Communicable Diseases Intelligence

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Contents:

VIRUS REPORTING SCHEME: A total of 1 108 reports were processed for this period.

Twenty one cases of Q fever were reported from Queensland. Occupational exposure data were only available for six cases:-

- 2 male meatworkers, a 20 year old from Rockhampton and a 32 year old from Charters Towers;
- a 48 year old male shearer from Barcaldine;
- a 40 year old male dairy farmer from Cairns;
- a 33 year old male grazier from Roma; and
- a 34 year old male farmer from Milla Milla.

None of these twenty one patients was involved in the Q fever vaccine field trial conducted in South Australia.

Specific IgM antibody to hepatitis B virus was detected in the blood of four children belonging to the same family, 3 females aged 2, 3 and 6 years respectively and one male aged 7 years. These children were contacts of a known hepatitis B carrier.

AIDS SURVEILLANCE - AUSTRALIA

To 26 March 1987, 442 cases of AIDS fulfilling the criteria of case definition have been reported to the National Health and Medical Research Unit in AIDS Epidemiology and Clinical Research. The distribution of those patients by State or Territory of Notification (Table 1), by age group (Table 2), by risk category (Table 3) and by clinical presentation (Table 4) are shown below:-

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TABLE 1: AIDS patients by State or Territory of notification

STATE/ TERRITORY	CASES			DEATHS		
	Male	Female	Total	Male	Female	Total
NSW	295	10	305	165	8	173
VIC	70	1	71	26	-	26
QLD	29	3	32	20	2	22
WA	22	2	24	11	1	12
SA	5	-	5	2	-	2
NT	2	-	2	1	-	1
TAS	1	-	1	1	-	1
ACT	2	-	2	1	-	1
	426	16	442	227	11	238

TABLE 2: AIDS patients by age group

AGE (YEARS)	CASES			DEATHS		
	Male	Female	Total	Male	Female	Total
0 - 9	5	-	5	5	-	5
10 - 19	3	1	4	3	1	4
20 - 29	91	3	94	49	1	50
30 - 39	177	-	177	87	-	87
40 - 49	109	3	112	56	2	58
50 - 59	32	3	35	19	3	22
60 +	9	6	15	8	4	12
	426	16	442	227	11	238

TABLE 3: AIDS patients by risk category

RISK GROUP	CASES	DEATHS
Homo-/Bi-sexual	385	198
IV drug abuser	1	-
Homo-/Bi-sexual IV drug abuser	13	6
Blood transfusion recipient	32	26
Person with haemophilia	5	4
Heterosexual transmission	4	3
None of the above	2	1
	442	238

TABLE 4: AIDS patient by clinical presentation

INITIAL DISEASE REPORTED	CASES	DEATHS
Opportunistic infection alone or with P. carinii pneumonia	325	186
Kaposi's sarcoma (KS)	82	35
KS and opportunistic infection	16	9
Lymphoma	19	8
	442	238

AIDS UPDATE - INTERNATIONAL
(Based on WER No. 11, 13 March 1987)

Global data - AIDS cases reported to WHO, by country, as of 11 March 1987.

Country/Area	Date of report	Number of cases
Anguilla	30.06.86	—
Antigua and Barbuda	31.12.85	—
Argentina	31.01.87	69
Australia	25.02.87	407
Austria	31.12.86	54
Bahamas	30.06.86	68
Bangladesh	31.12.86	—
Barbados	30.06.86	4
Belgium	31.12.86	207
Belize	31.12.85	—
Benin	13.11.86	2
Bermuda	30.06.86	42
Bhutan	31.12.86	—
Bolivia	30.06.86	1
Botswana	26.09.86	6
British Virgin Islands	31.12.85	—
Brazil	31.01.87	1 012
Bulgaria	30.06.86	—
Burkina Faso	13.11.86	—
Burma	31.12.86	—
Cameroon	13.11.86	21
Canada	09.02.87	873
Cayman Islands	30.06.86	—
Central African Republic	13.11.86	202
Chad	13.11.86	1
Chile	30.06.86	12
China	03.11.86	1
China (Province of Taiwan)	26.01.86	1
Colombia	31.12.85	5
Comoros	13.11.86	—
Congo	13.11.86	250
Costa Rica	30.06.86	12
Côte d'Ivoire	13.11.86	118
Cuba	30.06.86	1
Cyprus	08.10.86	1
Czechoslovakia	31.12.86	6
Denmark	01.01.87	131
Dominica	31.12.85	—
Dominican Republic	08.12.86	127
Eastern Mediterranean Region	31.10.86	16
Ecuador	30.06.86	7
El Salvador	30.06.86	2
Ethiopia	13.11.86	—
Finland	30.09.86	14
France	31.12.86	1 221 [a]
French Guiana	31.12.85	31
Gabon	13.11.86	—
Gambia	13.11.86	—
Germany, Federal Republic of	27.02.87	959
German Democratic Republic	31.12.86	1
Ghana	13.11.86	73
Greece	31.12.86	35
Grenada	31.12.85	2
Guadeloupe	31.12.85	16
Guatemala	30.09.86	10
Guinea	13.11.86	—
Guinea Bissau	13.11.86	—
Guyana	31.12.85	—
Haiti	30.11.86	785
Honduras	30.06.86	6
Hong Kong	03.11.86	3
Hungary	31.12.86	1
Iceland	31.12.86	4
India	31.12.86	5
Indonesia	31.12.86	—
Ireland	31.12.86	14
Israel	31.12.86	34
Italy	31.12.86	460
Jamaica	30.06.86	5
Japan	19.12.86	25
Kenya	13.11.86	109
Lesotho	13.11.86	1
Liberia	13.11.86	—
Luxembourg	31.12.86	6
Madagascar	13.11.86	—
Malawi	13.11.86	13
Maldives	31.12.86	—
Malta	31.12.86	5
Martinique	31.12.85	6
Mauritania	13.11.86	—
Mauritius	13.11.86	—
Mexico	08.12.86	249
Montserrat	31.12.85	—
Mozambique	31.12.86	1
Nepal	31.12.86	—
Netherlands	31.12.86	218
New Zealand	03.11.86	22
Nicaragua	31.12.85	—
Nigeria	13.11.86	—
Norway	31.12.86	35
Panama	30.06.86	9
Paraguay	31.12.85	—
Peru	30.06.86	9
Poland	23.01.87	1
Portugal	31.12.86	46
Republic of Korea	05.06.86	—
Romania	31.12.86	2
Saint Christopher and Nevis	31.12.85	1
Saint Lucia	30.06.86	10
Saint Vincent and the Grenadines	30.06.86	3
Senegal	13.11.86	—
Seychelles	13.11.86	—
Singapore	04.10.86	1
South Africa	27.01.87	56
Spain	19.11.86	242
Sri Lanka	31.12.86	1
Suriname	30.06.86	2
Swaziland	13.11.86	—
Sweden	20.02.87	97
Switzerland	31.12.86	192
Thailand	31.12.86	6
Togo	13.11.86	—
Trinidad and Tobago	30.06.86	108
Tunisia	14.05.86	2
Turkey	11.02.87	9
Turks and Caicos Islands	30.06.86	—
Uganda	13.11.86	766
USSR	31.12.86	1
United Kingdom	31.01.87	686
United States of America	23.02.87	31 036
United Republic of Tanzania	13.11.86	699
Uruguay	30.06.86	7
Vanuatu	30.09.86	—
Venezuela	08.12.86	69
Yugoslavia	31.12.86	8
Zambia	13.11.86	250
Zimbabwe	21.01.87	57
Total		**42 404**

[a] Revised figure. — Chiffre révisé.

THE SIGNIFICANCE AND ACCURACY OF ELISA TESTS FOR HIV ANTIBODIES
(Based on California Morbidity #44, 7 November 1986)

SIGNIFICANCE

It has been suggested that human immunodeficiency virus (HIV) antibody tests have no significance because they are not diagnostic for AIDS. While it is true that a positive antibody test result cannot by itself be used to make a diagnosis of AIDS, it is inaccurate to suggest that a positive or negative antibody test is of no significance. A positive antibody test means that the person has produced antibody against HIV - the AIDS virus - and this occurs only if the person was both exposed to and infected by HIV.

All future cases of AIDS-Related-Conditions (ARC) and AIDS will come from HIV infected persons. Current estimates are that from 25% to 50% of HIV infected persons will develop AIDS within 5 to 10 years after their initial infection.

Furthermore, laboratory studies have shown that the majority of HIV antibody positive persons, regardless of whether they have signs or symptoms, have HIV circulating in their blood: thus, they should be considered potentially infectious to others through sexual contact, or by exchange of blood.

ACCURACY OF THE HIV ANTIBODY TESTS

Commercially available ELISA tests for HIV antibody are extremely accurate in detecting the presence of HIV antibody (test sensitivity) and identifying the absence of antibody (test specificity).

Doubts about the accuracy of the tests arise when they are applied to populations where the prevalence of infection is extremely low or absent. In situations such as routine screening of blood donors who are not at any risk of HIV infection, the predictive value of a positive test is very low. The positive predictive value is defined as the likelihood that a positive test result represents a true positive (ie, a person who has HIV antibodies and is infected). Calculation of the predictive value of a positive test result for two different populations - one with a very low prevalence of infection and one with a high prevalence of infection - will illustrate this point. Calculations are based on the assumption that the sensitivity and specificity of the tests are 99%. In actual fact, the commercially available tests have an accuracy (both sensitivity and specificity) of greater than 99%.

A. The predictive value of a positive test result in 1 000 blood donors where the infection rate is 1/1 000.

1. Since the test is 99% sensitive, it will identify the one person with HIV antibody.
2. Since the test is 99% specific, it will correctly identify 99% of the 999 persons without antibodies (989 persons), but will incorrectly identify 1% (10 persons) as having antibodies when they don't (ie. false positives).
3. Thus, there will be a total of 11 positive test results; one true positive and 10 false postives.

4. The predictive value of a positive test in this situation is one out of 11 or less than 10%. (The use of supplemental tests such as the Western blot or the Indirect Fluorescent Antibody (IFA) test will correctly identify virtually all of the false positive ELISA tests).

B. The predictive value of a positive test result in 1 000 homosexual men in San Francisco where the infection rate is 0.5.

1. Since the test is 99% sensitive, it will identify 495 of the 500 men with HIV antibodies.
2. Since the test is 99% specific, it will correctly identify 495 of the 500 homosexual men without HIV antibody, but will incorrectly identify 1% (five men) as having antibodies when they don't (ie, false positives).
3. Thus, there will be a total of 500 positive test results, 495 true positives and five false positives.
4. The predictive value of a positive test in this situation is 495 out of 500, or 99%.

CDI Editorial Comment:

The probability of disease, given the results of a test, is called the predictive value of the test. Positive predictive value is the probability of disease in a patient with a positive (abnormal) test result. Negative predictive value is the probability of not having the disease when the test result is negative (normal). Predictive value is an answer to the question: If my patient's test result is positive (negative), what are the chances that my patient does (does not) have the disease?

Terms summarising the overall value of a test have been used. One such term, accuracy, is the proportion of all test results, both positive and negative, which are correct. In most cases, however, this summary term is too crude to be useful clinically because specific information about the component parts - which is what clinicians need - is lost when they are aggregated into a single index.

The predictive value of a test is not a property of the test alone. It is determined by the sensitivity and specificity and the prevalence of disease in the population being tested, where prevalence has its customary meaning: the proportion of persons in a defined population at a given point in time with the condition in question.

The mathematical formula relating positive predictive value to sensitivity, specificity and prevalence is calculated according to Baye's theorem of conditional probability:-

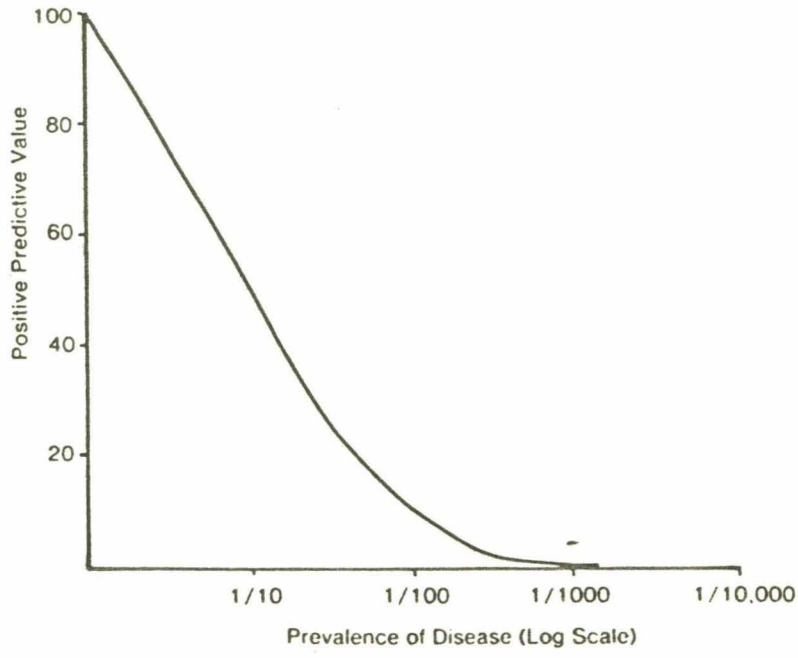
$$+PV = \frac{(Se)(P)}{(Se)(P) + (1-Sp)(1-P)}$$

Where Se = sensitivity
Sp = specificity
P = prevalence
+PV = positive predictive value

Because predictive value is influenced by prevalence, it is not independent of the setting in which the test is used. Positive results even for a very specific test, when applied to patients with a low likelihood of having the disease, will be largely false positives. Similarly, negative results, even for a very sensitive test, when applied to patients with a high chance of having the disease, are likely to be false negatives. In sum, the interpretation of a positive or negative diagnostic test result should vary from setting to setting, according to estimated prevalence of disease in the particular setting.

This principle is not intuitively obvious to many physicians. For them, it might help to consider how a test would perform at the extremes of prevalence, by remembering that no matter how sensitive and specific a test might be (short of perfection), there will still be a small proportion of patients that are misclassified by it. In a population where no one has the disease, all positive results, even for a very specific test, will be false positive. Therefore, as the prevalence of disease in a population approaches zero, the positive predictive value of a test also approaches zero. Conversely, if everyone in a population tested has the disease, all negative results will be false negatives, even for a very sensitive test. As prevalence approaches 100%, negative predictive value approaches zero. The effect of prevalence on positive predictive value, for a test with high sensitivity and specificity, is illustrated in the Figure below. When prevalence of disease in the population tested is relatively high - over several % - the tests perform well. But at lower prevalences, the positive predictive value drops to nearly zero and the test is virtually useless for diagnosing disease.

Figure. The Relationship Between Prevalence and Positive Predictive Value (where Sensitivity = 90% and Specificity = 90%)



One reason why prevalence is often more important than sensitivity and specificity in determining predictive value is that prevalence commonly varies over a wide range. By current standards, clinicians are not particularly interested in tests with sensitivities and specificities much below 50%, but if both sensitivity and specificity are 99%, the test is considered a great one. In other words, in practical terms sensitivity and specificity rarely vary more than two-fold. Prevalence of disease, however, can vary over a thousand fold in various clinical settings.

EXPOSURE OF HEALTH CARE WORKERS TO HIV INFECTION - CANADA
(based on California Morbidity #45, 14 November 1986)

A 12 month summary of a health care workers (HCWs) surveillance program for occupational exposure to human immunodeficiency virus (HIV) was recently reported from Canada. This program involved 200 hospitals and several laboratories and health institutions across Canada, the National AIDS Centre and the Bureau of Microbiology, Laboratory Centre for Disease Control. Fifty-one employees were enrolled in the first year of the surveillance program (30 in the first 6 months and 21 in the latter 6 month period). The majority of exposures (86%) occurred among personnel involved in direct patient care. These included nurses (68%), therapists and technicians (8%), and medical students or residents (10%). Laboratory technicians sustained 14% of the reported exposures.

Sixty percent of exposures were to blood or body fluids of AIDS patients, and 9% to AIDS related complex (ARC) patients. Over half (59%) of the participants reported needlestick injuries, 17% had an eyesplash exposure, 16% an open-wound contamination, and 8% experienced a scalpel wound. Thirty-four (67%) of the 51 exposures involved needles or other instruments and occurred during the following procedures: injection of medication (24%), drawing blood or venipuncture (24%), insertion of an I.V. line (18%), instrument calibration or equipment manipulation (20%), recapping needles (6%), and other procedures (9%). In one instance the specific circumstances of exposure were not reported. Of these 34 exposures, 41% of the instruments were visibly contaminated with blood.

In 25 (83%) of the 30 needlestick exposures, the employee was wearing gloves. In 2 of these cases, the needlestick occurred when the employee was recapping a needle after giving an injection. This stresses the importance of adopting recommended methods for the disposal of used needles to reduce needlestick injuries. Specifically, needles should not be recapped, purposefully bent or broken, removed from disposable syringes, or otherwise manipulated by hand.

There have been no cases of HIV seropositivity attributed to occupational exposure among the employees enrolled in this surveillance program. The results of this surveillance program continue to support the view of low transmissibility of HIV infection in the health-care setting. Nevertheless, HCWs must take extra precautions to avoid needlestick injuries when providing care to patients, especially those known to be infected with HIV. The 2 needlestick injuries reported as a result of recapping needles emphasize the need to reinforce the importance of adopting recommended infection control practices with all staff.

COMMENT: The results of this Canadian study are consistent with findings of a similar surveillance system in the U.S., conducted by the Centres for Disease Control (CDC). As of September 15, 1986, 1116 health care workers with parenteral or mucous-membrane exposures to blood from AIDS or ARC cases have been enrolled in the CDC study. Of 716 exposed HCWs who have been tested for antibody to HIV, only 2 are seropositive[1,2]. Whether occupational exposure was responsible for HIV infection in one of the seropositive HCWs is not clear, because the first post-injury blood specimen was not collected until 10 months after the reported exposure and the sexual partner of this HCW was also seropositive.

REFERENCE

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2. NEJM (1986) 314 : 1115

POSITIVE HIV ANTIBODY RESULTS FOR SEXUALLY ACTIVE FEMALE MEMBERS OF SOCIAL/SEXUAL CLUBS - MINNESOTA

(based on MMWR Vol. 35 No 45, 14 November 1985)

In June 1986, two sexually active women in Minnesota were found to have antibody to HIV. Both belonged to social/sexual clubs whose stated purpose was to provide their members (primarily couples) with opportunities for social and sexual contacts (these clubs are popularly known as 'swing clubs'; a National Organisation lists more than 100 such clubs). Each of the two seropositive women reported having sexual contact with a number of other persons from these clubs, including two men who were bisexual.

Infection was detected in these two women during a serologic screening program conducted by the St Paul Division of Public Health, in consultation with the Minnesota Department of Health. The screening was undertaken because members of these clubs were known to have been involved in outbreaks of other sexually transmitted diseases (including syphilis and gonorrhoea). From a total of 285 members (143 women and 142 men) belonging to two of these social/sexual clubs in the Minneapolis - St Paul area, 134 volunteers were tested with an enzyme-linked immunosorbent assay (ELISA) for antibody to HIV in June and July 1986. Any ELISA-positive specimens were also tested with the Western blot assay. All 75 men tested had negative ELISA results for antibody to HIV. Two of 59 women tested had positive antibody test results for HIV with both ELISA and Western blot. Antibody results for these women were again positive with ELISA and Western blot when repeated 6 weeks later. The seroprevalence rate of 3% among female club members tested is significantly higher than the seroprevalence rate of zero (none of 56,000) among female blood donors in Minnesota.

The two seropositive women had belonged to two different social/sexual clubs for approximately 2 years. Both denied intravenous drug use, a history of blood transfusions, or receipt of clotting factor concentrates. One women was 31 years old, married, and had sexual relations only with other club members; her husband (also a member) had negative test results for HIV antibody. The other woman was 25 years old, unmarried, and occasionally had sexual relations with men outside the club.

Each of these two women reported having sexual contact with more than 25 other club members, including five men with whom they had both had sexual intercourse. Two of these five men could be located for testing and had negative results for HIV antibody. Two of the other three men whose serologic status could not be determined were reported to be bisexual men with whom both women had had repeated vaginal and anal intercourse.

An additional bisexual man who was a former member of one of these clubs is known to have developed acquired immunodeficiency syndrome (AIDS). He had no history of sexual contact with either of the seropositive women or with either of the two bisexual men who had sexual contact with these women.

To date, 55 of the 134 club members tested for antibody to HIV (including the two seropositive women) have participated in follow-up interviews and have received counselling about their sexual practices and attitudes. Four (15%) of 27 men reported homosexual contact with other club members as well as with men who were not members of either of the two clubs. When asked whether they perceived themselves as being at increased risk of having AIDS, 40 members (73%) replied that they did not. One man reported that he 'usually' used condoms while having sexual intercourse. When asked whether they would continue to participate in the activities promoted by social/sexual clubs if they know such activities were associated with a high risk of having AIDS, 54/55 (98%) answered that they would not.

When it was known that one member of each of the two clubs was positive for HIV antibody, both clubs disbanded. In an effort to minimise the transmission of HIV, educational programs for sexually active adults (including former club members) are currently being implemented in the Minneapolis - St Paul area. Follow up studies of former club members are planned to assess whether other changes in sexual behaviour are occurring.

MMWR Editorial Comment:

The risk of having HIV infection and other sexually transmitted diseases is increased for persons who have multiple sexual partners as well as for persons who have sexual encounters with high-risk individuals[1-4]. However, most members of the two social/sexual clubs in Minnesota who were intereviewed did not consider themselves at increased risk of having AIDS and did not take precautions to protect themselves against AIDS or other sexually transmitted disease.

Both seropositive women discussed above had a history of multiple sexual encounters - including vaginal and anal intercourse - with high-risk individuals. Although receptive anal intercourse is associated with increased risk of HIV infection for homosexual men, most women infected with HIV through sexual contact have denied having had anal intercourse[5-9].

To reduce the risk of HIV infection, the Public Health Service recommends avoiding sexual contact with multiple partners or with persons who have been sexually active with multiple partners[1,3,4]. Persons who do not follow the recommendation and who -

a) initiate a sexual relationship with another person who is at increased risk of having HIV infection or
b) maintain multiple sexual partnerships
should at least avoid sexual practices that permit the exchange of blood, semen, urine, faeces, saliva, or vaginal/cervical secretions. Consistant use of condoms may reduce transmission of HIV[9]. Other efforts to reduce HIV transmission include making available voluntary serologic testing and health education and counselling for all persons believed to be at increased risk of having HIV infection[3].

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SURVEY OF NON - U.S. HAEMOPHILIA TREATMENT CENTRES FOR HIV SEROCONVERSIONS FOLLOWING THERAPY WITH HEAT-TREATED FACTOR CONCENTRATES

(Based on MMWR Vol. 36/No. 9, 13 March 1987)

Until three years ago, non-heat-treated factor concentrates were used in treating congenital and acquired clotting factor deficiencies. At that time, heat-treated factor concentrates were introduced because the unheated concentrated had been epidemilogically linked with the exposure of large numbers of U.S. haemophilia patients to the human immunodeficiency virus (HIV). There have now been a few reports of HIV seroconversion associated with heat-treated factor concentrates. Because several haemophilia treatment centres outside the United States began using heat-treated factor concentrates somewhat earlier, a sample of major non-U.S. haemophilia treatment centres identified by the U.S. National Haemophilia Foundation were contacted during November and December 1986 and asked to help estimate the continued risk of seroconversion among their patients deficient in factor VIII and factor IX. Patients with Von Willebrand's disease and other clotting factor deficiencies were not included.

The Directors of 13 haemophilia treatment centres located in Western Europe, Canada and Australia were asked to provide information concerning:

1. HIV antibody seroprevalence rates within their patient populations;

2. whether they were using, and when they had begun to use, heat-treated factor concentrate products; and

3. details regarding any HIV seroconversions occurring among their patients while receiving heat-treated-factor concentrates.

Most haemophilia treatment centres monitor the serologic status of their seronegative haemophilia A and B patients at approximately 3-month intervals and were confident of all these patients' serologic status as of late July 1986. Of the combined total of 2,370 haemophilia A patients and 434 haemophilia B patients served by the haemophilia treatment centres in this survey, over 1,300 were still seronegative when heat-treated factor concentrates became available. Approximately 50% of the seronegative patients were classified as severely deficient in factor VIII or factor IX; the remainder had either moderate or mild haemophilia (severity is defined on the basis of percent of normal factor activity: severe, <1% of normal; moderate, 2-5% of normal; mild, >5% of normal).

Of the 23 patients who had their first documented positive HIV antibody test after receiving heat-treated concentrate:

. 16 seroconverted within 6 months of last receiving untreated factor concentrates.

. 7 remaining individuals fell into three groups:

- Group 1: Two patients were first found to be seropositive more than 6 months after starting to use heat-treated factor concentrate products (at 7 and 10 months respectively). However, for both of these patients, the last seronegative test had taken place several months before their last treatment with unheated factor concentrates.

- Group 2: Two patients who were seronegative within the initial 6 months of heat-treated factor concentrate therapy (at 3 and 5 months, respectively) were not tested again, until after the initial 6 months (at 8 and 10 months, respectively), at which time they were seropositive.

- Group 3: Three paediatric patients were seronegative at 8, 12 and 16 months after first receiving heat-treated factor VIII concentrate but had their first of many consistently seropositive tests at 10, 13 and 22 months after treatment, respectively.

The patients in Group 3 had no reported risk factors for HIV infection other than haemophilia and reportedly had received no other blood components during this time period. All three paediatric patients were severely deficient in factor VIII:

. One child, a 6 year-old, had received vials from four lots in the 10 month interim before seroconversion; he is presently asymptomatic and his reported T-cell values are normal; no HIV cultures have been attempted.

. The other two children, aged 4 and 13, had received large amounts of heat-treated factor VIII concentrates for extended periods, either as therapy for an inhibitor or as routine care:

- The 4 year old was found to be HIV culture positive in 1986 and now has AIDS.

- The 13 year old had severe T-cells-abnormalities by mid-1986 and now has lymphadenopathy and encephalopathy.

The many lots of concentrate received by each of the three patients in Group 3 had come from three different U.S. manufacturers. The plasma used by each of the U.S. manufacturers was collected before serologic screening of donors for HIV antibody became available. In addition, during the first 5 months of the 13 month interval before seroconversion, one of the three patients had also received extremely large amounts of heat-treated factor VIII concentrate prepared by a European manufacturer using a wet-heat process. The manufacturer had used unscreened plasma from U.S. donors.

The three patients in Group 3 who seroconverted represent 0.7% of the total 450 initially seronegative haemophilia A patients and 0.2% of the total 1,300 patients who were serologically monitored for >1 year after beginning to use unscreened, heat-treated factor. Since November 1985, no seroconversions have been observed among the patients included in the survey.

Although information on the transition to using unscreened, heat-treated factor in each haemophilia treatment centre is readily available, the dates of subsequent transition to using donor-screened, heat-treated factor concentrate products by each haemophilia treatment centre are not. One haemophilia treatment centre reported beginning to use donor-screened, heat-treated factor therapy in August 1985; however for most haemophilia treatment centres, this transition occurred between February and July 1986. No cases of seroconversion following the use of donor screened, heat-treated products were identified through this survey.

Fifty (4%) of the 1,300 seronegative patients in this survey were followed for more than 1 year while receiving donor-screened, heat-treated factor concentrates. Follow-up on the remainder approaching 1 year. In early March 1987, supplemental information was obtained from eight of the thirteen haemophilia treatment centres. These eight centres collectively have 60% of the seronegative patients; no further seroconversions have been found. Although over 600 patient-years of therapy with donor-screened product have elapsed without a recognised HIV seroconversions. The risk associated with unscreened, heat-treated product is so low that several more months of surveillance will be required before a statistically significant further reduction of risk can be substantiated.

MMWR Editorial Note:

Earlier published reports disclosed no seroconversions among selected haemophilia patients followed for up to 1 year after beginning therapy with heat-treated factor concentrates. However, during the past 12 months, published and unpublished

reports have described several haemophilia patients who had seroconverted after receipt of unscreened, heat-treated factor concentrates. In June 1986, one U.S. manufacturer offered to exchange any remaining heat-treated factor VIII concentrates produced from plasma collected before the availability of a test for HIV antibody with the equivalent amount of antibody-screened product. Similar exchanges are now available through four other U.S. producers.

The influences of previous exposure to allogeneic proteins and other infectious agents as well as the HIV inoculum size and differences in inoculum strain may alter the seroconversion intervals among haemophilia patients. For this reason, it is currently uncertain whether anecdotal reports that seroconversions in other risk groups occurs within 8 to 12 weeks after exposure can be generalised to haemophilia patients. One study suggests that the vast majority of haemophilia seroconversions would be detectable $\leqslant$ 26 weeks. The distribution of seroconversion latency periods for haemophilia patients is not yet known. Therefore, it is uncertain whether any of the three seroconversions in persons with a documented seronegative test $\geqslant$ 6 months after beginning to use only heat-treated factor concentrates could be associated with the former source of exposure.

No cases of seroconversion among patients using only donor-screened, heat-treated products have been reported to date. With the exception of the haemophilia treatment centre surveyed in Australia, less than a year has elapsed since most of the haemophilia treatment centres surveyed began administering donor-screened, heat-treated factor concentrates. Further longitudinal studies by several of the haemophilia treatment centres in this survey may substantiate the additional margin of safety provided by screening donated plasma for HIV antibody. Donor-screened, heat-treated factor concentrates remain the recommended therapy for patients requiring factor replacement.

ANTIBODIES TO HIV IN FEMALE PROSTITUTES
(based on MMWR 36/11, 27 March 1987)

Seroprevalence surveys of antibody to human immunodeficiency virus (HIV) in women with histories of prostitution have shown varying results since testing began in 1984.

In sub-Saharan Africa, where HIV is thought to be transmitted primarily through heterosexual exposure, one (1%) of 98 prostitutes tested in Accra, Ghana, to 29 (88%) of 33 prostitutes in Ngoma, Rwanda, had HIV antibody.

In Europe, where homosexual exposure and abuse of intravenous (IV) drugs are major risk factors for HIV infection, none of 50 prostitutes tested in London, none of 56 in Paris, and none of 399 in Nuremberg, West Germany had antibody to HIV. However, 10 (71%) of 14 prostitutes who abused IV drugs in Pordenone, Italy and 14 (78%) of 18 who abused IV drugs in Zurich, Switzerland were infected. Seventeen (1%) of nearly 2,000 registered prostitutes in six West German cities were HIV-antibody positive; half of these infected women abused IV drugs. In Athens, Greece, 12 (6%) of 200 registered prostitutes were HIV-antibody positive; none abused IV drugs.

As of March 10, 1987, 2,159 women in the United States were reported to have met the CDC surveillance case definition for AIDS. The cumulative incidence of AIDS in black and Hispanic women was more than 10 times that for white women. Over 70% of these women reported with AIDS resided in New York, New Jersey, or Florida. Over half (51%) had abused IV drugs; 27% were sexual partners of men with AIDS or at risk for AIDS; and 10% had received transfusions of blood or blood products. No risk factors have as yet been reported for the remaining 12%.

To assess HIV-antibody prevalence and determine risk factors in US prostitutes, CDC has collaborated in an ongoing, cross-sectional study of women who have engaged in prostitution in seven geographic areas. Prostitutes sampled in the study were recruited variously from prisons, STD clinics, methadone maintenance clinics, outreach efforts or direct contacts in the street. Study participants are not necessarily representative of all female prostitutes in the study areas.

For this study, prostitution is defined as the exchange of physical-sexual services for money or drugs. Any woman over 18 years of age who has engaged in prostitution at least once since January 1, 1978, is eligible. Participation entails voluntary, informed consent; names and other personal identifiers are not recorded. Participants are interviewed for their medical histories and sexual and other exposures. They are also examined for signs of HIV infection and IV-drug abuse and are asked to provide 10 ml of blood for serologic testing. Serum is tested for HIV antibody by enzyme immunoassay and Western blot methods.

The analysis reported here has been restricted to the 835 study participants who were tested for HIV antibody and the 568 study participants for whom an interview form was submitted to CDC before March 10, 1987. The prevalence of HIV antibody in prostitutes so far tends to parallel the cumulative incidence of AIDS in women in the seven research sites (Table 1), suggesting that risk factors for AIDS in female prostitutes may be similar to those in other women living in these geographic areas. The prevalance of HIV antibody in prostitutes and the cumulative incidence of AIDS in women are highest in northern New Jersey and Miami. In southern Nevada, where only one woman has been reported with AIDS, none of 34 prostitutes had HIV antibody.

In the seven areas, reported rates of AIDS were higher for black women (359.6/1,000,000) and Hispanic women (40.2/1,000,000) than for white (25.3/1,000,000) and other (Asian and Native American) women (16.2/1,000,000). Similarly, black and Hispanic prostitutes in these areas had a higher prevalence of HIV antibody (15%) than white and other prostitutes (7%) (odds ratio [OR] = 2.5; 95% confidence interval [CI] = 1.4-4.4).

Half the prostitutes interviewed in this study gave histories of IV-drug abuse; 47 (76%) of 62 with antibody to HIV have injected drugs (OR = 3.6; 95% CI = 2.0-6.7). IV-drug abuse is associated with HIV infection in prostitutes and with AIDS in women regardless of racial and ethnic background (Table 2).

TABLE 1. HIV antibody in female prostitutes and reported AIDS cases in women — selected cities, United States, March 10, 1987

	Female prostitutes		Women with AIDS*	
	HIV-antibody positive/tested	Percent positive	No.	Cases/ 1,000,000†
Eastern United States				
Atlanta	1/92	(1.1)	8	12.5
Miami	47/252	(18.7)	100	145.3
Newark-Jersey City-Paterson	32/56	(57.1)	143	526.2
Western United States				
Colorado Springs	1/71	(1.4)	1	9.6
Las Vegas	0/34	(0.0)	1	16.0
Los Angeles	8/184	(4.3)	26	21.7
San Francisco	9/146	(6.2)	21	71.9

*Includes 45 women (≥16 years of age) from Miami and one from Newark who were born in countries where heterosexual transmission is believed to play a major role.

†Rate based on the number of females (≥16 years of age) reported as residing in the urban area or place of study (*26*).

TABLE 2. Risk factors for HIV antibody in female prostitutes and for AIDS in women, by race or ethnic group — selected cities, United States, March 10, 1987

	Female prostitutes*		Women with AIDS†	
	HIV-antibody positive/tested	Percent positive	No.	Percent of total
Black or Hispanic				
IV-drug abuser	31/124	(25.0)	108	(43.0)
Other, unknown	12/156§	(7.7)	143	(57.0)
Total	43/280	(15.4)	251	(100.0)
White or other				
IV-drug abuser	16/157	(10.2)	26	(53.1)
Other, unknown	3/127¶	(2.4)	23	(46.9)
Total	19/284	(6.7)	49	(100.0)

*Analysis restricted to the 564 study participants (of 835 tested) who answered the question regarding IV-drug abuse.

†Includes 46 women who were born in countries where heterosexual transmission is believed to play a major role, who were reported to CDC as meeting the surveillance case definition for AIDS, and who were residents of one of the seven research sites.

§Odds ratio = 4.0; 95% confidence interval = 2.0-8.2.

¶Odds ratio = 4.7; 95% confidence interval = 1.3-16.5.

Over 80% of prostitutes interviewed through January 1987 reported that at least one of their partners had used a condom. Husbands or boyfriends of the respondents were much less likely to use condoms during vaginal exposure than clients (16% as compared with 78%, p = 0.005). Twenty-two (4%) prostitutes reported condom use with each vaginal exposure during the past 5 years. Eleven percent of 546 prostitutes with unprotected vaginal exposure were HIV-antibody positive; none of 22 prostitutes whose partners always used condoms were seropositive (p = 0.10 after controlling for IV-drug abuse).

MMWR EDITORIAL COMMENT

The collaborative study reported here was designed to determine the prevalence of HIV infection in female prostitutes in selected US cities and the risk factors for infection in these women. Seroprevalence in study participants so far has varied widely from city to city and tends to parallel the cumulative incidence of AIDS in women in these areas. The major risk factor for HIV infection in prostitutes appears to be IV-drug abuse. Women with unprotected vaginal exposures also appear to be at greater risk than those whose male partners always used condoms. When used properly and consistently with each sexual exposure, latex condoms should greatly reduce the sexual transmission of HIV.

Efforts to stop the spread of HIV infection in prostitutes and to their sexual partners require multiple approaches. These might include counselling and HIV-testing programs for individuals at risk for infection, additional control measures by local public health and law enforcement agencies, and the involvement of voluntary and other social service organizations.

Persons who continue to engage in prostitution remain at risk for acquiring and transmitting HIV. Prostitutes and their consorts should be provided counselling services and voluntary testing for HIV antibody. Seronegative persons who continue to engage in prostitution should insist on the use of condoms to reduce their own chances of infection. Seropositive prostitutes should know that the only certain way of preventing sexual transmission of the virus is to abstain and not engage in prostitution. Seropositive persons who continue to engage in prostitution should insist on the use of condoms to prevent transmission of the virus to others. IV-drug abusers should be offered treatment for their addictions and warned not to share needles or syringes.

State and local governments are approaching the problem of HIV infection in prostitutes in a variety of ways. Since March 1986, the Nevada Board of Health has required prostitutes in county-licensed brothels to be tested for HIV antibody as a condition for employment and monthly thereafter. If a woman is seropositive, she is denied employment as a prostitute. Since October 1986, Florida has required convicted prostitutes to be tested for STDs, including HIV. It is a misdemeanor in Florida for anyone who has tested positive for HIV and has been informed of the result to engage in prostitution. In Atlanta, the Mayor's Task Force on Prostitution has recommended educational materials for prostitutes, clients, and law-enforcement officers as well as voluntary testing for STDs (including assays for HIV antibody) for everyone arrested for sexual offences and their steady partners.

Traditionally, medical care, therapy for drug addiction, welfare benefits and vocational rehabilitation have not been routinely offered to women apprehended for prostitution. Now some organizations are introducing innovative approaches to male, as well as female, prostitutes. The California Prostitutes Education Project attempts to warn prostitutes about the dangers of unprotected exposures and provides educational sessions on how to prevent infection. Social-service organizations offer counselling and sanctuary to homeless adolescents, including those involved in prostitution. State and local health departments often work closely with these organizations to provide voluntary testing and treatment for STDs.

CDI EDITORIAL COMMENT

Seroprevalence surveys for HIV antibody in prostitutes in Australia have indicated very low carrier rates. In Sydney, none of 200 prostitutes followed through 1984 and 1985 had HIV-antibody (1). In a separate survey, none of 132 Sydney prostitutes surveyed in 1985 were HIV-antibody positive, and none of approximately 100 prostitutes sampled in 1986/87 were HIV-antibody positive (2). A survey of Victorian prostitutes in 1986 found that one of 602 tested was HIV-antibody positive, and it was confirmed that the positive individual was also an IV-drug abuser (3).

The data presented above may not accurately reflect seropositivity rates in the whole prostitute community as these surveys (for ease of follow up) concentrated on prostitutes working from brothels.

Despite the continued low rates of seropositivity among the Australian prostitutes surveyed, it is recommended that all sexually active persons use condoms during sexual intercourse with male or female prostitutes.

REFERENCES

1. Med J Aust (1986) 145:55
2. Dr R. Philpot (Sydney STD Clinic) 1987. Pers. comm.
3. Dr B. Monheit (Victorian Department of Health) 1987. Pers. comm.

NOTICE: VACCINATION CERTIFICATES REQUIREMENTS AND HEALTH ADVICE FOR INTERNATIONAL TRAVEL

WHO have recently issued the following amendment to the 1987 Edition of Vaccination Certificate Requirements and Health Advice for International Travel. Yellow fever vaccination certificate requirements for persons arriving in Ghana have been amended and should now read:

GHANA

YELLOW-FEVER - A yellow fever vaccination certificate is required from travellers coming from all countries.

WER (1987) 62: 13, 90

NOTICE TO READERS

THE REED RESEARCH INSTITUTE is sponsoring an educational event that may be of particular interest to you-

'1987 UPDATE ON AIDS AND HEPATITIS: A MULTIDISCIPLINARY CONFERENCE'

Time: 30 June - 6 July, 1987

Venue: Sheraton Royal Waikoloa Resort Hotel
'The Big Island' of HAWAII

Contact: Stacey W. Grace
Program Director
Reed Research Institute
250 Arapahoe Avenue, Suite 303, Boulder, CO 80302
Tel. 1 (800) 647-9593 or 1 (303) 442-8172 in Colorado.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

REPORTING PERIOD 23-3-87 to 5-4-87 BULLETIN NUMBER 87/7
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES

VIRUS OR VIRAL ANTIGEN	ICPMR (NSW)/ WVH (ACT)	RAHC (NSW)	PHH/ POW (NSW)	FAIR-FIELD (VIC)	RCH (VIC)	IMVS (SA)	STATE LAB (QLD)	STATE LAB (WA)	Total
0100 ADENOVIRUS NOT TYPED			5		8	2	6	1	22
0101 ADENOVIRUS TYPE 1					4	2			6
0102 ADENOVIRUS TYPE 2						2		1	3
0103 ADENOVIRUS TYPE 3				1		2			3
0104 ADENOVIRUS TYPE 4				2					2
0105 ADENOVIRUS TYPE 5					2				2
0107 ADENOVIRUS TYPE 7					3				3
0199 ADENOVIRUS TYPING PENDING					1				1
0201 INFLUENZA A VIRUS			2						2
0203 INFLUENZA B VIRUS				1					1
0204 INFLUENZA C VIRUS							1		1
0301 PARAINFLUENZA VIRUS TYPE 1				1					1
0302 PARAINFLUENZA VIRUS TYPE 2			1					1	2
0303 PARAINFLUENZA VIRUS TYPE 3					3	2	1	2	8
0400 RESPIRATORY SYNCYTIAL VIRUS (RS)		1			1	2	3		7
0500 RHINOVIRUS (ALL TYPES)					5	15			20
0600 MYCOPLASMA PNEUMONIAE		3	2			1	6	4	16
0700 ORNITHOSIS-PSITTACOSIS				2		1	1	1	5
0903 COXSACKIEVIRUS B3						2			2
1003 ECHOVIRUS TYPE 3			1						1
1005 ECHOVIRUS TYPE 5				5					5
1011 ECHOVIRUS TYPE 11					5		3		8
1022 ECHOVIRUS TYPE 22						1			1
1100 POLIOVIRUS NOT TYPED			1		2				3
1101 POLIOVIRUS TYPE 1								1	1
1102 POLIOVIRUS TYPE 2		1							1
1103 POLIOVIRUS TYPE 3								1	1
1300 HERPES VIRUS GROUP-NOT TYPED				3		1			4
1302 EPSTEIN-BARR VIRUS (EB VIRUS)			3	8		2	13	9	35
1303 VARICELLA-ZOSTER VIRUS		1	6	2			2	1	12
1306 HERPES SIMPLEX TYPE 1		1		28	1	23	34	36	123
1307 HERPES SIMPLEX TYPE 2				48		18	66	57	189
1399 HERPES VIRUS TYPING PENDING				7	6				13
1401 COXIELLA BURNETI							21		21
1502 PICORNA VIRUS-NOT TYPED			3				14	2	19
1521 MEASLES VIRUS						1		11	12
1522 RUBELLA VIRUS		1		3			10	2	16
1532 HEPATITIS B ANTIGEN		5	14	28	1	18	14	27	107
1535 HEPATITIS A ANTIBODY			2	4		2		2	10
1541 CHLAMYDIA A - C TRACHOMATIS			2			83	29	59	173
1543 CHLAMYDIA A - LGV TYPE							29		29
1556 CMV - CYTOMEGALOVIRUS	1		4	18	3	5	14	6	51
1564 ROTAVIRUS				1	2	19	3		25
1571 ENTEROVIRUS TYPE 71 (BRCR)				1					1
1599 ENTEROVIRUS TYPING PENDING		2	17		2				21
9992 ROSS RIVER VIRUS				2			108	4	114
9994 SMALL VIRUS (LIKE) PARTICLE				1					1
9995 DENGUE							1		1
9997 KUNJIN VIRUS							1		1
9998 ARBO. GROUP B.							2		2
Total	1	15	63	166	49	204	382	228	1,108

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 23-3-87 to 5-4-87 BULLETIN NO 87/7

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/ mucs memb
0100 ADENOVIRUS NOT TYPED.....		1					4				
0101 ADENOVIRUS TYPE 1.....		5					1				
0102 ADENOVIRUS TYPE 2.....		1					1				
0103 ADENOVIRUS TYPE 3.....		2									
0105 ADENOVIRUS TYPE 5.....		1									
0107 ADENOVIRUS TYPE 7.....		1					1				
0201 INFLUENZA A VIRUS.....		2									
0204 INFLUENZA C VIRUS.....		1									
0302 PARAINFLUENZA VIRUS TYPE 2....		2									
0303 PARAINFLUENZA VIRUS TYPE 3....		7									
0400 RESPIRATORY SYNCYTIAL VIRUS (RS).....		7									
0600 MYCOPLASMA PNEUMONIAE.....	2	13									
0700 ORNITHOSIS-PSITTACOSIS.....		1									
0903 COXSACKIEVIRUS B3.....		2									
1003 ECHOVIRUS TYPE 3.....								1			
1005 ECHOVIRUS TYPE 5.....				4							
1011 ECHOVIRUS TYPE 11.....	1	3		1		1	1				1
1022 ECHOVIRUS TYPE 22.....		1									
1100 POLIOVIRUS NOT TYPED.....							1				
1101 POLIOVIRUS TYPE 1.....		1									
1103 POLIOVIRUS TYPE 3.....							1				
1302 EPSTEIN-BARR VIRUS (EB VIRUS).	8	1		1				3			1
1303 VARICELLA-ZOSTER VIRUS.....	2			1		3					8
1306 HERPES SIMPLEX TYPE 1.....	4	7					1		1	2	78
1307 HERPES SIMPLEX TYPE 2.....	5									1	76
1401 COXIELLA BURNETI.....	2		1					2			2
1502 PICORNA VIRUS-NOT TYPED.....	1					1	2				
1521 MEASLES VIRUS.....	3	3									4
1522 RUBELLA VIRUS.....	1										10
1532 HEPATITIS B ANTIGEN.....	43							48			
1535 HEPATITIS A ANTIBODY.....	5							4			
1543 CHLAMYDIA A - LGV TYPE.....	26										1
1556 CMV - CYTOMEGALOVIRUS.....	7	5						2	2	2	1
1564 ROTAVIRUS.....							25				
1571 ENTEROVIRUS TYPE 71 (BRCR)....											1
9992 ROSS RIVER VIRUS.....	26	2									30
9994 SMALL VIRUS (LIKE) PARTICLE...							1				
9997 KUNJIN VIRUS.....		1									
9998 ARBO. GROUP B.	1		1								
Total.....	137	70	2	7		5	39	60	3	5	213

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

PERIOD : 23-3-87 to 5-4-87 BULLETIN NO 87/7

Viral Identifications by Clinical Information Table 2.
Code 10 -Eye; 59 -Genital; 39 -Endo/sal gland;
38 -RES; 29 -Muscle/joint; 69 -Congenital; P8 -PUO;
G8 -Fever/malaise; 09 -Other; A1 -SIDS ...

VIRUS OR VIRAL ANTIGEN	Eye	Genital	Endo/sal gland	RES	Muscle/joint	Congenital	PUO	Fever/malaise	Other	SIDS
0100 ADENOVIRUS NOT TYPED.....	1									
0101 ADENOVIRUS TYPE 1.....							1			
0102 ADENOVIRUS TYPE 2.....							1			1
0103 ADENOVIRUS TYPE 3.....	1									
0104 ADENOVIRUS TYPE 4.....	2									
0105 ADENOVIRUS TYPE 5.....									1	
0107 ADENOVIRUS TYPE 7.....										1
0203 INFLUENZA B VIRUS.....								1		
0204 INFLUENZA C VIRUS.....					1					
0301 PARAINFLUENZA VIRUS TYPE 1....								1		
0303 PARAINFLUENZA VIRUS TYPE 3....									1	
0600 MYCOPLASMA PNEUMONIAE.....					1			3		
0700 ORNITHOSIS-PSITTACOSIS.....		1					2	1		
1005 ECHOVIRUS TYPE 5.....								1		
1011 ECHOVIRUS TYPE 11.....									1	
1102 POLIOVIRUS TYPE 2.....									1	
1302 EPSTEIN-BARR VIRUS (EB VIRUS).			11	1	1		6	7	1	
1303 VARICELLA-ZOSTER VIRUS.....									1	
1306 HERPES SIMPLEX TYPE 1.....	3	26		1	1			1	2	
1307 HERPES SIMPLEX TYPE 2.....		104	1						2	
1401 COXIELLA BURNETI.....			1		2			17	1	
1521 MEASLES VIRUS.....								3	2	
1522 RUBELLA VIRUS.....			1	1	7			1	2	
1532 HEPATITIS B ANTIGEN.....								1	15	
1535 HEPATITIS A ANTIBODY.....									1	
1541 CHLAMYDIA A - C.TRACHOMATIS...		170								
1543 CHLAMYDIA A - LGV TYPE.....		2								
1556 CMV - CYTOMEGALOVIRUS.....	1	1			2	3	2	6	20	
9992 ROSS RIVER VIRUS.....			3		68			29	2	
9995 DENGUE.....					1			1		
9997 KUNJIN VIRUS.....					1					
Total.....	8	304	17	3	85	3	12	73	53	2