The contribution of methadone maintenance treatment to HIV prevention – the case of Hong Kong

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Abstract

Since the 1980s when HIV was first reported in the territory, Hong Kong has been enjoying a relatively low prevalence among injection drug users. The network of methadone clinics has contributed to this unique phenomenon by reducing risk-taking behaviours, and by introducing a set of integrated HIV prevention efforts aiming to contain the infections in the drug-taking community. The latter efforts include enhanced surveillance, public education, access to HIV testing, and pilot projects designed to reduce injection. With the expansion of the HIV epidemic in the nearby cities and countries, these efforts have been stepped up to include an outreaching programme, a media campaign to promote acceptance of substitution treatment, and more recently, a yearly urine HIV antibody testing mechanism targeting all drug users using the methadone clinics. The HIV prevalence has remained low at less than 0.5% among drug users, compared with two-digit figures reported in some provinces in Mainland China and South-East Asia. Methadone clinics have played a central role in responding to the HIV epidemic. The volatile situation however serves as a reminder that the programme requires constant updating, regular review and modification to meet society's public health needs.

Introduction

Worldwide, an estimated 40 million people are living with human immunodeficiency virus (HIV) (UNAIDS/WHO, 2004). Needle-sharing among injection drug users (IDUs) is one of the main routes for HIV spread. Globally there are about 13 million IDUs of whom half are infected with the virus

(Mane, 2005). The scale of the HIV problem varies from one country to another. The epidemics share one common characteristic, i.e. rapid dissemination through risk behaviours. In China there are 3-4 million (China CCM 2004) IDUs. HIV prevalence ranges from 18-56% in the southern provinces of Guangdong and Guangxi neighbouring Hong Kong (UNAIDS/WHO, 2004). In Xinjiang, Yunnan and Sichuan the prevalence is over 50% (State Council & UN Theme Group in China, 2004).

Hong Kong, a special administrative region in Southern China with a population of about 7 million, has so far been spared from an explosive HIV epidemic among IDUs. A cumulative total of over 2,500 cases of HIV infection have been reported in the territory. On average between 200 and 300 new cases have been reported annually in the past few years. Sexual transmission remains the commonest mode for HIV spread while infection in IDUs is distinctly uncommon (Special Preventive Programme, 2004). Figure 1 gives an overview of the HIV situation in the territory, as at the end of the year 2004. In the last decade, HIV prevalence has continued to rise in Hong Kong's neighbouring countries, including Thailand, Vietnam and Myanmar, and cities in the Pearl River Delta Region. The situation in Hong Kong has been relatively stable. The HIV prevalence among IDUs has remained low at below 1% in surveillance exercises conducted among various drug-taking populations.

Why was the HIV prevalence low among Hong Kong's drug users? As a complex public health issue, the cause of low HIV prevalence among drug users would very likely be multifactorial. It is postulated that the methadone maintenance programme has been playing a key role in protecting Hong Kong's drug users from the severe epidemic which is now common in our neighbouring cities. In this report, the response of the methadone programmes in Hong Kong is reviewed, in the context of its relationship with the prevention and control of HIV spread in the drug-taking communities.

How the Methadone Programme was Started

The use of methadone for the treatment of drug users was first reported in the 1960s (Dole & Nyswander, 1965). In the 1970s, the New York City Health Department established a network of methadone maintenance clinics with an enrolment of over 10,000 drug users. This had prompted similar projects to be initiated in other parts of the world, as the drug problem was almost universal. By the end of 1974, the Hong Kong Government had opened two new methadone maintenance treatment clinics, followed by another two in January of the following year (Newman, 1985). A consultancy team appointed by the then Director of Medical and Health Services was charged

with examining the evidence for the introduction of methadone maintenance in the territory. By 1976, an extensive network of methadone clinics were opened to provide treatment on demand.

Today, Hong Kong is commemorating the thirtieth anniversary of her methadone maintenance programme. Currently there are 20 methadone clinics located in different districts throughout the territory, the mode of operation of which is not too different from that when the system was first introduced thirty years ago (Figure 2). Unlike countries pursuing methadone maintenance in the last two decades, the original objectives of Hong Kong's programme had nothing to do with HIV infection, a condition which was not even known in the seventies! In 1974/75 there was an acute shortage of heroin and the price had risen sharply (Narcotics Division, 2000). This caused an escalation in crime, and led drug users to switch to injection, a habit that carried a higher risk to health and life (Newman, 2004). The methadone maintenance programme was introduced therefore for security and public health reasons in general, rather than the containment of HIV infections so fiercely debated these days.

Robert Newman, one of the consultants in the early days, nicely summarised some of the characteristics of the methadone treatment programme in Hong Kong (Newman, 1985). Firstly, a medical model has been adopted whereby methadone treatment is offered as a health service requiring a fee for each visit, a uniform practice for clinic consultation at primary case level. The fee was HK$1 (US$1 = HK$7.8) at the launching of the service, and has been kept at the same level ever since, while charges for primary care government clinics have been increased to HK$45 per attendance by 2004. Secondly, the ingestion of methadone is under direct observation and no one is allowed to take the methadone home. Thirdly, a low threshold approach is in force with support services offered "primarily at the initiation of the patients themselves". This principle ensures that the hiring of professional staff can be kept at a minimum. There is no waiting time, and treatment is offered truly on demand. Clinic administration and the dispensing of methadone are provided by Auxiliary Medical Service volunteers who are trained to do the job in accordance with standard protocols. The provision of services by volunteers and the employment of a minimum number of professional staff have also kept the running cost at a reasonable level, thus ensuring sustainability over the years.

What were the early impacts of the methadone system? Obviously, the methadone maintenance programme had proven to be an effective means of countering negative societal effects of heroin

addiction. A safety net has been in place to protect drug users from harmful behaviours in times of fluctuating heroin prices. A study revealed that the average retail price of heroin was in fact directly proportional to daily attendance at methadone clinics (Legislative Council Secretariat, 1996). When heroin prices went up, the clinics were flexible enough to take in more drug users, thereby reducing their exposure to risky behaviours when desperate. The clinics stood the test in time of a drought in Golden Triangle in 1979 with the daily attendance shooting up by almost 2,000 per month. It has been noted also that the number of drug users sentenced to prison declined by 70% in the first five years following expansion of the methadone programme. Contrary to some people's concern, statistics showed that the new programme had not displaced conventional drug rehabilitation services but rather complemented them (Newman, 1985). The down side however is that methadone clinics have become such a routine service that society has gradually forgotten about their values in public health and security terms.

Protecting from HIV Threats – the Initial Years

The first cases of HIV/AIDS in Hong Kong were reported in 1984/85. A voluntary reporting system was introduced by the Medical and Health Department to track the epidemic, through collaboration with medical practitioners and testing laboratories. A significant proportion of reported cases between 1984 and 1990 were related to the use of contaminated blood products in haemophilia patients. Infections arising from risk behaviours were largely results of sex between men (42%) (Figure 3a and 3b). During this period, only five cases of HIV positive drug users were identified, accounting for 2% of the over 200 cases reported.

From the early nineties, methadone clinics began to function as important sentinel sites for HIV surveillance, through the implementation of unlinked anonymous screening using urine samples collected for drug monitoring. Between 1991 and 2000, a total of over 1,300 HIV cases were reported (Figure 3a and 3c). Though these were small numbers, the yearly reports had increased two- to three-folds compared with the first decade. HIV infection stood out as a predominantly sexually acquired infection, with heterosexually transmitted infection gradually taking over as the most important route for dissemination. During this 10-year period, IDUs continued to account for just 2% of the total reported cases. The unlinked anonymous screening system provided prevalence figures ranging from 0-0.3% among drug users attending the territory's methadone clinics (Special Preventive Programme, 2004).

In the initial years, HIV had seemingly not been introduced to the drug-taking communities. In these early days in the eighties, drug users in Hong Kong might not have the opportunity to socially mix with HIV positive drug users in other countries. Apparently, the HIV numbers were still relatively low in neighbouring cities. It was not until late 1980s that HIV became reported in most countries in South-East Asia and Mainland China. It would be however difficult to argue that HIV was not introduced to Hong Kong in the nineties, the time when the HIV problem in IDUs escalated in South- East Asia. Again the virus had not taken root among drug users in Hong Kong. The "safety net" offered by methadone clinics could have been exerting its influence by minimising risky exposure to the virus, even if it were circulating in the population. Since about 70% of drug users registered in the registry did attend the territory's methadone clinics (Regional Task Force on Drug Use & HIV Vulnerability, 2002), the wide coverage had ensured that public health impacts were exerted.

Methadone Clinics as a Platform for Integrated HIV Prevention Efforts

Methadone maintenance itself is a means for minimising practice of risky behaviours, thus contributing to a reduction of exposure to HIV infection. Cheung and Ch'ien (1997) defined this as one form of harm reduction effort, in contradistinction to the second type of efforts involving the "promotion of HIV prevention and AIDS education among drug users". The latter efforts can be characterised as a set of integrated preventive and health promotion activities delivered through methadone clinics.

What then were these activities? The production of tailored education materials targeting drug users is now one important task of the Government's HIV programme, which has been partnering methadone clinics since the early nineties. Posters were and still are on the walls of these clinics, with pamphlets distributed from time to time. Condoms were distributed through the Department of Health's HIV programme, amounting to 0.8 million pieces per year today, through different outlets reaching people practising risk behaviours and the general public. Though only one-tenth is distributed at methadone clinics, these were the very first outlets for trying out condom distribution, even before the practice was adopted at the territory's STI (sexually transmitted infection) clinics. Video and audio broadcasts were provided. About a decade ago, a trial of distribution of bleach was conducted to explore their acceptability in the drug-taking communities. There was also the pilot run of distributing boxes for collecting used syringes. The methadone clinics have in fact become the *de facto* research sites for public health intervention for preventing HIV spread. In a broader perspective, methadone clinics have been playing a supporting role to the staging of media campaigns for HIV prevention through

injection drug use. Viewers of television spots were advised to go to methadone clinics in case they require assistance.

With time, strategies of HIV prevention were revised to tie in with the demand of the community and also changing local epidemiology. Apart from unlinked anonymous screening, voluntary HIV blood tests have been offered on a need basis. The number tested was small, amounting to 363, 318, and 148 in 2001, 2002 and 2003 respectively (Special Preventive Programme, 2004). Urine testing was subsequently introduced, obviating the needs for blood-taking at the clinics. The scheme of voluntary HIV testing has, nevertheless, consolidated the role of methadone clinics as a unique HIV prevention site in the territory. The low-threshold approach was also modified. The support of social workers became available and group counselling was gradually introduced. In an interview survey of 729 methadone clinic clients in 1999, about 60% had received counselling (Narcotics Division, 2000). Through the clinics, tetanus vaccination is provided to drug users. This adds to the battery of intervention programmes organised to protect the health of the clients.

The work of the methadone clinics was reviewed in a study in 1999, leading to the publication of a review report entitled “Report on Review of Methadone Treatment Programme” (Narcotics Division, 2000). For the first time in 30 years, activities at the clinics were systematically recorded. The strategies, operations and their rationales were critiqued. The report is now an important piece of reference for local and overseas workers interested in substitution treatment.

Challenge of the New Millennium

The turn of the century marked the intensification of HIV spread among IDUs in South East Asia. Reports of HIV prevalence among IDUs in Thailand of 54%, Malaysia of 30-40%, Myanmar of 30-60% and Indonesia of 15-50% served as a wakeup call to public health authorities at national and international levels (Reid & Costigan, 2002). In Mainland China in 2000, an HIV prevalence of 80% was reported among IDUs in Xinjiang and Yunnan, 20% in Guangdong, up to 40% in Guangxi and 17% in Jiangxi (UN Theme Group on HIV/AIDS in China, 2002). The number of reported HIV positive drug users in Hong Kong has also risen from less than 5 per year before 1999, about 10 in 2000-2003, to over 20 in 2004. In the four-year period from 2001 to 2004, some 5.5% of the reported infections had occurred in drug users (Figure 3). By source of referrals, the number of HIV positive cases diagnosed at drug rehabilitation services (including methadone clinics) has increased from

just one case in 1984-1989, to 5 in 1995-1999, and 30 in 2000-2004. The absolute numbers were however quite small and there was no evidence of any clustering (Figure 4). In the Pearl River Delta cities around Hong Kong, the prevalence had also reached 5% in general.

It was quite obvious that something needed to be done, before any HIV outbreaks actually occurred. Again, it was exactly at the same methadone clinics that new initiatives were developed. In 2001, a pilot project was launched to outreach drug users hanging out in areas in the vicinity of the clinics. While the clinics had been looking after a sizable drug-taking population, an expansion of the catchment through outreaching appeared to be a sensible move. A joint project between Red Ribbon Centre, an AIDS education centre managed by the Government HIV programme, and the Society for the Aid and Rehabilitation of Drug Abusers (SARDA) was introduced. Ex-drug users were recruited to serve as outreach workers and counsellors to drive home the message of harm reduction, incorporating the effectiveness of substitution treatment. An evaluation programme conducted subsequently confirmed that those reached by the team tended to have a lower rate of needle-use and sharing (Lee *et al*, 2001). The project, named Project Phoenix, has since become a regular component of the services discharged through the methadone clinic network, with the active participation of rehabilitated drug users.

Another initiative developed in response to the rising HIV prevalence was the provision of universal HIV screening to drug users, with a view to enabling early diagnosis to be made, and public health intervention to be introduced should outbreaks be spotted in the exercise. Because of the low popularity of blood screening, urine tests were introduced, again through the wide network of methadone clinics. A pilot project was pioneered in 2003 to provide voluntary urine HIV testing. Over a three-month period, 1,817 (74%) of 2,456 methadone clinic clients were tested, with an HIV prevalence of 0.5% (Lee, 2004). The high acceptability of the approach subsequently prompted the Government to roll out the programme as a regular yearly exercise for all drug users attending the territory's methadone clinics. Coverage of the programme was 75% during the pilot phase, and was around 90% in the four quarters after the roll-out. The programme serves the following purposes: (a) promote early HIV detection in infected drug users; (b) enhance surveillance; (c) provide information on HIV/AIDS and drug use; and (d) link HIV detection with treatment services for facilitating the provision of care and public health intervention.

In a broader perspective, methadone clinics play a supporting role to the territory's media campaigns to prevent HIV spread through needle-sharing. Knowingly, informing drug users about the risk of unsafe injection cannot happen just in drug rehabilitation services. The extensive coverage of media campaigns in fact serves also the function of bringing the message to drug users and their significant others. In so doing, the very stigma associated with drug addiction could be removed in the process of desensitisation. It was against these backgrounds that in 2000, a media campaign focusing on the principle of harm reduction was launched. The campaign used substitution treatment as the example for reducing personal and societal harm in drug injection. It served the purposes of not only informing the public, but also drug users about harm associated by injection and needle-sharing, and the benefits of substitution treatment (Wong & Kong, 2002). This was the first time that the social marketing of methadone treatment was introduced as a government effort, with the support of the community.

Finally, the rising demand for the scientific evidence of substitution treatment in harm reduction has prompted experts in Hong Kong to document their experiences for the reference of people and agencies facing HIV problems in the region. In a study conducted in 1999/2000, 937 methadone clinic clients were invited to join a study to examine factors associated with the reduction of risk-taking behaviours in IDUs (Wong *et al*, 2003). It was reported that infrequent attenders were two times more likely to have injected heroin in the preceding month. Furthermore, clients taking at least 60mg methadone were less likely to have multiple injections. These provided the basis for adherence to methadone maintenance treatment as an effective approach to reducing HIV-related risk behaviours.

Conclusion

In the 30-year period since methadone clinics were opened in Hong Kong, the methadone treatment programme has been serving both public security as well as public health objectives. Today, the Programme is administered through the network of 20 clinics distributed over the territory of Hong Kong. As at the end of 2004, there were over 9,000 registered drug users and the average attendance was 7,056, with 95% on maintenance. The service is run by the Department of Health as both a clinical and a public health service. The Programme has enabled Hong Kong to keep HIV infection at bay in drug users, through the reduction of risk-taking behaviours directly, and also through an integrated set of measures aimed at HIV prevention in the very community. The latter includes

enhanced surveillance, outreaching, public education, and regularised urine testing for HIV antibody. These activities also promote acceptance of the harm reduction strategy in the community.

The provision of substitution treatment on a population scale illustrates how harm reduction can be operationalised. Unfortunately, the term "harm reduction" has gone through unforgiving debates as regards its exact meaning, and has continued to be a contentious issue at political and even professional levels. In 1998, the United Nations General Assembly adopted the Declaration of the Guiding Principles of Drug Demand Reduction. Demand reduction was taken to "cover all areas of prevention, from discouraging initial use to reducing the negative health and social consequences of drug abuse" (United Nations General Assembly, 1998). While not specifying the term "harm reduction", its strategies are implied. It was not until 2001 at the United Nations Special Session on HIV/AIDS that harm reduction was specified as strategy for addressing prevention, with the commitment that "By 2005, ensure: that a wide range of prevention programmes which take account of local circumstances…. Expanded access to essential commodities, including….sterile injecting equipment; harm reduction efforts related to drug use" (United Nations General Assembly Special Session on HIV/AIDS, 2001). Today, the strategy of harm reduction is considered an important one for preventing HIV spread in the populations.

The methadone treatment programme in Hong Kong is an example of how harm reduction can be achieved in practice. Understandably this is not yet a perfect system, and that substitution treatment forms only part of the full matrix of harm reduction interventions which very often include also outreaching and needle access on a population scale. The lessons from the Hong Kong system are, however, important. Firstly, coverage is crucial. The capacity and flexibility to take in as many drug users as possible on demand is one of the most important criteria for assessing the effectiveness of the programme. Secondly, there shall be adequate dose of methadone to ensure that as little as possible risk behaviours are practised. Thirdly, acceptance by society is needed. Non-acceptance by the general populations and policy-makers may inadvertently allow an effective programme to deteriorate and eventually break down. Finally, despite the positive impacts of the methadone programme in Hong Kong, continuous improvement and evaluation shall be conducted. The programme has been serving us well, given the unique environmental factors as regards HIV prevalence, economic conditions and population structure. This may be a delicate balance that has been attained, and care should be taken to get complacency out of the way.

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References

Cheung, Y.W. and Ch'ien, M.N. (1997) Drug policy and harm reduction in Hong Kong: a socio-historical examination. *International Journal of Drug Policy*, 8, 117-131.

China Country Coordinating Mechanism (2004) *Reducing HIV transmission among and from vulnerable groups and alleviating its impacts in seven provinces in China – a Round 4 Proposal*. Switzerland, Geneva: Global Fund to fight AIDS, TB and Malaria. www.theglobalfund.org accessed on 23 May 2005.

Dole, V.P. and Nyswander, M.E. (1965) A medical treatment for diacetylmorphine addiction. *Journal of American Medical Association*, 193, 146-150.

Lee KF, Lee YT, Lun MY, Tsui CL. (2001) A review on the harm reduction outreach project on AIDS prevention. *Hong Kong AIDS Conference* 27-29 August 2001.

Lee SS. (2004) Regular urine testing for HIV antibody in Hong Kong's methadone clinics. *AHRNEWS May – December, 16.*

Legislative Council Secretariat. (1996) *Methadone treatment programme in Hong Kong and selected countries.* (Data from Central Registry of Drug Abuse and Department of Health). Hong Kong: Government Printer.

Mane, P. (2005) *Statement at the 16th International Harm Reduction Conference 20-24 March 2005*. Belfast, N Ireland. Switzerland, Geneva; UNAIDS. www.unaids.org accessed on 23 May 2005.

Narcotics Division. (2000) *Report on review of methadone treatment programme.* Hong Kong: Government Printer.

Newman, R. (1985) Narcotic addiction and methadone treatment in Hong Kong: lessons for the United States. *Journal of Public Health Policy*, 6, 526-538.

Newman, R. (2004) Hong Kong: building a large scale, low threshold methadone program. In International Harm Reduction Development. *Breaking down barriers – lessons on providing HIV treatment to injection drug users.*(pp.42-50). New York: Open Society Institute.

Regional Task Force on Drug Use & HIV Vulnerability (2002). Hong Kong: Methadone treatment programme. In: *Preventing HIV/AIDS among drug users – case studies from Asia.* (pp 57-70) Bangkok: UNAIDS/AJRN/UNODC.

Reid G and Costigan G. (2002) *Revisiting the hidden* epidemic *– a situation assessment of drug use in Asia in the context of HIV/AIDS.* Melbourne: Centre for Harm Reduction.

Special Preventive Programme (2004). *HIV surveillance report – 2003 update.* Hong Kong: Department of Health.

State Council AIDS Working Committee Office and United Nations Theme Group on HIV/AIDS in China (2004). *A joint assessment of HIV/AIDS prevention, treatment and care in China (2004).* Beijing: UNAIDS China.

United Nations General Assembly (1998). *Declaration of the guiding principles of drug demand reduction.* Vienna: Commission on Narcotic Drugs.

United Nations General Assembly Special Session on HIV/AIDS (2001). *Declaration of commitment on HIV/AIDS*. New York: United Nations.

UN Theme Group on HIV/AIDS in China (2002). *HIV/AIDS: China's titanic peril.* Beijing: UNAIDS China Office.

UNAIDS/WHO (2004). *AIDS epidemic update December 2004*. Geneva: Joint United Nations Programme on HIV/AIDS and World Health Organisation.

Wong KH, Lee SS, Lim WL, Low HK (2003). Adherence to methadone is associated with a lower level of HIV-related risk behaviours in drug users. *Journal of Substance Abuse Treatment*, 24, 233-239.

Wong SWD and Kong YWC (2002). *Research report on evaluation on the harm reduction media campaign 2002.* Hong Kong: Department of Applied Social Studies, City University of Hong Kong.

Figure legends

Figure 1. Summarising HIV/AIDS in Hong Kong – December 2004.

Figure 2. Views of two methadone clinics in Hong Kong

Figure 3. Reported HIV infections in Hong Kong (a) overall 1984 to 2004; (b) 1984 to 1990, (c) 1991 to 2000, and (d) 2001 to 2004.

Figure 4. HIV infections reports in drug users 1984 to 2004.

Figure 1

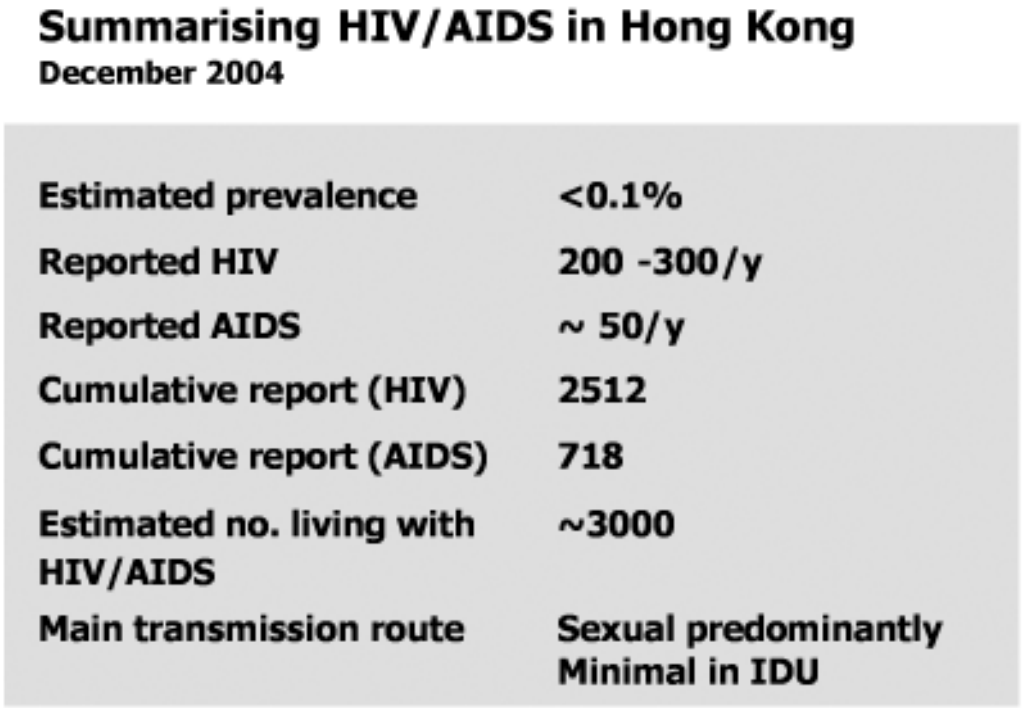


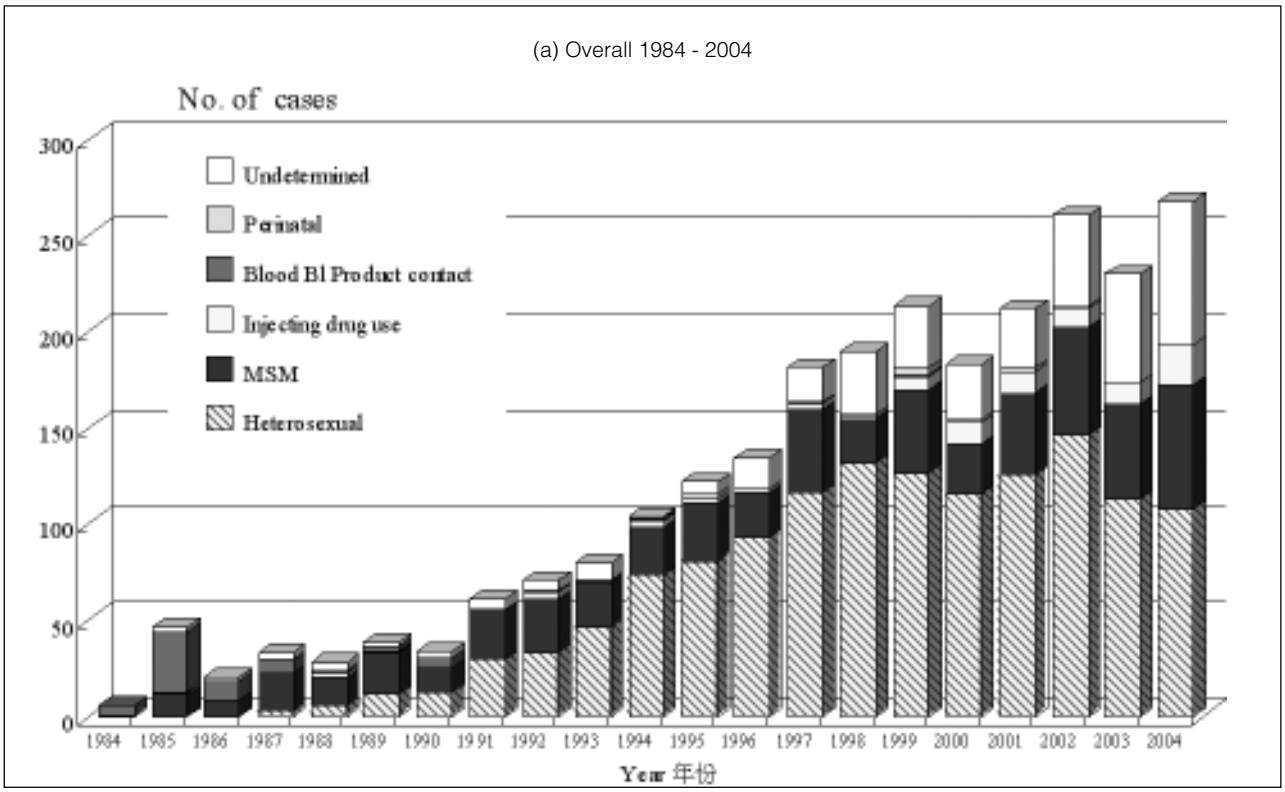
Figure 2

Lady Trench Methadone Clinic

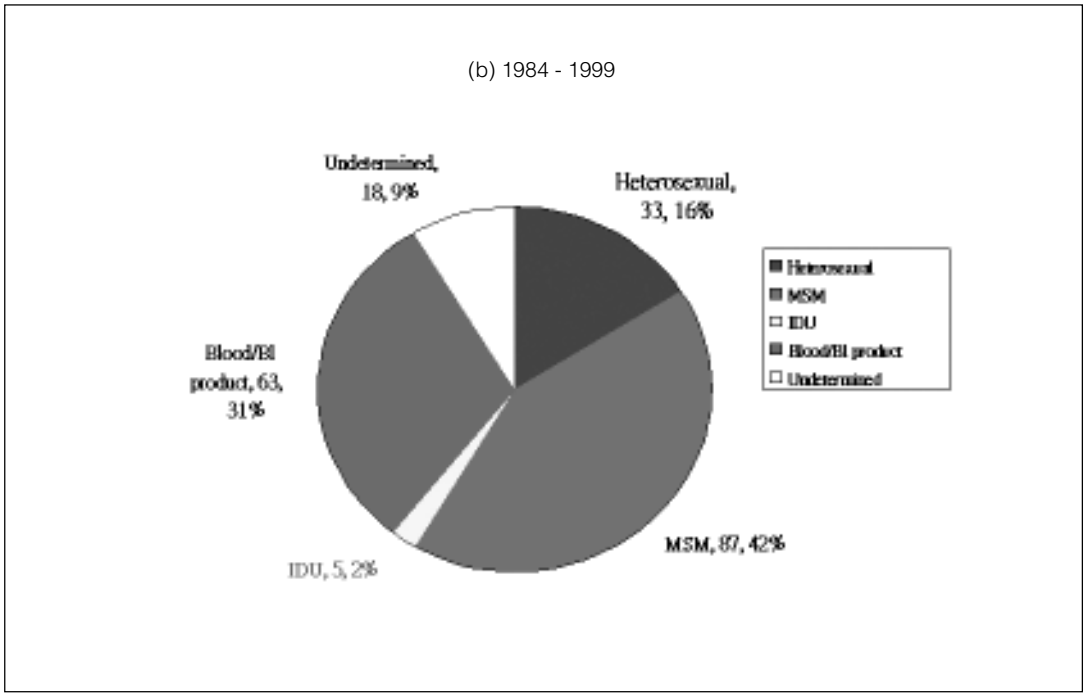
Drug taking area of Sham Shui Po Methadone Clinic

Figure 3

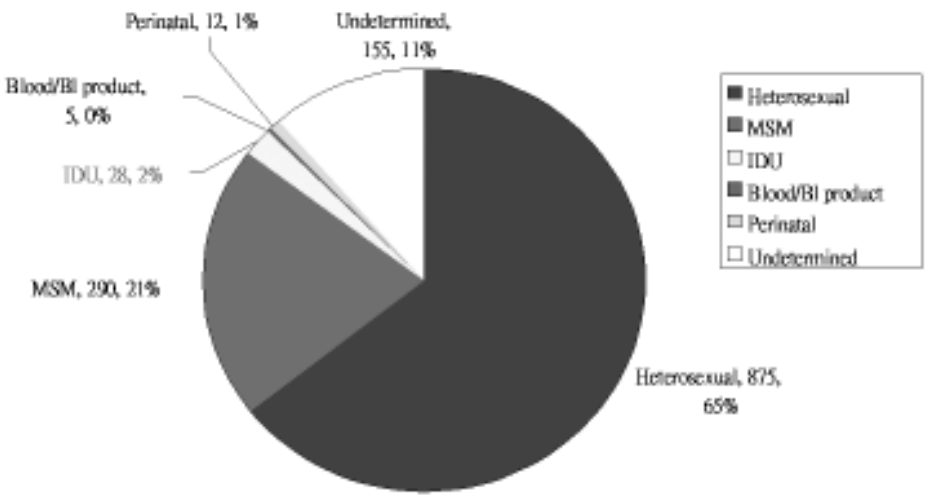
(a) Overall 1984 - 2004



(b) 1984 - 1999



(c) 1991 - 2000



(d) 2001 - 2004

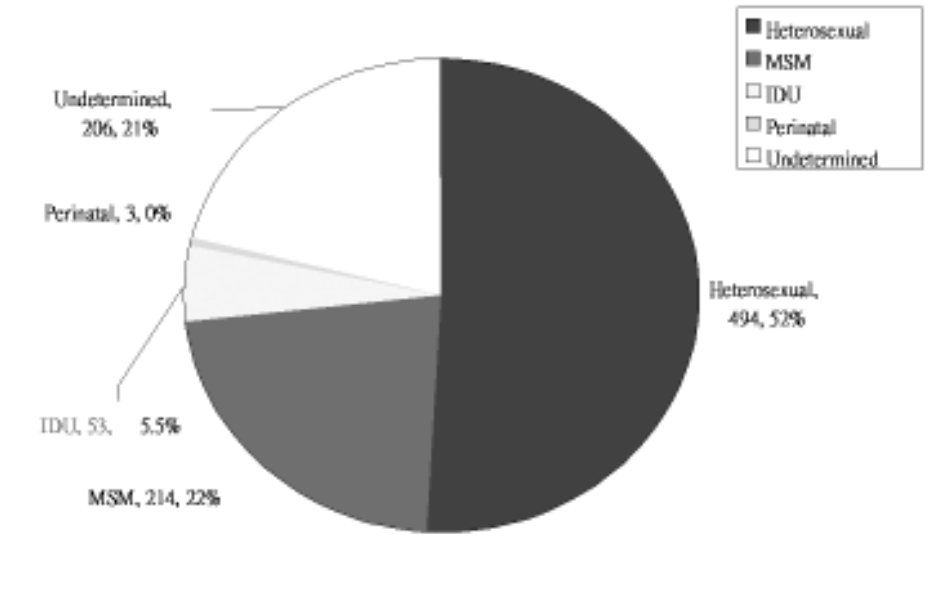
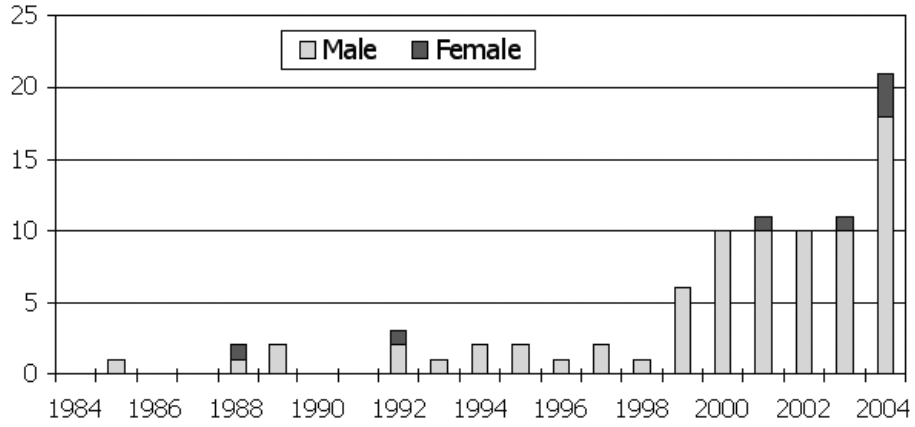


Figure 4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