Department of Health Vol.8 No.1 Quarter 1 2002

HONG KONG STD/AIDS Update

a quarterly surveillance report

Contents

Editorial

Two new cases of Human Immunodeficiency Virus (HIV) infection related to injection drug use (IDU) were reported to the Department of Health during the first quarter of 2002. The total number of IDU-related HIV cases now reaches 46 for which it represents 2.6% of all reported HIV infections in Hong Kong. Although the number of cases in terms of both the absolute number and the percentage to the overall infections seem rather small, especially when compared with those of our neighbouring cities, the fact that majority of these IDU-related cases (29/46 or 63%) were reported in the past 3 years may be viewed as an impending problem of HIV infection among our drug-taking population. Further information from the HIV/AIDS surveillance system should shed some lights onto the situation.

There had hardly been more than 2 cases of IDU-related HIV infection reported in any single year prior to 1999 - except in 1992 when there were 3 cases reported with no case was known over the preceding 2 years. A total of 6, 10 and 11 cases of HIV infection related to IDU were reported in 1999, 2000 and 2001, respectively. It was evident that an increase in the number of HIV infections due to IDU was reported in 1999 after which the number of cases reported per year had remained the same in last couple of years at the level of around 10 infections.

Sero-prevalence studies through the monitoring of HIV rates in different sentinel populations in order to derive the trend of HIV infection have long been performed. (See Feature Article) Same as it was found in the HIV/AIDS reporting, the sero-prevalence studies on the drug-taking population showed higher rates of HIV detection in the past 3 years. A rise in the HIV positivity rate as detected from those attending the methadone clinics was observed since 1998.

While all the findings are pointing towards more IDU-related HIV infections, it is also important to know the level of HIV risk behaviour within the drug-taking population for a clearer understanding of the HIV epidemiology. HIV behavioural risk factors, such as IDU and sharing of needle, serve as the indicators. Behavioural studies on the methadone clinic attendees showed that the trends in terms of the proportion of injection drug users and the proportion of needle-sharers were stable over the past years. This may partly due to the HIV prevention efforts being made on the methadone clinics in the past.

Although sexual transmission remains the commonest route of HIV infection in Hong Kong, the fact that HIV spreads effectively and rapidly among drug users via IDU and needle-sharing implies that preventing the spread of the virus within our drug-taking population should be emphasised. We have already witnessed many alarming situations in which a huge proportion of drug users in a population was being infected with the virus within a relatively short period of time elsewhere. In order to get an upper hand in preventing HIV infection and its spread among our drug users, it is crucial to maintain:

(1) an enhanced monitoring system comprising of both HIV testing and counselling for all drug users; and

(2) a targeted approach for preventing HIV risk behaviour among the drug users by discouraging them from sharing needles or using injection drugs.

Reported HIV/AIDS Quarterly Statistics

1st Quarter (January - March) 2002

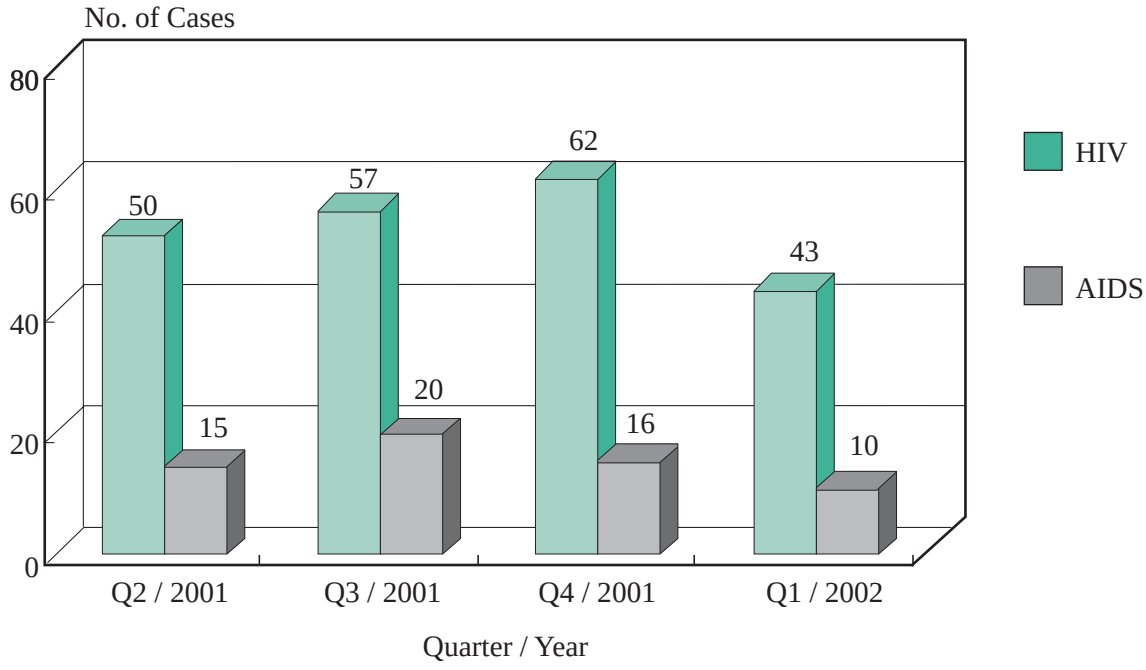
	This Quarter		Cumulative	
	HIV	AIDS	HIV	AIDS
Sex				
Male	34	8	1469	499
Female	9	2	329	71
Ethnicity / Race				
Chinese	34	10	1248	446
Non-Chinese	9	0	550	124
Asian	*7*	*0*	*279*	*66*
White	*1*	*0*	*187*	*54*
Black	*0*	*0*	*17*	*2*
Others	*1*	*0*	*67*	*2*
Age at Diagnosis				
Adult	43	10	1763	560
Child (age 13 or less)	0	0	35	10
Exposure Category				
Heterosexual	23	7	1026	376
Homosexual	5	1	340	98
Bisexual	2	1	87	29
Injecting drug use	2	0	46	9
Blood / Blood product infusion	0	0	68	19
Perinatal	0	0	14	6
Undetermined	11	1	217	33
Total	**43**	**10**	**1798**	**570**

Sexually Transmitted Diseases Reporting at Government Social Hygiene Service

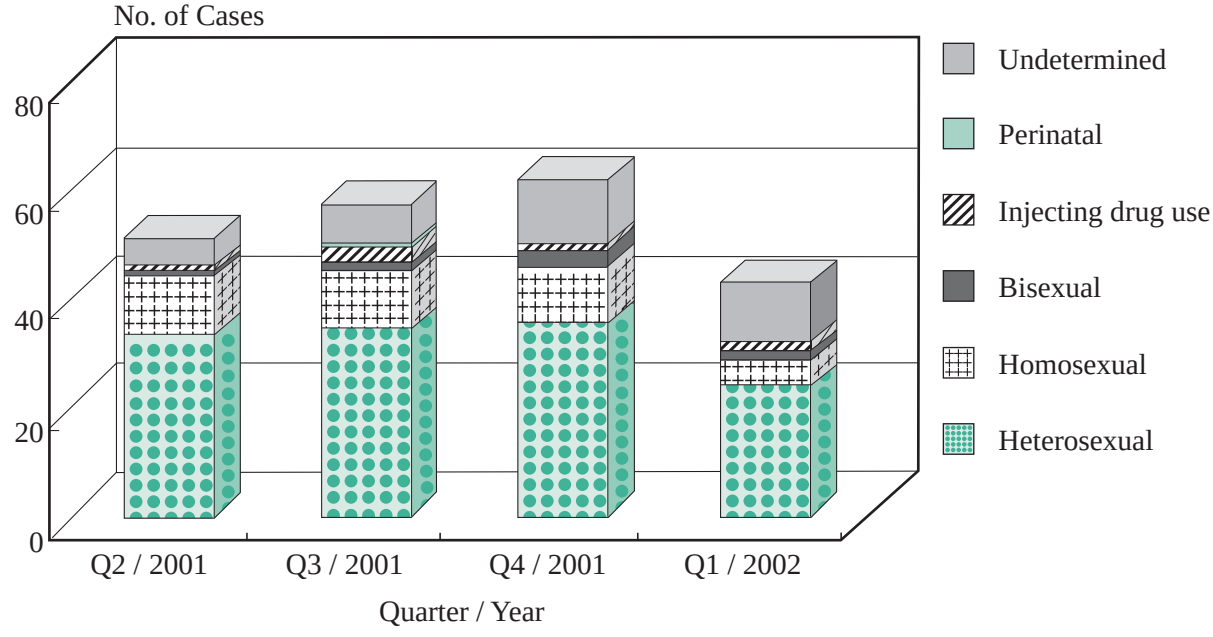
1st Quarter (January - March) 2002

	This Quarter	Same Quarter Last Year
Syphilis		
Primary	34	56
Secondary	12	7
Early latent	54	82
Late latent	144	102
Late (cardio-vascular/neuro)	0	1
Congenital (early)	0	0
Congenital (late)	0	1
Total	**244**	**249**
Gonorrhoea	785	822
Non-gonococcal Urethritis (Male)	1675	1621
Non-specific Genital Infection (Female)	1675	1601
Genital Wart	755	846
Herpes Genitalis	301	348
Pediculosis Pubis	113	108
Trichomonas	207	288
Genital Ulcer	92	146
Chancroid / Lymphogranuloma Venereum	1	0
Others	525	757
Total	**6373**	**6786**

Hong Kong HIV / AIDS Voluntary Reporting
in recent 4 Quarters

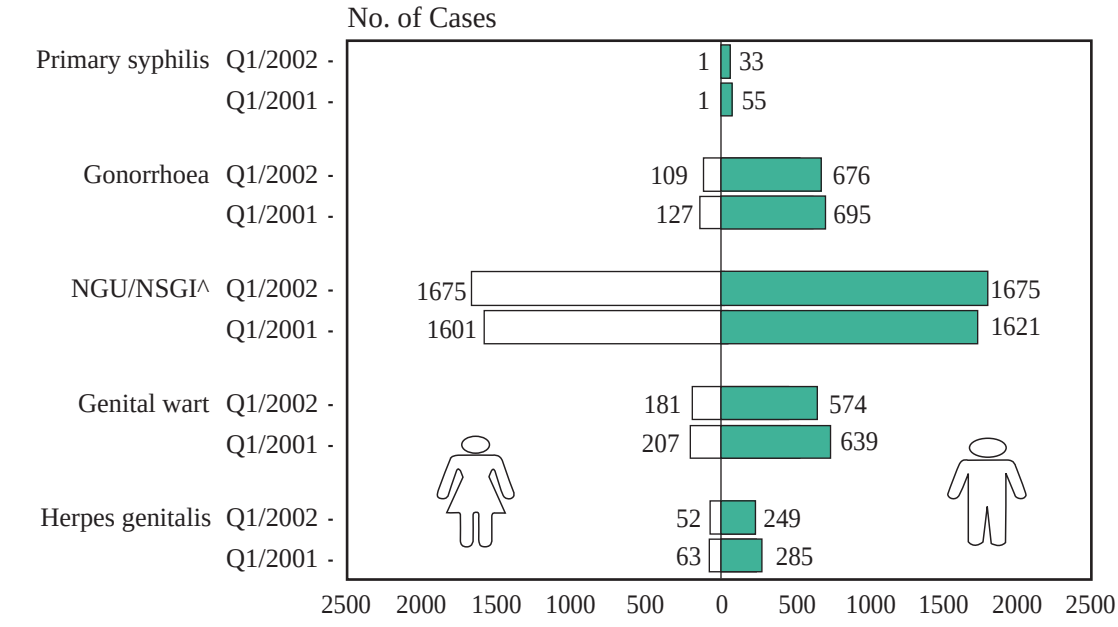


Hong Kong HIV Voluntary Reporting
By Exposure Category in recent 4 Quarters



Sexually Transmitted Diseases Reporting at GSHS*

By sex (1st Quarter, 2001 & 2002) Hong Kong

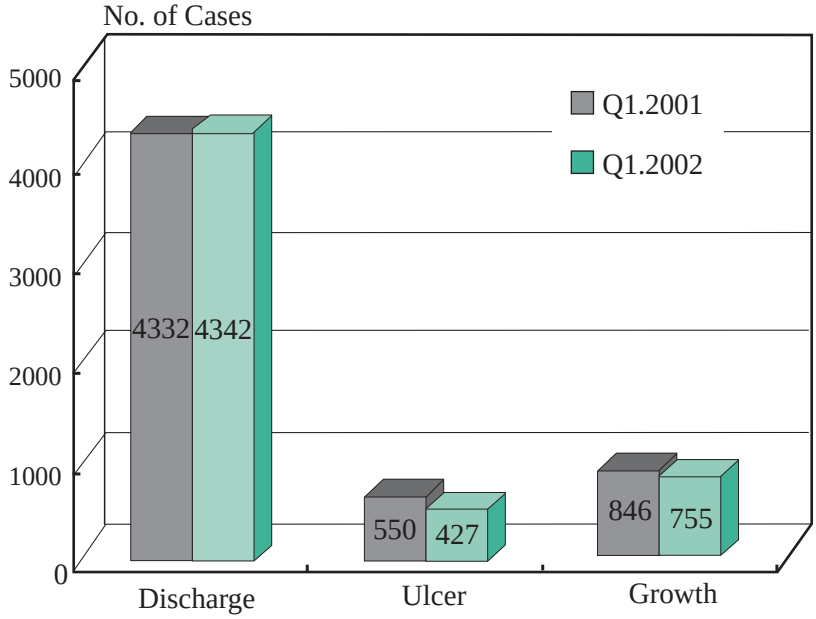


* GSHS: Government Social Hygiene Service

^ NGU/NSGI: Non-gonococcal urethritis/Non-specific genital infection

Syndrome Presentations of STD in GSHS*

(1st Quarter, 2001 & 2002) Hong Kong



Diseases included under the various syndrome :

Discharge :
- Gonorrhoea
- Non-gonococcal urethritis
- Non-specific genital infection
- Trichomonas

Ulcer:
- Chancroid
- Primary syphilis
- Herpes genitalis
- Non-specific genital ulcer

Growth: Genital wart

* GSHS: Government Social Hygiene Service

Seroprevalence of HIV in Hong Kong 2001

Background

As the global AIDS epidemic unfolds, it now becomes evident that the disease is evolving in different communities with different patterns. A sensitive and timely surveillance system is needed to capture the diversity of the epidemic and explain changes over time. Along with other HIV surveillance initiatives, such as behavioral surveillance, sexually transmitted infections (STI) surveillance and voluntary case reporting, the serosurveillance system is a well-established and useful mechanism for monitoring HIV trend.

In Hong Kong, HIV serosurveillance[1] is established since the availability of antibody kit in 1985, with more sentinel populations added to the system over the years. The Universal Antenatal HIV Testing is newly implemented in 2001, and has generated useful data to the system. This article aims to review the serosurveillance of HIV in Hong Kong up to the end of year 2001.

Methods and Results

The serosurveillance system in Hong Kong collects data through two major sources: (a) unlinked anonymous screening (UAS)[2] and (b) voluntary testing or screening. In UAS, blood or body fluid is often obtained for other purposes and then it is eliminated (unlinked) of all personal identifying information before HIV testing is done. Because the individual consent for HIV testing is not required, biases introduced when people opt out for testing are minimized. However, voluntary testing has the advantage of tracing a positive individual for counseling and treatment.

[1] In this document, serosurveillance refers to surveillance for HIV antibodies in all body fluids, not just blood.

[2] UAS was defined as "the testing of specimens for markers of infection after elimination (unlinking) of all personal identifying information from each specimen" according to the World Health Organisation (1989). Hong Kong has adopted UAS to supplement local HIV surveillance since 1990.

HIV serosurveillance is mainly performed in some sentinel populations, which can be grouped into three levels according to the behavioral risk involved: (a) general populations with no apparent risk, (b) special groups with defined HIV behavioral risk, or (c) special settings in which the behavioral risk is not defined, but monitoring the HIV trend is useful to inform about the epidemic.

General populations with no apparent risk

Under this category, there are two populations under our surveillance: (a) blood donors and (b) antenatal mothers.

Blood Donors

Since August 1985, the Hong Kong Red Cross Blood Transfusion Service (HKRCBTS) has implemented universal HIV antibody screening to secure safety of blood products. As repeat donors may represent different epidemiology from new donors, they are examined separately. The HIV seroprevalence is reviewed in terms of the number of blood donors **(Table 1)**, and the units of blood donated **(Table 2)**. In 2001, no new donors were found positive for HIV; for old donors, the HIV seroprevalence was 0.002%, making the overall positive detection rate of donated blood unit to be 0.002%.

Table 1. HIV seroprevalence among new and repeat blood donors attending HKRCBTS (1991-2001)

Year	New donors			Repeat donors		
	No. of donors	No. of donors anti-HIV+	HIV positivity rate of donors (%) (95% C.I. (%))	No. of donors	No. of donors anti-HIV+	HIV positivity rate of donors (%) (95% C.I. (%))
1991	48,769	0	0 (----)	132,987	3	0.002 (0.0005 - 0.0066)
1992	43,674	1	0.002 (0.00006 - 0.0128)	132,818	8	0.006 (0.0026 - 0.0119)
1993	36,146	1	0.003 (0.00007 - 0.0154)	128,907	2	0.002 (0.0002 - 0.0056)
1994	38,077	2	0.005 (0.0006 - 0.0190)	134,074	5	0.004 (0.0012 - 0.0087)
1995	39,778	2	0.005 (0.0006 - 0.0182)	93,280	2	0.002 (0.0003 - 0.0077)
1996	40,875	1	0.002 (0.0001 - 0.0136)	99,294	4	0.004 (0.0011 - 0.0103)
1997	40,419	1	0.002 (0.0001 - 0.0138)	81,906	6	0.007 (0.0027 - 0.0159)
1998	43,756	3	0.007 (0.0014 - 0.0200)	92,511	4	0.004 (0.0012 - 0.0111)
1999	40,960	1	0.002 (0.00006 - 0.0136)	76,098	6	0.008 (0.0029 - 0.0172)
2000	41,116	5	0.012 (0.0039 - 0.0284)	148,366	4	0.003 (0.0007 - 0.0069)
2001	43,415	0	0 (---)	150,420	3	0.002 (0.0004 - 0.0058)

Table 2. HIV detection rate of donated blood units at HKRCBTS (1985 - 2001)

Year	Units of blood donated	No. of units anti-HIV+	Positive detection rate of donated units (%)	95% C.I. for prevalence (%)
1985	58,563	2	0.003	(0.0004 - 0.0123)
1986	146,639	1	0.001	(0.00002 - 0.0038)
1987	155,079	2	0.001	(0.0002 - 0.0047)
1988	152,319	2	0.001	(0.0002 - 0.0047)
1989	156,587	3	0.002	(0.0004 - 0.0056)
1990	168,082	4	0.002	(0.0006 - 0.0061)
1991	181,756	3	0.002	(0.0003 - 0.0048)
1992	176,492	9	0.005	(0.0023 - 0.0097)
1993	165,053	3	0.002	(0.0004 - 0.0053)
1994	172,151	7	0.004	(0.0016 - 0.0084)
1995	178,447	4	0.002	(0.0006 - 0.0057)
1996	190,257	5	0.003	(0.0009 - 0.0061)
1997	187,753	7	0.004	(0.0015 - 0.0077)
1998	200,197	7	0.003	(0.0014 - 0.0072)
1999	189,959	7	0.004	(0.0015 - 0.0076)
2000	189,532	9	0.005	(0.0022 - 0.0090)
2001	193,835	3	0.002	(0.0003 - 0.0045)

Antenatal mothers

The Universal Antenatal HIV Testing Programme has been implemented since September 2001. HIV screening is now available free-of-charge to all expectant mothers attending the Maternal and Child Health Clinics of the Department of Health and antenatal clinics of the Hospital Authority. The main objective of the programme is to prevent mother to child transmissions (MTCT). The antenatal setting provides an accessible reflection of the HIV prevalence status of healthy reproductive women in the general population.

During the first three months of running, from September to November 2001, ninety-six percent of pregnant women agreed to have HIV antibody tests done (with 4% women opted out). Six HIV positive pregnancies were detected out of 10 238 tests performed, and the HIV seroprevalence is 0.06%. The universal HIV antenatal screening has replaced the system of unlinked anonymous screening which was undertaken from 1990 to 2001, with about 3000 to 4000 pregnant women in Hong Kong tested each year and the prevalence ranged from 0.00% to 0.03%.

Seroprevalence in vulnerable communities with defined behavioral risks

This category includes vulnerable communities with defined behavioral risks such as (a) clients attending the government Social Hygiene Clinics (SHCs) and (b) drug users.

Clients attending Social Hygiene Clinics

Tracking sexually transmitted infections (STIs) forms part of the HIV surveillance, not just because STIs are cofactors of HIV infection, but also because they indicate sexual risk behaviors of themselves or their spouse/partners. Voluntary HIV antibody testing is offered to all SHC clients as part of the STI screening. **(Table 3)** shows that the seroprevalence of HIV among the attendees has remained low at less than 0.10% in 2001, similar to the past 15 years.

Table 3. HIV seroprevalence in clients attending Social Hygiene Clinics from voluntary blood testing (1985 - 2001)

Year	No. of blood samples	No. anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1985	7,911	5	0.063	(0.021 - 0.147)
1986	27,179	2	0.007	(0.001 - 0.027)
1987	33,553	2	0.006	(0.001 - 0.022)
1988	33,039	3	0.009	(0.002 - 0.027)
1989	29,663	6	0.020	(0.007 - 0.044)
1990	27,045	9	0.033	(0.015 - 0.063)
1991	27,013	19	0.070	(0.042 - 0.110)
1992	27,334	12	0.044	(0.023 - 0.077)
1993	28,736	16	0.056	(0.032 - 0.090)
1994	30,162	29	0.096	(0.064 - 0.138)
1995	33,896	14	0.041	(0.023 - 0.069)
1996	37,126	25	0.067	(0.044 - 0.099)
1997	38,779	27	0.070	(0.046 - 0.101)
1998	46,127	27	0.059	(0.039 - 0.085)
1999	51,639	31	0.060	(0.041 - 0.085)
2000	51,197	20	0.039	(0.024 - 0.060)
2001	51,209	31	0.061	(0.041 - 0.086)

Drug users

Injecting drug use is the most important route of transmission for HIV infection in China and some South East Asian countries. Drug users are at unique risk of HIV infection through using contaminated needles/syringes during drug injection. The seroprevalence of HIV in attendees of Methadone Clinics of the Department of Health are reflected by UAS **(Table 4)** and voluntary testing **(Table 5)**.

In 2001, the HIV seroprevalence from UAS in Methadone Clinics is 0.11%; no positive case was detected by voluntary testing. There is a general rising trend of HIV positivity observed by UAS in the Methadone Clinics since 1998, although the rate is lower in 2001 than in 2000, the peak is yet to be determined.

Among in-patient drug treatment centres run by the Society for the Aid and Rehabilitation of Drug Abusers (SARDA), the HIV seroprevalence is sampled by means of UAS **(Table 6)**. In 2001, the HIV seroprevalence in these in-patient drug treatment centres was 0.18%. There is also a voluntary HIV testing system starting from 1991: for a total of 3558 tests performed, only one case of HIV was detected in 1992. There were no HIV cases detected in the 303 tests performed in 2001.

Table 4. HIV prevalence among methadone clinic clients from unlinked anonymous screening (1992 - 2001)

Year	No. of urine samples	No. of anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1992	2189	0	0	(--- - ---)
1993	3219	0	0	(--- - ---)
1994	4113	2	0.049	(0.006 - 0.176)
1995	2240	1	0.045	(0.001 - 0.249)
1996	3714	1	0.027	(0.001 - 0.150)
1997	1816	0	0	(--- - ---)
1998	2838	6	0.211	(0.078 - 0.460)
1999	2674	3	0.112	(0.023 - 0.328)
2000	3644	10	0.274	(0.132 - 0.505)
2001	3811	4	0.105	(0.029 - 0.269)

Table 5. HIV prevalence among Methadone Clinic attendees from voluntary testing (1991 - 2001)

Year	* No. of blood samples	No. of anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1991	379	0	0	(--- - ---)
1992	212	0	0	(--- - ---)
1993	198	0	0	(--- - ---)
1994	296	1	0.338	(0.009 - 1.882)
1995	102	0	0	(--- - ---)
1996	302	0	0	(--- - ---)
1997	254	0	0	(--- - ---)
1998	250	1	0.400	(0.010 - 2.229)
1999	599	3	0.501	(0.103 - 1.464)
2000	602	1	0.166	(0.004 - 0.926)
2001	363	0	0	(--- - ---)

Remarks: all were blood samples, with a small proportion being urine samples since late 1999*

Table 6. HIV prevalence among drug users attending inpatient drug treatment centres / institutions, from unlinked anonymous screening (1998 - 2001)

Year	No. of urine samples	No. anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1998	2286	3	0.131	(0.027 - 0.384)
1999	1675	3	0.179	(0.037 - 0.523)
2000	1165	7	0.601	(0.242 - 1.238)
2001	1137	2	0.176	(0.021 - 0.635)

Category which HIV risk is not defined as high or low

There is another category in which HIV behavioral risk is not directly related. This group includes (a) the prisoners, (b) patients attending government TB & Chest Clinics, and (c) health care workers sustaining occupational needle stick injury.

Prisoners

Prisoners may be expected to have a higher rate of HIV infection compared to the general population. Although prisoners are heterogeneous in nature and the composition change over time, there are a higher proportion of drug users compared to the general population, and more high risk behaviours may be present. Since 1995, UAS has been performed for all the newly admitted prisoners, and the rate ranges from 0.20% to 0.63% **(Table 7)**. The HIV seroprevalence was 0.26% in 2001.

Table 7. HIV seroprevalence among newly admitted prisoners from unlinked anonymous screening (1995 - 2001)

Year	No. of samples	Type of samples	No. anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1995	653	Blood	3	0.459	(0.095 - 1.343)
1996	1503	Urine	6	0.399	(0.147 - 0.869)
1997	1474	Urine	3	0.204	(0.042 - 0.595)
1998	1571	Urine	4	0.255	(0.069 - 0.652)
1999	1580	Urine	10	0.633	(0.480 - 1.841)
2000	1516	Urine	4	0.264	(0.072 - 0.676)
2001	1502	Urine	5	0.333	(0.108 - 0.777)

Patients with active tuberculosis in the government TB and Chest Clinics

Tuberculosis is endemic in Hong Kong. Although the infection can involve both HIV-positive and negative individuals, HIV increases the risk of active TB infection by 25 to 30-fold. Both extra-pulmonary TB (at any CD4 count) and pulmonary TB (in those with a CD4 count below 200/ul) constitute AIDS-defining conditions in Hong Kong. Since 1990, UAS has been done for a sample of patients attending the government TB and Chest Clinics **(Table 8)**, and starting from 1993, voluntary blood testing is also offered for patients newly treated for TB infection **(Table 9)**. In 2001, the HIV seroprevalence for new tuberculosis patients in the Chest Clinics from UAS was 0.37%. However, the seroprevalence from voluntary screening was 0.26%, a rate which was higher than in 2000, and was consistent with the increasing trend since 1998; its significance is yet to be determined.

Table 8. HIV seroprevalence among patients attending government TB & Chest Clinics, from unlinked anonymous screening of urine samples (1990 - 2001)

Year	No. of urine samples	No. anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1990	1548	0	0	(--- - ---)
1991	485	0	0	(--- - ---)
1992	1469	2	0.136	(0.016 - 0.492)
1993	1173	0	0	(--- - ---)
1994	-	-	-	(--- - ---)
1995	895	2	0.223	(0.027 - 0.807)
1996	998	4	0.401	(0.109 - 1.026)
1997	1003	2	0.199	(0.024 - 0.720)
1998	833	4	0.480	(0.131 - 1.229)
1999	1166	8	0.686	(0.296 - 1.352)
2000	1018	5	0.491	(0.159 - 1.146)
2001	1071	4	0.373	(0.102 - 0.956)

Table 9. HIV seroprevalence among patients attending government TB & Chest Clinics, from voluntary blood testing (1993 - 2001)

Year	No. of blood samples	No. anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
1993	2116	0	0	(--- - ---)
1994	2534	2	0.079	(0.010 - 0.285)
1995	2548	2	0.078	(0.010 - 0.284)
1996	3157	2	0.063	(0.008 - 0.229)
1997	3524	2	0.057	(0.007 - 0.205)
1998	3726	6	0.161	(0.059 - 0.350)
1999	3633	11	0.303	(0.151 - 0.542)
2000	3426	3	0.088	(0.018 - 0.256)
2001	3404	9	0.264	(0.121 - 0.502)

Health care workers sustaining occupational exposure

Health care workers may be accidentally exposed to blood or body fluids in their work. These occupational exposures may be seen at the Accidents and Emergencies Department under the Hospital Authority and referred to the Therapeutic Prevention Clinic under the Department of Health. The health care workers may be of different job nature and ranks. Data collection in this group of clients has been in place since 1985. There are no HIV cases detected so far. A total of 1773 blood tests were done in the laboratories in Department of Health and the Hospital Authority in 2001, and all were negative.

Discussion

For the two groups representing **general population with no apparent risk** in Hong Kong, the HIV seroprevalence has been low. From the Hong Kong Red Cross Blood Transfusion Service, the HIV seroprevalence in blood donors (new and repeat) is 0.002%, while the rate obtained in the Universal Antenatal HIV Testing Programme is 0.06% among healthy pregnant women.

Selection bias exists, as the population of blood donors is a self-selected group. Known HIV infected patients and even those with known HIV risk behaviors may refrain from donation of blood, so the rate obtained may be not be representative of the general population in Hong Kong. Similarly, HIV infected women may be less willing to proceed to pregnancy. Although participating bias is possible, the Universal Antenatal HIV Testing has minimized the bias by having a low opt-out rate of 4%.

In vulnerable communities with defined behavioral risks, voluntary testing among the Social Hygiene Clinics clients has a low HIV seroprevalence at 0.06%. It is noteworthy that while the seroprevalence of HIV in drug users were all along less than 0.05% before 1997, there is an increasing trend observed since 1998. The HIV seroprevalence from UAS in Methadone Clinics and in-patient drug treatment institutions was 0.11% and 0.18% respectively in 2001. Given the very high HIV rate in injecting drug users in some neighboring countries in SE Asian countries and China, the relative rising trend of HIV infection among drug users in Hong Kong should be carefully monitored and alert us of an early public health response.

In the special setting in which behavioral risk is not defined, it is understood that the groups of prisoners, tuberculosis patients as well as the health care workers are heterogeneous in nature, and voluntary HIV testing is performed opportunistically during medical consultations or check-ups. The HIV seroprevalence for prisoners obtained by UAS was 0.26% in 2001, while that from UAS and voluntary testing from the active tuberculosis patients were 0.37% and 0.26%

respectively. No health care workers were found to have HIV antibody when they were screened for occupational exposure. Generally, in UAS, there are intrinsic problems in obtaining further details about selection biases, making interpretation of results sometimes difficult. However, in a sentinel population with stable selection and participation bias, the trend is a good indicator of the condition in the target population.

The HIV seroprevalence in Hong Kong can be classified as a HIV low prevalence state according to the UNAIDS and WHO classification[3], which is defined as a population having HIV prevalence not consistently exceeding five percent in any defined sub-population.

Conclusion

The year 2001 has seen the implementation of the Universal HIV Testing Programme, which is not only an initiative to safeguard healthy pregnancy and decrease vertical transmission of HIV, but another step forward to enrich the local HIV serosurveillance database. The new programme can reflect the HIV infection status of healthy reproductive females in the population, and contribute another useful index for international comparison.

From the serosurveillance data in the 2001, Hong Kong can be classified as a low HIV prevalence area. However, there is little room for complacency. There is a general rising trend of HIV seroprevalence in drug users in the past few years. We must be very vigilant to keep the serological and behavioral surveillance in check, and to instigate an early public health response.

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[3] World Health Organization and Joint United Nations programme on HIV/AIDS, 2000. Second generation surveillance for HIV: The next decade

SUGGESTED CITATION

Seroprevalence of HIV Infection in Hong Kong 2001
Hong Kong STD/AIDS update,
Vol. 8, no.1 Quarter 1, 2002: [inclusive page numbers]

Hong Kong STD/AIDS Update can be viewed via the internet at:

http://www.aids.gov.hk

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