

HIV SURVEILLANCE REPORT

– 2021 UPDATE

**Special Preventive Programme
Centre for Health Protection
Department of Health
Hong Kong Special Administrative Region
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PREFACE

The number of reported HIV infections in 2021 was 447. Sexual transmission remained the major route of HIV transmission in Hong Kong, while transmission from other routes including drug injection had been staying at a relatively low level. Overall, Hong Kong continues to have a low prevalence of HIV infection in the general population.

Similar to many developed countries, Hong Kong is facing the ongoing challenge of a high level of HIV infection in the men who have sex with men (MSM) community in recent years. Besides their prominence in the number of reported cases, MSM was also shown to have the highest HIV prevalence among all at risk populations. Despite a relatively low prevalence among people who inject drugs (PWID, previously known as injecting drug users (IDU)), one should not be complacent as infection could surge quickly in this population given the opportunities.

With the expansion of community-based HIV voluntary testing services, non-governmental organisations have been playing an increasingly important role in the understanding of the local HIV epidemiology especially among the at-risk populations of MSM, transgender people, PWID and female sex workers. Many non-governmental organisations have participated in HIV prevalence & behavioural surveys in different at-risk populations through their service networks.

This *annual surveillance report* is an initiative of Special Preventive Programme, Centre for Health Protection, Department of Health. The report aims to provide strategic information to facilitate planning of services and intervention activities for the prevention, care and control of HIV/AIDS. Following a commentary, data collected from the five main components of our surveillance programme (voluntary HIV/AIDS case-based reporting system, HIV prevalence surveys, sexually transmitted infections caseload statistics, behavioural studies and HIV-1 genotyping studies) were presented as tables and graphs. Findings of the risk behavioural surveys such as the HIV and AIDS Response Indicator Survey (HARiS) and other studies were also included in this report.

Electronic copy of this report is accessible in our website <https://www.aids.gov.hk>. Moreover, the quarterly bulletins, factsheets on yearly situation and specific surveys, and other information relating to HIV surveillance and epidemiology are also available in the website. Your comments and suggestions are always welcome.

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Department of Health
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Secondly, special thanks are due to the many agencies that have helped collect and update the relevant statistics included in this report. They included the Hong Kong Red Cross Blood Transfusion Service, the Society for the Aid and Rehabilitation of Drug Abusers, AIDS Concern, the Narcotics Division of the Security Bureau, the Department of Microbiology of the University of Hong Kong, the Jockey Club School of Public Health and Primary Care of the Chinese University of Hong Kong, many of our local AIDS and non-AIDS non-governmental organisations and various public hospitals / clinics, in particular the Queen Elizabeth Hospital, Prince of Wales Hospital and Princess Margaret Hospital. We also take this opportunity to thank all doctors, other health care professionals and related workers who have contributed to HIV/AIDS reporting and other surveillance components.

Finally, we must thank the usual excellent support from the Special Preventive Programme staff in collecting, collating and analysing the information as well as the editing and production of this report.

ABBREVIATION

ACTS	AIDS Counselling and Testing Service
ADI	AIDS Defining Illness
AIDS	Acquired Immune Deficiency Syndrome / Acquired Immunodeficiency Syndrome
AC	AIDS Concern
AIMSS	Asia Internet MSM Sex Survey
CDC	Centers for Disease Control and Prevention
CRISP	Community based Risk behavioural and SeroPrevalence survey for female sex workers
CD4	Cluster of Differentiation (CD) 4 molecule
CHOICE	Community Health Organisation for Intervention, Care and Empowerment
CRDA	Central Registry of Drug Abuse
CHP	Centre for Health Protection
CRF	Circulating Recombinant Form
DH	Department of Health
DRS-M	Drug Rehabilitation Services – Methadone clinics
DRS-S	Drug Rehabilitation Services – Shek Kwu Chau Treatment and Rehabilitation Centre
ELISA	Enzyme-linked Immunosorbent Assay
FSW	Female Sex Worker
HE	Heterosexual
HAART	Highly Active Antiretroviral Therapy
HARiS	HIV and AIDS Response Indicator Survey
HIV	Human Immunodeficiency Virus
ITC	Integrated Treatment Centre
MUT	Methadone Universal HIV Antibody (Urine) Testing
MSM	Men who have Sex with Men
NSGI	Non-specific Genital Infection
NGU	Non-gonococcal Urethritis
PCP	Pneumocystis Pneumonia
PCR	Polymerase Chain Reaction
PRISM	HIV Prevalence and Risk behavioural Survey of Men who have sex with men
PWID	People who Inject Drugs
SARDA	The Society for the Aid and Rehabilitation of Drug Abusers
SKC	Shek Kwu Chau Treatment and Rehabilitation Centre
STI	Sexually Transmitted Infection
SPP	Special Preventive Programme
SHS	Social Hygiene Service
SAS	Street Addict Survey
TB	Tuberculosis
ul	microlitre

1. SUMMARY REVIEW

Background

- 1.** The HIV surveillance system in Hong Kong comprises 5 main components to provide a detailed description of the local HIV/AIDS situation. They are
 - (a) voluntary HIV/AIDS case-based reporting system;
 - (b) HIV prevalence surveys;
 - (c) sexually transmitted infections (STI) caseload statistics;
 - (d) behavioural studies; and
 - (e) HIV-1 genotyping studies.

All data are collected, analysed 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 with press releases issued and in electronic format (<https://www.aids.gov.hk>). Data from various sources are compiled annually and released in this report.

- 2.** The following paragraphs highlight the main findings from HIV/AIDS surveillance activities undertaken in 2021 and before. Please refer to the following pages for details of the programmes.

Voluntary HIV/AIDS case-based reporting system

3. The Department of Health has implemented a voluntary HIV/AIDS case-based reporting system since 1984. Doctors, AIDS service organisations and laboratories report newly diagnosed HIV cases and AIDS cases to this anonymous and confidential system using a standard form (DH2293) which was last revised in April 2019. Before 2006, only cases confirmed HIV antibody positive by Western Blot were counted as HIV infection for cases aged above 18 months. Since the 4th quarter of 2006, cases with PCR positive result and clinical or laboratory indication of recent infection have also been counted as confirmed HIV infection in the reporting system.

4. In 2021, DH received 447 HIV and 90 AIDS reports (Box 2.1). The number of reported HIV cases decreased by 11.5% as compared to 505 in 2020 and by around 38.3% compared to the record high of 725 cases recorded in 2015. This brought the cumulative total to 11,232 and 2,320 for HIV and AIDS reports respectively. Public hospitals / clinics / laboratories were still the commonest source of HIV reports in 2021, which accounted for 44.3% of all. Social Hygiene Clinics and private hospitals / clinics / laboratories were other common sources of HIV reports, accounting for 16.1% and 13.9% respectively (Box 2.2(a)).

5. In 2021, around 82.1% of reported HIV cases were male. The male-to-female ratio was 4.6:1 in 2021, which had decreased as compared to past year (4.8:1 in 2020). About 71.6% of reported cases were Chinese. Asian non-Chinese accounted for 15.0% of reports (Box 2.3(a)). The median age of all reported HIV cases was 39 (Box 2.4(a)). The commonest age group in male and female cases was 30-39 and 40-49 respectively (Box 2.4(b)). Around 83.2% of reported HIV cases were reported to have acquired the virus through sexual transmission in 2021, including homosexual (44.3%), heterosexual (28.4%), and bisexual exposure (10.5%) (Box 2.5(a)). People who inject drugs accounted for 0.7% of reported HIV infections. There were no reported cases of HIV transmission via blood / blood product transmission and no reported cases of infection via perinatal route in 2021. The suspected routes of transmission were undetermined in around 16.1% of cases. This means that after excluding those with undetermined exposure category, sexual transmission accounted for about 99.2% among HIV reports with defined risks.

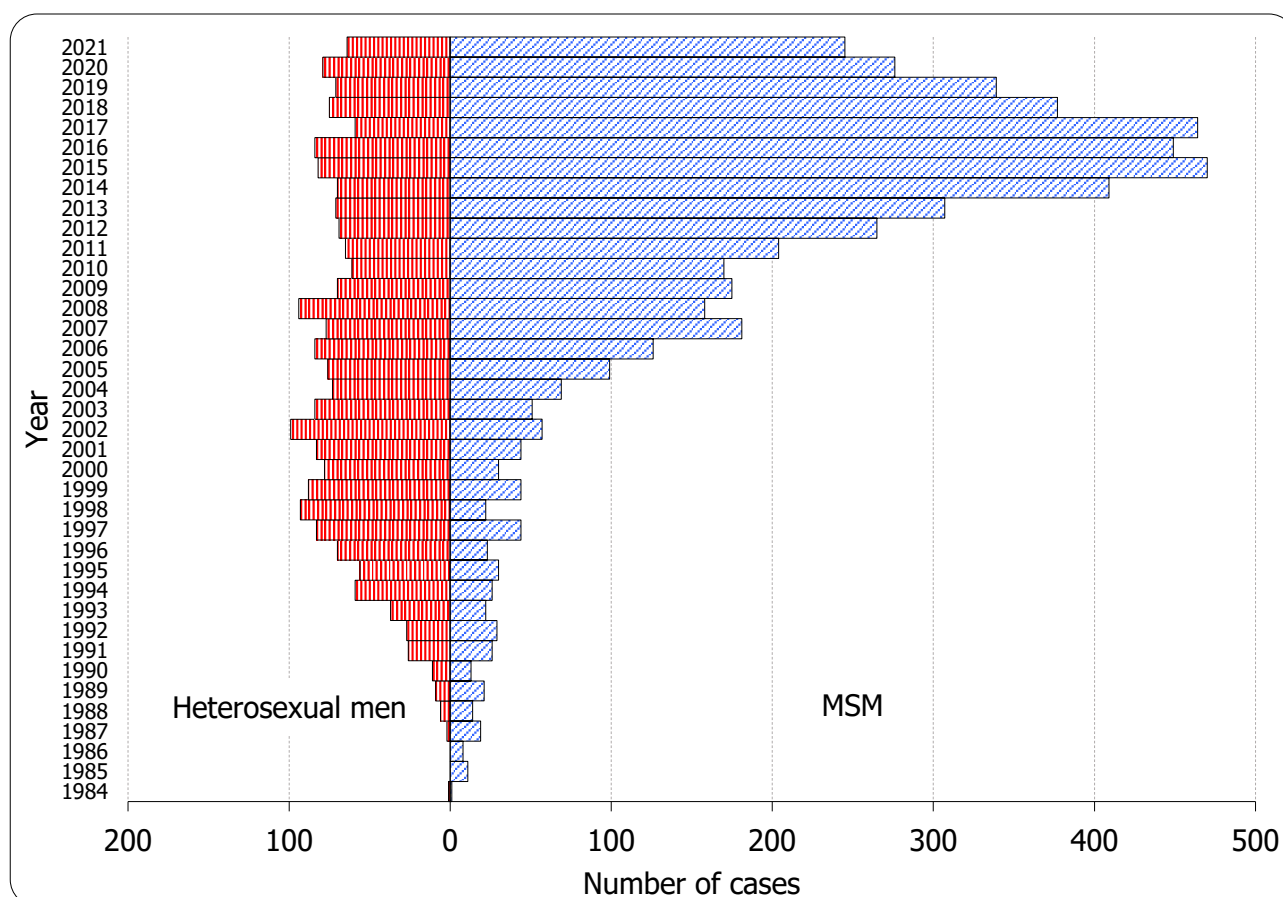
HIV Surveillance at a glance (2021)

- 447 HIV reports and 90 AIDS reports
- Sex : 82.1% male
- Ethnicity : 71.6% Chinese
- Age : median 39
- Risks:
 - 54.8% Homosexual / bisexual contact
 - 28.4% Heterosexual contact
 - 0.7% Injecting drug use
 - 16.1% Undetermined
- CD4 at reporting: median 232/ul
- HIV-1 subtypes:
 - commonest is CRF01_AE, followed by B
- Commonest primary AIDS defining illness:
 - PCP, followed by TB
- HIV positivity rate
 - Blood donors : < 0.01%
 - Antenatal women : 0.03%
 - STI clinic attendees : 0.38%
 - Methadone clinic attendees : 1.24%
- HIV prevalence
 - MSM (PRISM 2017) : 6.54%

The predominance of men who have sex with men (MSM) among newly reported HIV infections

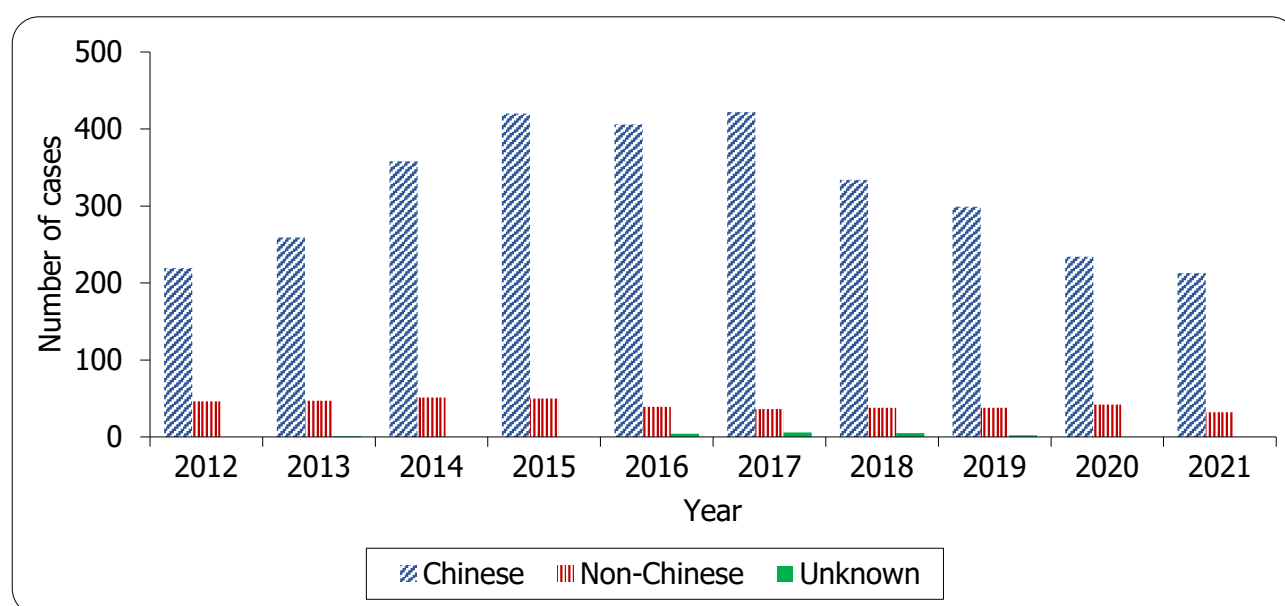
6. Similar to previous few years, sexual contact including both heterosexual and homosexual / bisexual, remained the commonest route of HIV transmission in Hong Kong in 2021, which accounted for 83.2% of reported HIV cases. During the early years of HIV/AIDS epidemic in Hong Kong in the 1980s and early 1990s, more cases in MSM, who had homosexual or bisexual contacts, were reported as compared with heterosexual contact. The trend began to reverse in 1993, with heterosexual transmission overtaking homosexual / bisexual transmission. A rising trend in MSM has been observed again since 2004. In 2005, MSM infections began to outnumber those by heterosexual transmission (Box 1.1). In 2021, there were 245 MSM cases (65.3%) identified out of 375 cases with defined risks (Box 2.5(a)).
7. The high weighting of MSM among male HIV cases remained obvious. 66.8% of all male HIV reports in 2021 acquired the virus through homosexual or bisexual contact. Heterosexual contact in male cases accounted for 17.4%, whereas the routes of transmission were undetermined in another 15.0% 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 dropped to 0.3:1 in 2021 (Box 1.1 and Box 2.6(c)). A 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 0.5:1 in 2021.

Box 1.1 The number of MSM cases has exceeded that of heterosexual men in the reporting system since 2005

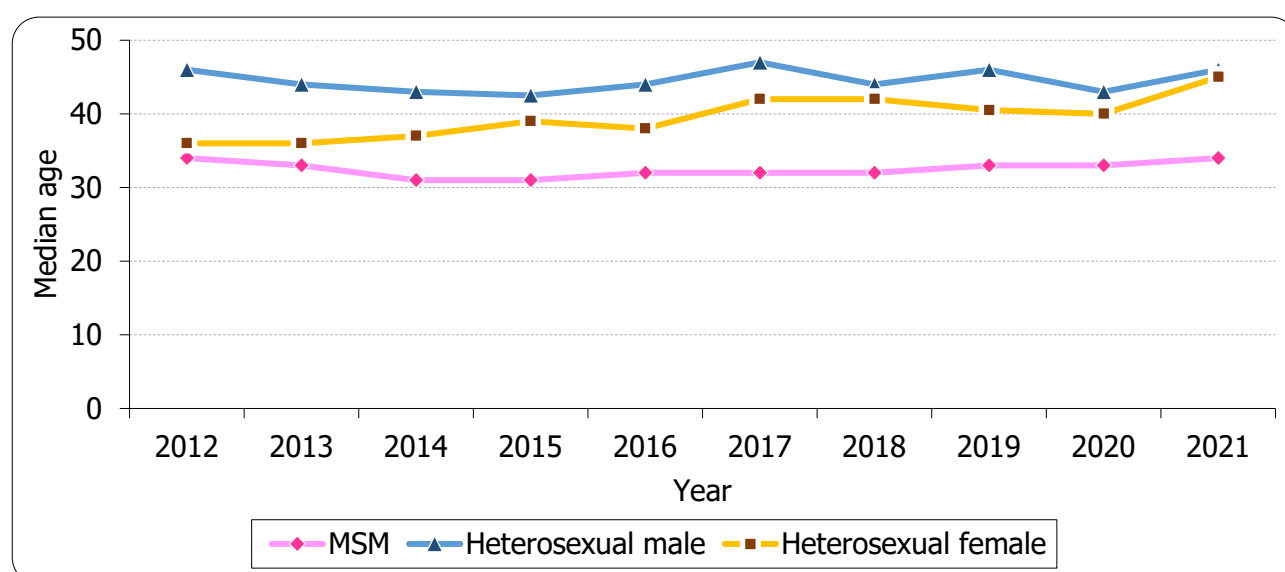


8. In 2021, the majority of the MSM cases were Chinese (86.9%). The number of reported Chinese MSM cases remained high in recent years (Box 1.2). In 2021, the median age of MSM cases at reporting was 34, which was much lower than that of heterosexual male cases at 46. The median age of HIV infected MSM population has shown an increasing trend in the past few years from 31 in 2014 to 34 in 2021 (Box 1.3). In 2021, the age group of 30-39 was the largest, accounting for 30.2% of reported MSM cases, followed by that of 20-29 (29.8%) and that of 40-49 (19.6%) (Box 1.4). Reported data since 2012 showed that a relatively high proportion of MSM infections occurred in Hong Kong, as compared to a lower proportion in heterosexual men. In 2021, 78.4% of MSM infection reports cited Hong Kong as the suspected place of infection, while 73.4% of heterosexual male infection was locally acquired (Box 1.5).

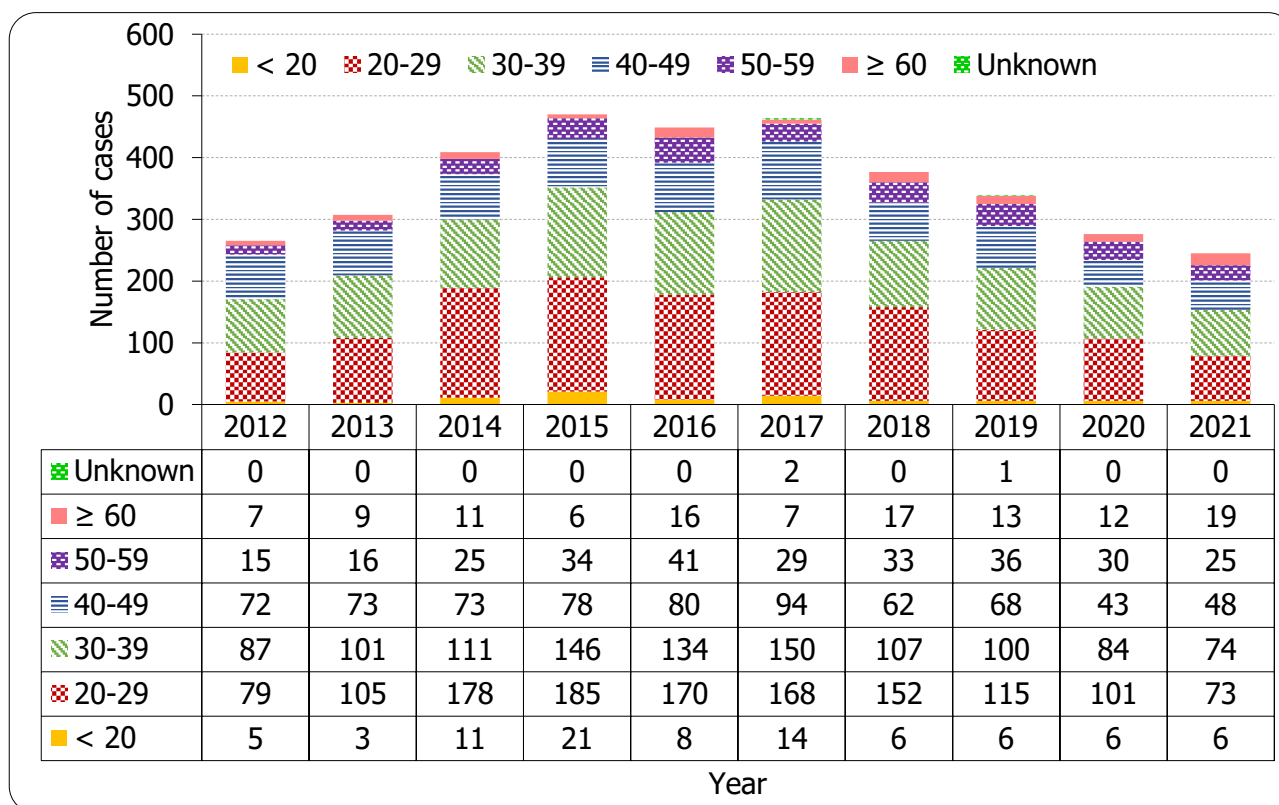
Box 1.2 Ethnicity breakdown of HIV-infected MSM cases (2012 – 2021)



Box 1.3 Median HIV reporting age of HIV-infected MSM cases, heterosexual men and heterosexual women (2012 – 2021)

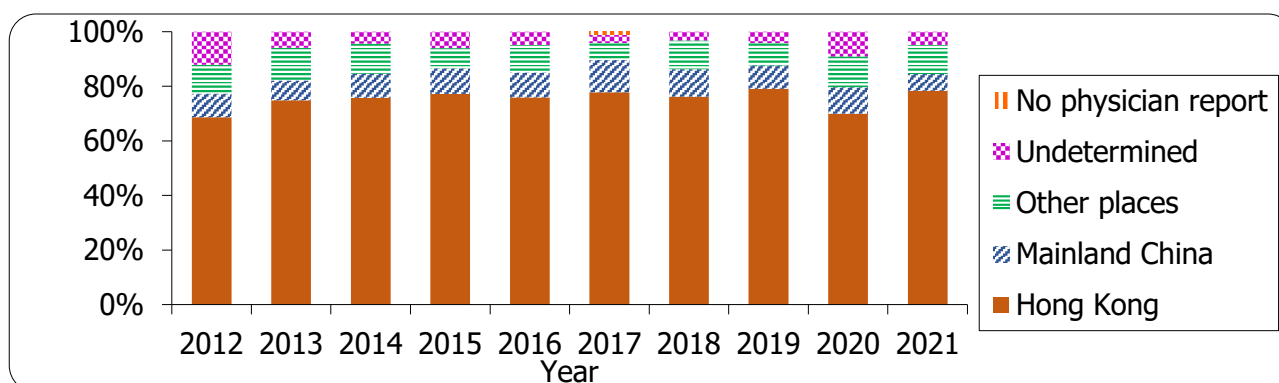


Box 1.4 Age breakdown of HIV-infected MSM cases (2012 – 2021)

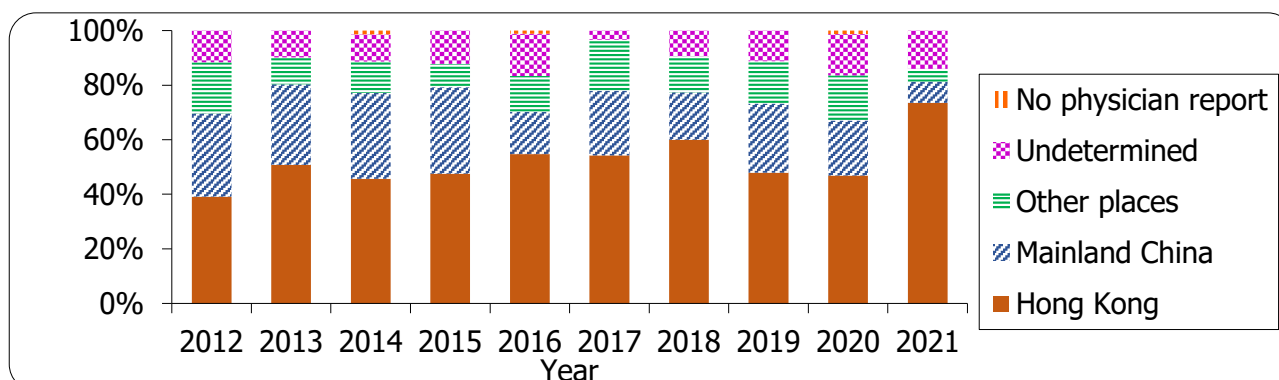


Box 1.5 Suspected location of HIV infection (2012 – 2021)

(a) MSM



(b) Heterosexual men



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

9. The fourth round of HIV Prevalence and Risk behavioural Survey of Men who have sex with men in Hong Kong (PRiSM) conducted in 2017 showed an HIV prevalence of 6.54% among local sexually active MSM, showing that Hong Kong is an area of concentrated HIV epidemic according to the World Health Organization's definition. This figure was higher than the findings from the second HIV and AIDS Response Indicator Survey (HARiS) conducted in 2014 (5.85%) (Box 1.6 and Box 3.5). While the rates could not be directly compared due to difference in methodology and recruitment strategies between PRiSM (community-based) and HARiS (venue-based), it is clear that the prevalence among MSM is significantly higher than other at-risk populations such as female sex workers (0.0% in HARiS 2019, Box 3.6) and drug users (Box 3.2 and Box 3.3).
10. AIDS Concern's voluntary HIV testing service targeting MSM provides another data source to estimate the HIV prevalence in the local MSM community, despite the fact that sampling bias could not be excluded. It showed a prevalence of 0.736% in 2021, compared to 1.104% in 2020 (Box 3.4).

Condom use and HIV testing among men who have sex with men generally showed a decreasing trend in recent years

11. In PRiSM 2017, the rate of consistent condom use (defined as always using a condom for anal sex in the preceding 6 months) reported by MSM respondents were 52.1% for receptive sex and 52.2% for insertive sex. The condom use rate in the last anal sex with emotional relationship partner, regular sex partner, non-regular sex partner and commercial male sex worker were 62.3%, 75.6%, 85.5% and 81.6% respectively. In the latest HARiS (2020) for MSM showed that the condom use rate in the last anal sex with emotional relationship partner, regular sex partner, non-regular sex partner and commercial male sex partner has decreased in recent few years (Box 1.6(a)). Usage of condoms in sex with all but commercial sex partners were found to be significantly lower for those who reported having used pre-exposure prophylaxis (PrEP). Effort to promote safer sex with all types of partners, irrespective of the relationship, should be enhanced among the MSM community.
12. In HARiS 2020, 81.9% of the respondents had ever had HIV testing and 61.3% of respondents had their recent tests performed in the previous year. The rates were lower when compared with HARiS 2018 (ever HIV testing rate, 83.0% and HIV testing rate in the previous year, 64.5%). Health promotion of regular HIV testing should be maintained among MSM.

Box 1.6(a) Results of PRiSM (MSM) in 2011 and 2017; HARiS (MSM) in 2013 – 2016, 2018 and 2020

Results			PRiSM 2011	HARiS 2013	HARiS 2014	HARiS 2015	HARiS 2016	PRiSM 2017	HARiS 2018	HARiS 2020
Setting	Venue-based	✓		✓	✓	✓	✓		✓	✓
	Centre-based			✓	✓	✓	✓		✓	✓
	Internet-based		✓	✓	✓	✓	✓	✓	✓	✓
Sample Size		816	180	853	564	1,091	1,989	4,133	2,051	1,574
Adjusted HIV prevalence (PRiSM) / HIV prevalence (HARiS) (95% C.I.)		4.08% (3.44% – 4.85%)	3.3% (1.54% – 7.08%)	/	5.85% (4.28% – 8.10%)	/	/	6.54% (5.66% – 7.42%)	/	/
Condom use in last anal sex with	Emotional Relationship Partner	/	/	63.7%	65%	65.7%	59.9%	62.3%	60.2%	52.2%
	Regular Sex Partner	61.9%	60.0%	76.7%	70.3%	73.6%	70.5%	75.6%	67.4%	62.2%
	Non-regular Sex Partner	82.7%^ 81.2%*	81.4%^ 79.2%*	79.5%	80.6%	81.1%	79.9%	85.5%	78.8%	69.8%
	Commercial Sex Partner	/	/	69.9%	89.1%	96.1%	89.1%	81.6% (commercial sex worker)	78.6%	74.2%
HIV testing	Ever tested for HIV	67%	63%	73.7%	78.5%	77.5%	75.8%	79.4%	83.0%	81.9%
	HIV test within the past 12 months	40%	41%	57.0%	62.3%	60.8%	58.5%	52.6%	64.5%	61.3%

^ in HK * outside HK

- 13.** According to the survey conducted among the clients of the DH's AIDS Counselling and Testing Service (ACTS), the median number of casual sex partners in previous year among MSM was consistently higher than heterosexual men, being 3 in 2021 (Box 5.1). The consistent condom use rate among MSM with regular partners showed an increase in 2021 at 39.5% and casual partners showed a decrease in 2021 at 42.9%, as compared with the rate of 34.2% and 44.8% in 2020 (Box 5.5(a)). Similarly, the rate of condom uses at last anal sex with regular partners and with casual partners showed a decrease (43.6% and 55.7% respectively) in 2021, as compared with 48.4% and 56.4% in 2020 respectively (Box 5.5(b)).
- 14.** Additional behavioural data from MSM attending AIDS Concern's testing service showed that the rate of consistent condom use for regular sex partners, casual sex partners and boyfriend was dropped to 36.8%, 49.7% and 32.0% in 2021 respectively, as compared with 41.4%, 51.1% and 34.7% in 2020 respectively (Box 5.5(a)). Consistent condom use was consistently lower for sexual partners with closer relationship.

Transgender population

- 15.** Transgender people has been a neglected and hard-to-reach community; yet various overseas studies have shown that their HIV prevalence can be high. To better study the situation in Hong Kong, male-to-female (m-t-f) transgender persons were included as one of the major at-risk populations in HARiS for the first time in 2014. In the survey, it was found that the overall HIV prevalence was 18.6% in m-t-f transgender. In PRiSM 2017, of the 104 participants recruited, 56 submitted urine specimens for HIV antibody testing. The overall HIV prevalence for sexually active m-t-f transgender was found to be 5.11% (Box 1.6(b)).
- 16.** M-t-f transgender is a hard-to-reach population. Both the sample size and mix of ethnicity in surveys have varied. For example, in HARiS 2014, of the 59 m-t-f transgender persons recruited, only 69.5% of the participants were Chinese and a considerable proportion were non-Chinese (Filipino 16.9% and Thai 11.9%) while in PRiSM 2017 (N=104), 93.3% were Chinese. Due to the small sample size and different recruitment strategies between surveys, the survey findings should be interpreted cautiously. Overall, the condom use rate and HIV testing rate was unsatisfactory. Education on safer sex practices, including consistent and correct use of condom, and promotion of HIV testing should be reinforced.

Box 1.6(b) Results of HARiS (TG) in 2014 – 2016 and 2018; PRiSM (TG) in 2017

Results		HARiS 2014	HARiS 2015	HARiS 2016	PRiSM 2017	HARiS 2018
Sample Size		59	66	87	104	41
Adjusted HIV prevalence (PRiSM) / HIV prevalence (HARiS) (95% C.I.)		18.6% (9.74% – 32.62%)	/	/	5.11% (0.06% – 10.16%)	/
Condom use in last anal sex with	Emotional Relationship Partner	75.8%	82.1%	55.6%	55.6%	58.3%
	Regular Sex Partner	90.0%	85.7%	63.0%	58.5%	76.5%
	Non-regular Sex Partner	76.9%	91.9%	84.4%	68.3%	78.3%
	Commercial Sex Partner	76.3%	93.8%	96.8%	62.5% (commercial sex worker)	90.0%
HIV testing	Ever tested for HIV	72.9%	78.8%	65.5%	72.1%	90.2%
	HIV test within the past 12 months	50.8%	60.6%	57.5%	41.3%	65.9%

The proportion of heterosexual cases remained stable

17. In 2021, there was a total of 127 heterosexual cases reported, which accounted for more than one-fourth of all reported HIV cases (Box 2.5(a)). The proportion of heterosexual cases among all reported HIV cases dropped from its peak of 71.4% in 1998 to the lowest of 17.8% in 2017 then increased to 28.4% in 2021. In recent years, however, the female heterosexual cases rose slightly faster than the male cases, resulting in a gradual increase of female to male ratio for heterosexual cases from 0.53:1 in 2004 to 0.98:1 in 2021. The median age of heterosexual cases in 2021 was 45 for female and 46 for male (Box 1.3). In 2021, heterosexual male cases were mainly Chinese (76.6%) whereas Chinese accounted for 50.8% for female heterosexual cases.

- 18.** STI 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 behaviours. In 2021, 16.1% of reported cases were referred from Social Hygiene Clinics (Box 2.2(a)). The consistent condom use rate among heterosexual men attending Social Hygiene Clinics with commercial / casual partners in the past 3 months in 2021 was 40.7%, which was lower when compared to the rates in previous years (Box 5.4(a)). Moreover, more than one third of the Social Hygiene Clinics attendees were asymptomatic, which may delay the diagnosis and the link to appropriate medical care (Box 4.4). The HIV prevalence of Social Hygiene Clinic attendees has remained stable in recent few years, being 0.377% in 2021 (Box 3.1). The total number of STI cases in Social Hygiene Clinics also remained relatively stable in the past few years, with an aggregate of 10,752 cases in 2021 (Box 4.1 and Box 4.2).
- 19.** On the other hand, the level of consistent condom use observed among heterosexual men attending AIDS Counseling and Testing Service (ACTS) increased from 68.0% in 2020 to 71.7% in 2021 for commercial partners and from 58.6% in 2020 to 60.7% in 2021 for commercial / causal partners (Box 5.4(a)).

New HIV infection among drug users remained low but significant risk behaviours were reported

- 20.** In 2021, the reporting system recorded 3 cases of HIV transmission through injecting drug use, which accounted for 0.7% of all reported cases. Historically, this number decreased from the peak of 58 cases in 2006 to less than 10 cases in 2012 and has since remained at a low level (except 2015, Box 2.5(a)). 3 cases reported in 2021 were male, involved 1 Chinese and 2 Asian non-Chinese (Box 2.7(a)). The median age was 40. One out of 3 PWID cases were reported from public hospitals / clinics / laboratories.
- 21.** The Methadone Universal HIV Antibody (Urine) Testing Programme (MUT) has replaced the past unlinked anonymous screening (UAS) in methadone clinics since its launch in 2004. It aims to strengthen HIV surveillance among drug users as well as diagnosis and subsequent care of the HIV infected clinic attendees. Among the 6,075 methadone clinic attendees in 2021, 3,290 clients have been tested for HIV, giving an overall HIV testing coverage rate of 54.2%. A total of 41 clients were found to be positive for HIV, giving an overall HIV prevalence of around 1.2% among methadone clinic attendees in 2021 (Box 3.2).
- 22.** The proportion of drug users who were currently injecting drugs ranged from 16.5% to 81.0% across different surveys in 2021 (Box 5.6). In addition, a community survey community-based survey showed a significant proportion of 18.8% of them practising needle sharing, which put them at risk of HIV (Box 5.7). Therefore, the potential risk of HIV outbreak among drug users cannot be neglected, despite the fact that the number of reported cases has remained small in recent years.

No case of transmission via blood / blood product transfusion reported

- 23.** In 2021, there were no reported cases of HIV infection via contaminated blood or blood product transfusion (Box 2.5(a)). The HIV prevalence of new blood donors at Hong Kong Red Cross Blood Transfusion Service remained at a low level of 0.0099% in 2021 (Box 3.7(b)).

No case of perinatal transmission reported

- 24.** In 2021, there were no perinatal transmission cases reported (Box 2.5(a)). The Universal Antenatal HIV Testing Programme (UATP) was launched in Hong Kong since September 2001, then it was supplemented with rapid HIV testing in labour wards of public hospitals since 2008 to fill the gap for late-presenting pregnant women without documented HIV status in the antenatal period. The coverage of the programme remained at very high level, with all cases (31,007) attending public antenatal services were tested in 2021 and the prevalence of HIV infection in pregnant women was found to be stable over the years (0.0258% in 2021) (Box 3.8).

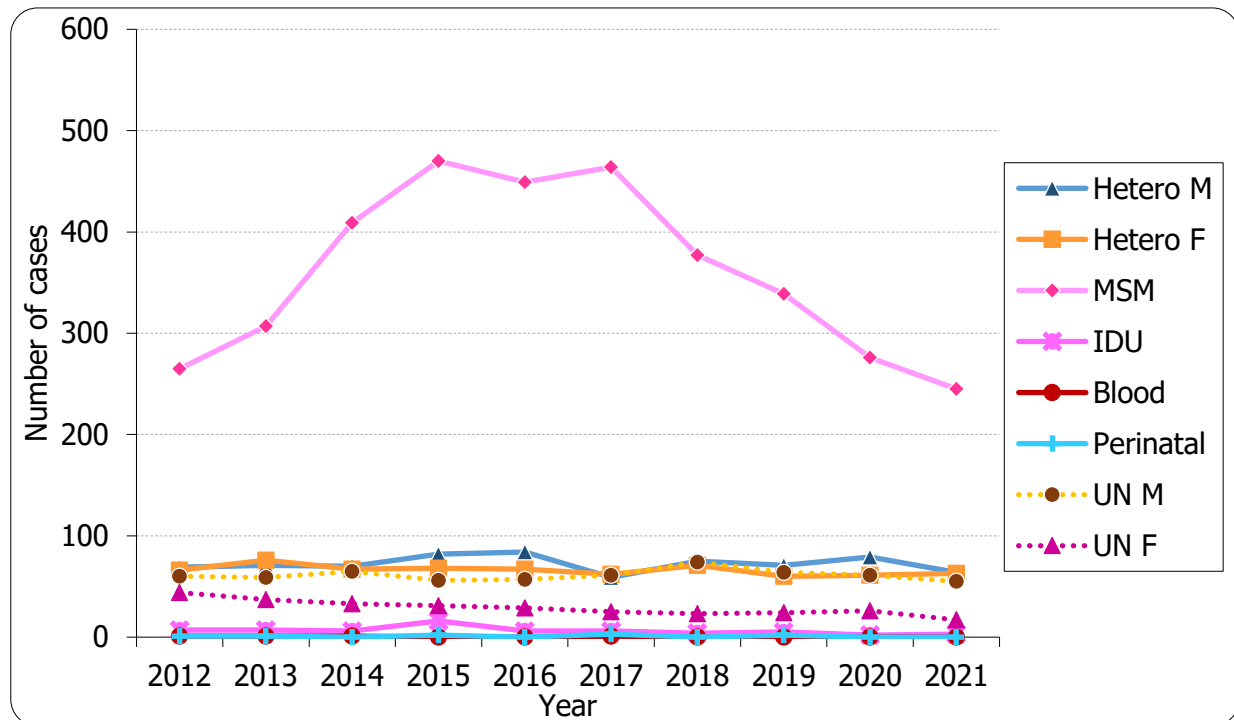
New HIV infection among ethnic minorities warrants attention

- 25.** Non-Chinese population constituted a certain proportion (21.0% in 2021) of newly reported HIV cases. In 2021, Asian non-Chinese accounted for 15.0% of reports (67 cases) (Box 2.3(a)). This was disproportionately higher than the 8.4% of ethnic minorities (EM) among the Hong Kong population and about half of the EM cases were Asian (non-Chinese) ethnicities. Among the 67 Asian non-Chinese new HIV cases, 34 were females and 33 were males. Around 79.1% of them acquired the virus through sexual transmission, including heterosexual (58.2%), homosexual (16.4%) and bisexual exposure (4.5%), while injecting drug use accounted for 3.0%. The remaining 17.9% of cases were undetermined route of transmission. Different from the Chinese population, the dominant route of transmission was heterosexual instead of homosexual. More cases were recorded among Indonesians, Filipinos, Indians and Thais.
- 26.** A community-based sexual behavioural survey targeting local Filipinos and Indonesians was conducted in 2019. The results were summarised in a factsheet uploaded in <https://www.aids.gov.hk>. Key observations included the low condom use rates in last sex, irrespective of the kind of sexual partners for both group of respondents, especially for commercial sex partners (29.4% in Filipinos and 13.0% in Indonesians), as well as the low HIV testing rates with only 40.9% of Filipino and 27.5% of Indonesian respondents had ever tested for HIV. The survey also revealed that there was a general lack of HIV-related knowledge among ethnic minority participants and the perceived high cost of HIV testing hindered them to perform the test. The survey provided useful information to guide planning and implementing targeted health prevention programmes for this at-risk populations.

Reconstruction of risk factor for cases without reported route of transmission

- 27.** As the voluntary 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 doctors / NGOs. Incomplete data without a reported risk factor may skew the local epidemic picture. In 2021, 16.1% of the infected cases did not have a suspected route of transmission reported, as compared to around 17.2% in 2020 (Box 2.5(a)). A systematic reconstruction method proposed by Dr. Tim Brown, Senior Fellow of the East-West Centre, Honolulu has been 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.
- 28.** Reconstruction was carried out by assigning one suitable route 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 acquired through 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.
- 29.** The original 10-year data on risk factors from 2012 to 2021 was used for the reconstruction (Box 1.7(a)). After the reconstruction, the cases of MSM showed a marked increase up, while the change in heterosexual male appeared to be relatively modest (Box 1.7 (b and c)). Although this method might have oversimplified 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 doctors have also been implemented in the past few years.

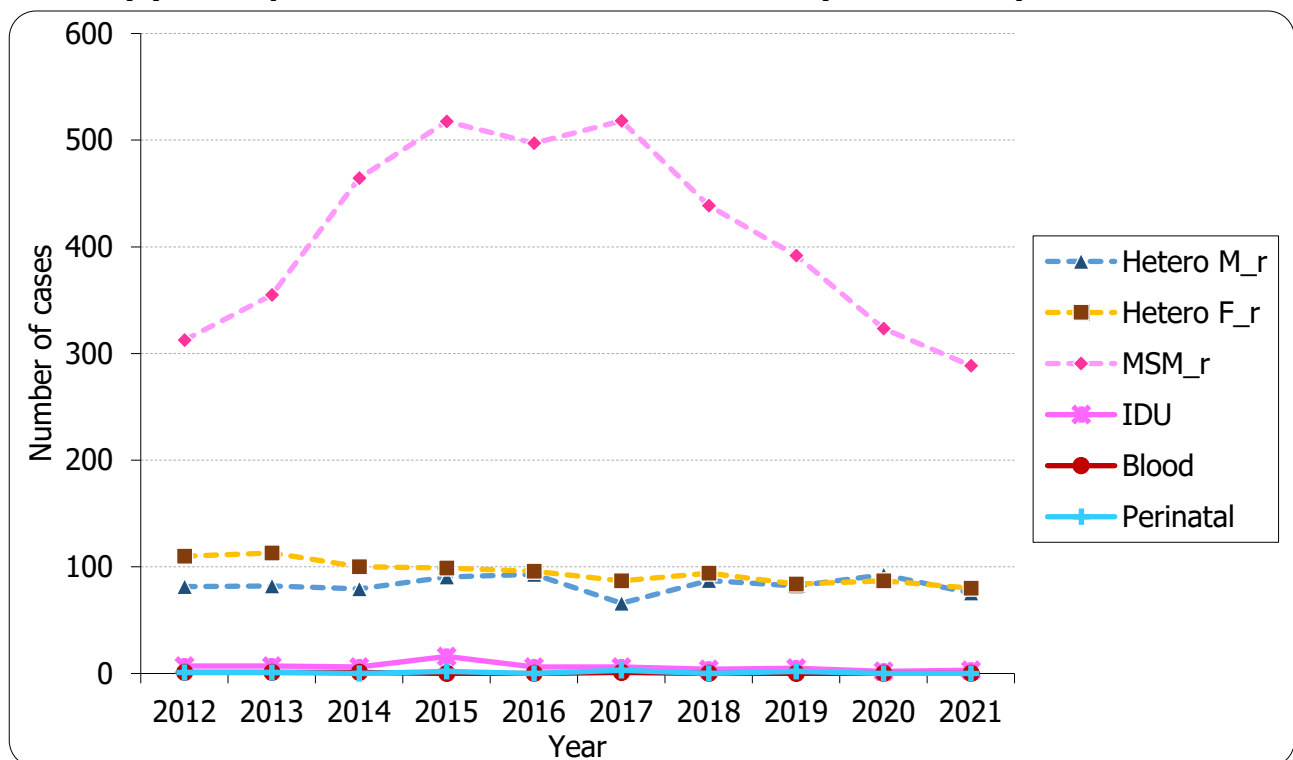
Box 1.7(a) HIV reports before risk factor reconstruction (2012 – 2021)



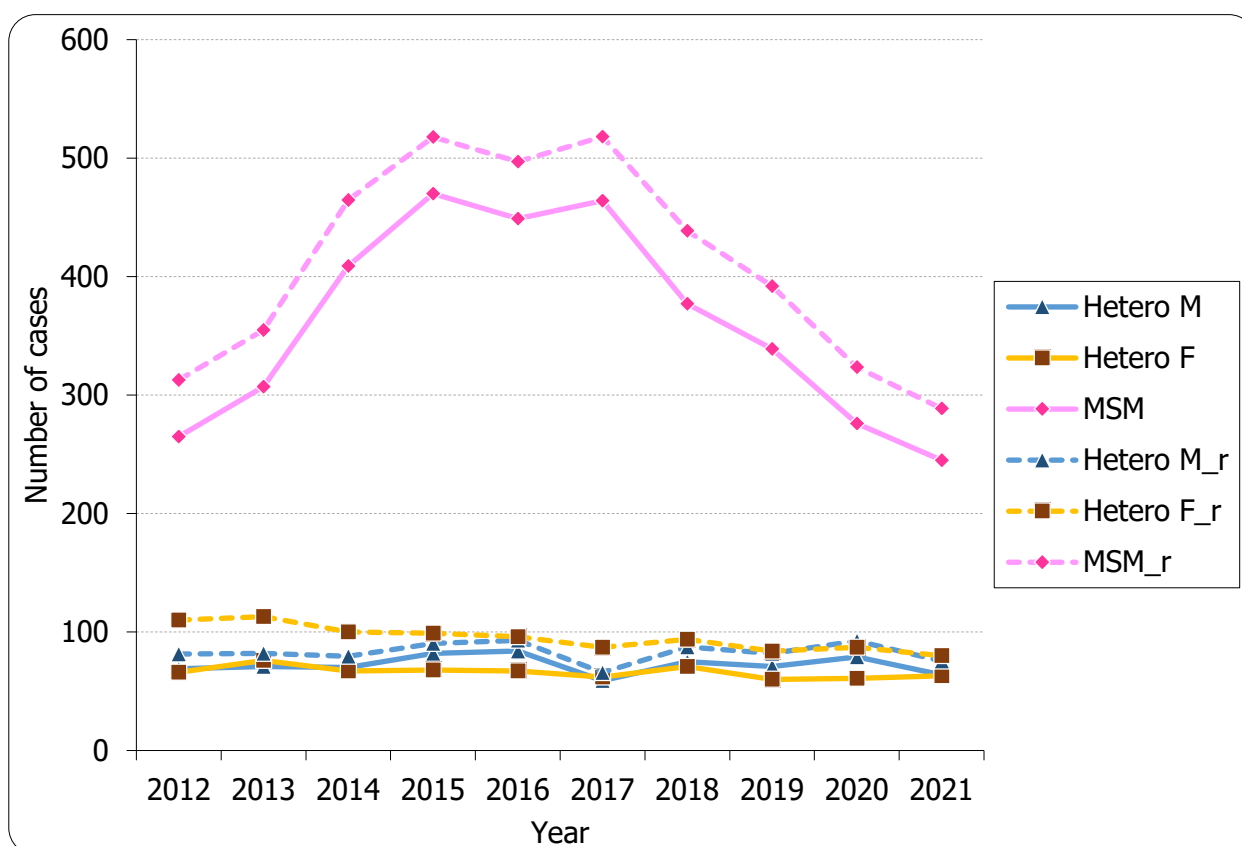
UN M refers to undetermined male

UN F refers to undetermined female

Box 1.7(b) HIV reports after risk factor reconstruction (2012 – 2021)



Box 1.7(c) HIV reports before and after risk factor reconstruction in MSM, heterosexual male and heterosexual female cases (2012 – 2021)



Hetero M_r refers to heterosexual male after risk factor reconstruction

Hetero F_r refers to heterosexual female after risk factor reconstruction

MSM_r refers to men who have sex with men after risk factor reconstruction

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

30. The HIV/AIDS Report Form (DH2293) was revised in 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. For MSM, 245 cases were reported in 2021, and data of the HIV/AIDS Report Form was available in 245 cases, of which only 80 cases (32.7%) had the data on previously negative HIV results. For heterosexuals, 127 cases were reported in 2021, and data of the HIV/AIDS Report Form was available in 125 cases, of which only 20 cases (16.0%) had the data on previously negative HIV results. This implied that regular testing among HIV patients among both MSM and heterosexuals were uncommon. Among the 80 MSM cases and 20 heterosexual cases, 24 (30.0%) and 3 (15.0%) had previously negative HIV results within one year of the HIV diagnosis respectively, suggesting recent infection within 1 year of the HIV diagnosis. For those whose last negative HIV results were beyond one year of HIV diagnosis, however, it was not possible to judge whether they were recently HIV seroconverted or not, as the observation was limited by the infrequent testing behaviour.

Pneumocystis pneumonia and tuberculosis remained the two commonest primary AIDS defining illnesses

- 31.** The number of AIDS cases has been declining in recent years. It could be attributed to the declining number of HIV infections since a decade ago, of which some of the infections were not diagnosed until they progressed to AIDS in recent years. 90 AIDS cases were reported in 2021, compared with the peak of 139 cases in 2018 (Box 2.5(b)). The vast majority (92.2%) of the AIDS reports in 2021 had their AIDS diagnosis within 3 months of HIV diagnosis, suggesting late presentation of these cases.
- 32.** *Pneumocystis jiroveci* pneumonia (previously known as *Pneumocystis carinii*) was the commonest ADI in Hong Kong in 2021, which accounted for 50.0% (45 cases). This proportion was slightly more comparing to that in 2020 (48.2%). The second most common primary ADI reported in 2021 was *Mycobacterium tuberculosis* which accounted for 16.7% of the reported AIDS cases (15 cases). They were followed by other *Penicilliosis* (7.8%), fungal infections (6.7%) and *Cytomegalovirus* diseases (6.7%) (Box 2.8). The universal voluntary testing has replaced unlinked anonymous screening at TB & Chest Clinics since 2009 in informing the HIV prevalence among TB patients. In 2021, the HIV testing coverage in patients attending government TB & Chest Clinics was 93.5% and HIV prevalence was 0.988%, which remained at a low level of less than 1% in the past decade (except 2019, Box 3.9).

The median CD4 of newly reported HIV cases was lower in older patients and those acquired via heterosexual route

- 33.** The median CD4 of newly reported HIV cases at the time of diagnosis in 2021 was 232/ul, with a decreasing trend in recent few years. The proportion with CD4 $\geq$ 200/ul in 2021 was 53.8%, which was found to be lower when comparing to previous few years. Reporting of CD4 level has become a routine practice among doctors, providing useful information on the timing of diagnosis in the course of HIV infection. In 2021, 79.9% of HIV cases had their CD4 level at diagnosis reported, which was similar to the past few years (Box 1.8). The trend of declining median CD4 was noted for both age group - younger than 55 and aged 55 or above with the latter has the same 79/ul in 2020 and 2021. The median CD4 count was much lower than that in the younger group, suggesting that older patients were diagnosed at a relatively late disease stage (Box 1.9). As compared to the new cases among MSM, cases of heterosexual route were generally diagnosed at a later stage as evident by having a lower median CD4 count at diagnosis (Box 1.10). The proportion of recent infection among heterosexual cases was also lower than that of MSM, as suggested by HIV recency assay (such as Limiting Antigen Avidity Enzyme Immunoassay (LAG avidity assay)), having acute HIV infection (i.e. viral RNA is detectable, but anti-HIV antibodies have not yet developed) or having a negative HIV antibody test within 1 year (Box 1.11).

Box 1.8 Reported CD4 levels at HIV diagnosis

Year	Number of HIV reports	Number of CD4 reports (%*)	Median CD4 (cell/ul)	CD4 ≥ 200 (cell/ul) (%#)
2012	513	388 (75.6%)	279	251 (64.7%)
2013	559	449 (80.3%)	284	288 (64.1%)
2014	651	524 (80.5%)	319.5	375 (71.6%)
2015	725	602 (83.0%)	298	417 (69.3%)
2016	692	564 (81.5%)	283.5	374 (66.3%)
2017	681	577 (84.7%)	286	373 (64.6%)
2018	624	496 (79.5%)	261.5	299 (60.3%)
2019	565	456 (80.7%)	272.5	275 (60.3%)
2020	505	394 (78.0%)	256.5	229 (58.1%)
2021	447	357 (79.9%)	232	192 (53.8%)

* Percentage of HIV reports with CD4 levels available

Percentage of reports with CD4 ≥ 200 among the HIV reports with CD4 levels available

Box 1.9 CD4 Reports by age group ^

Age	Year	Number of HIV reports	Number of CD4 reports (%*)	Median CD4 (cell/ul)	CD4 ≥ 200 (cell/ul) (%#)
< 55	2012	463	347 (74.9%)	300	231 (66.6%)
	2013	501	398 (79.4%)	308.5	272 (68.3%)
	2014	596	485 (81.4%)	330	362 (74.6%)
	2015	675	560 (83.0%)	306.5	402 (71.8%)
	2016	616	512 (83.1%)	292	353 (68.9%)
	2017	614	527 (85.8%)	301	351 (66.6%)
	2018	539	440 (81.6%)	273.5	275 (62.5%)
	2019	485	399 (82.3%)	287	256 (64.2%)
	2020	434	344 (79.3%)	276	214 (62.2%)
	2021	362	292 (80.7%)	274	178 (61.0%)
≥ 55	2012	48	41 (85.4%)	193	20 (48.8%)
	2013	58	51 (87.9%)	104	16 (31.4%)
	2014	53	39 (73.6%)	61	13 (33.3%)
	2015	48	42 (87.5%)	127	15 (35.7%)
	2016	68	52 (76.5%)	109	21 (40.4%)
	2017	61	50 (82.0%)	177.5	22 (44.0%)
	2018	81	56 (69.1%)	168.5	24 (42.9%)
	2019	77	57 (74.0%)	115	19 (33.3%)
	2020	66	50 (75.8%)	79	15 (30.0%)
	2021	83	65 (78.3%)	79	14 (21.5%)

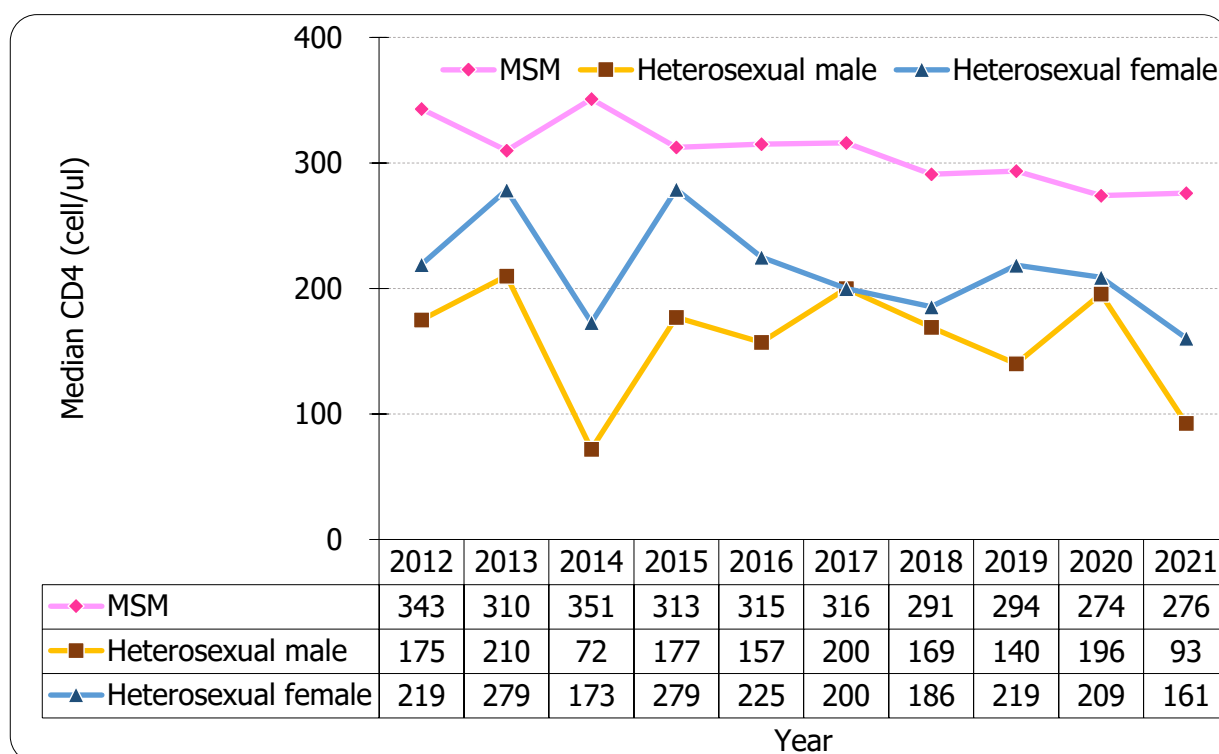
* Percentage of HIV reports with CD4 levels available

Percentage of reports with CD4 ≥ 200 among the HIV reports with CD4 levels available

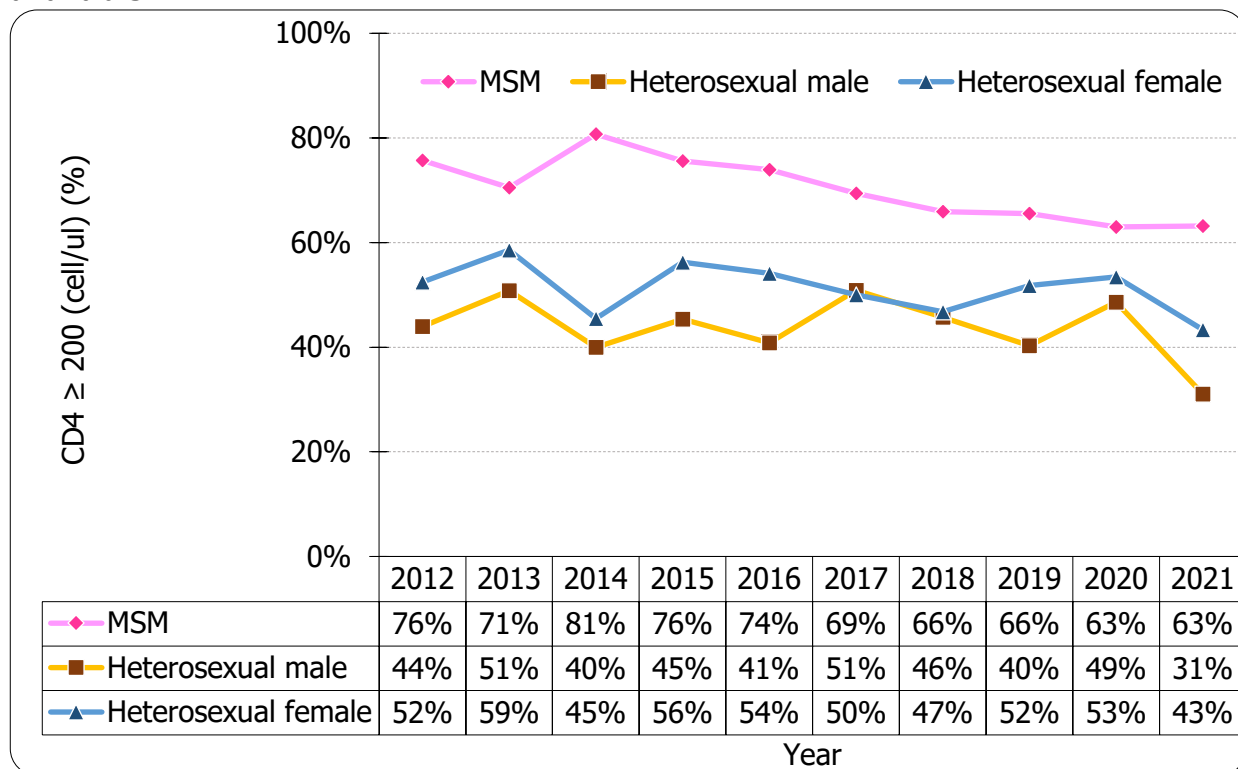
^ There may be a slight discrepancy between the sum of individual reports in Box 1.9 and the figures showed in Box 1.8 because of unknown age.

Box 1.10 CD4 Reports by route of transmission (2012 – 2021)

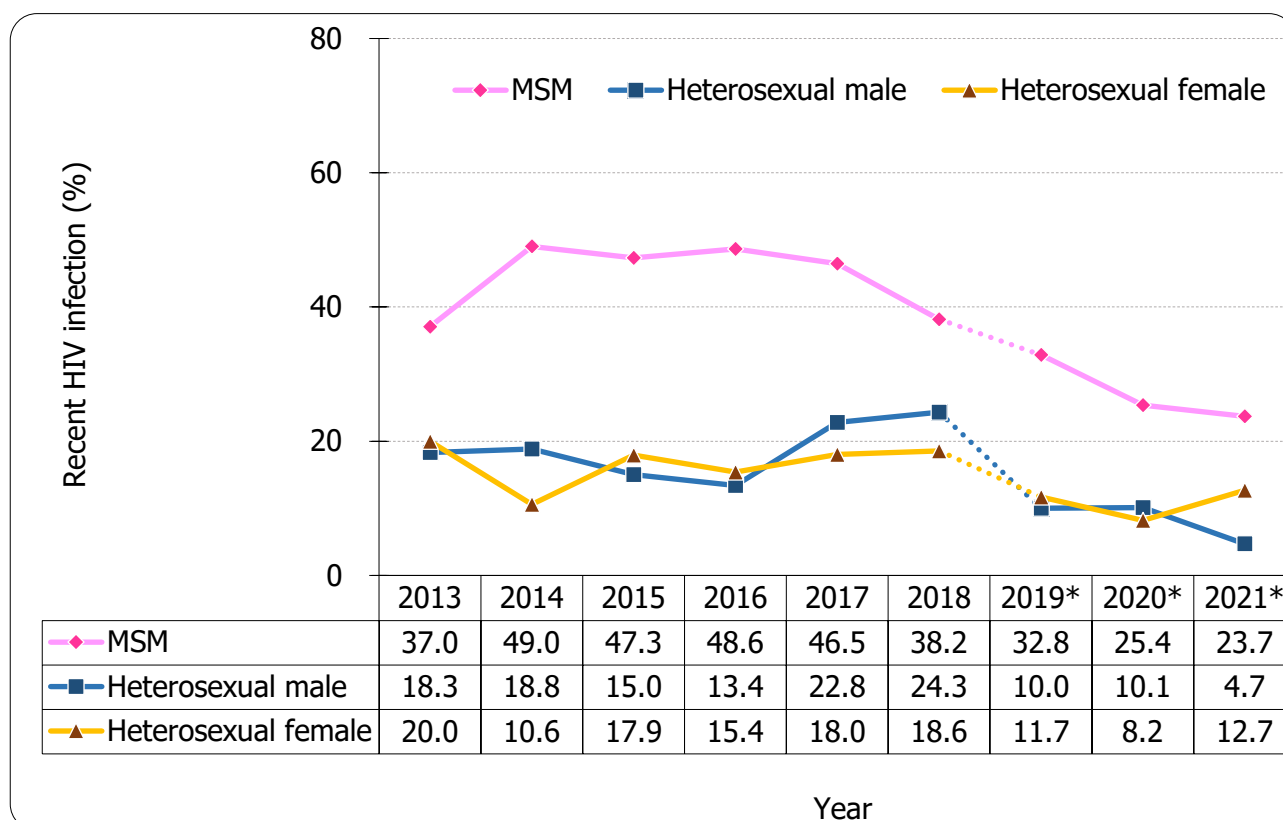
(a) Median CD4



(b) Percentage of reports with CD4 ≥ 200 among the HIV reports with CD4 levels available



Box 1.11 Recent HIV infections by route of transmission (2013 – 2021)



* Since 2019, BED assay was replaced by LAg avidity assay which was generally more specific in detecting recent infection.

The two commonest HIV-1 subtypes were CRF01 AE and B, but genetic diversity continued to increase. The level of drug resistance mutation remained low.

34. In 2021, about 81.4% of HIV reports had their subtypes documented, which had decreased as compared to past years (Box 6.1). Subtypes CRF01_AE and B remained to be the first and second most common subtypes identified among HIV type 1 or PCR positive case in Hong Kong, contributing to 41.8% and 21.4% of all cases with identified subtype in 2021 respectively, accounted for 63.2% of all HIV cases with subtype documented (Box 6.2). While CRF01_AE predominated in the past decade, a trend of increasing diversity in other subtypes and circulating recombinant forms was noted, in particular since 2009 (Box 6.3). Notably, the proportion of subtype CRF07_BC has increased from 4.3% in 2009 to 14.0% in 2021 while that subtype CRF08_BC increased from 1.7% to 8.0% respectively.

35. According to the HIV resistance threshold survey conducted since 2003, the prevalence of intermediate or high level drug resistance related mutations in 2020 was 5.1% (Box 6.4). Among those patients with transmitted resistance, resistance to non-nucleoside reverse transcriptase inhibitors (NNRTI) was the most common.

Discussion

- 36.** After a modest drop in 2009 and 2010, the number of newly reported HIV infection has steadily increased over the years, while it began to decline after reaching the peak in 2015. The total number of HIV reports in 2021 was 447, which had decreased by 11.5% as compared to the 505 cases in 2020. The decrease in the number of MSM cases was the major contributing factor for the decrease in the total number of HIV infection reported in 2021. The number of heterosexual transmission cases remained relatively stable and the number of cases among PWID also remained at a relatively low level of 1-15 cases per year in the last decade.
- 37.** The decreasing trend in the number of reports of HIV infection among MSM in recent years was observed and this could be attributed to the rising coverage of treatment exerting its predicted impact on prevention. A higher than known usage of pre-exposure prophylaxis (PrEP) among high risk individuals, as reflected by higher awareness among the community, could also have contributed. Although the number of HIV reports involving **homosexual / bisexual transmission (MSM)** has decreased, it continued to remain high and accounted for the largest proportion of cases with defined risks in 2021 (65.3%). From the data of previous few years, this high level of infection will likely continue in the foreseeable future and play a significant role in the local epidemic. Using the reconstruction methodology described in paragraphs 27 and 28 above, we can readily observe the predominance of infection among MSM. PRISM 2017 showed an HIV prevalence of 6.54%, which was higher than the findings from previous rounds of PRISM (2011) and HARIS (2014). Notwithstanding methodological differences between surveys, these figures highlight the existence of a concentrated HIV epidemic among gay and bisexual men in Hong Kong with the majority of the MSM cases (78.4%) were infected locally in 2021. The median age of MSM cases remained to lie within the range of 31-40, signifying the importance of HIV prevention and publicity targeting the young population.
- 38. Heterosexual transmission** remained relatively stable over the past few years and its proportion among the yearly new HIV infections has shown a general upward trend (17.8% in 2017; 28.4% in 2021) in tandem with the decreasing proportion of MSM. In 2021, the proportion of female rise slightly from 43.6% in 2020 to 49.6% in 2021. The HIV prevalence in Social Hygiene Clinic attendees and antenatal women remained at a relatively low level in the past decade and was 0.377% and 0.0258% in 2021 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 infected via the heterosexual route. In addition, EM accounted for around 36.2% of heterosexual cases. Of which, non-Chinese females accounted for 49.2% of heterosexual female cases; while non-Chinese males only accounted for 23.4% of heterosexual male cases. The situation of heterosexual transmission among EM needs continual monitoring.
- 39.** The number of cases acquiring HIV via **injecting drug use** has remained stable. Despite that, the proportion of injection and risky needle-sharing behaviour among drug users as gauged from several surveys remained at a high level, which continued to pose a potential risk of cluster outbreak and rapid upsurge of infection in the population. It was observed from the Street Addict Survey 2021 (SAS 2021) that 18.8% of PWIDs had shared injection equipment in the

past one month prior to the survey, and 2.9% had shared injection equipment with people outside their usual network in the past one month prior to the survey. Remedial strategies to enhance HIV testing are underway, which will be evaluated periodically.

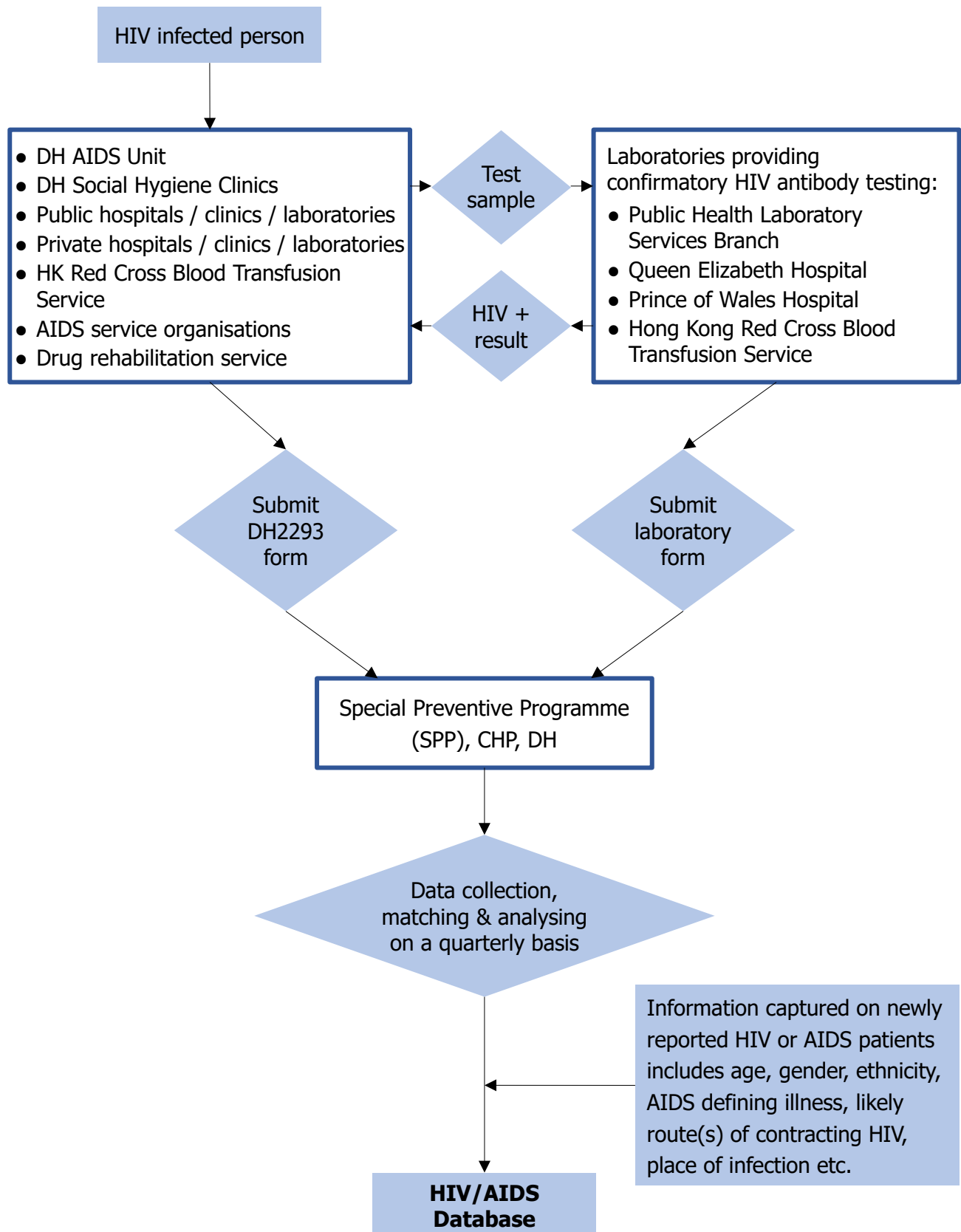
40. Regarding the HIV infections among **ethnic minorities**, the decrease in non-Chinese HIV cases in 2021 as compared to that of 2020 could be attributed to the international travel ban in the time of COVID-19, which sustained throughout 2021. As most people with (known) HIV followed up elsewhere might have already entered the local health system shortly after the start of the ban, the cases that were reported in 2021 were likely to result from local infection. Among the 67 Asian non-Chinese in 2021, 10 of them (14.9%) had HIV diagnosed outside Hong Kong, which was decrease compared to 18.3% in 2020. In addition, health promotion targeting ethnic minorities in 2021 by the Red Ribbon Centre (RRC) might increase their awareness to perform HIV testing. The overall trend should be closely monitored.
41. In spite of the ongoing COVID-19 pandemic in 2021, the testing services by ACTS and AIDS NGOs had mostly resumed. In 2021, there was an increase of 29.1% and 36.8% of HIV rapid tests done at ACTS and AIDS NGOs respectively, when compared to 2020. Hence, the decrease in reported HIV cases in 2021 may reflect the true status of the population. Nevertheless, with the gradual resumption of social activities and relaxing of social distancing measures in 2022, the authority and all service providers should be continue to watch for the changing landscape of HIV prevention and control while the COVID-19 pandemic is ongoing. Close monitoring of the accessibility of testing and treatment services is warranted, with continued surveillance of data for evaluating the HIV responses.
42. In conclusion, new HIV infections has dropped for the sixth consecutive year from the peak in 2015. Similar to the situation in many developed countries and neighboring areas, MSM infection particularly affecting the young population continued to dominate the HIV epidemic in Hong Kong. The situation of heterosexual population and PWID population has been relatively stable in recent few years. However, significant levels of risk behavior exist in the at risk populations. Apart from locally acquired infections, infections acquired outside Hong Kong could also play an important factor influencing the local HIV epidemiology. To combat the HIV epidemic, continuous and collaborative effort in HIV prevention is essential.

2. TABULATED RESULTS OF VOLUNTARY HIV/AIDS CASE-BASED REPORTING SYSTEM

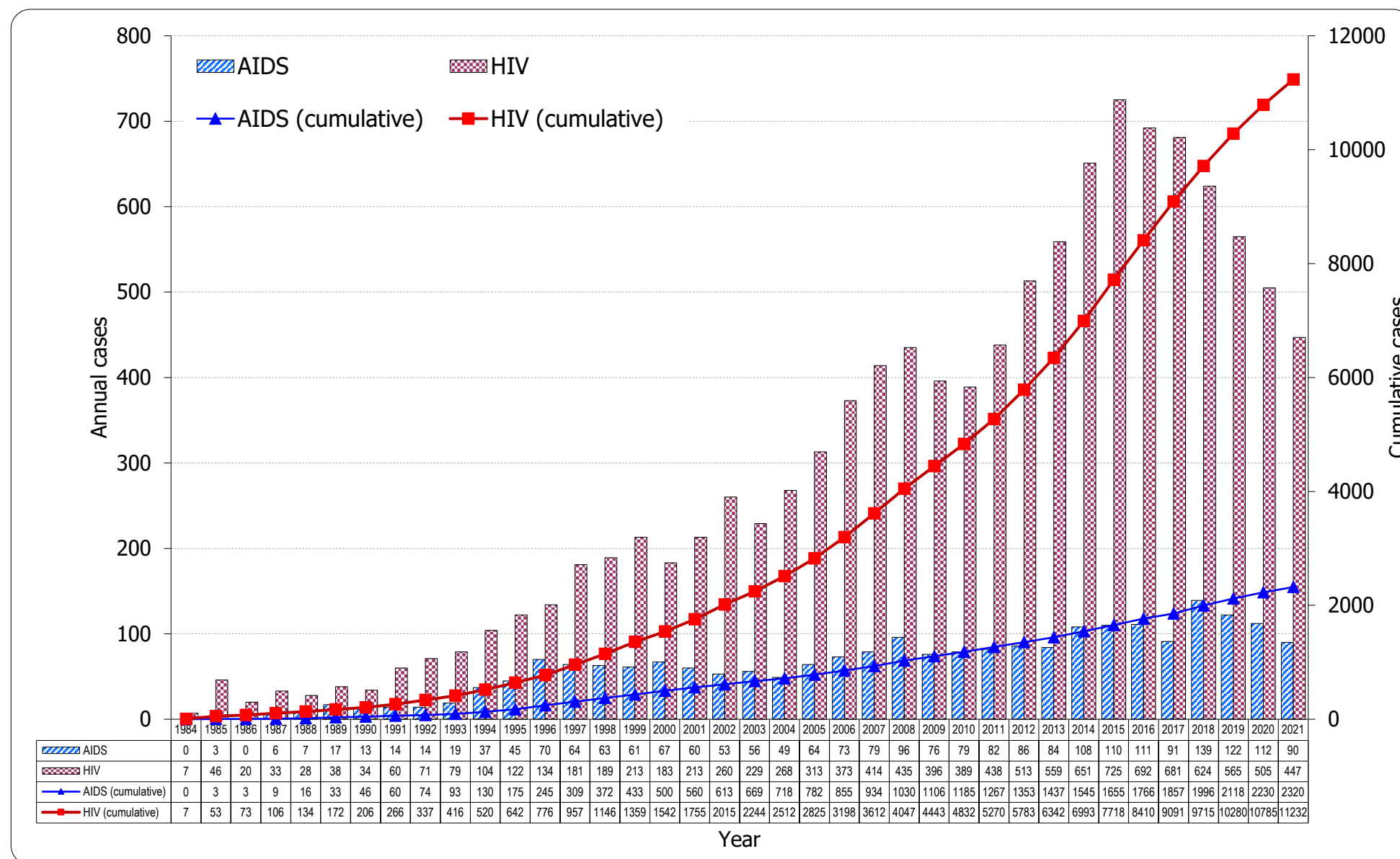
System description

- The voluntary HIV/AIDS case-based reporting system is a case-based notification system conducted on a voluntary, anonymous and confidential basis since 1984, with input from physicians, NGOs and laboratories.

System layout



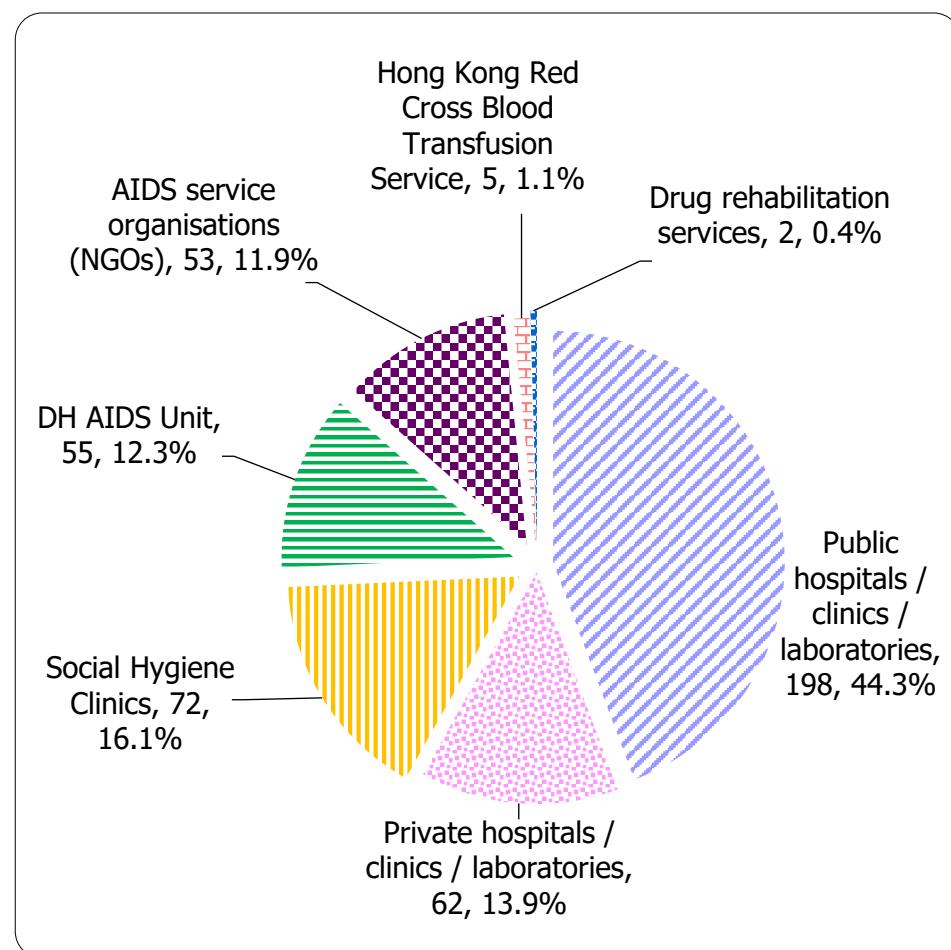
Box 2.1 Annual and cumulative reports of HIV/AIDS cases



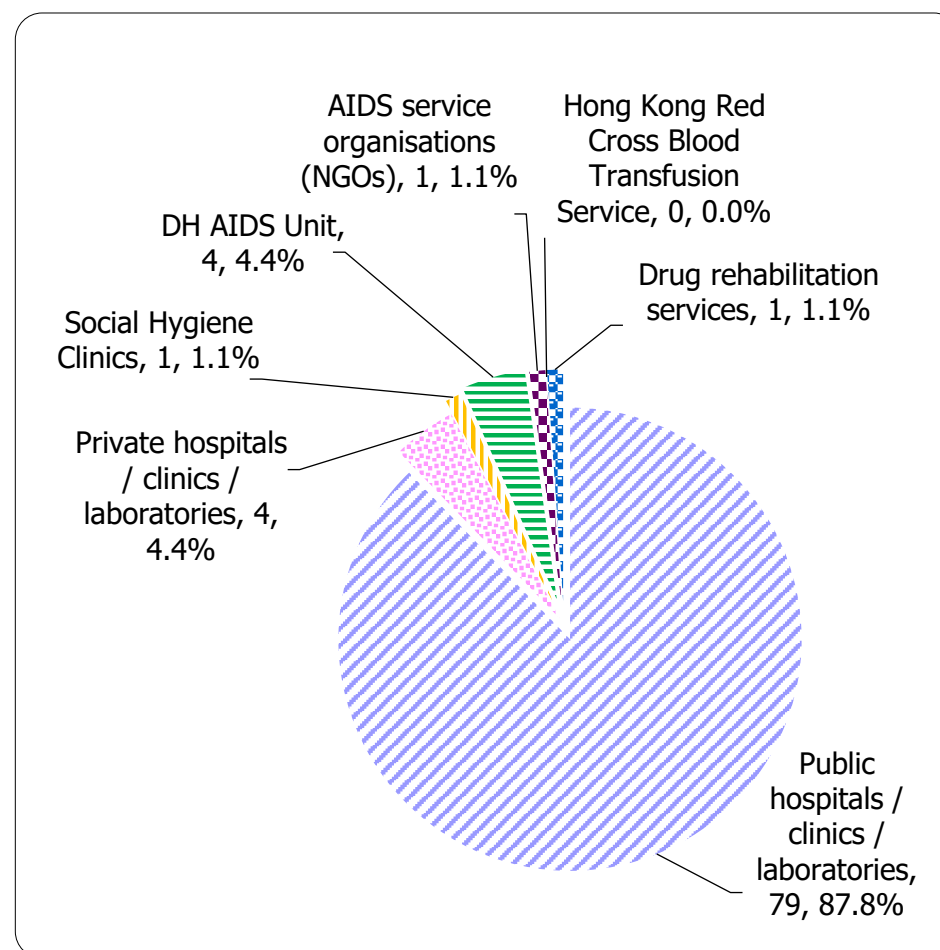
Box 2.2 Source of reporting of HIV/AIDS cases

(a) Year 2021

(i) HIV

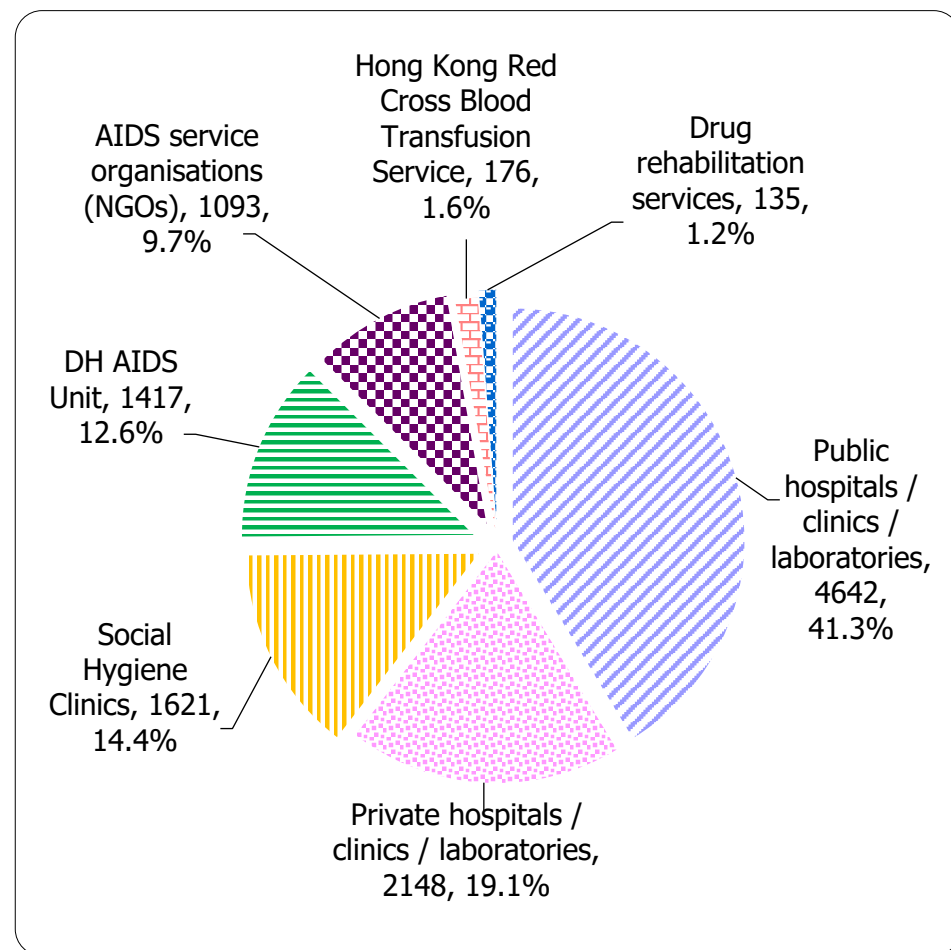


(ii) AIDS

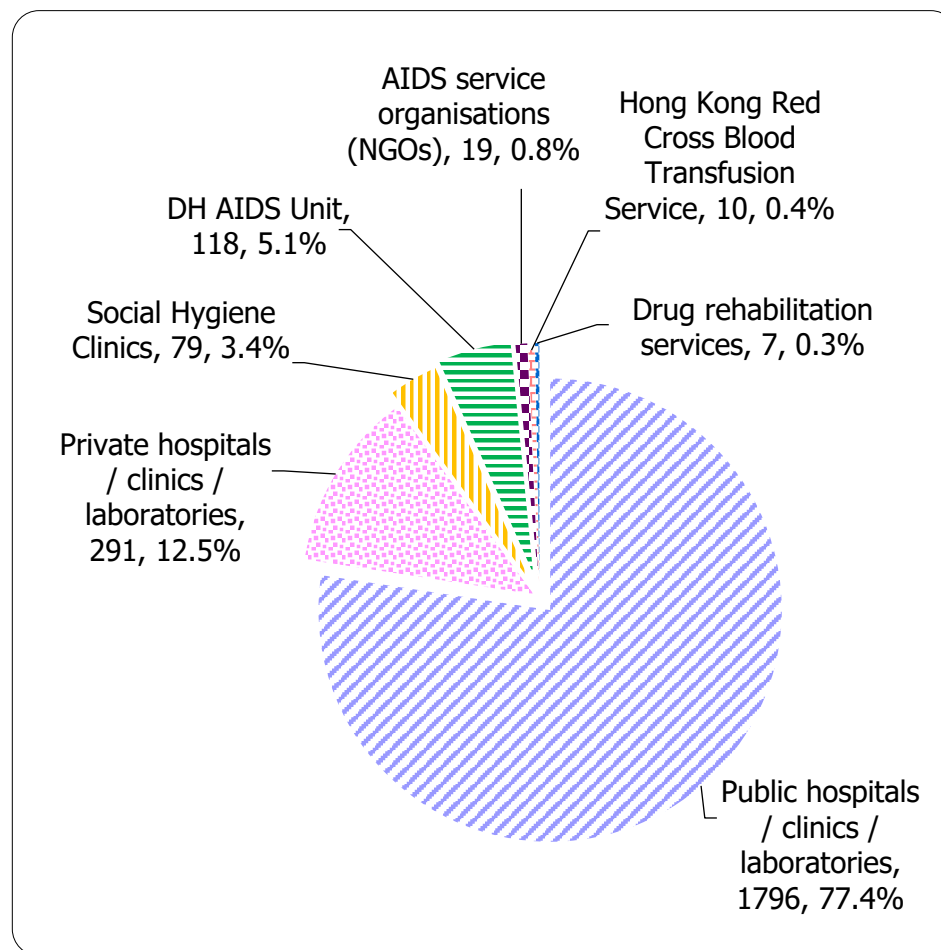


(b) Cumulative (1984 – 2021)

(i) HIV



(ii) AIDS



Box 2.3 Ethnicity & gender of reported HIV/AIDS cases

(a) Year 2021

Ethnicity	HIV						AIDS					
	Male		Female		Total		Male		Female		Total	
Chinese	285	(77.7%)	35	(43.8%)	320	(71.6%)	65	(85.5%)	6	(42.9%)	71	(78.9%)
Non-Chinese	57	(15.5%)	37	(46.3%)	94	(21.0%)	11	(14.5%)	8	(57.1%)	19	(21.1%)
<i>Asian</i>	<i>33</i>	<i>(9.0%)</i>	<i>34</i>	<i>(42.5%)</i>	<i>67</i>	<i>(15.0%)</i>	<i>9</i>	<i>(11.8%)</i>	<i>8</i>	<i>(57.1%)</i>	<i>17</i>	<i>(18.9%)</i>
<i>White</i>	<i>18</i>	<i>(4.9%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>18</i>	<i>(4.0%)</i>	<i>2</i>	<i>(2.6%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>2</i>	<i>(2.2%)</i>
<i>Black</i>	<i>4</i>	<i>(1.1%)</i>	<i>2</i>	<i>(2.5%)</i>	<i>6</i>	<i>(1.3%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>0</i>	<i>(0.0%)</i>
<i>Others</i>	<i>2</i>	<i>(0.5%)</i>	<i>1</i>	<i>(1.3%)</i>	<i>3</i>	<i>(0.7%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>0</i>	<i>(0.0%)</i>	<i>0</i>	<i>(0.0%)</i>
Unknown	25	(6.8%)	8	(10.0%)	33	(7.4%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Total	367	(100%)	80	(100%)	447	(100%)	76	(100%)	14	(100%)	90	(100%)

(b) Cumulative (1984 – 2021)

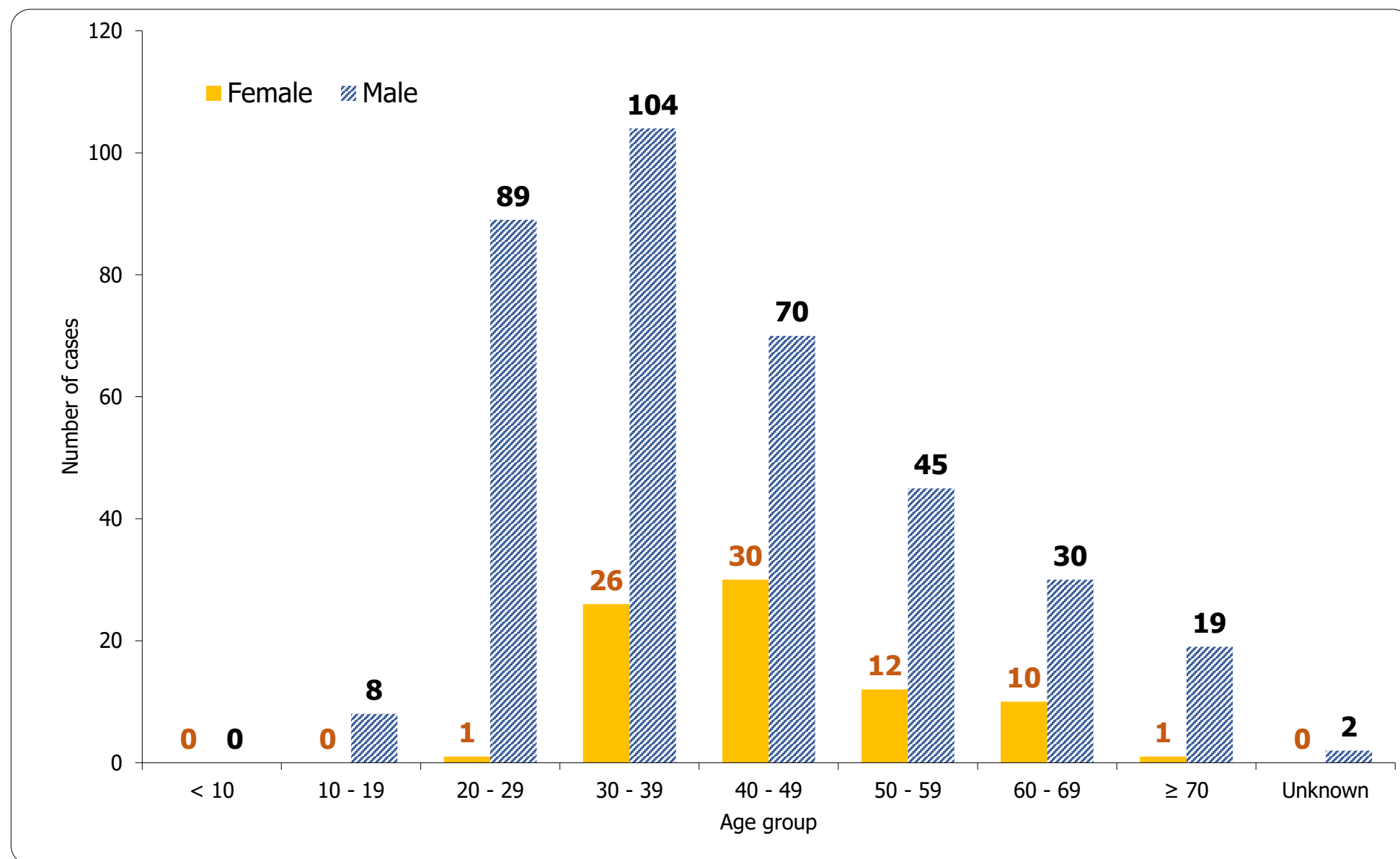
Ethnicity	HIV			AIDS		
	Male	Female	Total	Male	Female	Total
Chinese	7,062 (76.8%)	770 (37.9%)	7,832 (69.7%)	1,610 (83.7%)	182 (46.0%)	1,792 (77.2%)
Non-Chinese	1,867 (20.3%)	1,213 (59.7%)	3,080 (27.4%)	314 (16.3%)	214 (54.0%)	528 (22.8%)
<i>Asian</i>	<i>866 (9.4%)</i>	<i>716 (35.2%)</i>	<i>1,582 (14.1%)</i>	<i>181 (9.4%)</i>	<i>190 (48.0%)</i>	<i>371 (16.0%)</i>
<i>White</i>	<i>622 (6.8%)</i>	<i>26 (1.3%)</i>	<i>648 (5.8%)</i>	<i>100 (5.2%)</i>	<i>3 (0.8%)</i>	<i>103 (4.4%)</i>
<i>Black</i>	<i>137 (1.5%)</i>	<i>129 (6.3%)</i>	<i>266 (2.4%)</i>	<i>27 (1.4%)</i>	<i>18 (4.5%)</i>	<i>45 (1.9%)</i>
<i>Others</i>	<i>242 (2.6%)</i>	<i>342 (16.8%)</i>	<i>584 (5.2%)</i>	<i>6 (0.3%)</i>	<i>3 (0.8%)</i>	<i>9 (0.4%)</i>
Unknown	271 (2.9%)	49 (2.4%)	320 (2.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	9,200 (100%)	2,032 (100%)	11,232 (100%)	1,924 (100%)	396 (100%)	2,320 (100%)

Box 2.4 Age distribution of reported HIV/AIDS cases

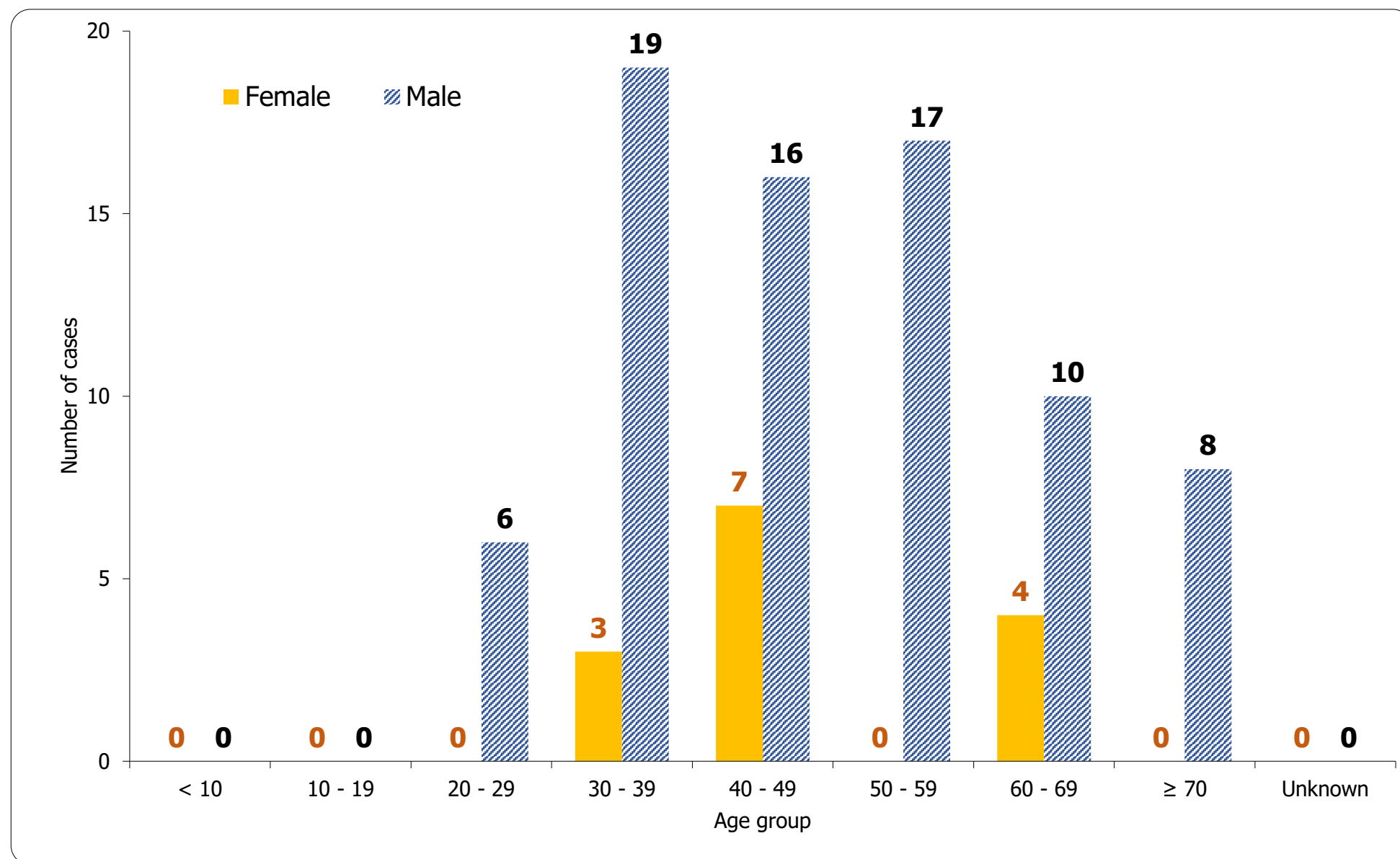
(a) Median age of reported HIV/AIDS cases

Year	HIV			AIDS		
	Median age	Interquartile range		Median age	Interquartile range	
		25%	75%		25%	75%
2002	36	30	44	41	34	48
2003	36	31	45	39	35	49.25
2004	36	30	44	42	35	51
2005	36	30	44	40	33.75	47.25
2006	34	28	42	38	31	47
2007	34	29	41	41	34	50.5
2008	36	29	45	41	34	54
2009	36	29	44	41	34	51
2010	36	30	44	42	37	53
2011	37	30	47	41	34	48.75
2012	36	29	44	42	36	49
2013	36	29	44	43.5	36	49.25
2014	34	26	43	47	38	54.5
2015	34	27	43	41.5	33	52
2016	35	28	46	44	35	52
2017	35	27	44	41	35	49.5
2018	36	28	46.25	43	35	52.5
2019	38	29	48	46	37	55
2020	37	29	48	43.5	34	52.5
2021	39	31	51	46	37	58.75
Cumulative (1984 – 2021)	36	29	44	41	34	51

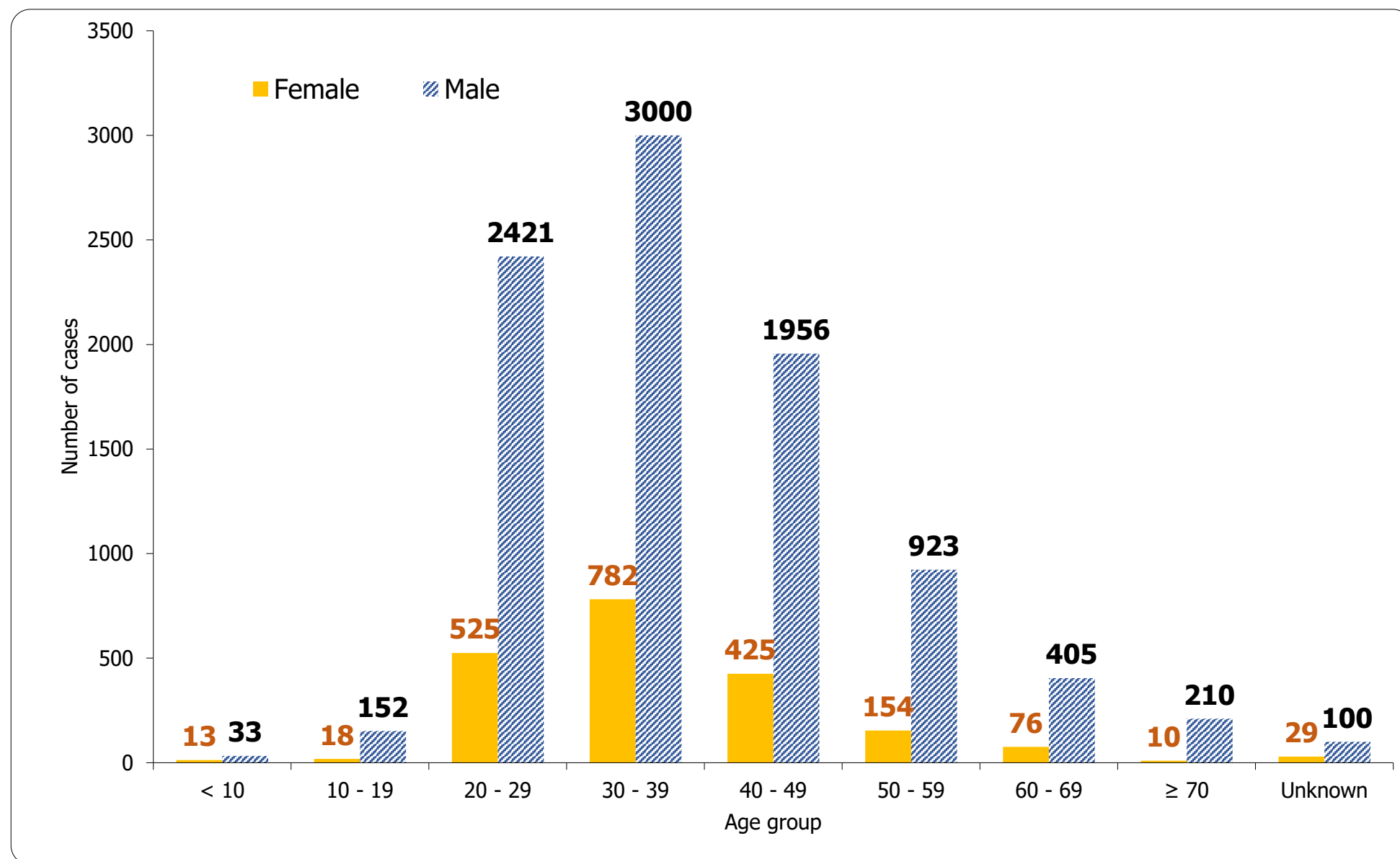
(b) Age & gender of reported HIV cases (Year 2021)



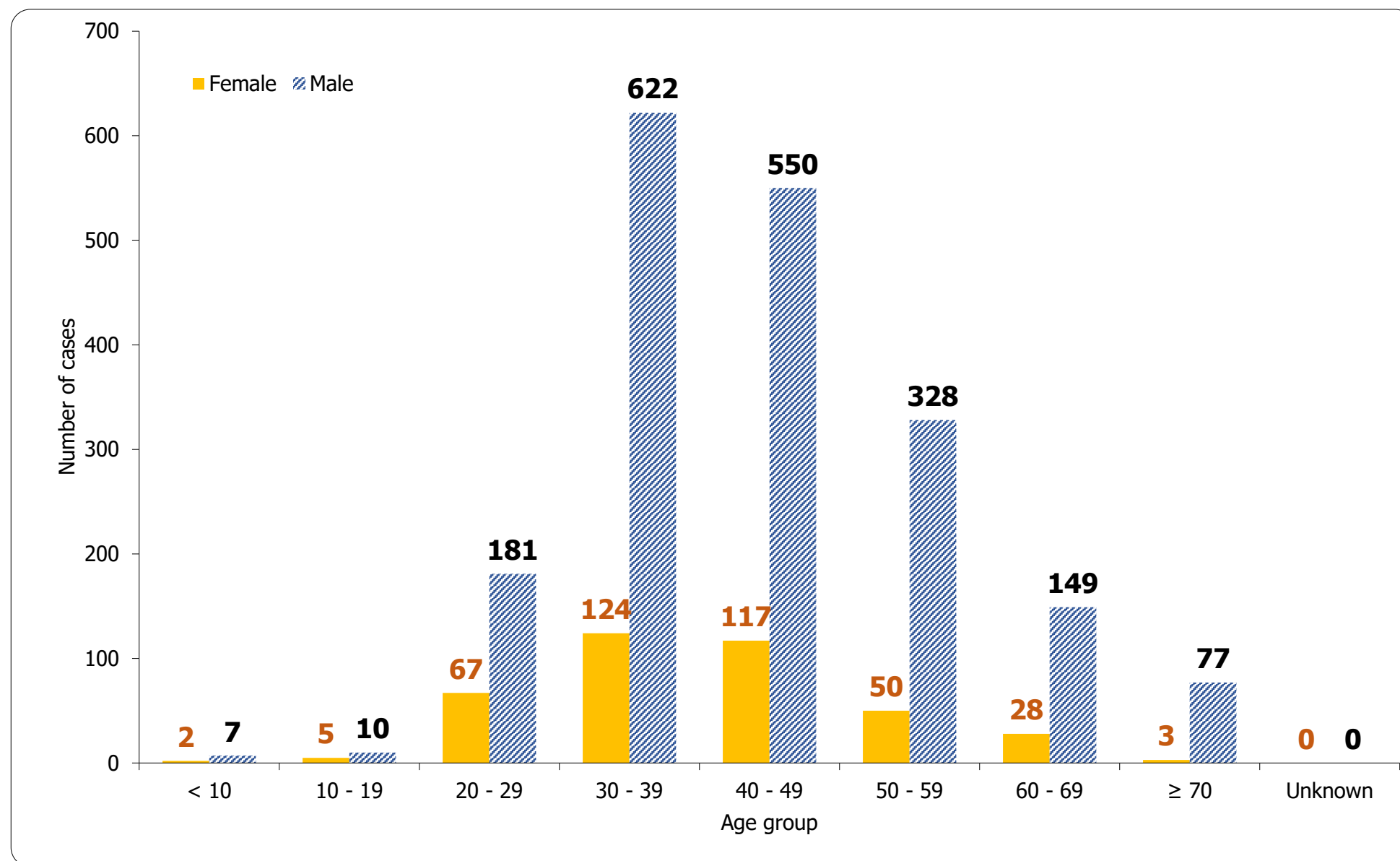
(c) Age & gender of reported AIDS cases (Year 2021)



(d) Age & gender of reported HIV cases (cumulative, 1984 – 2021)



(e) Age & gender of reported AIDS cases (cumulative, 1985 – 2021)



(f) Adults & children with reported HIV/AIDS in 2021

Age	HIV			AIDS		
	Male	Female	Total	Male	Female	Total
Adult	367	80	447	76	14	90
Children (age ≤ 13)	0	0	0	0	0	0
Total	367	80	447	76	14	90

Box 2.5 Exposure category of reported HIV/AIDS case

(a) Distribution of reported HIV cases by exposure category (2002 – 2021)

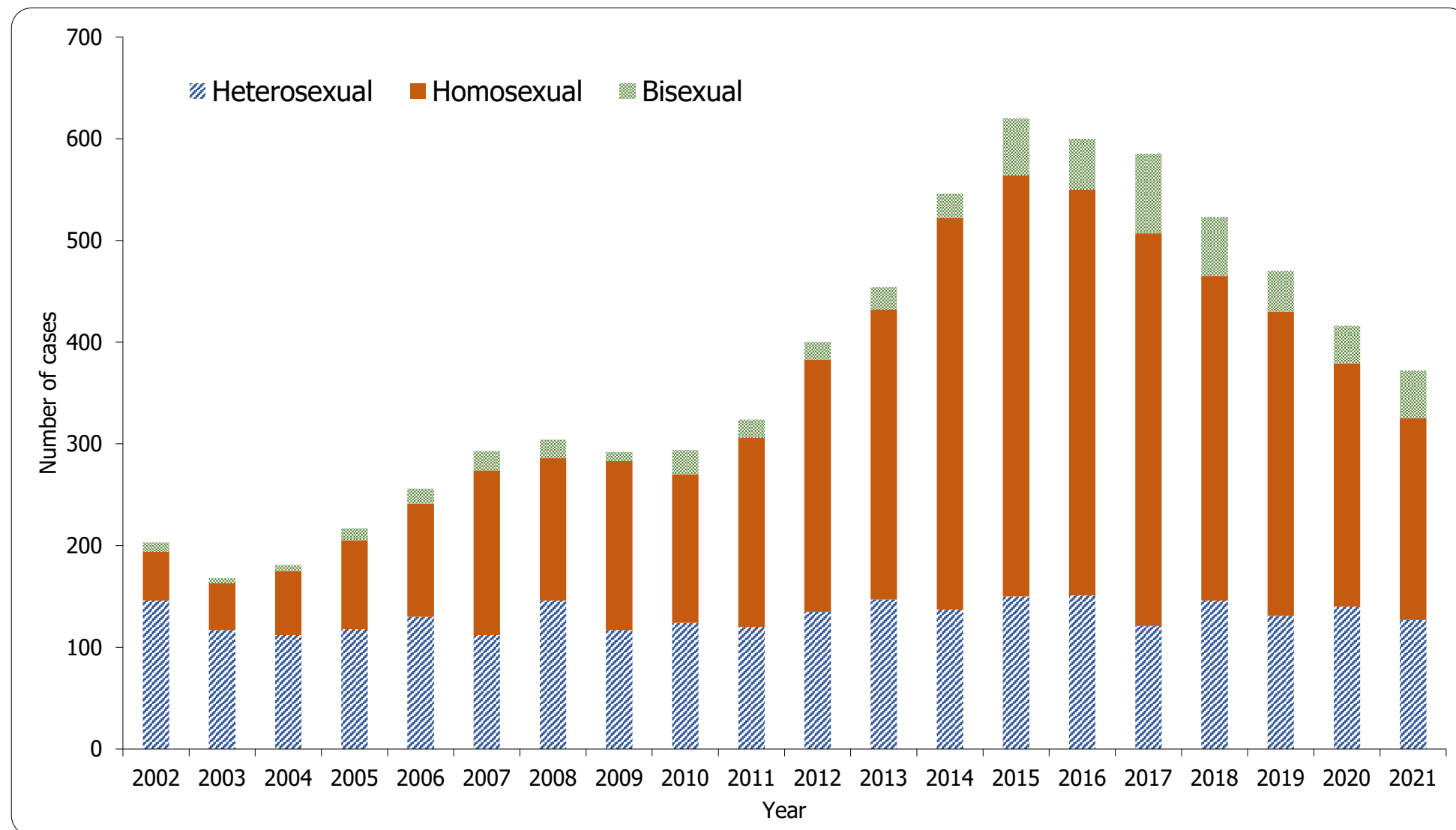
Exposure Category (%) \ Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Cumulative (1984 – 2021)
Heterosexual	146 (56.2%)	117 (51.1%)	112 (41.8%)	118 (37.7%)	130 (34.9%)	112 (27.1%)	146 (33.6%)	117 (29.5%)	124 (31.9%)	120 (27.4%)	135 (26.3%)	147 (26.3%)	137 (21.0%)	150 (20.7%)	151 (21.8%)	121 (17.8%)	146 (23.4%)	131 (23.2%)	140 (27.7%)	127 (28.4%)	3,636 (32.4%)
Homosexual	48 (18.5%)	46 (20.1%)	63 (23.5%)	87 (27.8%)	111 (29.8%)	162 (39.1%)	140 (32.2%)	166 (41.9%)	146 (37.5%)	186 (42.5%)	248 (48.3%)	285 (51.0%)	385 (59.1%)	414 (57.1%)	399 (57.7%)	386 (56.7%)	319 (51.1%)	299 (52.9%)	239 (47.3%)	198 (44.3%)	4,668 (41.6%)
Bisexual	9 (3.5%)	5 (2.2%)	6 (2.2%)	12 (3.8%)	15 (4.0%)	19 (4.6%)	18 (4.1%)	9 (2.3%)	24 (6.2%)	18 (4.1%)	17 (3.3%)	22 (3.9%)	24 (3.7%)	56 (7.7%)	50 (7.2%)	78 (11.5%)	58 (9.3%)	40 (7.1%)	37 (7.3%)	47 (10.5%)	650 (5.8%)
Injecting drug use	10 (3.8%)	11 (4.8%)	25 (9.3%)	31 (9.9%)	58 (15.5%)	44 (10.6%)	42 (9.7%)	15 (3.8%)	17 (4.4%)	14 (3.2%)	7 (1.4%)	7 (1.3%)	6 (0.9%)	16 (2.2%)	6 (0.9%)	6 (0.9%)	4 (0.6%)	5 (0.9%)	2 (0.4%)	3 (0.7%)	373 (3.3%)
Blood contact	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (1.3%)	0 (0.0%)	2 (0.5%)	3 (0.7%)	1 (0.3%)	0 (0.0%)	2 (0.5%)	1 (0.2%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	85 (0.8%)
Perinatal	1 (0.4%)	0 (0.0%)	0 (0.0%)	2 (0.6%)	2 (0.5%)	1 (0.2%)	0 (0.0%)	3 (0.8%)	3 (0.8%)	0 (0.0%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	2 (0.3%)	0 (0.0%)	3 (0.4%)	0 (0.0%)	2 (0.4%)	0 (0.0%)	0 (0.0%)	35 (0.3%)
Undetermined	46 (17.7%)	50 (21.8%)	62 (23.1%)	59 (18.8%)	57 (15.3%)	74 (17.9%)	86 (19.8%)	85 (21.5%)	75 (19.3%)	98 (22.4%)	104 (20.3%)	96 (17.2%)	98 (15.1%)	87 (12.0%)	86 (12.4%)	86 (12.6%)	97 (15.5%)	88 (15.6%)	87 (17.2%)	72 (16.1%)	1,785 (15.9%)
Total	260 (100%)	229 (100%)	268 (100%)	313 (100%)	373 (100%)	414 (100%)	435 (100%)	396 (100%)	389 (100%)	438 (100%)	513 (100%)	559 (100%)	651 (100%)	725 (100%)	692 (100%)	681 (100%)	624 (100%)	565 (100%)	505 (100%)	447 (100%)	11,232 (100%)

(b) Distribution of reported AIDS cases by exposure category (2002 – 2021)

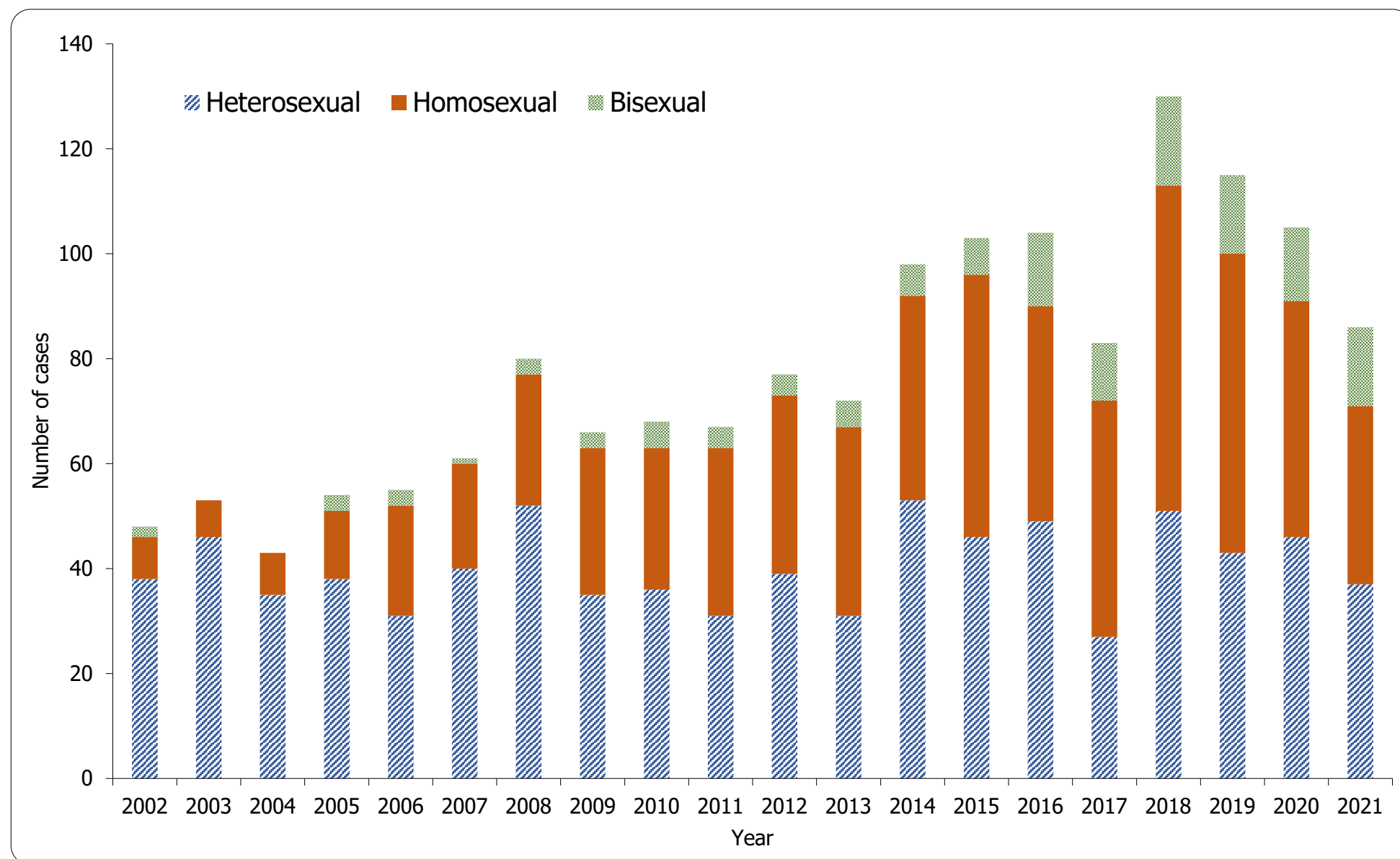
Year Exposure Category (%)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Cumulative (1985 – 2021)
Heterosexual	38 (71.7%)	46 (82.1%)	35 (71.4%)	38 (59.4%)	31 (42.5%)	40 (50.6%)	52 (54.2%)	35 (46.1%)	36 (45.6%)	31 (37.8%)	39 (45.3%)	31 (36.9%)	53 (49.1%)	46 (41.8%)	49 (44.1%)	27 (29.7%)	51 (36.7%)	43 (35.2%)	46 (41.1%)	37 (41.1%)	1,174 (50.6%)
Homosexual	8 (15.1%)	7 (12.5%)	8 (16.3%)	13 (20.3%)	21 (28.8%)	20 (25.3%)	25 (26.0%)	28 (36.8%)	27 (34.2%)	32 (39.0%)	34 (39.5%)	36 (42.9%)	39 (36.1%)	50 (45.5%)	41 (36.9%)	45 (49.5%)	62 (44.6%)	57 (46.7%)	45 (40.2%)	34 (37.8%)	729 (31.4%)
Bisexual	2 (3.8%)	0 (0.0%)	0 (0.0%)	3 (4.7%)	3 (4.1%)	1 (1.3%)	3 (3.1%)	3 (3.9%)	5 (6.3%)	4 (4.9%)	4 (4.7%)	5 (6.0%)	6 (5.6%)	7 (6.4%)	14 (12.6%)	11 (12.1%)	17 (12.2%)	15 (12.3%)	14 (12.5%)	15 (16.7%)	160 (6.9%)
Injecting drug use	1 (1.9%)	0 (0.0%)	3 (6.1%)	1 (1.6%)	11 (15.1%)	9 (11.4%)	9 (9.4%)	2 (2.6%)	3 (3.8%)	5 (6.1%)	2 (2.3%)	4 (4.8%)	2 (1.9%)	2 (1.8%)	1 (0.9%)	2 (2.2%)	1 (0.7%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	68 (2.9%)
Blood contact	0 (0.0%)	1 (1.8%)	0 (0.0%)	1 (1.6%)	0 (0.0%)	1 (1.3%)	2 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	25 (1.1%)
Perinatal	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.8%)	0 (0.0%)	0 (0.0%)	11 (0.5%)
Undetermined	4 (7.5%)	2 (3.6%)	3 (6.1%)	8 (12.5%)	7 (9.6%)	8 (10.1%)	5 (5.2%)	7 (9.2%)	7 (8.9%)	10 (12.2%)	7 (8.1%)	7 (8.3%)	8 (7.4%)	4 (3.6%)	6 (5.4%)	5 (5.5%)	8 (5.8%)	6 (4.9%)	7 (6.3%)	3 (3.3%)	153 (6.6%)
Total	53 (100%)	56 (100%)	49 (100%)	64 (100%)	73 (100%)	79 (100%)	96 (100%)	76 (100%)	79 (100%)	82 (100%)	86 (100%)	84 (100%)	108 (100%)	110 (100%)	111 (100%)	91 (100%)	139 (100%)	122 (100%)	112 (100%)	90 (100%)	2,320 (100%)

Box 2.6 Reported sexually acquired HIV/AIDS cases (2002 – 2021)

(a) Yearly reports of sexually acquired HIV cases



(b) Yearly reports of sexually acquired AIDS cases

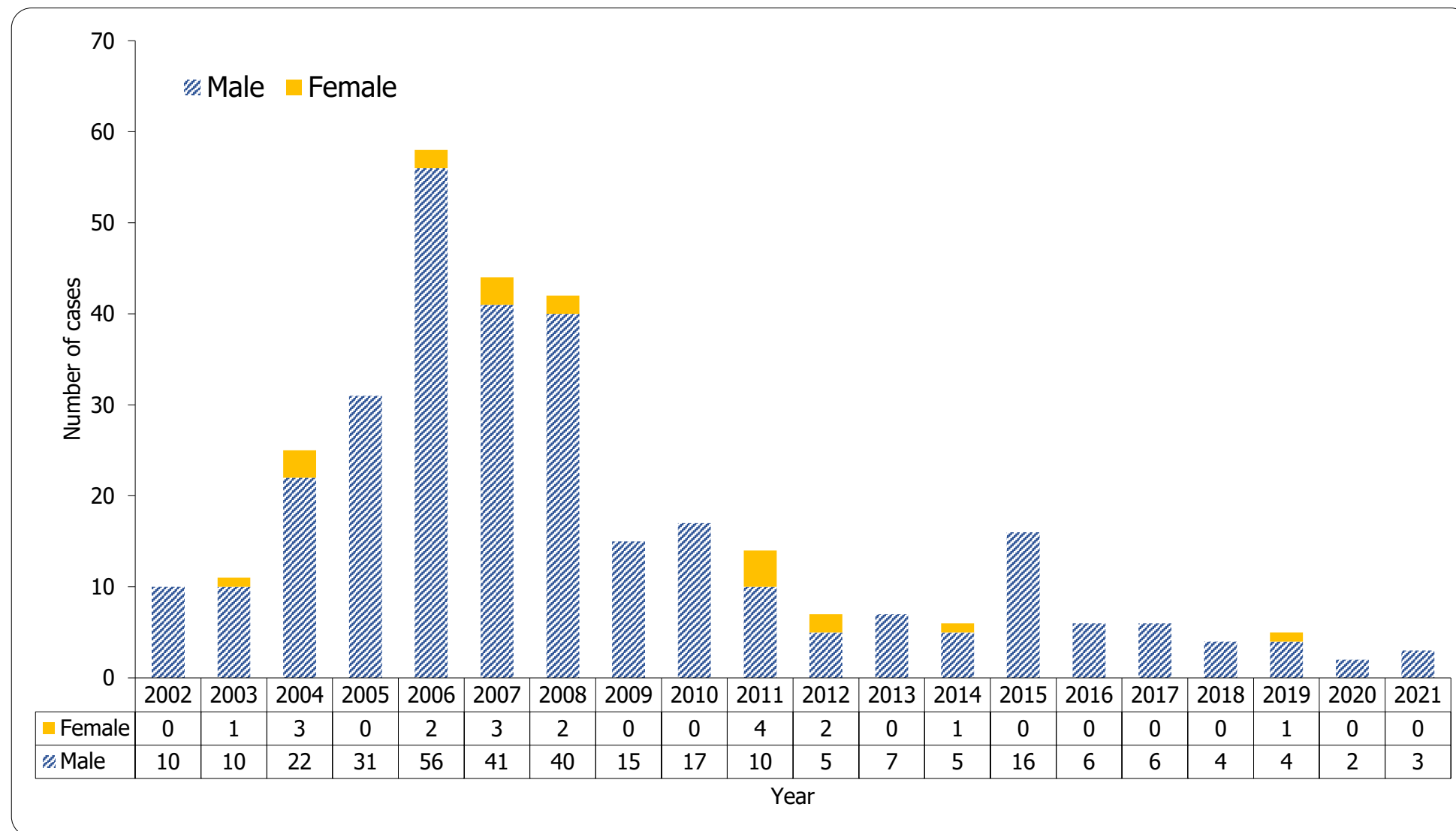


(c) Ratio of heterosexual vs homosexual / bisexual men reported with HIV/AIDS

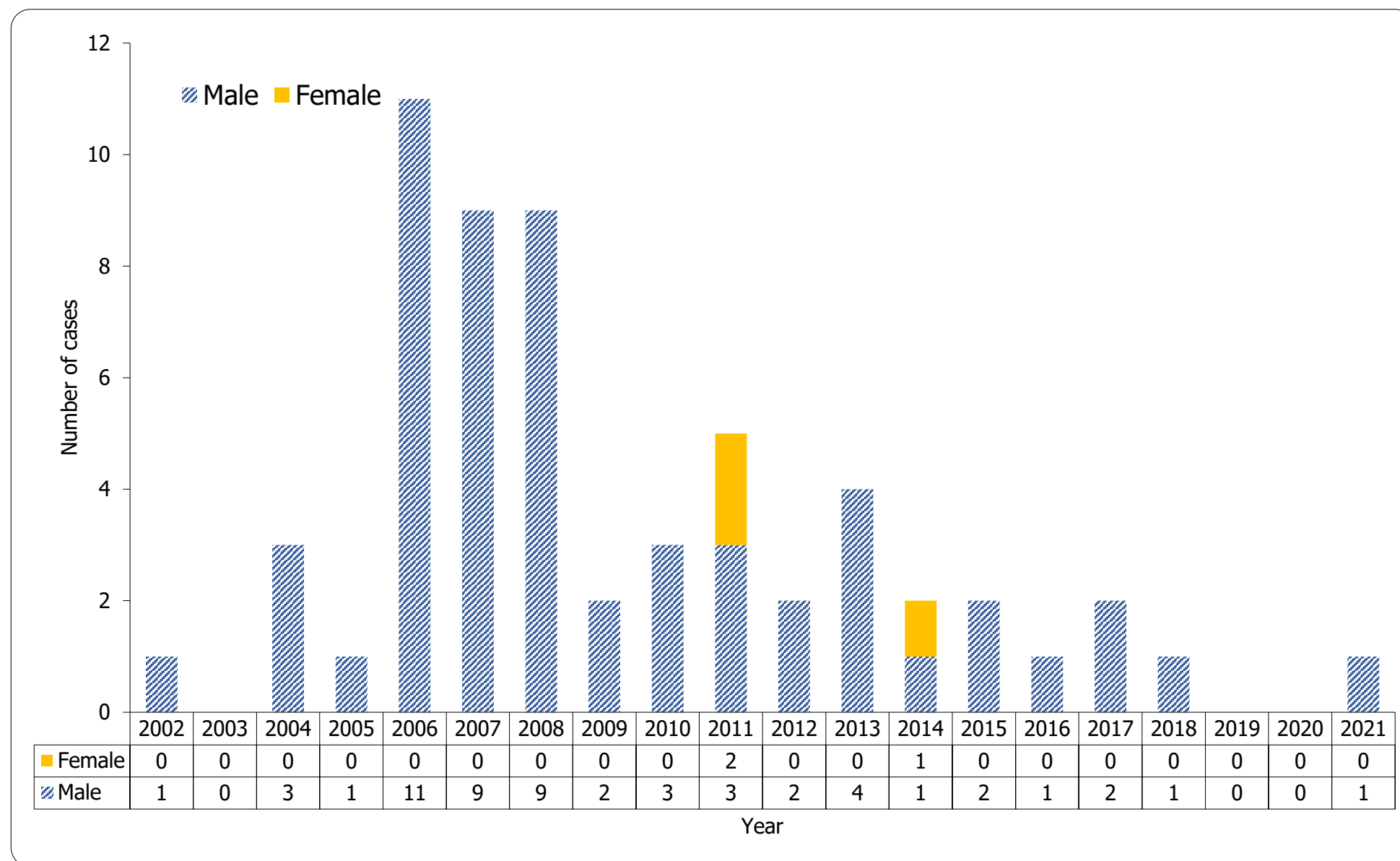
Year	HIV	AIDS
2002	1.7 : 1	2.7 : 1
2003	1.6 : 1	4.9 : 1
2004	1.1 : 1	3.8 : 1
2005	0.8 : 1	1.8 : 1
2006	0.7 : 1	0.8 : 1
2007	0.4 : 1	1.5 : 1
2008	0.6 : 1	1.4 : 1
2009	0.4 : 1	0.8 : 1
2010	0.4 : 1	0.8 : 1
2011	0.3 : 1	0.4 : 1
2012	0.3 : 1	0.6 : 1
2013	0.2 : 1	0.4 : 1
2014	0.2 : 1	0.7 : 1
2015	0.2 : 1	0.5 : 1
2016	0.2 : 1	0.5 : 1
2017	0.1 : 1	0.3 : 1
2018	0.2 : 1	0.3 : 1
2019	0.2 : 1	0.4 : 1
2020	0.3 : 1	0.4 : 1
2021	0.3 : 1	0.5 : 1
Cumulative (1984 – 2021)	0.4 : 1	0.9 : 1

Box 2.7 Reported HIV/AIDS cases in people who inject drugs (2002 – 2021)

(a) Reported HIV-infected people who inject drugs – by gender



(b) Reported AIDS case in people who inject drugs – by gender



Box 2.8 Profile of primary AIDS defining illnesses (ADI) (2002 – 2021)

Year ADI (%)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Cumulative (1985 – 2021)
<i>Pneumocystic Pneumonia (PCP)</i>	25 (47.2%)	22 (39.3%)	22 (44.9%)	20 (31.3%)	27 (37.0%)	28 (35.4%)	37 (38.5%)	32 (42.1%)	36 (45.6%)	37 (45.1%)	39 (45.3%)	37 (44.0%)	46 (42.6%)	55 (50.0%)	48 (43.2%)	44 (48.4%)	70 (50.4%)	63 (51.6%)	54 (48.2%)	45 (50.0%)	1,003 (43.2%)
<i>Mycobacterium Tuberculosis (TB)</i>	9 (17.0%)	15 (26.8%)	13 (26.5%)	25 (39.1%)	26 (35.6%)	32 (40.5%)	32 (33.3%)	24 (31.6%)	20 (25.3%)	22 (26.8%)	15 (17.4%)	17 (20.2%)	27 (25.0%)	17 (15.5%)	17 (15.3%)	17 (18.7%)	22 (15.8%)	28 (23.0%)	12 (10.7%)	15 (16.7%)	531 (22.9%)
Other fungal infections	8 (15.1%)	4 (7.1%)	6 (12.2%)	5 (7.8%)	4 (5.5%)	3 (3.8%)	3 (3.1%)	6 (7.9%)	5 (6.3%)	8 (9.8%)	10 (11.6%)	10 (11.9%)	12 (11.1%)	9 (8.2%)	11 (9.9%)	7 (7.7%)	14 (10.1%)	3 (2.5%)	10 (8.9%)	6 (6.7%)	204 (8.8%)
Penicilliosis	7 (13.2%)	5 (8.9%)	4 (8.2%)	7 (10.9%)	11 (15.1%)	4 (5.1%)	6 (6.3%)	1 (1.3%)	6 (7.6%)	2 (2.4%)	6 (7.0%)	3 (3.6%)	2 (1.9%)	6 (5.5%)	9 (8.1%)	7 (7.7%)	5 (3.6%)	6 (4.9%)	8 (7.1%)	7 (7.8%)	155 (6.7%)
Cytomegalovirus diseases	0 (0.0%)	3 (5.4%)	1 (2.0%)	2 (3.1%)	3 (4.1%)	4 (5.1%)	6 (6.3%)	3 (3.9%)	3 (3.8%)	5 (6.1%)	4 (4.7%)	4 (4.8%)	4 (3.7%)	7 (6.4%)	5 (4.5%)	8 (8.8%)	12 (8.6%)	5 (4.1%)	8 (7.1%)	6 (6.7%)	121 (5.2%)
Non-TB mycobacterial infections	2 (3.8%)	1 (1.8%)	2 (4.1%)	0 (0.0%)	1 (1.4%)	0 (0.0%)	1 (1.0%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	2 (2.3%)	0 (0.0%)	3 (2.8%)	2 (1.8%)	3 (2.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (1.8%)	2 (2.2%)	42 (1.8%)
Kaposi's sarcoma	0 (0.0%)	1 (1.8%)	0 (0.0%)	1 (1.6%)	0 (0.0%)	1 (1.3%)	4 (4.2%)	2 (2.6%)	1 (1.3%)	2 (2.4%)	1 (1.2%)	7 (8.3%)	0 (0.0%)	1 (0.9%)	3 (2.7%)	1 (1.1%)	1 (0.7%)	4 (3.3%)	4 (3.6%)	0 (0.0%)	51 (2.2%)
Others	2 (3.8%)	5 (8.9%)	1 (2.0%)	4 (6.3%)	1 (1.4%)	7 (8.9%)	7 (7.3%)	6 (7.9%)	8 (10.1%)	6 (7.3%)	9 (10.5%)	6 (7.1%)	14 (13.0%)	13 (11.8%)	15 (13.5%)	7 (7.7%)	15 (10.8%)	13 (10.7%)	14 (12.5%)	9 (10.0%)	213 (9.2%)
Total	53 (100%)	56 (100%)	49 (100%)	64 (100%)	73 (100%)	79 (100%)	96 (100%)	76 (100%)	79 (100%)	82 (100%)	86 (100%)	84 (100%)	108 (100%)	110 (100%)	111 (100%)	91 (100%)	139 (100%)	122 (100%)	112 (100%)	90 (100%)	2,320 (100%)

3. TABULATED RESULTS OF HIV PREVALENCE SURVEYS

System description

- This is a collection of data from HIV prevalence studies and public service records that contribute to the understanding of the HIV situation in selected community groups or settings.

System layout

Target population	Setting	System	Since	Sample size	Data available in 2021
(a) Community with predisposing risk factors					
STI patients	Social Hygiene Clinics	Voluntary testing offered to clients	1985	Around 17,000 – 40,000/year	Yes
Drug users (1)	Methadone Clinics	Universal HIV Antibody (Urine samples) Testing Programme	2003	Around 3,000 – 9,000/year	Yes
Drug users (2)	Inpatient drug treatment centres / institution	Unlinked anonymous screening (Urine samples)	1998	Around 150 – 700/year	Yes
Men who have Sex with Men (MSM)	AIDS Concern	Voluntary testing offered to MSM (rapid tests)	2000	Around 200 – 1,500/year	Yes
	HIV Prevalence and Risk behavioural Survey of Men who have sex with men in Hong Kong (PRISM)	Unlinked anonymous screening (urine samples) Voluntary testing (urine samples)	2006, 2008, 2011, 2017 rounds	Around 800/study (2006, 2008, 2011) and around 2,400 in 2017	No
Female Sex Worker (FSW)	Community Based Risk Behavioural and Seroprevalence Survey for Female Sex Workers in Hong Kong (CRISP)	Unlinked anonymous screening (urine samples) Voluntary testing (urine samples)	2006 round 2008 round	Around 900/study	No
	HIV and AIDS Response Indicator Survey (HARIS)	Voluntary testing (urine samples)	2013	Around 600/study	No
(b) Community without known risk factors					
Blood donors	Hong Kong Red Cross Blood Transfusion Service	A requirement for all potential donors	1985	Around 180,000 – 240,000/year	Yes
Antenatal women	All maternal and child health centres and public hospitals	Universal voluntary testing (blood samples)	Sept 2001	Around 40,000 – 50,000/year	Yes
(c) Community with undefined risk					
TB patients	TB and Chest Clinics of the Department of Health	Voluntary testing (blood samples)	1993	Around 2,000 – 4,500/year	Yes
Prisoners	Penal institutions	Unlinked anonymous screening (blood / urine samples)	1992	Around 1,500 – 2,500/year	Yes

Box 3.1 HIV positivity rate among clients attending Social Hygiene Services, from voluntary blood testing (2012 – 2021)

Year	Number of blood samples	Number of samples tested anti-HIV+	HIV positivity rate (%)	95% C.I. (%)
2012	26,679	55	0.206	(0.155 – 0.268)
2013	26,470	90	0.340	(0.273 – 0.418)
2014	25,960	105	0.404	(0.331 – 0.490)
2015	26,117	119	0.456	(0.377 – 0.545)
2016	25,685	124	0.483	(0.402 – 0.576)
2017	27,476	118	0.429	(0.355 – 0.514)
2018	25,560	97	0.379	(0.308 – 0.463)
2019	24,564	95	0.387	(0.313 – 0.473)
2020	17,459	77	0.441	(0.348 – 0.551)
2021	18,825	71	0.377	(0.295 – 0.476)

Box 3.2 HIV prevalence in drug users attending methadone clinics (2013 – 2021)

Year	Total number of methadone clinic attendees tested for HIV*#	Total number of methadone clinic attendees tested positive for HIV	Prevalence (%)	95% C.I. (%)
2013	6,925	47	0.679	(0.499 – 0.903)
2014	6,527	53	0.812	(0.608 – 1.062)
2015	6,056	61	1.007	(0.770 – 1.294)
2016	5,066	57	1.125	(0.852 – 1.458)
2017	4,913	41	0.835	(0.599 – 1.132)
2018	4,730	43	0.909	(0.658 – 1.225)
2019	4,184	42	1.004	(0.723 – 1.357)
2020	3,670	39	1.063	(0.756 – 1.453)
2021	3,312	41	1.238	(0.888 – 1.679)

* Overall figures from all methadone clinic attendees.

Include number of methadone clinic attendees tested in 2021 and number of known HIV positive attendees who have not tested again during 2021.

Box 3.3 HIV prevalence in drug users attending inpatient drug treatment centres / institutions, from unlinked anonymous screening (2012 – 2021)

Year	Number of drug users tested	Number of drug users tested anti-HIV+	Prevalence (%)	95% C.I. (%)
2012	205	2	0.976	(0.118 – 3.524)
2013	188	0	0	(--- – ---)
2014	365	1	0.274	(0.007 – 1.526)
2015	335	3	0.896	(0.185 – 2.617)
2016	321	2	0.623	(0.075 – 2.251)
2017	295	5	1.695	(0.550 – 3.955)
2018	262	1	0.382	(0.010 – 2.127)
2019	247	3	1.215	(0.250 – 3.549)
2020*	0	0	N.A.	(--- – ---)
2021	125	1	0.800	(0.020 – 4.457)

* The unlinked anonymous screening programme of the inpatient drug treatment centre in 2020 was withheld due to COVID-19 pandemic.

Box 3.4 HIV positivity rate among MSM tested by AIDS Concern (2012 – 2021)

Year	Number of HIV rapid tests performed	Number of positive tests	HIV positivity rate (%)	95% C.I. (%)
2012	1,492	30	2.011	(1.357 – 2.871)
2013	1,438	26	1.808	(1.181 – 2.649)
2014	2,054	42	2.045	(1.474 – 2.764)
2015	2,561	66	2.577	(1.993 – 3.279)
2016	3,481	78	2.241	(1.771 – 2.796)
2017	4,081	75	1.838	(1.446 – 2.304)
2018	3,661	47	1.284	(0.943 – 1.707)
2019	4,126	74	1.794	(1.408 – 2.252)
2020	2,356	26	1.104	(0.721 – 1.617)
2021	3,535	26	0.736	(0.480 – 1.078)

Box 3.5 HIV prevalence among MSM – PRiSM* (2006, 2008, 2011 and 2017), HARiS (2014)**

Year	Number of urine specimens collected	Number of positive tests	Crude Prevalence (%)	Adjusted Prevalence (%)	95% C.I. (%)
2006	859	37	4.31	4.05	(3.03 – 5.94)
2008	833	37	4.44	4.31	(2.95 – 5.67)
2011	816	30	3.68	4.08	(3.44 – 4.85)
2014	564	33		5.85**	(4.2 – 8.1)
2017	2,427	86	3.54	6.54^	(5.66 – 7.42)

* PRiSM: HIV Prevalence and Risk behavioural Survey of Men who have sex with men in Hong Kong, a venue based survey including bars and saunas both in 2006 and 2008 round. Beaches was also added in 2011 round.

^ PRiSM 2017: The HIV prevalence was estimated by addition of the self-reported HIV-positive (n=136) and projected positive cases among non-HIV-positive (by the positive test rate for HIV among non-HIV-positive) divided by the total number of sexually active MSM

** HARiS: HIV and AIDS Response Indicator Survey for Men who have sex with men, a combined venue-based, non-governmental organisations centre-based and internet-based survey. Only overall prevalence was calculated.

Box 3.6 HIV prevalence among Female Sex Workers – CRiSP* (2006 and 2009), HARiS (2013 and 2019)**

Year	Number of urine specimens collected	Number of positive tests	Adjusted Prevalence (%)
2006	996	5	0.19
2009	986	2	0.05
2013	605	0	0.00
2019	553	0	0.00

* CRiSP: Community Based Risk Behavioural and Seroprevalence Survey for Female Sex Workers in Hong Kong, a venue based survey including one woman brothels, bars, night clubs, sauna, karaokes, etc. in 2006 and 2009 round.

** HARiS: HIV and AIDS Response Indicator Survey for Female Sex Workers, a combined venue-based, non-governmental organisations centre-based and internet-based survey.

Box 3.7 HIV prevalence in blood donors at Hong Kong Red Cross Blood Transfusion Service

(a) HIV detection rate by number of donated blood units (2012 – 2021)

Year	Number of blood units donated	Number of blood units tested anti-HIV+	Positive detection rate of donated units (%)	95% C.I. (%)
2012	241,804	8	0.0033	(0.0014 – 0.0065)
2013	244,198	7	0.0029	(0.0012 – 0.0059)
2014	250,959	11	0.0044	(0.0022 – 0.0078)
2015	257,859	16	0.0062	(0.0035 – 0.0101)
2016	254,850	7	0.0027	(0.0011 – 0.0057)
2017	241,607	9	0.0037	(0.0017 – 0.0071)
2018	225,583	5	0.0022	(0.0007 – 0.0052)
2019	222,595	2	0.0009	(0.0001 – 0.0032)
2020	199,666	5	0.0025	(0.0008 – 0.0058)
2021	205,783	5	0.0024	(0.0008 – 0.0057)

(b) HIV prevalence in new and repeat blood donors (2012 – 2021)

Year	New donors				Repeat donors			
	Number of donors	Number of donors tested anti-HIV+	HIV positivity rate (%)	95% C.I. (%)	Number of donors	Number of donors tested anti-HIV+	HIV positivity rate (%)	95% C.I. (%)
2012	42,083	3	0.0071	(0.0015 – 0.0208)	199,721	5	0.0025	(0.0008 – 0.0058)
2013	40,315	1	0.0025	(0.0001 – 0.0138)	203,883	6	0.0029	(0.0011 – 0.0064)
2014	38,175	5	0.0131	(0.0043 – 0.0306)	212,784	6	0.0028	(0.0010 – 0.0061)
2015	36,183	6	0.0166	(0.0061 – 0.0361)	221,676	10	0.0045	(0.0022 – 0.0083)
2016	35,851	3	0.0084	(0.0017 – 0.0245)	218,999	4	0.0018	(0.0005 – 0.0047)
2017	32,919	4	0.0122	(0.0033 – 0.0311)	208,688	5	0.0024	(0.0008 – 0.0056)
2018	29,551	3	0.0102	(0.0021 – 0.0297)	196,032	2	0.0010	(0.0001 – 0.0037)
2019	29,342	1	0.0034	(0.0001 – 0.0190)	193,253	1	0.0005	(0.0000 – 0.0029)
2020	18,409	3	0.0163	(0.0034 – 0.0476)	181,257	2	0.0011	(0.0001 – 0.0040)
2021	20,176	2	0.0099	(0.0012 – 0.0358)	185,607	3	0.0016	(0.0003 – 0.0047)

Box 3.8 HIV prevalence among antenatal women from Universal Antenatal HIV Antibody Testing Programme (2012 – 2021)

Year	Number of blood samples	Coverage*	Number of positive tests	Prevalence (%)	95% C.I. (%)
2012	53,117	98.6%	9	0.0169	(0.0077 – 0.0322)
2013	48,871	98.5%	7	0.0143	(0.0058 – 0.0295)
2014	51,263	98.3%	2	0.0039	(0.0005 – 0.0141)
2015	51,338	98.5%	5	0.0097	(0.0032 – 0.0227)
2016	51,519	100%	9	0.0175	(0.0080 – 0.0332)
2017	48,500	100%	7	0.0144	(0.0058 – 0.0297)
2018	45,530	100%	4	0.0088	(0.0024 – 0.0225)
2019	42,670	100%	3	0.0070	(0.0014 – 0.0205)
2020	34,049	100%	5	0.0147	(0.0048 – 0.0343)
2021	31,007	100%	8	0.0258	(0.0111 – 0.0508)

* Coverage is the proportion of women attending public antenatal services who have been tested for HIV.

Box 3.9 HIV prevalence in patients attending government TB & Chest Clinics, from voluntary blood testing (2012 – 2021)

Year	Number of blood samples	Coverage *		Number of anti-HIV+	Prevalence (%)	95% C.I. for prevalence (%)
		A	B			
2012	3,707	91.2%	76.3%	22	0.593	(0.372 – 0.899)
2013	3,536	88.2%	75.8%	24	0.679	(0.435 – 1.010)
2014	3,345	88.1%	71.1%	23	0.688	(0.436 – 1.032)
2015	3,291	91.1%	74.5%	24	0.729	(0.467 – 1.085)
2016	3,272	92.0%	75.3%	28	0.856	(0.569 – 1.237)
2017	3,256	93.9%	76.6%	31	0.952	(0.647 – 1.351)
2018	3,359	93.7%	78.7%	23	0.685	(0.434 – 1.027)
2019	3,100 [#]	94.1%	77.4% [#]	33 [#]	1.065 [#]	(0.733 [#] – 1.495 [#])
2020	2,813	93.4%	76.9% [#]	15	0.533	(0.298 – 0.879)
2021	2,935	93.5%	78.5%**	29	0.988	(0.662 – 1.419)

* A is the proportion of attendees of the government TB & Chest Clinics who have been tested for HIV in TB & Chest Clinics;
B is the proportion of total TB notifications from all sources, and the notified cases have been tested for HIV at government TB & Chest Clinics.

[#] figures revised

** provisional figure

Box 3.10 HIV prevalence in newly admitted prisoners from unlinked anonymous screening (2012 – 2021)

Year	Number of samples	Number of samples tested anti-HIV+	Prevalence (%)	95% C.I. (%)
2012	1,493	11	0.737	(0.368 – 1.318)
2013	1,460	14	0.959	(0.524 – 1.609)
2014	1,344	14	1.042	(0.569 – 1.748)
2015	1,453	18	1.239	(0.734 – 1.958)
2016	1,384	13	0.939	(0.500 – 1.606)
2017*	--	--	--	--
2018	1,229	9	0.732	(0.335 – 1.390)
2019	1,266	13	1.027	(0.547 – 1.756)
2020	1,164	11	0.945	(0.472 – 1.691)
2021	1,169	9	0.770	(0.352 – 1.461)

* The unlinked anonymous screening programme of the prisoners in 2017 was suspended due to the laboratory resources release for PRiSM.

4. TABULATED RESULTS OF STATISTICS ON SEXUALLY TRANSMITTED INFECTIONS (STIs)

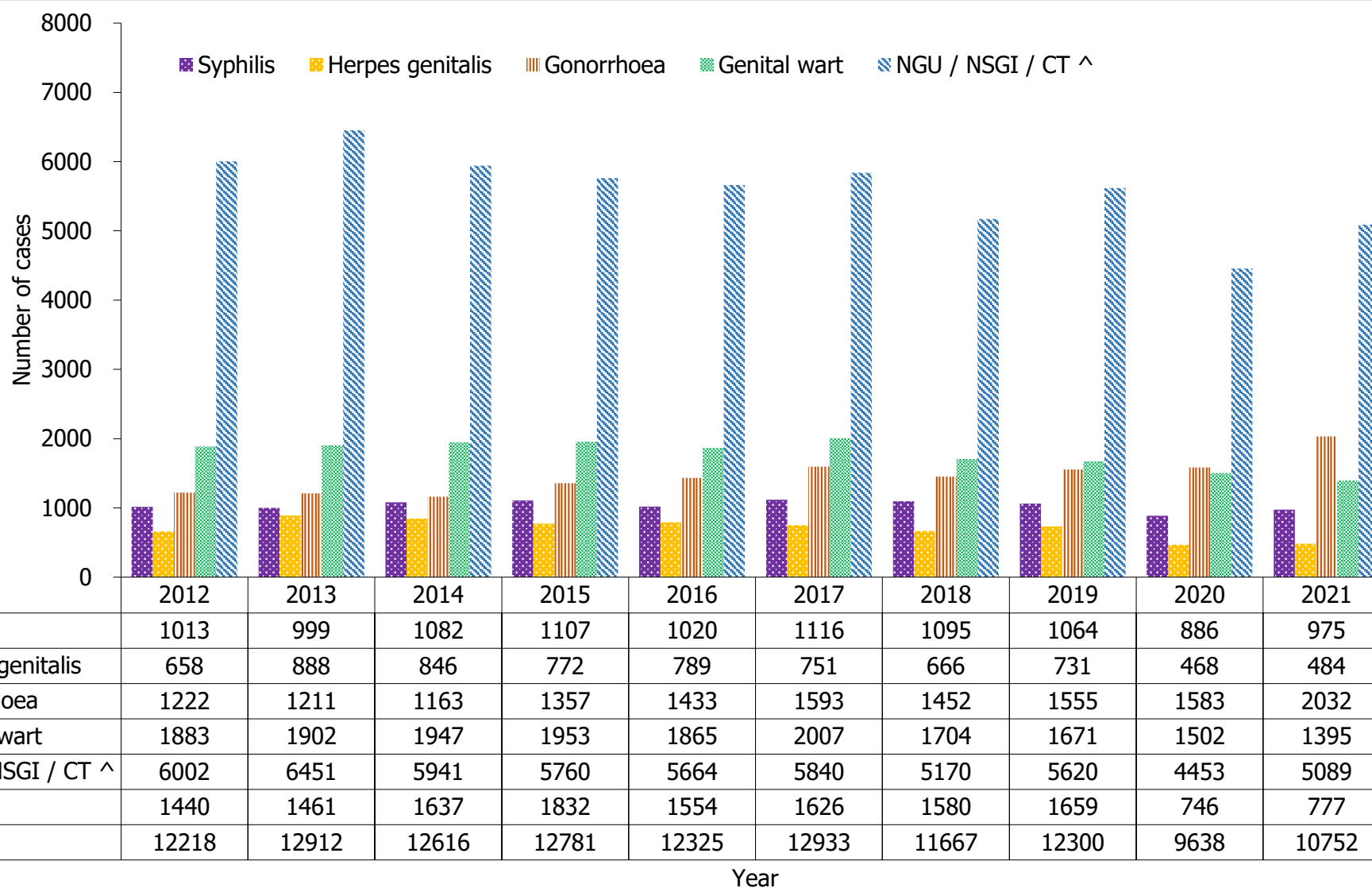
System description

- This is a clinic based disease reporting system contributed by Social Hygiene Service, Department of Health. Summary tables are submitted quarterly by Social Hygiene Service.

Box 4.1 Total number of STIs newly reported by individual Social Hygiene Clinic in 2021

Social Hygiene Clinic	Male	Female	Total
Wan Chai	753	881	1,634
Yau Ma Tei	4,296	120	4,416
Yung Fung Shee	954	1,059	2,013
Tuen Mun	643	597	1,240
Fanling	722	727	1,449
Total	7,368	3,384	10,752

Box 4.2 Newly reported STIs in Social Hygiene Clinics (2012 to 2021)

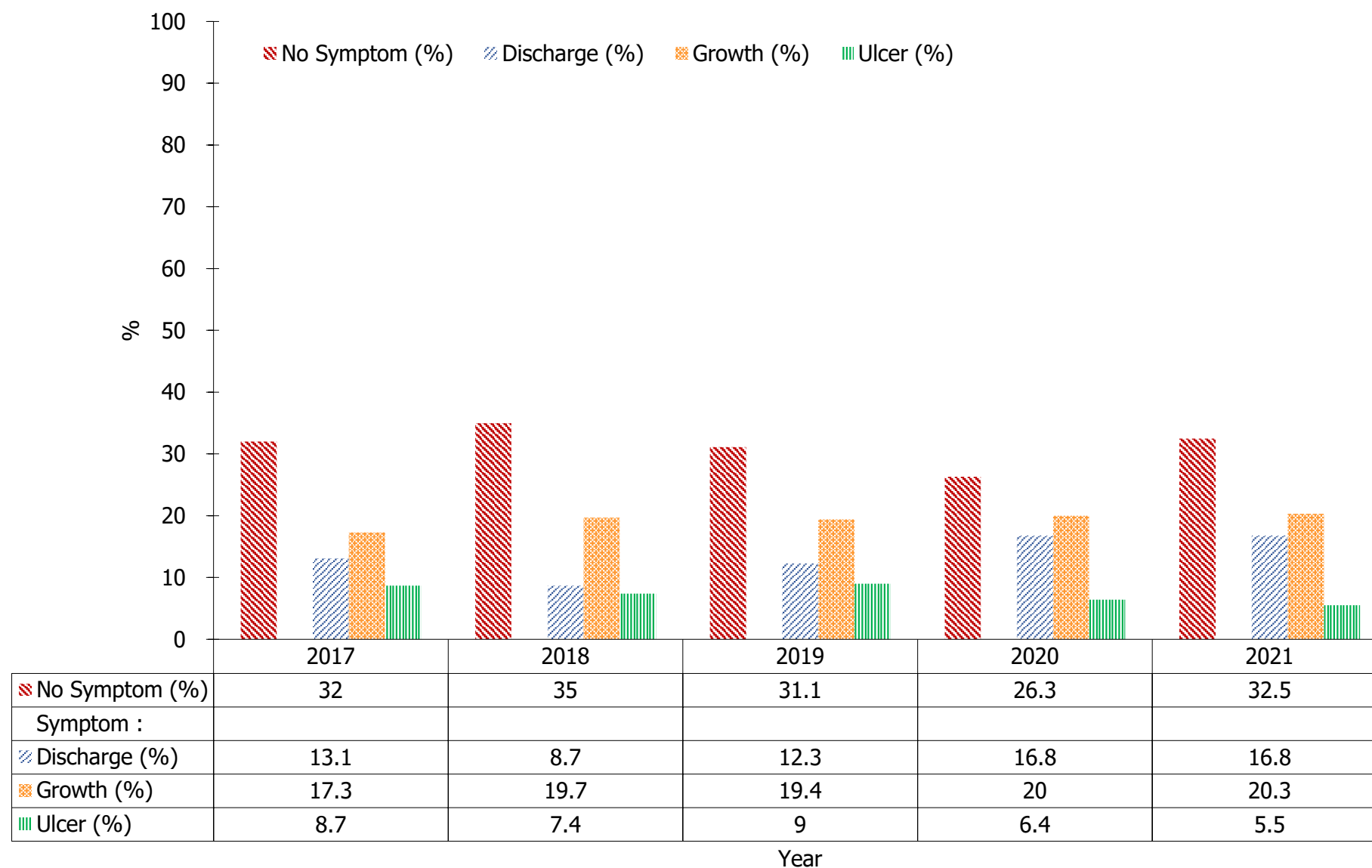


^ NGU / NSGI / CT: Non-gonococcal urethritis / Non-specific genital infection / Chlamydia trachomatis

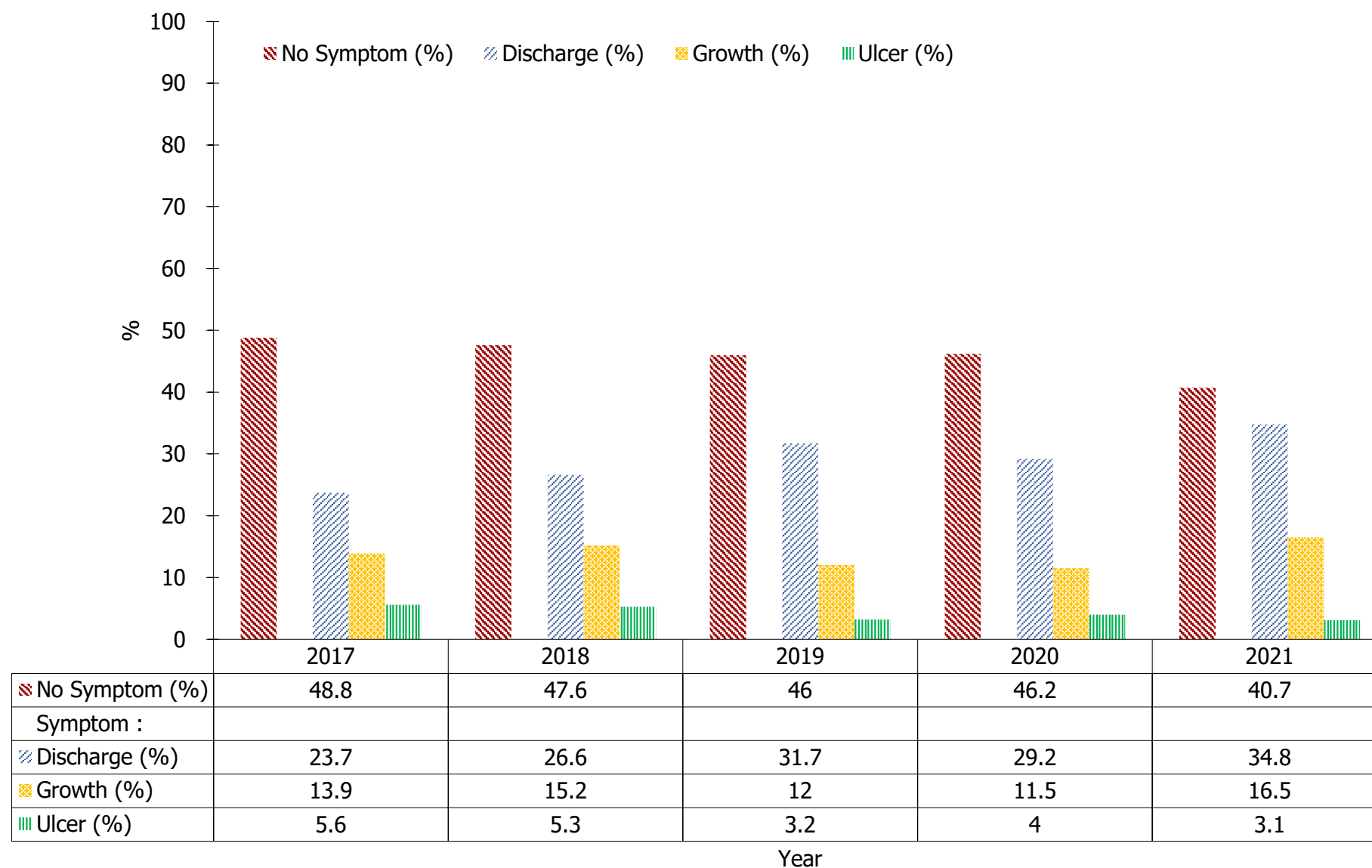
Box 4.3 Syphilis newly reported by Social Hygiene Clinics (2017 – 2021)

Syphilis	Year	2017	2018	2019	2020	2021
Primary		69	50	74	72	67
Secondary		170	190	167	175	202
Early latent		178	289	252	221	263
Late latent		690	559	561	410	438
Late (cardiovascular / neuro / ocular)		6	7	9	7	4
Congenital (early)		0	0	0	0	1
Congenital (late)		3	0	1	1	0
Total		1,116	1,095	1,064	886	975

Box 4.4 Syndromic presentations of STI for males from Behavioural Survey of Social Hygiene Service (2017 – 2021)



Box 4.5 Syndromic presentations of STI for females from Behavioural Survey of Social Hygiene Service (2017 – 2021)



5. TABULATED RESULTS ON BEHAVIOURAL STUDIES

System description

- This is a tabulation of HIV risky behavioural data collected from different sources in Hong Kong.

System layout

Source	Sexual behaviour	Drug-taking behaviour	Data available in 2021
AIDS Counselling and Testing Service (ACTS), Special Preventive Programme, CHP, DH	• Median number of sex partners in heterosexual men / MSM • Recent history of commercial sex in heterosexual men • Condom use in heterosexual men / MSM		Yes
Social Hygiene Service (SHS)	• Recent history of commercial sex / casual sex • Condom use in heterosexual men		Yes
AIDS Concern testing service for MSM (AC)	• Condom use in MSM		Yes
HIV Prevalence and Risk behavioural Survey of Men who have sex with men in Hong Kong (PRiSM)	• Condom use in MSM		No
HIV and AIDS Response Indicator Survey (HARiS)	• Condom use in MSM		Yes
Methadone clinics (DRS-M)		• Proportion of current injectors • Practice of current needle-sharing	Yes
Shek Kwu Chau (SKC) Treatment and Rehabilitation Centre (DRS-S)		• Proportion of current injectors • Practice of current needle-sharing	Yes
Central Registry of Drug Abuse (CRDA)		• Proportion of current injectors among all reported drug abusers • Proportion of current injectors among newly reported drug abusers	Yes
Street Addict Survey (SAS) (From the Society for the Aid and Rehabilitation of Drug Abusers)		• Proportion of current injectors • Practice of current needle-sharing	Yes

Box 5.1 Median number of sex partners in the previous year among adult^ heterosexual men / MSM attending AIDS Counselling and Testing Service (ACTS) (2012 – 2021)

Category	Type of sex partners*	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Heterosexual men	Regular sex partners	1	1	1	1	1	1	1	1	1	1
	Commercial sex partners	3	2	3	2	2	2	2	2	2	2
	Casual sex partners	1	1	1	1	1	1	1	1	1	1
MSM	Regular sex partners	1	1	1	1	1	1	1	1	1	1
	Commercial sex partners	2	5	5	2	1	2	2	2	8	1
	Casual sex partners	3	3	4	4	3	4	3	2	2	3

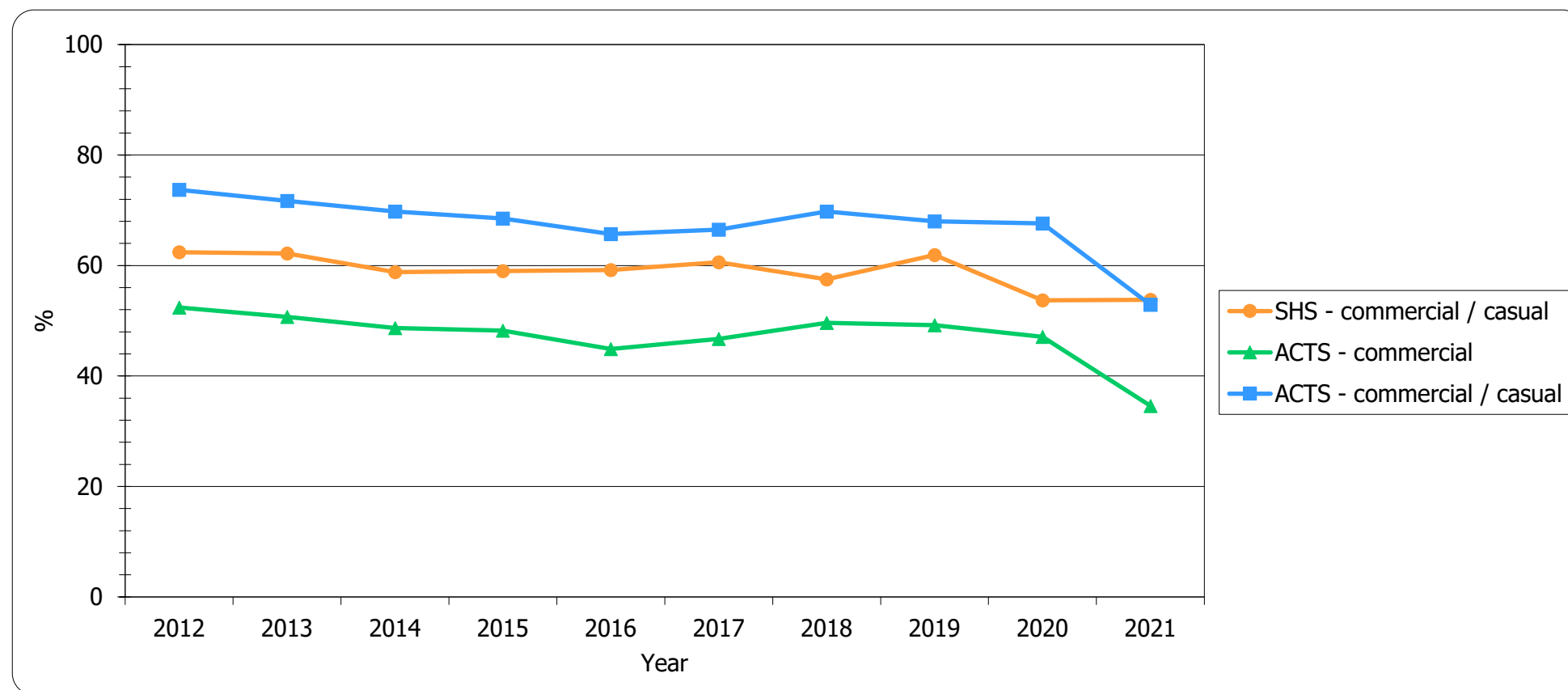
^ Adult: aged 18 or above.

* Regular sex partners: used to refer to long-term sex partners including spouse, mistress, and steady boyfriends / girlfriends for at least one year, or if less than one year, one with whom is expected to continue sexual relationship. This definition of regular sex partners in 2008 has been further refined to include (other than the long-term sex partners) sex buddy that refers to regular sex only partner for at least 6 months, or if less than 6 months, one with whom is expected to continue sexual relationship.

Commercial sex partners : defined as those who have sexual intercourse in exchange for money, goods or services. Examples are prostitutes and customers of prostitutes.

Casual sex partners: without a steady relationship.

Box 5.2 Recent history* of commercial / casual sex among adult^ heterosexual men (2012 – 2021)



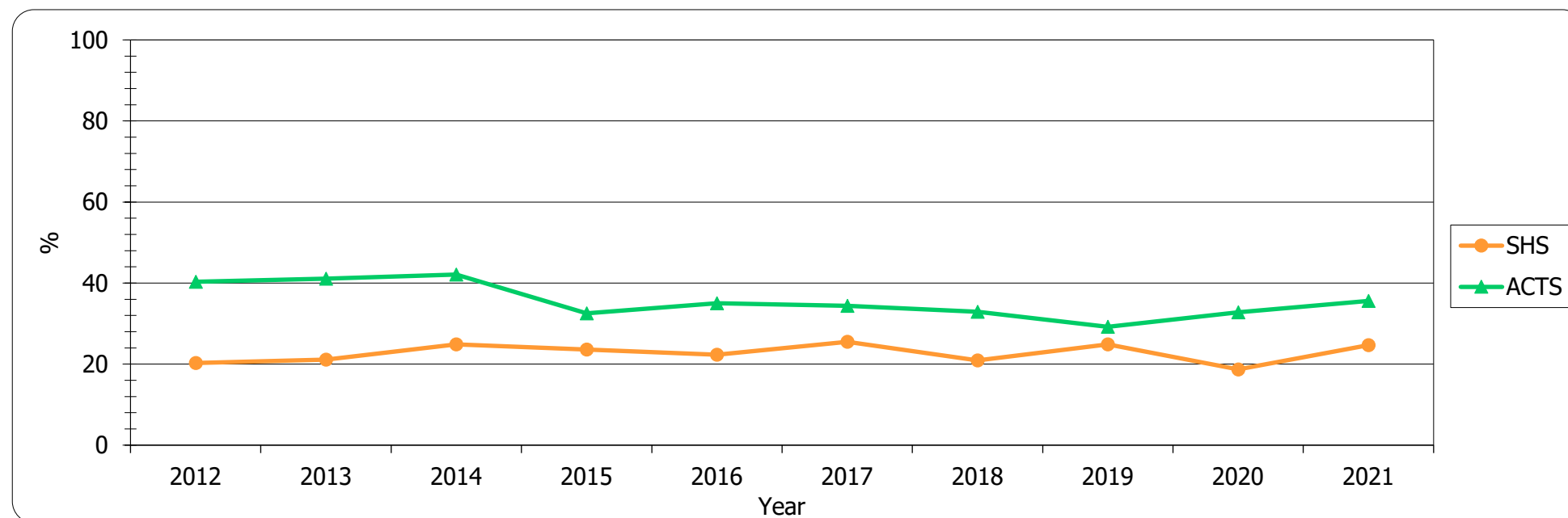
* Commercial sex partners are defined as those who have sexual intercourse in exchange for money, goods or services. Examples are female sex workers and their clients. Casual sex partners are defined as those who are non-regular and non-commercial. Examples are those on one-night stand. SHS & ACTS refers to such history in past one year.

^ Adult: aged 18 or above.

Remarks: SHS – Social Hygiene Services
ACTS – AIDS Counselling and Testing Service

Box 5.3 Condom use with regular partners among adult heterosexual men

(a) Consistent condom use * with regular partners ** among adult ^ heterosexual men (2012 – 2021)



* Consistent condom use is defined as always or 100% of the time using a condom.

ACTS captures such condom usage in past one year while SHS captures such usage in past 3 months.

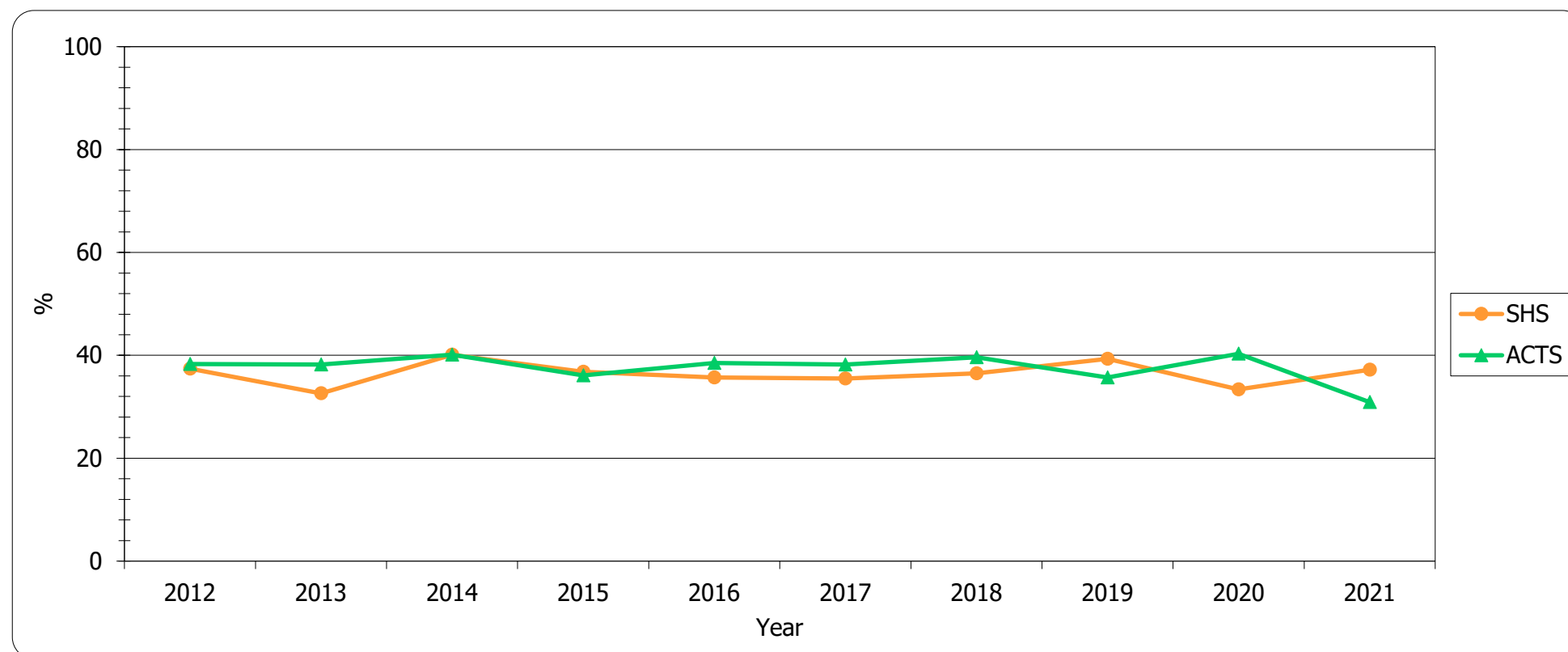
** Regular sex partners used to refer to long-term sex partners including spouse, mistress, and steady girl friends for at least one year, or if less than one year, one with whom is expected to continue sexual relationship. This definition of regular sex partners in 2008 has been further refined to include (other than the long-term sex partners) sex buddy that refers to regular sex only partner for at least 6 months, or if less than 6 months, one with whom is expected to continue sexual relationship.

^ Adult: aged 18 or above.

Remarks: SHS – Social Hygiene Services

ACTS – AIDS Counselling and Testing Service

(b) Condom use for last sex with regular partners* among adult^ heterosexual men (2012 – 2021)



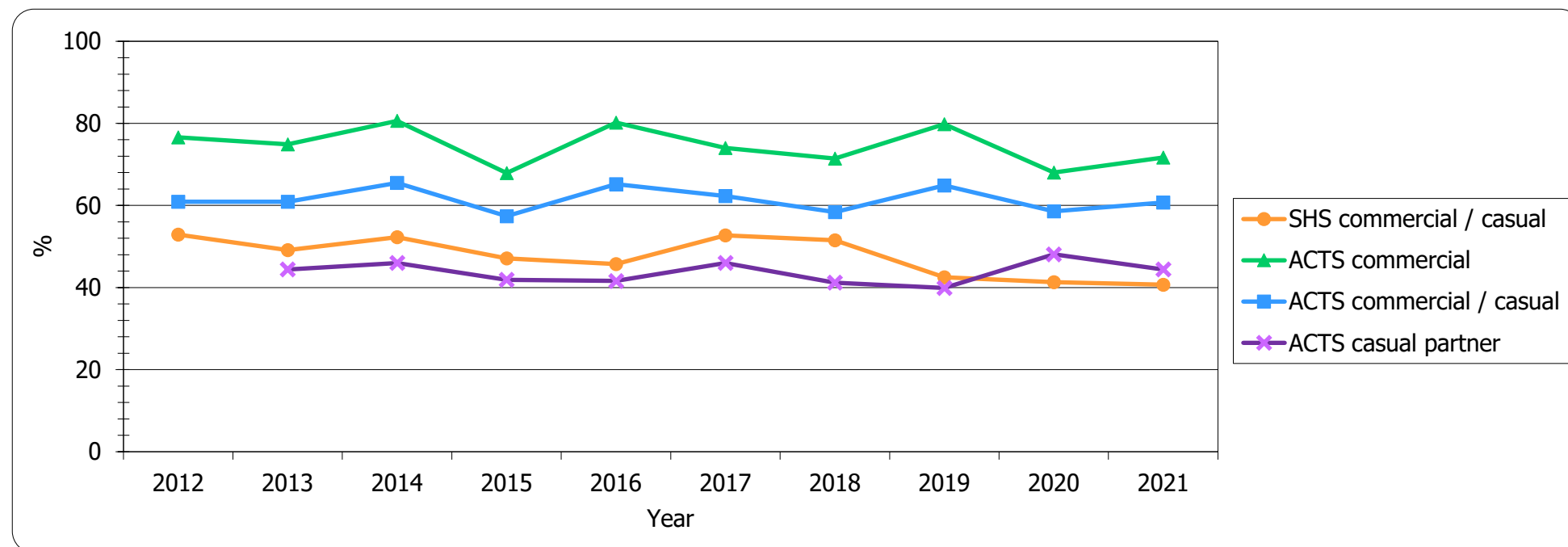
* Regular sex partners used to refer to long-term sex partners including spouse, mistress, and steady girl friends for at least one year, or if less than one year, one with whom is expected to continue sexual relationship. This definition of regular sex partners in 2008 has been further refined to include (other than the long-term sex partners) sex buddy that refers to regular sex only partner for at least 6 months, or if less than 6 months, one with whom is expected to continue sexual relationship.

^ Adult: aged 18 or above.

Remarks: SHS – Social Hygiene Services
ACTS – AIDS Counselling and Testing Service

Box 5.4 Condom use with commercial / casual partners among adult heterosexual men

(a) Consistent condom use * with commercial / casual partners ** among adult ^ heterosexual men (2012 – 2021)



* Consistent condom use is defined as always or 100% of the time using a condom for vaginal or anal sex in past 1 year.

ACTS captures such condom usage in past one year while SHS captures such usage in past 3 months.

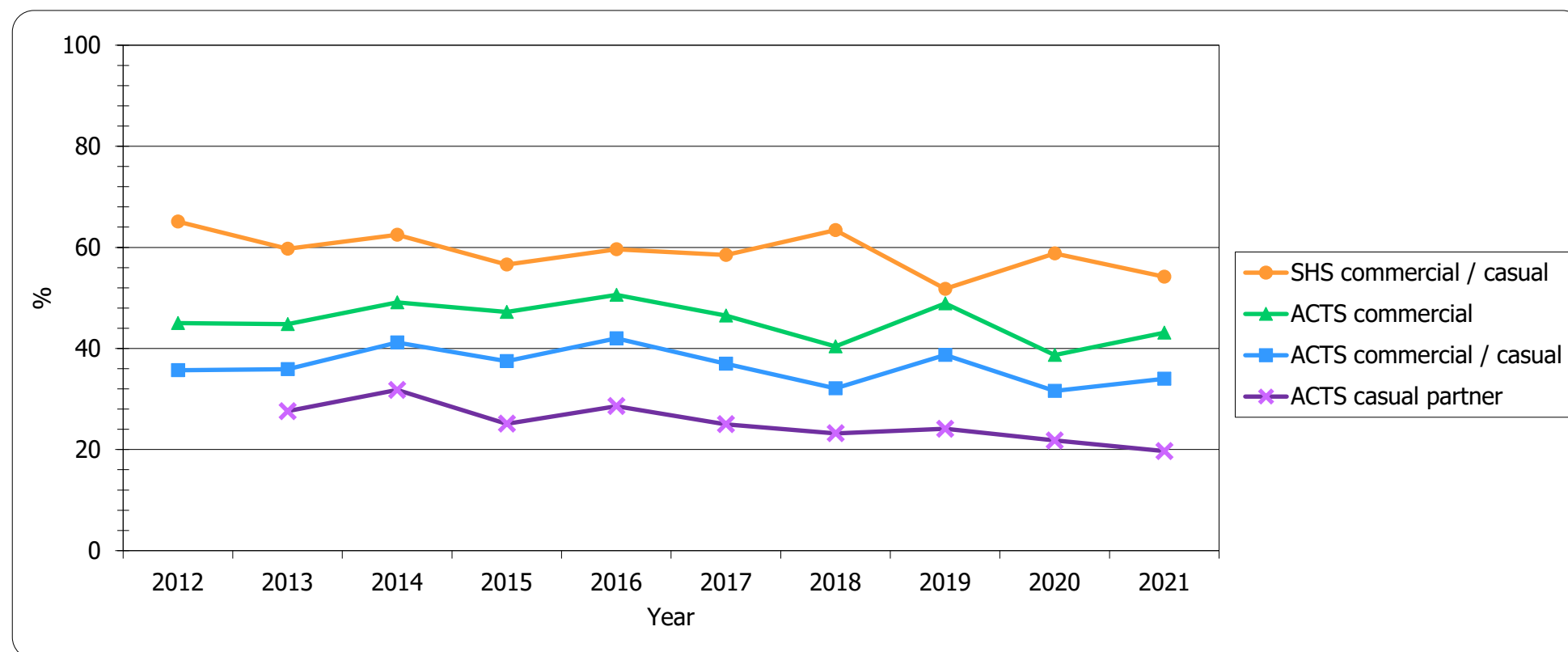
** Commercial sex partners are defined as those who have sexual intercourse in exchange for money, goods or services. Examples are female sex workers and their clients. Casual sex partners are defined as those who are non-regular and non-commercial. Examples are those on one-night stand.

^ Adult: aged 18 or above.

Remarks: SHS – Social Hygiene Services

ACTS – AIDS Counselling and Testing Service

(b) Condom use for last sex * with commercial / casual partners ** among adult ^ heterosexual men (2012 – 2021)



* ACTS defined “condom use for last sex” as using a condom for the last (vaginal and / or anal and / or oral-genital1) sex within the past 1 year.

** Commercial sex partners are defined as those who have sexual intercourse in exchange for money, goods or services. Examples are female sex workers and their clients. Casual sex partners are defined as those who are non-regular and non-commercial. Examples are those on one-night stand.

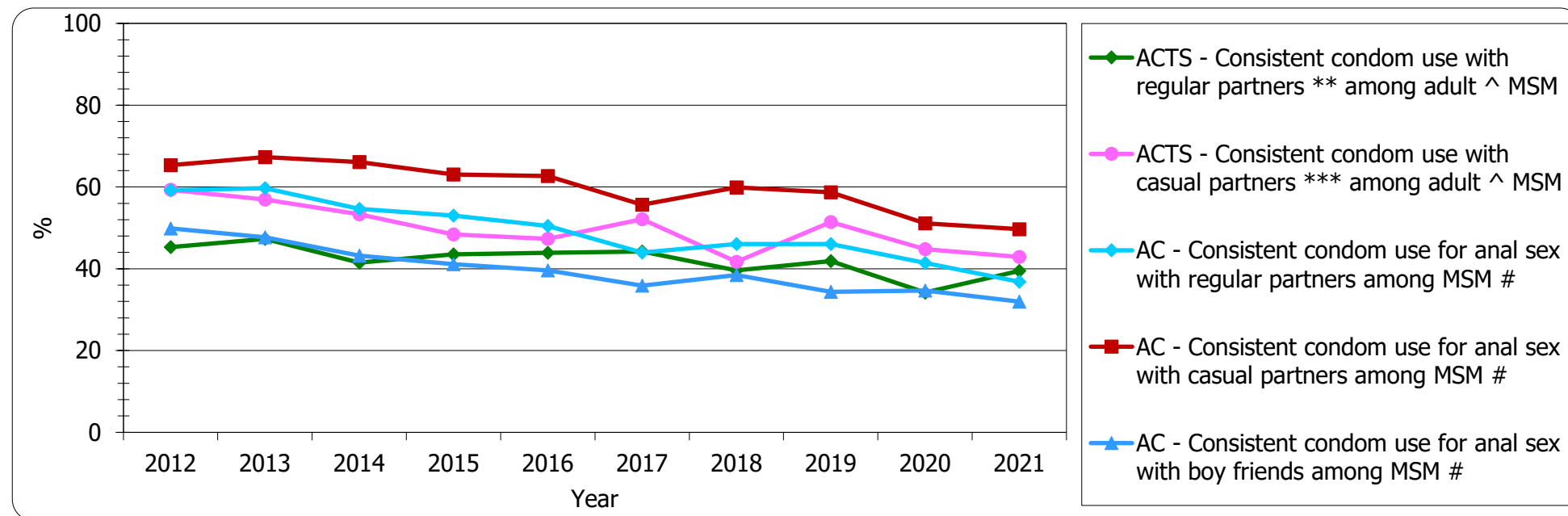
^ Adult: aged 18 or above.

Remarks: SHS – Social Hygiene Services

ACTS – AIDS Counselling and Testing Service

Box 5.5 Condom use among Men have Sex with Men (MSM)

(a) Consistent condom use * among MSM (2012 – 2021)



* Consistent condom use is defined as always or 100% of the time using a condom. ACTS captures such condom usage in past one year while AC captures such usage in past 3 months.

** Regular sex partners used to refer to long-term sex partners including spouse, mistress, and steady boy / girl friends for at least one year, or if less than one year, one with whom is expected to continue sexual relationship. This definition of regular sex partners in 2008 has been further refined to include (other than the long-term sex partners) sex buddy that refers to regular sex only partner for at least 6 months, or if less than 6 months, one with whom is expected to continue sexual relationship.

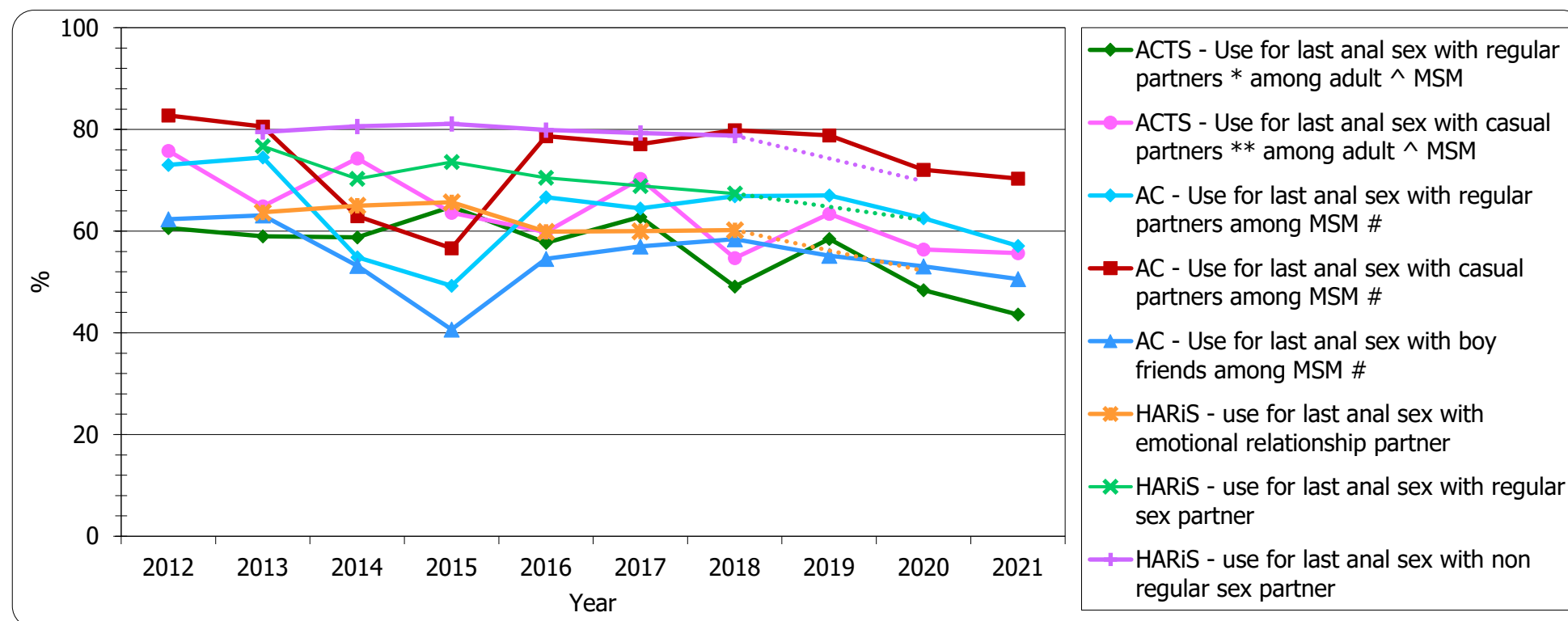
*** Casual sex partners, the two do not have steady relationship.

Since April 2012, the sex partner types from AC survey further breakdown into regular sex partner, casual sex partner and boyfriend.

^ Adult: aged 18 or above.

Remarks: ACTS – AIDS Counselling and Testing Service, AC – AIDS Concern; please refer to the text above for PRiSM (2017) results on the rate of consistent condom use.

(b) Condom use for last anal sex among MSM (2012 – 2021)



* Regular sex partners used to refer to long-term sex partners including spouse, and steady boyfriends for at least one year, or if less than one year, one with whom is expected to continue sexual relationship. This definition of regular sex partners in 2008 has been further refined to include (other than the long-term sex partners) sex buddy that refers to regular sex only partner for at least 6 months, or if less than 6 months, one with whom is expected to continue sexual relationship.

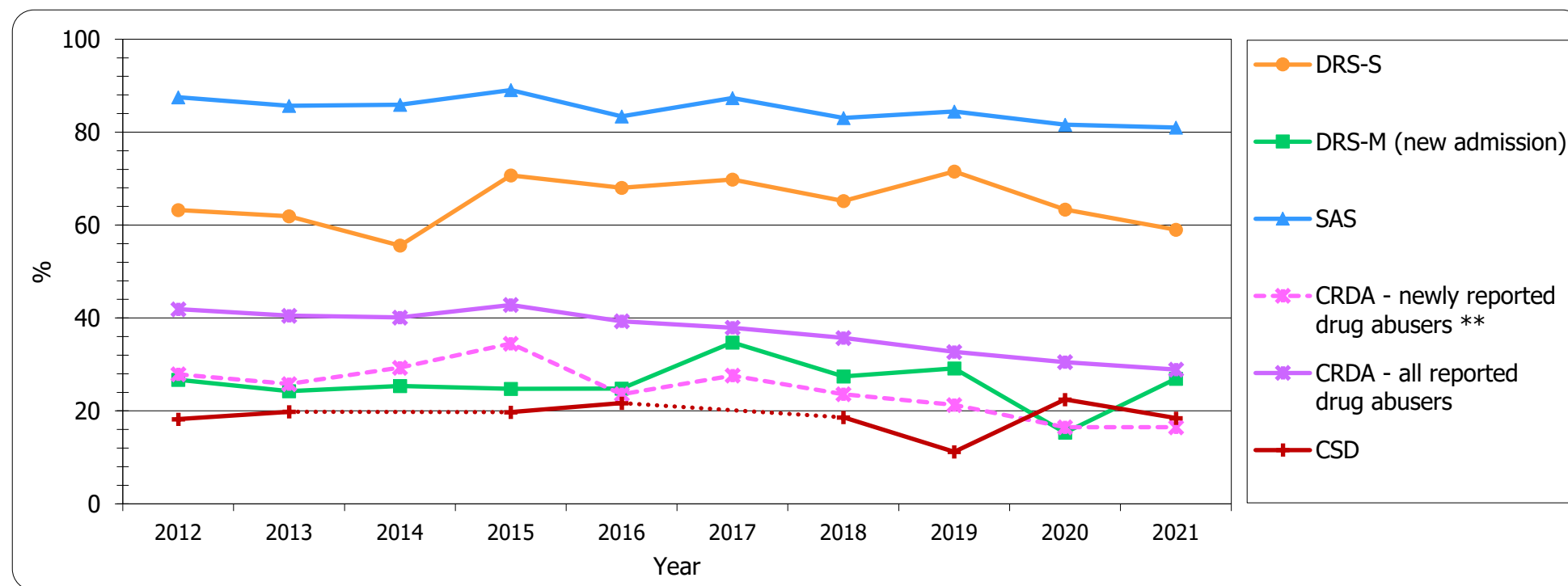
** Casual sex partners, the two do not have steady relationship.

^ Adult: aged 18 or above.

Since April 2012, the sex partner types from AC survey further breakdown into regular sex partner, casual sex partner and boyfriend.

Remarks: ACTS – AIDS Counselling and Testing Service, AC – AIDS Concern, HARiS – HIV and AIDS Response Indicator Survey

Box 5.6 Proportion of current injectors * (2012 – 2021)

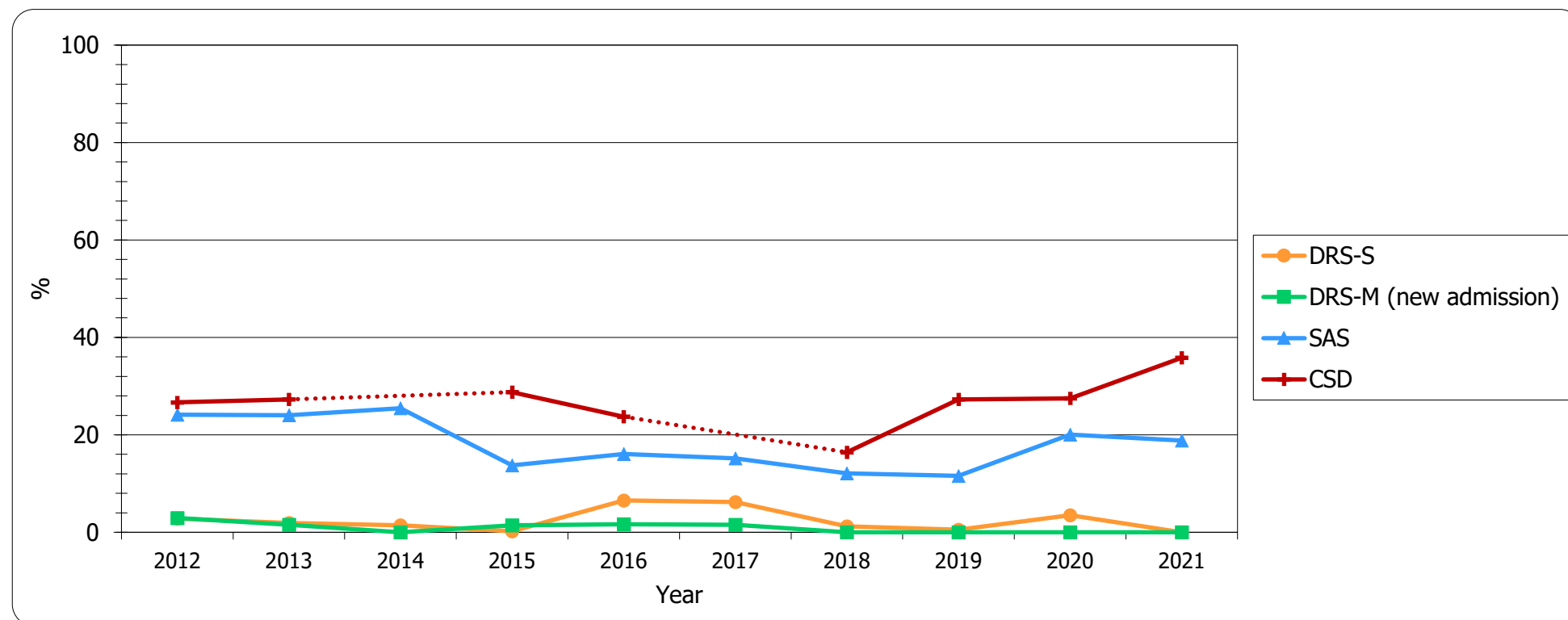


* Definitions differ for different data sources. DRS-S refers to drug injecting behaviour in past 6 months (before 2006, it referred to drug injecting at the time of programme admission); DRS-M refers to drug injecting at the time of programme admission; SAS refers to drug injecting behaviour in past 1 month (before 2007, it referred to drug injecting in past 3 months); CRDA refers to drug injecting behaviour in past 4 weeks.

** Newly reported drug abuser refers to a person who is known to the CRDA for the first time (i.e. no precedent reported case on him/her in the CRDA at the time of report).

Remarks: DRS-S – Shek Kwu Chau Treatment and Rehabilitation Centre (Newly / Re-admitted case)
 DRS-M – Methadone clinics (Newly admitted case only)
 SAS – Street Addict Survey (From the Society for the Aid and Rehabilitation of Drug Abusers (SARDA))
 CRDA – Central Registry of Drug Abuse
 CSD – Correctional Service Department

Box 5.7 Proportion of current needle-sharers * (2012 – 2021)



* This figure referred to the proportion of current syringe sharing behaviour among current injectors. Definitions differ for different data sources. DRS-S refers to such sharing behaviour among those who injected drug in past 6 months (before 2006, it referred to such sharing behaviour in past 6 months among those who injected drug at the time of programme admission); SAS refers to such sharing behaviour among those who injected drug in past 1 month (before 2007, it referred to such sharing behaviour in past 3 months); DRS-M refers to such sharing behaviour in past 4 weeks among those who injected drug at the time of programme admission.

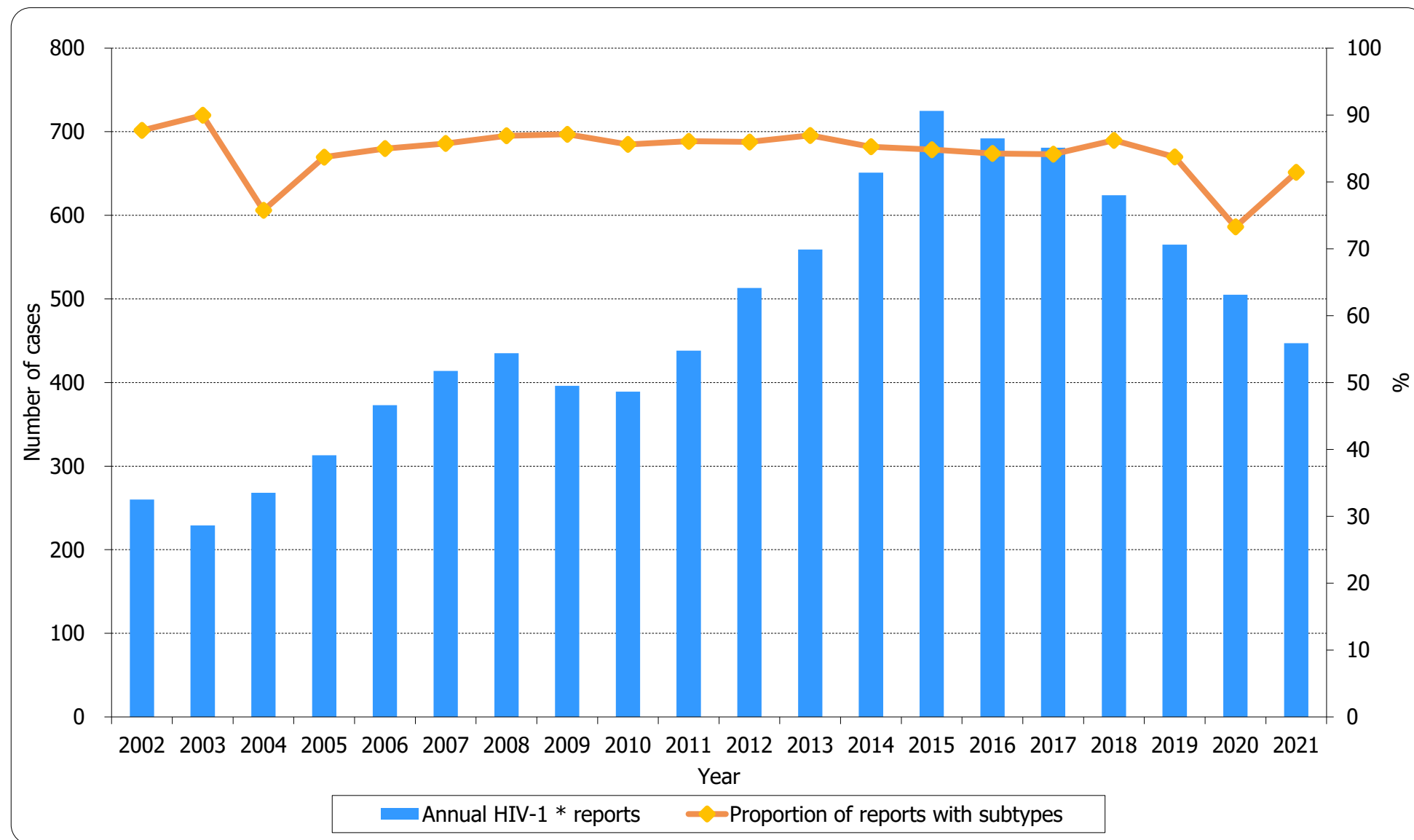
Remarks: DRS-S – Shek Kwu Chau Treatment and Rehabilitation Centre (Newly / Re-admitted cases)
 DRS-M – Methadone clinics (Newly admitted case only)
 SAS – Street Addict Survey (From the Society for the Aid and Rehabilitation of Drug Abusers (SARDA))
 CSD – Correctional Service Department

6. TABULATED RESULTS OF HIV-1 GENOTYPING STUDIES

System description

- This is a laboratory-based reporting system contributed by Public Health Laboratory Services Branch (PHLSB), Centre for Health Protection, Department of Health. Serum specimens from newly diagnosed HIV patients are collected from confirmatory laboratories for subtype analysis by PHLSB which are collated with epidemiological information when available. The confirmatory laboratories included in this surveillance system are: DH Public Health Laboratory Services Branch, Microbiology laboratories of Queen Elizabeth Hospital, Prince of Wales Hospital, Hong Kong Red Cross Blood Transfusion Service. Subtype analysis was commenced since 2001.

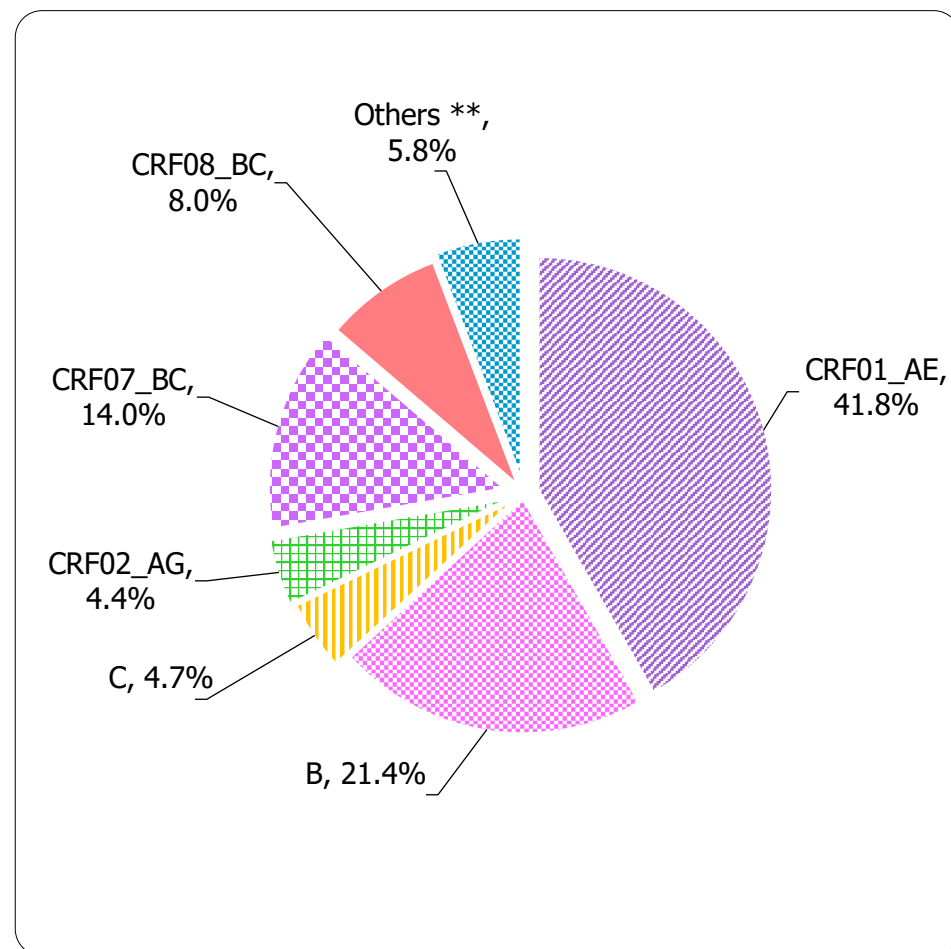
Box 6.1 Proportion of reports * with subtypes by year in Hong Kong (2002 – 2021)



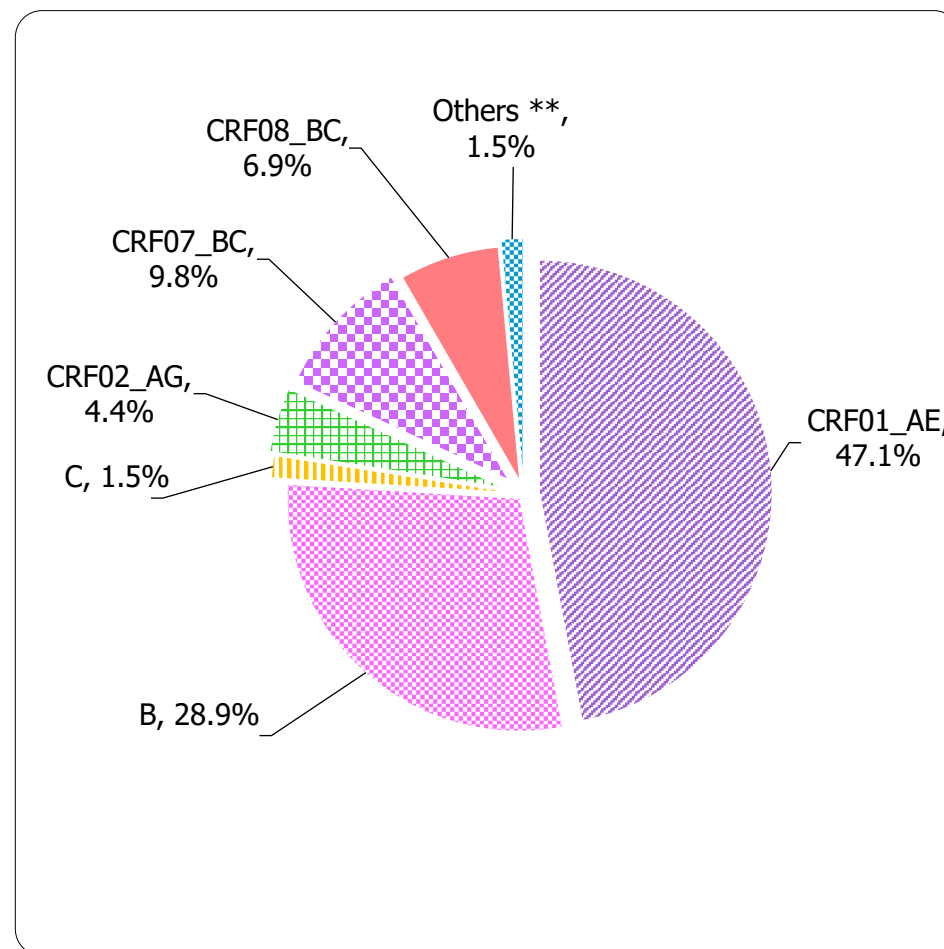
* Including cases with HIV type 1 or PCR positive result.

Box 6.2 Distribution of HIV-1* subtypes

(i) Year 2021



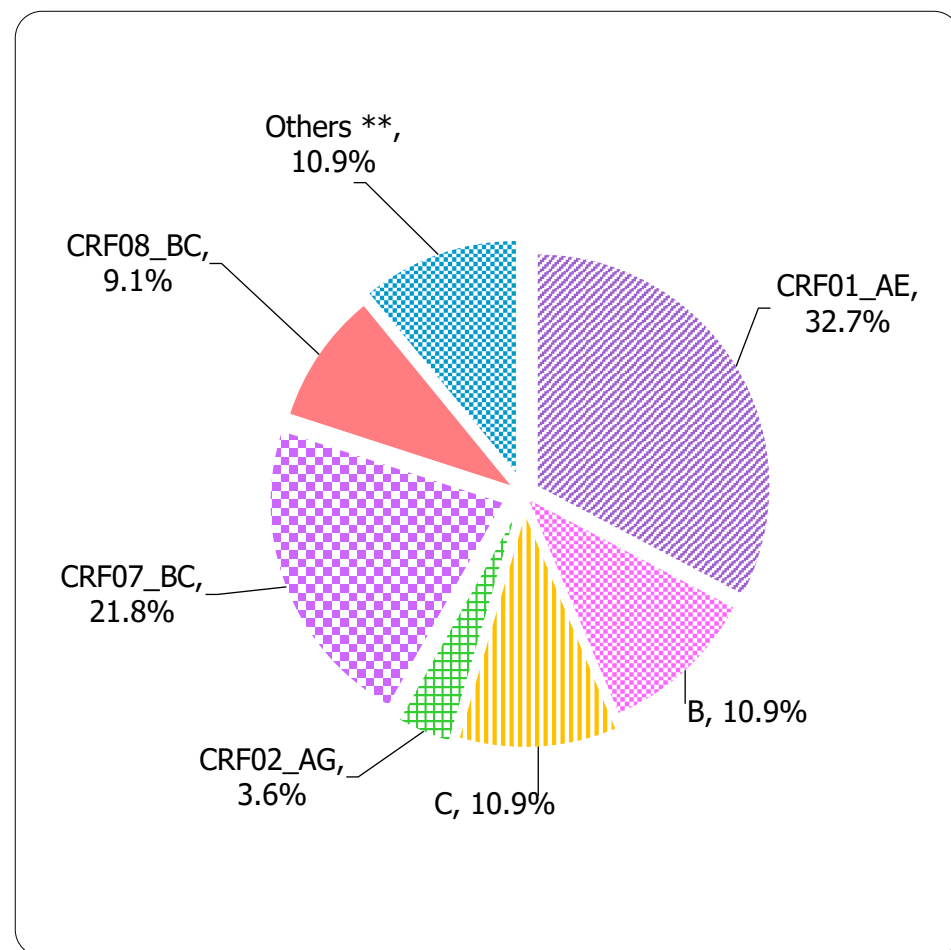
(ii) Year 2021 – MSM



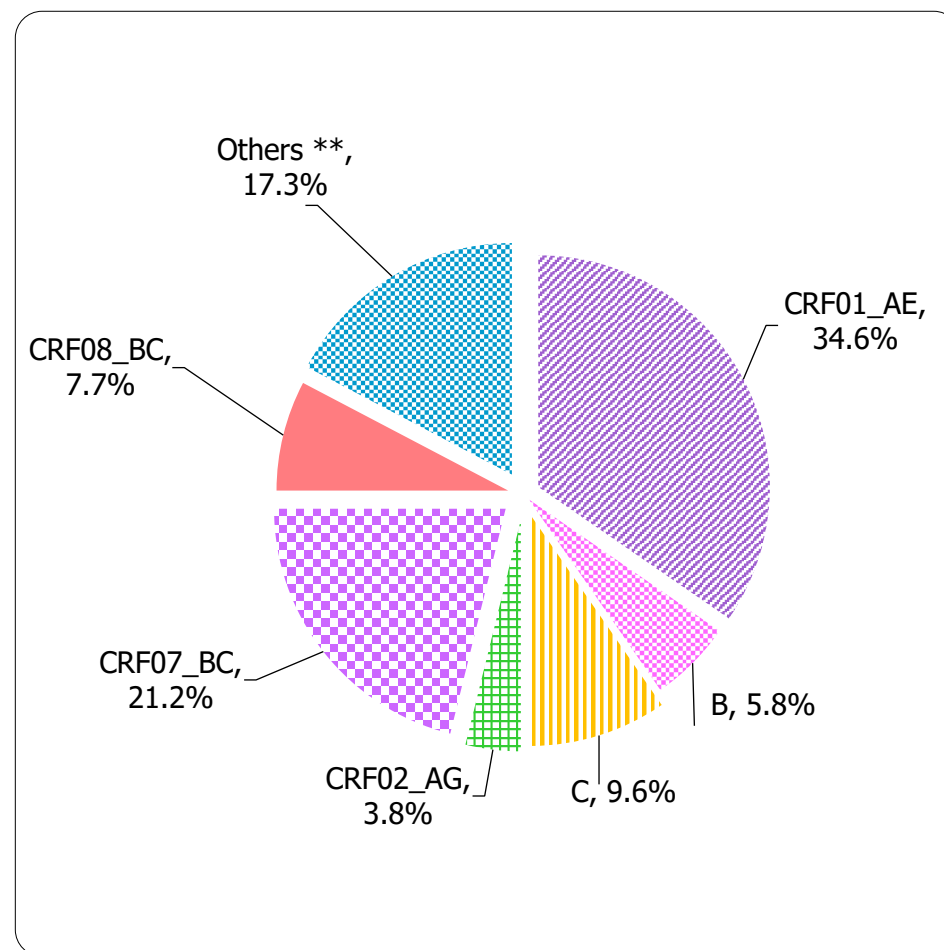
* Including cases with HIV type 1 or PCR positive result.

** Including subtype A, A1, A2, B', D, F, F1, F2, G, CRF03_AB, CRF05_DF, CRF06_cpx, CRF09_cpx, CRF10_CD, CRF11_cpx, CRF12_BF, CRF13_cpx, CRF14_BG, CRF15_01B, CRF55_01B.

(iii) Year 2021 – Heterosexual male (HEM)

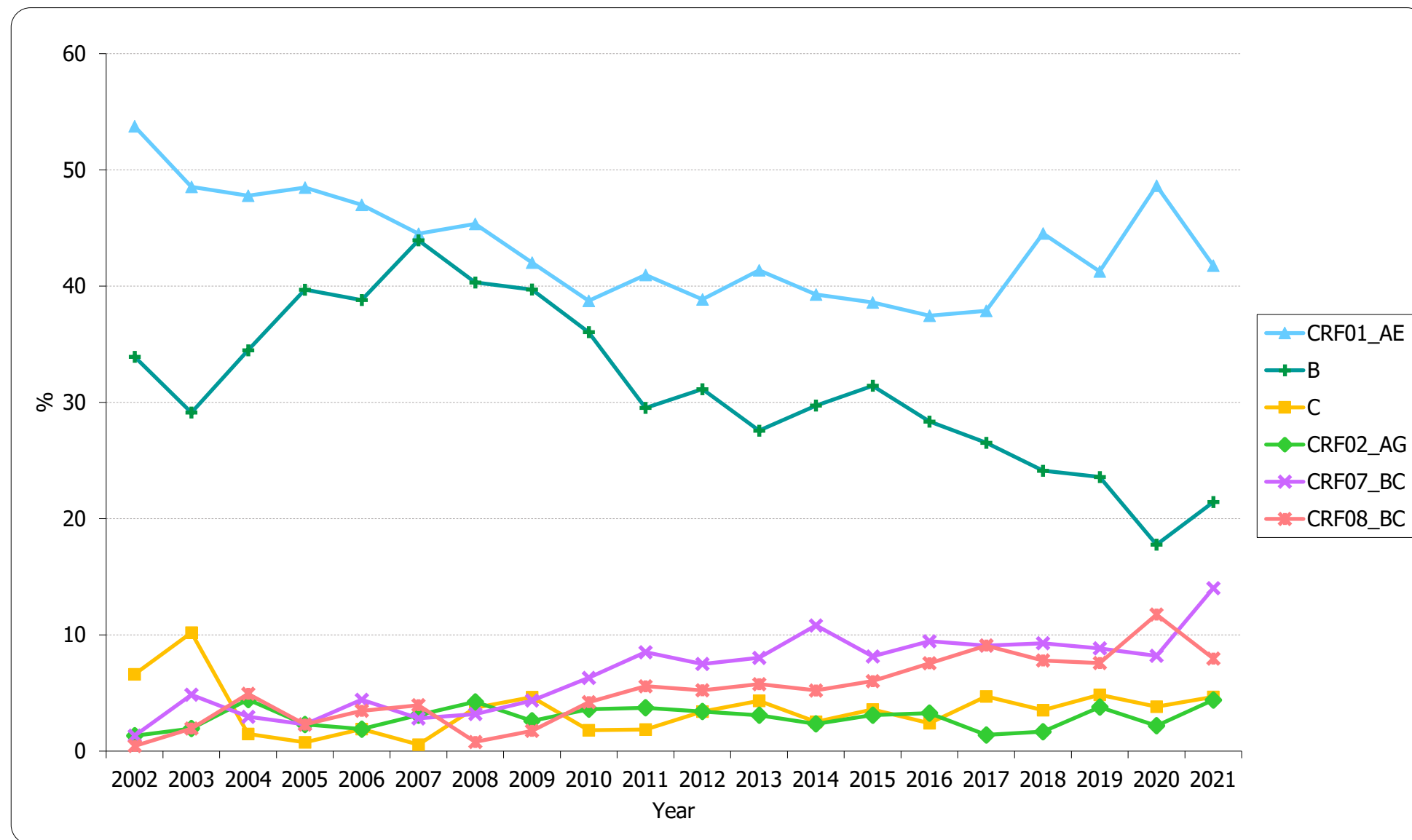


(iv) Year 2021 – Heterosexual female (HEF)



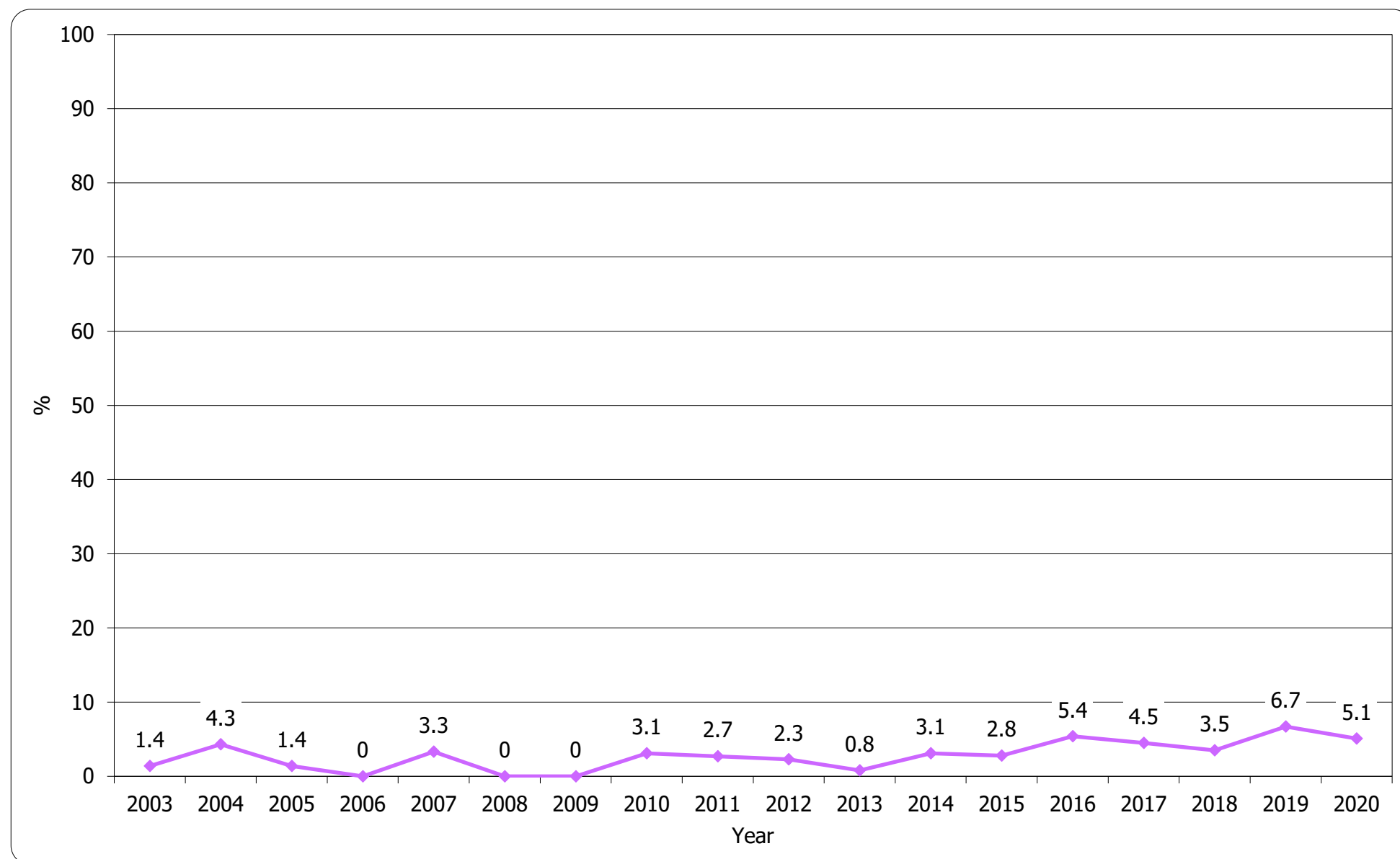
** Including subtype A, A1, A2, B', D, F, F1, F2, G, CRF03_AB, CRF05_DF, CRF06_cpx, CRF09_cpx, CRF10_CD, CRF11_cpx, CRF12_BF, CRF13_cpx, CRF14_BG, CRF15_01B, CRF55_01B.

Box 6.3 Trend in the common HIV-1* subtypes in Hong Kong (2002 – 2021)



* Including cases with HIV type 1 or PCR positive result.

Box 6.4 Prevalence of intermediate or high level drug resistance related mutation among newly diagnosed HIV patients (2003 – 2020)



Appendix I: HIV/AIDS report form (DH2293)

DH2293, revised April 2019

DEPARTMENT OF HEALTH

HIV/AIDS Report Form

The HIV/AIDS voluntary reporting system has been in place since 1984. All doctors are encouraged to report patients with HIV/AIDS and to update status of the previously reported cases where appropriate. This is an anonymous and confidential system. Data collected is crucial for understanding the HIV epidemiology in Hong Kong and is used in global analysis only. Aggregate statistics are released quarterly and can be obtained at www.aids.gov.hk. For any query, please call 3143 7225 or email us at aids@dh.gov.hk. Completed form can be faxed to 2297 3239 or mailed to Special Preventive Programme, Centre for Health Protection, Department of Health.

Please complete ALL sections and '✓' in the appropriate box.

Section (A) – Report of HIV

[1] THIS is a ☐NEW report or ☐UPDATE of previous reported case

[2] Your reference code number!: _____ [3] Does the patient have a HK identity card? ☐Yes ☐No

[4] Sex : ☐M ☐F For female, is she pregnant? ☐No ☐Yes If yes, go to Box 1

[5] Date of birth: ____/____/____ (ddmmyyyy) OR Age at last birthday: _____

[6] Ethnicity: ☐Chinese ☐Asian, specify: _____ ☐Caucasian ☐Black ☐Others: _____ ☐Unknown

[7] Suspected risk(s) for HIV infection²

☐Heterosexual ☐Homosexual ☐Bisexual

☐Injecting drug use

☐Transfusion of blood/blood products (Haemophilia: ☐Yes ☐No)

☐Perinatal

☐Others, please specify: _____

☐Asked, but risk undetermined

☐Not asked

Box 1
Gravida ____ Para ____ LMP ____/____/____ (ddmmyyyy)
Obstetric follow up clinic/ hospital : _____
Plan: ☐TOP ☐Continue pregnancy
Expected hospital/place of delivery: _____

[8] Suspected place of infection: ☐Hong Kong ☐Mainland China, specify: _____ ☐Others, specify: _____

☐Asked, but undetermined ☐Not asked

[9] Date of laboratory diagnosis in HK: ____/____/____ (ddmmyyyy)

[10] Confirmation test: ☐Yes ☐No If Yes, by ☐Western Blot ☐PCR ☐others _____

[11] Name of Laboratory: _____ [12] Laboratory Number, if a/v: _____

[13] Previous HIV diagnosis outside HK: ☐No ☐Yes If yes, date: ____/____/____ (ddmmyyyy) place: _____

[14] Any previous negative HIV test: ☐No ☐Yes If yes, date of last negative HIV test ____/____/____ (ddmmyyyy)

[15] CD4 (cells/μl): _____ Date: ____/____/____ (ddmmyyyy)

[16] HIV status of spouse/regular partner: ☐HIV positive ☐HIV negative ☐Unknown ☐No spouse/regular partner

Section (B) – Report of AIDS

[17] Has the patient developed AIDS³: ☐ Yes ☐ No (Go to Section C)

[18] If yes, the AIDS defining illness(es) is (are):

(i) _____ Date of diagnosis: ____/____/____ (ddmmyyyy)

(ii) _____ Date of diagnosis: ____/____/____ (ddmmyyyy)

(iii) _____ Date of diagnosis: ____/____/____ (ddmmyyyy)

[19] CD4 (cells/μl) at AIDS: _____ Date: ____/____/____ (ddmmyyyy)

Section (C) – Report of Outcome

[20] Has the patient referred to/seen at public HIV clinic ☐Yes ☐No If yes, referred on/seen at: ____/____/____ (ddmmyyyy)

[21] Has the patient defaulted follow up? ☐Yes ☐No If yes, last seen on: ____/____/____ (ddmmyyyy)

[22] Is the patient under private HIV medical care ☐Yes ☐No

[23] Has the patient left HK? ☐Yes ☐No If yes, last seen on: ____/____/____ (ddmmyyyy)

[24] Has the patient died? ☐Yes ☐No If yes, date of death: ____/____/____ (ddmmyyyy) Cause: _____

Section (D) – Correspondence

Name of medical practitioner: _____ ☐in private practice ☐in public service

Correspondence Address: _____

Tel: _____ Fax: _____

Email: _____ Date: ____/____/____ (ddmmyyyy)

¹ Please put down any code of your choice (e.g. case number) for matching purpose only.

² Please tick the most likely risk for contracting HIV infection. If there is more than 1 suspected risk, please put down 1 & 2 in descending order of the two most likely risks.

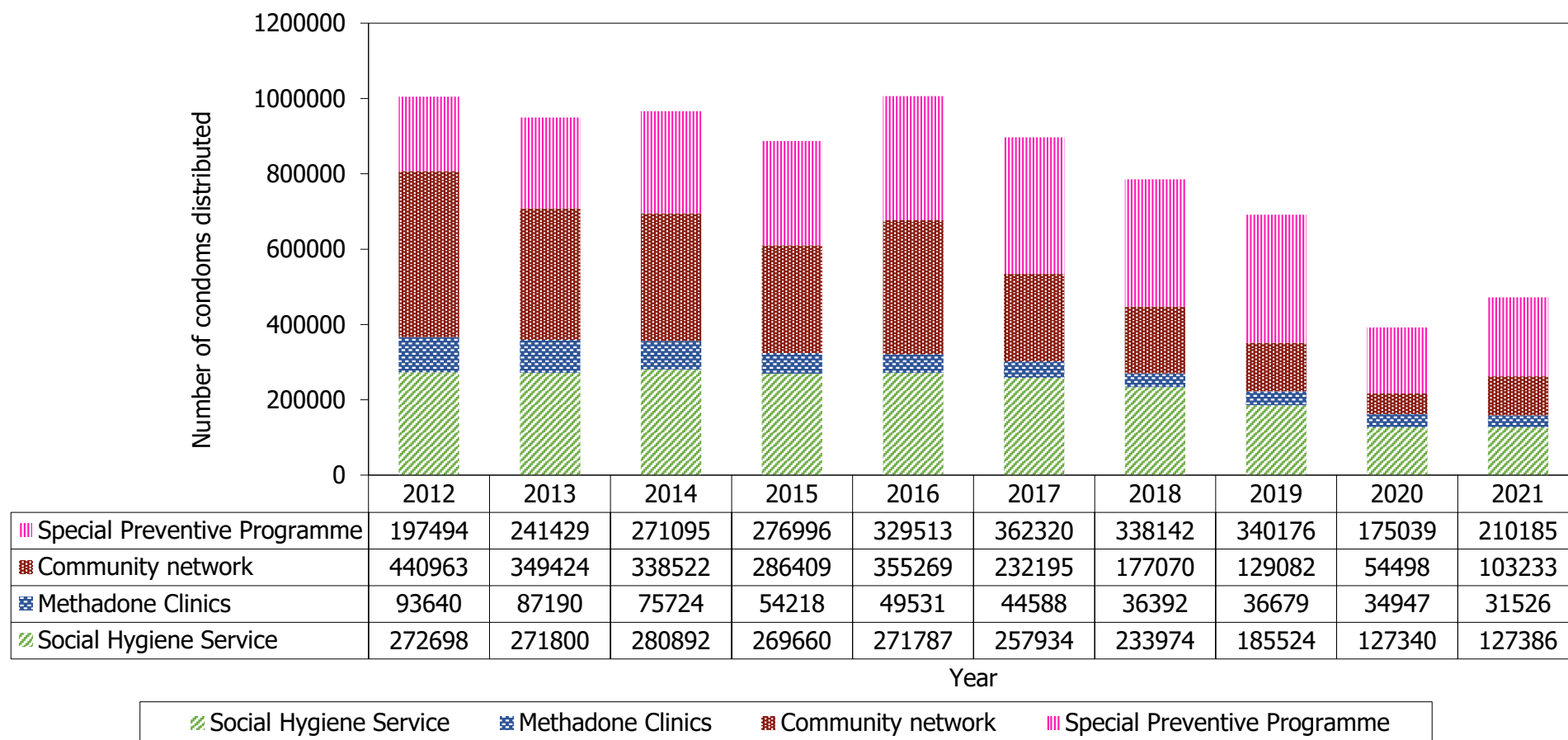
³ Surveillance definition of AIDS: a definitive laboratory diagnosis of HIV infection AND one or more of the AIDS indicator conditions (July 1995, Scientific Committee on AIDS. Available at www.aids.gov.hk/english/surveillance/definition.html).

ALL INFORMATION WILL BE TREATED IN STRICTEST CONFIDENCE

Appendix II: Classification system for HIV infection and surveillance case definition for AIDS in adolescents and adults in Hong Kong

A definitive laboratory diagnosis of HIV infection normally by a positive screening test for HIV antibody (e.g. ELISA) supplemented by a confirmatory test (e.g. western blot) + one or more of the AIDS indicator conditions	
AIDS indicator conditions	Candidiasis of bronchi, trachea, or lungs Candidiasis, oesophageal Cervical cancer, invasive Coccidioidomycosis, disseminated or extrapulmonary Cryptococcosis, extrapulmonary Cryptosporidiosis, chronic intestinal (> 1 month's duration) Cytomegalovirus disease (other than liver, spleen or nodes) Cytomegalovirus retinitis (with loss of vision) Encephalopathy, HIV-related <i>Herpes simplex</i>: chronic ulcer(s) (> 1 month's duration); or bronchitis, pneumonitis, or oesophagitis Histoplasmosis, disseminated or extrapulmonary Isosporiasis, chronic intestinal (> 1 month's duration) Kaposi's sarcoma Lymphoma, Burkitt's (or equivalent term) Lymphoma, primary, of brain <i>Mycobacterium tuberculosis</i>; extrapulmonary or pulmonary/cervical lymph node (only if CD4 < 200/ul) Pneumonia, recurrent Penicilliosis, disseminated Mycobacterium, other species or unidentified species, disseminated or extrapulmonary <i>Pneumocystis jiroveci</i> pneumonia (previously known as <i>Pneumocystis carinii</i>) Progressive multifocal leukoencephalopathy Salmonella septicaemia, recurrent Toxoplasmosis of brain Wasting syndrome due to HIV
Hong Kong has adopted the 1993 Centers for Disease Control and Prevention (CDC) AIDS classification with 3 modifications: (1) disseminated penicilliosis is added as one AIDS-defining condition, (2) pulmonary or cervical lymph node tuberculosis included only if CD4 < 200 µl, (3) a CD4 < 200 µl without any AIDS-defining condition is not counted as AIDS.	

Appendix III: Condom distribution for the prevention of HIV and STI by the Department of Health (2012 – 2021)



Note:

1. Community network includes collaborative projects with Action for REACH OUT, AIDS Concern, CHOICE, Phoenix Project of SARDA, Gay Harmony and Midnight Blue.
2. Special Preventive Programme and others condom distribution points, including Correctional Services Department, Port Health Division, Tuberculosis and Chest Service, Elderly Health Centres, Families Clinics and the Society of Rehabilitation and Crime Prevention.