



National Centre in HIV Epidemiology and Clinical Research

## Australian HIV Surveillance Report

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### Monitoring patterns of HIV transmission using a “detuned” HIV antibody testing strategy

Monitoring the current pattern of HIV transmission in a population through diagnosis of incident infection is an important aspect of public health surveillance for guiding HIV prevention activities. In practice, however, it is difficult to monitor HIV transmission at a population level because of the requirement for repeat testing of individuals.

Detection of incident HIV infection has most often taken place in the context of cohort studies, or surveys of individuals who undergo repeat testing for reasons such as regular blood donation. Although these mechanisms do allow incident infections to be detected, the resulting estimates of transmission rates may be rather unrepresentative, because of the highly selected nature of the groups undergoing repeat testing. Incident infection can also be detected through diagnosis of the characteristic clinical syndrome known as primary HIV infection (Boyle *et al* 1993) but again the specialised skills and experience required to make this diagnosis have meant that the resulting cases may well be unrepresentative of incident HIV infections in a population.

In Australia, the wide availability of HIV antibody testing has led to high rates of uptake and diagnosis among people at higher risk. National surveillance for new HIV diagnoses has incorporated, since 1991, the reporting of information about the recency of HIV acquisition. A case of HIV infection is classified as *newly acquired* if the person had a negative or indeterminate HIV antibody test or a diagnosis of an HIV seroconversion illness within the 12 months preceding HIV diagnosis. In each year since 1991, Australia's national surveillance system has reported 150 – 200 cases of newly acquired HIV infection, which now represent around 25% of all new diagnoses. Nevertheless, these counts inevitably underrepresent the total extent of new infection in the population. Other cases may have occurred in people who did not have a negative HIV antibody test within 12 months of acquiring their infection, or who had no history of HIV antibody testing or seroconversion illness.

Three years ago, researchers at the United States Centers for Disease Control reported on a newly developed assay that could distinguish recently acquired cases on the basis of their generally lower HIV antibody titre (Janssen *et al* 1998). This so-called “detuned” antibody testing strategy involves testing a single blood specimen from a person with HIV infection using both a sensitive and a less sensitive enzyme immunoassay. Cases with a reactive result on the sensitive assay and a non-reactive result on the less sensitive assay are defined as cases of *early* HIV infection.

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## Announcements

### National meeting

The Australasian Society for HIV Medicine Conference 2001 will be held in Melbourne, Victoria, on 4 – 7 October 2001.

Further information may be obtained from ASHM Conference Secretariat,

GPO Box 2609, Sydney NSW 2001.

Telephone: 02 9241 1478

Facsimile: 02 9251 3552

E-mail: [ashm@icmsaust.com.au](mailto:ashm@icmsaust.com.au)

Website: [www.ashm.org.au](http://www.ashm.org.au)

### International meeting

The Sixth International Congress on AIDS in Asia and the Pacific will be held in Melbourne, Victoria, on 5 – 10 October 2001.

Further information may be obtained from ICMS Pty Ltd,

84 Queensbridge Street, Southbank, VIC 3006.

Telephone: +61 3 9682 0244

Facsimile: +61 3 9682 0288

E-mail: [6icaap@icms.com.au](mailto:6icaap@icms.com.au)

Website: <http://www.icms.com.au/6icaap>

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The estimated mean duration between being non-reactive on the less sensitive assay and reactive on the sensitive assay was 129 days (95% confidence interval 109 – 149 days). Cases infected for a longer time have a reactive result on both the sensitive and the less sensitive assay and are classified as cases of *established* HIV infection. The detuned HIV antibody testing strategy may be applied to individuals, to determine whether their infection is recently acquired, or used to estimate HIV incidence from series of new HIV diagnoses such as may arise through seroprevalence studies

We report here the first results of using the detuned test in Australia to detect cases of early infection.

Sera remaining from almost all cases of HIV infection diagnosed between January 1998 and August 2000 at the NSW State Reference Laboratory for HIV at St Vincent's Hospital in Sydney were tested using the 3A11 (sensitive) and 3A11-LS (less sensitive or "detuned") ELISA (Abbott Laboratories). Each specimen was tested once only rather than in triplicate due to a shortage of detuned tests. Cases with an optical density of 0.75 or less on the less sensitive assay were classified as cases of early infection (Janssen *et al* 1998). We compared the results from the detuned strategy with other information available on the recency of infection in these cases.

A total of 570 cases of HIV infection were diagnosed at the NSW State Reference Laboratory for HIV from January 1998 to August 2000 (Table 1.1). Using the detuned strategy, early HIV infection was diagnosed in 180 (31.6% of total diagnoses) cases and 129 cases (22.6%) had evidence of HIV acquisition in the 12 months prior to HIV diagnosis. Among the 129 cases reported as having been acquired within 12 months of HIV diagnosis, 33.3% had an HIV seroconversion illness only, 24% had both an HIV seroconversion illness and a negative test, and 42.6% had a previous negative test only. In comparison, among 66 infections for which there was evidence that they had been acquired within 3 months of HIV diagnosis, 48.5% had an HIV seroconversion illness only, 37.9% had both an HIV seroconversion illness and a negative test and 13.6% had a negative test only.

More than half of the cases with evidence of newly acquired HIV infection were diagnosed within 3 months of the last negative test or HIV seroconversion illness, approximating the interval between being non-reactive on the less sensitive test and reactive on the sensitive test. The estimates of sensitivity and specificity were generally higher among cases of HIV infection acquired in the 3 months preceding HIV diagnosis than among cases with evidence of HIV acquisition within 12 months of HIV diagnosis. Of 66 cases with evidence of HIV acquisition in the 3 months prior to diagnosis, 40 were identified by the detuned test as early infection, giving an estimate of sensitivity of 60.6%. Of the 129 cases with evidence that HIV infection was acquired in the 12 months prior to HIV diagnosis, 74 were identified by the detuned test as early infections, giving an estimate of sensitivity of 57.1% (Table 1.2). Of 441 cases without evidence of newly acquired infection, 335 were identified as established HIV infection, giving an estimate of specificity of 76.0%. The detuned test had the highest sensitivity and specificity among cases of newly acquired HIV infection with a history of both a negative test and a diagnosis of HIV seroconversion illness.

**Table 1.1** Number of new diagnoses of HIV infection at the NSW State Reference Laboratory for HIV, by evidence of newly acquired HIV infection and detuned test result

Evidence of newly acquired HIV infection	Interval between last negative test or HIV seroconversion illness, and HIV diagnosis					
	Less than 3 months			12 months or less		
	Early	Established	Total	Early	Established	Total
Newly acquired HIV infection	40	26	66	74	55	129
HIV seroconversion illness	12	20	32	18	25	43
HIV seroconversion illness and a negative test	23	2	25	27	4	31
Previous negative test only	5	4	9	29	26	55
Other HIV diagnoses	0	0	0	106	335	441
<b>TOTAL</b>	<b>40</b>	<b>26</b>	<b>66</b>	<b>180</b>	<b>390</b>	<b>570</b>

**Table 1.2** Estimate of sensitivity and specificity of the detuned testing strategy, by timing of HIV acquisition and evidence of newly acquired HIV infection

Evidence of newly acquired HIV infection	Interval between the last negative test or HIV seroconversion illness, and HIV diagnosis			
	Less than 3 months		12 months or less	
	Sensitivity	Specificity	Sensitivity	Specificity
HIV seroconversion illness only	37.5	17.6	41.9	69.3
HIV seroconversion illness and a negative test	92.0	58.5	87.1	71.6
Previous negative test only	55.5	38.6	52.7	70.7
<b>TOTAL</b>	<b>60.6</b>	<b>0.0</b>	<b>57.1</b>	<b>76.0</b>

The percentage of HIV diagnoses with evidence of newly acquired infection gradually increased from 17.2% among cases diagnosed in 1998 to 26.8% among cases diagnosed in 2000 whereas the percentage of diagnoses with early infection remained stable over time.

**Table 1.3** Number of new diagnoses of HIV infection at the NSW State Reference Laboratory for HIV, number with evidence of newly acquired HIV infection and number with early HIV infection by year of diagnosis

Year of diagnosis	Number with newly diagnosed infection	Number (%) with newly acquired infection	Number (%) with early infection
1998	203	35 (17.2)	63 (31.0)
1999	218	54 (24.8)	69 (31.7)
2000 <sup>1</sup>	149	40 (26.8)	48 (32.2)
<b>TOTAL</b>	<b>570</b>	<b>129 (22.6)</b>	<b>180 (31.6)</b>

<sup>1</sup> Year 2000 includes cases diagnosed by 31 August 2000 only.

Exposure to HIV, for the majority of HIV diagnoses (81.6%), was attributed to a history of male homosexual/bisexual contact, with or without a history of injecting drug use. Among homosexually active men, 25.6% had evidence of newly acquired HIV infection and early HIV infection was detected in 33.1%. Cases with an undetermined exposure history accounted for 10.4% of HIV diagnoses and evidence of newly acquired infection and early infection was documented for 10.2% and 33.9% of diagnoses, respectively. No evidence for newly acquired HIV infection or early infection was available among 13 cases with a history of injecting drug use. Among 33 cases whose exposure to HIV was attributed to heterosexual contact only, 4 had evidence of newly acquired infection and early infection was detected in 6 cases.

Preliminary use of the detuned test among cases of HIV infection diagnosed at the NSW State Reference Laboratory for HIV in central Sydney in the late 1990s suggests that the method will have considerable value in tracking the occurrence of newly acquired infection. On the basis of these early results, it appears that the extent of HIV transmission has remained stable over the past three years.

While some cases may have been misclassified as having newly acquired HIV infection, the detuned test had the highest sensitivity and specificity for identifying early HIV infection among cases with a history of a negative test and a diagnosis of HIV seroconversion illness. The lower sensitivity and specificity of the detuned test among cases of newly acquired HIV infection with a history of a previous negative test only may be partly attributable to the date of the last negative test being estimated from the reported year only of the negative test. The pattern of HIV transmission indicated by the detuned test was consistent with that documented through surveillance for newly acquired HIV infection in that the majority of cases of HIV transmission were identified among homosexually active men (NCHECR 2000). The relatively low number of newly acquired infections reported among cases with an undetermined exposure history, compared with that detected by the detuned test, may be due to relatively incomplete documentation of exposure and HIV antibody testing history. Further evaluation of the detuned testing strategy for identifying early infection in Australia will be carried out when additional detuned test kits become available.

### Reported by

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### Reference

Boyle MJ, McMurchie M, Tindall B and Cooper DA. HIV seroconversion illness. *MJA* 1993; 158: 42 – 44

Janssen RS, Satten GA, Stramer SL, Rawal BD, O'Brien TR, Weiblen BJ, Hecht FM, Jack N, Cleghorn FR, Kahn JO, Chesney JA and Busch MP. New testing strategy to detect early HIV-1 infection for use in incidence estimates and for clinical and prevention purposes. *JAMA* 1998; 280: 42 – 48

National Centre in HIV Epidemiology and Clinical Research. HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia Annual Surveillance Report 2000. National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, NSW 2000. <http://www.med.unsw.edu.au/nchecr>

## National AIDS Registry

**Table 2.1** Cases of AIDS and deaths following AIDS by sex and State/Territory in which diagnosis of AIDS was made, cumulative to 31 December 2000, and for two previous yearly intervals

<b>Cases</b>									
State/Territory	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00				
	Male	Female	Male	Female	Male	Female	Total <sup>†</sup>	%	
ACT	0	0	1	1	87	9	96	1.1	
NSW	89	13	87	14	4 741	201	4 954	57.9	
NT	2	0	1	0	36	0	36	0.4	
QLD	29	2	31	3	853	50	905	10.6	
SA	7	2	5	0	350	25	375	4.4	
TAS	0	0	1	0	45	3	48	0.5	
VIC	25	2	54	2	1 679	72	1 759	20.6	
WA	4	0	7	0	356	26	384	4.5	
<b>TOTAL</b>	<b>156</b>	<b>19</b>	<b>187</b>	<b>20</b>	<b>8 147</b>	<b>386</b>	<b>8 557</b>	<b>100.0</b>	

### Deaths

State/Territory	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			
	Male	Female	Male	Female	Male	Female	Total <sup>†</sup>	%
ACT	1	1	3	1	68	4	72	1.2
NSW	60	1	69	1	3 249	114	3 371	56.4
NT	0	0	0	0	24	0	24	0.4
QLD	13	1	12	2	577	33	612	10.2
SA	4	0	4	1	234	16	250	4.2
TAS	1	0	0	0	29	2	31	0.5
VIC	32	1	25	1	1 294	49	1 350	22.6
WA	4	0	3	1	252	17	270	4.5
<b>TOTAL</b>	<b>115</b>	<b>4</b>	<b>116</b>	<b>7</b>	<b>5 727</b>	<b>235</b>	<b>5 980</b>	<b>100.0</b>

† Totals include 24 AIDS cases and 18 deaths following AIDS in people whose sex was reported as transgender.

**Table 2.2** Incidence of AIDS per million current population<sup>1</sup> by sex and State/Territory of diagnosis for the two most recent yearly intervals

State/ Territory	1 Jan 1999 – 31 Dec 1999			1 Jan 2000 – 31 Dec 2000		
	Male	Female	Total	Male	Female	Total
ACT	0.0	0.0	0.0	6.5	6.4	6.4
NSW	28.0	4.0	15.9	27.1	4.3	15.6
NT	19.6	0.0	10.4	9.7	0.0	5.1
QLD	16.5	1.1	8.8	17.4	1.7	9.5
SA	9.5	2.7	6.0	6.8	0.0	3.3
TAS	0.0	0.0	0.0	4.3	0.0	2.1
VIC	10.7	0.8	5.9	22.9	0.8	11.8
WA	4.3	0.0	2.2	7.4	0.0	3.7
<b>TOTAL</b>	<b>16.6</b>	<b>2.0</b>	<b>9.3</b>	<b>19.6</b>	<b>2.1</b>	<b>10.8</b>

<sup>1</sup> Population estimates by sex, State/Territory and calendar period from *Australian Demographic Statistics* (Australian Bureau of Statistics).

**Table 2.3 Cases of AIDS and deaths following AIDS by sex and age group, cumulative to 31 December 2000, and for two previous yearly intervals**

Cases <sup>1</sup>									
Age (years)	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00				
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>	%	
0–2	0	0	0	0	9	7	16	0.2	
2–12	0	0	0	0	20	9	29	0.3	
0–12	0	0	0	0	29	16	45	0.5	
13–19	2	0	0	0	27	4	31	0.4	
20–29	15	4	18	4	1 342	99	1 454	17.0	
30–39	68	8	74	12	3 426	139	3 573	41.8	
40–49	40	3	57	3	2 283	64	2 349	27.4	
50–59	26	2	27	0	785	31	817	9.5	
60+	5	2	11	1	255	33	288	3.4	
<b>TOTAL</b>	<b>156</b>	<b>19</b>	<b>187</b>	<b>20</b>	<b>8 147</b>	<b>386</b>	<b>8 557</b>	<b>100.0</b>	

**Deaths<sup>2</sup>**

Age (years)	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>	%
0–2	0	0	0	0	5	5	10	0.2
2–12	0	0	0	0	16	6	22	0.3
0–12	0	0	0	0	21	11	32	0.5
13–19	0	0	1	0	14	3	17	0.3
20–29	12	1	10	0	671	42	723	12.1
30–39	46	1	43	5	2 303	86	2 395	40.1
40–49	37	2	39	0	1 818	42	1 862	31.1
50–59	17	0	17	0	681	22	703	11.8
60+	3	0	6	2	219	29	248	4.1
<b>TOTAL</b>	<b>115</b>	<b>4</b>	<b>116</b>	<b>7</b>	<b>5 727</b>	<b>235</b>	<b>5 980</b>	<b>100.0</b>

<sup>1</sup> Cases are classified by age at diagnosis.

<sup>2</sup> Deaths are classified by age at death.

**Table 2.4 Cases of AIDS by sex and exposure category, cumulative to 31 December 2000, and for two previous yearly intervals**

Exposure category	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			
	Male	Female	Male	Female	Male	Female	Total	%
Male homosexual/bisexual contact	100	–	133	–	6 786	–	6 786	82.3
Male homosexual/bisexual contact and injecting drug use	10	–	8	–	371	–	371	4.5
Injecting drug use	6	4	12	2	180	88	268	3.3
<i>Heterosexual</i>	2	4	7	1	116	68	184	
<i>Not further specified</i>	4	0	5	1	64	20	84	
Heterosexual contact	23	13	18	16	313	199	512	6.2
<i>Sex with injecting drug user</i>	0	1	0	3	7	21	28	
<i>Sex with bisexual male</i>	–	1	–	2	–	41	41	
<i>From a high prevalence country</i>	7	5	6	5	58	38	96	
<i>Sex with person from a high prevalence country</i>	2	0	4	0	44	13	57	
<i>Sex with person with medically acquired HIV</i>	0	0	0	1	2	10	12	
<i>Sex with HIV infected person, exposure not specified</i>	0	3	2	4	29	27	56	
<i>Not further specified</i>	14	3	6	1	173	49	222	
Haemophilia/coagulation disorder	1	0	3	0	115	3	118	1.4
Receipt of blood/tissue	0	1	0	1	78	63	141	1.7
Health care setting	0	0	0	0	1	3	4	0.0
<b>Total Adults/Adolescents</b>	<b>140</b>	<b>18</b>	<b>174</b>	<b>19</b>	<b>7 844</b>	<b>356</b>	<b>8 200</b>	<b>99.5</b>
<b>Children (under 13 years at AIDS diagnosis)</b>								
Mother with/at risk for HIV infection	0	0	0	0	13	13	26	0.3
Haemophilia/coagulation disorder	0	0	0	0	5	0	5	0.0
Receipt of blood/tissue	0	0	0	0	11	3	14	0.2
<b>Total children</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>16</b>	<b>45</b>	<b>0.5</b>
<b>Sub-total</b>	<b>140</b>	<b>18</b>	<b>174</b>	<b>19</b>	<b>7 873</b>	<b>372</b>	<b>8 245</b>	<b>100.0</b>
Other/undetermined <sup>1</sup>	16	1	13	1	274	14	312	
<b>TOTAL</b>	<b>156</b>	<b>19</b>	<b>187</b>	<b>20</b>	<b>8 147</b>	<b>386</b>	<b>8 557</b>	

<sup>1</sup> The 'Other/undetermined' exposure category includes 24 AIDS cases in people whose sex was reported as transgender. The category was excluded from the calculation of the percentage of cases attributed to each exposure category.

**Table 2.5 Deaths following AIDS by sex and exposure category, cumulative to 31 December 2000, and for two previous yearly intervals**

Exposure category	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			%
	Male	Female	Male	Female	Male	Female	Total	
Male homosexual/bisexual contact	83	–	84	–	4 867	–	4 867	84.1
Male homosexual/bisexual contact and injecting drug use	7	–	6	–	259	–	259	4.5
Injecting drug use	7	0	8	1	105	50	155	2.7
<i>Heterosexual</i>	3	0	4	0	76	42	118	
<i>Not further specified</i>	4	0	4	1	29	8	37	
Heterosexual contact	7	3	7	5	148	110	258	4.5
<i>Sex with injecting drug user</i>	0	0	1	3	3	11	14	
<i>Sex with bisexual male</i>	–	0	–	0	–	27	27	
<i>From a high prevalence country</i>	2	1	2	0	13	12	25	
<i>Sex with person from a high prevalence country</i>	1	0	1	0	17	10	27	
<i>Sex with person with medically acquired HIV</i>	0	1	0	0	2	7	9	
<i>Sex with HIV infected person, exposure not specified</i>	0	0	0	0	22	14	36	
<i>Not further specified</i>	4	1	3	2	91	29	120	
Haemophilia/coagulation disorder	4	0	3	0	91	3	94	1.6
Receipt of blood/tissue	0	1	0	0	67	51	118	2.0
Health care setting	0	0	0	0	1	2	3	0.0
<b>Total Adults/Adolescents</b>	<b>108</b>	<b>4</b>	<b>108</b>	<b>6</b>	<b>5 538</b>	<b>216</b>	<b>5 754</b>	<b>99.4</b>
<b>Children (under 13 years at death following AIDS)</b>								
Mother with/at risk for HIV infection	0	0	0	0	7	9	16	0.3
Haemophilia/coagulation disorder	0	0	0	0	3	0	3	0.1
Receipt of blood/tissue	0	0	0	0	11	2	13	0.2
<b>Total children</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>11</b>	<b>32</b>	<b>0.6</b>
<b>Sub-total</b>	<b>108</b>	<b>4</b>	<b>108</b>	<b>6</b>	<b>5 559</b>	<b>227</b>	<b>5 786</b>	<b>100.0</b>
Other/undetermined <sup>1</sup>	7	0	8	1	168	8	194	
<b>TOTAL</b>	<b>115</b>	<b>4</b>	<b>116</b>	<b>7</b>	<b>5 727</b>	<b>235</b>	<b>5 980</b>	

1 The 'Other/undetermined' exposure category includes 18 deaths following AIDS in people whose sex was reported as transgender. The category was excluded from the calculation of the percentage of cases attributed to each exposure category.

## The National HIV Database

**Table 3.1 Number of new diagnoses of HIV infection by sex<sup>1</sup> and State/Territory, cumulative to 31 December 2000, and for two previous yearly intervals**

State/Territory	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			
	Male	Female	Male	Female	Male	Female	Total	Rate <sup>2</sup>
ACT	5	3	8	2	228	28	256	82.4
NSW <sup>3</sup>	361	31	307	28	11 236	634	12 134	187.7
NT	4	1	2	1	108	10	118	60.4
QLD	107	17	102	14	2 070	163	2 240	62.8
SA	19	3	21	2	694	63	757	50.5
TAS	2	1	0	0	78	5	83	17.6
VIC <sup>4</sup>	126	12	167	20	4 026	228	4 292	90.1
WA	32	7	35	9	943	123	1 072	56.9
<b>TOTAL<sup>5</sup></b>	<b>656</b>	<b>75</b>	<b>642</b>	<b>76</b>	<b>19 383</b>	<b>1 254</b>	<b>20 952<sup>6</sup></b>	<b>109.4</b>

- Forty eight people (21 NSW, 7 QLD, 14 VIC and 6 WA) whose sex was reported as transgender are included in the total columns of Tables 3.1 – 3.3
- Rate per one hundred thousand current population. Population estimates by sex, State/Territory and calendar interval from *Australian Demographic Statistics* (Australian Bureau of Statistics).
- Cumulative total for NSW includes 243 people whose sex was not reported.
- Cumulative total for VIC includes 24 people whose sex was not reported.
- Cumulative total for Australia includes 267 people whose sex was not reported.
- Estimated number of new diagnoses of HIV infection, adjusted for multiple reports, was 18 150 (range 17 700 to 18 600). Reference: Law MG, McDonald AM and Kaldor JM. Estimation of cumulative HIV incidence in Australia, based on national case reporting. *Aust NZ J Public Health* 1996; 20: 215 – 217

**Table 3.2** Number of new diagnoses of HIV infection for which exposure category was reported, by sex and exposure category, cumulative to 31 December 2000, and for two previous yearly intervals

Exposure category	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			%
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>	
Male homosexual/bisexual contact	426	-	433	-	13 359	-	13 359	77.9
Male homosexual/bisexual contact and injecting drug use	40	-	23	-	676	-	676	3.9
Injecting drug use	31	6	25	5	575	182	764	4.5
<i>Heterosexual</i>	17	5	17	4	211	130	342	
<i>Not further specified</i>	14	1	8	1	364	52	422	
Heterosexual contact	82	64	84	69	968	781	1 752	10.2
<i>Sex with injecting drug user</i>	2	5	0	5	31	87	118	
<i>Sex with bisexual male</i>	-	8	-	3	-	108	108	
<i>From a high prevalence country</i>	25	18	27	30	171	177	349	
<i>Sex with person from a high prevalence country</i>	17	12	25	13	160	87	247	
<i>Sex with person with medically acquired HIV</i>	0	0	1	1	6	15	21	
<i>Sex with HIV infected person, exposure not specified</i>	6	9	3	10	56	120	177	
<i>Not further specified</i>	32	12	28	7	544	187	732	
Haemophilia/coagulation disorder	2	0	0	0	227	4	231	1.3
Receipt of blood/tissue	0	1	0	0	103	102	205	1.2
Health care setting <sup>2</sup>	0	0	0	0	3	8	11	0.1
<b>Total Adults/Adolescents<sup>1</sup></b>	<b>581</b>	<b>71</b>	<b>565</b>	<b>74</b>	<b>15 911</b>	<b>1 077</b>	<b>16 998</b>	<b>99.1</b>
<b>Children (under 13 years at HIV diagnosis)</b>								
Mother with/at risk for HIV infection	0	1	2	1	39	27	66	0.4
Haemophilia/coagulation disorder	1	0	0	0	67	0	67	0.4
Receipt of blood/tissue	0	1	0	0	13	8	21	0.1
<b>Total children</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>119</b>	<b>35</b>	<b>154</b>	<b>0.9</b>
<b>Sub-total</b>	<b>582</b>	<b>73</b>	<b>567</b>	<b>75</b>	<b>16 030</b>	<b>1 112</b>	<b>17 152</b>	<b>100.0</b>
Other/undetermined <sup>3</sup>	74	2	75	1	3 353	142	3 800	
<b>TOTAL<sup>1</sup></b>	<b>656</b>	<b>75</b>	<b>642</b>	<b>76</b>	<b>19 383</b>	<b>1 254</b>	<b>20 952<sup>4</sup></b>	

1 Total column includes people whose sex was not reported.

2 'Health care setting' includes 5 cases of occupationally acquired HIV infection and 4 cases of HIV transmission in surgical rooms.

3 The 'Other/undetermined' exposure category includes 3 782 adults/adolescents and 18 children. Forty eight people whose sex was reported as transgender were included in the 'Other/undetermined' category. The 'Other/undetermined' category was excluded from the calculation of the percentage of cases attributed to each exposure category.

4 See footnote Table 3.1

**Table 3.3** Number of new diagnoses of HIV infection by sex and age group, cumulative to 31 December 2000, and for two previous yearly intervals

Age group (years)	1 Jan 99 – 31 Dec 99		1 Jan 00 – 31 Dec 00		Cumulative to 31 Dec 00			
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>	%
0–2	0	1	1	1	43	18	62	0.3
3–12	3	1	1	0	91	19	110	0.5
0–12	3	2	2	1	134	37	172	0.8
13–19	6	7	7	2	413	82	504	2.4
20–29	162	28	150	32	6 574	513	7 205	34.4
30–39	268	24	271	28	7 180	349	7 635	36.4
40–49	132	9	125	10	3 395	135	3 576	17.1
50–59	60	2	63	0	1 137	49	1 198	5.7
60+	23	2	18	3	376	58	436	2.1
Not reported	2	1	6	0	174	31	226	1.1
<b>TOTAL<sup>1</sup></b>	<b>656</b>	<b>75</b>	<b>642</b>	<b>76</b>	<b>19 383</b>	<b>1 254</b>	<b>20 952</b>	<b>100.0</b>

1 See footnotes Table 3.2

**Table 3.4** Number of new diagnoses of HIV infection in the year 1 January 2000 to 31 December 2000 for which an HIV seroconversion illness was diagnosed or the date of a prior negative test was within one year of diagnosis of HIV infection, by sex and State/Territory and for two six month intervals of HIV diagnosis

State/Territory	1 Jan 00 – 30 Jun 00		1 Jul 00 – 31 Dec 00		1 Jan 00 – 31 Dec 00		
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>
ACT	4	0	1	0	5	0	5
NSW	50	2	27	0	77	2	79
NT	1	0	0	1	1	1	2
QLD	9	1	12	1	21	2	23
SA	3	0	3	1	6	1	7
TAS	0	0	0	0	0	0	0
VIC	34	1	22	2	56	3	59
WA	4	1	6	0	10	1	12
<b>TOTAL<sup>1</sup></b>	<b>105</b>	<b>5</b>	<b>71</b>	<b>5</b>	<b>176</b>	<b>10</b>	<b>187</b>

1 Totals include one person whose sex was reported as transgender.

**Table 3.5** Number of new diagnoses of HIV infection in the year 1 January 2000 to 31 December 2000 for which an HIV seroconversion illness was diagnosed or the date of a prior negative test was within one year of diagnosis of HIV infection, by sex and exposure category and for two six month intervals of HIV diagnosis

Exposure category	1 Jan 00 – 30 Jun 00		1 Jul 00 – 31 Dec 00		1 Jan 00 – 31 Dec 00		
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>
Male homosexual/bisexual contact	90	–	59	–	149	–	149
Male homosexual/bisexual contact and injecting drug use	3	–	2	–	5	–	5
Injecting drug use (female and heterosexual male)	3	1	3	1	6	2	8
Heterosexual contact	7	4	4	4	11	8	19
Health care setting	0	0	0	0	0	0	0
Other/undetermined	2	0	3	0	5	0	6
<b>TOTAL<sup>1</sup></b>	<b>105</b>	<b>5</b>	<b>71</b>	<b>5</b>	<b>176</b>	<b>10</b>	<b>187</b>

<sup>1</sup> Totals include one person whose sex was reported as transgender.

**Table 3.6** Number of new diagnoses of HIV infection in the year 1 January 2000 to 31 December 2000 for which an HIV seroconversion illness was diagnosed or the date of a prior negative test was within one year of diagnosis of HIV infection, by sex and age group and for two six month intervals of HIV diagnosis

Age Group (years)	1 Jan 00 – 30 Jun 00		1 Jul 00 – 31 Dec 00		1 Jan 00 – 31 Dec 00		
	Male	Female	Male	Female	Male	Female	Total <sup>1</sup>
13–19	4	1	2	0	6	1	7
20–29	33	3	20	4	53	7	60
30–39	52	1	28	1	80	2	83
40–49	11	0	13	0	24	0	24
50–59	5	0	7	0	12	0	12
60+	0	0	1	0	1	0	1
<b>TOTAL<sup>1</sup></b>	<b>105</b>	<b>5</b>	<b>71</b>	<b>5</b>	<b>176</b>	<b>10</b>	<b>187</b>

<sup>1</sup> Totals include one person whose sex was reported as transgender.

## Sentinel surveillance of HIV infection in sexual health clinics

**Table 4.1** Number of people seen, number of people tested for HIV antibody and number of people newly diagnosed with HIV infection, by sex and sexual health clinic, during the quarter 1 October to 31 December 2000

Sexual health clinic	Seen at Clinic		Tested for HIV antibody		Newly diagnosed with HIV infection		
	Male	Female	Male	Female	Male	Female	Total
Sydney Sexual Health Centre, NSW	1083	771	351	239	2	1	3
Livingstone Road Sexual Health Centre, Marrickville, NSW	266	339	143	156	0	0	0
Brisbane Sexual Health Clinic, QLD	796	527	254	136	0	0	0
Gold Coast Sexual Health Clinic, QLD	399	515	121	202	1	0	1
Clinic 275, Adelaide, SA	669	504	560	389	1	0	1
Melbourne Sexual Health Centre, VIC	1753	1275	1039	904	27	0	27
<b>TOTAL</b>	<b>4966</b>	<b>3931</b>	<b>2468</b>	<b>2026</b>	<b>31</b>	<b>1</b>	<b>32</b>

**Table 4.2** Number of people seen who had a *previous negative HIV antibody test*, percent retested for HIV antibody and number (percent) newly diagnosed with HIV infection, by sex and exposure category, during the quarter 1 October to 31 December 2000

Exposure category	Previous negative HIV antibody test		% retested for HIV antibody		Newly diagnosed with HIV infection			%
	Male	Female	Male	Female	Male	Female	Total	
Male homosexual/bisexual contact	430	–	70.7	–	4	–	4	1.3
Male homosexual/bisexual contact and injecting drug use	38	–	84.2	–	1	–	1	3.1
Injecting drug use (female and heterosexual male)	91	69	64.8	59.4	0	0	0	0.0
Heterosexual contact	1245	1140	61.4	58.9	1	0	1	0.1
<i>outside Australia</i>	84	42	83.3	71.4	0	0	0	0.0
<i>within Australia only</i>	1161	1098	59.8	58.4	1	0	1	0.1
Sex worker	–	326	–	76.4	–	0	0	0.0
Sex worker and injecting drug use	–	29	–	79.3	–	0	0	0.0
Other/undetermined	87	58	92.0	77.6	10	0	10	8.0
<b>TOTAL</b>	<b>1891</b>	<b>1622</b>	<b>65.5</b>	<b>63.4</b>	<b>16</b>	<b>0</b>	<b>16</b>	<b>0.7</b>



**Table 4.3** Number of people seen with *no previous HIV antibody test*, percent tested for HIV antibody for the first time, and number (percent) newly diagnosed with HIV infection, by sex and exposure category, during the quarter 1 October to 31 December 2000

Exposure category	No previous HIV antibody test		% tested for HIV antibody		Newly diagnosed with HIV infection			%
	Male	Female	Male	Female	Male	Female	Total	
Male homosexual/bisexual contact	467	–	44.5	–	2	–	2	1.0
Male homosexual/bisexual contact and injecting drug use	23	–	43.5	–	0	–	0	0.0
Injecting drug use (female and heterosexual male)	59	50	72.9	58.0	0	0	0	0.0
Heterosexual contact	1749	1811	48.4	43.5	1	1	2	0.1
<i>outside Australia</i>	132	89	63.6	66.3	0	0	0	0.0
<i>within Australia only</i>	1617	1722	47.1	42.3	1	1	2	0.1
Sex worker	–	99	–	77.8	–	0	0	0.0
Sex worker and injecting drug use	–	14	–	50.0	–	0	0	0.0
Other/undetermined	343	282	35.6	34.0	12	0	12	5.5
<b>TOTAL</b>	<b>2641</b>	<b>2256</b>	<b>46.5</b>	<b>44.2</b>	<b>15</b>	<b>1</b>	<b>16</b>	<b>0.7</b>

**Table 4.4** Number of people seen, number of people tested for HIV antibody and number of people newly diagnosed with HIV infection, by sex and age group, during the quarter 1 October to 31 December 2000

Age group (years)	Seen at Clinic		Tested for HIV antibody		Newly diagnosed with HIV infection		
	Male	Female	Male	Female	Male	Female	Total
13–19	131	403	71	170	1	0	1
20–29	1825	2041	1028	1061	6	1	7
30–39	1659	956	813	503	17	0	17
40–49	795	373	333	219	5	0	5
50–59	374	123	154	62	2	0	2
60+	181	35	69	11	0	0	0
Not reported	1	0	0	0	0	0	0
<b>TOTAL</b>	<b>4966</b>	<b>3931</b>	<b>2468</b>	<b>2026</b>	<b>31</b>	<b>1</b>	<b>32</b>

**Table 4.5** Number of people diagnosed with specific sexually transmissible infections<sup>1</sup> other than HIV, by sex, exposure category and whether or not they were tested for HIV antibody<sup>2</sup> during the quarter 1 October to 31 December 2000

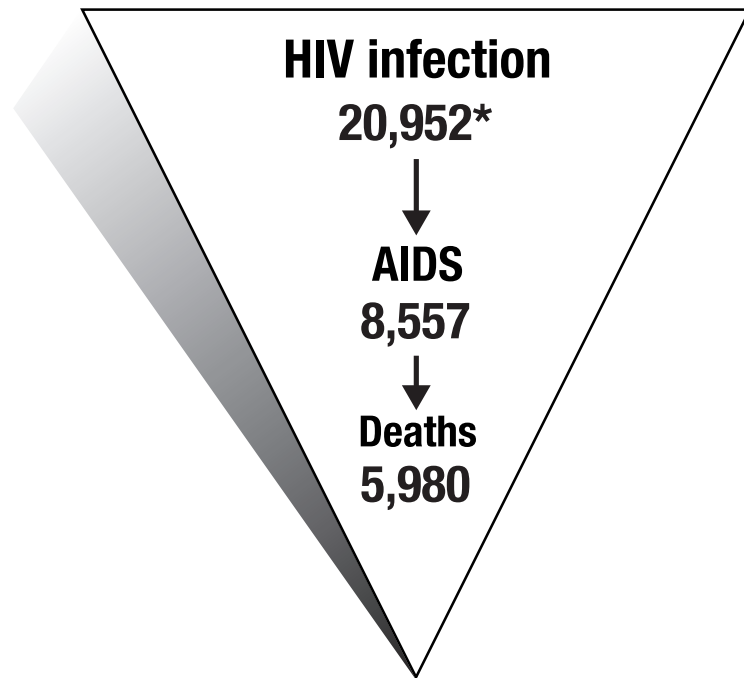
Exposure category	Tested for HIV antibody		Not tested for HIV antibody	
	Male	Female	Male	Female
Male homosexual/bisexual contact	13	–	12	–
Male homosexual/bisexual contact and injecting drug use	0	–	3	–
Injecting drug use (female and heterosexual male)	3	3	2	4
Heterosexual contact	50	32	31	77
<i>outside Australia</i>	4	3	5	1
<i>within Australia only</i>	46	29	26	76
Sex worker	–	3	–	1
Sex worker and injecting drug use	–	0	–	0
Other/undetermined	5	6	4	3
<b>TOTAL</b>	<b>71</b>	<b>44</b>	<b>52</b>	<b>85</b>

<sup>1</sup> Specific sexually transmissible infections are gonorrhoea, syphilis and chlamydia.  
<sup>2</sup> Includes people who may have been previously tested for HIV antibody and excludes people previously known to have HIV infection.



# The HIV epidemic in Australia

A cumulative profile to 31 December 2000



\* Estimated number of new diagnoses of HIV infection, adjusted for multiple reports, was 18,150 (range 17,700 to 18,600), cumulative to 31 December 2000.

## Diagnoses in the fourth quarter

### 1 October – 31 December

- a total of 134 diagnoses of HIV infection, 46 diagnoses of AIDS and 27 deaths following AIDS were reported, by 31 March 2001, to have occurred in the fourth quarter of 2000
- following adjustment for reporting delay, the estimated numbers of AIDS diagnoses and deaths following AIDS occurring in the fourth quarter of 2000 were 69 and 45
- in comparison, 183 diagnoses of HIV infection, 42 diagnoses of AIDS and 29 deaths following AIDS were reported, by 31 March 2001, to have occurred in the fourth quarter of 1999

### New HIV infection

During the fourth quarter of 2000, 36 cases were reported as having newly acquired HIV infection identified by a negative test within the 12 months prior to diagnosis or the diagnosis of HIV seroconversion illness. Among males, a history of homosexual/ bisexual contact only was reported in 27 (84.4%) cases.

### Diagnoses in the year to 31 December 2000

- 721 diagnoses of HIV infection
- 207 diagnoses of AIDS
- 123 deaths following AIDS were reported by 31 March 2001

## HIV diagnoses

People diagnosed with HIV infection in the year to 31 December 2000 had an average age of 36 years and 1.3% were in the age group 13 – 19 years

- 89% were male, 10.6% were female and sex was reported as transgender for 0.4% of cases
- of 89.5% of cases of HIV infection newly diagnosed in the year to 31 December 2000 for which exposure to HIV was recorded, a history of male homosexual/ bisexual contact only was reported in 67.3%

### Total diagnoses to 31 December 2000

- 20,952 diagnoses of HIV infection
- 18,150 diagnoses of HIV infection following adjustment for multiple reporting
- 8,557 diagnoses of AIDS
- 5,980 deaths following AIDS were reported by 31 March 2001

### HIV testing in sexual health clinics

Six sexual health clinics in Adelaide, Brisbane, Gold Coast, Melbourne and Sydney tested 4,494 people in the quarter 1 October – 31 December 2000 who were not previously known to have HIV infection

- of 2,226 people reported as having been tested for the first time, 16 (0.7%) were found to have HIV infection
- of 2,268 people reported as having been retested following a previous negative test, 16 (0.7%) were found to have HIV infection
- of 304 men who reported a history of homosexual contact, and who were retested following a previous negative test, 4 (1.3%) were newly diagnosed with HIV infection

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## Australian HIV Surveillance Report

### National Centre in HIV Epidemiology and Clinical Research

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## NOTES

**The National AIDS Registry** is maintained by NCHECR on behalf of the National HIV Surveillance Committee, which consists of representatives from NCHECR, and the Health Departments of each State and Territory and the Commonwealth of Australia. The Registry is based on reports from doctors who diagnose AIDS, made to the Health Department in the State/Territory of diagnosis. Date of birth and a name code (first two letters of first and last name) are used to minimise duplicate registration, while maintaining confidentiality.

**The National HIV Database** is maintained by NCHECR on behalf of the National HIV Surveillance Committee. It is based on reports of new diagnoses of HIV infection from HIV Reference Laboratories (ACT, NSW, TAS, VIC), or from a combination of Reference Laboratory and diagnosing doctors (NT, QLD, SA, WA). In order to avoid counting the same case more than once, only diagnoses which are determined to be new by the diagnosing laboratory or doctor are reported for the purposes of national surveillance.

**Sentinel surveillance** is carried out by six sexual health clinics in five Australian cities, which send quarterly reports on HIV antibody testing to NCHECR. Tabulations from the National AIDS Registry, the National HIV Database and Sentinel HIV Surveillance in sexual health clinics are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information.

**Abbreviations:** HIV is the human immunodeficiency virus, and unless otherwise specified, refers to HIV-1 only. AIDS is the acquired immunodeficiency syndrome and STI stands for sexually transmissible infection. Specified countries are those of sub-Saharan Africa and the Caribbean, where transmission of HIV is believed to be predominantly heterosexual. The Australian States and Territories are: Australian Capital Territory (ACT), New South Wales (NSW), Northern Territory (NT), Queensland (QLD), South Australia (SA), Tasmania (TAS), Victoria (VIC) and Western Australia (WA). NCHECR is the National Centre in HIV Epidemiology and Clinical Research.

### All data in this report are provisional and subject to future revision.

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State/Territory publications of surveillance data, available through the Internet, are listed below:

<b>NSW Public Health Bulletin</b>	<a href="http://www.health.nsw.gov.au/public-health/phb/phb.html">www.health.nsw.gov.au/public-health/phb/phb.html</a>
<b>The Northern Territory Disease Control Bulletin</b>	<a href="http://www.nt.gov.au/nthss/public/cdc/bulletin.htm">www.nt.gov.au/nthss/public/cdc/bulletin.htm</a>
<b>Sexually Transmitted Diseases in South Australia</b>	<a href="http://www.stdservices.on.net/publications">www.stdservices.on.net/publications</a>
<b>Victorian Infectious Diseases Bulletin</b>	<a href="http://www.dhs.vic.gov.au/phd/vidb/">www.dhs.vic.gov.au/phd/vidb/</a>
<b>Disease WATCH</b>	<a href="http://www.public.health.wa.gov.au/">www.public.health.wa.gov.au/</a>

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