Epidemiology of HIV/AIDS in Hong Kong 2010

(adopted from Summary review of HIV annual surveillance report 2010, December 2011)

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HIV Surveillance at a glance (2010)

- 389 HIV reports and 79 AIDS reports
- Gender: 72.2% male
- Ethnicity: 63.8% Chinese
- Age: Median 36
- Risks:
  - 30.1% Heterosexual contact
  - 42.4% Homo/bisexual contact
  - 3.9% Injecting drug use
  - 0% Blood transfusion
  - 0.8% Perinatal
  - 22.9% Undetermined
- CD4 at reporting: Median 211/ul
- HIV-1 subtypes: commonest are CRF01_AE and B
- Primary AIDS defining illness: Commonest are PCP and TB
- HIV prevalence
  - Blood donors: < 0.01%
  - Antenatal women: 0.02%
  - STI clinic attendees: 0.15%
  - Methadone clinic attendees: 0.48%

The HIV/AIDS surveillance system in Hong Kong comprises 5 main programmes to provide a detailed description of local situation. They are (a) voluntary HIV/AIDS case-based reporting; (b) HIV prevalence surveys; (c) sexually transmitted infections (STI) caseload statistics; (d) behavioural studies; and (e) HIV-1 genotyping studies. The data is collected, analyzed and disseminated regularly by the staff of surveillance team of Special Preventive Programme (SPP), Centre for Health Protection (CHP), Department of Health (DH). At present, the latest HIV/AIDS statistics are released at quarterly intervals at press media briefings and in electronic format (www.aids.gov.hk), as well as an annual report, amongst other.

Reported cases in 2010

The Department of Health has implemented a voluntary anonymous HIV/AIDS reporting system since 1984. In 2010, DH received 389 HIV and 79 AIDS reports, slightly fewer but still similar to the figures reported in 2009. This brought the cumulative total to 4832 and 1185 for HIV and AIDS reports respectively. Public hospitals/clinics/laboratories were still the commonest source of HIV reports in 2010, which accounted for 38.6% of all. Private hospitals/clinics/laboratories were another common source of HIV reports (22.6%). Notably, the AIDS service organisations played a more significant role in HIV reporting in 2010 (10.5%). The number of reports from other sources has largely remained stable.

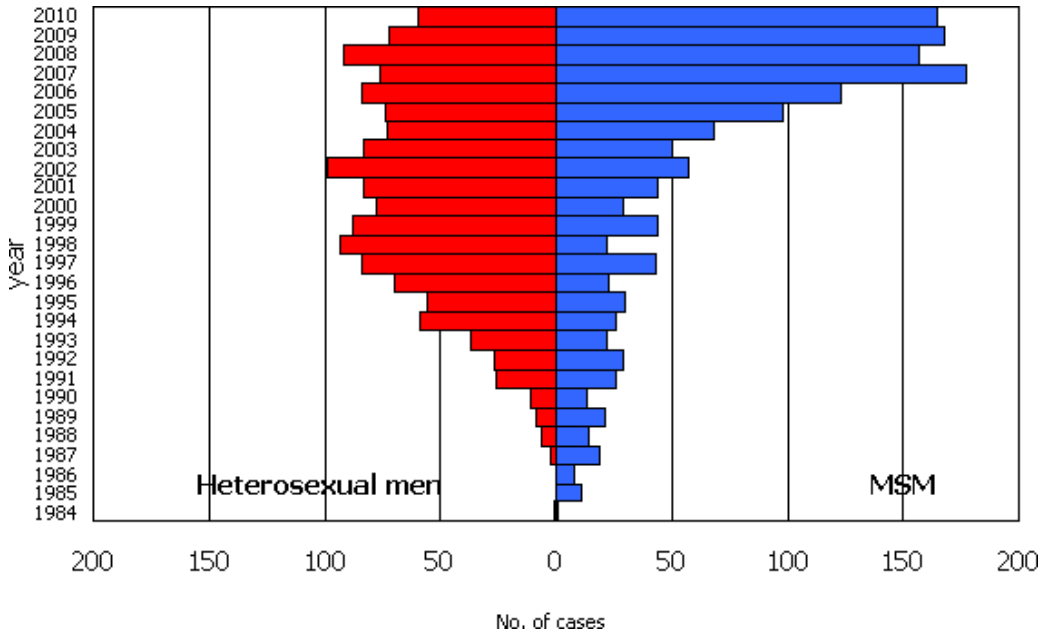
Around 72% of reported HIV cases were male. The male-to-female ratio was 2.6:1 in 2010, considerably lower than that in 2009 of 3.6:1, which suggested a growing female importance despite the overwhelming male predominance. About 64% of reported cases were Chinese. Asian non-Chinese accounted for 13.1% of reports. The median age of reported HIV cases was 36. Over 72% of reported cases were believed to have acquired the virus through sexual transmission in 2010, including homosexual (36.5%), heterosexual (30.1%), and bisexual exposure (5.9%). Injecting drug use accounted for 3.9% of HIV infections in 2010. There were 3 cases of HIV transmission through perinatal contact in 2010. The suspected routes of transmission were not reported in about a quarter (22.8%) of cases. This means that, after excluding those with undetermined exposure category, sexual transmission accounted for about 94% among HIV reports with defined risks.

Rising trend in men who have sex with men persisted

Sexual contact remained the commonest route of HIV transmission in Hong Kong. Both heterosexual and homosexual/bisexual contacts were considered as the most important risk factors. In 1980s and early 1990s, the early years of HIV/AIDS epidemic in Hong Kong, it used to report more cases from men who have sex with men, who had homosexual or bisexual contacts. The trend then reversed with heterosexual transmission overtaking homosexual / bisexual transmission from 1993 onwards. Since 2004, a rising trend in MSM has been observed and the situation remained consistent in 2010 with 165 MSM cases (55.0%) identified out of 300 cases with defined risks. Since 2007, MSM infections consistently surpassed heterosexual infections each year.

A high weighting of MSM in HIV reports continued in 2010. 58.7% of male HIV reports in 2010 contracted the virus through homosexual or bisexual contact. Heterosexual contact in male cases accounted for about 21%, whereas the routes of transmission were undetermined in another 14% of the male cases. The ratio of heterosexual men against MSM dropped from its peak of 4.2:1 in 1998 to 0.4:1 in 2010. (Box 1.1) The marked disproportionately more infections among MSM than heterosexual males were evident.

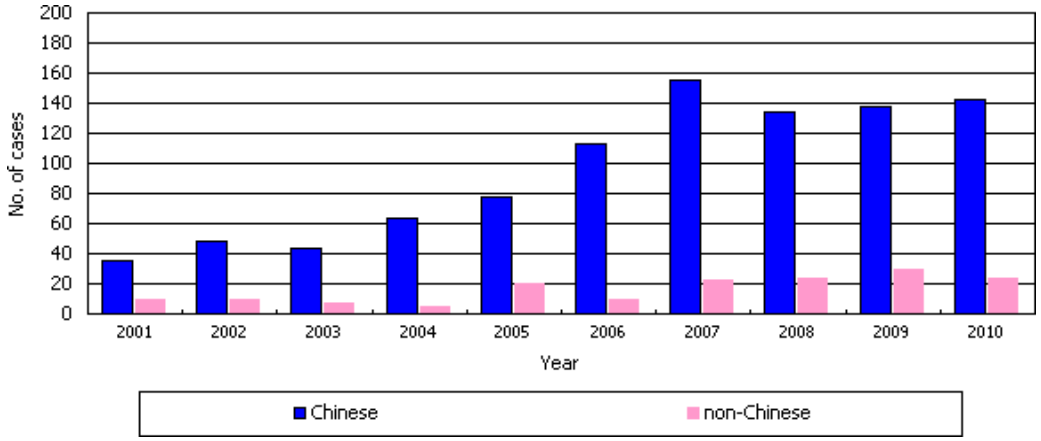
Box 1.1 The number of MSM cases has taken over heterosexual men cases in the reporting system since 2005 and the gap continued to widen.



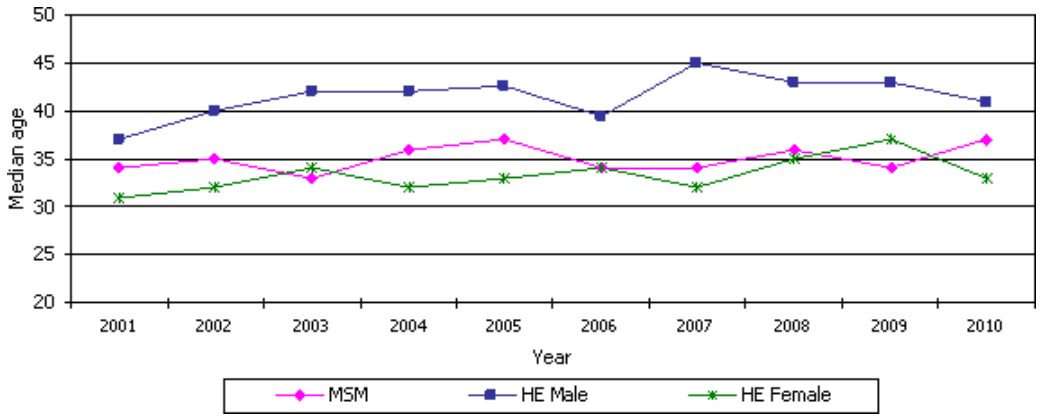
The major attributes of the rise in MSM were Chinese and of age group 20-49. About 75% of MSM cases in 2010 were Chinese. A rising trend in the number of reported Chinese MSM cases was observed in recent years despite a modest drop between 2007 and 2008. (Box 1.2) The median age of MSM cases at report was 37, which was lower as compared to 41 of heterosexual male cases. Moreover, the median age of HIV infected MSM population has been relatively stable in the last decade whereas that of heterosexual men remained at a higher level despite gradually becoming younger in recent 3 years. (Box 1.3) Age group 30-39 remained the commonest age group of reporting in MSM, which accounted for 35% in 2010, followed by 28% in the age group 40-49. (Box 1.4) Reported data in 2010 suggested that

some 70% of MSM infections occurred in Hong Kong yearly since 2006, in contrast to a much lower proportion of 40% in heterosexual men. (Box 1.5)

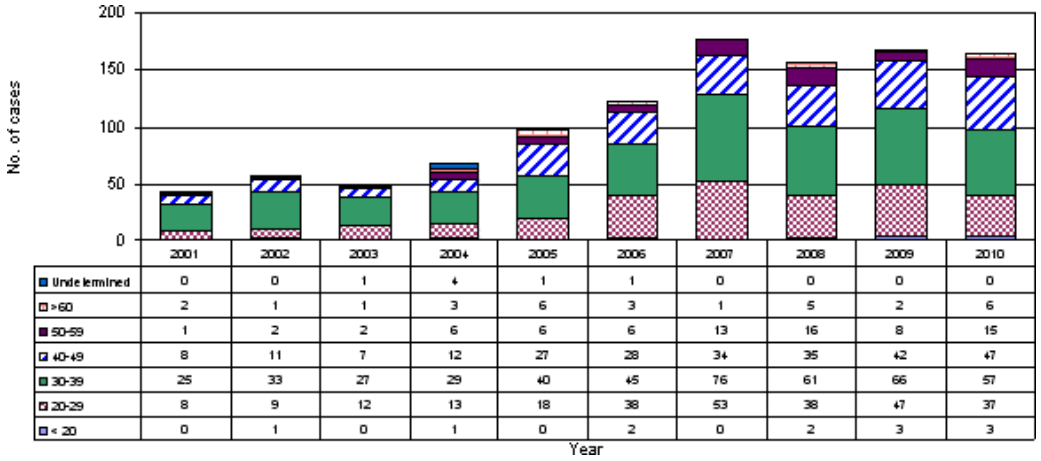
Box 1.2 Ethnicity Breakdown of HIV-infected MSM cases (2001-2010)



Box 1.3 Median HIV reporting age of HIV-infected MSM cases, heterosexual man and heterosexual women (2001-2010)

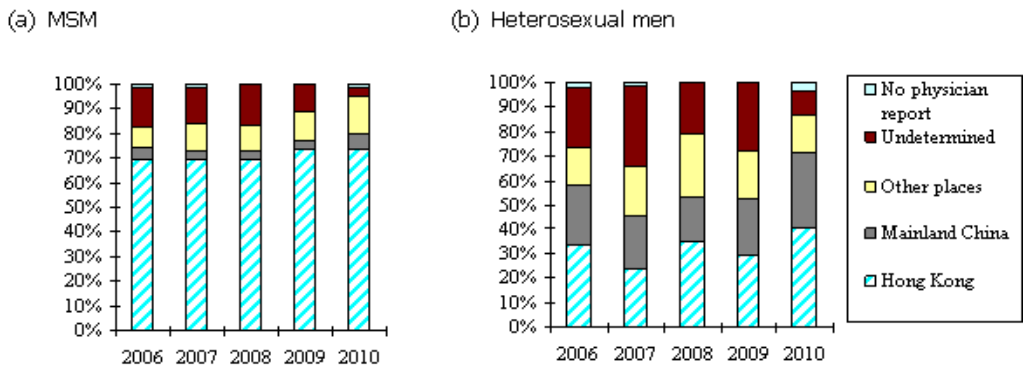


Box 1.4 Age breakdown of HIV-infected MSM cases (2001 - 2010)



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Undetermined	0	0	1	4	1	1	0	0	0	0
>60	2	1	1	3	6	3	1	5	2	6
50-59	1	2	2	6	6	6	13	16	8	15
40-49	8	11	7	12	27	28	34	35	42	47
30-39	25	33	27	29	40	45	76	61	66	57
20-29	8	9	12	13	18	38	53	38	47	37
< 20	0	1	0	1	0	2	0	2	3	3

Box 1.5 Suspected location of HIV cases (2006 - 2010)



Efforts have been made to gauge the HIV prevalence among MSM in Hong Kong. Other than the second community-based survey (PRiSM) in gay saunas, bars and clubs conducted in 2008/09, an internet-based MSM survey (AIMSS) was conducted in 2010 and it revealed that among those who had an HIV test before, 5.46% of the sample reported to be positive for HIV, which was difficult to compare with the HIV prevalence estimated by PRiSM of 4.31% as the internet-based survey was based on self-reporting data rather than actual specimen collection for HIV test. The level of consistent condom use (as defined by condom usage in all sexual contacts in the last six months) with regular sex partners, casual sex partners and commercial sex partners were respectively 35%, 54% and 60%, which were lower as compared with those figures in PRiSM. On the other hand, rate of HIV testing within the last one year was 37%, comparable to the PRiSM finding of 36% in 2008. (Box 1.6) AIDS Concern's voluntary HIV testing service targeting MSM was another source to estimate the HIV prevalence in MSM, although the data was affected by participant bias to a larger extent. A rising HIV prevalence was observed since 2004 and appeared to peak in every 2-3 years afterwards. The pattern may be affected by the changes in coverage of HIV testing service across higher-risk MSM to average or lower-risk MSM populations during the period.

Box 1.6 Findings of internet-based MSM survey (AIMSS) 2010

Study design	Web survey
Period	Jan to Feb 2010
Sample	1342 respondents living in HK
Ethnicity	Over 85% Chinese, 10% Caucasian
Age	12 to 67 (median 31)
Marital status	88% single, 10% married
Education	66% tertiary / university / postgraduate
Employment	Over 70% in full time employment
Disclosure of HIV status	Over 73% did not disclose
Multiple sex partnership	Overall 74% (38% in RSP; 86% in CaSP; 67% in CoSP)
Consistent condom use in past 6 months	Overall 40% (35% in RSP; 54% in CaSP; 60% in CoSP)
Group sex in past 6 months	24% had RSP in group sex; 40% had CaSP in group sex
Sex work in past 6 months	5% as money boy, 54% used condom consistently
Drug & alcohol use in past 6 months	About 13% used drugs before or during sex About 29% consumed alcohol before or during sex
STI in past 6 months	About 6% with any STIs
HIV testing	57% ever tested; 37% tested within past 12 months
Self-reported HIV positive	5.5%

Remark: RSP - regular sex partner; CaSP - casual sex partner; CoSP - commercial sex partner; STI - sexually transmitted infection

The consistent condom use rate of MSM attending DH AIDS Counselling and Testing Service with regular partners and casual partners increased markedly since 2007 and were 42% and 61% respectively in 2010, similar to the findings of the PRiSM in 2008 and AIMSS in 2010. The temporal trends observed for condom use in last anal sex among MSM were relatively less obvious in the corresponding period. On the other hand, the trends derived from MSM attending AIDS Concern's testing service increased in 2010 for both consistent condom use and condom use for last anal sex with any sex partners.

The number of heterosexual male cases decreased persistently

The number of heterosexual cases reported was 117 in 2010 which accounted for an about one-third of the reported cases, the same figure as in 2009 after a recent peak in 2008. The proportion of heterosexual male cases among all reported HIV cases dropped from its peak of 57% in 1994 to 15% in 2010, a record low figure in the period. The male to female ratio for heterosexual cases also hit a record low level of 1.1:1 in 2010. The median age of heterosexual cases in 2010 was 38. Heterosexual male cases were mainly Chinese (68% in year 2010) whereas Chinese accounted for less than half (46% in year 2010) of female cases.

A majority of Social Hygiene Clinics attendees reported unprotected heterosexual contact from on-going behavioural surveys. The HIV prevalence of Social Hygiene Clinic attendees remained stable at below 0.3% (0.15% in 2010). On the other hand, the trend of sexually transmitted infections (STI) provides surrogate for the possible risk of HIV infection in the

community. Although it had been estimated that Social Hygiene Clinics took care of about 20% of STI cases in the territory years back, it was still a very important sentinel site. It continued to record a decrease in the total number of STI cases in Social Hygiene Clinics, an aggregate of 12,344 in 2010 as compared with 13,689 cases in 2009. A drop of 9.8% was observed in overall STI diagnosis. The decrease of cases was more obvious in gonorrhoea from 1,401 cases in 2009 to 968 cases in 2010, a more than 30% reduction.

In 2010, the consistent condom use rate among heterosexual men attending Social Hygiene Clinics with commercial / casual partners slightly decreased, i.e. at about 42% in past 3 months and a similar trend was also observed among those attending AIDS Counselling and Testing Service (ACTS), i.e. about 56% in past 12 months.

Heterosexual men attending ACTS reported an even higher level of consistent condom usage with their commercial partners alone, i.e. 69%. Discrepancy was observed when the consistent condom use reported from client's side was compared with that from the sex worker's side. In the venue-based cross sectional survey of female sex worker (CRiSP) conducted in 2009, a higher condom use level was revealed among female sex workers in Hong Kong, that the consistent condom use rate for vaginal/anal sex with their male clients in past week was 91% after adjustment for various types of sex workers.

Small numbers of HIV infection but significant level of risky behaviours reported in injecting drug users

In 2010, the reporting system recorded 15 cases of HIV transmission through injecting drug use, which accounted for 3.9% of all cases. The number was the same as previous year but significantly smaller than that of 2008, and returned to a similar level prior to 2004. Most (60%) of the cases were Asian, non-Chinese. The median age was 38. Only 3 out of the 15 injecting drug user cases were reported from methadone clinics while 4 others were reported from Correctional Institutions.

The Universal HIV Antibody (Urine) Testing Programme (MUT) in 2004 replaced the unlinked anonymous screening (UAS) in methadone clinic to enhance HIV surveillance as well as individual diagnosis of the infected. A total of 7,445 attendees participated in the programme in 2010 with a HIV testing coverage of 77%, a lower coverage rate than that of 81% in 2009. The programme tested 7,429 urine samples, with 20 positive cases in 2010 and 16 other previously known positive cases still attending methadone clinics. Hence, totally there were 36 HIV positive drug users attending methadone clinic this year. The HIV prevalence over the years was stable at below 1%. The HIV prevalence of methadone clinic attendees in 2010 was 0.48%, which remained at a similar level as in previous years.

While HIV infection remained uncommon among drug users in 2010 as reflected from surveillance data at methadone clinics, the potential risk of HIV upsurge in drug-using community cannot be neglected as a significant proportion of drug users were currently injecting drugs, from about 25% to as high as over 80% across different surveys. Various surveys revealed different proportions of current needle sharing among those who were current drug injectors, ranging from 0% to 30%, presumably due to the differences in the nature of samples, survey methodology as well as in the timeframe it was measuring.

Three cases of perinatal transmission recorded

In 2010, there was no case reported to be blood transfusion transmission. No HIV infection as occurred locally from contaminated blood or blood product was reported in recent years. The HIV prevalence of new blood donors at Hong Kong Red Cross Blood Transfusion Service was at a low level of 0.005% in 2010.

In 2010, there were three perinatal HIV infections reported. The Universal Antenatal HIV Testing was implemented in September 2001. Over 40,000-50,000 pregnant women attending public antenatal services were tested every year and the coverage of the programme reached 98.6% in 2010 and revealed the prevalence of HIV infection in pregnant women to be 0.02%, which remained at a low level as in previous years. Ten pregnant women were tested positive in the programme this year. Three women terminated their pregnancies, while one case was without sufficient information. All of the remaining six women delivered their babies by Caesarean Sections. Of these 6 newborn babies, five were put on anti-retroviral chemoprophylaxis while one remaining case was without sufficient information. None of the babies was confirmed to have HIV infection at the time of report writing.

From cases with undetermined risk factor to their reconstruction

The information of voluntary reporting was becoming more incomplete which posed the risk of skewing the whole epidemic picture as there are an increasing proportion of cases reported without a risk factor. More than 20% of the cases reported in 2010 did not have a suspected route of transmission reported. In order to factor in the weightings of undetermined risk cases, assess the risk for local transmission and to guide appropriate actions for prevention, Dr. Tim Brown, a renowned HIV epidemiologist as an external consultant, was engaged to address the increasing problem of expanding cases with undetermined risk factors by systematically reconstructing them.

The 26-year (1984-2009) data was retrospectively extracted from the database under the voluntary and anonymous HIV/AIDS reporting system for comparative analysis before reconstructing the cases with undetermined risk factor. By using multivariate analysis, cases of undetermined risk factors were independently associated with the absence of formal notification using HIV/AIDS report form by physicians; the reporting sources of public (consists mostly of public hospitals, and small contribution by maternal & child health clinics, tuberculosis & chest clinics and correctional services department clinics) and private sector; female gender; non-Chinese ethnicity and older age groups. (Box 1.7)

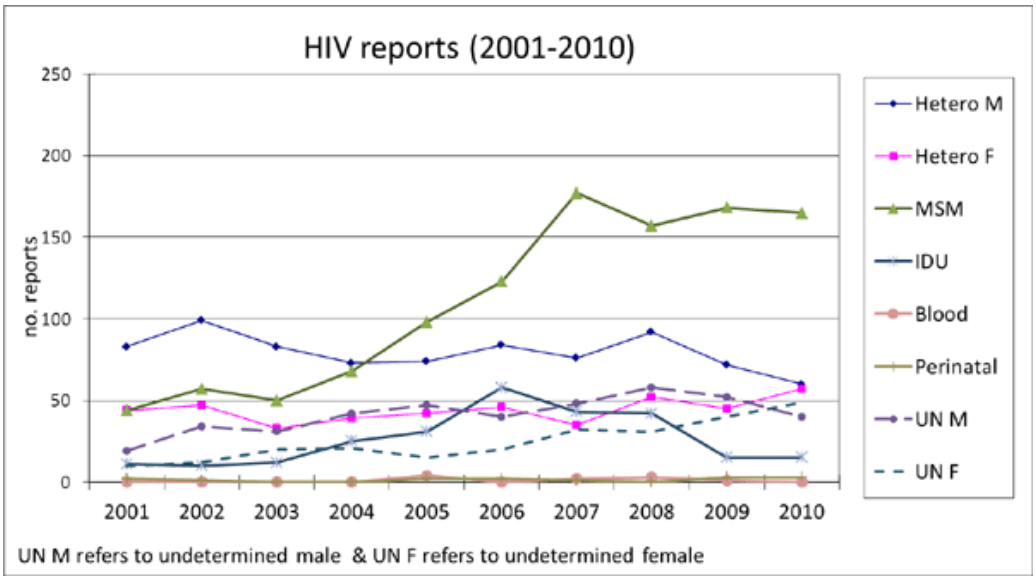
Box 1.7 Factors associated with cases of undetermined risk factors. (1984 - 2009)

Factors associated with undetermined risk		**ORu (95% CI)**		**ORm (95% CI)**	
HIV/AIDS report form					
	Yes	1.00		1.00	
	No	22.67	(18.5, 27.78)***	42.74	(32.2, 56.55)***
HIV report source					
	Others#	1.00			
	Public^	8.93	(6.29, 12.67)***	12.84	(8.65, 19.07)***
	Private	24.21	(16.98, 34.53)***	12.11	(8.12, 18.07)***
Gender					
	Male	1.00		1.00	
	Female	1.97	(1.65, 2.35)***	1.48	(1.12, 1.95)**
Ethnicity					
	Chinese	1.00		1.00	
	Non-Chinese	2.93	(2.5, 3.44)***	1.67	(1.31, 2.12)***
Age at HIV report (yrs)					
	<20	1.00		1.00	
	20-29	4.89	(1.53, 15.64)**	9.84	(2.92, 33.1)***
	30-39	5.77	(1.81, 18.36)**	14.80	(4.43, 49.43)***
	40-49	5.62	(1.75, 18.02)**	15.08	(4.46, 51.01)***
	50-59	5.74	(1.76, 18.75)**	19.10	(5.49, 66.41)***
	60-69	7.20	(2.14, 24.15)**	29.64	(8.1, 108.54)***
	70+	9.49	(2.67, 33.73)**	70.66	(9.93, 136.26)***
Subtype					
	B	1.00		1.00	
	C	3.38	(2.07, 5.53)***	1.14	(0.52, 2.51)
	CRF01_AE	1.56	(1.21, 2.01)**	0.95	(0.65, 1.37)
	CRF07_BC	1.38	(0.71, 2.69)	1.10	(0.44, 2.79)
	CRF08_BC	2.54	(1.32, 4.9)**	0.80	(0.31, 2.06)
Note:	ORu - Odds ratio was calculated univariately ORm - Odds ratio was calculated multivariately *p<0.05; **p<0.01; ***p<0.001 # including DH's AIDS Unit; AIDS Service Organizations; Social Hygiene Clinic; Methadone Clinic, Hong Kong Red Cross Blood Transfusion Service; Drug Rehabilitation Service ^ Public sector consists mostly of public hospitals, and small contribution by maternal & child health clinics, tuberculosis & chest clinics and correctional services department clinics				

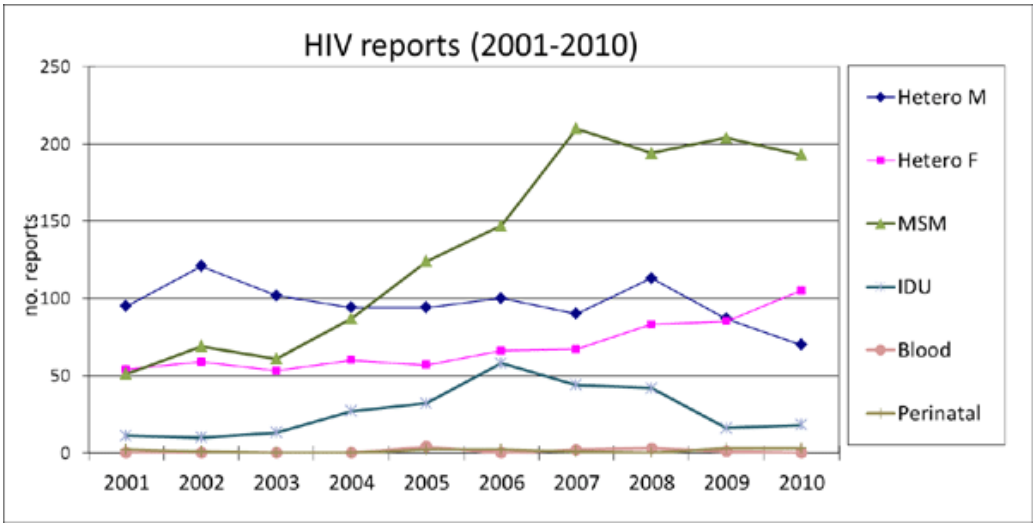
Reconstruction was carried out by assigning one suitable risk factor of transmission to the undetermined cases. After the analysis of the features of these cases with undetermined risk factor and the prevailing epidemic, it was assessed that all female infections shall be assumed to be heterosexual transmission, unless there is clear indication suggesting otherwise. As for the male cases of undetermined risk factor, it was assessed that they shall be assumed to be either heterosexual contact or homosexual contacts as the risk factor of transmission, subject to the observed ratio in the prevailing year between heterosexual and homosexual contact in the cases with determined risk factors, providing there is no other indication suggesting otherwise. By using the above methodology of reconstruction which was presented in the Scientific Committee on AIDS and STI in 2010, a modified epidemic was constructed by applying our local 10-year data from 2001 to 2010. In comparison to the pre-reconstruction phase where undetermined male and female cases were included as a representation of the undetermined cases over the captioned period (Box 1.8(a)), a discernible pattern is observed for heterosexual female and MSM, showing marked increases since 2005 and 2003 respectively. The change in heterosexual male appears to be relatively modest and the number of cases even dropped since 2008 to record low level in the 10-year period. (Box 1.8(b))

The suggested method provides one possible solution to fill the gap in surveillance information, although it might simplify the complex determinants of the local epidemic. Yet, it makes the whole reconstruction exercise practical by applying reasonable, quick and easy assumptions. For certain, effort to promote a more complete return of information regarding each HIV report should be encouraged.

Box 1.8(a) HIV reports before risk factor reconstruction (2001-2010)



Box 1.8(b) HIV reports after risk factor reconstruction (2001-2010)



Regular HIV testing before diagnosis was a rarity

The HIV/AIDS Report Form (DH2293) was revised in March 2010 and become available for reporting use since July 2010, where one data field was added to capture the previously negative HIV result among the newly diagnosed, which could better inform the epidemiology of those recently seroconverted. Among 183 cases reported between July to December 2010, data of the HIV/AIDS Report Form was available in 138 cases and among them, only 50 cases (36%) had previously negative HIV results, which implied regular testing among HIV patients before their diagnosis was rare. Nine cases (6.5%) had previously negative HIV results within one year of the HIV diagnosis, i.e. recently seroconverted. However, it was not possible to judge whether the cases with previously negative HIV results beyond one year of HIV diagnosis were recently seroconverted or not, as the observation was limited by the infrequent testing behaviour. Data incompleteness was also a concern for interpreting the findings and given its small numbers, segregation between different exposure categories was not carried out.

Pneumocystis Pneumonia and *Tuberculosis* remained the commonest Primary AIDS Defining Illnesses

The annual number of reported AIDS cases has been dropping since 1997, the year of introducing highly active antiretroviral therapy (HAART) in Hong Kong but a slowly increasing trend was observed since 2005. A total of 79 AIDS cases were reported in 2010 as compared with 76 cases in 2009. A majority (96%) of the AIDS reports in the year had their AIDS diagnosis within 3 months of HIV diagnosis, suggesting late presentation of the cases.

The primary AIDS defining illness (ADI) pattern of the reported cases also changed slightly in recent years. *Pneumocystis jirovechi* pneumonia (previously named *Pneumocystis carinii*) was the commonest ADI in Hong Kong in 2010 which accounted for 36 cases (45.6%), an increase of over 3.5% in terms of the proportion of ADI as compared with 2009. This year, 20 cases (25.3%) reported *Mycobacterium tuberculosis* as the primary ADI which was following right after *Pneumocystis jirovechi* pneumonia as the second commonest ADI. They were followed by Fungal infections including *penicilliosis* (11, 13.9%), and *Cytomegalovirus*

diseases (3, 3.8%). (Box 2.8) Because of the good coverage from universal voluntary testing at TB & Chest Clinics, it has literally replaced unlinked anonymous screening since 2009 in informing the HIV prevalence among TB patients. In 2010, the HIV prevalence in patients attending government TB & Chest Clinics was 0.7%, consistently higher than many at-risk populations.

The median CD4 of newly reported HIV cases in 2010 was 211/ul, which was lower than previous year, as was the proportion with CD4>=200/ul. Reporting of CD4 level was becoming a routine practice in physician. It provided useful information on the timing of diagnosis in the course of HIV infection. In 2010, 72.5% of HIV cases had their CD4 level at diagnosis reported, which remained stable as compared with previous years. (Box 1.9) The median CD4 for those aged less than 55 has been stable at around 250/ul (219 - 302) for the past 5 years. One the other hand, the median CD4 count among those who are aged 55 and above was consistently lower, suggesting that more patients reported at age 55 or above were diagnosed at a late disease stage. (Box 2.0)

Box 1.9 - Reported CD4 levels at HIV diagnosis

Year	No. of HIV reports	No. of CD4 reports (%)	Median CD4 (cell/ul)	CD4> = 200 (cell/ul) (%)
2001	213	162 (76.1%)	233.5	85 (52.5%)
2002	260	201 (77.3%)	197	100 (49.8%)
2003	229	166 (72.5%)	205	85 (51.2%)
2004	268	181 (67.5%)	206	95 (52.5%)
2005	313	230 (73.5%)	197	114 (49.6%)
2006	373	281 (75.3%)	225	152 (54.1%)
2007	414	309 (74.6%)	241	173 (56.0%)
2008	435	303 (69.7%)	193	148 (48.8%)
2009	396	278 (70.2%)	278.5	175 (62.9%)
2010	389	282 (72.5%)	211	146 (51.8%)

Box 2.0 - CD4 Reports by age group*

Age	Year	No. of HIV reports (%)	No. of CD4 reports (%)		Median CD4 (cell/ul)	% of CD4 >= 200 (cell/ul)
<55	2001	190	146	(76.8%)	258.5	54.1%
	2002	230	183	(79.6%)	196	49.7%
	2003	190	139	(73.2%)	228	52.5%
	2004	225	160	(71.1%)	217.5	55.0%
	2005	281	207	(73.7%)	196	49.3%
	2006	341	255	(74.8%)	241	56.9%
	2007	377	284	(75.3%)	254	57.7%
	2008	380	260	(68.4%)	219	52.7%
	2009	357	249	(69.7%)	302	67.1%
	2010	353	251	(71.1%)	220	53.0%
>=55	2001	22	16	(72.7%)	96	37.5%
	2002	24	18	(75.0%)	212.5	50.0%
	2003	32	27	(84.4%)	108	44.4%
	2004	32	21	(65.6%)	82	33.3%
	2005	29	23	(79.3%)	223	52.2%
	2006	29	26	(89.7%)	154.5	26.9%
	2007	33	25	(75.8%)	90	36.0%
	2008	53	43	(81.1%)	74	25.6%
	2009	38	29	(76.3%)	72	27.6%
	2010	36	31	(86.1%)	153	41.9%

*: there may be a slight discrepancy between the sum of individual reports in Box 2.0 and the figures in showed in Box 1.9 because of unknown age.

The commonest HIV-1 subtypes were CRF01_AE and B, with growing genetic diversity

In 2010, about 85% of HIV reports had their subtypes documented, at a comparable level as in the past years. Subtype CRF01_AE and B of HIV-1 strains remained the first and second most common subtypes identified in Hong Kong, respectively at 45% and 38% of all cases having subtype identified from 2001 to 2010. In 2010, they together accounted for 75% of all HIV cases with subtype documented. (Box 6.2) Over the past years, CRF_01AE was consistently found to be commoner in female, Asian non-Chinese, heterosexuals and IDU. On the other hand, subtype B was commoner in male, Chinese, Caucasian, and MSM. Subtype C was relatively uncommon to identify, but they appeared to be often found in female, Asian and heterosexual cases despite its small number of total cases with Subtype C. An increasing diversity of subtypes and its circulating recombinant forms was also noted, in particular since 2009.

Discussion

The number of HIV reports remained at a high level in 2010, despite a modest drop in recent two years, while the annual HIV reports used to be less than or around 300 before 2006. The total number of HIV reports in 2010 was 389, which was down for about 2% as compared to 2009. In the last few years, there was 5-20% increase in HIV reports every year except in 2003, when SARS outbreak occurred, leading to a drop in reporting. The increasing reports from Men who have Sex with Men (MSM) continued to keep the HIV reports at a high level. Although heterosexual contact appeared to have a rebound in 2008, this was soon dominated again by MSM. The increase in injecting drug users in 2008 was observed to be calming down in 2009 and 2010, but it remained a challenge for both surveillance effort and intervention when the high level of risky behaviours continued, particularly in view of the considerable proportion of needle sharing among injecting drug users as captured by some cross-sectional surveys.

The number of HIV reports among MSM continued to play a significant role and it accounted for consistently the largest proportion of cases every year since 2007. The HIV situation in MSM was still worrisome because of the persistently high trend of infection. By reconstruction methodology, the cases of undetermined risk factor were assigned with the best possible exposure categories, which allowed us to visualize a more dramatic picture of increase in HIV infection among MSM. The second community-based HIV prevalence survey in 2008/09 revealed a slightly higher HIV prevalence of 4.31% when compared with the previous study in 2006. A more recent internet-based MSM survey in 2010 unveiled an even more worrying findings of 5.5% of respondents reporting positive for HIV, despite absence of actual specimen collection for confirmation. Both condom usage rates of MSM with casual and regular partners remained at lower levels than those of heterosexual at-risk populations. Reporting data, prevalence data and behavioural data all suggested an unrelenting local HIV epidemic in MSM. The observation was in keeping with the regional picture of rising MSM HIV epidemic among neighboring cities and countries, which should not be taken lightly.

Heterosexual transmission appeared to be on a stable trend over the years although the number of cases appeared to increase in 2008 which was soon settled back in 2009 and 2010. A significant proportion of non-Chinese female cases suggested that some infections might have occurred outside Hong Kong. Upon reconstruction of undetermined female cases, it showed an even more obvious increase for female heterosexual cases, in conjunction with the record low level of male to female ratio of heterosexual infection, all suggesting efforts in surveillance for this female group as well as its preventive actions need to be strengthened and sustained. The HIV prevalence in social hygiene clinics attendees and antenatal women were all below 1% and 0.1% respectively. However, despite improvement in recent years, consistent condom use rates of commercial / casual sex especially gauged from the reports of clients remained far from satisfactory.

Although the number of HIV-infected injecting drug user reports dropped in recent two years as compared to the past, there is no room for complacency given the prevalence of injection and needle-sharing risk behaviours. The dropping HIV testing coverage in methadone clinics was a potential threat that infected drug users might go undetected. Same as in 2009, most of the infected drug users were Asian non-Chinese in 2010. It was believed that they acquired the infection outside Hong Kong. The number of HIV infections in drug users contributed by local infections was largely similar to previous years.

In conclusion, newly reported HIV infections in Hong Kong stayed on a high level although the rate of increase seemed to be calming down. Yet, the number of MSM infection was still on an increasing trend and continued to dominate the epidemic in Hong Kong. The situation of heterosexual population and local injecting drug user population was relatively stable thus far. HIV epidemiology in Hong Kong was also affected by the situation of neighbouring countries and cross border travel. A considerable proportion of cases were infections which had been acquired outside Hong Kong. Judging from the low HIV testing behaviour prior to diagnosis of the cases as revealed by the data on previous negative HIV results, and the dropping HIV testing coverage in certain most-at-risk population such as the drug users, it was possible that patients with HIV infections might left undiagnosed until late in the disease course. The number of people living with HIV in 2010 was estimated to be about 4000, based on the HIV estimation and projection using Asian Epidemic Model. With various sources of data, HIV prevalence was estimated to remain at less than 0.1% among the general population in Hong Kong.

Test paper - Epidemiology of HIV/AIDS in Hong Kong 2010

Expiration Date: 14 December 2012
CME point: 1 / CNE point: 1

- Please indicate one answer to each question.

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1. Which of the following statement is not true about local HIV trend of MSM (men having sex with men) epidemic?
   (a) It is the single most important transmission mode of the newly reported cases since 2007
   (b) It was less common than heterosexual male infections in the 1980s and early 1990s
   (c) The rise in recent years is compatible with regional trend
   (d) The reported data, seroprevalence data and behavioural data from local surveillance all suggest that we cannot become lax with the MSM epidemic
   (e) None of the above

2. Which of the following statement is not true regarding the characteristics of reported MSM infections?
   (a) Most of the cases were ethnic non-Chinese
   (b) The median age was lower than heterosexual male cases
   (c) Some 70% of the infections were believed to have occurred in Hong Kong
   (d) Age group 30-39 years is consistently the commonest age group
   (e) Subtype B remained the commonest HIV-1 genotype

3. Which of the following is not true of the findings of the internet-based MSM survey done in 2010?
   (a) More than one-third of the respondents had HIV testing within the last one year
   (b) 5.5% self reported being HIV positive, which was the highest prevalence ever gauged in the community
   (c) Consistent condom use with whatever sex partners were all lower than those identified in the survey conducted in gay saunas and bars in 2008/09
   (d) More than 10% reported using drugs before or during sex
   (e) None of the above

4. Which of the following is not true of the reported HIV infections in 2010?
   (a) Sexual contact remains the most common risk factor, accounting for >90% of those with defined risk
   (b) A majority of the cases were male Chinese
   (c) Late diagnosis remains a problem
   (d) The number of overall cases represents a drop compared to that of 2009
   (e) Injecting drug use contributed to slightly over 5% of all cases

5. Which of the following is not true of the universal HIV testing programme for drug users in methadone clinics?
   (a) It was rolled out in all methadone clinics in 2004
   (b) It serves to both enhance HIV surveillance and diagnosis of infected individual
   (c) HIV prevalence was found to be stable at 1% in 2010
   (d) Fall in testing coverage in 2010 is of concern
   (e) None of the above

6. Which of the following is not true about HIV risk sex behaviours gauged from various surveys?
   (a) Consistent condom use with casual/commercial sex partners was lower in heterosexual men than MSM (men who have sex with men)
   (b) Last condom use would be expected to be lower in Social Hygiene Clinic attendees as some of them attended the clinic for STD symptoms
   (c) There was discrepancy in condom usage rate during commercial sex reported among female sex workers and their male clients
   (d) Consistent condom use was generally lower for regular sex partners than non-regular sex partners across different populations
   (e) All of the above

7. Which of the following is not true regarding the epidemiologic findings and their significance gathered from Social hygiene clinics which manage sexually transmitted infections?
   (a) Sexually transmitted infections is generally a useful surrogate of HIV risk, as most HIV cases were infected sexually
   (b) HIV prevalence among the attendees shed light on the situation in people with higher sexual risk of contracting HIV
   (c) HIV prevalence was about 1% in the clinic patients
   (d) It cannot be certain if there is a continuing trend of lowered HIV risk from the decrease in STD cases at Social hygiene clinics
   (e) None of the above

8. Which of the following is not a finding of reconstruction of undetermined HIV reports 2000-2010?
   (a) Increase in female heterosexual cases in the last few years became more prominent after reconstruction
   (b) There is a discernible rise in MSM infections as early as 2003
   (c) The number of heterosexual male cases dropped to a record low in the last decade
   (d) The reconstruction might have simplified the complex determinants of local epidemic but it is one practical way to deal with the undetermined caases
   (e) None of the above

9. Which of the following is not true regarding AIDS situation?
   (a) Tuberculosis has surpassed Pneumocystis jirovechi pneumonia to be the number one primary AIDS-defining illness in Hong Kong
   (b) Most of the AIDS cases had late disease presentation, with over 90% had AIDS diagnosis within 3 months of HIV diagnosis
   (c) Penicilliosis is an important AIDS-defining condition for local patients
   (d) HIV prevalence of patients at TB clinics is higher than many at-risk populations, reflecting the importance of TB in local HIV patients
   (e) None of the above

10. Which of the following is not true of HIV-1 molecular epidemiology in Hong Kong?
   (a) Over 80% of all reported cases had subtype determined
   (b) Subtype CRF07_BC and B were the commonest genotypes
   (c) Subtype distribution varied across at-risk populations
   (d) An increasing genetic diversity was observed in recent years
   (e) All of the above