Epidemiology of HIV infection in Hong Kong as of 2014

(adapted from the HIV Surveillance Report – 2014 Update)

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The HIV surveillance system in Hong Kong comprises 5 main programmes to provide a detailed description of the local HIV/AIDS situation. They are (a) voluntary HIV/AIDS case-based reporting; (b) HIV prevalence surveys; (c) sexually transmitted infections (STI) caseload statistics; (d) behavioral studies; and (e) HIV-1 genotyping studies. The data is collected, analyzed and disseminated regularly by the 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 (http://www.aids.gov.hk). Data from various sources are compiled annually and released in this report. This paper summarized the main findings from HIV/AIDS surveillance activities undertaken in 2014 and before.

The Department of Health has implemented a voluntary anonymous case-based HIV/AIDS reporting system since 1984, which receives reports from doctors and laboratories. Doctors report newly diagnosed HIV cases by a standard form (DH2293) which was lately revised in January 2015 with the data field on referral and engagement in HIV care added. Before 2006, only cases with Western Blot confirmed HIV antibody positive laboratory result were counted as HIV infection for cases aged above 18 months. With increase in detection, those cases with PCR positive result and clinical or laboratory indication of recent infection were also counted as confirmed HIV infection in the reporting system since the 4th quarter of 2006.

HIV Surveillance at a glance (2014)

- 651 HIV reports and 108 AIDS reports
- Gender: 84.3% male
- Ethnicity: 72.8% Chinese
- Age: Median 34
- Risks:
  - 60.5% Homosexual/bisexual contact
  - 20.3% Heterosexual contact
  - 0.8% Injecting drug use
  - 0.2% Blood transfusion
  - 18.3% Undetermined
- CD4 at reporting: Median 319.5/ul
- HIV-1 subtypes: commonest are CRF01_AE and B
- Commonest primary AIDS defining illness: PCP and TB
- HIV prevalence
  - Blood donors: <0.01%
  - Antenatal women: 0.004%
  - STI clinic attendees: 0.40%
  - Methadone clinic attendees: 0.81%

In 2014, DH received 651 HIV and 108 AIDS reports. The number of HIV cases in 2014 reached another record yearly high and continued the increasing trend since 2011, after the slight decrease in 2009 and 2010. This brought the cumulative total to 6993 and 1545 for HIV and AIDS reports respectively. Public hospitals/clinics/laboratories were still the commonest source of HIV reports in 2014, which accounted for 30.7% of all. AIDS service organizations and private hospitals/clinics/laboratories were other common sources of HIV reports, which account for 19% and 16.1% respectively.

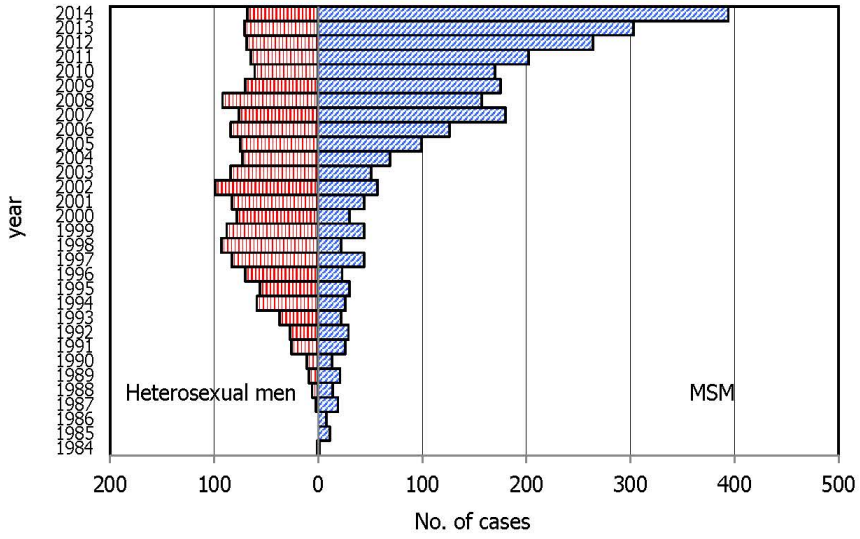
In 2014, around 84.3% of reported HIV cases were male. The male-to-female ratio was 5.4:1 in 2014, which increased as compare to that of 3.9:1 in 2013. About 73% of reported cases were Chinese. Asian non-Chinese accounted for 11% of reports. The median age of reported HIV cases was 34 and 20-29 was the commonest age group in male cases and 30-39 in female cases. Around 80% of reported HIV cases were believed to have acquired the virus through sexual transmission in 2014, including homosexual (57%), heterosexual (20.3%), and bisexual exposure (3.5%). Injecting drug use accounted for 0.8% of reported HIV infections. There was 1 case of HIV transmission via blood/blood product which occurred outside Hong Kong and no case of infection via perinatal route in 2014. The suspected routes of transmission were undetermined in around one-fifth (18.3%) of cases. This means that, after excluding those with undetermined exposure category, sexual transmission accounted for about 99% among HIV reports with defined risks.

The rising trend in men who have sex with men (MSM) cases continued

Similar as previous few years, sexual contact including both heterosexual and homosexual/bisexual, remained the commonest route of HIV transmission in Hong Kong in 2014, which accounted for 80%. In the early years of HIV/AIDS epidemic in Hong Kong around 1980s and early 1990s, 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 again and the proportion of MSM infections kept on increasing. In 2014, there were 394 MSM cases (74%) identified out of 532 cases with defined risks.

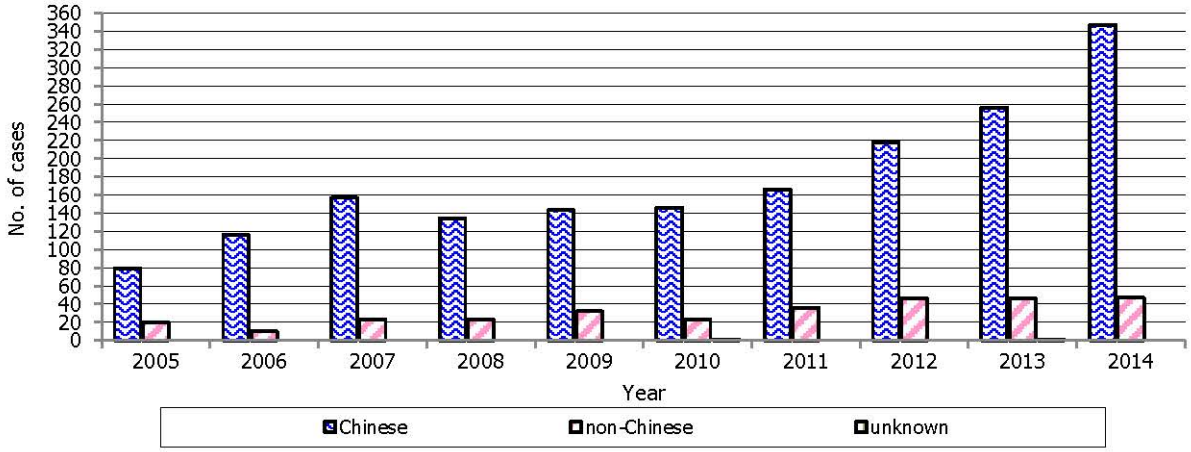
The high weighting of MSM among male HIV cases was obvious. 71.8% of all male HIV reports in 2014 contracted the virus through homosexual or bisexual contact. Heterosexual contact in male cases accounted for about 12.4%, whereas the routes of transmission were undetermined in another 15.1% of the male cases. The ratio of heterosexual men against MSM gradually dropped from its peak of 4.2:1 in 1998 to 0.8: 1 in 2005 and further to 0.2:1 in 2014. (Box 1.1) Similar trend of increasing AIDS cases among MSM was observed, the ratio of heterosexual men against MSM decreased dramatically from 23.5:1 in 2000 to 0.7:1 in 2014.

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.

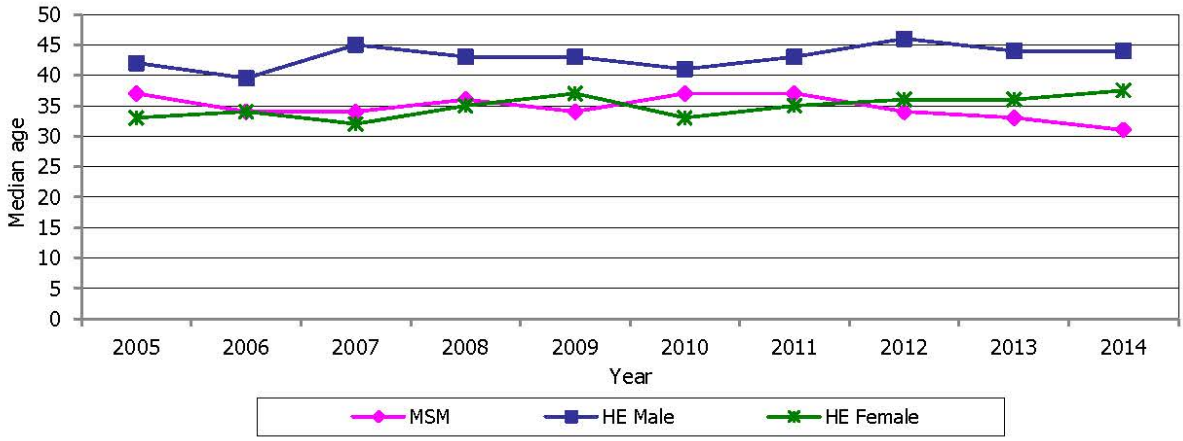


In 2014, the majority of the MSM cases were Chinese (88.1%) and of age group 20-29 (42.9%) being the commonest. A rising trend in the number of reported Chinese MSM cases was observed in recent years despite a modest drop between 2007 and 2008. (Box 1.2) In 2014, the median age of MSM cases at report was 31, which was much lower than 44 of heterosexual male cases. The median age of HIV infected MSM population, has shown a decreasing trend in the past few years from 37 in 2010 to 31 in 2014. (Box 1.3) In 2014, age group 20-29 was for the first time the commonest age group of reporting in MSM, which accounted for 42.9%, followed by age group 30-39 (27.4%) and age group 40-49 (18.0%). (Box 1.4) Reported data since 2006 suggested that a relatively higher proportion of MSM infections occurred in Hong Kong, as compared to a lower proportion in heterosexual men. In 2014, around 75.6% of MSM infection occurred in Hong Kong while only around 47% of local heterosexual male infection. (Box 1.5)

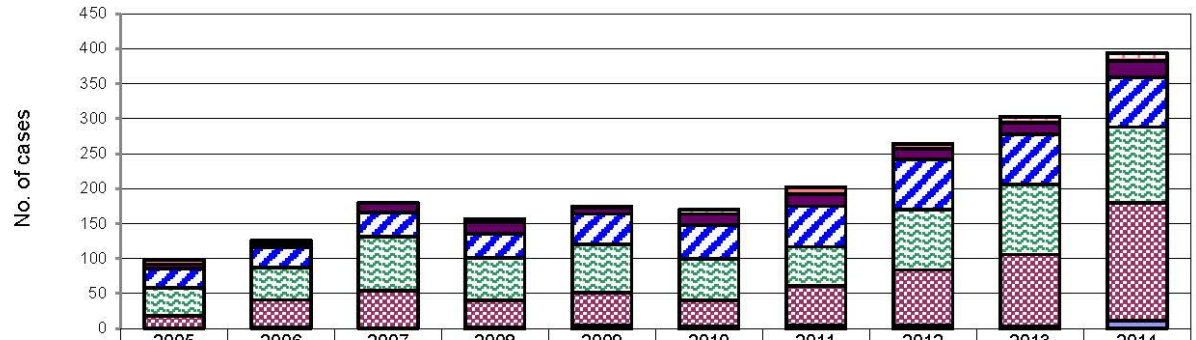
Box 1.2 Ethnicity breakdown of HIV-infected MSM cases (2005-2014)



Box 1.3 Median HIV reporting age of HIV-infected MSM cases, heterosexual men and heterosexual women (2005-2014)



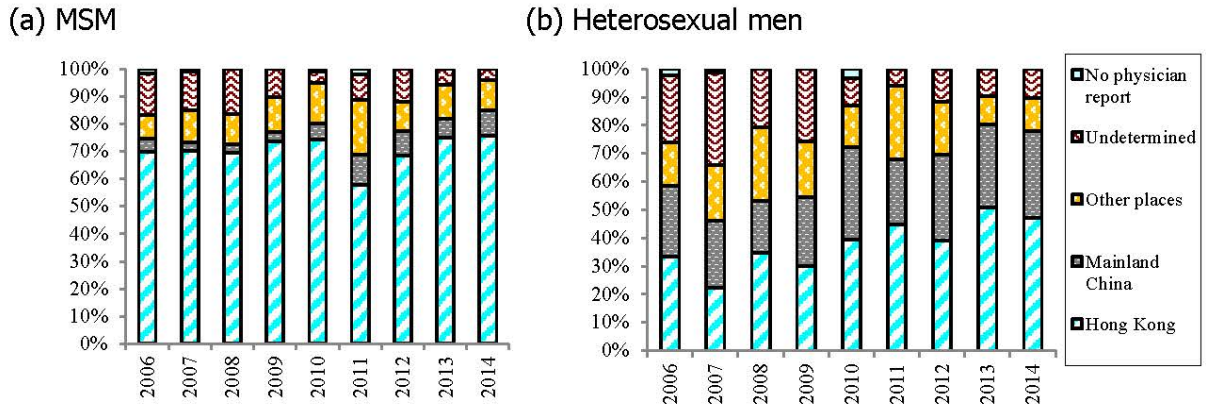
Box 1.4 Age breakdown of HIV-infected MSM cases (2005 - 2014)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Unknown	1	1	0	0	0	0	1	0	0	0
>60	6	3	1	5	2	6	9	7	9	11
50-59	6	6	13	16	9	16	17	15	16	24
40-49	28	29	35	35	44	48	58	72	72	71
30-39	40	46	77	61	69	60	56	86	100	108
20-29	18	39	54	38	47	37	57	79	103	169
< 20	0	2	0	2	4	3	4	5	3	11

Year

Box 1.5 Suspected location of HIV cases (2006 - 2014)



HIV prevalence among men who have sex with men was persistently higher than other at-risk populations

The second HIV and AIDS Response Indicator Survey (HARiS) was conducted in 2014 revealed that the HIV prevalence among local MSM was around 5.85%, which was higher than the findings from previous rounds of PRiSM (around 4%). (Box 1.6) The prevalence among MSM was persistently higher than other at-risk population such as female sex workers and drug users.

AIDS Concern's voluntary HIV testing service targeting MSM was another data source to estimate the HIV prevalence in the local MSM community, despite that the data may likely be affected by participant bias to a certain extent. It showed a prevalence of 2.04% in 2014 which remained relatively stable in the past few years.

Condom use and HIV testing among men who have sex with men showed an increasing trend

Similar to 2013, the 2014 HIV and AIDS Response Indicator Survey (HARiS) for MSM with participants recruited from gay venues, non-governmental organisations service centre and internet showed that the condom use rate in the last anal sex with emotional relationship partner, regular sex partner and non-regular sex partner were 65%, 70.3% and 80.6% respectively. The condom use rate during last anal sex with emotional relationship partner was similar to previous year. The condom use rate during last anal sex with regular sex partner was decreased as compared to the 2013 HARiS which was 76.7%. The condom use rate during last anal sex with non-regular sex partner remained relatively stable at around 80%. Only 13.5% of the participants had had sex with a commercial male sex partner, with a condom use rate in last anal sex at 89.1%

Both the ever HIV testing rate (78.5%) and HIV testing rate in past one year (62.3%) increased in the 2014 HARiS, as compared with the 2011 PRISM findings (67% and 40% respectively). The corresponding figures in 2013 were 73.7% and 57.0%. It might suggest an increased awareness to undergo HIV testing and even regular testing in the MSM community. The overall HIV prevalence found from the 2014 MSM survey was 5.85%.

According to the survey conducted among the clients attending the DH's AIDS Counseling and Testing Service (ACTS), the median number of casual sex partners among MSM was consistently higher than heterosexual men, being 4 in 2014. The consistent condom use rate among MSM with regular partners and causal partners showed a slight decrease in 2014, which was 41.5% and 53.3% respectively, as compared with the rate of 47.3% and 56.9% respectively in 2013. On the contrary, the condom use rate for last anal sex with both regular partners and causal partners (58.8% and 74.3% respectively) showed a slight increase in 2014, as compared with 59% and 64.9% respectively in 2013. Additional behavioural data derived from MSM attending AIDS Concern's testing service showed that the consistent condom use rate for boyfriend, regular sex partners and casual sex partners in 2014 was 43.2%, 54.6% and 66.1% respectively.

Male-to-female transgender population

Male-to-female transgender has been a neglected and hard-to-reach community, yet various overseas studies have shown that their HIV prevalence can be quite high. To better study the situation in Hong Kong, male-to-female (m-t-f) transgender was included as one of the major at-risk populations in the HIV/AIDS Response Indicator Survey (HARiS) for the first time in 2014.

A total of 59 m-t-f transgender were recruited. About two-third of them were Chinese (69.5%), followed by Filipino (16.9%) and Thai (11.9%). A majority (78.0%) had stayed in Hong Kong for more than 3 months in the preceding 6 months. The overall HIV prevalence was found to be 18.6% in m-t-f transgender, which was compatible with other countries' findings. However, the result has to be interpreted with caution due to the small number of subjects. The condom use rate in the last anal sex was 75.8%, 90.0% and 76.9% with emotional relationship partner, regular sex partner and non-regular sex partner respectively. About two-third of the participants (64.4%) had had sex with a commercial sex partner, with a condom use rate in last anal sex at 76.3%. Overall, 72.9% of TG had ever had an HIV test and 50.8% had HIV testing in past one year.

The proportion of heterosexual cases remained stable

In 2014, there was a total of 132 heterosexual cases reported, which accounted for about one-fifth of the all reported HIV cases. The proportion of heterosexual cases among all reported HIV cases gradually dropped from its peak of 71% in 1998 to 37% in 2005 and 20.3% in 2014. The female to male ratio for heterosexual cases gradually increased in the past decade from 0.5:1 in 2004 to 0.94:1 in 2014, which showed increasing female proportion in heterosexual cases. The median age of heterosexual cases in 2014 was 37.5 for female and 44 for male respectively. In 2014, heterosexual male cases were mainly Chinese (78%) whereas Chinese accounted for around one third (34.4%) of female heterosexual cases.

Sexually transmitted infection caseload statistics from Social Hygiene Clinics is an important component of the local HIV surveillance programme as the presence of STI is an indicator of high risk sexual behaviors which also increase the risk of contracting or transmitting HIV. In 2014, 15.7% of reported cases were referred from Social Hygiene Clinics. The consistent condom use rate among heterosexual men attending Social Hygiene Clinics with commercial / casual partners in the past 3 months in 2014 was 52.3%, which slightly increased as compared with 49.1% in 2013. This condom use rate remained at only around 50% in the past years. Moreover, more than one third of the STI cases were without any symptoms which may delay the diagnosis and the link to appropriate medical care. The HIV prevalence of Social Hygiene Clinic attendees remained stable over the years at around 0.2% (0.4% in 2014). The total number of STI cases in Social Hygiene Clinics also remained relatively stable in the past few years, with an aggregate of 12,616 cases in 2014 as compared with 12,912 in 2013.

The consistent condom use level observed among those attending ACTS slightly increased from 74.9% in 2013 to 80.6 % in 2014 for commercial partners and 65.5% in 2014 for commercial/causal partners. Discrepancy was noticed when the condom use rate from client's side was compared with that from the sex worker's side. In the HIV and AIDS Response Indicator Survey (HARiS) for female sex worker conducted in 2014, a relatively higher condom use level was revealed among female sex workers in Hong Kong, that the condom use rate in the last intercourse with their regular clients and casual clients was 93.1% and 98.1% respectively.

New HIV infection among drug users remained low but significant level of risky behaviors reported

In 2014, the reporting system recorded 5 cases of HIV transmission through injecting drug use, which accounted for 0.8% of all reported cases. The number continued to show a decreasing trend from the peak of 58 cases in 2006 to 14 cases in 2011 and 5 cases in 2014. 4 out of 5 cases in 2014 were male and majority were Chinese (60%). The median age was 37. 3 out of the 5 injecting drug user cases were reported from methadone clinics.

The Methadone Universal HIV Antibody (Urine) Testing Programme (MUT) launched in 2004 replaced the unlinked anonymous screening (UAS) in methadone clinics to enhance HIV surveillance as well as individual diagnosis and subsequent care of the infected methadone clients. Among those 9087 methadone clinic attendees in 2014, 6512 clients have been tested for HIV with an overall HIV coverage rate of 71.7%. Fifty three clients were found to be positive for HIV and the overall HIV prevalence of methadone clinic attendees in 2014 was 0.81%.

The proportion of drug users who were currently injecting drugs ranged from about 25% to 86% across different surveys in 2014. Moreover, various surveys revealed that around 0% to 25% of the current drug injectors were still practicing needle sharing behaviours, which posed them to the risk of contracting HIV. As such, despite that reported HIV infection cases among injecting drug users remained at a low level in 2014, the potential risk of outbreak of HIV among drug users cannot be neglected.

One case of transmission via blood/blood product transfusion recorded

In 2014, there was 1 reported case of HIV infection via contaminated blood or blood product transfusion, which occurred outside Hong Kong. The HIV prevalence of new blood donors at Hong Kong Red Cross Blood Transfusion Service remained at a low level of 0.013% in 2014.

In 2014, there was no perinatal transmission case reported. Since the launch of the Universal Antenatal HIV Testing in September 2001, around 40,000-50,000 pregnant women attending public antenatal services were tested for HIV every year. The coverage of the programme remained at a high level (98.3% in 2014) and the prevalence of HIV infection in pregnant women was found to be stable at around 0.01% in the previous years (0.004% in 2014).

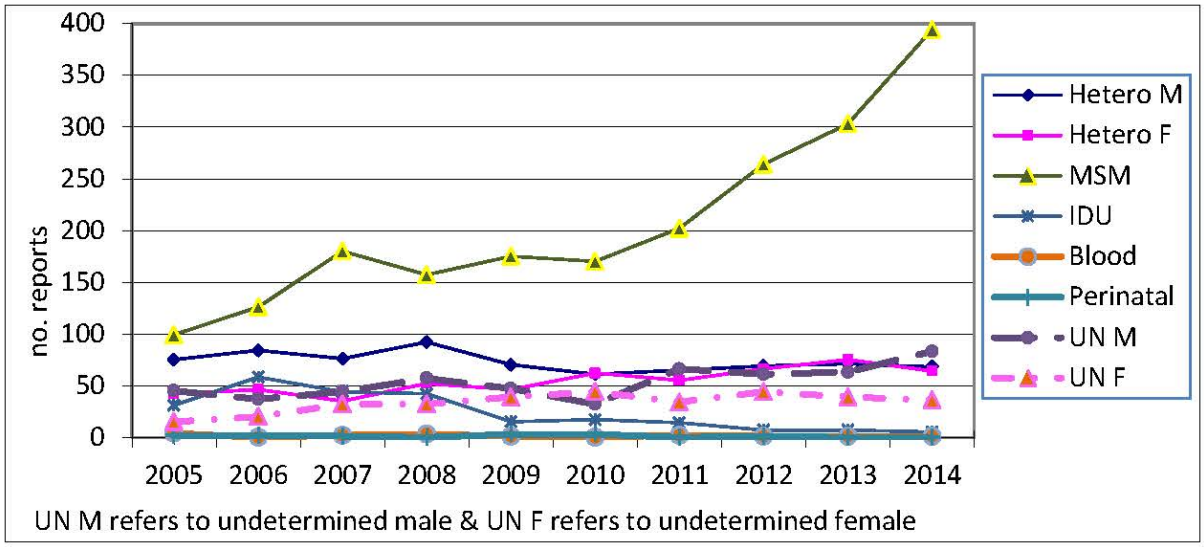
Reconstruction of risk factor for cases without reported route of transmission

As the HIV/AIDS case-based reporting system in Hong Kong is voluntary and anonymous, the completeness of the local surveillance database depends heavily on the percentage of cases with the report form DH2293 received from attending physicians. Incomplete data due to cases without a risk factor reported may pose a risk of skewing the local epidemic picture. In 2014, 18% of the infected cases did not have a suspected route of transmission reported, as compared to around 18% in 2013. A systematic reconstruction method proposed by Dr. Tim Brown was used since 2010 to factor in the weightings of undetermined risk cases, to assess the risk for local transmission and to plan and guide appropriate preventive actions.

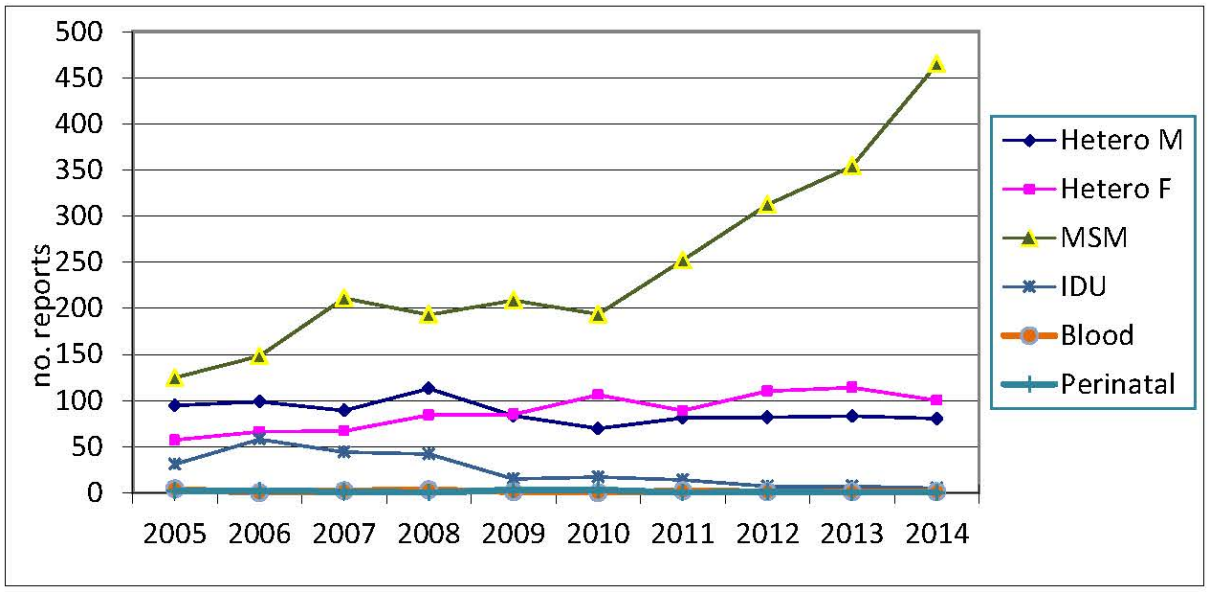
Reconstruction was carried out by assigning one suitable transmission to the undetermined cases. After the analysis of the features of these cases with undetermined risk factor and the prevailing epidemic, it was assessed that all female infections shall be assumed to be heterosexual transmission, unless 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, providing there is no other indication suggesting otherwise.

By using the above methodology of reconstruction, a modified epidemic was constructed by applying our local 10-year data from 2005 to 2014. (Box 1.7(a) and Box 1.7(b)). After the reconstruction, the cases of MSM and heterosexual female showed a marked increase since 2007, while the change in heterosexual male appeared to be relatively moderate. (Box. 1.7 (c)). Although this method might have simplified the complex local epidemic, it provides one possible solution to fill the gap in the HIV surveillance system information. Measures to promote the return rate of report forms from physicians regarding each HIV case have also been implemented in the past few years.

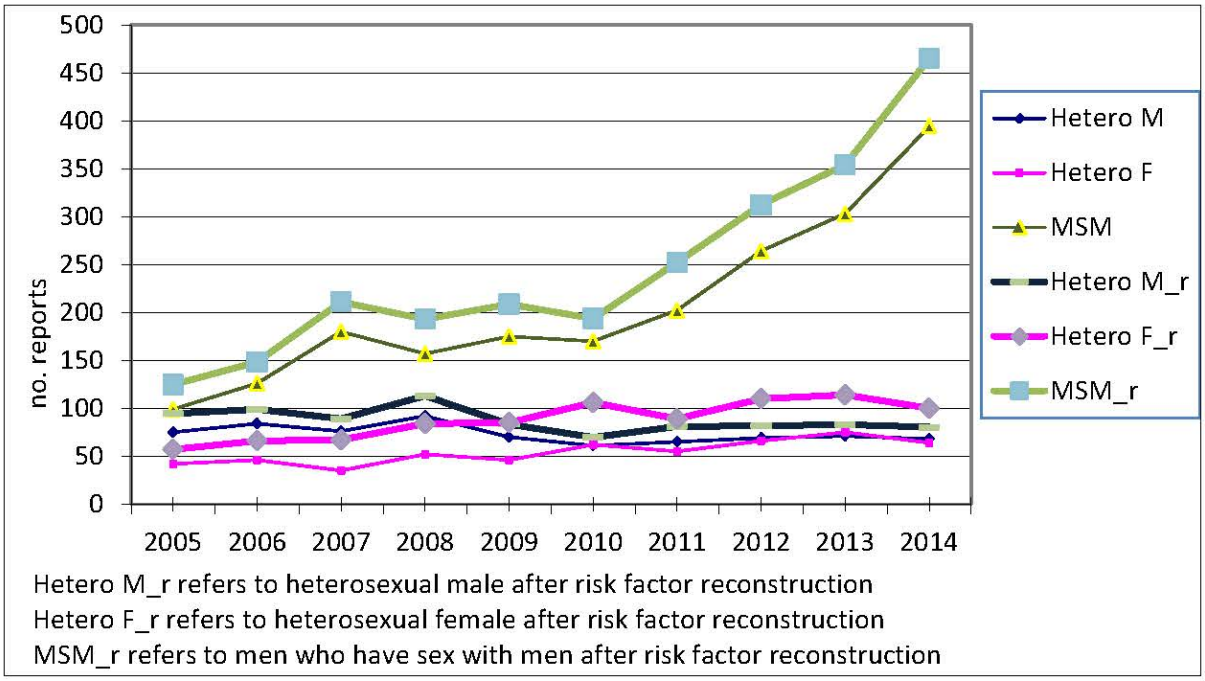
Box 1.7(a) HIV reports before risk factor reconstruction (2005-2014)



Box 1.7(b) HIV reports after risk factor reconstruction (2005-2014)



Box 1.7(c) HIV reports before and after risk factor reconstruction in MSM, heterosexual male and heterosexual female cases (2005-2014)



Regular HIV testing before diagnosis was still not a norm in Hong Kong

The HIV/AIDS Report Form (DH2293) was lately revised in March 2010 and become available for reporting use since July 2010 with one data field added to capture the previously negative HIV result among the newly diagnosed cases. The data helps to inform the epidemiology of those cases who were recently infected. Among the 651 cases reported in 2014, data of the HIV/AIDS Report Form was available in 482 cases, of which only 257 cases (39.5%) had the data on previously negative HIV results, which implied regular testing among HIV patients before their diagnoses was uncommon. Among those 257 cases, 116 (45.1%) had previously negative HIV results within one year of the HIV diagnosis, suggesting recent infection within 1 year of the HIV diagnosis.. However, it was not possible to judge whether the cases with previously negative HIV results beyond one year of HIV diagnosis were recently HIV seroconverted or not, as the observation was limited by the infrequent testing behaviour.

Pneumocystis pneumonia and tuberculosis remained the commonest primary AIDS defining illnesses

Since the introduction of highly active antiretroviral therapy (HAART) in Hong Kong around 1997, the annual number of reported AIDS cases has been dropping since then and remained at a relatively stable level of around 80 cases per year in the past decade. A total of 108 AIDS cases were reported in 2014 as compared with 84 cases in 2013. Majority (87%) of the AIDS reports in 2014 had their AIDS diagnosis within 3 months of HIV diagnosis, suggesting late presentation of the cases.

Pneumocystis jirovechi pneumonia (previously named *Pneumocystis carinii*) was the commonest ADI in Hong Kong in 2014 which accounted for 43% (46 cases), which is similar to the proportion in

2013. The second most common primary ADI reported in 2014 was *Mycobacterium tuberculosis* which accounted for 25% (27 cases). They were followed by other fungal infections (11%), *Cytomegalovirus diseases* (4%) and *Non-TB mycobacterial infections* (3%). The universal voluntary testing has literally replaced unlinked anonymous screening at TB & Chest Clinics since 2009 in informing the HIV prevalence among TB patients. In 2014, the HIV testing coverage in patients attending government TB & Chest Clinic was 88.1% and HIV prevalence was 0.69%, which remained at a low level of less than 1% in the past few years.

Median CD4 of newly reported HIV cases showed an increasing trend but those of older patients remained at a relatively lower level

The median CD4 of newly reported HIV cases in 2014 was 319.5/ul, which was higher than previous few years suggesting that more cases were diagnosed at a relatively earlier stage. The proportion with CD4>=200/ul in 2014 was 71.7%, which was higher than previous few years. Reporting of CD4 level has become a routine practice in physician, which provided useful information on the timing of diagnosis in the course of HIV infection. In 2014, 76.5% of HIV cases had their CD4 level at diagnosis reported, which was higher than that in the past few years. (Box 1.8) The median CD4 for those aged less than 55 was 330/ul in 2014, which has increased as compared to 309/ul in 2013. On the contrast, the median CD4 count among those who are aged 55 or above has decreased from 104/ul in 2013 to 55.5/ ul in 2014. It was consistently lower than the younger group, suggesting that more patients reported at age 55 or above were diagnosed at a relatively late disease stage. (Box 1.9)

Box 1.8 – Reported CD4 levels at HIV diagnosis

Year	No. of HIV reports	No. of CD4 reports (%)		Median CD4 (cell/ul)	CD4>=200 (cell/ul) (%)	
2005	313	239	(76.4%)	201	120	(50.2%)
2006	373	298	(79.9%)	233.5	163	(54.7%)
2007	414	327	(79.0%)	236	182	(55.7%)
2008	435	315	(72.4%)	193	154	(48.9%)
2009	396	290	(73.2%)	278	182	(62.8%)
2010	389	292	(75.1%)	207.5	149	(51.0%)
2011	438	321	(73.3%)	256	188	(58.6%)
2012	513	387	(75.4%)	279	251	(64.9%)
2013	559	442	(79.1%)	284	282	(63.8%)
2014	651	498	(76.5%)	319.5	357	(71.7%)

Box 1.9 – 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	2005	282	216	(76.6%)	199.5	(50.0%)
	2006	341	272	(79.8%)	243.5	(57.4%)
	2007	377	300	(79.6%)	249	(57.3%)
	2008	380	272	(71.6%)	217	(52.6%)
	2009	357	261	(73.1%)	299	(66.7%)
	2010	353	260	(73.7%)	215.5	(52.3%)
	2011	384	284	(74.0%)	275	(61.3%)
	2012	463	346	(74.7%)	300	(66.8%)
	2013	501	391	(78.0%)	309	(68.0%)
	2014	596	460	(77.2%)	330	(74.8%)
>=55	2005	29	23	(79.3%)	223	(52.2%)
	2006	29	26	(89.7%)	154.5	(26.9%)
	2007	33	27	(81.8%)	90	(37.0%)
	2008	53	43	(81.1%)	74	(25.6%)
	2009	38	29	(76.3%)	72	(27.6%)
	2010	36	32	(88.9%)	121	(40.6%)
	2011	53	37	(69.8%)	126	(37.8%)
	2012	48	41	(85.4%)	193	(48.8%)
	2013	58	51	(87.9%)	104	(31.4%)
	2014	53	38	(71.7%)	55.5	(34.2%)

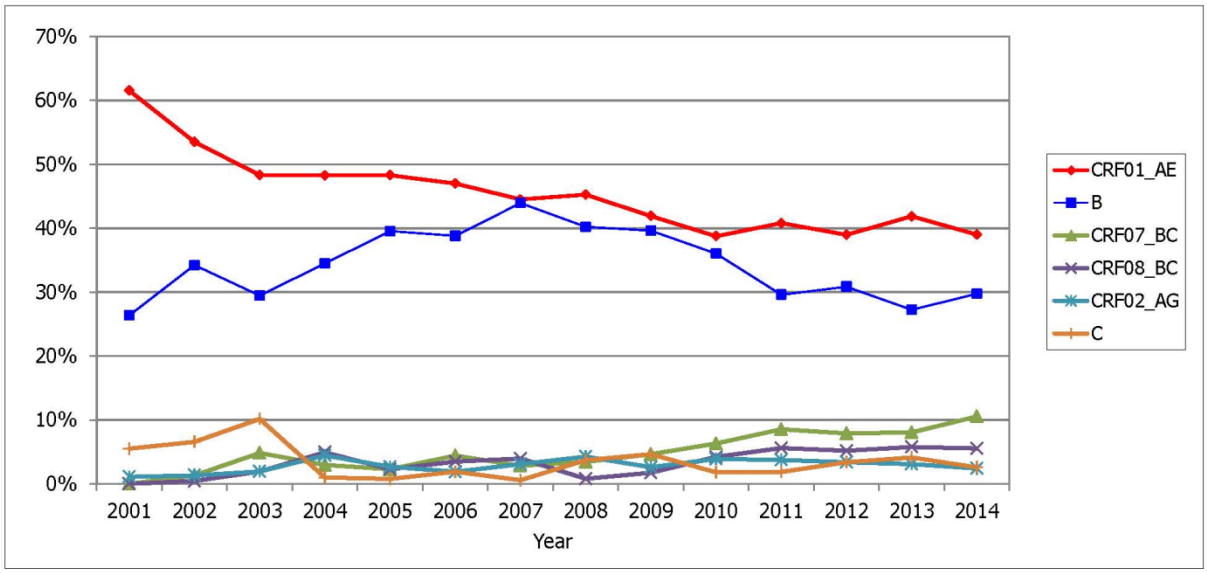
*: there may be a slight discrepancy between the sum of individual reports in Box 1.9 and the figures showed in Box 1.8 because of unknown age.

The commonest HIV-1 subtypes were CRF01_AE and B, but genetic diversity continued to increase. The level of drug resistance mutation remained low.

In 2014, about 83% 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 44% and 34% of all cases having subtype identified from 2001 to 2014. In 2014, they together accounted for 69% of all HIV cases with subtype documented. Over the past decade, CRF_01AE was found to be commoner in female, Asian non-Chinese, heterosexuals and IDU. On the other hand, subtype B was consistently commoner in

male, MSM, Chinese and Caucasian. Subtype C was commoner in female, Asian non-Chinese and heterosexual. Over the past few years, both the proportion of Subtype CRF01_AE and B showed a decreasing trend. In contrast, an increasing trend of diversity in other subtypes and circulating recombinant forms was noted, in particular since 2009. (Box 1.10) Notably, the proportion of subtype CRF07_BC has increased from 3.4% in 2008 to 10.5% in 2014 while that subtype CRF08_BC increased from 0.8% to 5.6% respectively.

Box 1.10 Trend in the common HIV-1* subtypes in Hong Kong, 2001 – 2014



*: including cases with HIV type 1 or PCR positive result.

According to the HIV resistance threshold survey conducted since 2003, the prevalence of intermediate or high level Drug Resistance related mutations in 2013 was 0.8%, which maintained at a relatively low level in the past few years (from 0% to 4.3%).

Discussion

The rising trend of HIV reports continued since 2011 and again reached a record high level in 2014, after a modest drop in 2009 and 2010. The total number of HIV reports in 2014 was 651, which increased for about 16% as compared to 559 cases in 2013. The increasing number of MSM reported cases remained the major contributing factor. The number of heterosexual contact infections remained relatively stable and the number of cases among injecting drug users also remained at a relatively low level of 1-11 cases per year in the last decade.

The number of HIV reports among MSM continued to increase and account for the largest proportion of cases in 2014. From the data of previous few years, the increasing trend will likely continue in the foreseeable future and play a significant role in the local epidemic. Using the reconstruction methodology described in paragraph 25 above, we can observe an ever more dramatic increase in the infection cases among MSM. The latest community-based HIV prevalence survey (HARiS) among MSM in 2014 revealed a HIV prevalence of 5.85%, which was higher than the findings from previous rounds of PRiSM Possible contribution from methodological difference of the two surveys cannot be excluded. However, the figure was still worrying as it remained significantly higher than other at-risk populations including the female sex workers and drug users. As gauged from

the PRISM surveys and HARiS survey for MSM 2014, the condom use rate with different types of partners has improved over the past years. The HIV testing rate has also increased which may reflect a growing awareness of regular HIV testing among MSM community, and could partly explain the continuous increase in the number of new infections detected in the community. Although majority of the MSM cases (75.6%) were infected locally in 2014, potential risk of HIV contracted from neighboring cities/countries should not be taken lightly due to the increasing cross-border sexual activities in the population.

Heterosexual transmission remained relatively stable over the past few years of around 130 cases per year. The proportion of female among heterosexual cases kept on rising and was 48.5% in 2014. Upon reconstruction of undetermined female cases, it showed an even more obvious increase for female heterosexual cases. The HIV prevalence in social hygiene clinics attendees and antenatal women remained at a relatively low level in the past decade and was 0.4% and 0.004% in 2014 respectively. However, consistent condom use rates of commercial / casual sex especially gauged from the surveys of heterosexual male remained far from satisfactory and could pose a threat of rebound in the number of cases via heterosexual route.

The number of injecting drug cases has remained stable. Despite that, the proportion of injection and risky needle-sharing behaviours among the drug users as gauged from several surveys remained at a significant level, which continued to pose a potential risk of cluster outbreak and rapid upsurge of infection in the population. Moreover, the HIV testing coverage in methadone clinics showed a decreasing trend in the past few years which may miss or delay diagnosis and subsequent care of infected drug users.

In conclusion, the number of newly reported HIV infections in Hong Kong continued to increase in 2014. Similar to the situation in many developed countries and neighboring areas, MSM infection continued to dominate the HIV epidemic in Hong Kong. The situation of heterosexual population and injecting drug user population was relatively stable thus far. Apart from locally acquired infections, infections contracted outside Hong Kong would also play an important factor influencing the local HIV epidemiology. In 2014, the HIV prevalence among the general population in Hong Kong was estimated to remain at a low level of about 0.1%. To combat the HIV epidemic, continuous and collaborative effort in HIV prevention is essential.

Test paper - Epidemiology of HIV infection in Hong Kong as of 2014 (adapted from the HIV Surveillance Report – 2014 Update)

Expiration Date: 27 Dec 2016

CME point **#** ***/ CNE point: 1 / PEM point: 1*** *(Healthcare related which contributes to the enhancement of professionalism of midwives/nurses)*

- Please indicate one answer to each question.
- Answer these on the answer sheet and make submission by fax to Special Preventive Programme, Department of Health.

*Please contact respective authorities directly for CME/CPD accreditation if it is not on listed below.*

Accreditors	CME Point
Department of Health *(for practising doctors who are not taking CME programme for specialists)*	1
Anaesthesiologists	1
Community Medicine	1
Dental Surgeons	1
Emergency Medicine	pending
Family Physicians	1
Obstetricians and Gynaecologists	pending
Ophthalmologists	0.5
Orthopaedic Surgeons	1
Otorhinolaryngologists	1
Paediatricians	pending
Pathologists	1
Psychiatrists	pending
Radiologists	1
Surgeons	pending

1. Which of the following is not true comparing men who have sex with men (MSM) HIV infections with those of heterosexual men?

   (a) The median age of MSM infections was lower than heterosexual men, by 10 years or more in the annual reported cases
   (b) More MSM infections were reported to have occurred in Hong Kong
   (c) There were more heterosexual male infections in late 1990s
   (d) The number of MSM infections was some six times of the heterosexual men in 2014
   (e) None of the above

2. Which of the following is not true regarding the HIV situation in Hong Kong as of 2014?

   (a) HIV prevalence in the general population was estimated to be about 0.1%
   (b) The number of new HIV reports continued to break previous years' record
   (c) Heterosexual contact and transmission via injecting drug use remained stable
   (d) A rising proportion of MSM infections was observed among all cases, especially after exclusion of those with undetermined route of transmission due to inadequate information
   (e) None of the above

3. Which of the following is not true regarding local HIV molecular epidemiology?

   (a) CRF_01AE was still the commonest HIV-1 subtype although its proportion of contribution has declined
   (b) CRF_08 BC was more common than CRF_07BC and showed a rising trend in recent few years
   (c) Genetic diversity of the subtypes identified besides major ones among reported cases have become more apparent
   (d) Subtype B was common in MSM Chinese or Caucasians
   (e) None of the above

4. Which of the following is not true regarding the latest HIV situation in injecting drug users (IDU)?

   (a) HIV infection has remained uncommon in IDU in Hong Kong
   (b) There was no concern on IDU HIV infections given the low level of infections gauged from reported cases and sero-prevalence surveys
   (c) HIV prevalence found at methadone clinic attendees stayed at <1%
   (d) HIV testing coverage at methadone clinics has been declining
   (e) Significant needle-sharing behaviours was identified in some IDU surveys

5. Which of the following age group people showed the biggest rise in the proportion of MSM infections in 2014?

   (a) 10-19
   (b) 20-29
   (c) 30-39
   (d) 40-49
   (e) 50-59

6. Which of the following is not true about the HIV and AIDS Response Indicator Survey (HARiS) of the MSM community conducted in 2013 and 2014?

   (a) Participants were sampled from gay venues, internet and non-governmental organization service centres
   (b) The respondents reported last anal sex condom use rate at 65-90% for different sex partners in 2014
   (c) The proportion of ever and recent one year HIV testing rate has increased in 2014 compared to 2013
   (d) The overall HIV prevalence found in 2014 was below 5%
   (e) None of the above

7. Which of the following is not true about the situation of heterosexual infections as of now?

   (a) Heterosexual male cases were older than female cases
   (b) There has been continually rising female heterosexual infections in recent years
   (c) Substantially more male heterosexually acquired infections were non-Chinese as compared to female infections
   (d) There was no rising trend in heterosexual infections
   (e) None of the above

8. Which of the following is not true about scenario of the timing of HIV diagnosis and measures to enhance early diagnosis?

   (a) Overall, the reported infections were diagnosed at an earlier stage in 2014, as suggested by a median CD4 of >300/uL for the first time in the last decade
   (b) Regular HIV testing of at-risk populations can help earlier HIV diagnosis
   (c) Detection of recent HIV infection or not is affected by the testing behavior of the infected
   (d) Older patients aged 55 years or above were diagnosed at a later stage than those below 55 years old
   (e) None of the above

9. Which of the following is not true about the latest HIV prevalence in various populations?

   (a) >1% in drug users attending methadone clinics
   (b) 5-10% in men who have sex with men
   (c) <0.5% in people attending sexually transmitted disease clinics
   (d) <0.01% in antenatal women
   (e) <0.01% in blood donors

10. Which of the following is not correct regarding the local reconstruction of risk factors for undetermined cases?

   (a) The rise of MSM and heterosexual female infections since 2007 became more apparent
   (b) Undetermined male infections were distributed to MSM and heterosexual male categories per their observed ratio among reported male infections
   (c) Reconstruction has to be supplemented by efforts to enhance reporting of infections with completion of the report form
   (d) There was no significant change in the trend of heterosexual male infections upon reconstruction
   (e) None of the above