599	ENTEROVIRUS TYPING PENDING	0	0	0	8	0	0	1	0	9
9992	ROSS RIVER VIRUS	7	0	3	0	0	0	0	0	10
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	0	3	0	3
TOTAL		267	172	208	143	325	1	36	311	1463

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1.

Period 29-6-88 to 12-7-88.

1. CODE 00, 99 ..... - NO ILL OR DATA
2. CODE 01, 02, 11, 12 - RESPIRATORY
3. CODE E3 ..... - ENCEPHALITIS
4. CODE M3 ..... - MENINGITIS
5. CODE 04 ..... - PARALYSIS
6. CODE 05, 13 ..... - CNS OTHER UNSPEC
7. CODE 07, 49 - GASTRO INTESTINAL
8. CODE 17, 47 - HEPATIC
9. CODE 19 ... - CVS
10. CODE 89 ... - URINARY TRACCT
11. CODE 06 ... - SKIN MUCOUS

		1	2	3	4	6	7	8	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	3	28	0	0	0	18	0	0	0	49
0101	ADENOVIRUS TYPE 1	0	2	0	0	0	0	0	0	0	2
0102	ADENOVIRUS TYPE 2	0	5	0	0	0	3	0	0	0	8
0103	ADENOVIRUS TYPE 3	0	2	0	0	0	1	0	0	0	3
0104	ADENOVIRUS TYPE 4	0	0	0	0	0	0	0	0	1	1
0106	ADENOVIRUS TYPE 6	0	2	0	0	0	0	0	0	0	2
0107	ADENOVIRUS TYPE 7	1	0	0	0	0	0	0	0	0	1
0111	ADENOVIRUS TYPE 11	0	0	0	0	0	1	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	3	0	0	0	0	0	0	0	3
0201	INFLUENZA A VIRUS	0	12	0	0	1	0	0	0	0	13
0202	INFLUENZA A VIRUS SUBTYPE H3N2	3	0	0	0	0	0	0	0	0	3
0203	INFLUENZA B VIRUS	0	1	0	0	0	0	0	0	0	1
0206	INFLUENZA A H1N1	2	1	0	0	0	0	0	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	0	40	0	0	0	0	0	0	0	40
0302	PARAINFLUENZA VIRUS TYPE 2	0	18	0	0	0	0	0	0	0	18
0303	PARAINFLUENZA VIRUS TYPE 3	0	10	0	0	0	0	0	0	0	10
0399	PARAINFLUENZA VIRUS TYPING PEN	0	8	0	0	0	0	0	0	0	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	3	245	0	1	0	0	0	0	0	249
0500	RHINOVIRUS (ALL TYPES)	0	23	0	0	0	0	0	0	3	26
0600	MYCOPLASMA PNEUMONIAE	7	47	0	0	0	0	0	0	0	54
0700	ORNITHOSIS-PSITTACOSIS	1	4	0	0	0	0	0	0	0	5
0805	COXSACKIEVIRUS A5	0	0	0	0	1	0	0	0	0	1
0809	COXSACKIEVIRUS A9	0	2	0	5	0	0	0	0	0	7
0816	COXSACKIEVIRUS A16	0	0	0	0	0	0	0	0	1	1
0902	COXSACKIEVIRUS B2	0	2	0	0	0	1	0	0	1	4
0905	COXSACKIEVIRUS B5	4	2	0	4	0	0	0	0	0	10
1000	ECHOVIRUS NOT TYPED	0	0	0	0	0	1	0	0	0	1
1001	ECHOVIRUS TYPE 1	0	0	0	0	0	1	0	0	0	1
1004	ECHOVIRUS TYPE 4	2	0	0	1	0	0	0	0	0	3
1006	ECHOVIRUS TYPE 6	0	1	0	1	0	0	0	0	0	2
1007	ECHOVIRUS TYPE 7	0	0	0	0	0	1	0	0	0	1
1014	ECHOVIRUS TYPE 14	0	0	0	0	0	2	0	0	0	2
1030	ECHOVIRUS TYPE 30	0	0	0	5	0	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	2	0	0	0	2
1102	POLIOVIRUS TYPE 2	0	1	0	0	0	0	0	0	0	1
1103	POLIOVIRUS TYPE 3	1	0	0	0	0	0	0	0	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	4	0	0	0	0	0	0	0	19	23
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	0	0	0	0	1	1
1303	VARICELLA-ZOSTER VIRUS	1	1	0	0	0	0	0	0	10	12
1306	HERPES SIMPLEX TYPE 1	12	9	2	0	0	0	0	2	65	90
1307	HERPES SIMPLEX TYPE 2	23	0	0	0	0	0	0	0	40	63
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	0	0	1	4	5
1502	PICORNIA VIRUS - NOT TYPED = E	2	2	0	0	3	5	0	0	2	14
1522	RUBELLA VIRUS	0	0	0	0	0	0	0	0	2	2
1532	HEPATITIS B ANTIGEN	53	0	0	0	0	0	18	0	0	71
1535	HEPATITIS A ANTIBODY	0	0	0	0	0	0	3	0	0	3
1541	CHLAMYDIA A - C. TRACHOMATIS	13	0	0	0	0	0	0	0	0	13
1556	CMV - CYTOMEGALOVIRUS	7	24	1	1	0	1	1	7	3	45
1564	ROTAVIRUS	0	1	0	0	0	93	0	0	0	94
1599	ENTEROVIRUS TYPING PENDING	0	3	0	3	0	0	0	0	2	8
9992	ROSS RIVER VIRUS	4	0	0	0	0	0	0	0	3	7
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	3	0	0	0	3
TOTAL		146	499	3	21	5	133	22	10	157	996

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2.

Period 29-6-88 to 12-7-88.

12. CODE 10 - EYE
13. CODE 59 - GENITAL
14. CODE 39 - ENDOCRINE/SALIVARY GL.
15. CODE 38 - RETICULO-ENDOTHELIAL
16. CODE 29 - MUSCLE/JOINT
17. CODE 69 - CONGENTIAL
18. CODE P8 - PUO
19. CODE G8 - FEVER/MALAISE
20. CODE 09 - OTHER
21. CODE A1 - SIDS

		12	13	14	15	16	17	18	19	20	21	TOTAL
0100	ADENOVIRUS NOT TYPED	1	0	0	0	0	0	0	1	1	0	3
0102	ADENOVIRUS TYPE 2	0	0	0	0	0	0	1	0	0	0	1
0103	ADENOVIRUS TYPE 3	0	0	0	0	0	0	0	1	0	0	1
0104	ADENOVIRUS TYPE 4	1	0	0	0	0	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	0	0	0	0	0	0	2	0	0	0	2
0108	ADENOVIRUS TYPE 8	1	0	0	0	0	0	0	0	0	0	1
0135	ADENOVIRUS TYPE 35	0	0	0	0	0	0	0	0	1	0	1
0201	INFLUENZA A VIRUS	0	0	0	0	0	0	3	0	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	1	0	0	0	0	1	0	0	2
0303	PARAINFLUENZA VIRUS TYPE 3	0	0	0	0	0	0	0	0	1	0	1
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	0	0	0	0	0	2	1	1	0	4
0500	RHINOVIRUS (ALL TYPES)	0	0	0	0	0	0	0	1	0	0	1
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	1	2	3	0	6
0809	COXSACKIEVIRUS A9	0	0	0	0	1	0	1	2	2	0	6
[illegible]2	COXSACKIEVIRUS B2	0	0	0	0	0	0	0	0	1	0	1
[illegible]09	ECHOVIRUS TYPE 9	0	0	0	0	0	0	0	1	1	0	2
1015	ECHOVIRUS TYPE 15	0	0	0	0	0	0	0	0	1	0	1
1018	ECHOVIRUS TYPE 18	0	0	0	0	0	0	0	0	1	0	1
1030	ECHOVIRUS TYPE 30	0	0	0	0	0	0	0	1	0	0	1
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	0	0	0	2	0	2
1200	MUMPS VIRUS	0	0	1	0	0	0	0	1	0	0	2
1300	HERPES VIRUS GROUP - NOT TYPED	1	3	0	0	0	0	0	0	1	0	5
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	1	2	0	0	0	0	0	0	0	3
1306	HERPES SIMPLEX TYPE 1	7	54	0	0	0	0	0	3	2	0	66
1307	HERPES SIMPLEX TYPE 2	0	221	0	0	0	0	1	1	0	0	223
1399	HERPES VIRUS TYPING PENDING	0	4	0	0	0	0	0	1	0	0	5
1401	COXIELLA BURNETI	0	0	0	0	0	0	3	1	3	0	7
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	0	0	0	0	0	1	1
1521	MEASLES VIRUS	0	0	0	0	1	0	0	0	0	0	1
1522	RUBELLA VIRUS	0	0	1	0	0	1	0	0	0	0	2
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	0	0	0	3	0	3
1541	CHLAMYDIA A - C. TRACHOMATIS	0	75	0	0	0	0	0	0	1	0	76
1556	CMV - CYTOMEGALOVIRUS	0	1	0	2	0	1	1	5	15	2	27
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	0	0	1	0	0	1
9992	ROSS RIVER VIRUS	0	0	0	0	2	0	0	1	0	0	3
TOTAL		11	359	5	2	4	2	15	25	40	3	466