Assessing the Socioeconomic Costs of Drug Abuse in Hong Kong SAR

Research Report Submitted to

Beat Drugs Fund Association

Submitted by

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Chapter 1. Introduction

This study estimates the socioeconomic costs of drug abuse in Hong Kong in the year 2014 and provides a local economic assessment of the burden of drug abuse.

It is beyond doubt that the use of illicit drugs leads to a large number of social aftermaths and adverse health repercussions. There is a worldwide strong interest in the development of scientifically accredited and reliable estimates of the socioeconomic costs of drug abuse. In assessing the possible impact of the strategies on anti-drug abuse, an internationally acceptable measurement of the socioeconomic consequences is important to understand how much resources would be saved were drug abuse be eradicated in the community. This serves significant functions in decision-making policies, allocation of resources, and the intervention of anti-drug programs in society. International studies estimating the costs of substance abuse in society have consistently reported that such costs are remarkably huge. The total societal cost of drug abuse in Canada and Australia was estimated to be CAD 39.8 billion in 2002 (Rehm et al., 2006) and AUD 8.2 billion in 2004/05 (Collins & Lapsley, 2008), respectively. The estimated total economic cost of illicit drugs on the US society was much higher at USD 193 billion in 2007 (National Drug Intelligence Center, 2011), doubling the costs in 1992 (Harwood, Fountain, & Livermore, 1998). As a perpetual public health issue across nations, the need of studying the social costs of drug abuse is thus almost self-evident.

Similar costs evaluation exercise is relatively less available in Asian countries however. In Hong Kong, such exercise dated back to almost two decades ago. The social cost of drug abuse in 1998 was estimated to be at a minimum of HKD 4.2 billion (Cheung, Ch'ien, & Lee, 2000), covering a wide array of costs such as healthcare, welfare, workplace, and criminal justice. That study developed a pioneer conceptual framework on drug abuse cost estimations in Hong Kong, but the systematic estimates are deemed outdated since the characteristics of drug user have changed enormously (Yuen, 2011). More women and younger-aged people have become drug users, while ketamine, instead of heroin, has become the most common drug abused in Hong Kong. Hence, an update on a reliable estimate of social costs of drug abuse is necessary to plan for accurate and effective deployment and allocation of resources.

According to the International Guidelines for Estimating the Costs of Substance Abuse published by the World Health Organization (WHO), socioeconomic cost estimates of drug abuse can serve the following purposes on public policies (Single et al., 2003, pp. 2-3):

1. *Economic cost estimates are frequently used to argue that policies on alcohol, tobacco and other drugs should be given a high priority on the public policy agenda.*
2. *Cost estimates help to appropriately target specific problems and policies. It is important to know which psychoactive substances involve the greatest economic costs.*
3. *Economic cost studies help to identify information gaps, research needs and desirable refinements to national statistical reporting systems.*
4. *Estimates of the costs of substance abuse offers the potential to provide baseline measures to determine the efficacy of drug policies and programs intended to reduce the damaging consequences of alcohol, tobacco and other drug use. Estimates of the social costs can assist policy makers in evaluating outcomes, as expressed in terms of changes in social costs in constant dollar terms. Estimates of social costs can also facilitate cross-national comparisons of the consequences of substance abuse and different approaches to confronting those consequences.*
5. *Most immediately promising is the prospect for cost estimates to be extended to more comprehensive cost-benefit analyses of specific drug policies and programs.*

1.1. Research scope

In this study, the drug category covers only illicit drugs, including but not limited to opioids, cannabis, hallucinogens, stimulants, and sedative hypnotics. Tobacco, alcohol, and licit drugs such as prescribed medications and over-the-counter drugs were excluded. For clarity purposes, throughout this study, the term drug abuse is restrictively defined as abuse of illicit drugs, and drug user(s), refers only to user(s) of illicit drugs.

1.1.1. Definition of drug abuse

It is essential to state a clear definition of drug abuse in order to let readers understand what this research is estimating. In this study, the definition by the local authority is adopted. Drug abuse in the present study refers to:

> *The taking of substance that harms or threatens to harm the physical, mental or social well-being of an individual, in doses above or for periods beyond those normally regarded as therapeutic (Narcotics Division, 2015a, p. 93).*

Following the categorization defined by the Narcotics Division (ND), illicit drugs included in this study can broadly be divided into narcotics analgesics (or opiates) and psychotropic substances (Narcotics Division, 2015a). Substances such as heroin, opium, morphine and methadone are classified as narcotics analgesics, while other substances including hallucinogens, depressants, stimulants, tranquilizers, ketamine, cough medicines and organic solvents are categorized as psychotropic substances.

In addition, for the purpose of this cost study, an economic definition as suggested by the WHO guideline is adopted to complement the above definition which focuses on the epidemiological and social aspects:

> *Drug abuse exists when drug use involves a net social cost additional to the resource costs of the provision of that drug. Abuse occurs if the community incurs net costs as a result of drug use (Single et al., 2003, p. 18).*

1.1.2. Objectives

This report primarily aims to estimate the social costs of drug abuse in Hong Kong in 2014. It is quite common for cost-estimation exercises to have gaps of several years between the year of study and the year of report (e.g. Canadian study reported the cost of 2002 in 2006; more can be found in the second paragraph of p.1), because it usually takes time for the actual expenditure in a year to be finalized. This study also attempts to provide estimates of cost per capita broken down by genders, age groups, and types of drug use. The specific aims are as follows:

1. To identify and assess the nature, extent and impact of various associated factors and externalities contributing to the socioeconomic costs of drug abuse in Hong Kong;
2. To determine the socioeconomic consequences of drug abuse by the use of different types of illicit drugs in Hong Kong;
3. To identify which subgroups of population suffer the most in drug abuse in terms of socioeconomic costs; and
4. To provide some estimations on the private tangible costs, more specifically, on the spending of drugs and the amount of property destruction based on the survey results.

To fulfill these objectives, the study started by formulating an updated analytical framework to estimate the social costs of drug abuse suitable for Hong Kong. In this regard, common research limitations identified in existing literatures and overseas exercises were addressed to produce a framework with increased reliability and comprehensiveness. In particular, the undercounts of the number of drug user reported in the Hong Kong official drug abuse statistics – the Central Registry of Drug Abuse (CRDA) - should be addressed.

Concisely, this study is divided into four parts. First, based on the identified analytical framework, an estimate of total cost of drug abuse was produced through a series of sub-estimates. Second, a capture-recapture method was applied to estimate the size of the drug abuse population in Hong Kong using the CRDA data. This estimated number of "hidden" drug user was applied to adjust the estimate of social costs in the first part of this study. Third, in order to identify the services and referral mechanisms within the service journey and improve the service provision to drug users, existing service pathways for drug users in Hong Kong were examined. This also provided some understanding on

how costs should be broken down by genders, age groups, and types of drug uses. Finally, based on the above results, estimates of the social costs per drug user by genders, age groups, and types of drug use were given.

1.2. Organization of the report

This report comprises of three main portions.

Chapter 2 describes the methodology of the whole study. It encompasses the framework, methodological issues, data collection, and data analyses of each part of the study.

The main results are presented in Chapter 3 to Chapter 6. Chapter 3 analyses the economic impact of drug abuse in the society of Hong Kong and gives an estimate of its social and private costs attributed to drug abuse in 2014. It consists of a series of sub-sections, each examining costs in a specific area such as healthcare, social welfare, and loss of productivity. Chapter 4 presents the results of a statistical method in estimating the size of the "hidden" drug abuse population using the CRDA data. It also provides an adjusted estimate of costs after including the number of "hidden" drug user in the calculation. This is followed by Chapter 5, which examines the service pathways experienced by drug users. It is further split into quantitative analysis and qualitative analysis. Chapter 6 makes use of the results from Chapter 3 to Chapter 5 and provides some estimates of costs per drug user by genders, age groups and types of drug use.

The reports ends with recommendations and limitations. Chapter 7 summarizes the findings of this study and presents recommendations and policy implications to better decision-making on resource allocation in tackling drug abuse. Chapter 8 presents the limitations of the current study and the issues faced during the whole study. Additional materials can be found in the Appendices.

Chapter 2. Methodology

This study is divided into four parts. This chapter summarizes the methodology used in each of the four parts encompassing the analytical framework, methodological issues, data collection, and data analyses.

2.1. Estimations of socioeconomic costs

To develop an analytical framework suitable for Hong Kong, an extensive literature review was conducted to identify relevant activities or components synthesizing the costs in tackling drug abuse from both local and overseas experiences. Primarily, the framework was developed based on the international guidelines published by the WHO (Single et al., 2003), combined with local (Cheung et al., 2000) and overseas exercises, including Australia (Collins & Lapsley, 2008), New Zealand (Slack, Nana, Webster, Stokes, & Wu, 2009), and the United States (Harwood & Bouchery, 2004; Harwood et al., 1998; McDowell Group, 2012), in estimating the costs of illicit drug abuse. Existing literatures providing reviews on methodological and conceptual issues and suggestions on improvements were further investigated (Melberg, 2010; Moore & Caulkins, 2006; Schori, 2011). In addition to the WHO guidelines, reviews of previous exercises and literatures help identify additional cost items incurred in the local context, and the required data and method of calculation of each cost item. Some methodological and practical issues that may be encountered in the estimations, and some estimates (e.g. attributable fractions) required to be adopted from external sources were also exposed. In brief, a prevalence-based cost-of-illness (COI) approach to measure the socioeconomic costs of drug abuse in Hong Kong was adopted.

2.1.1. Cost-of-illness (COI) framework

Estimations of the socioeconomic costs of drug abuse belongs to the category of COI studies. In the economic approach, all relevant costs can be considered as opportunity costs. The existence of drug abuse prevents resources to be used for other purposes that are beneficial to the society, just like an opportunity is forgone. Therefore, the proposition of a COI study is that if the relevant illness were not to exist, then the resources spent on the treatment of that illness and other relevant purposes could be redeployed (Single et al., 2003).

2.1.2. The counterfactual scenario

The opportunity cost of different cost components would be assessed by comparing the cost or number of caseloads to a hypothetical scenario known as counterfactual. In this study, the counterfactual scenario is simply set at a society having neither past nor present abuse of illicit drugs (Collins & Lapsley, 2008; Single et al., 2003).

Keeping the counterfactual scenario in mind is essential. For example, when valuing loss of productivity due to premature mortalities, some may argue that a drug user does not have the same value of productivity as a normal person. However, under the counterfactual scenario in which drug abuse does not exist at all, a drug user will "become" a normal person, and his/her death will have the same value as a normal person. Considering the counterfactual scenario is also important in that the opportunity cost will not be overestimated. For example, drug users are prone to the excessive use of certain kinds of services. Given that for instance the number of services *N is* provided specifically to drug users, under the counterfactual scenario, *N* does not reduce directly to zero. Instead, it reduces to an "expected" number *n*, as the same group of drug users will behave like the general population, and some of them will still use that service due to reasons other than drug abuse. Thus, the opportunity cost should be evaluated using the excess number $N-n$, instead of *N*.

2.1.3. Prevalence vs incidence-based approach

Estimation of the social costs of drug abuse can either be incidence-based or prevalence-based. An incidence-based approach uses the number of new cases in a given year to estimate the social costs of drug abuse in that year and also into the future. The core of this estimation is that an estimate of per-case lifetime cost is needed to be applied to each new case. This approach offers insight into the future value of preventing a case of drug abuse. Nonetheless, many COI studies use a prevalence-based approach, which uses the number of all existing cases in a given year, to estimate the costs associated with the past and current abuse of illicit drugs. The prevalence-based approach includes not only the costs arisen from new drug users, but also from the mature drug users and even from the former ones that have developed some long-term issues such as drug-related illnesses (Single et al., 2003).

This study adopts the prevalence-based approach as it is considered to be more favourable for policy-planning and the allocation of resources (Slack et al., 2009).

2.1.4. Definition of costs

Collins and Lapsley defined the economic costs of drug abuse as follows:

> *The value of the net resources which in a given year are unavailable to the community for consumption or investment purposes as a result of the effects of past and present drug abuse, plus the intangible costs imposed by this abuse (Collins & Lapsley, 2008, p. 3).*

Costs of drug abuse can be classified into three dimensions:

Social vs. Private costs

Private costs refer to the costs borne by the individuals making the consumption decisions (i.e. drug users in the current study), and do not justify government actions and interventions in general. **Social costs** refer to external costs borne by the society, which can be incurred by public expenditure or the private sector. From the perspective of public policy, social costs are important for policy formulations (Single et al., 2003). In addition, COI studies usually only consider social costs. Therefore, this study focuses the calculation on *social cost* estimations and provides estimates for certain private costs.

Tangible vs. Intangible costs

Tangible costs refer to those costs which, when reduced, yield resources which are then available to the community for consumption or investment purposes. Intangible costs, on the contrary, do not yield such resources that can be shifted for other uses. Any reduction or elimination of intangible costs does not have resource implication on society. It is always difficult, if not impossible, to put a value on an intangible cost, but such costs are important and meaningful in the cost estimation process, excluding it could be misleading (Single et al., 2003).

Direct vs. Indirect costs

Tangible costs can be further split into **direct** and **indirect costs**. **Direct costs** refer to the explicit monetary spending on the services and treatments and other related expenditures attributable to drug abuse. This includes services and treatments used by drug users, their family members and other crime victims. **Indirect costs** refer to the value of potential loss of output or productivity that can no longer be generated due to premature mortalities or morbidity associated with drug abuse (Slack et al., 2009).

2.1.5. Scheme of cost estimation

Combining the WHO international guidelines of cost estimation, local and overseas experiences, existing literatures, and drug abuse situations in the local context, cost categories and their potential data sources were designed as follows (Table 2.1.1). Figure 2.1 displays the categories and sub-estimates of socioeconomic costs.

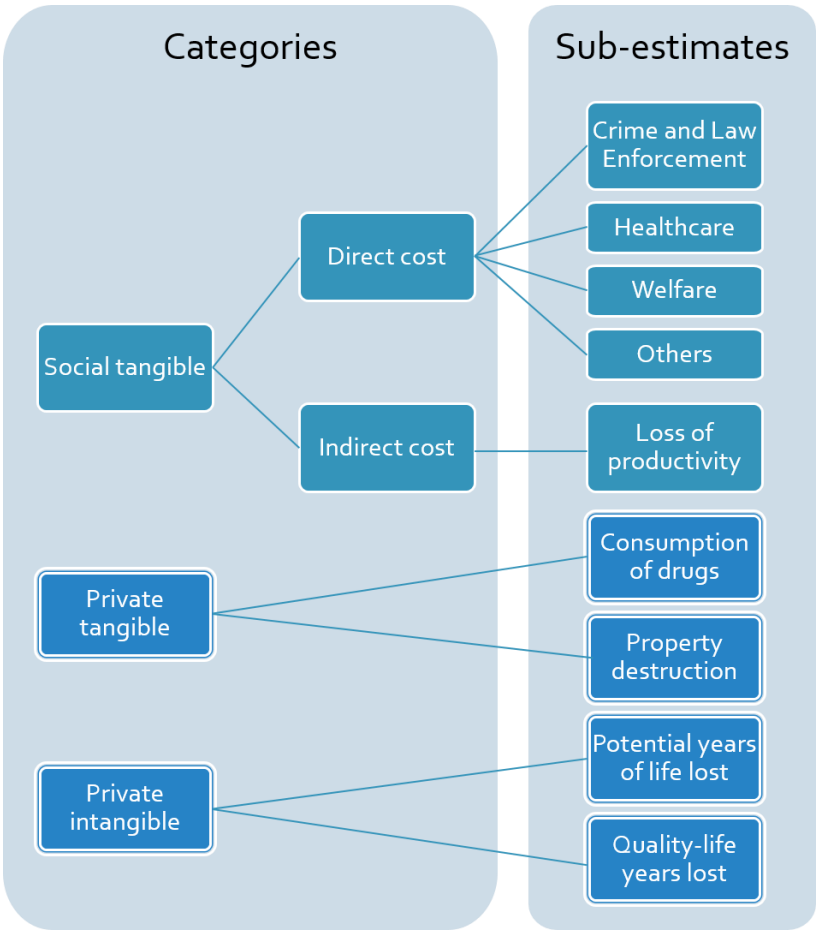


Figure 2.1 Categories and sub-estimates of socioeconomic costs.

Table 2.1.1

Scheme of costs estimation

Categories	Sub-estimates	Possible data sources / related Government departments or institutions
Social tangible costs		
Indirect costs		
Loss of productivity	Premature mortalities	C&SD
	Diminished size of workforce	C&SD
	Absenteeism	C&SD
	Lost time of crime victims	C&SD
Direct costs		
Crime and law enforcements	Arrests	HKPF
	Customs	Customs
	Legal and adjudications	Judiciary
	Incarcerations	CSD
	Victimizations	C&SD / HKPF
Healthcare	Methadone clinics	DH
	Non-hospital based T&R	DH / SWD/ NGOs / BDF
	Hospital inpatients	HA
	Medical outpatients	HA
	A&E services	HA
Welfare	CSSA	SWD
	Drug counselling	SWD / NGOs
	Services for offenders	SWD / NGOs
	Family and child welfare	SWD / NGOs
	Outreaching teams	SWD / NGOs
Others	Preventive education, Publicity and researches	SB / BDF / NGOs/ EDB / other social funding
	Security Bureau	SB
	Government Laboratory	Government Laboratory
	Mixed types	BDF
Private tangible costs	Consumption of drugs	CRDA
	Property destruction	-
Private intangible costs	Potential years of life lost	C&SD
	Quality-life years lost	-

Note:

Abbreviations:

BDF	Beat Drugs Fund
CRDA	Central Registry of Drug Abuse
CSD	Correctional Services Department
Customs	Customs and Excise Department
C&SD	Census and Statistics Department
DH	Department of Health
EDB	Education Bureau
HA	Hospital Authority
HKPF	Hong Kong Police Force
NGOs	Non-governmental Organizations
SB	Security Bureau
SWD	Social Welfare Department

NGOs included:

Barnabas Charitable Service Association
Caritas Hong Kong
Christian New Being Fellowship
Christian New Life Association
Christian Zheng Sheng Association
Drug Addicts Counselling and Rehabilitation Services – Enchi Lodge
The Evangelical Lutheran Church of Hong Kong
Glorious Praise Fellowship (Hong Kong)
Hong Kong Children & Youth Services
Hong Kong Christian Service
Hong Kong Federation of Youth Groups (HKFYG)
Hong Kong Lutheran Social Service
Hong Kong Young Women's Christian Association (YWCA)
Mission Ark
Operation Dawn
Perfect Fellowship
St Stephen's Society
The Society of Rehabilitation and Crime Prevention, Hong Kong (SRACP)
The Society for the Aid and Rehabilitation of Drug Users (SARDA)
Tung Wah Group of Hospitals
Wu Oi Christian Centre

Each cost item can be classified into three dimensions as described in Section 2.1.4. The current cost-estimation exercise primarily focuses on **social tangible costs**, which is further divided into five major categories:

1. *Loss of Productivity*, indirect costs which reflect the loss of productivity borne by the society due to premature mortalities, disabilities, and absenteeism attributed to illicit drugs.
2. *Crime and Law Enforcement Costs*, direct social costs incurred in the criminal justice system, including arrests, customs, judiciary, and correctional services attributable to drug abuse. Medical treatments and property loss or damage borne by victims of crimes committed by drug users were also included.

3. *Healthcare Costs*, direct costs which involve the provision of treatments and rehabilitations (T&R) for drug users, and other medical services for drug-related comorbidity and trauma incidents.
4. *Welfare Costs*, direct social costs which reflect the expenditures on drug-specific welfare services and the excess usage of social welfare services attributable to drug abuse.
5. *Other Social Costs*, other direct costs which do not fall into any of the above major categories. This includes preventive education, publicity and researches, Security Bureau, Government Laboratory, and mixed types of costs (Please refer to Section 3.5.4).

The first three types of costs have been consistently found to be the largest in most cost-estimation studies (Single et al., 2003). It should be noted that the aforementioned social tangible cost categories may contain private cost components, such as fines under crime and law enforcements, and medical treatments paid by drug users. COI studies usually consider only the social costs, as private costs generally do not provide justification for government actions (Single et al., 2003). Nonetheless, this study explicitly selected two types of private costs to estimate, namely consumption of drugs and property destruction. A portion of the estimated private costs in the consumption of drugs can also be allocated to social costs (described in the next section).

Intangible costs usually refer to pain, suffering and loss of life to drug users themselves (private costs) and to their dependents or crime victims (social costs) (Single et al., 2003). Apart from collecting relevant information through qualitative interviews, following the New Zealand cost estimation exercise (Slack et al., 2009), this study attempts to quantify the intangible costs through estimating the potential years of life lost (PYLL) due to premature deaths, and years of quality life lost among drug users (i.e. private costs).

In-depth discussion on how a certain category of cost is related to drug abuse (e.g. causal link between crimes and drugs) however, is beyond the scope of this report.

2.1.6. Methodological issues

Valuation of life

The increased number of premature mortalities germane to the abuse of illicit drugs results in great losses to the society. Two types of costs arise from the loss of a life - loss of productivity and the psychological effects borne by drug users and their family members (Collins & Lapsley, 2008). The former is a tangible cost while the latter is intangible.

The human capital approach is adopted in the valuation of loss of productivity attributable to drug-related mortalities. This approach estimates the value of the future earnings stream of a person, and brings back to the present day value using some plausible discount rates. It measures the present and future productivity of drug-related deaths occurring in a given year (Single et al., 2003).

The intangible component of losing a life is more difficult to measure, and usually involves the willingness-to-pay approach, where a monetary value is placed on how much a person would be willing to pay for a small reduction in the risk of a death (Collins & Lapsley, 2008). The human capital approach usually undervalues life, as it does not account for the value over loss of earnings, especially with people over the standard retirement age (Single et al., 2003). Ignoring the intangible costs element however, could lead to misleading estimate of costs. This might even conclude that there would be some "benefits" accumulated to the society from premature deaths since resources would be saved from the consumption needs (e.g. healthcare) of the deceased (Collins & Lapsley, 2008).

In addition to loss of productivity (the tangible component), this study attempts to estimate the intangible costs borne by drug users due to drug-attributable deaths, using the willingness-to-pay approach. PYLL as a result of drug-related causes were first estimated, and then multiplied by the value of the loss of one year's living. An estimate of the intangible value of the loss of one year's living was adopted from Australian exercise (Collins & Lapsley, 2008), which was ascertained at AUD 53,267 in 2004-05. Adjusted for inflation in Australia and applying the exchange rate in the mid-2014, the value in the year 2014 was estimated to be HK$511,201.

Resources used in the consumption of drugs

Under the counterfactual scenario in which drug abuse does not exist, the resources spent on consumption of drugs can also be released to the community for alternative consumption and investment uses. Resources released from consumption are seemingly to be private costs borne by the drug users as drug users make the decisions of consumption. However, Single et al. (2003) provided justification that a portion of private costs are involved in the consumption of drugs that could be included as social costs. To put it in a simple way, the resources used in the production of drugs should have alternative uses for the society, thus representing a social cost.

Street prices of illicit drugs vary immensely and are not a good measurement of the social costs of the production of drugs, since a very high proportion of the street prices in fact reflects the return of the risks from drug dealing (Collins & Lapsley, 2008). The legal market turnover of drugs must have a lower value. The approach of Collins and Lapsley (2008), which assumed that the legal market turnover would only be about 5% of the street values of drugs, has been adopted.

In this study, the cost of drugs, under the main category of private costs, would be first estimated using street prices reported by respondents in the survey. Five percent of the total estimated cost would then be allocated to social costs.

Attributable fraction

Attributable fraction, also known as aetiological fraction, refers to the proportion of the total number of cases of a condition (e.g. mortalities, arrests, and incarcerations) in the population that can be attributed to a risk factor (i.e. drug abuse in the current study). For example, it is well-known that illicit drug use is a risk factor of a number of health outcomes. However, death records usually document only the direct causes of death. As a result, whether a death is attributable to drug abuse is hidden. Estimates of the attributable fraction is one of the important data required to conduct a cost estimation study (Single et al., 2003). However, estimates of attributable fractions for different conditions related to drug abuse were limited in the local context, and calibrating all of them was not feasible in one study. This study, therefore, adopted the estimates from external sources. In particular, estimates of attributable fractions used in cost

estimation exercises in Australia (Collins & Lapsley, 2008) and the United States (McDowell Group, 2012) were adopted.

The estimates of costs in this study involved the use of attributable fractions in premature mortalities, arrests, incarcerations, and victimizations. What and how attributable fractions are being used would be described in detail in the corresponding sections of Chapter 3. In view of the availability of the local data in hand, the attributable fractions of premature mortalities were updated on four death causes, namely Hepatitis B, Hepatitis C, HIV / AIDS, and suicides. For more details, please refer to Appendix D.

Other minor issues

Financial year vs. calendar year

The collected data may be presented in different year basis - some use the financial year (i.e. 1st April to 31st March of the following year) while others use the calendar year. This study estimates the costs of drug abuse in the calendar year 2014. For those data presented in the financial year basis (mainly costs), information from both financial years 2013-14 and 2014-15 were collected to estimate the 2014 values. Specifically, it has been assumed that a number was evenly distributed within a financial year.

Inflation

Some costs information was not collected in 2014. The price difference between the year collected and 2014 has been adjusted using the Composite Consumer Price Index (CPI) published by the Census and Statistics Department (C&SD) of the Hong Kong Government.

Rounding error

Estimation of costs in this study involves a lot of sub-estimates. The number of caseloads and costs are usually rounded to the nearest integer. The sums and products of those rounded individual items may not be equal to the final estimates due to rounding error.

2.1.7. Data collection

Cost estimation studies of drug abuse require very extensive data and information (Single et al., 2003). The estimate of total social cost involves a series of sub-estimates, which require specific data for each. Single et al. (2003) provided a basic list of the data and information needed to carry out a social cost study. Fortunately, Hong Kong, as a well-developed Asian city, has already possessed a number, although not all, of the data required.

In order to collect the data and information following our scheme (Table 2.1.1), a mixed qualitative and quantitative approach has been adopted. The data collection process could first be split into two major components - **secondary** and **primary**. **Secondary data collection** comprised of existing databases and online searches, while **primary data collection** involved surveys, information sheets, qualitative interviews, and information from focus groups.

2.1.7.1. Secondary data collection

The secondary data collection has two components - existing databases and online searches. Existing databases used in the current study included the Central Registry of Drug Abuse (CRDA) data, registered death records, suicide records, and population data.

Central Registry of Drug Abuse (CRDA) data

The CRDA was established in 1972 by the Narcotics Division (ND) of the Hong Kong Government to monitor the trends and features of drug abuse in Hong Kong. Reports of drug users are provided by a wide range of reporting agencies when drug users come into contact with them, and their information are then submitted to the CRDA using a standard record sheet. Over seventy reporting agencies are responsible to report drug users to the CRDA. They are grouped into ten categories as shown in Table 2.1.2. One and only one record was reported by schools. For more details of the background of the CRDA, please refer to the annual reports published by the ND.

Table 2.1.2

Ten types of reporting agencies in the CRDA data

Codes	Types of reporting agencies
1	Drug Addiction Treatment Programme, the Correctional Services Department (CSD)
2	Hong Kong Police Force (HKPF)
3	Methadone Treatment Programme (MTP), the Department of Health (DH)
4	Social Welfare Department (SWD)
5	Substance Abuse Clinics (SAC), The Hospital Authority (HA)
6	Drug Treatment and Rehabilitation Centers (DTRCs), Non-governmental Organizations (NGOs)
7	Outreaching Teams / Integrated Services Centers, Non-governmental Organizations (NGOs)
8	Counselling Centers for Psychotropic Substance Abusers (CCPSAs), Non-governmental Organizations (NGOs)
9	Centers for Drug Counselling (CDCs), Non-governmental Organizations (NGOs)
10	Schools

The CRDA can be viewed to possess the most complete data on drug users available in Hong Kong. Data of the CRDA for the period 1977-2014 were obtained from the ND. The data provide the prevalence information of drug abuse in Hong Kong, and serve as an indispensable component of many sub-estimates of social and private costs. In 2014, there were 9,059 drug users being reported to the CRDA.

Table 2.1.3 shows the genders and age distributions of those 9,059 drug users. Majority of the drug users being reported were men (N=7,379; 81.5%). The major age groups being reported were 31-40 among men (27.9%) and 21-30 among women (37.1%).

Table 2.1.3

Genders and age distributions of users in the CRDA data, 2014

Age Groups	Male (Col %)	Female (Col %)	Both (Col %)
<21	582 (7.9)	243 (14.5)	825 (9.1)
21-30	1,596 (21.6)	624 (37.1)	2,220 (24.5)
31-40	2,058 (27.9)	450 (26.8)	2,508 (27.7)
41-50	1,413 (19.1)	258 (15.4)	1,671 (18.4)
>50	1,730 (23.4)	105 (6.3)	1,835 (20.3)
All ages	7,379 (100)	1,680 (100)	9,059 (100)

There was a change on the original plan of data collection. In view of the big costs difference of methamphetamine from other major types of illicit drugs as seen in the United States (Nicosia, Pacula, Kilmer, Lundberg, & Chiesa, 2009), and the significant rise in psychotropic drug abuse among local young people, this study originally proposed to collect information by the types of drugs and to estimate drug-specific costs. However, the difficulties in data collection was that only the CRDA could provide data in such details. Therefore, an attempt was made to disaggregate costs by types of illicit drugs after estimating the total cost, which will be discussed later (Section 2.4, p.39).

In addition, this study originally proposed to classify poly-drug users as a distinct group. Nonetheless, the CRDA data showed that nearly 40% of drug users reported in 2006-2014 used multiple drugs during the whole period. Table 2.1.4 illustrates the most popular combinations of illicit drugs used from 2006-2014, showing the complexity of the issue. “First reported drugs" refers to the types of drugs used by drug users when they were first reported to the CRDA system. The most common combination was heroin and TMZ (N=4,842), followed by cannabis and others (N=4,175), and ketamine and cocaine (N=3,275). The within-group heterogeneity was extremely large. Hence, treating poly-drug users as a single group for cost estimations was inappropriate in drawing meaningful conclusions.

Table 2.1.4

The most popular multiple drugs used in Hong Kong by first reported drugs, CRDA 2006-2014

First reported drugs	No. of first reported users	No. of users ever used	No. of single drug use	Top three common combinations			
					Drug type(s)	N	No. of users ever used this combination
Heroin	17,590	19,232	11,499	1	TMZ	2,906	4,842
				2	Meth	743	2,489
				3	Meth; TMZ	443	1,016
Cocaine	2,922	5,228	1,137	1	Ketamine	1,001	3,275
				2	Meth; Ketamine	161	812
				3	Ketamine; Others	149	891
Meth	4,339	9,628	3,379	1	Heroin	194	2,489
				2	Ketamine	181	3,225
				3	Others	140	1,589
TMZ	1,196	6,342	618	1	Heroin	272	4,842
				2	Heroin; Meth	49	1,016
				3	CM	35	647
Cannabis	3,169	4,293	1,432	1	Ketamine	380	1,874
				2	Ketamine; Others	252	875
				3	Meth	157	1,095
Ketamine	18,590	22,809	13,329	1	Others	1,829	4,175
				2	Meth	1,126	3,225
				3	Cocaine	672	3,275
CM	2,491	3,108	1,358	1	TMZ	197	647
				2	Others	133	634
				3	Ketamine	119	572
Others	1,985	7,483	1,441	1	Ketamine	157	4,175
				2	Heroin	56	1,441
				3	TMZ	48	634

Note:

Meth = Methamphetamine; CM = Cough Medicines; TMZ = Triazolam/Midazolam/Zopiclone

Registered death records

Registered death records of 2014 were obtained from the C&SD. Information of the deceased therein was used to estimate the number of deaths attributable to drug abuse in 2014. It was essential to estimate the loss of productivity due to premature mortalities and intangible costs arising from PYLL.

Suicide records

Data of suicides were obtained from the Coroner's Court which is responsible for determining causes of death for all unnatural deaths in Hong Kong. The data contain rich information of the deceased, and were used to estimate the attributable fractions of suicides due to drug abuse.

Population data

To estimate the excess number of drug users using different types of services, the prevalence rates among the general population were needed. Population data at mid-2014 and end-2014 are available from the website of the C&SD.

Online searches

Online search is a very important element of this study. There are voluminous information directly and indirectly related to drug abuse available online that contribute to the estimation of social costs of drug abuse in Hong Kong.

Briefly speaking, extensive online searches to identify annual reports, financial reports, budget plans, statistical reports, and any other relevant information from different government departments, institutions, and non-governmental organization (NGOs) related to anti-drug activities were performed. A preliminary check was first rendered to assess their levels of relevance. A list of online information was then created. Different stakeholders were thereafter contacted in an attempt to ascertain missing information, if any, or if those stakeholders could provide us with any extra information not available online (details in Section 2.1.7.2 – information sheet). Finally, each report or information was studied in great detail to extract the relevant data on the estimations of costs on drug abuse. The amount of work was very demanding and intensive in the NGO section due to the large diversity of reporting styles

across the NGOs. The whole process was indeed time-consuming, but the data identified from the process were found to be very valuable to the current study. Table 2.1.5 summarizes all the final information identified. How those data were used would be described in detail in the corresponding sections in Chapter 3.

Table 2.1.5

A summary of reports and information identified from the online searches

Reports / information	Years of reports
Government	
Budget (all related departments / bureaus and lotteries fund)	2014-15, 2015-16, 2016-17
Hong Kong Police Force	
Hong Kong Police Review	2014
Hong Kong Customs and Excise Department	
Departmental Review	2015
Hong Kong Judiciary	
Annual report	2015
Department of Health	
Replies to the Finance Committee of the Legislative Council	2015-16, 2016-17
HIV Surveillance Report – 2015 update	2016
Correctional Services Department	
Annual review	2014
Report on Drug Addiction Treatment Centre admissions	2014
Social Welfare Department	
Social Welfare Services in Figures	2015
Replies to the Finance Committee of the Legislative Council	2015-16, 2016-17
Security Bureau	
Three-year plan on drug treatment and rehabilitation services in Hong Kong (2015-2017)	2015
Replies to the Finance Committee of the Legislative Council	2013-14, 2014-15, 2015-16, 2016-17
Government Laboratory	
Annual report	2014
Census and Statistics Department	
Report on annual earnings and hours survey	2014
Annual report on the Consumer Price Index	2016
Crime and its victims in Hong Kong in 2005	2007

Reports / information	Years of reports
Thematic Household Survey Report No. 56	2015
Statistics on CSSA Scheme 2004-2014	2015
Hong Kong Life Table 2009-2064	2015
General Household Survey	2014
Women and men in Hong Kong – Key statistics	2016
Gross Domestic Product (yearly) (2015 edition)	2016
Information Services Department	
Press release related to illicit drugs	2013-2016
Audit Commission	
Efforts of the Narcotics Division and Beat Drugs Fund in combating drug abuse	2015
Food and Environmental Hygiene Department	
Replies to the Finance Committee of the Legislative Council	2016-2017
NGOs	
The Society for the Aid and Rehabilitation of Drug Abusers	
Annual report	2013-14, 2014-15
Barnabas Charitable Service Association	
Annual report	2013-14, 2014-15
Financial report	2013-14, 2014-15
Operation Dawn	
Annual report	2015-16
Financial report	2015-16
The Christian New Being Fellowship	
Annual report	2014, 2015
Caritas	
Annual report	2014-15
Hong Kong Christian Services	
Annual report	2014-15
Evangelical Lutheran Church Social Services	
Annual report	2014-15
The Society of Rehabilitation and Crime Prevention	
Annual report	2014-15
Christian New Life Association	
Official website	-
Perfect Fellowship	
Official website	-
Wu Oi Christian Centre	

Reports / information	Years of reports
Official website	-

Other institutions	
Beat Drug Fund Association	
Reports and financial statements	2016
Hospital Authority	
Annual report	2014-2015
The Hong Kong Jockey Club	
Annual report	2013-14, 2014-15
Community Chest	
Annual report	2012-13, 2013-14
The Family Planning Association of Hong Kong	
The Report of Youth Sexuality Study 2011	2014

2.1.7.2. Primary data collection

This part of data collection involved both **quantitative** and **qualitative** elements. The **quantitative** elements included a survey on drug users and the information sheet to government departments and NGOs, while the **qualitative** elements included interviews on drug users, interviews on stakeholders, and focus groups. Government departments, NGOs, and other institutions approached for data collection are listed in Table 2.1.6.

Table 2.1.6
List of Government departments, NGOs, and other institutions

Government Departments	**Non-Government Organizations and others**
Hong Kong Police Force (HKPF)	The Society for the Aid and Rehabilitation of Drug Abusers (SARDA)
Narcotics Division (ND), Security Bureau (SB)	The Society of Rehabilitation and Crime Prevention (SRACP)
Customs and Exercise Department	Hong Kong Young Women's Christian Association (YWCA)
Correctional Services Department (CSD)	Caritas Hong Kong – Community Centre
Department of Health	Hong Kong Federation of Youth Group (HKFYG)
Education Bureau (EDB)	Evangelical Lutheran Church Social Service Ling Oi Centre
Social Welfare Department (SWD)	Barnabas Charitable Service Association
Government Laboratory	Informants from undisclosed NGOs
	Hospital Authority (HA) – Substance Abuse Clinics (SACs)

Quantitative data

Survey

A survey of drug users was conducted with the purpose of obtaining additional information of drug users that are not available from the existing secondary sources. This information includes the loss of work ability and productivity, the prevalence of physical and mental health consequences of drug abuse, the prevalence of service utilization of T&R, health and social welfare services among drug users, and the loss of quality of life. Two versions of the questionnaire (in Chinese) can be found in Appendix A.

A sample of 400±100 cases was proposed in the research proposal, targeting drug users who were still active, rehabilitating, or rehabilitated, but have taken drugs within the past 12 months. The questionnaire mainly inquired into the respondents' situation within one year before the survey. The questionnaire was conducted primarily through a one-to-one interview, except those recruited through the CSD. In order to obtain a representative sample, a stratified sampling by types of services (criminal justice, medical, and NGOs/social services) according to the number of reporting to the CRDA in 2014 was designed. Besides, as female drug users were much fewer than their male counterparts (81.5% vs 18.5%), a disproportionate stratified sampling across genders was adopted to achieve adequate representation for the female group. The aim was to recruit a sample of 70-75% men and 25-30% women. A HK$150 coupon was given to each respondent as an incentive.

Table 2.1.7

Distributions of the respondents surveyed by types of services

	% of reporting in the CRDA	Surveys		
Types of services	2014	Recruited from	N	%
Criminal justice[1]	33.0[1]	CSD	129	35.4
Medical[2]	30.8[2]	SACs (HA)	77	21.2
NGOs/social services[3]	36.2[3]	NGOs	158	43.4
Total	100.0		364	100.0

Note:

[1] Including reporting agencies 1 (CSD) and 2 (HKPF)

[2] Including reporting agencies 3 (MTP) and 5 (SACs, HA)

[3] Including reporting agencies 4 (SWD), 6 (DTRCs), 7 (Outreaching), 8 (CCPSAs) and 9 (CDCs)

The CSD, DH, SACs under the HA, and various NGOs for potential data collection opportunities had been approached. The process of negotiations and approval-seeking from different parties was much longer and more difficult than expected. A total of 364 respondents were recruited through the drug addiction treatment centres (DATCs) under the CSD, the SACs in Pamela Youde Nethersole Eastern Hospital and Kwai Chung Hospital, Caritas, HKFYG, LingOi, SARDA, and SRACP (Table 2.1.7). The data collection period lasted from May, 2016 to February, 2017. The final number of respondents was 9% less than our target of 400, as our application to the DH for data collection in the MTP was unsuccessful. This was

partly compensated by recruiting more cases from the NGOs, which resulted in a higher proportion of recruitments (43.4%) than expected (36.2%).

Table 2.1.8
Basic demographics of the respondents surveyed and comparisons with the CRDA 2014

	CRDA 2014 (% of total)	Survey (% of total)
Sex[1]		
Male	7,379 (81.5%)	268 (73.8%)
Female	1,680 (18.5%)	95 (26.2%)
Age groups[2]		
<21	825 (9.1%)	47 (12.9%)
21-30	2,220 (24.5%)	81 (22.3%)
31-40	2,508 (27.7%)	90 (24.8%)
41-50	1,671 (18.4%)	79 (21.8%)
>50	1,835 (20.3%)	66 (18.2%)
Educational attainment[3]		
Primary or below	1,943 (21.9%)	54 (15.8%)
Lower secondary	4,685 (52.8%)	210 (58.3%)
Upper secondary	2,029 (22.9%)	86 (23.9%)
Tertiary or above	215 (2.4%)	10 (2.8%)
Marital status		
Never married	4,365 (49.3%)	191 (53.4%)
Others	4,480 (50.7%)	167 (46.6%)

Note:

[1] Gender was missing in 1 case.

[2] Age was missing in 1 case.

[3] Educational attainment was missing in 4 cases.

Table 2.1.8 shows the basic demographics of the respondents surveyed and the comparisons with the 9,059 drug users reported to the CRDA in 2014. The sample consisted of 73.8% men and 26.2% women. Except for gender, the two groups had quite similar distributions across age groups, educational attainment and marital status, suggesting the existence of some degree of external validity of our sample. It should be borne in mind that estimations of different cost items in Chapter 3 using the survey data should be adjusted for gender composition.

It should also be noted that the sample was collected in 2016-17 but this study estimates the costs in 2014. Thus, it is reasonable to assume that most information, such as the prevalence of drug-related health outcomes and the patterns of services utilization experienced little change over a two-year period. For information related to price, the composite CPI would be used to adjust for inflation between the two years.

Information sheet

An invitation has been made to various government departments and NGOs related to the drug field to collect information which may not be readily available from online sources (Section 2.1.7.1 – online searches). To do so, some information sheets were designed and sent to a number of stakeholders. These information sheets were designed specifically according to the targeted organizations. Some samples of information sheets can be seen in Appendix B. Nonetheless, only SARDA and the Narcotics Bureau of the HKPF agreed and returned the information sheets to us. The low response was mainly due to their lack of available detailed information.

Qualitative data

The major objectives for qualitative interviews and focus groups are (1) to identify the service pathways provided to drug users in Hong Kong; and (2) to explore the intangible costs of drug abuse in Hong Kong. The adoption of qualitative methodologies aims to complement the collected quantitative data. Along with the rich quantitative data from the drug users, another set of perspective is furnished to understand their actual experiences in various service systems in Hong Kong so as to enable a more holistic analysis. In total, 26 drug user interviews, 13 stakeholder interviews, 4 stakeholder focus groups, and 6 qualitative surveys have been conducted.

Drug user interviews

Drug user interviews aim to understand their experiences in different service systems throughout their drug-taking life (Appendix C). It explores the clients'

sequences and rationales of going through one service system to another, in addition to the intangible costs involved in their drug habits. The major themes of the interviews were as follow:

1. Reasons that initiated the use of drugs and the background;
2. Direct costs and services used in their drug-taking life;
3. Indirect costs: careers and financial support for drugs; and
4. Intangible costs: social circle, relationships and health.

A total of 26 in-depth interviews were conducted with the drug users. Of the 26 interviewees, 8 were recruited from the CSD; 11 from the NGOs and voluntary drug addiction treatment centers (DTRCs); and 7 from the SAC of public hospitals. In particular, due to limitation of time of respondents, two respondents requested to conduct the interviews together. All respondents were over 16 years old, and have used drugs in the past 12 months. The interviews were conducted from June 2016 to January 2017. A demographics summary of the interviewees are shown in Table 2.1.9.

The research team recruited the respondents from the agencies that reported the most cases according to the CRDA data. The correctional services, methadone clinics and SAC, and DTRC are the major sources of the project respondents. CSD officers, probation officers, SACs' staff, as well as DTRCs and outreach social workers were approached to assist our recruitment of clients for the interviews. A summary of the project objectives, methodology and criteria of their clients was provided to the staff when they have referred suitable clients to participate in the project.

Our research team then made appointments with either the probation officers or social workers for the interviews. The research team then travelled to the CSD Counselling Centres, where interviews were conducted in private rooms. For the interviewees referred by the NGOs, the interviews were conducted at treatment centers, half-way houses, and outreaching centers. The centers provided private rooms for the interviews, and the interviewees participated in the interviews during their lunch time or activity time in the drug treatment centers. Interviews conducted in the DTRCs are more restricted to time constraints, as the interviewees had to catch up with the DTRCs' time schedule. For interviews conducted with the outreaching NGOs, upon the interviewees' requests, social workers were present during the interviews. The research team also travelled to

the community centers for the interviews where the interviews were conducted before the counselling time of the interviewees.

Table 2.1.9
Basic demographics of the interviewees

Items		Number of interviewees
Gender	Male	15
	Female	11
Sources of Respondents	CSD Referral (on parole)	8
	Substance Abuse Clinics (SACs)	7
	Outreaching Teams of the NGOs	2
	Residential DTRCs	9
Types of Drugs (major, some respondents consumed more than one major drug)	Amphetamine	11
	Ketamine	15
	Heroin	4
	Cocaine	8
	Cannabis	1
	Midazolam	3
	Zopiclone	1
	Cough Mixture	1
	MDMA	2
	Poly-drug use	17
Total		**26**

Clients from hospital settings however, were recruited on an ad hoc basis. Research team members visited the substance misuse clinics regularly where suitable clients visiting on the day were referred by the doctors and nurses. The interviews were then immediately conducted in private rooms provided by the hospitals on the same day. It should be noted that most respondents recruited were all from mid to low income families, drug users from high income families were seldom recruited in the project. Interviewees from the CSD and NGOs were also referred by staff who have screened certain number of clients based on the clients' level of cooperation and performance in the institutions. Hence, bias in the sampling exists, where 'less cooperative' clients were less likely to be recruited for the interviews.

A HK$300 coupon was given to all interviewees participating in drug user interviews as an incentive. Objectives of the project, the rights of withdrawal of the interviewees, and confidentiality of the data were all briefed and agreed to by the interviewees beforehand. A consent form with the above information was also signed by the interviewees before interviews (Appendix E). Among the 26 interviews, with the respondents' consent, 9 interviews were accompanied by probation officers and social workers. In particular, younger respondents from NGOs requested, or welcomed the presence of their social workers during the interviews. The interviews lasted 45 minutes to 90 minutes. They were audio-recorded and transcribed into English transcripts for qualitative analysis. All transcribers and interviewers involved in the project have signed a consent form to protect the privacy of the respondents. All data are also stored in a password-protected computer at the University of Hong Kong, and only accessible to the staff involved in the project.

Stakeholder interviews and focus groups

Stakeholder interviews (N=13) and focus groups (N=4) were conducted between May 2016 and January 2017. Upon request, a qualitative survey (N=6) with HKPF was also conducted in the replacement of focus groups. Stakeholder interviews targeted at management staff from various institutions involved in drug work, and focused on the interactions and partnership relationships between different agencies involved in the field. To capture the most updated costs and service pathways information, interviews on focus groups with frontline social workers and SAC nurses were also conducted. The interviews and focus groups' interviews were conducted between May 2016 and March 2017. The major themes of the interviews and focus groups' interviews are as follow:

1. Information regarding their clients/drug users;
2. Service pathways: partnerships and services provided; and
3. Costs information.

In particular, a qualitative survey (N=6) with frontline police officers was conducted. Due to the concern on the confidentiality of case investigation and the resources of the HKPF, the HKPF negotiated to conduct the survey with similar questions as the focus groups', and provided certain costs information instead of the proposed methodology.

While originally aiming to conduct 20 stakeholder interviews and 8 focus groups' interviews, various government departments have however rejected our requests. Similar to Cheung et al. (2000), the government departments seemed to fear that the project would result in an evaluation of their services.

Eight interviews with stakeholders from the social welfare system; three from law enforcement agencies; and two with health and medical services including methadone clinics were conducted. The research team attempted to cover all institutions involved in drug work, with four respondents preferred not to disclose their identities in this report. The team has also conducted interviews on three focus groups with NGO 1 (N=6), NGO 2(N=4), NGO 3 (N=3); and one with the SAC nurses (N=3).

Both interviews and focus groups lasted from a minimum of 60 minutes to a maximum of 1.75 hours, all of which are audio-recorded. All respondents involved were well notified of their rights of withdrawal from the interviews and on data confidentiality. Consent forms were all signed before the beginning of the interviews and focus groups. The research team travelled to the respondents' workplaces to conduct the interviews and focus groups. The respondents have all arranged private rooms, or their offices for the data collection. As to provide further detailed costs and services information, there were several interviews where the respondents requested to have one or two colleagues accompany them during the interviews.

During the data collection phase, the research team encountered particular difficulties in engaging the government departments to conduct stakeholder interviews and interviews on focus groups. While the team had reassured them that the purpose of the project does not involve service evaluation, nonetheless, multiple departments and also some focus groups have rejected to be interviewed. Therefore, the research team could only base on available official government reports and documents to fill in the gaps of the lack of data.

2.1.8. Method of estimation

The socioeconomic cost attributable to drug abuse was calculated by summing up a series of sub-estimates. The calculation of each sub-estimate relied on the information best available to the research team, resulting in different approaches of estimation for different cost items. The method of estimating each cost item would be described in detail in the corresponding section of Chapter 3.

2.2. Estimations of the "hidden" drug abuse population

Reports on known drug users submitted to the CRDA are provided by different reporting agencies. Inevitably, there are individuals who are not "captured" by any of the agencies and become the "hidden" population. As only the subjects being captured were observed and they may be captured multiple times, the CRDA data formed a capture-recapture structure and represents a biased sample for data analyses. Hence, since some sub-estimates of social costs involve the use of the CRDA data, it is essential to correct the underreporting drug abuse issue in order to achieve a better estimate of social costs.

The data have several characteristics. First of all, the data pose an open population problem since different drug abuse populations could overlap at different points in time. Second, drug users are captured by different types of reporting agencies, indicating that there exists a multiple-list problem. Third, the data set is massive. Last but not least, since the capture ability of agencies can be time-varying and the characteristics of an individual can influence the probabilities of being captured, there are a large number of parameters. These data characteristics indeed present a challenge for data analyses, mainly due to the limitations of computer memory, computational convergence and infeasibility.

2.2.1. Data

The CRDA data covering the period from 1st January, 2006 to 31st December, 2014 were used. The analysis only started from 2006 as information of drug types were only made available to the research team since then. Other individual covariates included genders, age, a quadratic term of standardized age, levels of educational attainment, and activity status. Reporting agencies were categorized into four lists: correctional services (code 1 [Table 2.1.2, p.17]), police (2), healthcare (3, 5), and social welfare (4, 6-9). The one and only one case reported by schools (10) was excluded from the analysis. The unit of time was half-year.

2.2.2. Statistical analysis

To incorporate the information of covariates and potential time-varying capture abilities, a generalized partial linear model was proposed to understand the dependence of the probability of being captured on individual covariates, agencies and time (Lin, Li, & Yip, 2016). Maximum likelihood estimator was applied separately to the data at each time period (half-year) to estimate the population size, and those results were then combined via optimally weighted averages to get the final estimates.

The proposed analytical methodology was found to be suitable for modelling a massive data set with a large number of parameters in multiple-list experiments with individual covariates (Lin et al., 2016). Previous simulations and applications have also indicated the usefulness and efficiency of the proposed methodology. The procedure has been proved to effectively increase computational feasibility, reduce computational costs, and combat limited computing memory without the loss of efficiency. For more methodological details, please refer to the academic paper by Lin et al. (2016).

Applying the CRDA data over the period 2006-2014, the analytical methodology could be used to estimate the hidden drug abuse population in Hong Kong. It could capture the ups and downs in the number of drug users over the years and show how the covariates were related to the capture probability and population size.

2.3. Service pathways

This part of analyses helps to identify the services and referral mechanisms within the service journey of drug users at the stages of prevention, diagnoses, treatment, support and rehabilitations. Analyses of the service journey will ensure that people accessing services at any point will get timely information, referrals, treatments or support, regardless of which service they started their journey with. Our methodology combining quantitative and qualitative methods is tailored to the multiple aspects of the drug abuse problem and the multiple phases of service involvement, to facilitate and inform an improvement initiative concerning a complex care pathway spanning multiple sectors. The quantitative part empirically quantifies the transitions between the types of services (reporting agencies) using the CRDA data, while the qualitative part investigates the rationales and reasons behind the transitions. Services for drug users involve professionals from many different organizations and backgrounds, so, it is important to understand and incorporate a diversity of perspectives. These comprehensive findings will enhance the feasibility and acceptability of the corresponding suggested improvements. This approach attempts to support development and provides evidence-informed recommendations for improvements of service and how resources can be better allocated.

2.3.1. Quantitative analysis

2.3.1.1. Data

The data of the CRDA were used to examine the service pathways of drug users. Multiple reports of a drug user by different reporting agencies revealed how he / she went through the services over time. Data starting from 2006 were analyzed as the focus of this study is on the service journey in more recent years, and furthermore, information of drug types, which have largely influenced the service pathways, has only been available to the research team since 2006.

There are ten types of reporting agencies in the CRDA data (Table 2.1.2, p.17). Only one record was reported by schools. This record and the category schools (code=10) were excluded from further data analyses in order to maintain between-group comparability throughout the study.

2.3.1.2. Statistical analysis

The goal of the quantitative analysis is to estimate a set of transition probabilities p_{ij}, which denotes the transition from state *i* to state *j*. The state here refers to the type of reporting agencies. A discrete-time Markov Chain model was considered (Su, 2016). It is assumed that probability of moving to state *j* only depends on the current state *i* but not the previous states. In other words, the chance for a drug user to be reported again by an agency depends only on his/ her last reporting agency.

Table 2.3.1

A sample data structure for quantitative analysis on the service pathways

Case ID	Years of contact	Age	Sex[1]	Previous reporting agencies (*i*)	Reporting agencies (*j*)
1	2006	22	1	6	6
1	2010	26	1	6	6
1	-	26	1	6	99
2	2013	23	2	7	7
2	-	23	2	7	99
3	2006	20	1	98	1
3	-	20	1	1	99
4	2006	15	1	98	7
4	2006	15	1	7	7
4	2006	15	1	7	7
4	2007	16	1	7	7
4	2007	16	1	7	7
4	2008	18	1	7	7
4	-	18	1	7	99
5	2006	16	1	98	1
5	2006	16	1	1	1
5	2006	16	1	1	1
5	2007	17	1	1	2
5	2007	17	1	2	2
5	-	17	1	2	99

Note:

[1] 1 = Male; 2 = Female

Each record in the CRDA data represents a drug user being reported by an agency. The same drug user may have multiple records, indicating that he/she was reported repeatedly at different points in time. To run the analysis, the data were first re-structured by the following three steps. An extract of the final data structure is depicted in Table 2.3.1.

1. The data were sorted in a way to show the service journey over time for

each individual.

2. Variable *i*, which denotes the type of agencies the drug user last reported, was added to each record. If it was the first time a drug user was being reported, the code 98 was entered. Records before 2006 were used to determine the previous reporting agency for each individual at this step. This was done to ensure the number of first reported drug users was not overestimated.
3. A dummy record preceding the start of the first record of the next individual was then added after the last record of an individual. The reporting agency coded *j* as 99 as not captured by any agencies. These dummy records were an important part of the analysis as they functioned like an "escape" state for an individual to move on from state *i* to state *j,* with the row sum remained equal to one:

$$\sum_{\mathrm{j}} p_{ij} = 1, \qquad \text{where j} = 1, 2, 3, \dots, 9, 99$$

Multinomial logistic regression was applied to incorporate the effects of covariates on transition probabilities because the response variable (type of reporting agencies *j*) was at a nominal scale with more than two levels (Su, 2016). A binary indicator was created for each type of drugs to indicate whether a drug user has ever used that drug (1) or otherwise (0). Age and genders have been consistently found to be significant factors affecting the types of drugs used, which in turn would influence the service pathways of drug users. They were therefore included as explanatory variables. Marital status and level of education attainment were also added as adjusting variables. Multinomial logistic regression was conducted for each type of previous reporting agencies (*i*=1, 2, 3…, 9, 98), resulting in ten distinct regression models. Transition probabilities from the last reporting agency to the next (*j*=1, 2, 3…, 9, 99) were then calculated using the estimated coefficients from the ten regression models.

For some of the regression models, larger grouping of reporting agencies *j* might be used – agencies 4, 6, 7, 8, and 9 grouped as "social services", and 1, 2, 3, and 5 grouped as "law enforcements and health services". The rationale of the grouping is purely a methodological consideration, as transitions between certain kinds of reporting agencies are too few for the regression algorithm to converge.

2.3.2. Qualitative analysis

Qualitative data analysis based heavily on the recount of the drug users' experiences throughout their drug-taking life obtained from the drug user interviews. A life history approach has been adopted in analyzing the service pathways experienced by the drug users. Through identifying the drug users' rationales, reasons and contexts in the use of drugs, utilization of public services, or possible criminal offences, their service pathways and causes of transitions can be explored. In support of the interviews with stakeholders, focus groups and secondary resources, the data collected were cross-checked and analyzed to map out the service pathways. Common themes emerged from the transcripts were also extracted to enrich the context of the service pathways.

2.4. Estimating costs by genders, age groups, and types of drugs

This part of the study attempts to determine the socioeconomic consequences of drug abuse by different types of illicit drugs, and identify which sub-groups of population suffer the most in terms of costs. To do so, the study was originally planned to collect any information by genders, age groups, and types of drug use and then estimate costs specific to each sub-group of interest. However, there were difficulties during the process of data collection. Data containing detailed breakdown of caseloads or costs by the variables of interest were rare. Although the CRDA offers relatively more comprehensive information, it remains insufficient. To overcome these barriers and meet the objectives of this study, making use of the results from Chapters 3 to 5, a methodology was proposed in an attempt to disassemble social costs by genders, age groups, and major types of drug use. It should be noted however, that the methodology involves a lot of estimations and assumptions, thus, the resulted estimates should be interpreted with caution.

2.4.1. Analysis

The method starts from sub-estimates of the social tangible costs in Chapter 4, after adjustments for the number of "hidden" drug users. For each sub-estimate, distributions across genders, age groups and major types of drug use were estimated according to one of the following three ways:

1. Directly informed by cost estimation methods as shown in Chapter 3. This is applicable to those cost items with available breakdowns, such as premature mortalities by genders and age groups, and hospital inpatients by genders.
2. Brought from the estimated number of drug users in 2014 by genders, age groups, and types of drug use in Chapter 4. This is primarily applicable to the cost items which should be broken down according to the number of drug users in each sub-group, such as loss of productivity and publicity.
3. Combined the estimated number of drug users in 2014 and transition matrix calculated from quantitative pathway analysis

using the CRDA data (Chapter 5) to estimate the distribution of caseloads across genders, age groups, and types of drug use. This is applicable to cost items related to services (e.g. arrests and services for offenders) which should be broken down by the number of utilization, instead of simply by the number of drug users.

The first two ways were straightforward. The following will briefly illustrate how the third works using gender as an example.

It would be estimated that there were N male drug users in 2014 (Chapter 4). They would go through the services following the transition probabilities as estimated in Chapter 5. The number of caseloads of first reported cases across different types of reporting agencies would be given by

$$\boldsymbol{M_1} = N \times \boldsymbol{P_{98}}$$

where $\boldsymbol{M_1}$ is a vector matrix containing the number of cases being first reported in different types of reporting agencies j=1, 2, 3…, 9, 99 and $\boldsymbol{P_{98}}$ is the vector matrix of transition probabilities from 98 (not reported previously) to agency j.

These male drug users would then transit to other services, or "escape" from the system (j=99). The number of caseloads of second time reported cases across different types of reporting agencies would be

$$\boldsymbol{M_2} = \boldsymbol{M_1} \times \boldsymbol{P}$$

where $\boldsymbol{P}$ is the transition matrix from previous agency i to agency j, or to an absorbing state "escape" (j=99).

The process was then repeated for the third time ($\boldsymbol{M_3}$), the fourth time ($\boldsymbol{M_4}$), and so on. The same process was simultaneously applied on women ($\boldsymbol{F_1}$, $\boldsymbol{F_2}$, …), until an arbitrary choice of 70% of individuals (men and women combined) "escape" the system. The number of caseloads in different types of reporting agencies was then given by summing $\boldsymbol{M_1}$, $\boldsymbol{M_2}$, …. The distributions of caseloads across genders in different reporting agencies were used to inform the breakdowns of different sub-estimates of social tangible costs.

The breakdown of some cost items can be directly informed by a single type of reporting agency, such as reporting agency 2 (HKPF) informing the costs of arrests, and reporting agency 6 (DTRCs) informing non-hospital based T&R. However, some cost items were not that straightforward, such as victimizations and

emergency services. For those cost items, the number of caseloads of similar types of reporting agencies were combined, such as reporting agencies 3 (MTP) and 5 (SAC) informing hospital inpatient costs, and reporting agencies 1 (CSD) and 2 (HKPF) informing legal and judiciary costs. Only the distributions of caseloads across variables mattered the breakdown of costs, but not the exact number of caseloads.

Chapter 3. Socioeconomic costs of drug abuse

3.1. Loss of Productivity

Drug abuse incur costs indirectly through loss of productivity as there are reduced number of individuals engaged in economic activities, including both paid employments and unpaid household services. Under the counterfactual scenario, one can expect that a portion of drug users will "re-join" the workforce, and will be more productive with lower absenteeism.

In this study, loss of productivity due to drug abuse was considered from four aspects, namely 1) premature mortalities; 2) diminished size of workforce; 3) increased absenteeism; and 4) loss of productivity of crime victims. For premature mortalities and diminished size of workforce, loss of productivity in both the paid sector (i.e. employment) and the unpaid household sector are taken into account. Considerable human resources are used for goods and services directly consumed by households (Collins & Lapsley, 2008).

3.1.1. Premature mortalities

To estimate the amount of loss of productivity attributable to drug abuse due to premature mortalities, two pieces of information were required: 1) the number of premature deaths attributable to drug abuse; and 2) some monetary values assigned to each death. The life expectancy at birth in Hong Kong were 81 and 87 years for Hong Kong men and women, respectively (Census and Statistics Department, 2017). Therefore, deaths occurred at ages less than 81 for men and 87 for women were considered as premature deaths (Law, Yip, & Chen, 2011).

Death causes attributable to drug abuse and the associated age- and gender-specific attributable fractions were adopted from two overseas exercises (Collins & Lapsley, 2008; Harwood & Bouchery, 2004). The attributable fraction for a particular condition indicates the proportion of such cases with that condition in the population that can be causally attributed to the consumption of illicit drugs. Based on the available information, the attributable fractions for several causes of deaths for Hong Kong were also updated. Fifteen categories of deaths were considered. Details and additional tables of these categories of deaths and their attributable fractions can be found in Appendix D.

The number of premature deaths in 2014 was identified from the registered death data in which the causes of deaths were coded using ICD-10. There were 1,302 death records being extracted, based on the 15 types of causes of deaths under consideration. The number of drug-attributable cases were determined by multiplying the number of each cause with the corresponding age- and gender-specific attributable fraction. It was estimated that 199 premature deaths, 156 men and 43 women, were attributable to drug abuse, accounting for 0.44% of the total registered deaths in 2014. This proportion was less than those in both Australian (Collins & Lapsley, 2008) and the US studies (Harwood & Bouchery, 2004), in which drug-attributable deaths accounted for around 0.7% and 1.0%, respectively, of their total deaths. Table 3.1.1 shows the distribution by genders, age groups, and categories of the causes of deaths.

Table 3.1.1

Estimated number of deaths attributable to drug abuse in 2014

	Male[1]	Female[1]
Total	156	43
Age Groups		
<21	1	1
21-30	11	4
31-40	41	10
41-50	35	6
>50	69	22
Causes of Deaths		
Mental and behavioral disorders due to psychoactive substance use	2	1
Accidental Poisoning	95	13
Poisoning with undetermined intent	6	3
Assault	0	0
Hepatitis B	15	2
Hepatitis C	6	3
HIV / AIDS	1	0
Infective endocarditis	1	0
Maternal drug dependence	0	0
Newborn drug toxicity	0	0
Antepartum haemorrhage	0	0
Low birth weight	0	0
Road injuries	4	2
Suicide	27	18
Schizophrenia	0	0

Note:

[1] May not sum to total due to rounding error

The human capital approach was adopted for the valuation of the loss of productivity due to drug-attributable deaths. This approach estimates the value of a worker's future stream of earnings, using an appropriate discount rate (5% in this study) to bring back to the present day value (Single et al., 2003). Details and assumptions of the valuation can be found in Appendix D.

Briefly speaking, data from the Census and Statistics Department (C&SD) were utilized to construct a work-life table for the average people in Hong Kong in 2014.

Present values of future earnings at different ages were estimated through the work-life table. In total, six work-life tables were produced, across two genders and three types of economic activities (employed, retired and homemakers). Work-life tables for the retired and the homemakers were used to estimate the loss of productivity in the household sector. For instance, a man at the age 25 is expected to have an average work life of 37.0 years, a retirement life of 17.1 years and a homemaker life of 0.3 year in the future. His expected future earnings from employment, bringing them to the present day value, equals HK$6,386,751, and he is expected to produce household services with the value equivalent to HK$227,832. It should also be noted that this valuation does not aim to demonstrate how much a human life is worth. It only estimates the potential future productivity of an average person (Single et al., 2003).

Table 3.1.2

Loss of productivity due to premature mortalities attributable to drug abuse in 2014

Genders	N	Loss in employment (HK$)	Loss in the household sector (HK$)	Sub-total (HK$)
Male	156	442,268,519	39,296,825	481,565,344
Female	43	55,946,724	38,528,562	94,475,286
Both	199	498,215,243	77,825,387	576,040,630

The loss of productivity due to premature mortalities was calculated by multiplying the number of drug-attributable deaths with the corresponding age- and gender-specific present value of future earnings from employment and unpaid household activities. Table 3.1.2 summarizes the results by genders and sectors. The loss of productivity from employment was estimated at HK$498,215,243, while that of the household sector was HK$77,825,387. The total loss of productivity due to premature mortalities attributable to drug abuse was **HK$576,040,630**.

3.1.2. Diminished size of workforce

Apart from loss of productivity arising from premature mortalities, drug abuse also causes large economic loss among those alive in three ways: 1) diminished size of workforce due to various drug-related causes such as higher rates of disabilities, treatments and incarcerations; 2) increased rates of absenteeism caused by the ill-effects resulted from drug abuse; and 3) reduction of on-the-job productivity. This sub-section estimates the loss of productivity arising from diminished size of workforce. Both paid and unpaid (household) outputs were considered.

Table 3.1.3
Employment status of the respondents surveyed (N=310)

	Person-month (% of total)	
Employment status	Male (N=226)	Female (N=84)
Full-time employment	748 (27.6%)	161 (16.0%)
Part-time employment	464.5 (17.1%)	136.5 (13.5%)
Illicit employment	301 (11.1%)	80 (7.9%)
Unemployed	930.5 (34.3%)	318.5 (31.6%)
Homemakers	42 (1.5%)	265 (26.3%)
Retired	84 (3.1%)	0 (0.0%)
Others	142 (5.2%)	47 (4.7%)
Total	2,712 (100%)	1,008 (100%)

Note: Only 310 respondents provided full information of their past 12-month employment status.

The survey asked respondents to report their employment status in the past 12 months, their usual working hours per week and their sources of monthly income with amounts. In view of frequently varying employment status among drug users, the survey asked specifically the duration (in months) of each employment status. 310 respondents, involving 226 men and 84 women, provided full information of their 12-month employment status for analyses. Table 3.1.3 shows the distribution of employment status by genders using person-month as a unit. Illicit employment was identified if a respondent reported full-time or part-time employment but only had income from illicit means (e.g. drug hawking, thefts, and robberies).

Table 3.1.4 summarizes the observed number of labour, their total working hours in a year and annual productivity for those in full-time / part-time employment, and those working in the household sector (homemakers and the retired) by genders. In a year, among the 226 male drug users, they contributed 1,212.5 months working in full-time or part-time employment (equivalent to 101.0 people working for a year), worked 239,501 hours (equivalent to 6.5 hours per day per working drug user), and generated income of HK$17,922,448 (equivalent to a monthly income of HK$14,782 per working drug user) in the 2014 value.

Basic assumptions for estimating productivity in the household sector were the same as those used in the loss of productivity due to premature mortalities (Appendix D). However, information related to respondents' to working hours spent on household commitment if they were homemakers or have retired was not collected in the survey. Another survey question was posed to the respondents who were employed on their loss of working hours due to drug abuse. More details can be found in the next sub-section. It was assumed that homemakers or the retired would have the same amount of reduction in hours spent on housework as those employed.

Table 3.1.4

Observed number of labour, working hours and productivity of the respondents surveyed

	Observed number of:		
	Labour (Person-months)	Annual working hours	Annual productivity in 2014 value (HK$)
Employment			
Full-time / part-time			
Male	1212.5	239,501	17,922,448
Female	297.5	48,334	3,441,222
Household sector			
Homemakers			
Male	42	5,290	158,689
Female	265	38,582	1,157,449
Retired			
Male	84	1,892	56,769
Female	0	0	0

An indirect standardization approach was adopted to estimate the "potential" reduction in productivity. Specifically, an assumption was made that the 310 respondents surveyed under the counterfactual scenario would follow the employment patterns of the general population. Using the statistics obtained from the C&SD and assumptions which were the same as those used in the loss of productivity due to premature mortalities, a set of "expected" number of labour, total working hours in a year, and annual productivity of those 226 male and 84 female drug users was generalized (Table 3.1.5). Under the counterfactual scenario, for instance, it was expected that there were 168.3 employed men (or 2,019 person-month), working for 401,048 hours and generated a total income of HK$33,668,532 in 2014. The difference between the "expected" and the "observed" annual productivity was the potential loss of productivity.

Table 3.1.5

Expected number of labour, working hours and productivity of the respondents surveyed under the counterfactual scenario

	Expected number of:		
	Labour (Person-months)	Annual working hours	Annual productivity in 2014 value (HK$)
Employment			
Full-time / part-time			
Male	2019	401,048	33,668,532
Female	670	124,884	9,068,419
Household sector			
Homemakers			
Male	14	2,125	63,762
Female	158	26,951	808,535
Retired			
Male	181	8,803	264,102
Female	15	1,375	41,243

Scaling up the differences to the 7,379 male and 1,680 female drug users as reported in the Central Registry of Drug Abuse (CRDA) 2014, the loss of productivity due to the diminished size of workforce is presented in Table 3.1.6. It is worth noting that there was an "increase" of productivity in the unpaid household sector among females. It was observed that drug users had a higher

chance of engaging in household activities than the general population, generating goods and services with values higher than expected in the household sector. However, its effect was very minimal compared to the large sum of loss of productivity in the employment sector.

Table 3.1.6

Loss of productivity due to diminished workforce attributable to drug abuse

Genders	Loss in employment (HK$)	Loss in the household sector (HK$)	Sub-total (HK$)
Male	514,116,583	3,670,080	517,786,664
Female	112,543,938	-6,153,414	106,390,524
Both	626,660,521	-2,483,334	624,177,187

The total loss of productivity due to the diminished size of workforce attributable to drug abuse in 2014 was estimated at **HK$624,177,187**.

3.1.3. Absenteeism

Another loss of productivity from the workforce arises from increased absenteeism from work resulting from drug-related illnesses.

The survey asked respondents whether they have lost any working hour on account of drug abuse such as late to work and absent from work, given that they have been employed. Among the 310 cases (226 men and 84 women) who provided completed information on their past-year employment status, 61 respondents out of 162 who have been employed (37.7%; 39.1% for men and 32.4% for women) reported that they have such experience, with a mean of 15.8 hours per week (Table 3.1.7).

Table 3.1.7
Number of loss of working hours per week of the respondents surveyed

			Number of working hours lost	
Genders	N	%	Mean	Std. dev.
Male (N=226)	50	39.1	15.4	21.5
Female (N=84)	11	32.4	17.6	25.8
Both (N=310)	61	37.7	15.8	22.2

On average, the number of loss of working hours were 3.40 and 2.30 per week per male and female respondent, respectively. Applying these averages to the number of drug users reported to the CRDA in 2014, it was estimated that men would lose a total of 3.40*7,379*52.1=1,307,425 working hours due to drug abuse, while women, a total of 2.30*1680*52.1=201,794 hours. Using the average hourly wages (HK$66 for men and HK$53.4 for women) in 2014 as reported by the C&SD (2015a), the loss of productivity due to increased absenteeism attributable to drug abuse was estimated at **HK$97,065,855**.

3.1.4. Crime victims

A small yet material amount of loss of productivity goes to the productive time loss of crime victims. For consistency, the associated estimate is included under the current section "Loss of productivity", but the method of estimation would be provided in detail in Section 3.2.5 (p.62).

The loss of productivity of crime victims attributable to drug abuse in 2014 was estimated at HK$2,031,883.

3.1.5. Total loss of productivity

The total value of loss of productivity attributable to drug abuse in 2014 was estimated at **HK$1,299,315,556**. About half (48.0%) of the total productivity loss was caused by the diminished size of workforce, followed by premature mortalities (44.3%) and absenteeism (7.5%).

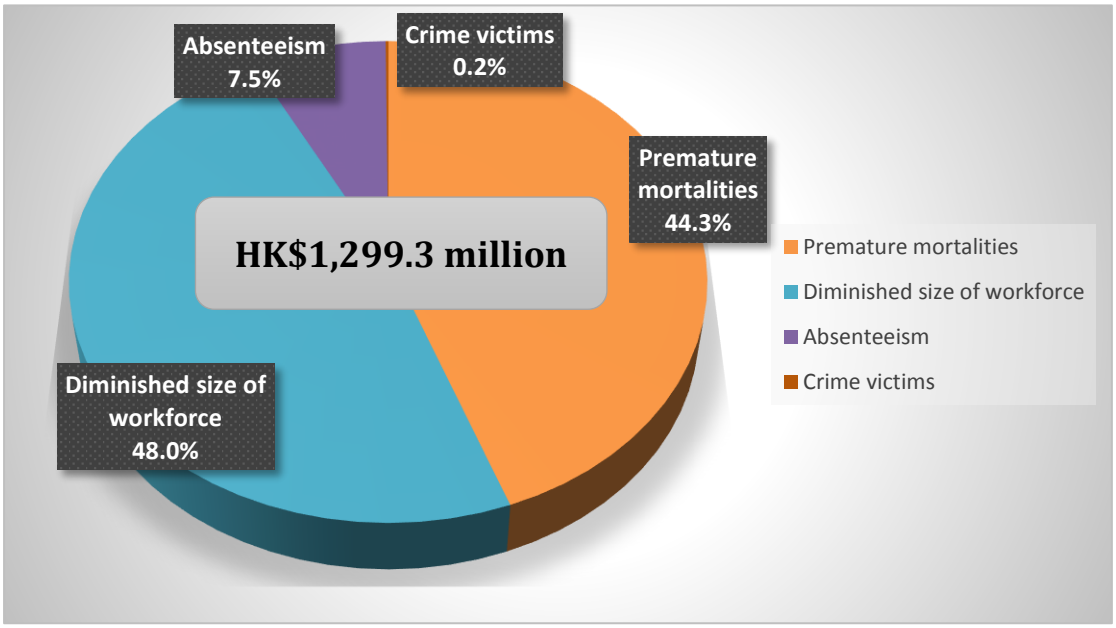


Figure 3.1. Distributions of the estimated loss of productivity

3.2. Crime and Law Enforcement Costs

Some law enforcement and criminal justice services are directly or indirectly related to the use of illicit drugs. For example, economic resources are spent to enforce law against drug possession. Five sub-categories are considered under this major type of costs, namely arrests, customs, legal and adjudications, incarcerations, and victimizations. The cost borne by crime victims is further divided into medical treatments and thefts or property damaged.

3.2.1. Arrests

It is well-established that a significant portion of arrests is attributable to drug abuse. Apart from crimes directly related to illicit drugs (i.e. manufacturing, trafficking, and possession), drug users are often found to involve in other illegal activities, such as thefts and burglaries, hypothetically, to support their spending on drugs.

To estimate the cost of arrests by the Hong Kong Police Force (HKPF), an estimated number of arrests attributable to drug abuse was needed. Due to the lack of relevant information from local studies or data sources, categorization of drug-related offences and the associated attributable fractions from overseas study, specifically, from the United States (McDowell Group, 2012) were adopted and applied. The information of arrests was then extracted from the annual reports of the HKPF. Categories of drug-related offences and the associated number of arrests in 2014 are shown in Table 3.2.1. Applying the attributable fraction separately for each type of offence, the total number of arrests attributable to drug abuse in 2014 was estimated at 6,238.

Table 3.2.1

Estimated number of arrests attributable to drug abuse in 2014

US exercise		**Hong Kong**		
Types of offences	Attributable Fractions (%)[1]	Types of offences	Number of arrests in 2014[2]	Estimated number attributable to drug abuse
Homicide	15.8	Murder & Manslaughter	32	5
		Attempted Murder	0	0
Aggravated Assault	5.1	Wounding	1,140	58
		Serious Assault	3,008	153
		Assault on Police	287	15
Sexual Assault	2.4	Rape	62	1
		Indecent assault	798	19
Robbery	27.2	Robbery with Firearms	1	0
		Robbery with Pistol-like object	1	0
		Other Robbery	206	56
Burglary	30	Aggravated Burglary	0	0
		Burglary with Breaking	288	86
		Burglary without Breaking	117	35
Theft	29.6	Theft (Snatching)	71	21
		Theft (pick-pocketing)	189	56
		Shop theft	6,643	1,966
		Theft from vehicle	126	37
		Theft from construction sites	43	13
		Other miscellaneous theft	4,359	1,290
Auto Theft	6.8	Taking conveyance without authority	138	9
Receiving Stolen property	15.1	Handling stolen goods	89	13
Prostitution	12.8	Unlawful Sexual Intercourse	143	18
		Keeping Vice Establishments	164	21
		Procuring/Controlling of Prostitution	31	4
Drug laws	100	Manufacturing	26	26
		Trafficking	1,287	1,287
		Possession	1,041	1,041
		Other serious drug offence	4	4

Note:

[1] Attributable fractions borrowed from McDowell Group (2012)

[2] Number of arrests obtained from the Hong Kong Police Review 2014.

The next step was to identify the costs per arrest. In view of no readily available information on the costs per arrest, and due to the large variations across the types of offences, it is difficult to precisely estimate a unit cost. A man-hour approach was adopted to produce a rough estimate of the costs per arrest. The Narcotics Bureau of the HKPF provided the estimates on average hours (9 hours) and average number of officers (10 officers) needed to process an arrest of offender

with possession of dangerous drugs upon general patrol. The estimated man-hour of police officers for such an arrest was 90 hours. This estimate was generalized to all other types of drug-related offences due to the limited information available.

Based on the data extracted from the Government Budget, the total expenditure of the Hong Kong Police force in 2014 was estimated at HK$16.0 billion, including the costs of salaries, benefits and support. The number of police officers as at 31st December, 2014 was 32,821. By assuming 8 hours per day, 5 days per week, and 52.1 weeks per year, the estimated average number of working hours per officer per year was 2,086. Therefore, the average cost per officer per hour was HK$234. The estimated cost per arrest of drug-related offence in 2014 was 90*234=HK$21,057.

The cost of arrest attributable to drug abuse in 2014 was estimated at 6,238*21,057=**HK$131,345,694**.

3.2.2. Customs

The Customs and Excise Department (CED) of the Hong Kong SAR Government is responsible for the detection of illicit drug trafficking. Apart from investigating illegal import, export, manufacture, and distribution of illicit drugs, it adopts a three-pronged approach in anti-narcotics strategies, which includes drug source detection, drug/crime proceeds recovery, and control of precursor chemicals used in the illicit manufacture of drugs (Customs and Excise Department, 2016).

Expenditures in the anti-drug investigations by the CED can be directly quoted from the Government Budget. The cost of customs in 2014 was estimated at **HK$190,600,000**.

According to the Replies to the Financial Committee of the Legislative Council by the Security Bureau for the financial year 2013-2014, the total estimated expenditures on anti-narcotics investigations by the Hong Kong Customs and Narcotics Bureau of the HKPF was HK$311 million, which was close to our current estimation for the year 2014 (HK$131.3+HK$190.6=HK$321.9 million)

3.2.3. Legal and adjudications

Cost on legal and adjudications arises when drug-related criminal cases go to different levels of courts in the judicial system. Precise estimation of this cost item was found to be difficult due to the scarcity of data.

The survey asked the respondents if they have ever conducted any illegal acts from possessing, dealing of illicit drugs, to any form of drug-taking in the past year, and the number of times they were convicted by the courts, if any, due to those illegal acts. Table 3.2.2 presents the results of the survey. 44.7% men and 51.1% women admitted that they have conducted illegal acts.

Table 3.2.2
Number of times the respondents surveyed were convicted by the courts

	Male (N=264)		**Female (N=94)**	
	n	**% (95% CI)**	**n**	**% (95% CI)**
Conducted any illegal acts in the past year	118	44.7% (38.6, 50.9)	48	51.1% (40.5, 61.5)
Convicted by the courts due to	**n**	**Number of times**	**n**	**Number of times**
Burglary	4	10	1	1
Theft	20	28	12	14
Criminal Damage	2	2	0	0
Wounding and assault	5	11	0	0
Manufacturing, Trafficking, and in Possession of drugs	76	159	30	46
Others	3	3	1	1
Total	-	213	-	62
Average number of times per respondent	-	0.81	-	0.66

In total, male and female respondents reported 213 and 62 times been convicted by the courts respectively, primarily due to drug-related offences and thefts. On average, there were 0.81 and 0.66 court cases per respondent for men and women, respectively. To estimate the number of court cases among the drug users in a

year, these averages were applied to the number of drug users reported to the CRDA in 2014, i.e. 7,379*0.81+1,680*0.66=7,061.6.

From the Judiciary Annual Report, there were 37,699 criminal cases in 2014. The prevalence of criminal court cases among the general population was estimated at 0.52%. The expected number of court cases by drug users under the counterfactual scenario was 9,059*0.52%=47.2. The excess number of court cases due to drug abuse was estimated at 7,061.6-47.2=7,014.4.

One of the difficulties in this estimation is the lack of information on costs per caseload. In fact, an estimate of the average cost per case may not be appropriate in this context, as the costs of a court case depend on many factors such as the level of the court, the type of offence involved, and the severity of a crime. For the purpose of this study, a rough estimate was produced based on the data extracted from the Government Budget. The total expenditure of the Judiciary in 2014 was estimated at HK$1,257.8 million, and the total number of cases was 478,081. The average cost per court case in 2014 was roughly estimated at HK$2,631.

Costs for Trials

Hiring private lawyers to fight in law suits is not a common option for the interviewees in this research. Only 4 interviewees have hired private lawyers in their court trials, where families have covered those costs for 2 of them. While this could be categorized such as private costs, 2 interviewees have borne the costs themselves. The general costs obtained from the interviews for private lawyers were thus supplemented as reference. ($8000 for 2 times of court appearance in Interview #20).

> ***'(I: Did your family try to hire a lawyer for you?)*** *They did, but (private lawyers) didn't help. We still lost in the end. That's why I didn't even try later. I don't see any difference between the lawyers from Legal Aid and the private ones. Maybe the private ones are a bit better, they would say a few more lines for you in court.'* (Interview #20, male)

The idea of having a defence lawyer moreover, does not seem to be a common practice among the interviewees. In addition to the four who hired private lawyers, only 6 interviewees have used the Legal Aid services for their court trials.

The cost of legal and adjudications attributable to drug abuse was estimated at 7,014.4*HK$2,631=**HK$18,453,874**.

3.2.4. Incarcerations

Similar to arrests, it is well-established that a significant portion of incarcerations is attributable to drug abuse. Apart from the crimes directly related to illicit drugs (i.e. manufacturing, trafficking, and possession), drug users are often found to involve in other illegal activities, such as thefts and burglaries, hypothetically, to support their spending on drugs. The Correctional Services Department (CSD) of the Hong Kong SAR Government provides drug addiction treatment centre (DATC) programs for inmates who are addicted to drugs. Therefore, part of the incarceration costs estimated below may have been spent on treatments and rehabilitation purposes.

To estimate the incarceration costs, an estimate of the number of incarcerated individuals attributable to drug abuse is needed. According to the annual report of the CSD, there were 11,301 admissions (8,077 men and 3,224 women) in 2014, and 8,830 individuals (7,136 men and 1,694 women) per day on average. Concerning the DATCs, there were 1,041 admissions (811 men and 230 women) and 743 people (564 men and 179 women) per day on average.

Apparently, not all drug users would be admitted to the DATCs. Some cases of incarcerations, apart from the DATCs, are probably related to drug abuse. Estimating the number of incarcerations attributable to drug abuse is difficult due to the lack of relevant information from local studies or data sources. Therefore, some estimates of attributable fractions from overseas studies were borrowed and applied. Multiplying the number of admissions by the types of offences and attributable fractions, gave the estimated number of drug users incarcerated attributable to drug abuse in 2014. Table 3.2.3 summarizes the estimates. As there is no suitable attributable fraction for offences against public morality, the penal code and local laws, the corresponding numbers stated in the Report on the DATC admissions in 2014 were used. It was estimated that 2,914 (36.1% out of 8,077) and 749 (23.2% out of 3,224) admissions in 2014 by men and women respectively were attributable to drug abuse.

Table 3.2.3

Number of incarcerations attributable to drug abuse in 2014

	Male			Female		
Against	No. of admissions[1]	Attrib. fractions (%)	Nos. attrib. to drug abuse	No. of admissions[1]	Attrib. fractions (%)	Nos. attrib. to drug abuse
Lawful authority[2]	333	26	87	109	21	23
Public morality[3]	413	-	2	27	-	0
The person[2]	477	24	114	40	27	11
Property[2]	2,410	32	771	704	42	296
The Penal Code[3]	372	-	3	224	-	2
Local Laws[3]	2,199	-	64	1,708	-	6
Drug Offences[4]	1,873	100	1,873	412	100	184
Total	8,077		2,914	3,224		749

Note:

[1] Number of admissions obtained from the Annual Review of the CSD 2014.

[2] Attributable fractions borrowed from the Australian framework (Collins & Lapsley, 2008)

[3] Numbers attributable to drug abuse directly extracted from the Report on the DATC admissions in 2014

[4] Attributable fractions borrowed from the US framework (McDowell Group, 2012)

The estimated numbers and the daily average population under the CSD management were combined to estimate the daily average number of inmates attributable to drug abuse, i.e.

For males, daily average population =7,136*36.1%=2,575
For females, daily average population =1,694*23.2%=394

Similar to legal and adjudication costs, there is no readily available information on the costs per inmate, and it is difficult to precisely estimate the costs of incarcerating one inmate with drug addiction issues under the CSD management. For the purpose of this study, a rough estimate was produced based on the data extracted from the Government Budget. The total expenditure of the CSD in 2014 was estimated at HK$3,418.6 million, prison management and re-integration included. The average cost per inmate in 2014 was estimated at HK$3,418.6 million / 8,830 =HK$387,157 for a year, equivalent to HK$1060.7 per day.

The cost of incarcerations attributable to drug abuse was estimated at (2,575+394)*HK$387,157=**HK$1,149,270,107**.

3.2.5. Medical treatments and property loss of victimizations

Some social costs attributable to drug abuse are borne by the victims of the crimes committed by the drug users. Three types of such costs were considered in this study, namely medical treatments, property lost or damaged, and loss of productivity. For consistency, the estimates of loss of productivity would be placed under Section 3.1.4 "Crime victims", but the method of estimation is described in detail as below.

Table 3.2.4

Estimated number of victimizations attributable to drug abuse in 2014

Types of crimes	Victimization rates (per 1,000)[1]	Estimated number of victimizations in 2014[1,2]	Attributable fractions (%)[3]	Estimated number attributable to drug abuse
Crimes of violence				
Wounding/assault	2.9	17,485	5.1	892
Robbery	2.5	15,657	27.2	4,259
Personal crimes of theft				
Snatching	1.6	9,763	29.6	2,890
Pickpocketing	11.4	72,722	29.6	21,526
Other personal theft	8.9	53,907	29.6	15,956
Household crimes				
Burglary	15.2	37,064	30	11,119
Theft of vehicle	0.8	1,947	6.8	132
Theft from vehicle	8.0	19,672	29.6	5,823
Other household theft	28.5	68,693	29.6	20,333

Note:

[1] Statistics extracted from Crime and its victims in Hong Kong in 2005 (C&SD)

[2] Adjusted for genders and age for crimes of violence and personal crimes of theft, and adjusted for household type for household crimes.

[3] Attributable fractions borrowed from the US exercise (McDowell Group, 2012)

The latest statistics on victimizations published by the C&SD dated back to 2005 (Census and Statistics Department, 2007). The publication included

victimizations per 1,000 people aged 12 and above or 1,000 households by types of crimes and some other statistics related to the estimation of the three cost items. These figures were applied to the 2014 population and household data to calculate the total number of victimizations in 2014. Attributable fractions of crime used in the estimations of the cost of arrests (Section 3.2.1) were applied to estimate the number of victimizations attributable to drug abuse. The estimates, with age and genders adjusted (or household type adjusted for household crimes) and separated by the types of crimes, are shown in Table 3.2.4. Estimations of victimization costs in the sub-section were based on the best available information from the C&SD publication.

Medical treatments

Crime victims that required medical treatments are mainly those involved in wounding/assaults and robberies. 36.0% and 17.9% of corresponding victims required various forms of subsequent medical treatments. The publication by the C&SD provided the distributions of medical expenses incurred. A median medical expenses of the victims from the available distributions was estimated and further adjusted for inflation from 2005 to 2014 using the Composite Consumer Price Index (CPI). The results are shown in Table 3.2.5. The total medical expenses of victimizations attributable to drug abuse in 2014 was HK$810,903.

Table 3.2.5
Estimated c*osts of medical treatments of victimizations attributable to drug abuse in 2014*

Types of crimes	Proportion required medical treatments (%)[1]	Estimated number attributable to drug abuse	Median medical expenses in 2014 value (HK$)[1]	Total medical expenses (HK$)
Wounding/assault	36.0	321	865.4	277,830
Robbery	17.9	761	700.0	533,074

Note:

[1] Statistics extracted from Crime and its victims in Hong Kong in 2005 (C&SD)

Property lost or damaged

Table 3.2.6 shows the proportion of victimizations resulting in property lost or damaged and the estimated numbers attributable to drug abuse by the types of crimes.

It was estimated that there were a total of 73,096 crimes resulting in loss or damage of property in 2014. Similar to medical treatments, a median value of property lost or damaged was estimated using the available information from the C&SD publication for each type of crimes. The total value of property lost or damaged of victimizations attributable to drug abuse in 2014 was estimated at HK$149,957,358.

Table 3.2.6

Property lost or damaged of victimizations attributable to drug abuse in 2014

Types of crimes	Proportion resulting in property lost / damaged (%)[1]	Estimated number attributable to drug abuse	Median value in 2014 value (HK$)[1]	Total value of property lost or damaged (HK$)
Robbery	76.2	3,245	3,175	10,302,111
Snatching	89.6	2,589	2,577	6,673,242
Pickpocketing	100	21,526	2,268	48,813,705
Other personal theft	74.7	11,919	964	11,488,652
Burglary	69.9	7,772	4,082	31,729,766
Theft of vehicle	86.4	114	189,709[2]	21,703,039
Theft from vehicle	98.9	5,759	1,966	11,319,899
Other household theft	99.2	20,171	393	7,926,944

Note:

[1] Statistics extracted from Crime and its victims in Hong Kong in 2005 (C&SD)

[2] Could not be determined from the C&SD publication. The value was taken from the survey on drug users, adjusted to the 2014 value.

Loss of productivity

Table 3.2.7 shows the proportion of victimizations resulting in loss of time, the estimated numbers attributable to drug abuse, and the median working days lost by the types of crimes. The numbers of snatching and other household theft were too small and were not reported by the C&SD publication. Assuming a median weekly working hours of 44.3 and a median hourly wage of HK$60 (Census and Statistics Department, 2015a), the value of loss of productivity of victimizations attributable to drug abuse in 2014 was HK$2,031,883.

Table 3.2.7

Loss of productivity of victimizations attributable to drug abuse in 2014

Types of crimes	Proportion resulting in loss of time (%)[1]	Estimated numbers attributable to drug abuse	Median working days lost[1]	Total loss of productivity (HK$)
Wounding/assault	8.4	75	3	119,460
Robbery	4.9	209	1	110,931
Pickpocketing	7.1	1,528	1	812,455
Other personal theft	3.8	606	1	322,333
Burglary	3.0	334	1	177,328
Theft of vehicle	31.2	41	1	21,961
Theft from vehicle	15.1	879	1	467,415

Note:

[1] Statistics extracted from Crime and its victims in Hong Kong in 2015 (C&SD)

The total victimization costs attributable to drug abuse, through medical expenses and property lost or damaged, were estimated at **HK$150,768,262** in 2014.

3.2.6. Total crimes and law enforcement costs

The total expenditure on crime and law enforcements attributable to drug abuse in 2014 was estimated at **HK$1,640,437,937**. Majority (70.1%) of the costs were spent on incarcerations, followed by customs (11.6%) and victimizations (9.2%).

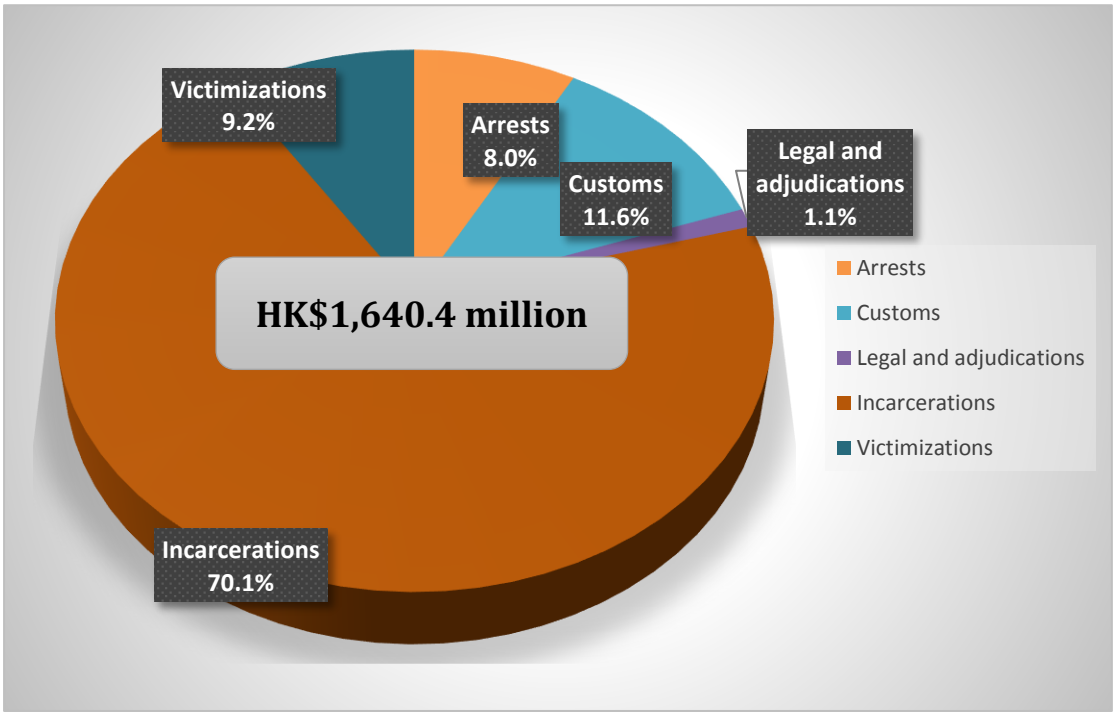


Figure 3.2. Distributions of the estimated crimes and law enforcement costs

3.3. Healthcare Costs

Abuse of illicit drugs incurs additional resources on healthcare for treatments and rehabilitations (T&R) of drug users. Apart from treating drug abuse directly, excessive use of illicit drugs was found to be associated with a number of other health conditions and traumas, such as hepatitis C, infections of HIV, urinary tract dysfunctions, and affective disorders.

Treatment of co-morbidity and traumas is also a kind of social costs that needed to be considered. However, estimating this cost attributable to drug abuse may face two challenges. First, estimates of expenditures are needed for each type of co-morbidity and traumas. Second, suitable attributable fractions are required to allocate the proportions of a condition caused by drug abuse (Single et al., 2003).

In view of the available information, instead of estimating by type of co-morbidity and traumas, an alternative approach was adopted. Specifically, the survey first asked the respondents to report whether they have been diagnosed with different types of drug-related co-morbidity and traumas since they took drugs, and then asked them to report the numbers of using inpatient, outpatient and Accident and Emergency (A&E) services in the past year. Making use of this information, this study estimates the excess number of inpatient, outpatient and A&E services in the public sector attributable to drug abuse. Table 3.3.1 shows a summary of co-morbidity and traumas.

Estimation of the total healthcare costs attributable to drug abuse was divided into five parts, namely methadone clinics, non-hospital based T&R, hospital inpatients, medical outpatients, and A&E services.

Table 3.3.1

Summary of co-morbidity and traumas of the respondents surveyed

	n	Prevalence % (95% CI)
Physical conditions (N=362)		
HIV / AIDS	2	0.6 (0.1, 2.0)
Hepatitis B	10	2.8 (1.3, 5.0)
Hepatitis C	25	6.9 (4.5, 10.0)
Other Hepatic diseases	8	2.2 (1.0, 4.3)
Respiratory diseases	38	10.5 (7.5, 14.1)
Urological diseases	30	8.3 (5.7, 11.6)
Cardiovascular diseases	17	4.7 (2.8, 7.4)
Mental conditions (N=364)		
Depression	68	18.7 (14.8, 23.1)
Anxiety	32	8.8 (6.1, 12.2)
Psychosis	61	16.8 (13.1, 21.0)
Sleep-related disorders	50	13.7 (10.4, 17.7)
Impulse control disorders	12	3.3 (1.7, 5.7)
Trauma and stress-related disorders	7	1.9 (0.8, 3.9)
Personality disorders	15	4.1 (2.3, 6.7)
Traumas (364)		
Accidents involving motor vehicles	20	5.5 (3.4, 8.4)
Self-harm	50	13.7 (10.4, 17.7)
Assaults	28	7.7 (5.2, 10.9)

3.3.1. Methadone clinics

The Department of Health (DH) of the Hong Kong SAR Government provides methadone treatment services to opiate users through the methadone clinics. In 2014, the number of average daily attendance at the methadone clinics was 5,352. This expenditure could be directly quoted from the Budget of the Government. The cost on methadone clinics in 2014 was estimated at **HK$49,675,000**.

Apart from the expenditures in the government sector, through collaboration with SARDA, methadone clinics also offer counselling services for methadone patients. The relevant costs were provided in Section 3.4.2 “Drug Counselling Services” under Welfare Costs.

3.3.2. Non-hospital based Treatments and Rehabilitations

A significant portion of economic resources spent on drug T&R is through non-governmental organizations (NGOs). As at the end of 2014, there were 39 residential drug treatment and rehabilitation centres (DTRCs), half-way houses included, run by 17 NGOs. Among the 39 DTRCs, 6 were subvented by the DH, 13 subvented by the Social Welfare Department (SWD), and 20 non-subvented by either of them. Except detoxification, DTRCs also provide their residents a wide range of services including counselling, education, vocational training, and aftercare services (Narcotics Division, 2015b). Therefore, estimation of non-hospital based T&R in this sub-section probably involves costs outside healthcare.

The amount of subventions to the 19 DTRCs subvented by the DH and SWD could easily be found in official documents by the government (Government Budget) and Legislative Council (Replies to Finance Committee). In addition, apart from T&R services, the DH subvented SARDA to provide counselling services for patients under the Methadone Treatment Programme (MTP). The amount of subventions, as stated in the Government Budget of the DH, included this service (Hong Kong SAR Government, 2015). After subtracting the corresponding amount of expenditures (which could be identified from the annual reports of SARDA), the total amount of subventions to the 19 DTRCs by the DH and the SWD was estimated at HK$122,890,868 in 2014.

The above estimate obviously did not include the costs in those DTRCs which were not subvented by the DH and the SWD. Furthermore, apart from the DH and the SWD, subvented DTRCs may receive funding from many other sources to support their wide range of services, which complicated our estimations. The annual reports and financial reports of these NGOs have been studied. A summary of observations is listed as follows:

1. Other major funding sources include the Beat Drugs Fund (BDF) (mainly for T&R projects), Education Bureau (for education programs), Labour and Welfare Bureau (for vocational training), the Hong Kong Jockey Club Charities Trust, Community Chest, and lotteries Fund. Some DTRCs also collaborate with other enterprises.
2. Some NGOs who run DTRCs provide not only services associated with drugs. It was difficult to single out the financial information solely on DTRCs for such NGOs.

3. Financial information of some NGOs could not be found.
4. For those 20 DTRCs which are so-called non-subvented by the government, they also apply for different funding and accept donations from the public, which are, by definition, social costs.
5. Except subventions and other funding, some DTRCs charge users for lodging and service fees. These should be viewed as private costs borne by the drug users and should be excluded from the current estimation.
6. Take one NGO for illustration. The financial information could be found in its annual reports, which could be freely downloaded from its website. Around 57% of its revenue in 2013-2014 was subvention from the SWD, 10% from the Education Bureau (EDB), 10% from other sources such as general donations, and 23% from lodging and service fees. For this study, 77% of the revenue was considered as social costs while the remaining 23% were private costs, and subventions from the SWD accounted for 74% of the social costs. Distributions of the sources of income could vary across NGOs.

The above cost estimates, only subventions from the DH and the SWD included, were definitely an underestimate of the social costs.

Sponsors don't always come as a bank cheque

'When the clients lost their teeth, it's really difficult for them to find a job. They first had to remove the bad teeth, and then had the implants. The operation fee can be very expensive, it can be around $400,000 per client. So the dental health company is willing to sponsor us, and they will cover most of the costs. This is one of the very important partners we have. We also keep looking for other ways to lower the costs of other things.' (Stakeholder interview #4, NGO)

Funding sources of NGOs are complicated. To sustain the services provided, NGOs will seek alternative sponsorships from corporate companies and other organizations. Although the costs involved in NGOs were estimated to be mainly from their financial support received from public resources, stakeholder #4 expressed that they do not solely seek monetary support from sponsors, instead, they will establish actual service partnerships such as providing dental services to their clients. This further complicated the estimation of costs involved.

Different funding from different Government Departments

'So for most of the time, their direction is, ah, the government has allocated some funding to the Home Affairs Department. They [the Government] would then outsource the work, and seek for collaboration with district-based organizations, and oversee the work. For us, ei, we get some funding from the Department and will help them organize some events.' (Stakeholder interview #3, NGO)

Identifying all sources of funding to all 39 DTRCs was not a feasible option. Therefore, an alternative approach was adopted to estimate the social costs of the DTRCs. Specifically, the "Three-year plan on Drug Treatment and Rehabilitation Services in Hong Kong (2015-2017)" published by the Narcotics Division (2015b) reported that there were a total of 2,658 cases under treatment and aftercare in the DTRCs. Combining this information with an estimate of costs per case would arrive at the total cost.

Three NGOs which provide only drug-related services and contain more complete information were selected for estimation of the unit cost. All three receive subventions from the DH or the SWD. Data of caseloads and expenditures from their annual reports and financial reports were extracted. Efforts have been made to exclude capital expenditure, fees paid by users (private costs), and grants from the BDF not related to T&R projects (e.g. Healthy School Programme (HSP)). The aim is to estimate a unit cost spent on T&R services in 2014 which was borne by the society.

Table 3.3.2

Estimation of costs per case of the DTRCs

	NGO A	NGO B	NGO C	Others	Total
Caseloads		1,939		719	2,658
Estimated cost per case (HK$)	48,900	65,692	92,608	69,067[1]	-

Note:

Caseloads and cost information extracted from Annual Reports and Financial Reports of NGOs and Three-year plan 2015-2017 (ND, 2015)

[1] Average of NGOs A to C.

Table 3.3.2 shows the results of the estimations. The three NGOs already covered 1,939 cases in 2014. To avoid identification, only the sum of caseloads from the three NGOs were stated. The estimated costs per case in 2014 ranged from HK$48,900 to $92,608. The large difference probably relates to the usual length of duration of their services. The average of the three estimated unit costs was applied, i.e. HK$69,067, to the remaining number of cases (N=719) to estimate the expenditures on T&R services outside the three NGOs.

The expenditure of the DTRCs under the three selected NGOs in 2014 was estimated at HK$102,604,361, and that of the remaining cases was estimated at 719*69,067=HK$49,659,167. The total expenditure was HK$152,263,528. It should be noted that this estimate is expected to be an overestimate, as it has been assumed that non-subvented DTRCs had similar social versus private shares of revenue as those in the subvented. Usually non-subvented DTRCs charge their users for a higher fee, indicating a larger proportion of private costs borne by the drug users. Therefore, the social costs of non-hospital based T&R services lay somewhere between HK$122,890,868 and HK$152,263,528. The precision of estimations could be increased if the distributions of caseloads by subvented and non-subvented centres were provided, and some estimates on the percentages of private costs against the total revenue or expenditures in those NGOs were given.

A significant portion of resources were spent on capital expenditure such as renovation of the DTRCs and the purchase of new vehicles. Identification of the actual capital expenses in a year was not an easy task either. The relevant information was scattered. Besides, the money was usually spent over years, but usually only the year of approval was found. Therefore, if applicable, the funds approved in 2013 were assumed to be the expenditure in 2014 in order to give a ball-park estimate of the capital expenditure in 2014. Integrating available information such as the annual reports of the NGOs, the Hong Kong Jockey Club, and Budgets of Lottery Funds, it was estimated that the capital expenditure spending on the DTRCs in 2014 was at HK$11,154,126.

Apart from the DTRCs, the BDF also supported some other NGOs on T&R services for drug users. The associated expenditure was estimated at HK$9,159,883. For more details on the projects supported by the BDF, please refer to Section 3.5.1. “Preventive education, publicity, and researches”.

Thus, the total cost of non-hospital based treatments and rehabilitations attributable to drug abuse in 2014 was estimated at **HK$172,577,536**.

3.3.3. Hospital Inpatients

This part estimates the excess inpatient costs attributable to drug abuse in public hospitals under the Hospital Authority (HA). The estimation was further split into general inpatients and psychiatric inpatients.

The survey asked the respondents if they have used any inpatient services in public hospitals in the past year, and, if any, the number of times they were required to stay in hospital and the average days per stay due to mental conditions and other reasons (physical, accidents, and drug intoxications). Table 3.3.3 presents the number of people who have used inpatient services in the past year, total number of times and the median number of bed-days by genders. Among 266 male respondents, 12 reported that they have been admitted to hospital due to mental conditions for a total of 47 times, with a median bed-day of 45 days. The total number of bed-days by men due to mental conditions were estimated at 47*45=2,115 days. On average, each male respondent had 2,115/266=8.0 days in hospital due to mental conditions. For other reasons, each male respondent had (256+20+72)/266=1.3 days in hospital. The corresponding figures for women were 4.6 and 2.9, respectively.

Table 3.3.3
Usage of inpatient services among the respondents surveyed by genders

Conditions	Total number of admissions	Median number of bed days per admission	Estimated total number of bed-days
Male (N=266)			
Mental	47	45	2,115
Physical	64	4	256
Accidents	10	2	20
Drug intoxications	8	9	72
Female (N=95)			
Mental	21	21	441
Physical	35	5	175
Accidents	14	7	98
Drug intoxications	1	2	2

These average number of bed-days per respondent were applied to estimate the number of bed-days occupied by the drug user reported to the CRDA in 2014. It

was assumed that drug users would be admitted to psychiatric ward due to mental conditions, and would be admitted to general ward due to other reasons. For psychiatric ward, it was estimated that the drug users occupied 66,470 bed-days in 2014, while that for general ward were 14,517.

Information from the annual reports of the HA showed that the average bed-day per capita in the general population was 0.82 days for general ward and 0.13 days for psychiatric ward. The expected number of bed-days by the same group of drug users under the counterfactual scenario was 9,059*0.13=1,183 days for psychiatric inpatients and 9,059*0.81=7,396 days for general inpatients. The excess number of inpatient bed-days attributable to drug abuse was estimated at 65,287 days for psychiatric ward and 7,120 days for general ward.

Data on the costs per patient day of the two kinds of inpatients could be directly extracted from the annual reports of the HA too. The cost per bed-day of general ward was estimated at HK$4,533 in 2014, while that of psychiatric ward was HK$2,420.

The hospital inpatient costs attributable to drug abuse were estimated at 7,120*4,553=HK$32,273,401 for general inpatients and 42,210*2,420= HK$157,995,144 for psychiatric inpatients. The total cost of inpatients was **HK$190,268,545**.

3.3.4. Medical Outpatients

This sub-section estimates the medical outpatient costs attributable to drug abuse in the public sector. The estimation was further split into substance abuse clinics, which are operated by the seven service clusters of the HA, and other specialist outpatients. Services of substance abuse clinics include treatments of psychiatric co-morbidity and psychiatric complications.

Substance abuse clinics

The actual number of attendances to substance abuse clinics in 2014 could be found from the Three-year Plan published by the Narcotics Division (Narcotics Division, 2015b). In 2014, there were 823 new cases and 22,013 follow-up attendances. Information on the unit cost can be directly extracted from the annual reports of the HA. In 2014, the estimated cost per specialist outpatient attendance was HK$1,117.5.

Besides, an additional funding from the BDF Association which amounted to HK$4,920,520, was identified. For more details of the projects supported by the BDF, please refer to Section 3.5.1. "Preventive education, publicity, and researches".

The cost of outpatients at substance abuse clinics was estimated at (823+22,013)*1,117.5+4,920,520=HK$30,439,750.

Other specialist outpatients

For other specialist outpatients, the estimation was similar to that in the hospital inpatient costs. The survey asked the respondents to report their number of times using outpatient clinic services in the past year due to physical conditions. In total, there were 875 attendances by men and 103 by women in a year, an average of 3.29 and 1.08 attendances per male and female respondent respectively. Applying those averages to the number of drug user reported to the CRDA in 2014, the number of outpatient attendances by drug users were estimated at 26,095.

According to the annual reports of the HA, the average number of specialist outpatients' attendances in the general population was estimated at 0.99. The

expected number by the same group of drug users under the counterfactual scenario was, therefore, 9,059*0.99=8,964. The excess number of outpatient attendances attributable to drug abuse was 26,095-8,964=17,130.

The cost of other specialist outpatients attributable to drug abuse was estimated at 17,130*1117.5=HK$19,142,815.

The total cost of medical outpatients attributable to drug abuse in 2014 was **HK$49,582,565**.

3.3.5. Accident and Emergency Services

This sub-section estimates the excess usage of A&E services due to drug abuse and the associated costs.

Similar to inpatient and outpatient services, the survey asked the respondents whether they have used any A&E services in the past year, and if any, the number of times they have used them. Table 3.3.4 shows the total number of A&E attendances by genders. Male respondents made a total of 165 A&E attendances in one year, an average of 0.6 per respondent. The corresponding figures for women were 152 and 1.6 respectively. The estimated number of A&E attendances by the drug user in 2014 was 7,265.

Table 3.3.4
Usage of A&E services among the respondents surveyed by genders

	Total number of attendances	
Conditions	Male (N=266)	Female (N=95)
Mental	54	15
Physical	83	106
Accidents	16	30
Drug intoxication	12	1
Total	165	152

The annual reports of the HA provided sufficient information to estimate the prevalence of A&E attendances in the general population and the associated unit cost. It was estimated that in 2014, the prevalence was 0.31 per capita and the cost per attendance was HK$1,115.0. The expected number of A&E attendances by the same group of drug users under the counterfactual scenario was 9,059*0.31=2,791. The excess number attributable to drug abuse was estimated at 7,265-2,791=4,474.

The cost of A&E services attributable to drug abuse was estimated at 4,474*1,115=**HK$4,988,620**.

3.3.6. Total healthcare costs

The total expenditure on healthcare attributable to drug abuse in 2014 was estimated at **HK$467,092,266**. Hospital inpatients accounted for 40.7% of the total expenditure. Another 36.9% went to non-hospital based T&R and 10.6% to methadone clinics.

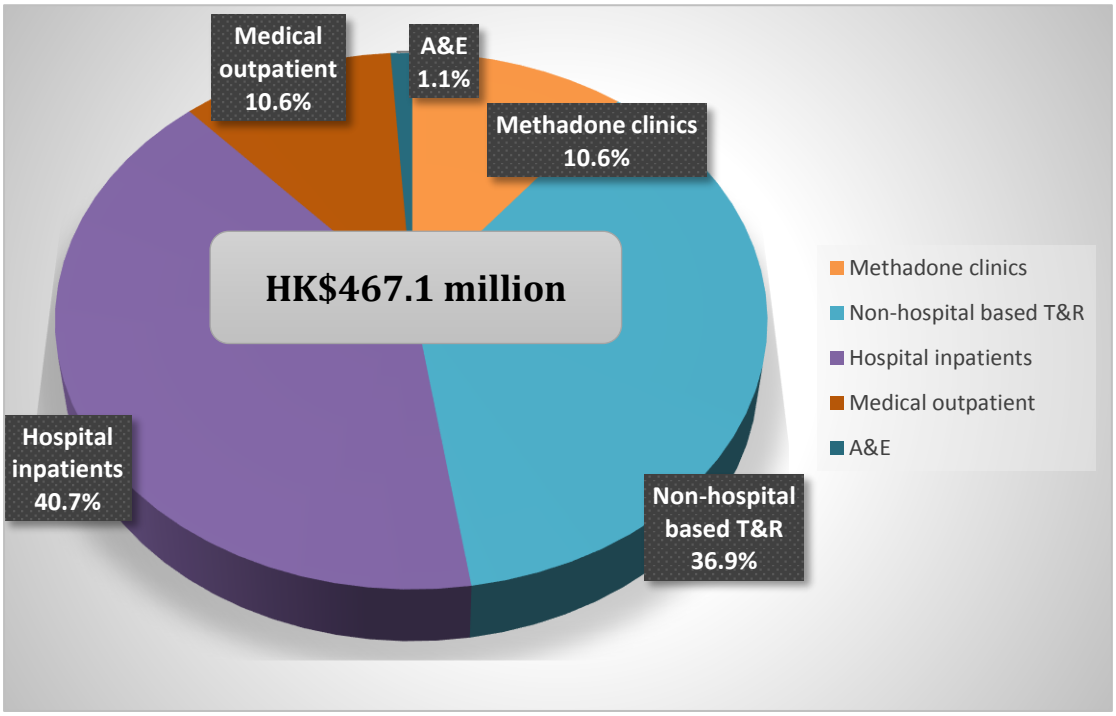


Figure 3.3. Distributions of the estimated healthcare costs

3.4. Welfare Costs

Drug users generally have higher rates of utilization of different social services and social security than the general population. This part presents estimations of the additional welfare expenditures due to drug abuse. Relevant costs may be made by drug users themselves, their dependents, or their carers. Five sub-categories of cost items are investigated, namely Comprehensive Social Security Assistance (CSSA), drug counselling, services for offenders, family and child protective services, and outreaching.

3.4.1. Comprehensive Social Security Assistance (CSSA)

Due to the high rate of unemployment and increased morbidity among drug users, it is undoubtedly that drug abuse incurred additional resources spent through social security. Some drug users rely on CSSA for their own living and also their dependents'.

The survey asked the respondents to list out their sources of income and average monthly income across different sources. CSSA was a specific category included in the question. Table 3.4.1 presents the results from the survey. 30.6% male and 35.1% female respondents were recipients of CSSA. The average monthly beneficiary payout was HK$4,303.8 (standard deviation=3,130.4), slightly higher among women (HK$4,626.8) than among men (HK$4,173.8).

Table 3.4.1
Utilization of CSSA among the respondents surveyed

	Male (N=264)		Female (N=94)	
	n	% (95% CI)	n	% (95% CI)
Number of CSSA recipients	82	30.6% (25.1, 36.5)	33	35.1% (25.5, 45.6)
	Mean	Std. Dev.	Mean	Std. Dev.
Monthly amount (HK$)	4,173.8	3,356.7	4,626.8	2,497.8

As the utilization rate of CSSA greatly varied across ages, to estimate the number of drug user who received CSSA in 2014, additional adjustments for the effect of

age groups using age-gender-specific prevalence rates were made. Applying these prevalence rates on the number of drug users reported to the CRDA in 2014, the estimated number of drug user who received CSSA was **2,870**.

According to the "Statistics on Comprehensive Social Security Assistance Scheme, 2004 to 2014" published by the C&SD (2015b), there were 253,054 CSSA cases involving 381,307 recipients at the end of 2014. Based on the available information extracted from the publication, the prevalence of CSSA recipients in the general population were given across three broad age groups (age<15: 7.4%; 15-59: 3.0%; 60+: 11.3%). The expected number of CSSA recipients by the same group of drug users under the counterfactual scenario was estimated at 330. The excess number of CSSA recipients attributable to drug abuse in 2014 was 2,870-330=**2,540**.

The cost of CSSA attributable to drug abuse was estimated at 2,540* 4303.8*12=**HK$131,166,709**.

3.4.2. Drug Counselling Services

There are eleven counselling centres for psychotropic substance users (CCPSAs) and two centres for drug counselling (CDCs) in Hong Kong, offering counselling services and assisting habitual and potential drug users and young people at risk, to abstain from abusing drugs. These centres are run by NGOs and are subvented by the SWD. The amounts of subventions in the financial years 2013-14 and 2014-15 were directly obtained from the Replies to Finance Committee (Legislative Council) Questions of Security Bureau and SWD. The amounts of CCPSAs and CDCs subvented by the government in 2014 were estimated at HK$63,072,500 and HK$6,112,500, respectively.

Apart from counselling services provided by the CCPSAs and CDCs, SARDA also collaborates with the Department of Health to provide counselling services for patients under the MTP. The amount spent on this service was extracted from the annual reports of SARDA. The cost of MTP counselling services in 2014 was estimated at HK$19,959,132.

Some information revealing financial resources from other funding sources, on top of government subventions, were identified. Projects received additional funding from the BDF Association amounted to HK$3,045,480. For more details about projects supported by the BDF please refer to Section 3.5.1. “Preventive education, publicity, and researches”. In addition, capital expenditure in 2014 was estimated at HK$443,750.

The total cost of drug counselling services in 2014 was estimated at **HK$92,633,362**.

3.4.3. Services for offenders

The SWD of the Hong Kong SAR Government provides community-based and residential services for offenders, which aim at helping them re-integrate into the community. Some drug-related offenders may also be assigned to probation supervision as an intervention measure, in lieu of custodial sentences (Narcotics Division, 2015b).

The survey asked the respondents whether they have used any services for offenders in the past year and their duration of usage, if any, by the types of services. Table 3.4.2 presents the results from the survey. Among those who have ever used at least one type of services for offenders, the majority of them was assigned to probation services.

No one reported that they have used the Community Service Orders Scheme.

Table 3.4.2
Utilization of services for offenders among the respondents surveyed

	Male (N=265)		Female (N=95)		Median duration
Types of services	n	% (95% CI)	n	% (95% CI)	of usage (months)
Probation service	26	9.8% (6.5, 14.1)	11	11.7% (6.0, 20.0)	12
Community Service Orders scheme	0	0%	0	0%	-
Social service centres for ex-offenders	3	1.1% (0.2, 3.3)	0	0%	1.7
Hostels for ex-offenders	0	0%	1	1.1% (0.0, 5.8)	5.5
Correctional / residential homes	1	0.4% (0.0, 2.1)	3	3.2% (0.7, 9.0)	6.5

These prevalence rates were applied to the total number of drug users reported to the CRDA in 2014 to estimate the number of drug user using different types of services for offenders (Table 3.4.3). The actual number of cases served for each type of service in the financial years 2013-14 and 2014-15 were obtained from the Government Budget on the SWD. The prevalence rates of service utilization among the general population were estimated and then applied to estimate the

expected number of cases under the counterfactual scenario and the excess number attributable to drug abuse (Table 3.4.3).

Table 3.4.3

Estimated number, expected number and excess number of drug users using the services for offenders in 2014

Types of services	Estimated number of drug users	Expected number under counterfactual scenario	Excess number attributable to drug abuse
Probation service	923	5	918
Community Service Orders scheme	0	-	-
Social service centres for ex-offenders	84	60	24
Hostels for ex-offenders	18	0	18
Correctional / residential homes	82	2	80

The unit cost of each service could also be directly quoted from the Government Budget. The costs attributable to drug abuse for each type of services were estimated by multiplying the excess number with the unit cost and the median duration of usage calculated from the survey. The results for each type of services are presented in Table 3.4.4.

Table 3.4.4

Estimated cost of services for offenders attributable to drug abuse in 2014

Types of services	Estimated cost per case per month in 2014 (HK$)	Estimated cost attributable to drug abuse (HK$)
Probation service	3,167	34,901,743
Social service centres for ex-offenders	801	32,858
Hostels for ex-offenders	6,201	604,136
Correctional / residential homes	69,749	36,270,378
Total	-	71,809,115

Concerning probation services, the SWD launched the Enhanced Probation Service for drug-related offenders aged below 21. The services incurred additional financial resources of HK$5.35 million per year. This cost should have been covered by the above estimate.

The total expenditure of services for offenders attributable to drug abuse was estimated at **HK$71,809,115**.

3.4.4. Family and child welfare services

Parents who are drug users were found to have higher chances of abusing and neglecting their children, leading to higher rates of utilization of family and child welfare services for their family members.

The survey asked the respondents whether their family members have used any family and child welfare services in the past year and the duration of usage, if any, by types of services. Women drug users (n=12, 12.6%) were much more likely to use this kind of services than men (n=5, 1.9%). Table 3.4.5 summarizes the number and the prevalence rates of service utilization by the types of services. The type of service was unknown in six cases. These six cases were re-distributed to the five types of services to estimate the prevalence rates.

Table 3.4.5

Utilization of family and child welfare services among the respondents surveyed

	Male (N=265)		Female (N=95)		Median duration
Types of services	n	% (95% CI)	n	% (95% CI)	of usage (months)
Foster care	0	0.3% (0.0, 2.2)	4	5.2% (1.6, 12.0)	4.5
Small group home service	2	1.3% (0.3, 3.6)	4	5.7% (1.9, 12.6)	9
Residential child care service	0	0.2% (0.0, 2.0)	2	2.6% (0.3, 8.5)	12
Child care centres	0	0%	0	0%	-
Family and child protective services	0	0.1% (0.0, 1.7)	1	1.3% (0.0, 6.4)	12
Unknown[1]	3	-	3	-	12

Note:

[1] Unknown cases were re-distributed to estimate the prevalence rates of the five types of service.

The cost estimation of family and child welfare services was similar to that of the services for offenders (Table 3.4.3). Essential information on the total number of cases served on each type of services was extracted from the publication "Social Welfare Services in Figure 2015", while information on the unit cost was extracted from the Government Budget. The results are presented in

Table 3.4.6 and Table 3.4.7. The total expenditure of family and child welfare services attributable to drug abuse was estimated at **HK$48,860,058**.

Table 3.4.6

Estimated number, expected number and excess number of drug users using the family and child welfare services in 2014

Types of services	Estimated number of drug users	Expected number under the counterfactual scenario	Excess number attributable to drug abuse
Foster care	113	1	137
Small group home service	189	1	206
Residential child care service	56	2	67
Child care centres	0	-	-
Family and child protective services	28	6	29

Table 3.4.7

Estimated cost of family and child welfare services attributable to drug abuse in 2014

Types of services	Estimated cost per case per month in 2014 (HK$)	Estimated cost attributable to drug abuse (HK$)
Foster care	13,056	6,545,149
Small group home service	18,841	31,834,105
Residential child care service	15,192	9,923,375
Family and child protective services	2,087	557,430
Total	-	48,860,058

3.4.5. Outreaching teams

There are 19 youth outreaching teams and 18 overnight outreaching services for young night drifters. They aim to reach out and engage young people who do not participate in conventional social activities and are vulnerable to negative influence. Youths with drug abuse behaviours are one of their targets.

The number of reported drug users by outreaching teams / integrated service centres can be obtained from the CRDA data, while the unit cost of a case per month can be directly quoted from the Government Budget. In view of lack of information, the current cost estimation was the average duration of a case. Interviews with NGOs which provide outreaching services showed that the duration could vary from not able to establish an official case to six years. Therefore, it is hard to extract reliable information on the average duration of a case due to the holistic services provided by outreaching teams.

For the purpose of this study, an assumption was made that a young drug user would be provided six months (i.e. half of the study period) of outreaching services after he/she has been reported to the CRDA.

In the CRDA data, there were 1,656 records, involving 836 individuals aged 24 and below, reported by outreaching teams after 15th July, 2013. Using the above assumption, those 836 young drug users occupied 7,338 months of outreaching services in 2014. Based on the data extracted from the Government Budget, the cost per case per month was estimated at HK$712 in 2014. The prevalence of outreaching services in the general population was estimated at 0.40%. The expected person-month of outreaching services by the same group of drug users (aged 24 and below) under the counterfactual scenario was estimated at 1,716*0.40%*6=41. The excess number of person-month due to drug abuse was estimated at 7,338-41=7,297.

The cost of youth outreaching teams attributable to drug abuse was roughly estimated at 7,297*HK$712=**HK$5,193,566**.

Long service duration and use of manpower

One of the characteristics of outreaching work is its flexibility in handling each case, where social workers provide different intensity of service according to the clients' needs. As a form of service provided via relationships with clients, 'closing a case' is a fluid concept. With clients who require constant and changing needs, stakeholders have expressed that cases could last from 6 months to 6 years.

> *'(I: So it's [the case] not closed after 6 years' time?) yea. (R2 followed up: Is it because the [drug] addiction is not treated yet?) Yea....ups and downs... (I: In those 6 years, do you keep meeting him/her [the client] every month?) not necessarily. I lost contact with some of them actually. Some cases are interesting. They change their contact numbers. And we won't be notified about that.'* (Stakeholder interview #5, NGO)

> *'Some cases may wrap up very quickly, as they [the clients] reach their concrete targets quickly and cases can be closed. But for some, ultimately when a person faces many problems, more guidance is needed, and it takes years.'* (Stakeholder focus group #3, respondent 1, NGO)

The time and resources allocated to one client fluctuates vastly as well. Resources allocated to steady cases are less, compared to those with urgent needs.

> *'If the case is serious, we would meet more often. If it's not, that is, if she'll survive or switch jobs, and the like, then the pace will be slower. Perhaps, during that time, both my colleague and I had experience of handling one or two so-called urgent cases. In those times, we needed to spend much time on them. We had to meet their friends, their parents.'* (Stakeholder focus group #3, respondent 1, NGO)

3.4.6. Total welfare costs

The total expenditure on welfare attributable to drug abuse in 2014 was estimated at **HK$349,662,810**. The largest portion were used through CSSA (37.5%), followed by drug counselling services (26.5%) and services for offenders (20.5%).

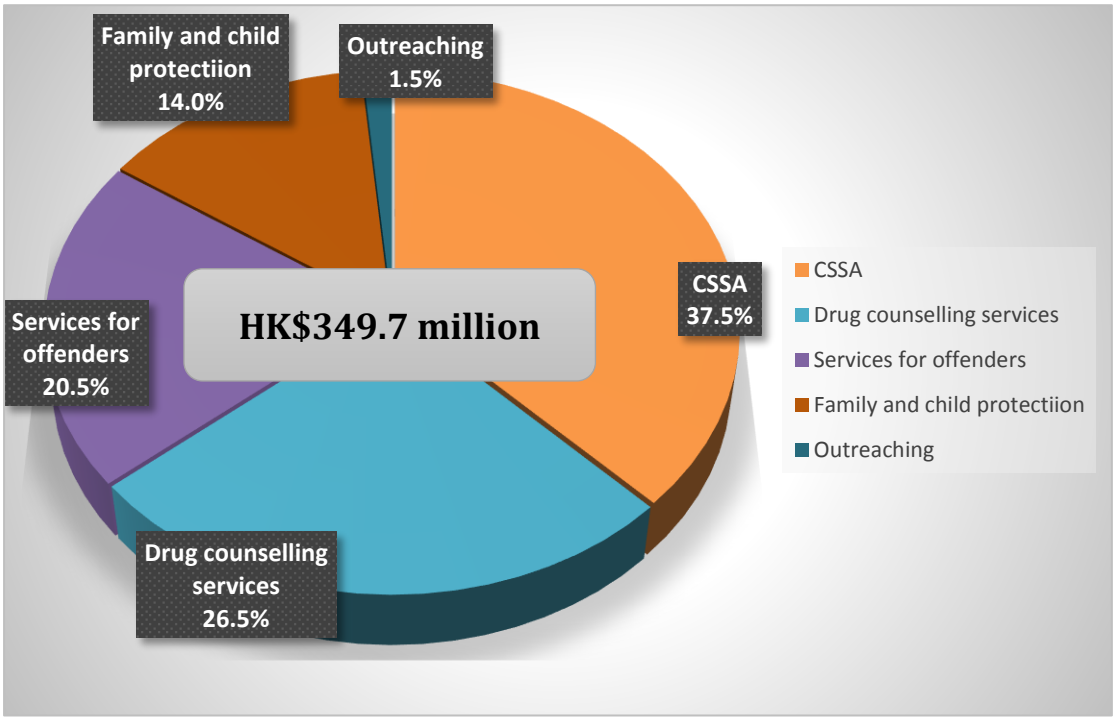


Figure 3.4. Distributions of the estimated welfare costs

3.5. Other Social Costs

3.5.1. Preventive education, publicity and researches

Some social costs attributable to drug abuse result from the efforts exerted on drug reduction, instead of direct spending on drug users. These costs included preventive education, publicity, and research.

Identification of the precise amounts of these costs were found to be difficult to achieve. Different government departments and NGOs might spend a small portion of their resources on these works. The associated expenditures would be mixed in with other cost categories and would be difficult to be disassembled. Besides, academic researches on anti-drug in universities might receive funding from various sources. These increased the difficulty in specifying a precise estimate of annual expenditures. This sub-section, therefore, aims to provide a ball-park estimate of these costs not yet covered by the other cost categories.

The following mainly presents the expenditures on this category through funding schemes of the BDF Association, extracted from its Reports and Financial Statement for the year ended 31 March 2016. Three things should be noted:

1. Some projects may last for over a year. Originally it was expected to provide an estimate of the actual expenditures of all projects in the year 2014, no matter when the projects were approved. However, it was difficult to obtain information in such detail, therefore, an assumption was made that the grant approved in 2013 was the expenditure in 2014.
2. Projects approved in 2013 were considered instead of 2014, as projects generally started in the following year after the year of approval.
3. For regular funding schemes, only projects under two categories, namely, “preventive education and publicity” and "researches”, were included under this sub-section. Those related to T&R were put under the sub-section 3.3.2. “Non-hospital based Treatments and Rehabilitations”, and mixed types of costs would be discussed later.

In 2013, HK$7,077,045, involving seven preventive education and publicity projects and one research project were approved under the regular funding scheme.

Another significant amount spending on preventive education by the BDF Association was the HSP with a Drug Testing Component. In 2013, HK$37,097,916 was approved. At the district level of publicity, the BDF association also provided a grant amounted to HK$3.6 million to launch the Anti-drug Community Awareness Building Programme to support community-based anti-drug activities. The first round of the program covered a two-year period up to March 2015. The amount spent in the year 2014 was, therefore, estimated at HK$1.8 million.

The total expenditure on preventive education, publicity and researches was roughly estimated at **HK$47,044,611**.

3.5.2. Security Bureau

Some costs at the policy level could be incurred in relation to drug abuse and could be categorized as "policy costs" (Single et al., 2003). The Narcotics Division (ND) of the Security Bureau is responsible to formulate policies and programs against drug trafficking and drug abuse, and coordinate policies and measures across different stakeholders to tackle the issues.

Work of the ND and the associated costs cover different areas, including but not limited to international collaboration activities, publicity, and the non-statutory advisory body of the Action Committee Against Narcotics. Several pieces of information related to different cost items were identified. The most complete one appeared to be the audit report on the ND published in 2015, which stated that the ND had 32 staff as at 31st March 2015, and its estimated expenditures on anti-drug work, staff costs excluded, were around $20 million for 2015-16.

An attempt has been made to give a rough estimate of expenditures including staff costs of the ND in 2014 using the above information. The Government Budget of Security Bureau showed that there were 193 staff in total as at 31st March 2015. This indicates that the ND would account for 16.6% of staff costs (32 out of 193) of the Security Bureau on average, assuming that the staff in the ND devoted all their working hours on anti-drug work only. Information on personal emoluments and personnel related expenses could easily be identified from the Government Budget. After adjusting for inflation, the estimated expenditure of the ND on anti-drug work was **HK$40,036,599**.

3.5.3. Government Laboratory

The Government Laboratory of the Hong Kong SAR Government is responsible to provide forensic toxicology analytical services (Government Laboratory, 2015). A portion of its work is attributable to abuse of illicit drugs. A rough estimation of the relevant cost was given in this study due to the scarce information on the costs per case.

Two pieces of information were required. The first was the number of cases related to drug abuse, which could be extracted from the annual reports of the Government Laboratory. In 2014, Government Laboratory handled 37,200 urine samples for urinalysis service, 35 cases for drug driving, and 786 hair samples for hair drug testing under the HSP.

The Government Laboratory which also provides analytical services for controlled drugs, and their chemical precursors that involve not only illicit drugs, are not under consideration in this study. Further, no breakdown on illicit drugs was identified. Costs arisen from this category was excluded from the current analysis.

The second piece of information required was the average cost per case by different types of tests. No relevant information with detailed breakdown was identified. For the purpose of this study, a rough estimation was produced using the data extracted from the Government Budget. The total expenditure of the Government Laboratory on Forensic science services in 2014 was estimated at HK$145.6 million, and the total number of cases investigated in different types of services (e.g. DNA, drug urinalyses, and statutory certificates issued) was 72,381. The average cost per case in 2014 was roughly estimated at HK$2,010.9.

The cost of Government Laboratory attributable to drug abuse was roughly estimated at (37,200+35+786)*2,010.9=**HK$76,391,580**.

3.5.4. Mixed types of costs

The regular funding scheme of the BDF supported a number of projects which were classified as mixed-type. The nature and structure of these projects were multiple, and was therefore difficult to assign them to one of the cost categories estimated above. After excluding a few projects which were highly related to T&R and operated by the NGOs providing DTRC services (to avoid double-counting), a total amount of **HK$21,337,226** was approved in the year 2013. This amount was assumed to be the expenditure in 2014.

3.6. Private Costs

This section provides estimates of four types of private costs. Two are tangible and two intangible.

The tangible costs include consumption of drugs and property destruction. 5% of the amounts spent on the consumption of drugs by drug users would be allocated to social costs, reflecting the resources released from drug productions under the counterfactual scenario (Collins & Lapsley, 2008).

The intangible costs considered in this study are the potential years of life lost (PYLL) due to drug-attributable premature deaths and the reduction in health-related quality of life (quality-life years lost) of drug users in one year. The main characteristics of intangible costs are that any reduction or elimination of these costs does not have resource implication for society. Although the nature of intangible costs is different from their tangible counterparts, it is still favourable to have some estimates of intangible costs.

3.6.1. Consumption of drugs

This cost item refers to the amount of spending by the drug users on drug consumption, and is a kind of private costs borne by the drug users themselves. The survey asked the respondents to report their uses of drugs in the past year, including their frequency of use per month, their usual spending per time, and the different types of drugs used. Owing to the extreme values reported in the amounts of spending per time, the median expenditure per time was used instead of its mean.

Table 3.6.1 shows the monthly frequency of intakes and expenditures per time by the types of drugs used. For example, 128 respondents surveyed reported that they have used heroin in the past year, with a mean monthly frequency of 37.1 and a median expenditure of HK$165 per time. Overall speaking, the average frequency of drug use was 23.4 times per month and the median spending per intake was HK$200. Assuming a drug user has one intake of drugs per day, the average monthly frequency of 23.4 indicates that on average, a drug user takes drugs for about 281 days in a year, or does not take drugs for about 84 days in a year, due to various reasons such as residential treatments and in custody.

Table 3.6.1
Average monthly frequency and expenditures per time by types of drugs used among the respondents surveyed

Types of drugs	n	Mean frequencies per month	Median expenditures per time (HK$)
Heroin	128	37.1	165
Cocaine	111	19.3	800
MDMA	46	12.6	100
Methamphetamine	190	18.0	250
Cannabis	100	15.1	200
Ketamine	122	20.1	300
Cough medicines	35	30.4	100
TMZ	90	37.3	40
Others	113	14.4	200
Overall	361	23.4	200

The average numbers were applied to the number of drug users reported to the CRDA to estimate the total private spending on drugs in 2014. Some may be multiple drug users, meaning that an individual was reported to take more than one type of drugs in a given year. The 9,059 drug users reported in the CRDA in 2014, on average, took 1.3 types of drugs. The total number of distinct case-drug records was 11,687. Table 3.6.2 shows the distributions of drug types in the CRDA in 2014.

Table 3.6.2
Number of drug users by types of drugs used in the CRDA in 2014

Types of drugs	N	% out of 9,059 drug users
Heroin	4,604	50.8%
Cocaine	657	7.3%
MDMA	38	0.4%
Methamphetamine	2,061	22.8%
Cannabis	353	3.9%
Ketamine	2,216	24.5%
Cough medicines	356	3.9%
TMZ	1,020	11.3%
Others	382	4.2%
Overall	11,687	-

For each type of drug, to obtain the total monthly expenditures of the drug users on a specific type of drug, multiply the number of drug users with the mean monthly frequency and median expenditure per intake as reported in the survey. Then multiply the figure by 12 to calculate the annual costs. For instance, the annual spending on heroin was estimated at 4,604*37.1*165*12= HK$337,970,605.

The annual cost was further adjusted for price difference between 2014 and 2016 using the CPI. The estimated cost of drugs, all types of drugs combined, was HK$748,868,436 in 2014 (HK$789,492,824 before adjustment). The amount allocated to social costs – resources released from drug productions – was **HK$37,443,422** (5%), while the amount allocated to private cost – consumption of drugs excluding drug productions – was **HK$711,425,014** (95%).

The CRDA also contained information on the frequencies of drug intakes and the usual expenditures of each intake. Applying the same methodology of estimations but purely on the CRDA data, a similar result at the total amount of HK$784,252,397 was obtained. However, due to the variations in the frequencies of intakes and the usual expenditures of each type of drugs, significant differences in drug-specific costs were observed. More specifically, drug users reported to the CRDA who took heroin, TMZ, and other drugs had a much higher monthly frequency than the respondents surveyed, while the median expenditures per intake for cocaine, cannabis, ketamine and other drugs revealed in the CRDA data were much lower than those in this survey. Street prices of illicit drugs can vary a lot, but the reason for the large discrepancies in frequency is still unknown.

Information from press release by the Information Services Department of the Hong Kong SAR Government was also extracted for this survey. It is observed that narcotics interdiction by the Hong Kong Customs and Excise Department seized drugs of a total value of HK$163,845,860 in 2014.

3.6.2. Property destruction

Damage of property under the influence of illicit drugs is a common private cost. The survey asked the respondents whether they have burnt or caused damages to objects or places under the influence of drugs in the past year. If in the affirmative, they were further asked to report the frequency, the names of the objects burnt or damaged, and their estimated values. Table 3.6.3 summarizes the results. 15.7% and 13.7% of male and female respondents respectively, admitted that they had burnt or caused damages to objects under the influence of drugs in the past year, with an average of 6.2 and 6.1 times, respectively. To avoid the influence of extreme values, median value of things burnt or damaged was used instead of the mean.

Table 3.6.3
Reported property destruction among the respondents surveyed

	Male (N=267)		Female (N=95)	
	n	% (95% CI)	n	% (95% CI)
Whether burnt or caused damages to objects or places under the influence of drugs	42	15.7% (11.6, 20.7)	13	13.7% (7.5, 22.3)
Mean number of times (in a year)		6.2		6.1
Median value of things burnt or damaged (HK$)		500		750

Applying the gender-specific prevalence rates to the number of drug users reported in the CRDA in 2014, it was estimated that 7,379*15.7%=1,161 male and 1,680*13.7%=230 female drug users have burnt or damaged objects or places under the influence of drugs. The total value of property destruction by male drug users was estimated at 1,161*6.2*500= HK$3,623,396, while that by women was 230*6.1*750=HK$1,048,895.

After adjusting for inflation between 2014 and 2016, the private cost of property destruction in 2014 was estimated at **HK$4,431,872**.

3.6.3. Potential years of life lost (PYLL)

As estimated in Section 3.1.1, there were 199 premature deaths, 156 men and 43 women, attributable to drug abuse in 2014. Age 81 for men and age 87 for women, which were the life expectancy at birth in 2014, were used as the upper ages for the estimations of the PYLL (Law et al., 2011). That is to say, it was assumed that if a man or woman had not died from drug-related causes, he or she would have survived to age 81 or 87, respectively.

Age weighting and time discounting, as used in the Global Burden of Disease studies, were considered in the calculation of the PYLL. Age weighting indicates that the value of a life depends on age, and a higher weight is given to relatively healthier life years for individuals aged between 9 and 56 (Murray, 1994). Time discounting, usually set at a rate of 3%, discounts life years lived in the future. The use of time discounting on the PYLL is a similar practice as the use of discount rate in economic studies which brings costs in the future to present day values. The formula of the PYLL for individuals who died at age a is given by (Devleesschauwer et al., 2014):

$$\mathrm{YLL(a)} = N_a \times \int_a^L \left\{ KCxe^{-\beta x}e^{-r(x-a)} + (1-K)e^{-r(x-a)} \right\} dx$$

where N_a is the number of deaths at age a, L is the life expectancy, K is a binary indicator which equals to one if applying age weighting or zero otherwise, C and β are age weighting constants, and r is the discount rate. C and β are usually set at 0.1658 and 0.04.

Applying the formulas to men and women separately, the estimated PYLL attributable to drug abuse in 2014 were 2,832 and 786 respectively. The total PYLL were 3,618 years, and the corresponding intangible cost was **HK$1,849,365,105**.

3.6.4. Quality-life years lost

To quantify the reduction in quality of life attributable to drug abuse, the three-level version of EQ-5D (EQ-5D-3L) instrument, which was developed by the EuroQol Group (Brooks, 1996) has been adopted in the survey. It consists of two parts, the EQ-5D descriptive system and the EQ visual analogue scale (VAS). The descriptive system is a generic health-related quality of life outcome measure, describing a person's health using five dimensions, namely mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has three levels of severity: no problem, some/moderate problems, and extreme problems. The VAS is a scale from 0 (worst imaginable health state) to 100 (best imaginable health state), and the respondents were asked to rate his/her health condition using a vertical visual analogue scale (EuroQol Group, 2017). The use of this instrument in the valuation of intangible costs of drug abuse has also been adopted by Slack et al. (2009).

Reduction in health-related quality of life was first assessed by comparing the results reported by our respondents in the survey with the norm of the Chinese general population provided in the National Health Services Survey 2008 (Sun et al., 2011) for each of the five dimensions and VAS scores. The comparisons are shown in Table 3.6.4. One should note that there were only 3.6% older people (aged 65 and above) in our survey, while the National Health Service Survey 2008 contained 14.4%. Thus, it was normal that the National Survey reported a higher proportion of severe problems in mobility, self-care, and daily activities than our survey, as health status generally declines with the advancement of age.

Focus of this survey is on the proportions of moderate and extreme problems combined. The major differences could be spotted in pain/discomfort and anxiety/depression. Overall, 32.7% drug users felt pain/discomfort at a moderate or severe level, while among the national sample, there was only 8.9%. 26.6% drug users however, suffered from moderate or severe level of anxiety/depression, compared to 6.2% in general. The average self-rated health score (VAS) among drug users (71.4; standard deviation = 20.7) was also 11% lower than the norm (80.1).

Table 3.6.4

Proportions of the respondents surveyed reporting moderate or severe problems in each of the EQ-5D-3L dimensions, and comparisons with the norm

	Mobility	Self-Care	Usual activities	Pain/ discomfort	Anxiety/ depression
Drug User	(N = 364, Mean VAS score = 71.4)				
Moderate problems	7.7%	1.1%	11.6%	29.4%	22.6%
Severe problems	0.0%	0.3%	0.0%	3.3%	4.1%
Moderate or severe problems	7.7%	1.4%	11.5%	32.7%	26.7%
Norm[1]	(N = 120,703, Mean VAS score = 80.1)				
Moderate problems	4.5%	2.7%	3.8%	8.5%	5.8%
Severe problems	0.4%	0.4%	0.8%	0.4%	0.4%
Moderate or severe problems	4.9%	3.1%	4.6%	8.9%	6.2%

Note:

[1] Extracted from Sun et al. (2011)

As the two surveys had distinct age-gender distributions of respondents, the comparisons were further stratified by genders (Table 3.6.5) and by age groups (Table 3.6.6). The stratification provides more evidence that drug users generally had worse self-reported health status than the normal population across different age-gender sub-groups, except for the self-care dimension.

Table 3.6.5

Proportions of the respondents surveyed reporting moderate or severe problems in each of the EQ-5D-3L dimensions by genders, and comparisons with the norm

	Drug Users		Norm[1]	
Moderate or severe problems in	Male	Female	Male	Female
Mobility	6.0%	12.6%	4.3%	5.4%
Self-care	1.5%	1.1%	2.7%	3.4%
Usual activities	10.1%	15.8%	4.0%	5.1%
Pain/discomfort	32.5%	33.7%	7.2%	10.5%
Anxiety/depression	25.5%	30.5%	5.2%	7.1%
VAS score (Mean)	73.3	65.9	80.9	79.4

Note:

[1] Extracted from Sun et al. (2011)

When people get older, their perceived health status is usually poorer. However, it seems not the case for drug users. The relationships between age and the level of health status were unclear. 12.9% and 20.0% drug users in the two youngest age groups, aged 20 and below, and aged 20-29, respectively, reported moderate to severe difficulties in usual activities, but this proportion decreased with older age groups, and rebounded again to 10.0% only among those aged 50 and above.

For better comparisons between drug users and the norm, an age-and-gender-standardization was done using the National Health Services Survey 2008 as standard population (Table 3.6.7). Overall, drug users were two times more likely to have moderate or severe problems in mobility, 2.5 times in usual activities, 4.0 times in pain/discomfort, and 4.7 times in anxiety/depression than the normal population.

Table 3.6.6
Proportions of the respondents surveyed reporting moderate or severe problems in each of the EQ-5D-3L dimensions by age groups, and comparisons with the norm

	Age groups[2]				
Moderate or severe problems in	<20	20-29	30-39	40-49	>=50
Drug users					
Mobility	0.0%	7.8%	5.8%	8.1%	12.9%
Self-care	0.0%	0.0%	1.2%	2.3%	2.9%
Usual activities	12.9%	20.0%	9.4%	5.8%	10.0%
Pain/discomfort	25.8%	32.2%	25.6%	38.4%	38.6%
Anxiety/depression	12.9%	27.8%	23.3%	33.7%	27.5%
VAS score (Mean)	82.7	74.5	70.9	66.3	69.3
Norm[1]					
Mobility	0.5%	0.7%	1.2%	2.7%	10.0%
Self-care	0.5%	0.5%	0.8%	1.4%	6.5%
Usual activities	0.5%	0.7%	1.3%	2.4%	9.4%
Pain/discomfort	1.0%	1.3%	3.5%	6.6%	16.5%
Anxiety/depression	1.0%	1.8%	3.6%	5.3%	10.3%
VAS score (Mean)	89.7	87.8	84.5	81.4	74.0

Note:

[1] Extracted from Sun et al. (2011)

[2] The category of age groups is different here in order to match the statistics reported in Sun et al. (2011).

Table 3.6.7

Age- and gender-standardized proportions of the respondents surveyed reporting moderate or severe problems in each of the EQ-5D-3L dimensions, and comparisons with the norm

Moderate or severe problems in	Drug users (age-gender-standardized)	Norm[1]
Mobility	10.0%	4.9%
Self-care	1.6%	3.1%
Usual activities	11.7%	4.6%
Pain/discomfort	36.3%	8.9%
Anxiety/depression	29.4%	6.2%
VAS score (Mean)	68.2	80.1

Note:

[1] Extracted from Sun et al. (2011)

The reduction in quality of life was then summarized by a single measure, quality-life years lost, in one year. Based on the levels of the five dimensions measured by EQ-5D-3L, there are in total 243 health status. An index value was assigned to each respondent according to his/her health status, using the European VAS value set (Szende, Oppe, & Devlin, 2007). Table 3.6.6 shows the mean EQ-5D index by age groups. The population norm of China using the same value set (Szende, Janssen, & Cabases, 2014) was then used to estimate the size of reduction between a drug user and a normal person. Table 3.6.8 shows the mean EQ-5D index of drug users and the population norm by age groups. On average, a drug user had a lower quality year of 0.096 than a normal person in one year. Reduction was the largest among those aged between 45 and 54 (0.142). Applying the age-specific difference to the number of drug users reported to the CRDA in 2014, the quality-life years lost attributable to drug abuse in 2014 was estimated at 1,040 years, and the corresponding intangible cost was **HK$531,432,570**.

Table 3.6.8

EQ-5D index of the respondents surveyed and comparisons with the norm

	Drug users		Norm[1]		No. of drug users
Age groups[2]	Mean	Std. Dev.	Mean	Reduction	in CRDA 2014
≤24	0.880	0.148	0.990[3]	0.110	1,716
25-34	0.874	0.175	0.980	0.106	2,235
35-44	0.848	0.177	0.970	0.122	2,365
45-54	0.818	0.204	0.960	0.142	1,408
55-64	0.827	0.225	0.930	0.103	1,038
65-74	0.844	0.123	0.900	0.056	259
75+	0.779	-	0.840	0.061	38
All ages	0.855	0.178	0.951	0.096	9,059

Note:

[1] Sun et al., 2011

[2] The category of age groups is different here in order to match the statistics reported in Szende, Janssen, & Cabases (2014).

[3] The youngest age group in Szende, Janssen, & Cabases (2014) was 18-24. It was assumed that age<18 had the same average index value as 18-24.

3.6.5. Total private costs

The private tangible cost, including consumption of drugs (excluding drug productions) and property destruction, was estimated at **HK$715,856,886** in 2014.

The private intangible cost due to premature mortalities and loss of years of quality life attributable to drug abuse was estimated at **HK$2,380,797,675**.

3.7. Total Cost

In summary, the **social tangible cost** attributable to drug abuse in 2014 was estimated at **HK$3,978,762,006**. The largest cost went to crime and law enforcements (HK$1,640,437,937), accounting for 41.2% of the social tangible costs (Figure 3.5), followed by loss of productivity (HK$1,299,315,556), which constituted 32.7% of the social costs. The two largest categories already accounted for nearly 75% of the total cost. The remaining was shared by healthcare (11.7%; HK$467,092,266), welfare (8.8%; HK$349,662,810), others (4.6%; HK$184,810,016), and drug productions (0.9%; HK$37,443,422). The social tangible cost per capita was HK$550, and was HK$439,205 per drug user.

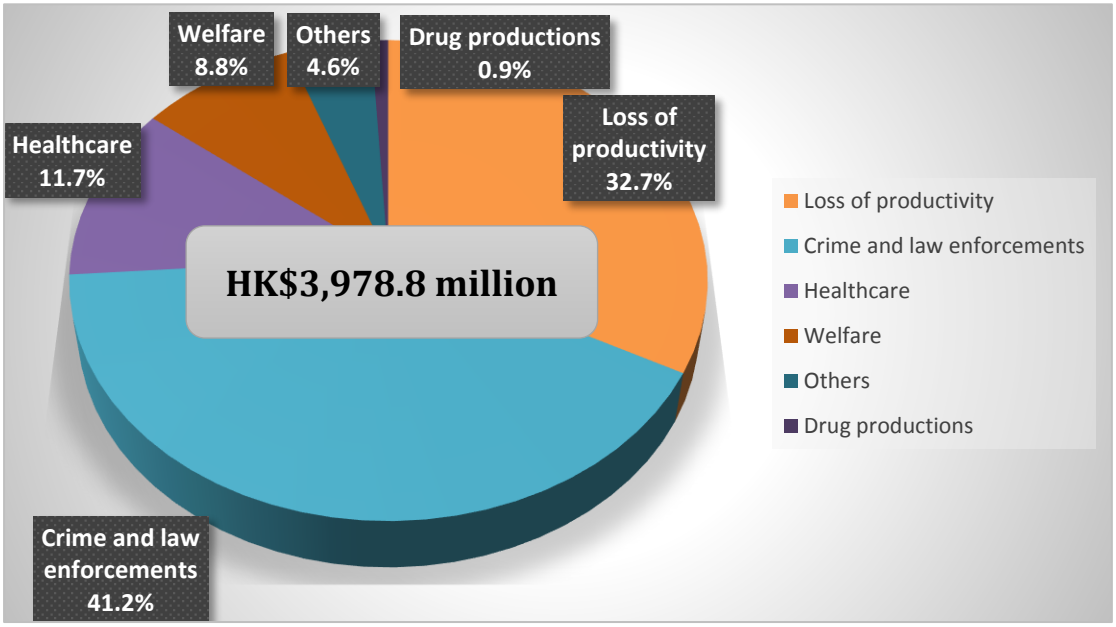


Figure 3.5. Distributions of the estimated social tangible costs

The chapter also provides some estimates of the private tangible costs borne by drug users. The amount spent on drugs (excluding drug productions) in 2014 was estimated at HK$711,425,014, while the value of property destruction was low at HK$4,431,872. The private tangible cost was estimated at **HK$715,856,886**. Combining it with the social costs, the **total tangible cost** was **HK$4,694,618,891**. The cost of drugs (social and private components combined) accounted for 16.0% of the total tangible cost.

This study attempts to quantify the private intangible costs of drug abuse using PYLL due to premature mortalities and quality-life years lost among living drug users in a year, and place some monetary value on it. Compared with the population norm (Sun et al., 2011), drug users were two times more likely to have problems in mobility, 2.5 times in usual activities, 4.0 times in pain/discomfort, and 4.7 times in anxiety/depression. The PYLL attributable to drug abuse in 2014 were 3,618 years, while the quality-life years lost were estimated at 1,040 years. The associated **total intangible cost** was **HK$2,380,797,675**.

Combining social and private costs, tangible and intangible costs, the **total cost** of drug abuse in 2014 was estimated at **HK$7,075,416,566**. The total cost per drug user was HK$781,037.

The previous study on social costs of drug abuse dated back to almost two decades ago (Cheung et al., 2000). A comparison was made between the previous and the current studies (Table 3.7.1). It should be noted that the cost items covered by and the categorization of cost items between the two studies were not completely the same, therefore the comparisons, especially by cost categories, should be interpreted with caution. For example, Cheung et al. (2000) did not estimate lost productivity due to premature mortality and welfare costs except CSSA, whilst our study did not include private costs under the workplace and T&R categories. The 1998 study placed expenditure on DATCs of CSD under the T&R category, while this study included this as incarceration cost under crime and law enforcement (as there were a significant portion of cases that could be attributable to drug abuse but did not admit to DATCs).

In 1998, the social tangible costs attributable to drug abuse was estimated at HK$2,822.1 million. The current study however, shows that the social tangible costs of drug abuse has increased by 38.1% between 1998 and 2014. After adjusting for inflation using the CPI, the percentage of increase was 19.8%. The cost per capita increased from HK$431 to HK$550, a 10.8% increase after adjusting for inflation. The estimated public expenditure, after excluding loss of productivity, victimizations, and drug productions from social tangible costs, on each drug user greatly increased from HK$90,216 to HK$275,001, by 164.6% after adjusting for inflation. It was partly due to the fact that the number of reported drug user sharply decreased by 46.7%, from 16,990 to 9,059. On the other hand, we observed a large leap in public expenditure on crime and law enforcement, from HK$475 million in 1998 study to HK$1.49 billion (victimization excluded) in this study. Please note again that in 1998 study incarceration cost (DATCs) was

reported under T&R (a lump sum estimate of HK$366 million that included all government departments/units), instead of crime and law enforcement. Taking into account that the increase remained at least 77% [i].

The total tangible cost, combining the private costs and social costs, only increased slightly by 11.1% (-3.6% after adjusting for inflation), accompanied with a large reduction on the spending on drugs by drug users, from HK$1,273.1 million to HK$748.9 million (social and private components combined) (-48.9% after adjusting for inflation). This large reduction was caused by the large decrease in the number of reported drug users, and also the decrease in the proportion of those who used heroin, from 86.3% in 1998 (Narcotics Division, 2007) to around half in 2014, which was usually more expensive than most of the other drugs. The total tangible cost of drug abuse thus accounted for 0.21% of the Gross Domestic Product (GDP) in 2014, reducing from 0.33% in 1998.

Table 3.7.1

Comparisons between the current study (2014) and the previous study (1998)

	1998[1]	2014
No. of drug users reported to the CRDA	16,990	9,059
Social tangible costs (HK$ million)	2,882.1	3,978.8
Social tangible costs per capita (HK$)[2]	431	550
Public expenditures (HK$ million)	1,532.8	2,491.2[3]
Public expenditures per drug user	90,216	275,001[3]
Consumption of drugs (HK$ million)	1,273.1	748.9
Total tangible (social and private) costs (HK$ million)	4,226.0	4,694.6
% of total tangible costs to GDP[4]	0.33%	0.21%
Total intangible costs (HK$ million)	-[5]	2,380.8

Note:

[1] Extracted from Cheung et al. (2000)

[2] Population estimate in 1998: 6,687,200; 2014: 7,229,500

[3] Excluding loss of productivity, victimizations, and drug productions (which are not classified as public expenditure) from social tangible costs.

[4] GDP in 1998: HK$1,289.1 billion; 2014: HK$2,258.2 billion

[5] The 1998 study had included intangible costs but did not place a monetary value on it.

[i] In 1998 study, the social cost of crime and criminal justice was estimated at HK$1,070.5 million, consisting of HK$475.1 million of government expenditure and HK$595.4 million of property loss of crime victims. Ignoring their differences in composition, a direct comparison shows that the cost of crime and law enforcement has increased by 53%, to HK$1.640.4 million in 2014.

It is desirable to distinguish which community groups bear the costs of drug abuse (Single et al., 2003). Table 3.7.2 gives a brief summary of the costs spent by drug users, the government, society at large, and other individuals. It was estimated that HK$2,448.2 million, accounting for 61.5% of the social tangible cost, was borne by the government.

Table 3.7.2

Costs borne by different community groups (HK$ million)

		Costs borne by		
Cost categories	Drug users	Government	Society at large	Other individuals
Social tangible costs				
Loss of productivity			1,299.3	
Crime and law enforcements		1,489.7		150.8
Healthcare		425.1	42.0	
Welfare		349.7		
Other social costs		183.7	1.1	
Drug productions[1]			37.4	
Social tangible cost		**2,448.2**	**1,379.8**	**150.8**
% of social tangible cost		**61.5%**	**34.7%**	**3.8%**
Private costs				
Consumption of drugs (excluding drug productions)	711.4			
Property destruction	4.4			
PYLL	1,849.4			
Quality-life years lost	531.4			
Total private cost (tangible + intangible)	**3,096.7**			

Chapter 4. Estimations of the "hidden" drug abuse population

4.1. Introduction

This section aims to estimate the population size of drug users in Hong Kong. Reports on known drug users submitted to the Central Registry of Drug Abuse (CRDA) are provided by different reporting agencies. Inevitably, there are individuals who are not "captured" by any of the agencies and become the "hidden" population. In addition, it was found that 54% agencies did not report any cases between 2011 and 2014 (Audit Commission, 2015). A drug user may be captured and reported repeatedly, rendering the CRDA a kind of capture-recapture data. While many statistical methods are available in the literature, estimating the number of uncaptured drug users or the size of hidden drug abuse population, was difficult due to several major challenges in the data. A generalized partial linear regression (Lin et al., 2016) was proposed to estimate the size of the drug abuse population in Hong Kong over the period 2006-2014 using the data from the CRDA.

Information of the types of drugs which were made available from the year 2006 would be incorporated in the analysis. Other covariates included genders, age, educational attainment and the types of reporting agencies. The proposed method provides a channel to estimate the "uncaptured" drug abuse population without making changes to the reporting system, indicating that it is possible to identify groups of individuals who are more likely to be missed or neglected in the current system. The proposed method could also reveal costs that have been underestimated from previous sections.

4.2. Results

Figure 4.1 shows the observed (dotted line) and estimated number (solid line) of drug users from 2006 to 2014 by half year. Overall, there was a gradual decrease in the total observed and estimated numbers of drug users. In 2006, the total observed number of drug users was 13,252 and the estimated number was 47,361-52,780. The reporting rate[ii] ranged from 25% to 28%, indicating that the CRDA system captured 25-28% of the whole drug abuse population. In other words, the number of drug users in the CRDA was underreported by 72% to 75%. In 2014, the observed number of drug users was 9,059 and the estimated number ranged from 18,974 to 22,658. The reporting rate was 40% to 48%, or the underreporting rate was 60% to 62%, showing that the reporting rate has improved over the study period.

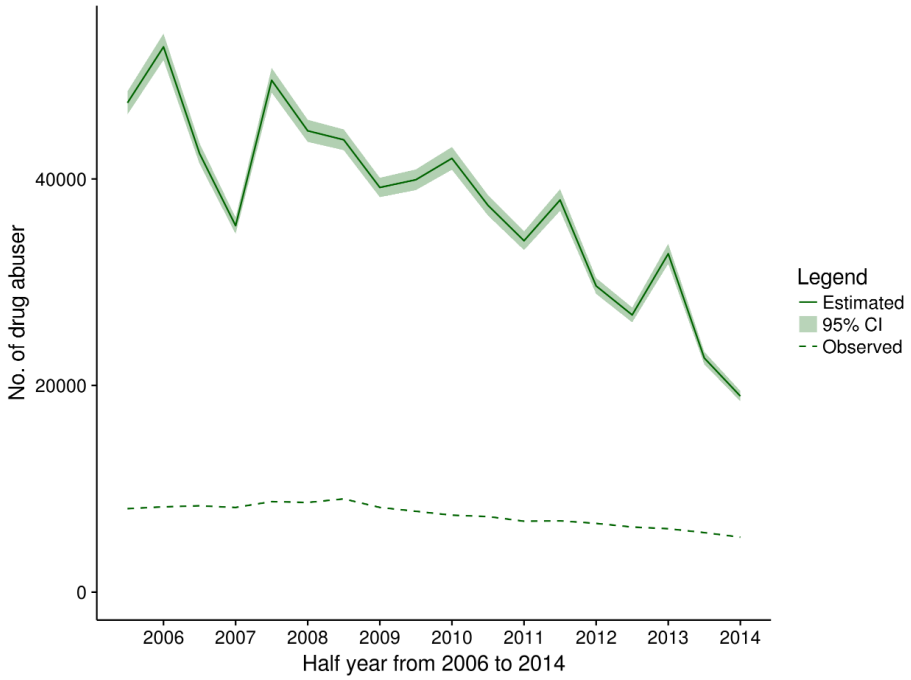


Figure 4.1. Estimated and observed number of drug users from 2006 to 2014

[ii] Reporting rate was calculated by dividing the half-year estimate by the observed annual number of that year.

4.2.1. Gender

Figure 4.2 compares the observed and estimated numbers of male and female drug users during the period 2006-2014. Generally speaking, the observed and estimated numbers declined for both genders, but the change was gradual for the observed number, and widely fluctuated in the estimated number. The observed number decreased by 31% and 34% respectively for men and women drug users, dropping from 10,706 and 2,546 in 2006, to 7,379 and 1,680 in 2014, respectively.

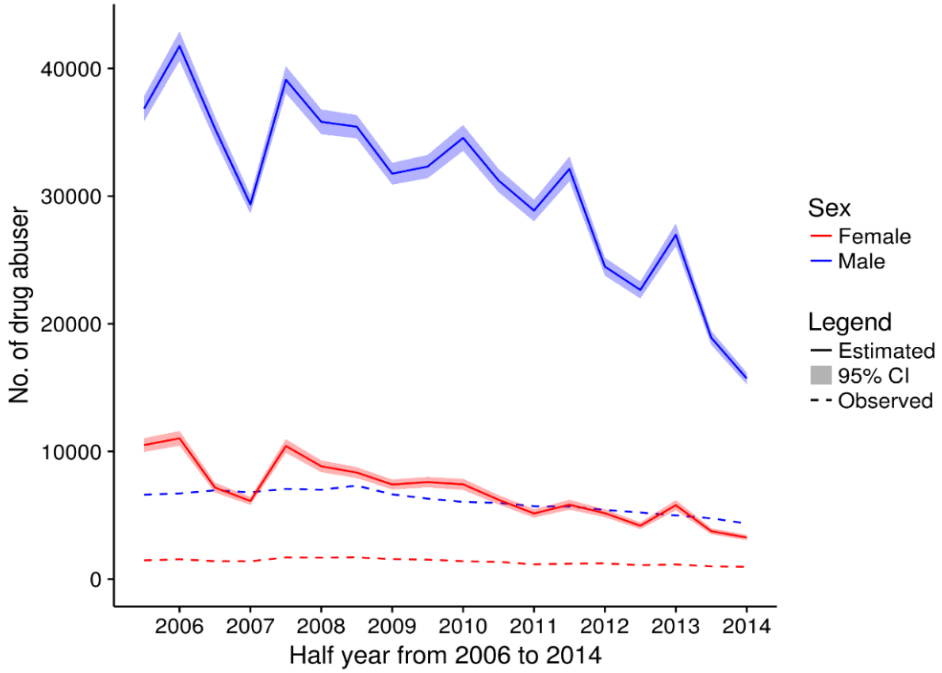


Figure 4.2. Estimated and observed numbers of drug users from 2006 to 2014 by gender

There was a significant increase in the reporting rate throughout the study period for both genders. For male drug users, the estimated number was 36,861-41,754 in 2006, and the reporting rate was 26% to 29%. In 2014, the estimated number decreased to 15,719-18,906, and the reporting rate from 39% to 47%. For female drug users, the estimated number was 10,501-11,026 in 2006, with the reporting rate ranging from 23% to 24%. In 2014, the estimated number dropped to 3,255-3,752, and the reporting rate was 45% to 52%. The difference in reporting rates between men and women was similar in each individual year.

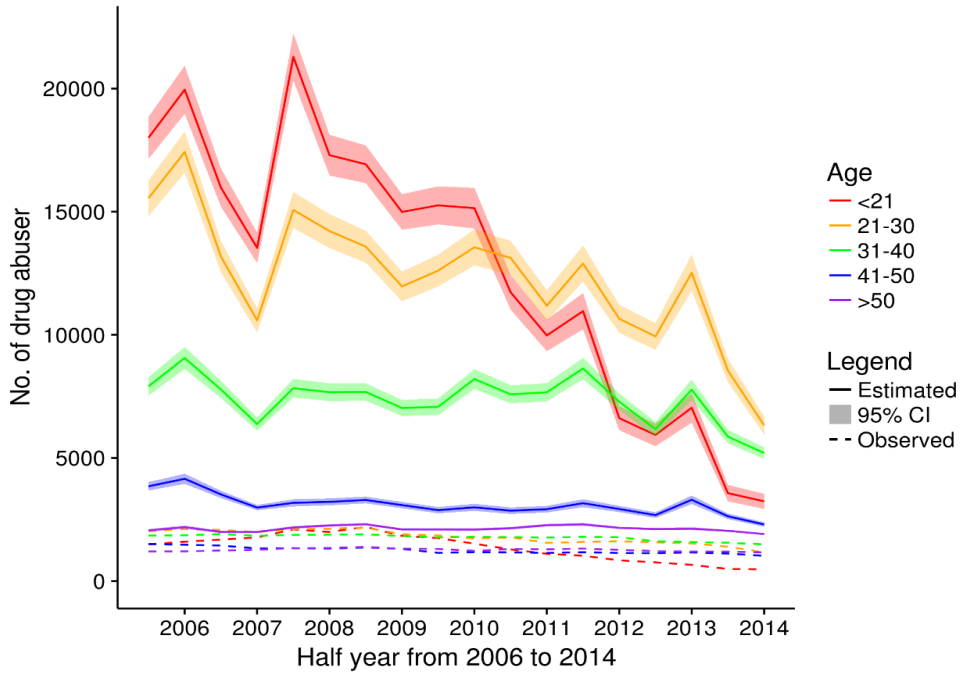
4.2.2. Age

Figure 4.3 compares the estimated and observed numbers of drug users by different age groups during the period 2006-2014. Overall speaking, both estimated and observed numbers decreased in all age groups. The observed number decreased by 68%, 36%, 14%, 27%, and 6% for age groups <21, 21-30, 31-40, 41-50, and >50, respectively, dropping from 2,578, 3,484, 2,947, 2,298 and 1,945 in 2006 to 825, 2,220, 2,508, 1,671 and 1,835 in 2014.

As can be seen in Figure 4.3 (a), the reporting rate was positively correlated with the advancement of age of the drug users. In 2006, the estimated numbers for age groups <21, 21-30, 31-40, 41-50, and >50 were 18,000-19,954, 15,545-17,424, 5,203-7,907, 2,298-3,849, and 1,910-2,059 respectively, and the reporting rates were 13-14%, 20-22%, 26-37%, 55-60%, and 89-94% respectively. The pattern remained similar over the years. In 2014, the estimated numbers were 3,238-3,570, 6,325-8,551, 5,203-5,865, 2,298-2,631, and 1,910-2,042, and the reporting rates were 23-25%, 26-35%, 43-48%, 64-73%, 90-96% for age groups <21, 21-30, 31-40, 41-50, and >50, respectively. There was a considerate increase in the reporting rates throughout the study period for all age groups.

In sum, the number of younger drug users were less likely to be reported. Despite the fact that <21 age group hit the lowest observed number in 2014 among all age groups (N=825), the reporting rate remained the lowest, suggesting that the hidden drug abuse issue was most serious among youngsters.

(a) Combined plot



(b) Separated plot

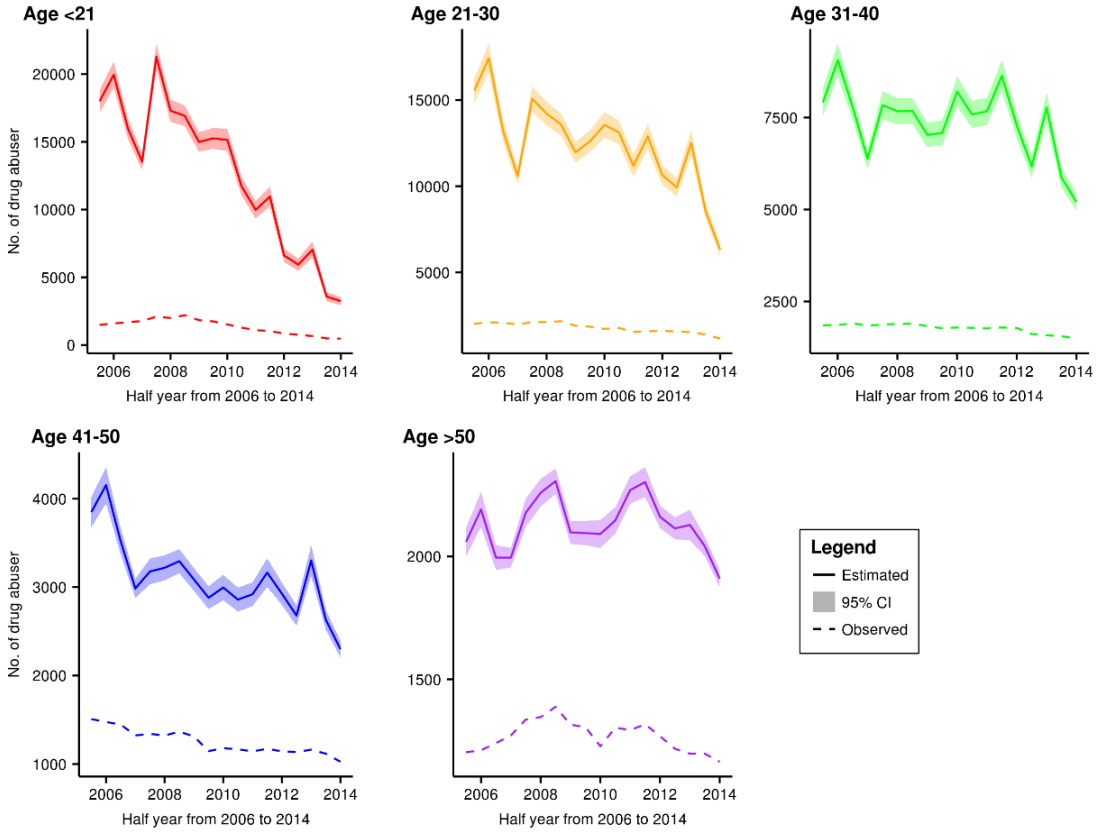
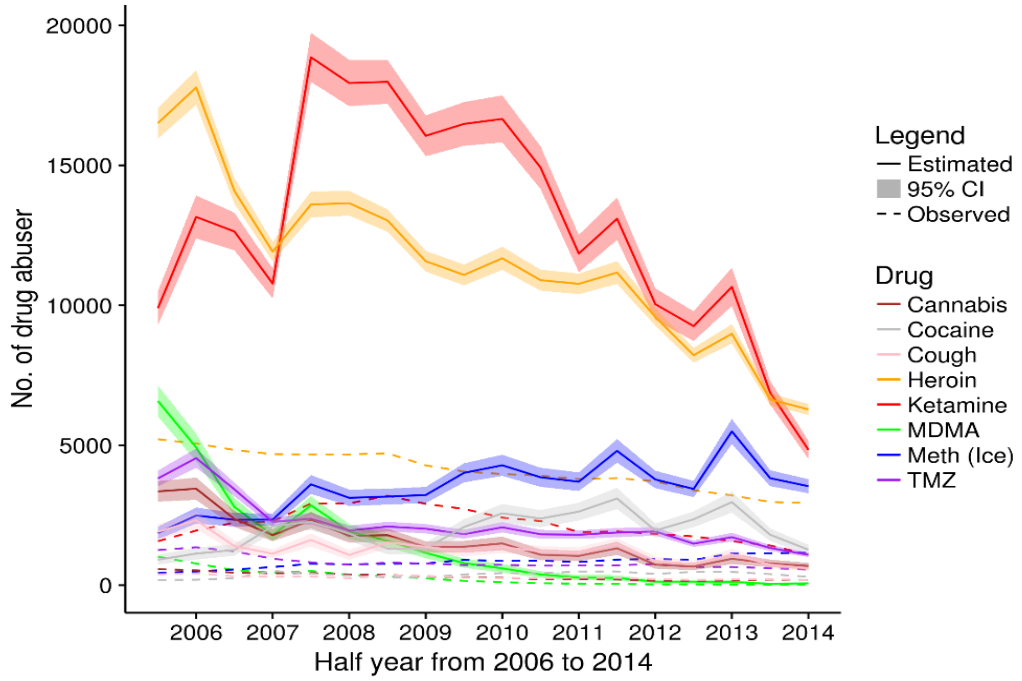


Figure 4.3. Estimated and observed numbers of drug users from 2006 to 2014 by age groups

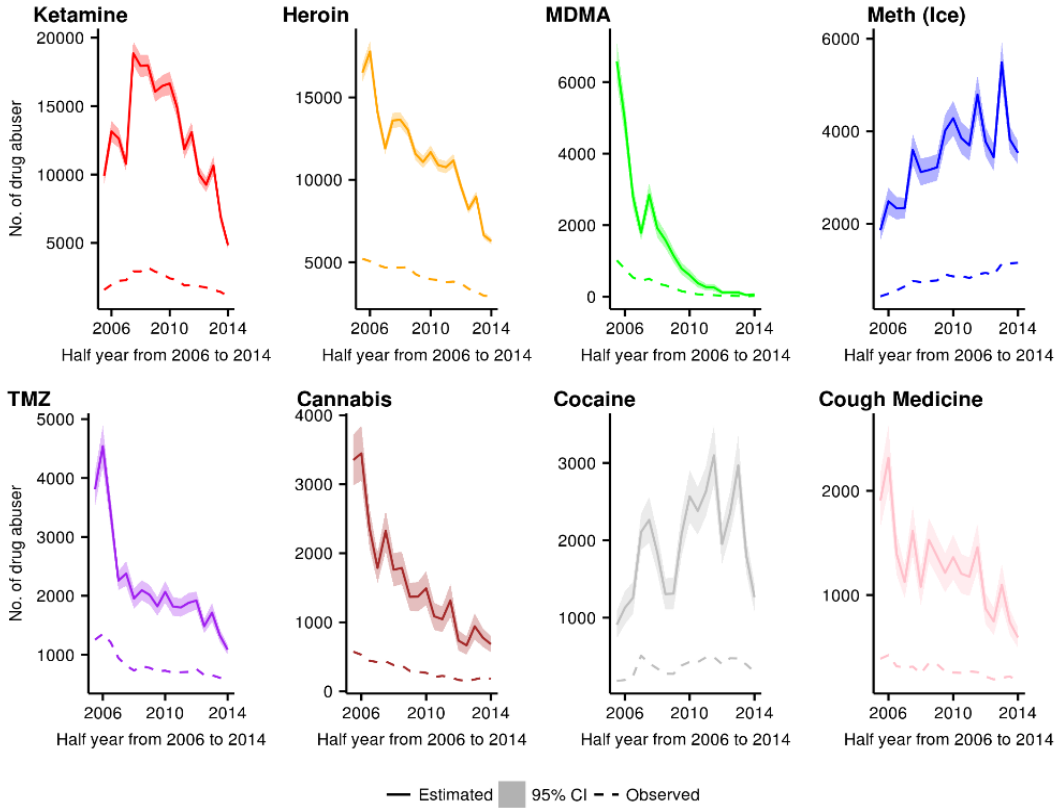
4.2.3. Types of drugs

Figure 4.4 compares the observed and estimated numbers of drug users by various drug types during the period 2006-2014. As the graph depicts, four types of drugs namely heroin, ketamine, MDMA, and methamphetamine (Ice), stand out from the others.

(a) Combined plot



(b) Separated plot



(c) Observed numbers

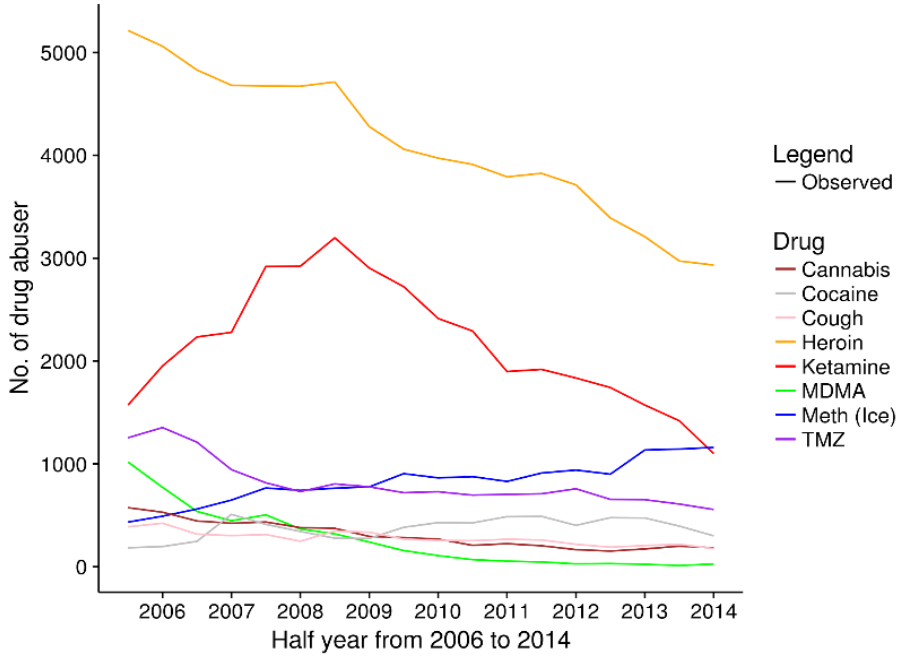


Figure 4.4. Estimated and observed numbers of drug users from 2006 to 2014 by types of drugs

Despite the declining trend, generally speaking, there were significantly more heroin and ketamine users in Hong Kong. In 2006 and 2014, there were 8,118 and 4,604 observed heroin users respectively, and 3,080 and 2,216 observed ketamine users respectively. As more clearly shown in Figure 4.4c, in terms of the observed number of drug users, during the relevant period of time, a downward trend of users was seen for heroin (-43%), MDMA (-98%), TMZ (-54%), cannabis (-64%), ketamine (-28%) and cough medicines (-51%), and an upward trend was observed for cocaine (+84%) and methamphetamine (+141%). The fall was most significant for MDMA, whereas, methamphetamine grew its popularity in the city over the years.

The estimated number of drug users greatly decreased over the study period for almost all types of drugs except cocaine and methamphetamine (*Figure 4.4*b). At the same time, the reporting rates fluctuated tremendously over the years. Prominent increase in reporting rates was mainly found in heroin, MDMA, and TMZ. Table 4.2.1 summarizes the reporting rates in 2006 and 2014 by the types of drugs. In 2014, ketamine users were less likely to be reported in the society (32% to 46%), compared to other types of drugs.

Table 4.2.1

Reporting rates by types of drugs in 2006 and 2014

	2006			2014		
Types of drugs	No. of. obs.	No. of est.	Reporting rates (%)	No. of. obs.	No. of est.	Reporting rates (%)
Heroin	8,118	16,505-17,783	46-49	4,604	6,278-6,641	69-73
Cocaine	358	910-1,129	32-39	657	1,267-1,802	36-52
MDMA	1,529	6,582-4,922	23-31	38	48-67	57-79
Meth	856	1,862-2,488	34-46	2,061	3,536-3,823	54-58
TMZ	2,227	3,812-5,450	49-58	1,020	1,086-1,329	77-94
Cannabis	976	3,351-3,447	28-29	353	684-779	45-52
Ketamine	3,080	9,895-13,157	23-31	2,216	4,837-6,881	32-46
CM	726	1,906-2,316	31-38	356	592-737	48-60

Note:

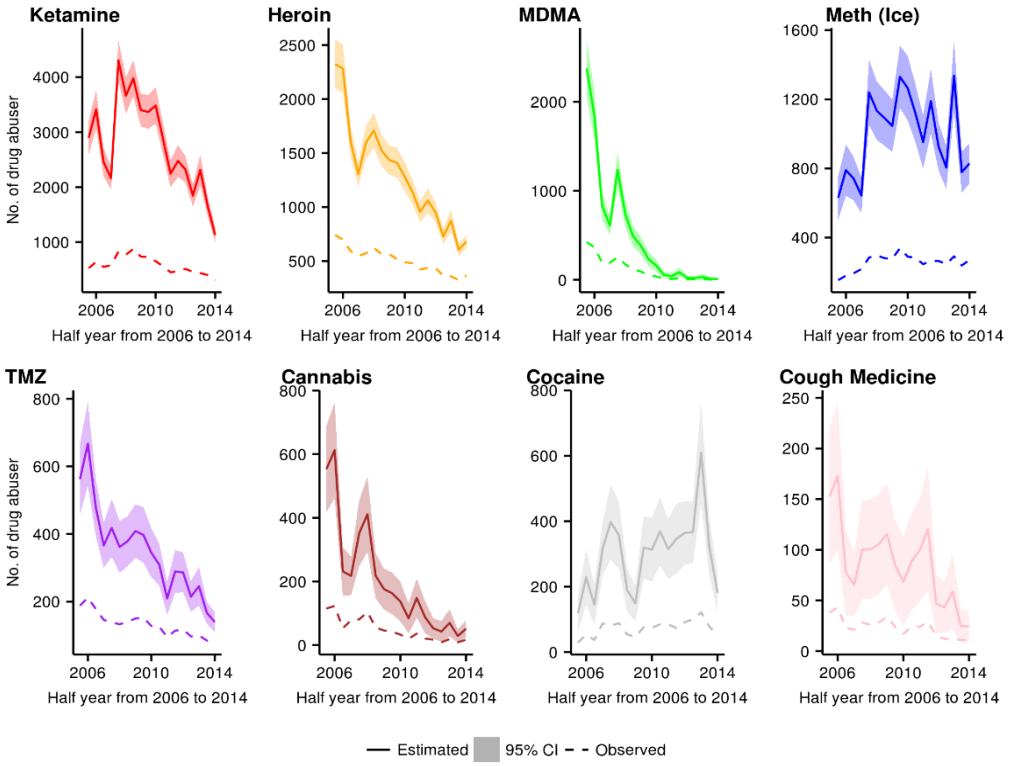
Meth = Methamphetamine; CM = Cough Medicines; TMZ = Triazolam/Midazolam/Zopiclone

4.2.4. Interactions - Drugs x Genders

More than 80% of drug users in the CRDA data were made up of men. According to the Treatment Episode Data Set (Substance Abuse and Mental Health Services Administration, 2012), although men tended to have higher rates of use or dependence on illicit drugs than women, women were just as likely as men to become addicted (Anthony, Warner, & Kessler, 1994). Researches have shown that women often use and respond to drugs differently. In this section, interactions between drugs and genders will be investigated.

Figure 4.5 illustrates the number of drug users involving in 8 types of drugs (heroin, cocaine, MDMA, methamphetamine, TMZ, cannabis, ketamine, and cough medicines) among women and men drug users in Hong Kong from 2006 to 2014. The trends of change in the observed numbers over the years were similar across women and men for all drug types, with an upward trend seen for cocaine (Men: +89%; Women: +63%) and methamphetamine (Men: +193%; Women +47%). As shown, the dramatic rise in the observed methamphetamine users in the CRDA data (+141%) made up mostly of men. While observed methamphetamine users increased at a faster rate than cocaine users in men, observed cocaine users increased at a faster rate than methamphetamine users in women.

(a) Female



(b) Male

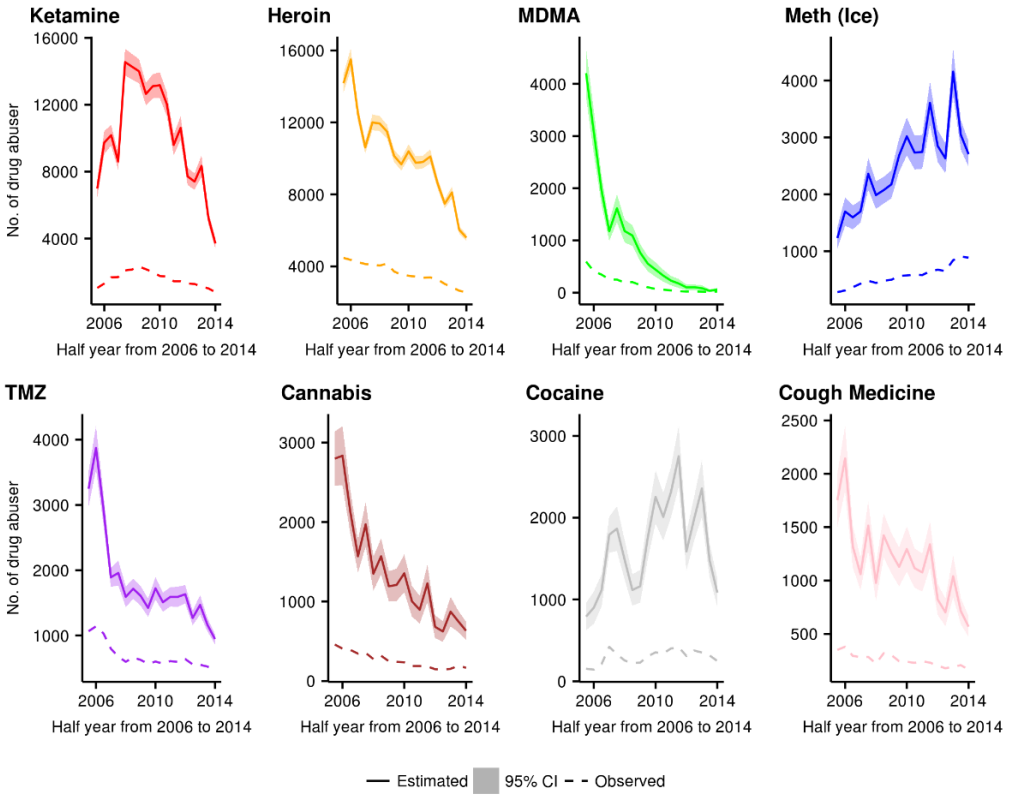
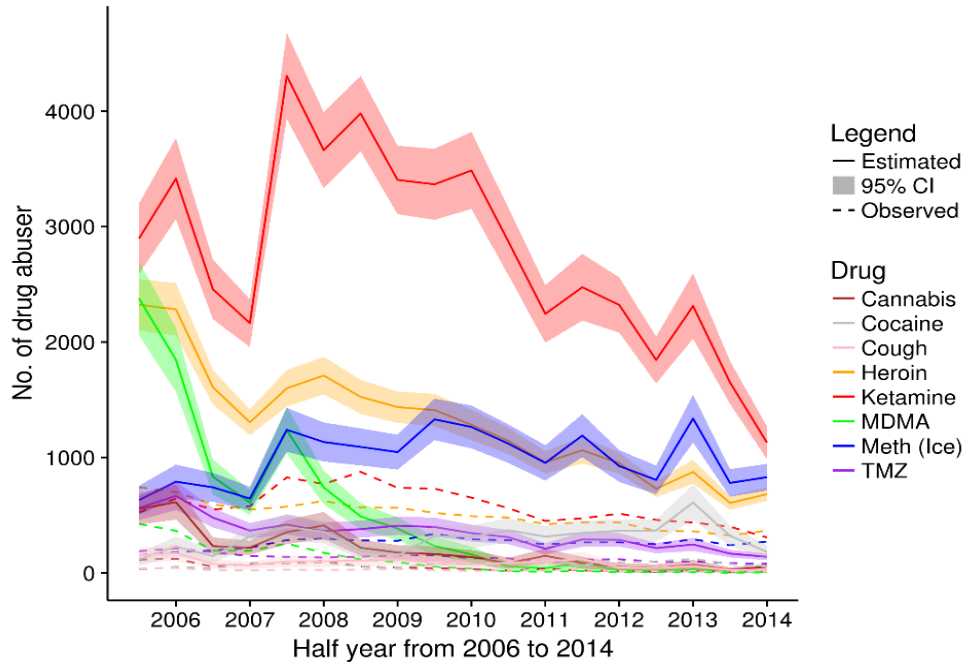


Figure 4.5. Estimated and observed numbers of drug users from 2006 to 2014 by types of drugs and genders, separated plot

(a) Female



(b) Male

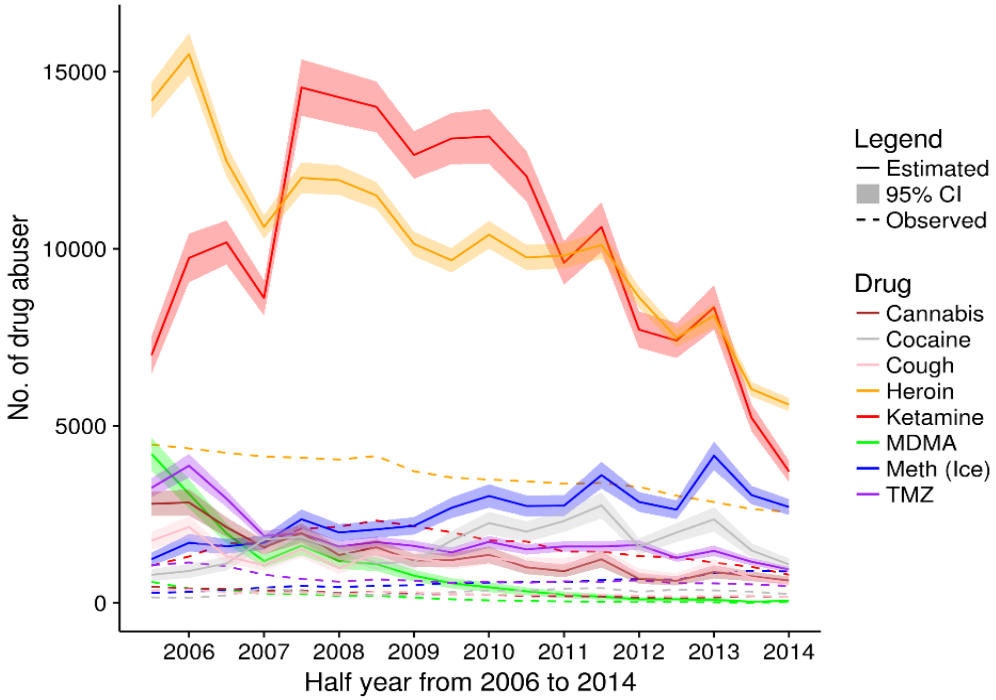


Figure 4.6. Estimated and observed numbers of drug users from 2006 to 2014 by types of drugs and genders, combined plot

Despite a downward trend was observed for heroin and ketamine, they remained the two major drugs highly taken by both women and men in Hong Kong (*Figure 4.6*). In 2006, it was estimated that there were 14,182-15,500 male heroin users and 2,283-2,323 female heroin users; in 2014, the numbers were 5,597-6,035 (decreased by 57% to 64%) and 606-682 (70% to74%), respectively. In 2006, there were 6,998-9,741 male ketamine users and 2,897-3,416 female ketamine users; in 2014, the numbers were 3,711-5,229 (25% to 62%) and 1,129-1,650 (43% to 67%), respectively. Heroin users decreased at a faster rate than ketamine users, especially in women. The reporting rates were the lowest for MDMA and ketamine for women, and MDMA, cannabis, and ketamine for men in 2006, reaching the 21% to 30% range. As a major type of drug in Hong Kong, the number of ketamine users were highly underreported in Hong Kong in 2006 (reporting rate = 29% to 34% for women; 21% to 30% for men). In 2014, the reporting rates remained the lowest for ketamine among both men and women, reaching the 31% to 54% range.

4.2.5. Interactions - Drugs x Age

A strong association was observed between age and the types of drugs use. The following section will investigate into the interactions between the two variables with a specific focus on three types of drugs namely, heroin, ketamine and methamphetamine.

Heroin x Age

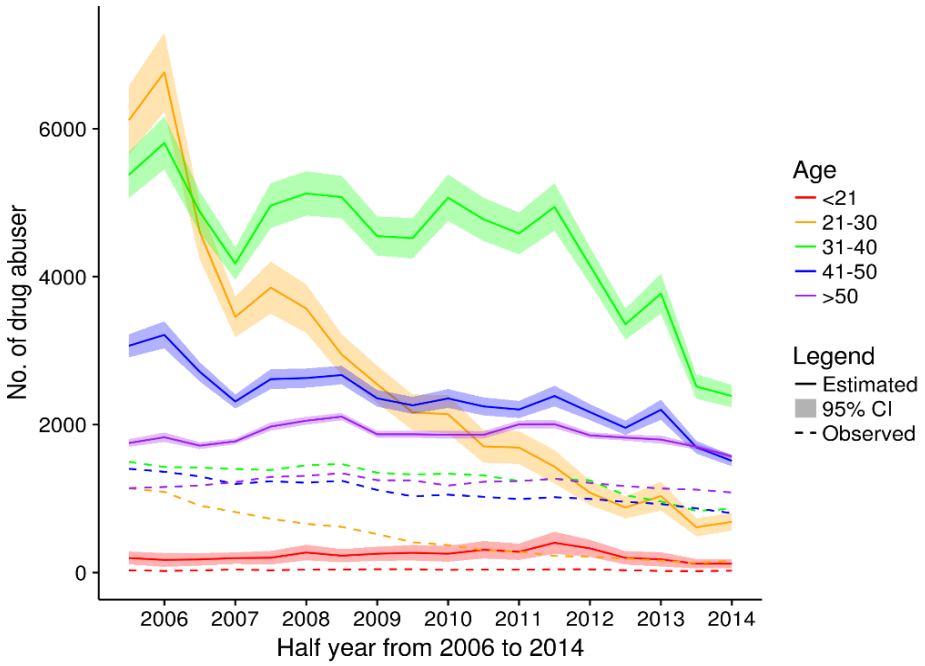


Figure 4.7. Estimated and observed numbers of drug users from 2006 to 2014 for heroin by age groups

Figure 4.7 depicts the observed and estimated heroin users in different age groups from 2006-2014. Heroin users aged >30 made up of more than 90% of the total observed heroin users (N=4,604) in the CRDA data in 2014. Age groups of 31-40, 41-50, and >50 showed a 42%, 40%, and 8% decreasing trend respectively over the years, yet, the fall was most dramatic for the 21-30 age group, with a 86% decrease observed. The change in the observed heroin number was relatively small in the oldest (>50: -8%) and the youngest (<21: -18%) age groups.

The reporting rates were positively correlated with the advancement of age in the age groups throughout the years, meaning that younger heroin users were less

likely to be reported. In 2014, the reporting rates for age groups <21, 21-30, 31-40, 41-50, and >50 were 35-35%, 36-40%, 53-55%, 76-85% and 91-100%, respectively. The issue of underreporting was minimal in the oldest age group (age >50).

Ketamine x Age

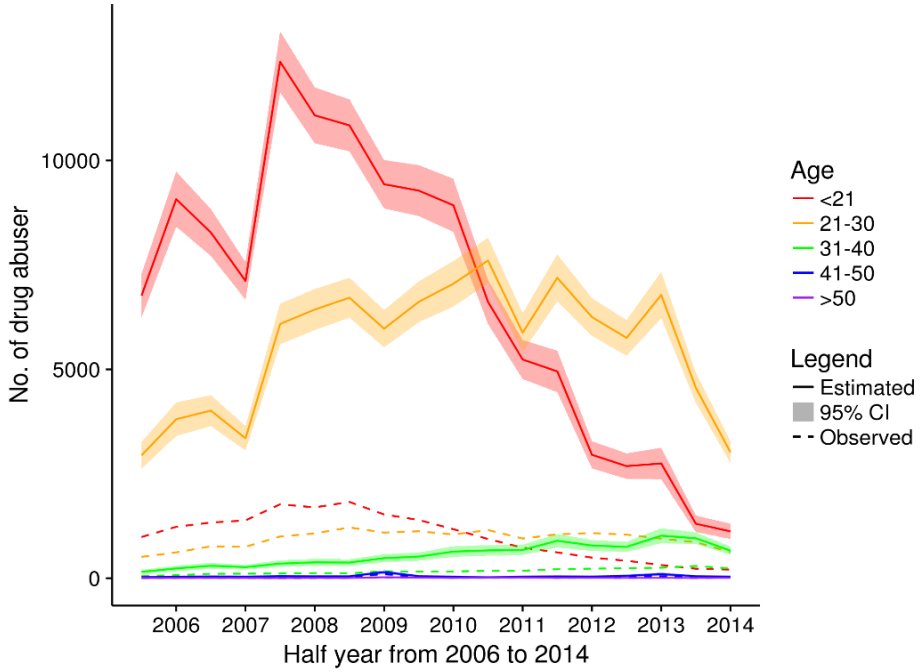


Figure 4.8. Estimated and observed numbers of drug users from 2006 to 2014 for ketamine by age groups

Figure 4.8 depicts the observed and estimated numbers of ketamine users in different age groups from 2006-2014. Different from heroin users, the majority of ketamine users were in the age group ≤30, which accounted for 75% of the total ketamine users (N=2,216) in 2014. A declining trend is observed for the age group <21 (-80%), but a rising trend is observed for other age groups. The greatest increase was found in those aged 31-40 (+291%), although the number remained small (from 123 to 481). The increase for age groups 21-30, 41-50 and >50 were respectively 25%, 44% and 18%.

Similar to other reports, the reporting rates were positively correlated with the advancement of age in the age groups throughout the years. In 2014, the

reporting rates increased from 28% to 43% in those aged ≤30 to 100% in older-users aged >40. In sum, the reporting rates remained stable over the study period, with a low reporting rate ranging between 20% to 43% in ketamine users aged ≤30.

Methamphetamine x Age

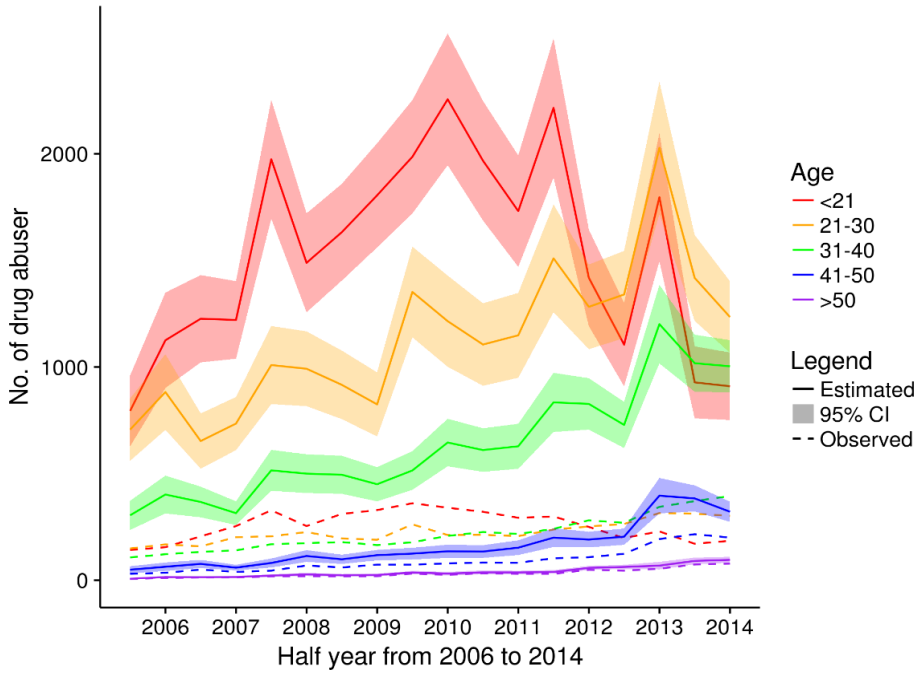


Figure 4.9. Estimated and observed numbers of drug users from 2006 to 2014 for methamphetamine by age groups

Figure 4.9 compares the observed and estimated numbers of methamphetamine users in different age groups during the study period 2006-2014. Different from heroin and ketamine users whose major age groups are >30 and ≤30 respectively, 60% of the total methamphetamine users in 2014 (N=2,061) were made up of individuals aged 21-40. Overall speaking, the observed number of methamphetamine users increased for all age groups over the years, with 17%, 83%, 221%, 498%, and 753% increase seen in <21, 21-30, 31-40, 41-50 and >50, respectively (the observed numbers were small among age groups 41-50 [N=62] and >50 [N=17] in 2006). The increase was dramatic in methamphetamine users aged >30, from 293 to 1,203. Despite the total number of methamphetamine users reaching only 2,061 in 2014, which is less than a half of the heroin users (N=4,604), the continuous increase in methamphetamine users over the 8-year period poses a concern in Hong Kong.

4.2.6. Summary of results

(*Overall*) There was a gradual decrease in the total observed and estimated numbers of drug users. The reporting rate has reduced over the study period. The estimated number of the drug abuse population decreased from 47,361-52,780 in 2016 to 18,974-22,658 in 2014.

(*Gender*) The observed and estimated numbers declined for both genders, but the change was gradual for the observed number and widely fluctuated for the estimated number. Overall, there was a significant increase in the reporting rates throughout the study period for both genders with no significant gender difference seen for each individual year.

(*Age*) The observed and estimated numbers decreased in all age groups. While the overall trend shows considerable increase in the reporting rates for all age groups, the reporting rate remained positively correlated with the advancement of age. For the youngest age groups (<21), their reporting rate was the lowest among all age groups, even hitting the lowest observed number in 2014 (N=825). This suggests that the hidden drug abuse issue was most serious among the youngsters since 2006.

(*Types of drugs*) Four types of drugs stand out from others, namely heroin, ketamine, MDMA, and methamphetamine (Ice). While a downward trend in the observed numbers was seen for users of heroin, MDMA, TMZ, cannabis, ketamine and cough medicines, an upward trend was observed for users of cocaine and methamphetamine. There were significantly more heroin and ketamine users in Hong Kong despite the declining trend. The drop in the observed number was most significant for MDMA users. Methamphetamine grew its popularity in the city over the years with a 2.4 fold increase observed. The reporting rates increased over the eight years for all drug types, but the number of ketamine users were less likely to be reported in the society.

(*Drugs x Genders*) The trend of change in the observed numbers over the years is the same for women and men in all drug types, with an upward trend seen for cocaine and methamphetamine. The dramatic rise in methamphetamine users in the CRDA data is made up mostly by men. While methamphetamine users increased at a faster rate than cocaine users in men, cocaine users increased at a faster rate than methamphetamine users in women. Despite a downward trend was observed for heroin and ketamine, they remained the two major drugs highly taken by both women and men in Hong Kong. The reporting rates were the

lowest for MDMA and ketamine for women, and MDMA, cannabis, and ketamine for men in 2006, reaching the 21% to 30% range. As a major type of drug in Hong Kong, the number of ketamine users were was highly underreported in Hong Kong in 2006.

(*Drugs x Age*) A significant age difference was found in the three core drugs studied namely, heroin, ketamine and methamphetamine. While heroin and ketamine were most often abused in the >30 and ≤30 age group, respectively, methamphetamine was most popular in the 21-40 age group. In terms of the estimated number, a decreasing trend is seen for heroin users of all ages, with the most dramatic fall seen in the 21-30 age group. A declining trend is seen also for ketamine users, but only in the youngest age group (<21). An increasing trend however, was seen for all age groups for methamphetamine users and a tremendous increase was observed particularly for those aged >30. The reporting rates were positively correlated with increasing age throughout the years, which means that younger heroin, ketamine and methamphetamine were less likely to be reported. However, the underreporting issue was minimal in older drugs users (aged >51 for heroin; aged >41 for ketamine and methamphetamine) throughout the study period.

This chapter highlights the hidden drug abuse issue among the youngsters and the increasing popularity of methamphetamine and cocaine in both men and women in Hong Kong during the period 2006-2014. It is suggested that corresponding government departments could devote more resources in improving the detection of illicit drugs in the young generation, as well as users of cocaine and methamphetamine. Improving the detection can ensure interventions be provided as early as possible, and will be beneficial for drug abuse prevention and future strategic plans. It is also essential to ensure that services are readily available and easily accessible for drug-addicted individuals in the society. Otherwise, potential patients can be lost if timely treatments are unavailable. The earlier treatments are offered in the recovery process, the greater the likelihood of positive results.

4.3. Social costs adjusted for underestimations

Some cost items in Chapter 3 were estimated based on the number of drug users reported to the CRDA in 2014 (i.e. N=9,059). The issue of hidden drug abuse population presented in this chapter indicated that those cost items might be underestimated. Cost estimations were repeated for the cost items involving the use of the CRDA data. The estimated numbers and the associated age-gender distributions (Table 4.3.1) in the first half of 2014 were used (N=22,658; which was higher than the estimate in the second half of 2014).

Table 4.3.1

Estimated number of drug users in 2014

	Before adjustments[1]		After adjustments	
Age groups	Male	Female	Male	Female
<21	582	243	2,637	933
21-30	1,596	624	6,738	1,813
31-40	2,058	450	5,239	626
41-50	1,413	258	2,345	380[2]
>50	1,730	105	1,948	
Subtotal	7,379	1,680	18,906	3,752

Note:

[1] Number of drug users in the CRDA in 2014

[2] The half-year estimate of female aged > 50 was slightly lower than the total numbers observed in the whole year. The corresponding number was combined with the number of those aged 41-50 for further calculation.

Table 4.3.2

Costs of drug abuse adjusted for underestimation

	Before adjustment	After adjustment	Adjustment ratio[1]
Social tangible cost			
Lost productivity			
Premature mortality	576,040,630	No adj.	-
Diminished size of workforce	624,177,187	1,564,273,150	2.51
Absenteeism	97,065,855	245,155,859	2.53
Crime victims	2,031,883	No adj.	-
Sub-total	1,299,315,556	2,387,501,521	1.84
Crime and law enforcement			
Arrest	131,345,694	No adj.	-
Customs	190,600,000	No adj.	-
Legal and adjudication	18,453,874	46,331,143	2.51
Incarceration	1,149,270,107	No adj.	-
Victimization	150,768,262	No adj.	-
Sub-total	1,640,437,937	1,668,315,205	1.02
Healthcare			
Methadone clinic	49,675,000	No adj.	-
Non-hospital based T&R	172,577,536	No adj.	-
Hospital inpatient	190,268,545	476,268,464	2.50
Medical outpatient	49,582,565	79,427,992	1.60
A&E service	4,988,620	11,986,394	2.40
Sub-total	467,092,266	789,935,386	1.69
Welfare			
CSSA	131,166,709	201,067,090	1.53
Drug counselling	92,633,362	No adj.	-
Services for offenders	71,809,115	149,601,706	2.08
Family and child welfare	48,860,058	115,457,906	2.36
Outreaching	5,193,566	21,642,191	4.17
Sub-total	349,662,810	580,402,255	1.66
Drug production[2]	37,443,422	77,207,298	2.06
Other social costs			
Preventive education, publicity and research	47,044,611	No adj.	-
Security Bureau	40,036,599	No adj.	-
Government Laboratory	76,391,580	No adj.	-

	Before adjustment	After adjustment	Adjustment ratio[1]
Mixed-type	21,337,226	No adj.	-
Sub-total	184,810,016	No adj.	-
Social tangible cost	**3,978,762,006**	**5,688,171,682**	**1.43**
Private cost			
Consumption of drugs (excluding drug productions)	711,425,014	1,466,938,663	2.06
Property destruction	4,431,872	11,028,175	2.49
Private tangible cost	**715,856,886**	**1,477,966,838**	**2.06**
Potential years of life lost	1,849,365,105	No adj.	-
Quality life years lost	531,432,570	1,311,865,369	2.47
Private intangible cost	**2,380,797,675**	**3,161,230,474**	**1.33**
Total cost	**7,075,416,566**	**10,327,368,994**	**1.46**

Note:

No adj. – No adjustment was needed. Only items involving the use of CRDA data were adjusted.

[1] Adjustment ratio = amount after adjustments / amount before adjustments

Table 4.3.2 includes all cost items in Chapter 3 and summarizes the amounts before and after the adjustments. Only items involving the use of CRDA data required adjustment. Some items required no such adjustment due to the use of either actual budget / expenditure or attributable fractions. Adjustment ratios (i.e. amount after adjustment divided by amount before adjustment) of most cost items were around 2.50. The variation in adjustment ratios was mainly due to combined effect of the uneven distribution of service utilization and the different degree of under-reporting in CRDA across age-gender groups. For instance, outreaching services targeted mainly young people while the underreporting in young drug users was the most serious. After correcting for possible underestimations, the **social tangible cost** of drug abuse in 2014 reached **HK$5,688,171,682**, increased by 43.0% before the adjustments. The social tangible costs per capita was HK$787, and was HK$251,040 per drug user. The estimated public expenditure (excluding loss of productivity, victimizations, and drug productions) on each drug user was HK$135,609.

As the estimation of costs related to crime and law enforcements relied less on the CRDA data, the effect of adjustments was little when compared to other types of costs. The distribution of the total social costs altered after adjustments (*Figure 4.10*), with loss of productivity sharing the largest portion (42.0%) instead of the costs of crime and law enforcements (29.3%).

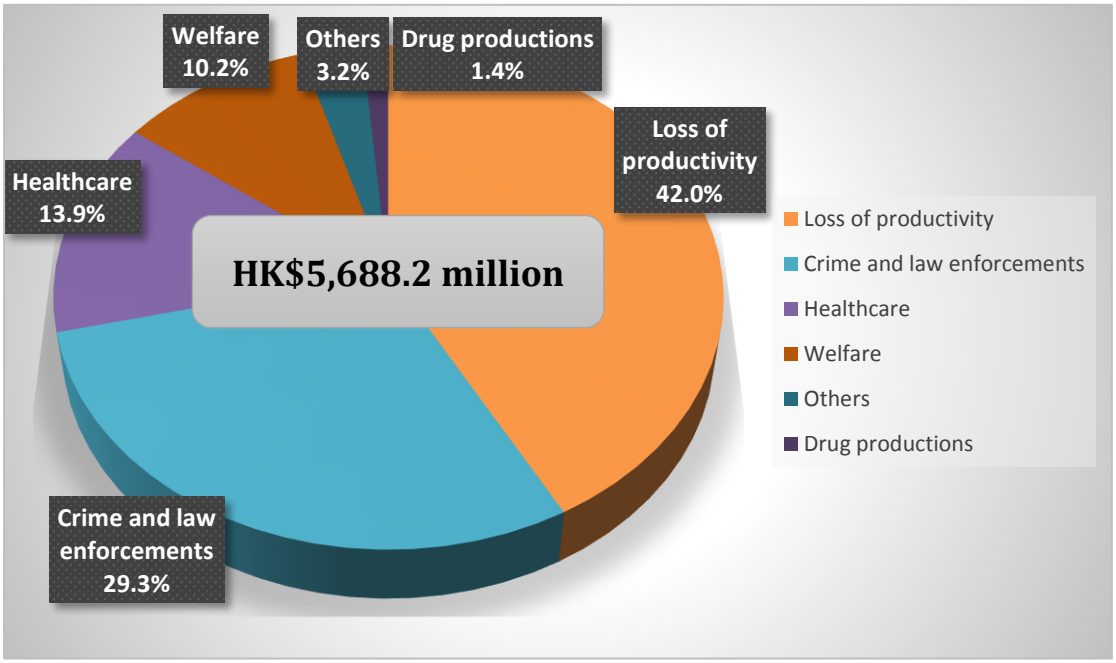


Figure 4.10. Distributions of estimated social tangible costs after adjustments for underestimations

The **total cost** of drug abuse, social and private costs, tangible and intangible costs combined, was estimated at **HK$10,327,368,994** in 2014 after adjusting for underestimations. The total cost per drug user was estimated at HK$455,785. The **total tangible cost** after adjustments, which was estimated at **HK$7,166,138,520**, accounted for 0.32% of Gross Domestic Product (GDP) in 2014.

Chapter 5. Service Pathways

5.1. Introduction

This section helps to identify the services and referral mechanisms in the service journey for drug users at the stages of preventions, diagnoses, treatments, support and rehabilitations. It provides an opportunity to assess how well referrals work, and identify any duplications, blocks or loop referrals – situations where people are referred between services without being moved on to an outcome that supports their wellbeing needs. Analyses of the service-user journey will ensure that people accessing the services at any point will get timely information, referrals, treatments or support – regardless of which services they started their journey with. Our methodological approach combining qualitative and quantitative methods were tailored to the multiple aspects of the drug abuse problem and the multiple phases of service involvement, to facilitate and inform an improvement initiative concerning a complex care pathway spanning multiple sectors. The quantitative part empirically quantifies the transitions between types of services (reporting agencies) using the Central Registry of Drug Abuse (CRDA) data, while the qualitative part investigates the rationales and reasons behind the transitions. Services for drug users involve professionals from many different organizations and backgrounds, so it is important to understand and incorporate a diversity of perspectives in order to enhance the feasibility and acceptability of the findings. The approach was designed to support the development and provide evidence-informed recommendations for service improvement and how resources can be allocated.

5.2. Quantitative analysis

The CRDA data collected during the period 2006-2014 were used in this quantitative analysis. The data contain pseudo personal identifiers, the agencies that reported the cases, and the dates of reporting. The treatment service sequence for each individual was mapped after data re-organization. In brief, the goal of the quantitative analysis is to estimate a set of transition probabilities between each of the two types of reporting agencies.

5.2.1. Results

In the CRDA data from 2006 to 2014 for the current analysis, there are 183,796 records, involving 52,376 individuals. Table 5.2.1 shows the contingency table which demonstrates the transition patterns of drug users between types of reporting agencies. For example, 14,202 cases were reported by the [1] Drug Addiction Treatment Centre (DATC) of the Correctional Services Department (CSD) after they have been reported by the [2] Hong Kong Police Force (HKPF). Descriptions on the codes of the types of reporting agencies can be found in Table 2.1.2 (p.17).

Table 5.2.1.
Number of transitions between types of reporting agencies

Previous reporting agencies (i)	Reporting agencies (*j*)									
	1	2	3	4	5	6	7	8	9	99
1	6491	6359	11116	164	281	2057	16	76	28	9531
2	14202	9000	5065	810	605	2904	75	472	118	12026
3	5305	9317	19370	49	786	9185	79	19	47	9363
4	230	314	83	106	43	499	9	83	23	806
5	222	585	624	33	419	576	36	199	32	2024
6	1760	2864	8754	158	467	10330	62	184	108	5898
7	56	205	43	14	78	124	13210	91	4	7734
8	109	413	29	38	215	391	36	3972	14	4656
9	17	30	34	11	29	132	1	6	163	338
98	3515	10282	2094	528	1361	2014	7065	4462	211	—

The meanings of codes 98 and 99 should be interpreted with cautions. Previous reporting agency *i* coded 98 to indicate those cases which were being reported the first time. For instance, 10,282 drug users began their service journey from the [2] HKPF. Reporting agency *j* coded 99 to mean those cases not reported again yet. For instance, 9,363 individuals were last reported by [3] Methadone Treatment Programme (MTP) under the Department of Health (DH).

Reporting agency 99 represents a complex phenomenon, indicating that those cases were not reported again yet after their last contact with a reporting agency. Those cases could have quitted drugs, still on drugs but not captured by the next reporting agency yet, or that remained at the same service without being reported again; these possibilities were hereafter clustered under the term "*dropouts*".

To estimate the transition probabilities between reporting agencies incorporating the effects of covariates, ten multinomial regression models were produced, that is, nine types of previous reporting agencies *i* plus those being firstly reported. Each regression provides estimates of how likely a drug user will be reported by different types of agencies *j* again, given that he/she has been captured by a particular type of reporting agencies *i*. Combining the ten regression models, a predicted transition probability matrix is drawn as shown in Figure 5.1. Each row came from one regression model, with row probabilities summing to one. Reporting agencies 4, 6, 7, 8, and 9 were grouped as social services for the upper right corner, and agencies 1, 2, 3, and 5 were grouped as law enforcements and health services for the bottom left corner. The rationale behind the grouping is specified in Section 2.3.1 (p.35).

	Counts	1	2	3	5	4	6	7	8	9	99
1	36,119	18%	17%	31%	1%			6%			26%
2	45,277	33%	20%	11%	1%			10%			25%
3	53,520	10%	17%	36%	1%			18%			18%
5	4,750	5%	13%	14%	9%			19%			41%
4	2,196	10%	15%	7%	5%	3%	22%	1%	4%	1%	33%
6	30,585	6%	9%	29%	1%	1%	34%	0%	1%	0%	19%
7	21,559			2%		0%	1%	60%	1%	0%	37%
8	9,873			8%		0%	4%	0%	41%	0%	46%
9	761			14%		1%	17%	0%	1%	22%	45%
98	31,532	12%	32%	7%	4%	2%	7%	21%	15%	1%	

Figure 5.1. Transition probability matrix between types of reporting agencies, overall

*Figure 5.1.*shows the estimated transition probability matrix. As the figure shows, 53,520 records had previous reporting agencies [3] Methadone Clinics 10% transited to [1] the Correctional Services, 17% to [2] the HKPF, 36% to [3] Methadone Clinics, 1% to [5] substance abuse clinics (SACs) under Hospital Authority (HA), 18% to [46789] social services, and 18% dropped out.

The majority of drug users entered the system through [2] the HKPF (32%) and [7] Outreaching Teams / Integrated Services Centres (21%), but the retention rate (i.e. reported again by the same type of agencies) was higher for [7] Outreaching Teams / Integrated Services Centres (60%) than for [2] the HKPF (20%). In terms of dropout rates, they were lower than 50% for all services, with the lowest and highest rates seen for [3] Methadone Clinics (18%) and [8] CCPSAs (46%), respectively. Although the dropout rate for [5] SACs under the HA is relatively high (41%), a significant mismatch was discovered in the reported number of drug users by the HA in the CRDA with those reported in the Three-year Plan on Drug Treatment and Rehabilitation Services in Hong Kong (Narcotics Division, 2015b). Together with the voluntary and criteria-based reporting approaches of the CRDA, it is likely that only new admission cases are included in the CRDA data. When an individual retains in the SAC service, it is less likely for them to be reported again, hence the high dropout rate in our estimations.

5.2.1.1. Gender

Figure 5.2 shows the transition matrix by gender. The transition pattern for male drug users (*Figure 5.2*a) was similar to the overall pattern. This might be because men contributed to the majority of the CRDA records (81.9%) and therefore they dominated the main pattern.

(a) Male

	Counts	1	2	3	5	4	6	7	8	9	99
1	33,398	19%	18%	32%	1%			7%			24%
2	38,550	36%	20%	10%	1%			9%			23%
3	45,444	11%	17%	33%	1%			20%			17%
5	3,087	7%	13%	14%	9%			20%			37%
4	1,779	11%	15%	6%	2%	4%	22%	0%	4%	1%	33%
6	27,995	6%	9%	30%	1%	0%	35%	0%	0%	0%	17%
7	14,515		2%			0%	1%	62%	0%	0%	34%
8	5,887		9%			0%	5%	0%	38%	0%	47%
9	547		14%			2%	20%	0%	1%	19%	44%
98	22,126	12%	36%	8%	3%	2%	7%	19%	12%	1%	

(b) Female

	Counts	1	2	3	5	4	6	7	8	9	99
1	2,721	8%	13%	19%	1%			4%			55%
2	6,727	12%	21%	18%	3%			12%			34%
3	8,076	4%	15%	54%	3%			4%			19%
5	1,663	2%	11%	13%	9%			17%			49%
4	417	5%	11%	11%	4%	6%	22%	3%	4%	1%	34%
6	2,590	2%	10%	14%	4%	1%	24%	0%	2%	1%	41%
7	7,044		1%			0%	0%	55%	1%	0%	42%
8	3,986		6%			0%	3%	0%	44%	0%	46%
9	214		15%			0%	9%	0%	1%	29%	45%
98	9,406	12%	22%	5%	7%	1%	6%	25%	21%	1%	

Figure 5.2. Transition probability matrix between types of reporting agencies by gender

Comparing the transition patterns of women (*Figure 5.2*b) with men, one of the highlights was the dropout rates. Dropout rates in women were generally higher than men for all reporting agencies except for [8] CCPSAs and [9] CDCs. The

difference was the biggest for [1] the CSD (women-men=31%), followed by [6] the Drug Treatment and Rehabilitation Centers (DTRCs) under the non-governmental organizations (NGOs) (24%). Another significant gender difference was observed for transition from [6] the DTRCs. While about 30% of the male drug users moved on to [3] Substance Abuse Clinics and 35% retained at [6], the majority of women dropout from the system (41%) after their contact with [6]. Looking at the similarities between genders, it could be seen that [2] HKPF and [7] Outreaching Teams / Integrated Services Centres were the most common first intake agencies for both men and women. The percentage for [2] HKPF was higher among men (36%) than among women (22%), whereas, the percentage for [7] Outreaching Teams / Integrated Services Centres was higher among women (25%) than men (19%).

5.2.1.2. Age

Figure 5.3 shows the transition patterns of drug users between nine service agencies across five different age groups. Overall speaking, younger drug users, especially those aged <21, were the core service users of [7] outreaching services under the NGOs, while older drug users tended to use and engage in [3] methadone clinic services more. The contact with [1235] law enforcements and health services was more frequent in the older age groups also. Among all age groups, young drug users aged below 21 had the highest dropout rates, ranging between 33% and 63%.

(a) <21

	Counts	1	2	3	5	4	6	7	8	9	99
1	2,580	21%	13%	0%	1%			7%			58%
2	4,721	22%	14%	0%	1%			20%			43%
3	322	5%	5%	40%	1%			16%			33%
5	499	2%	12%	0%	8%			22%			55%
4	625	8%	10%	1%	1%	3%	26%	2%	6%	1%	41%
6	2,019	7%	11%	1%	1%	2%	27%	1%	1%	0%	49%
7	16,334		1%			0%	0%	60%	0%	0%	38%
8	3,173		6%			0%	3%	1%	40%	0%	50%
9	55		15%			0%	19%	0%	0%	2%	63%
98	13,964	9%	26%	2%	2%	2%	5%	40%	13%	0%	

There were 13,964 young drug users aged below 21 being reported to the system for the first time between the year 2006 and 2014, accounting for 44.3% of the total number of first intakes. The [7] Outreaching Teams / Integrated Services Centres were the major first intake sources (40%) as well as the agencies with the highest retention rate (60%). Overall speaking, the dropout rates were high for all services in this age group with probabilities ranging from 33% to 63%. Although [3] Methadone Clinics had the lowest dropout rate (33%), the number of reporting was small (N=322). It can be seen that [9] CDCs were not a common service used by young drug users below age 21, as the number of previous reporting was small (N=55), and the dropout rate was high (63%).

Comparing the transition patterns with the overall pattern, young drug users aged below 21 had significantly higher dropout rates in all services. The probability for [7] Outreaching Teams/ Integrated Services Centres being the first intake sources in this age group (40%) almost doubled that of the overall sample (21%). Compared with other age groups, contacts with [1235] Law Enforcements and Health Services were less frequent in this age group. The transition from [2] the HKPF to [46789] Social Services in this age group (20%) was more frequent than the overall sample (10%). The transition from [6] DTRCs under the NGOs to [3] Methadone Clinics in this age group (1%) was rare when compared with the overall sample (29%).

(b) 21-30

	Counts	1	2	3	5	4	6	7	8	9	99
1	7,208	13%	24%	14%	1%			8%			40%
2	14,550	23%	24%	5%	2%			12%			33%
3	5,676	10%	20%	39%	2%			15%			14%
5	1,398	4%	15%	7%	9%			26%			39%
4	1,010	12%	19%	2%	2%	5%	23%	1%	4%	1%	33%
6	7,378	6%	12%	10%	2%	1%	39%	0%	2%	1%	29%
7	5,093		3%			0%	1%	62%	1%	0%	33%
8	4,498		8%			0%	6%	0%	40%	0%	45%
9	349		13%			2%	22%	0%	1%	19%	42%
98	10,950	12%	40%	6%	4%	2%	9%	9%	18%	1%	

There were 10,950 drug users aged between 21 and 30 being reported to the system for the first time between the years 2006 and 2014. The [2] Police Force was the major first intake source (40%), and it was also the most frequently contacted service, as the number of previous reporting (N=14,550) is significantly larger than other services (N=349-7,378). [7] Outreaching Teams/ Integrated Services Centres and [4] the Social Welfare Department (SWD) had the highest (62%) and lowest (5%) retention rates respectively. Overall, the dropout rates were moderate for all services in this age group, ranging from 14% to 45%. Dropout rate was the lowest for [3] Methadone Clinics, and highest for [8] CCPSAs. While [2] the HKPF (32%) and [7] Outreaching Source (21%) were the most common first intake points for the overall sample, drug users between 21 and 30 most likely reach the services for drug users through [2] the HKPF (40%) than other service agencies (1% to14%). The dropout rates for [1] CSD (40%), [2] HKPF (33%) and [6] DTRCs under NGOs (29%) in this age group were significantly higher than that in overall sample (26%, 25%, 19%). Transition from [2] the HKPF to [1] the CSD is more often seen in the overall sample (33%) than in the 21-30 age group (23%). Transition from [6] DTRCs under the NGOs to [3] Methadone Clinics is also seen more often in the overall sample (29%) than in this age group (10%).

(c) 31-40

	Counts	1	2	3	5	4	6	7	8	9	99
1	10,885	18%	18%	34%	1%			6%			23%
2	12,536	35%	21%	13%	2%			7%			21%
3	16,623	11%	18%	38%	2%			15%			16%
5	1,534	5%	13%	17%	10%			17%			39%
4	370	10%	14%	12%	8%	7%	17%	0%	3%	0%	27%
6	7,177	7%	10%	31%	2%	0%	31%	0%	1%	0%	17%
7	115		44%			2%	21%	8%	2%	2%	22%
8	1,749		10%			0%	3%	0%	43%	0%	43%
9	253		15%			1%	12%	0%	0%	27%	45%
98	4,520	17%	30%	22%	7%	1%	7%	0%	15%	1%	

There were 4,520 drug users aged 31-40 being reported to the system for the first time between the years 2006 and 2014. The [1] CSD, [2] the HKPF and [3] Methadone Clinics together made up nearly 70% of the total first intakes. The dropout rates were moderate for all services in this age group, ranging between 16% and 45%, with the lowest seen in [3] Methadone Clinics, and the highest in [9] CDCs.

Transition patterns and dropout rates of this age group is similar to the overall sample, particularly for the [1235] Law Enforcements Services. Only two differences exist. [3] Methadone Clinics were a major first intake source for this age group (22%) but not for the overall sample (7%). The transition pattern of [7] Outreaching Team is distinctly different from the overall sample too. While [7] Outreaching Teams/ Integrated Services Centres were major first intake sources for the overall sample (21%), with a high retention rate (60%) and low transition probability to [1235] Law Enforcements and Health Services (2%), and with a moderate dropout rate (37%), however, the trend is reversed for this age group. The first intake rate, retention rate and transition probability are 0%, 8% and 44%, respectively.

(d) 41-50

	Counts	1	2	3	5	4	6	7	8	9	99
1	8,368	19%	16%	40%	1%			6%			18%
2	7,556	45%	17%	18%	1%			6%			13%
3	14,116	11%	18%	35%	1%			19%			16%
5	722	6%	11%	21%	9%			10%			43%
4	120	14%	10%	27%	7%	4%	16%	0%	2%	1%	19%
6	6,095	7%	9%	41%	1%	0%	31%	0%	0%	0%	11%
7	14			43%		0%	0%	0%	0%	0%	57%
8	369			11%		0%	1%	0%	42%	0%	45%
9	71			17%		0%	9%	0%	0%	30%	44%
98	1,588	21%	27%	23%	11%	1%	6%	0%	10%	1%	

1,588 drug users between the ages of 41 and 50 were reported to the system for the first time over the period 2006-2014. [123] Law Enforcement Services made up 71% of the total first intakes. Among [46789] Social Services, and among all reporting agencies, [6] DTRCs under the NGOs had the lowest dropout rate (11%) and [7] Outreaching Teams/ Integrated Services Centres had the highest (57%). It can also be seen that the 41-50 age group had minimal contacts with [7] Outreaching Teams/ Integrated Services Centres, with 0% first intake rate and retention rate, 43% transition rate to [1235] Law Enforcement and Health Services, and 57% dropout rate. The highest retention rate is seen for [8] the CCPSAs (42%).

Comparing the pattern with the overall sample, the age group 41-50 had minimal contact with [7] Outreaching Teams/ Integrated Services Centres. While the agency was a major first intake source for the overall sample (21%) with a high retention rate (60%), 37% dropout rate and 2% transition rate to [1235] Law Enforcement and Health Services, it was a major transferal agent for the 41-50 age group, with 43% transition rate, 57% dropout rate and 0% first intake and retention rates. Instead, [3] the Methadone Clinics became a major first intake source for the 41-50 age group (23%), the first intake rate being only 7% for the overall sample. Transition from [4] the SWD and [6] DTRCs under the NGOs to [3] Methadone Clinics is more often seen in this age group (27% and 41% respectively) than in the overall sample (7% and 29% respectively). Thus it can be summarized that [3] Methadone Clinics is a core service agency for the 41-50 age group.

(e) >50

	Counts	1	2	3	5	4	6	7	8	9	99
1	7,078	20%	12%	44%	0%			6%			16%
2	5,914	45%	14%	22%	1%			6%			12%
3	16,783	8%	14%	35%	1%			20%			21%
5	597	7%	8%	25%	6%			15%			40%
4	71	1%	4%	81%	1%	1%	6%	0%	0%	1%	4%
6	7,916	4%	6%	43%	1%	0%	36%	0%	0%	0%	11%
7	3			0%		0%	0%	0%	0%	0%	100%
8	84			4%		0%	0%	0%	41%	0%	55%
9	33			21%		3%	15%	0%	0%	21%	39%
98	510	22%	21%	18%	25%	1%	4%	0%	7%	2%	

Only 510 drug users aged 50 and above were reported for the first time over the period 2006-2014. They were mainly reported by [1235] Law Enforcement and Health Services (18-25%). [7] Outreaching Teams/ Integrated Services Centres and [4] the SWD had the highest (100%, N=3) and lowest (4%) dropout rates respectively. While a 100% dropout rate also means [7] Outreaching Teams/ Integrated Services Centres had the lowest retention rate (0%), [8] CCPSAs had the highest retention rate (41%).

Compared with other age groups, the transition patterns of drug users >50 show the biggest difference from the overall sample. While contacts with [7] Outreaching Teams/ Integrated Services Centres became minimal for the age groups of 31-40 and 41-50, no service engagement is seen for the >50 age group. It was the previous service agency for 21,559 drug users, but only 3 of them were in the >50 age group. Dropout rates of [1] the Correctional Services (16%), [2] the HKPF (12%), [4] the SWD (4%) and [6] DTRCs under the NGOs (11%) were significantly lower than the overall sample (26%, 25%, 33% and 19%, respectively). At the same time, transition rates from these service agencies to [3] Methadone Clinics were higher (44%, 22%, 81%, 43%) than the overall sample (31%, 11%, 7%, 29%). While most of the drug users >50 were reported by the [1235] Law Enforcement and Health Services for the first time, the rate was higher than the overall sample for [1] the CSD (22%), [3] Methadone Clinics (18%), [5] SACs under the HA (25%), but not for [2] the HKPF (21%). The first intake rates for the overall sample were 12%, 7%, 4%, and 32%, respectively.

Figure 5.3. Transition probability matrix between types of reporting agencies by age groups

5.2.1.3. Types of drugs

Figure 5.4 shows the transition patterns between nine service agencies for seven major types of drugs and others. For each type of drug, the transition probabilities were calculated based upon the reports of individuals who had ever used that drug before, whether or not that individual has used other kinds of drugs.

Heroin and ketamine are the two major drug types highly used by both men and women in Hong Kong. Yet, among the 31,532 newly reported drug users over the period of 2006-2014, there were significantly more ketamine users (N=18,264) than heroin users (N=4,176). In terms of retention rates, the pattern for heroin is different from other drug types. While heroin users retained at [8] CCPSAs the most (48%) and [5] SACs under the HA the least (6%), other drug users retained at [7] Outreaching Teams/ Integrated Services Centres the most (61% to 68%) and [4] the SWD the least (2% to 8%). In terms of dropout rates, drug users mostly like to dropout from [1589] the CSD, SACs under the HA, CCPSAs and CDCs (31% to 58%). While users of heroin and TMZ are least likely to dropout from [2] the HKPF (10% to 11%), users of other drug types are least likely to dropout from [3] the Methadone Clinics (16% to 20%). Among all drug types, heroin users had the smallest range of dropout rates (11% to 31%). In terms of first intake sources, the pattern is not fixed. Major first intake source for heroin is [3] the Methadone Clinics (51%); for cocaine, methamphetamine, cannabis, ketamine, are [2] the HKPF (28% to 36%); for TMZ is [5] SACs under the HA (29%); for cough medicines is [28] the HKPF and CCPSAs (25%); and for other drug types are the [7] Outreaching Services/ Integrated Services Centres. In comparison, the least common first intake sources are mainly [3] the Methadone Clinics for cocaine, methamphetamine, ketamine, and cough medicines; [4] the SWD for heroin; [9] CDCs for heroin, TMZ, cannabis and other drug types.

(a) Heroin

	Counts	1	2	3	5	4	6	7	8	9	99
1	23,671	20%	13%	41%	0%			5%			21%
2	18,730	51%	13%	19%	1%			6%			11%
3	47,177	10%	15%	35%	1%			18%			20%
5	1,414	8%	13%	34%	6%			15%			24%
4	245	12%	4%	44%	1%	7%	19%	0%	1%	1%	12%
6	19,442	6%	7%	41%	1%	0%	33%	0%	0%	0%	12%
7	276		20%			0%	21%	28%	0%	0%	30%
8	168		15%			0%	6%	0%	48%	0%	31%
9	154		28%			0%	14%	0%	0%	27%	30%
98	4,176	31%	11%	51%	1%	0%	4%	1%	1%	0%	

4,176 Heroin users were reported to the system for the first time during the study period. Drug users who used heroin have generally low dropout rates from all services, ranging between 11% and 31%. The lowest dropout rate is seen for [2] the HKPF, and the highest for [8] CCPSAs. [8] CCPSAs also have the highest retention rate (48%) among all service agencies despite a low first intake rate (1%). [3] Methadone clinics is a major service agency for heroin users, not only has it got the highest first intake rate (51%) and a high retention rate (35%), but also the greatest number of previous reporting (N=47,177). There are frequent transitions from other service agencies to [3] the methadone clinics. In particular, the transition rates from [1456] the CSD, the SWD, SACS under the HA and DTRCs under the NGOs to [3] the methadone clinics are 31%, 7%, 14% and 29%, respectively for the overall sample, the transition rates have increased to 41%, 44%, 34%, and 41% for heroin users. Contacts with [46789] the Social Services are not frequent among heroin users except for [6] DTRCs under the NGOs where 19,442 previous reporting number is seen. For [7] Outreaching Services / Integrated Services Centres, a major service agency for other drug types, only 276 previous reporting number, 1% first intake rate and 28% retention rate are observed.

(b) Cocaine

	Counts	1	2	3	5	4	6	7	8	9	99
1	2,666	19%	17%	10%	1%			6%			47%
2	2,939	29%	17%	3%	1%			9%			42%
3	863	17%	19%	30%	1%			15%			18%
5	360	6%	8%	5%	10%			27%			43%
4	203	9%	11%	3%	2%	8%	20%	1%	5%	3%	39%
6	1,914	6%	10%	6%	2%	1%	36%	0%	1%	1%	36%
7	2,551		1%			0%	0%	61%	0%	0%	37%
8	1,357		7%			0%	4%	1%	39%	0%	49%
9	90		10%			1%	13%	0%	0%	17%	58%
98	2,722	14%	28%	0%	3%	2%	9%	22%	20%	1%	

2,722 cocaine users were reported to the system for the first time during the study period. Cocaine users have dropout rates with probabilities ranging between 36% and 58%, except that a low dropout probability is seen for [3] the methadone clinics (18%), yet, the first intake rate for [3] the methadone clinics is 0% which means cocaine users who used the methadone clinics services were either a stable service-user, or a referred case. In addition, dropout rates for [1] the CSD (47%), [2] the HKPF (42%) and [9] the CDCs (58%) among cocaine users are considerably higher than the overall sample (26%, 25%, 45% respectively). First intake rates and retention rates are similar to the overall sample, except for the transition from [1] the CSD (10%) and [6] DTRCs under the NGOs (6%) to [3] the methadone clinics where a higher transition is seen (31% and 29% respectively).

(c) Methamphetamine

	Counts	1	2	3	5	4	6	7	8	9	99
1	6,127	20%	17%	15%	1%			5%			42%
2	6,909	35%	19%	6%	1%			6%			34%
3	3,402	15%	20%	32%	2%			13%			19%
5	842	5%	10%	10%	11%			14%			50%
4	256	14%	10%	3%	2%	7%	20%	0%	3%	2%	39%
6	2,624	8%	10%	14%	2%	0%	27%	0%	1%	1%	35%
7	4,645		1%			0%	0%	62%	0%	0%	36%
8	1,753		6%			0%	3%	1%	39%	0%	50%
9	139		13%			1%	17%	1%	0%	18%	50%
98	4,783	15%	28%	0%	5%	2%	7%	24%	17%	1%	

4,783 methamphetamine users entered the system for the first time during the study period. Transition pattern is similar to cocaine users, [2] the HKPF is the major first intake source (28%) and [7] Outreaching Teams/ Integrated Service Centres has the highest retention rate (62%). [3] Methadone clinics have the lowest first intake rate (0%) and dropout rate (19%), but a high retention rate (32%), indicating that methamphetamine users who used the methadone clinic services were either retained in the service, or were referred cases. While [1] the CSD (15%) and [6] DTRCs (14%) have the highest transition rates to [3] methadone clinics among all service agencies, the probability is halved that of the overall sample (31% and 29% respectively). For methamphetamine users, high dropout rates are observed in the CSD (42%) and [6] DTRCs (35%) compared to the overall sample (26% and 19% respectively).

(d) TMZ

	Counts	1	2	3	5	4	6	7	8	9	99
1	9,873	19%	12%	48%	1%			7%			14%
2	8,363	51%	14%	17%	1%			7%			10%
3	15,126	16%	21%	24%	2%			24%			14%
5	1,242	7%	12%	18%	9%			13%			41%
4	144	11%	8%	24%	3%	2%	23%	2%	3%	0%	22%
6	9,046	7%	9%	38%	1%	0%	31%	0%	0%	0%	12%
7	526	3%				0%	1%	68%	0%	0%	28%
8	748	9%				0%	3%	0%	53%	0%	35%
9	75	27%				1%	14%	0%	0%	27%	31%
98	879	8%	19%	4%	29%	2%	8%	5%	24%	1%	

Only 879 out of 31,532 individuals entered the system for the first time during the study period were using TMZ. Apart from [6] DTRCs, TMZ users show different transition patterns from the overall sample. The major first intake agencies of TMZ users, [5] SACs under the HA (29%) and [8] CCPSAs under the NGOs (24%), marked only 4% and 15% first intake rates respectively in the overall sample. Retention rate of [8] the CCPSAs under the NGOs is high (53%) and the dropout rate is moderate (35%). Overall, the dropout rate in TMZ users is lower than the overall sample. There are more TMZ users who transit from other services to [3] the methadone clinics than the overall sample, particularly for [14] the CSD and the SWD where the transition rates are 48% and 24% respectively for TMZ users and 31% and 7% for the overall sample. Retention rate of [3] the methadone clinics however is low (24%) and TMZ users are likely to transit from [3] the methadone clinics to other service agencies. Among [1235] Law Enforcement and Health Services, transition from [2] the HKPF to [1] the CSD has the highest transition rate, reaching chance level (51%).

(e) Cannabis

	Counts	1	2	3	5	4	6	7	8	9	99
1	1,948	17%	17%	13%	1%			7%			45%
2	2,566	22%	16%	4%	1%			7%			51%
3	919	17%	15%	35%	1%			12%			21%
5	225	4%	11%	5%	11%			23%			47%
4	214	13%	8%	2%	5%	4%	16%	1%	6%	1%	45%
6	1,150	7%	8%	10%	1%	1%	34%	1%	1%	1%	35%
7	3,015	2%				0%	1%	66%	1%	0%	31%
8	976	7%				1%	4%	1%	43%	0%	46%
9	46	13%				4%	13%	0%	0%	13%	57%
98	2,412	15%	36%	2%	2%	3%	7%	19%	17%	1%	

Cannabis users have moderate-high dropout rates with the highest seen in [9] CDCs under the NGOs (57%) and lowest seen in [3] the methadone clinics (21%). For [12459] the CSD, the HKPF, the SWD, SACs under the HA, CDCs under the NGOs, the dropout rates (45%, 51%, 45%, 47%, 57% respectively) are significantly higher than their retention and transition rates. While [2] the HKPF has a chance level dropout rate, it is the most common first intake service agency for cannabis users (36%). Transition from other services to [3] the methadone clinics is less common in cannabis users (2% to 13%) than in the overall sample (7% to 31%).

(f) Ketamine

	Counts	1	2	3	5	4	6	7	8	9	99
1	6,907	15%	19%	6%	1%			9%			50%
2	13,626	23%	18%	1%	1%			15%			41%
3	1,286	17%	18%	25%	2%			23%			16%
5	1,429	4%	14%	2%	9%			27%			44%
4	1,257	10%	10%	1%	2%	5%	26%	1%	4%	1%	39%
6	7,462	6%	10%	4%	2%	1%	38%	0%	2%	1%	37%
7	16,452		1%			0%	0%	61%	0%	0%	36%
8	6,665		6%			0%	4%	0%	41%	0%	47%
9	405		13%			2%	21%	0%	1%	21%	43%
98	18,264	9%	33%	0%	3%	2%	8%	27%	18%	1%	

57.9% drug users entered the system for the first time during the study period were ketamine users. They have moderate-high dropout rates ranging between 36% and 50% except for [3] the methadone clinics where 16% dropout rate is seen. [3] Methadone clinics are not a major first intake contact for ketamine users as 0% first intake rate is seen. The retention rate was 25% and the transition rate from other service agencies to [3] the methadone clinics is 6%.

(g) Cough medicines

	Counts	1	2	3	5	4	6	7	8	9	99
1	1,583	23%	17%	13%	1%			10%			36%
2	1,714	30%	15%	4%	2%			12%			36%
3	658	17%	15%	25%	2%			22%			20%
5	538	6%	10%	2%	8%			20%			54%
4	157	9%	10%	1%	4%	2%	35%	1%	12%	1%	26%
6	1,938	6%	8%	8%	3%	1%	39%	1%	1%	1%	33%
7	1,258	3%				0%	2%	67%	0%	0%	28%
8	1,186	9%				0%	6%	0%	48%	0%	36%
9	91	12%				3%	18%	0%	2%	24%	40%
98	1,499	8%	25%	1%	10%	2%	14%	14%	25%	1%	

[2] The HKPF and [8] CCPSAs under the NGOs are equally important first intake agencies for cough medicine users (25%, 25%). Cough medicine users who used [2] the HKPF services before, however, tend to either transit to [1] the CSD (30%) or dropped out (36%) rather than retaining at the same service. The retention rate of [8] CCPSAs is high, reaching about chance level (48%). Dropout rates for this group is not similar to the overall sample. While [1256] the CSD, the HKPF, SACs under the HA and DTRCs under the NGOs marked a higher dropout rates (36%, 36%, 54%, 33% respectively) than the overall sample (26%, 25%, 41%, 19%), [7] Outreaching Teams/ Integrated Service Centres and [8] CCPSAs under the NGOs showed lower dropout rates (28% and 36%) than the overall sample (37% and 46%). Cough medicine users also tend to retain at these two service agencies with 67% and 48%retention rates.

(h) Others

	Counts	1	2	3	5	4	6	7	8	9	99
1	3,309	17%	15%	22%	1%			6%			40%
2	3,467	30%	17%	8%	1%			10%			34%
3	2,712	14%	15%	31%	2%			18%			20%
5	855	4%	9%	8%	7%			17%			54%
4	310	8%	10%	4%	2%	6%	20%	1%	3%	1%	43%
6	3,004	6%	8%	16%	2%	1%	35%	0%	1%	0%	31%
7	6,415		1%			0%	0%	65%	0%	0%	33%
8	1,629		9%			1%	5%	1%	44%	0%	42%
9	82		25%			1%	11%	0%	0%	24%	39%
98	4,044	17%	16%	2%	8%	2%	6%	33%	15%	1%	

For other drug types, [7] Outreaching Teams/ Integrated Services Centres are the major first intake sources (33%) where the highest retention rate is seen (65%). The retention rates of [8] CCPSAs under the NGOs (44%) and [6] DTRCs under the NGOs (35%) are high but the dropout rates are as high (42% and 31%, respectively). While the dropout rates are similar between these three agencies (31% to 42%), more drug users would move to [3] the methadone clinics from [6] DTRCs (16%). 16% however is still lower than the overall sample, where 29% is observed. For other service agencies [12459], it is more common that drug users would dropout (31% to 54%) than retain in the same service or transiting to other services. [5] SACs under the HA has the highest dropout rate, meeting chance level (54%).

Figure 5.4 Transition probability matrix between types of reporting agencies by types of drugs

5.2.2. Summary of the results of quantitative analysis

The skewed age structure of the CRDA means that caution must be taken when analyzing the transition patterns. Overall, the majority of drug users entered the system through [2] the HKPF (32%) and [7] Outreaching Teams / Integrated Services Centres (21%). The transition pattern was significantly different between younger (age ≤30) and older (age >30) drug users. Compared with older drug users (age >30), younger individuals addicted to drugs (age ≤30) have a higher dropout rate from all services but more frequent contacts with [46789] social services. In addition, there is a positive relationship between age and [5] hospital contact frequency, and older drug users are more likely to be captured through SACs. For the types of drugs, there is a significant difference in the transition pattern between users of TMZ and heroin and other types of drugs. For example, drug users usually enter the system through [2] the HKPF and [7] Outreaching Services, but this pattern is not seen in users of heroin and TMZ, probably owing to the fact that the use of these drugs was usually associated with older ages. There are numerous factors affecting the transition pattern, such as the size of the sample, availability of the drugs, and the effects coming from social media.

Future studies can further investigate the interaction effects between these factors to gain a better understanding of the transition patterns of drug users in Hong Kong.

5.3. Qualitative analysis

The main objective of qualitative methodologies is to explore the service pathways for drug users in Hong Kong. The analysis below is based on 13 stakeholder interviews, 4 stakeholder focus groups, and 26 drug user interviews conducted between April 2015 and January 2017.

While this study aimed to draw out a clear service pathway in Hong Kong, the pathways experienced by drug users are fluid and complicated. Different services from different service providers in the drug field are interconnected. The service pathway is not a linear, one directional pathway, but a complicated, circular flow. Among the numerous stakeholders serving drug users in Hong Kong, we have categorized these agencies can be categorized into three large systems: healthcare, criminal justice and social welfare (*Figure 5.5*). To effectively describe the loci of drug users in the service systems, a state of 'hidden' has been added in this framework. This section attempts to carve out three identified service systems and pathways and their characteristics.

Figure 5.5. Framework of service systems

5.3.1. Service systems

5.3.1.1. Definitions

To set the scene for the following discussion, definitions and boundaries of services included in each system in this section will first be discussed. All services referred to in this study are limited to those addressing drug using habits, or any related health, criminal or welfare issues. The healthcare system includes services provided by the DH and the HA (e.g. methadone clinics, SAC and all medical services provided by public hospitals). All medical treatments in public hospitals or government clinics provided due to drug-related injuries or diseases, or regular health checks are all categorized under the healthcare system. *Figure 5.6* provides a general overview of services offered to drug users in the three systems, the hidden state, and services that enables drug users to be involved in multiple systems at the same time.

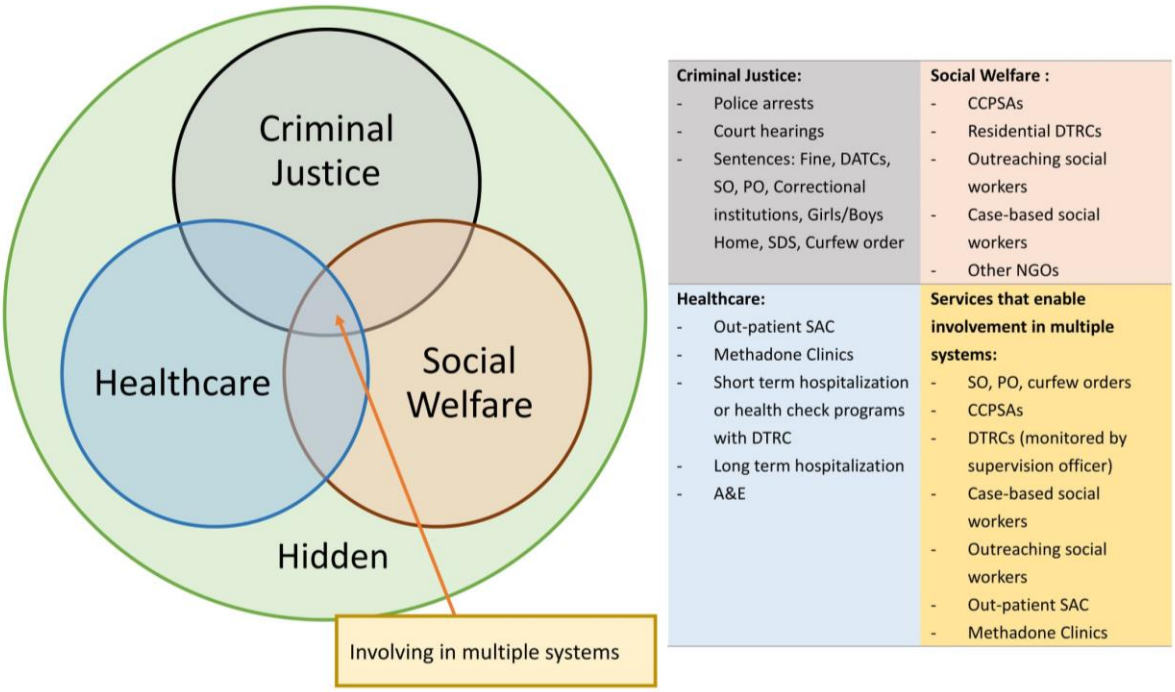


Figure 5.6. Overview of the services within the three systems

The criminal justice system includes correctional services, court procedures, and police arrests and requests for police assistance. Contact of the Criminal Justice Services (CJS) as drug users' first encounter with the police includes arrests and

dialing of 999. Court trials, probation orders (POs), drug addiction treatment centres (DATCs) or other correctional services also fall under the CJS.

All social support services provided by the SWD to drug users, voluntary DTRCs, CCPSAs fall into the social welfare system (SW). Social workers operating in hospitals, courts, and outreaching services are also included in this system.

To better illustrate the service pathways, a 'hidden' state among the systems is included. It describes the undetected state of drug users throughout their drug life, periods where they were not receiving any social support, medical attention or correctional services relevant to the drug habit. For example, if a drug user is regularly consuming drugs at home without any form of support from Government institutions or NGOs, such individual is regarded as 'hidden' in our analytic framework. Multiple relapses of drug habit are also common among drug users. To better label various stages of an individual's drug life which might involve short-term abstinence from drugs (therefore leaving the drug-related social services and left all systems) and relapses (potentially re-engaging in the service systems), the 'hidden' state perspective is used to describe this particular stage of drug life.

Involvement in the three systems and falling back to the 'hidden' state could interchange rapidly. Furthermore, these systems are not mutually exclusive. The variety of services provided to drug users, such as one-off medical attention, out-patient clinics, CCPSAs, and the cross collaborations between organizations, enables drug users to engage in one or more systems at the same time. Forms of collaborations and the service pathways experienced by drug users will further be illustrated in the following sections.

Table 5.3.1
Overview of number of drug users involved in each service system

	Number (%)	**Number of systems engaged in**	**Number (%)**
CJS	23 (88.5%)	One system	3 (11.5%)
Health	19 (73.1%)	Two systems	8 (30.8%)
NGOs/SW	20 (76.9%)	Three systems	15 (57.7%)

The criminal justice system is the most common service engaged by drug users in the interviews (23/26). It is also found that drug users are mostly in contact with all three systems at certain points of their drug life, where at the time of the

interview, most respondents were involved in two systems simultaneously. However, as respondents in this research are recruited via contacts in these service systems, drug users who remain hidden are not interviewed.

Table 5.3.1 is an overview of the number of drug users involved in each system, and the number of systems they had engaged before.

The flow of the service pathways is heavily dependent on the interactions with drug users and their background. The CRDA data provided us with a brief overview regarding drug users' system transitions, which demonstrated the percentages of the drug users' transitioning from one service system to another over the past 10 years. While it provides a general overview of the service pathway, questions such as 'why they go where they go' and 'how they go where they go' cannot be explored.

Service pathways experienced by the interviewees are complicated and rampageous. For example, points of engagement by drug users with the service systems vary. Some interviewees might already have engaged in the service system before their drug habit where drug use further deepens their engagement with the service. While the CRDA are able to indicate the flow of drug user from one service to another, these complications and deepened interactions with the services cannot be captured and illustrated.

5.3.1.2. Case studies

To provide more context to the service pathways and drug users' decisions, this chapter will illustrate three case studies, namely Mark, Robert and Jen. As the life stories of these three interviewees unfold, service systems and the interactions in between will be discussed accordingly. These cases aim to provide a backbone to this chapter, where more cases from the interviews would be discussed at various parts of the analysis.

These three interviewees each consumed different types of drugs, and have extensive and intensive experience of two or more service systems throughout their drug history. The following is a brief introduction of each of them.

Mark

Mark is a 35-year-old male drug user, mainly on methamphetamine and Zopiclone. He started his drug habit at nine with cough medicines, and developed depression

at a very young age. On top of the regular usage of Mark's 'major' drugs, MDMA, ketamine and Midazolam were also consumed at his late 10s when he went to discos. Following the trend in the 2000s, he spent a lot of time in discos where he would stay out for nine days straight. After getting off from work, Mark would go to discos for drugs, and have a good night-out, then return to work the following morning. Buying drugs, as he recounted, would allow him to use all facilities and amenities inside the discos. All entrance fees and drinks were waived. The intensive drug use has brought him unstoppable nosebleeds and dizziness to the extent that when working as a Siu Mei chopper in a Chinese restaurant, his colleagues had to stop him from working. They were fearful that Mark might accidentally cut himself during his occasional zone outs related to his drug using habit. Nonetheless, Mark managed to keep his job and sustain his drug cost until he first entered a service system in his early 20s…

Robert

He started using heroin at 12, Robert has continuously used drugs for 20 years, and was at the age of 32 at the interview. He has experienced several relapses throughout his drug history. He first contacted heroin when he hung out with friends with triads background. In spite of the sicknesses when he inhaled heroin the first time, Robert enjoyed the feeling and gradually increased his consumption on it. He took heroin for quite a long time without having to pay for it. Sharing the drug cost with six to ten friends, the split cost was minimal, and he would steal money from his parents' seafood shop to cover the costs of heroin. When Robert was in Form 1, he was old enough to buy drugs from the sellers, and then he started to consume heroin on his own. He reduced his communication with his friends, took heroin at home, and gradually increased the dosage. This practice however, did not last long…

Jen

Jen is a 28-year-old female, using ketamine and cocaine as her 'major'. She had the first sniff of Thinner at her boyfriends' home at 12, then Jen was using ketamine, MDMA and Midazolam in discos soon after. With the loose inspection to enter discos, Jen and her friends would sneak in to try out different drugs available. She was addicted to Nimetazepan with its unconscious effect, where she would take over ten hits per night. Nonetheless, she had tried various kinds of drugs for free as 'well...at that time, a lot of males would like to pay for us.' Jen h ad boyfriends who were drug dealers and sellers, who provided her with free drugs. Her night life ended shortly, as she ran away from home too often and…

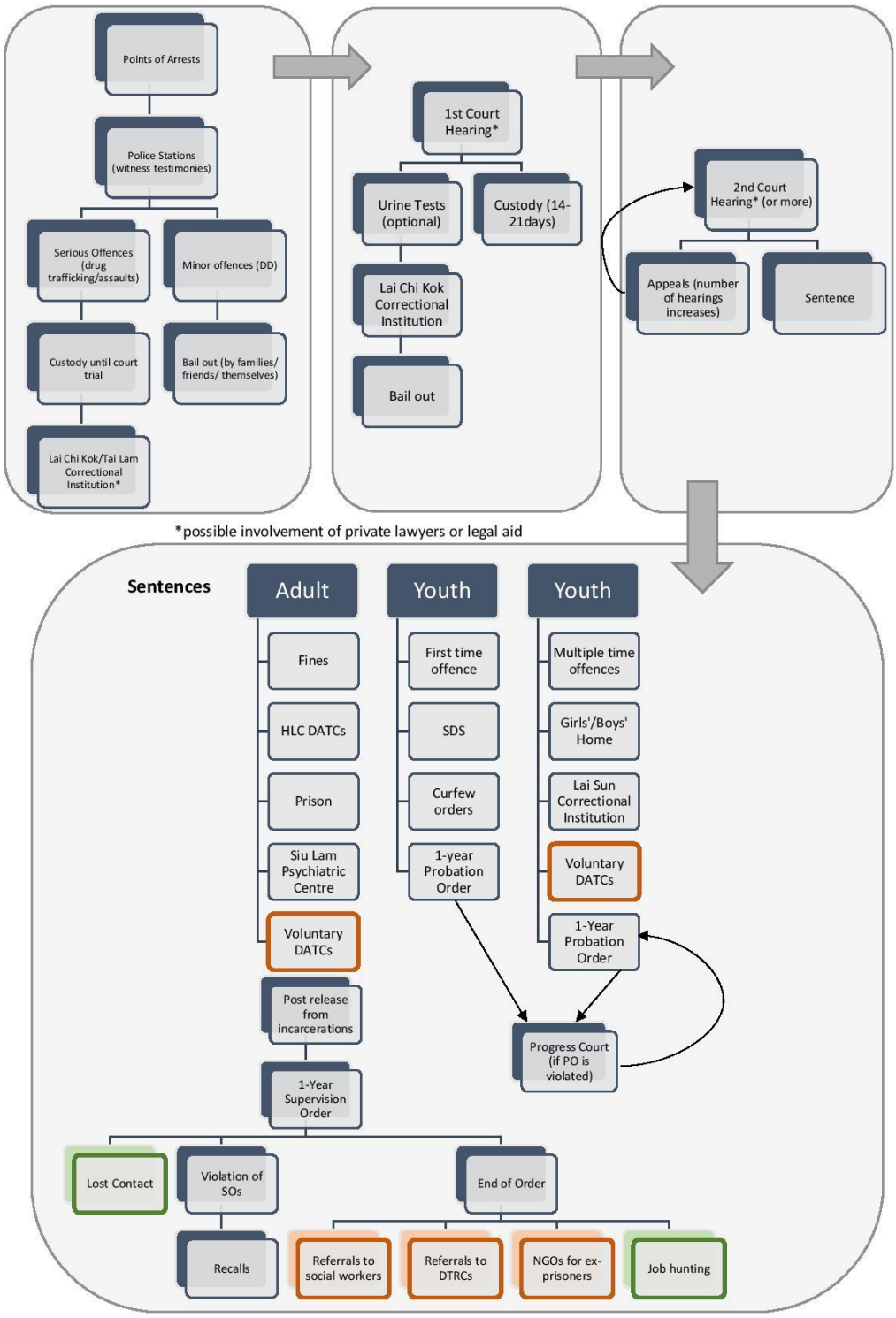
Mark, Robert and Jen were all out of the radar until their first engagement with the CJS. After taking the cough medicines, Mark went down to the arcade for some video games. The police came into the shop for a search but he did not care and continued to play. They searched him and eventually found 6 bottles of cough mixture with him. After taking him to the police station, he was questioned and bailed out to wait for the court trial. He went through two court trials. In the second trial, he was sentenced to an 18-month probation service where he was required to meet with the probation officers and take urine tests every month. He was at his early 20s when that arrest happened.

Robert and Jen however, were involved in the CJS at a younger age. Jen ran away from home too frequently and was sent to the Girls' Home at the age of 12. Robert was involved in a gang robbery. He was arrested and under a probation order at 13. Got expelled from school in the same year, Robert's probation officer transferred him to the Hong Kong Juvenile Care Centre to continue his education.

5.3.2. Criminal justice services

5.3.2.1. Service pathways

a) Overview



b) Pathway after being arrested and different forms of sentencing

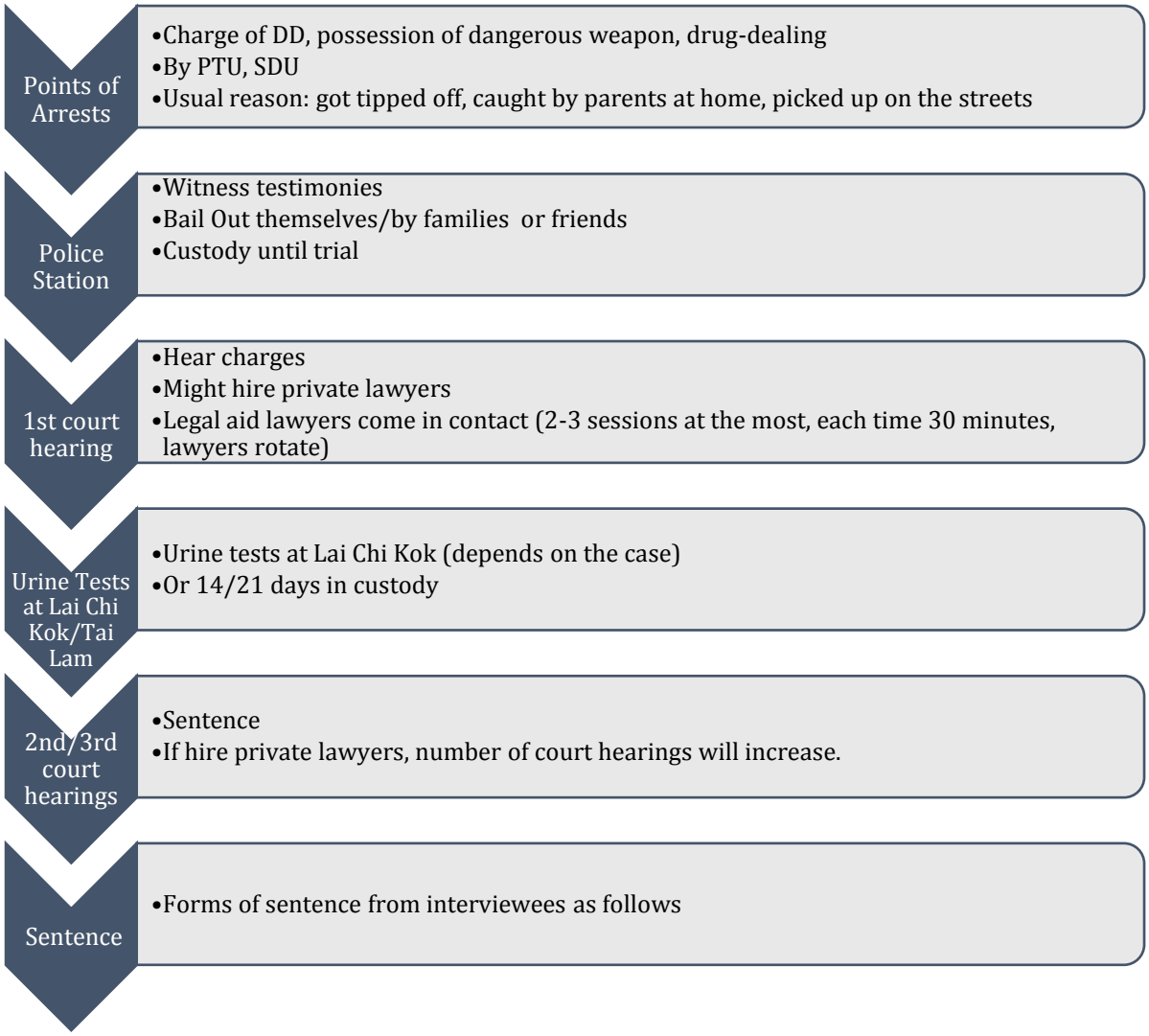


Figure 5.7. Service pathways in criminal justice services

Figure 5.7 shows the service pathways in criminal justice services (CJS). As defined above, CJS refers to all criminal justice and correctional services provided to drug users due to drug-related crimes or issues. While the Customs and Excise Department (CED) is also included in the system, no drug using interviewees has reported contact with the CED officers. A high percentage (88.5%) of our interviewees have engaged in the system before. The figure provides details of the procedures of each stage in the CJS. From the point of arrests to court trials, sentencing and post-release, services are provided to the drug users, the CJS has a comparatively straightforward pathway due to its coercive nature. In contrast with the SW and healthcare systems, the CJS provided limited exits for drug users to leave the system. Apart from bailing out, supervision order and PO, majority of the CJS procedures have restricted the mobility of the drug users. Possible involvements of other systems are therefore, significantly lower in the CJS as well.

Youths, different from adults, have a slightly different service pathway upon sentencing. They share the same criminal justice procedures as adult offenders until they reach the sentencing stage. Sentences for drug offences among youths are very similar to those of regular criminal offences. Superintendent Discretion Scheme, bound over orders and POs are issued for minor offences. The differences in youth drug users' service pathways are observed at multiple offences, where, apart from the Girls'/Boys' Home and POs, Lai Sun Correctional Institution and voluntary DTRCs would also be sentenced.

Engagement with the CJS is not limited to criminal offences. The above pathway has not included minor situations such as domestic disputes that require police's assistance (one-off cases). Psychotropic drugs such as methamphetamine would cause fluctuations of moods and temper where domestic disputes between family members or couples are commonly found from the interviews. Therefore, police assistance is frequently sought to control the situation and resolve disputes.

> *'I had a quarrel with my wife, I almost assaulted her with a knife and she called the police… Nothing serious happened.* ***(I: You just had a very bad temper?)*** *Yes, everyone has temper.* ***(I: Was it caused by hallucinations?)*** *No, just bad temper after taking drugs.' (Interview #2, male)*

5.3.2.2. Causes of engagement

Drug user interviews indicated that 'being arrested by the police officers' is the usual cause of engaging the CJS. Among all drug related charges, 'possession of dangerous drugs' is the most common charge on the drug users. 23 out of the 26 interviewees engaged in the CJS before they were charged with drug possession. This is also the most common causes of engaging in the CJS for their first time. Table 5.3.2 summarized the types of crimes interviewees were being charged/arrested of:

Table 5.3.2
Types of crimes interviewees being charged of

Charges (excluded multiple offences by the same interviewee)	**Number of interviewees**	**Statistics from Survey (%)**
Drug possession	20	113 (31.5)
Drug selling	3	
Drug trafficking	2	
Thefts and robberies	7	40 (11.1)
Grievous bodily harm	1	7 (1.9)
Assaults	3	
Possession of deadly weapons	2	N/A
999 emergency services	1	N/A

Apart from violating the Dangerous Drug Ordinance Cap. 146, other forms of street crimes are also commonly found among the interviewees. In particular with thefts and robberies, where the major causes stemmed from hustling cash to support the drug using habit.

> *'It (normal income from the job) couldn't cover the cost...* ***(I: I thought so, but how did you manage?)*** *...I went to steal or rob ...I'd go to Mannings...like for example I picked up some receipts from that store, which listed an item called '排毒美顏寶'' (a beauty product),...so I'd go to Mannings and steal a box of that product.* ***(I: Oh! And they'd check your receipt and think you bought the product?)*** *No, I'd take the product and the receipt, go back to another Mannings branch and get a refund on the product. (Interviewee #14, male)*

Not only from shops, but stealing from home is also common among the interviewees to support their drug expenses.

'But the salary could not cover the expenditures later. So, I had stolen goods from home. Such as my sister's handbags, family's accessories. Also, I went to borrow money from finance companies. But I could not repay those money, so they went to my home to collect the debt. And they helped me to return my debts. This happened for 2 to 3 years. However, as the expenditure was up to thousands of dollars, if I consumed drugs two days a week, I couldn't afford it. So I stole things and stole family's money to maintain myself in taking drugs.' (Interview #13, male)

They were mostly arrested on the streets by the Special Duty Squad, PTU and patrolling police unit. Interviewees attributed their arrests into several major reasons: destiny (either unlucky or God's planning, mostly observed among interviewees from the NGOs), betrayal, carelessness, taken into by friends or lovers, parents or friends turning them over. Process of the arrests is usually as follow:

'Usually we were betrayed in those situations. The betrayer disclosed the information to the law enforcers, such as the time and place when I took the drugs back to Hong Kong, so they wait at that place to arrest me. ***(I: So after you leave your home, you were being arrested when you were trading the heroin?)*** *Arrested when I was dealing. The betrayer was afraid of revealing his or her identity to the police, so the betrayer stayed from my residence away few houses far, then they arrested me after a few house far from my residence, but not the entrance.* ***(I: I see… So they were watching you already… Who arrested you this time? CID?)*** *PTU this time.* ***(I: So they immediately took you to the police car and drove you to the police station?)*** *There were PTU officers. And we were inside. The person who were consuming was arrested and the person kept claiming the consuming tools, and was crying... saying that those tools were not his but mine.' (Interview #20, male)*

'What's happened? My ex-boyfriend sold drugs. Probably he was betrayed. And our home was detected. So I...at that time there were a lot of friends at home, including me and my boyfriend. We had to admit it as we lived there. However at that time my ex-boyfriend denied it. He said he....the policeman claimed that all would be arrested if two of us didn't admit. We would all be arrested. So...I admitted it' (Interview #17b, female)

We should note however, that the number of times the drug users committing a crime does not necessarily correlate to the number of times they are being charged

and engaged in the CJS. Most drug users carry drugs around with them every day and wherever they go.

> *'When the boss arrived at the office, we caught sight of him way before he entered. I would clean up myself. I would check my appearance over the mirror. I had wet tissues and mirrors with me… I was like a girl. I was so prepared.* ***(I: You were prepared to bring it with you)*** *Yes.' (Interview #12, male) '****(I: Did you usually take the drugs in the park?)*** *It depends, I took it everywhere, I even take drugs at home.' (Interview #24, female)*

Respondents would also buy drugs on the streets,

> *You can buy it anywhere.* ***(I: Can you describe to me how the process of buying these drugs was like? Did you have to find a seller, or?)*** *I called a phone number, told them where to meet, paid the seller to collect Methamphetamine and then went home to take the drugs.' (Interview #6, male)*

5.3.2.3. Perceiving as a norm

> *'Actually I forgot about the accurate number. It has been so many years, and it went on and off. Usually for us who got there, there would be more to come. It was common for us to resume the habit after leaving the place (DATC).' (Interview #3, male)*

Eleven out of 26 interviewees were charged with drug possession alone for three times or more in their lives. Among the eleven, six were major ketamine users (40% of the total Ketamine respondents); three using heroin (75% of the total heroin respondents); and two on methamphetamine (18% of the total methamphetamine respondents). While we should bear in mind that most interviewees reflected that they 'commit' crimes under Possession of dangerous drugs (DD) almost every day such as drug possession and trafficking, where the number of times the drug users were being caught by the police does not reflect the actual number of crimes committed. This number nevertheless indicated a correlation between the types of drugs and criminal offences. When they were asked about the number of times they were caught, the interviewees regarded arrests due to 'DD' (Dangerous Drug Ordinance) as a kind of norm and usual experience. DATCs' deterrent effect therefore appears to diminish with the increasing number of times of arrests.

> *'Like after so many times [(in HLC), I just gave up on keeping count.' (Interview #14, male)*

> *'It could be tough, but if you get used to it, it's ok.' (Interview #20, male)*

5.3.2.4. Expanding drug community

Contrary to the aim of compulsory DATC in Hei Ling Chau as to assist inmates in drug abstinence, drug users in the interviews challenged its effectiveness and instead, pointed out that DATCs expanded their drug community. A negative stigma as 'drug users' is observed among the drug users themselves, where terms such as 'old community', 'people like us' are used to describe or indicate their differences with 'normal people'.

> *'Yes! I was always being recalled… Because… maybe it was because when you were in the institution encountering other inmates, you would contact them afterwards. It was also because… you would always think you belong to your old community. You would think it was your life and it wouldn't change.' (Interview #8, female)*

> *'And also, as the patients residing involved drug abuse background, which lead to easier to relapse. Those patients may come from different districts, so they would acquaint drug users from different districts. This allowed them to find drugs much easier than before.' (Interview #10, male) (Describing drug habit after his release from HLC)*

> *'So once I got into DATC, not just it didn't help me, I got to know more people who take drugs. I got worst. I didn't know how to inject myself before, and after DATC I learned it…* ***(I: so after that 7 months (in HLC), you got to know more drug users…)*** *Yes, I even got to know drug users who were living in Kowloon or New Territories. I just had to give a call, I had drug using friends around me, and I got to know more ways to get drugs.' (Interview #20, male)*

The DATC in Hei Ling Chau served as a meeting point for inmates to explore their social circle within the drug community, and also contacts for drug supply in different districts. In addition to the frequent and normalized 'visits' to Hei Ling Chou, it appears that the compulsory DATC has lost the deterring function on the drug users.

> *'Yeah, so…when I came back out, I took drugs again, when I came back out, drugs again. So I didn't even last without drugs for 2 or 3 years…when I came back out, sitting on the ferry I was already chatting with someone about where to buy drugs.* ***(I: Oh! So back then people were already chatting about going to buy drugs after getting out?)*** *Even before leaving Hei Ling Chou people were chatting about it.* ***(I: Hahaha! Didn't the officers reprehend that?)*** *They're not like the ones here (voluntary DTRC). They were only in charge of keeping an eye on you so you didn't run away.' (Interview #14, male)*

'It was when many people were doing drugs. To be honest, paying fines and that kind of imprisonment were very lenient. It was only 10 days haha... I just let him have his way. I would immediately go for that.' (Interview #16, male)

5.3.2.5. Usual outcomes

Near the end of the CJ process, such as reaching the end of a PO or upon release from prison or the DATCs, there are several pathways for drug users to go. Go hidden, where they might or might not relapse into drug habit; enter the SW system, where the probation officers refer them over for further social support; re-enter the CJS – if they were caught during their relapses or violated the PO during the supervision period after relapse from the DATCs, then they would be recalled by the probation officer and readmitted for 3 months.

Drug users are more likely to be referred to enter the SW system by two forms of entrance apart from returning hidden: (1) PO; (2) voluntarily enter the SW system themselves.

> *'But (referred) by the PO. He gave me a list of choices. As I was living in Yuen Long, I chose what was closer to me, [name of DTRC].)' (Interview #16, male)*

> *'There are also people currently at prisons or hospitals, who want to join our program. We try our best to meet them before. We try to talk to them and understand their needs.' (Stakeholder focus group #1, NGO, respondent 3)*

Interestingly, stakeholder interviews with a CSD officer expressed that probation officers would not actively recommend voluntary DTRCs upon the clients' release from Hei Ling Chou.

> *'Basically no. It depends…. Our colleagues look at the needs of the client. Maybe s/he needs to leave certain environment, and s/he might wish to enter some with accommodation. We'd look for services with reference of its own will. Actually they… hm… basically we do not encourage, but they'd looking for it by themselves, like [name of DTRCs], [name of DTRCs], [name of NGO]. They will look for these by themselves.' (Stakeholder interview #13, CSD)*

Instead of referring clients to another voluntary DTRC, probation officers encourage reintegration and rehabilitation. They tend to refer clients to rehabilitation programs or a social worker supported by an NGO.

> *'I was referred here [name of DTRC] when I was about to finish the probation order. (Social worker: It's about 1 month ago. So… it's a new project. The judge believed that someone can help her as her probation order was about to end. So she's referred to us…. Indeed counsellors are included in our program who specialize in dealing with drug addiction or drug crimes. Except the counselling*

part, we do want to facilitate life planning. Right... it happens that Bar Pacific is launching relevant training. They applied for the Beat Drugs Funds for the training. Coincidentally I get to know her, so I helped by making the connection.)' (Interview #22, female)

All three interviewees relapsed to drug use, or re-engaged in the CJS after the 'first contact'.

Upon her release from the Girls' Home, Jen stayed clean and continued her education until 16. She met a new friend and they lived together, and they re-connected with Jen's old friend in a disco. Jen shifted her 'major' drug from Midazolam to ketamine after meeting her boyfriend at 18, who distributed drugs and provided her with free ketamine. In the same year, she was arrested for drug possession and sentenced to a one year PO.

Although the residential nature of the school inhibited Robert from regularly using drugs, he was using drugs on and off when he escaped from the school premises. He was continuously under the probation order and was required to take regular urine tests. Receiving multiple positive urine test results from the drug use, he could not stay in school anymore. The PO then decided to transfer him to a religious DTRC for rehabilitation at 16.

Mark was sentenced to an 18-month probation order for drug possession. However, he continued using drugs along the entire CJS process, where he used tactics to stay undetected in the urine tests.

'I took some Meths...uhh I used some of my Meths for 15 days, in order to wait out the addiction craving for Cough Mixture, and after I didn't take anything at all... After not taking anything, I went to the court trial. So even if I took a urine test, it would come out negative. ***(I: Ohh! So you took enough to satisfy your addiction, and then stopped?)*** *Stopped yeah, I needed the Cough Mixture addiction to pass first... 15 days of Meth, and then I stopped everything, no drug consumption. Afterwards, once 15 days had pass I took the drugs again... It was to overpower the addiction and craving for the Cough Mixture. And to overcome the withdrawal of the Cough Mixture; diarrhea, back pains, etcetera.'*

Throughout the probation order, he adopted this method to maintain his drug habit in the 18 months. By the end of the order, his probation officer referred him to a CCPSA.

5.3.2.6. Interactions between the CJS and SW system

Probation officers stood as an intersection point with SW system, such as referring or contacting social workers (Interview #22, female), voluntary DTRCs (Interview #4) and juvenile care schools (Interview #14). In referrals to the NGOs' anti-drug projects, social workers are common when a PO is near to an end.

> *'Hahaha…because when I was in Form 1, I went robbing with someone (劏死牛)….And then I got arrested…And I was given a probation order, to have a probation officer follow me… So…after that everything was going quite well, actually. But then when I was about to move into Form 2, the school said they wanted to expel me. They said I couldn't study there anymore…Partially because I was playing around too much in Form 1…The probation officer…he decided…like he told me I couldn't not study at such a young age…so he placed me in an official school dormitory. It was in Aberdeen, [juvenile care school] ...' (Interview #14, male)*

The CJS creates possible entrance to the SW system for the clients. On the other hand, incarcerations and arrests would force drug users to exit the SW system as well. Once the client was arrested, or sentenced to incarceration, social workers would not be able to follow up with them during their imprisonment. Their service could only resume upon the clients' release, if short-term imprisonment is sentenced. This will usually lead to a dropped case for social workers.

> *'Maybe the clients were detained....so the case is dropped. He/she might be sentenced by the court. In this case, we can't follow-up the case anymore so it will be closed.' (Stakeholder interview #5, NGO)*

> *'For example, let's assume he's broken the law and has to go to jail. Has to stay in jail for a few years. Maybe we will keep on following up on his cases on the first few months when he's in jail, just to get him adjusted to the new situation. After that, we may just close the case. Maybe, perhaps we'll open another case for him after he is released from jail. These two situations happen more often.' (Stakeholder interview #3, NGO)*

5.3.2.7. On relapses

At the end of the criminal justice service pathway, drug users might either relapse immediately, or relapse after a certain period of time. Relapses in the latter manner are usually related to reconnection with the drug community, or when they experienced difficulties in their relationships, jobs or life after abstinence. We should note however, as all interviewees have used drugs within the past one year of their interviews, most interviewees have relapsed after being released from the CJS, except 8 respondents whom we are referred to by the CSD officers.

> *'I was in a row with my colleagues out there then I separated from them. I was very upset back then. And I quarrelled with people around me… it's my girlfriend, and we broke up. And I lost my career as well. There I gambled away all my savings. At that time, I was still living on my own, I haven't moved back home yet. My neighbours were those who had night life. I got along with them so I tried drug. Had ice… I was losing my mind… it was a mess, I had not been sleeping for 10 days before arriving here.' (Interview #12, male)*

5.3.2.8. Comparisons with the CRDA data

The CRDA data indicated that the CJS is the major first intake source of drug users (40%), as well as the most common system engaged by the users. Similarly, the CJS system is also the most engaged system among the interviewees (23 out of 26 interviewees). With the more systematic criminal procedures and sentencing, it appears that it best captures all drug users who have entered the system. However, it should be carefully noted that it might not serve as the drug users' first contact with the service system. While chances of hiding the drug using habit is low in the CJS system, it is commonly found that drug users have not revealed this habit when they enter the healthcare system in particular. Drug users who require urgent medical needs such as bladder pain, overdoses, headaches or stomachaches, seldom reveal their drug using habit to the doctors. Sudden medical needs to Accident and Emergency (A&E) department are commonly found among the drug users. While only 5 interviewees clearly recounted their first contact with the service system in healthcare, it has hinted a significant number of drug users who have been invisible in the healthcare system, as the doctors have not noticed their drug using habit.

Relationship – the Double-edged Sword

An important determinant in drug using and relapse is relationship. Families and relationships have a direct impact on relapses, motivation to stay abstinence, or involvement in criminal offences. Family members or partners with drug using habit are usual causes leading to the interviewees having the first sniff or a relapse.

> *"My big brother urged me to take it… I didn't know it was drug back then' (Interview #5, male)*

Broken relationships also prompted interviewees to restart their drug habit.

> *'[quitting drug] Because of my girlfriend of that time. However, we broke up afterwards. I did not know what to do, so I resumed taking drugs.' (Interview #1, male)*

Ten interviewees relapsed, or were addicted to another kind of drugs after meeting their partners who were drug users or dealers. It is especially common for female interviewees.

> *'Because my boyfriend was incarcerated for 2 years, and I stopped consuming at that time. But when he was released, we reconcile. Maybe my boyfriend affects me a lot, I started using drugs again...' (Interview #9, female)*

> *'He started taking drugs too after several months being with me. I tempted someone to take drugs...he took Ketamine...He does everything. His addiction was more severe than me after being tempted. Right...he...in a week time, almost all the time...* ***(I: He is on drugs…)*** *Yea...I just followed him. You know, he's my boyfriend. It's stupid if I didn't have fun while he's having fun. And I tempted him for that. So I just took drugs together with him. We're together for about 2 years- time...almost 2 years.' (Interview #23, female)*

Reconnection with drug using community after their release from the CSD, or stayed abstinence after drug treatment, are common reasons for relapses as well.

> *'It was a mutual thing, we took drugs when we were out to have fun.' (Interview #4, male)*

*'It was because I hung out with those friends again… (**I: Why?)** "Black against black" (黑吃黑), I needed someone who had a triad background to deal with triads.' (Interview #24, female)*

The other side of a coin, relationships also serve as one of the largest motivating factors to quit drugs. Despite the possible multiple relapses, temporary abstinence from drugs usually stemmed from entering a relationship, bearing a baby, or promises made to parents.

'I wanted to gain the time back, and not waste anymore. The largest motivation (quit drug) was… I lost too many things and people by my side. So I persevered… and the two and a half years I spent on my studies…' (Interview #7, female)

'I just found out I was pregnant, so… I wanted to quit drugs, because my elder daughter was taken by SWD… And I didn't want it to happen to this son too…' (Interview #8, female)

'As my mother had supported me wholeheartedly, I did not consume after my release until 17 years old.' (Interview #9, female)

Since Jen's relapse at 16, she started to suffer from side effects of psychotropic drugs such as stomachaches, Gastritis and overdoses. At her peak usage of drugs, she was sent to the A&E by ambulance five times a week due to the severe aches. She remembered the most severe days were when she was taking drugs with her friends in the toilets, with her boyfriend waiting outside. Her stomachache hit suddenly and Jen crawled on the floor as the pain was too severe. Her boyfriend had to carry her to the emergency unit as she could not even walk after getting off the taxi. The doctor diagnosed that she had gastritis and prescribed her with saline drip. Similar incidents would happen 5 times a week, as Jen recounted.

For Mark, he was followed up by a social worker at the CCPSA for two years after his probation order. Mark went through body checks and was diagnosed that further psychiatric treatment is required. The centre supported his medical expenses for the first four times in hospital after their connection ($1,600 per appointment), then transferred him to SAC at PYNEH as the centre could not afford the cost in the long run. Suffered from insomnia after using meth, the doctors prescribed him with Zopiclone to assist his sleeping. He was then addicted to the sedative drug, and started to take over 20 pills after every hit on methamphetamine. The poly-drug use had worsened Mark's psychiatric condition. Between 25 and 35, he went in and out of A&E and psychiatric wards due to multiple overdoses and maniacs.

5.3.3. Healthcare system

Cases similar to Jen and Mark's are common among the interviewees. Nineteen interviewees had engaged in the healthcare system at some point of their drug lives, which reasons varies from overdoses, MTP, chronic diseases or injuries from incidents. Types of drugs used serve as the major determinant in determining which kinds of medical services they would more likely use. MTP targets heroin users (Interviews #10, 11, 25); SACs mainly serve those using methamphetamine or midazolam (Interviews #6, 8, 20, 21, 23, 24); and public hospital services (including A&E) serving ketamine users and overdoses by all types of drug users (Interviews #3, 15, 16, 17b, 18, 19). In the ensuing parts, we will discuss the characteristics of healthcare system, as well as the service.

5.3.3.1. Intangible costs on health

It is very common for drug users suffering from certain degree of physical or mental illnesses. 73.1% (19) of the respondents have entered the healthcare system before due to illnesses related to their drug use. As indicated above, different types of drugs have contributed to different kinds of illnesses, therefore in turn impact drug users in various ways. Kinds of illnesses and the number of interviewees suffering/suffered from drug use are shown in Table 5.3.3.

Table 5.3.3

Table of number of interviewees suffering from different kinds of illnesses related to drug using

Types of illnesses	**Number of interviewees (%)[1]**
Urinal Problems	11 (42.3)
Digestive Diseases	6 (23.1)
Heart Diseases	1 (3.8)
Asthma	1 (3.8)
Depression/Suicidal Attempts/Mental Disorientations	8 (30.8)
Hallucinations	10 (38.5)
Drug Overdosed	11 (42.3)
Accidents (e.g. Car crashes)	1 (3.8)

Note:

[1] Divided by 26, the total number of interviewees

Table 5.3.3 indicates the kinds of illnesses that the interviewees disclosed to have, which *do not* directly equal to the number of times, or causes that they entered the healthcare system. A shortcoming of adopting cross-sectional survey in understanding the costs of drugs is that long-term, intangible impacts and costs inflicted could not be captured. Such aspect however, are therefore covered by qualitative interviews with the drug users. To better understand the context and degrees of impact the sicknesses have caused, we have explored history of the respondents' illnesses related to drug use. The table above therefore incorporates data not limited to the illnesses diagnosed in 2015-16, but also encompasses the respondents' drug life.

According to the above information, 7 in 14 ketamine users had suffered, or are still suffering from urinal problems which require hospital attention and medication. Methamphetamine users however, usually suffer from auditory and visual hallucinations. From having visual hallucinations such as seeing 'worms' all over their bodies (Interview #24, female), to hallucinations of being targeted by their friends:

> *'I was once playing cards with my friends, 4 of us. I have known them for a long time, one of them I have known for more than 20 years… the others… for a long time too. I know they wouldn't do anything bad to me. We were playing cards, and I heard them saying they will get weapons to kill me later. The other one was saying how he would deal with me after killing me. I was playing cards with them, but I saw their mouths saying all these things. I was sure it's their voices. However, I knew that they wouldn't do it to me, they were all my friends. It was so real though. I was struggling… they wouldn't do it to me, but I was scared at the same time. So I went into the kitchen, grabbed a knife to put it on my back, then put my jacket on. My friend saw me, and he knew what's going on. I opened the door, he followed and asked me if I needed company as it was late. I told him to leave me alone. I was really ready to attack if they make a move. You know, all that I heard was so real, so I think the best was to leave the scene. I went down the Circle-K, I stayed there till 6am then went back home. So I think… taking ice is much worse than taking heroin. I have taken so many drugs, I really think ice was the worse.' (Interview #20, male)*

As interviewee #20 accounted, hallucinations also contributed to suicidal thoughts and even putting it into action:

> *'Yes. It (hallucination) really makes you crazy. You either want to kill people, or you want to jump off the building to kill yourself. The circle of friends around*

me, 3 of them committed suicide in 1 month' (Interview #20, male)

Intangible Costs Triggered by Deteriorated Health Condition

While those various kinds of illnesses might not be diagnosed within 2015-16, they have brought continuous impacts on drug users' lives. Six interviewees indicated that their drug habit has directly impacted their working ability. From uteritis and drowsiness, usually related to using ketamine, to methamphetamine-related hallucinations, have lowered their working ability. They were fired, or lost their employability due to their health condition.

'Because I didn't feel well, I had asthma and others. Also, I have mental problems. I had hallucination and so on. So I did not have a job. People like me… employers won't really hire me anyway.' (Interview #10, male)

'Drowsy. It seems to me that it (ketamine) was ineffective, and I had low morale in work.' (Interview #3, male)

Among the four heroin users in the interviews, none has disclosed of contracting HIV. One of the interviewees pointed out that he suffered from asthma after using heroin,

'I didn't have that in the past. Because while all of us were inhaling heroin, our throat…. Our throat became not feeling well. Sometimes we can't breathe properly. Also, we had inhaled Midazolam, which made us more difficult to breathe. So sometimes I couldn't even breathe when walking. Just like asphyxia.' (Interview #10, male)

5.3.3.2. Service pathways

There are two perspectives to categorize various forms of healthcare services for drug users in Hong Kong: categorization by management body, and categorization by service nature. The categorization by management body is displayed in Table 5.3.4. This provides a good starting point for economic costs estimation.

Table 5.3.4

Table indicating healthcare services categorized by management body

Managed by the Department of Health	**Managed by the Hospital Authority**
Methadone Treatment Program (MTP)	● Substance Abuse Clinics ● A&E services in public hospitals ● In-patient psychiatry ward ● Chronic diseases or other forms of medical attention provided in public hospitals.

To effectively illustrate the healthcare service pathway, an understanding of the services in terms of their nature is needed: out-patient and in-patient services. Such feature enabled drug users to be simultaneously engaged in one or more systems apart from healthcare.

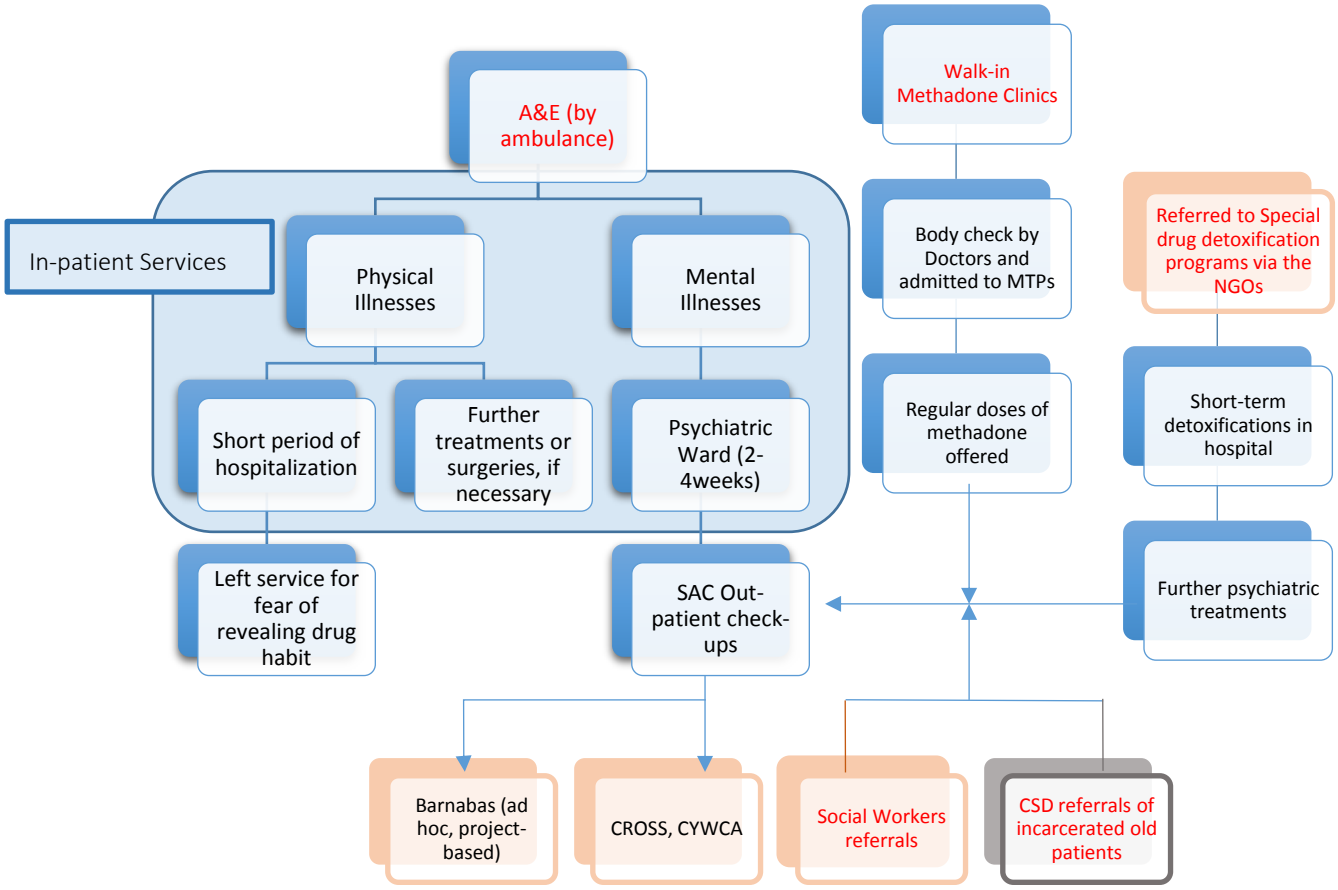


Figure 5.8. Service pathway of the healthcare system

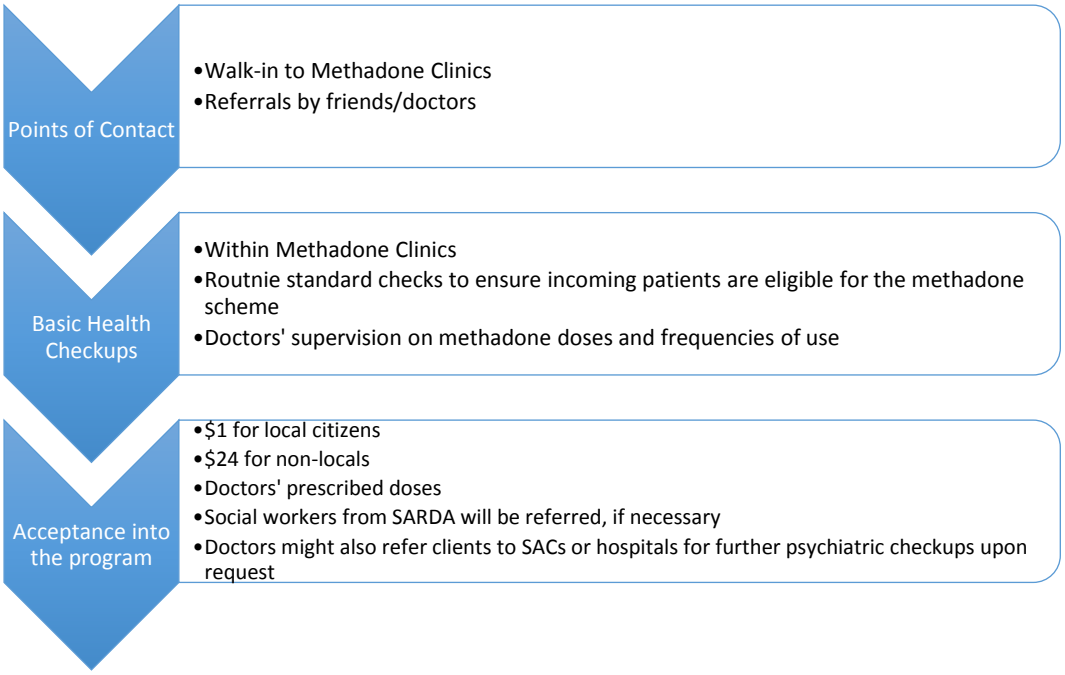


Figure 5.9. Service pathway of methadone clinics

Figure 5.8 and *Figure 5.9* mapped out the general service pathways experienced by drug users, according to both the drug user and stakeholder interviews. Indicated in the blue boxes are services that belong to the healthcare system, where orange boxes refer to services within the SW system. Boxes with red fonts are the entry points to the health system.

Services mainly for the drug users include the methadone clinics and substance abuse clinics. Methadone clinics are monitored by the DH. They mainly target heroin users to reduce their drug use by substitution of methadone. Substance abuse clinics focus on psychiatric issues related to drug using, and are monitored by the HA along with other public medical services. Drug using patients are mainly from walk-ins, referrals from the CSD, social workers, and via A&E admissions to hospitals.

The A&E of hospitals is the usual entrance point for the healthcare system. Drug users who encounter incidents such as overdoses, aches of body parts such as stomach and bladder related to psychotropic drug use, are admitted to the A&E via the ambulance or as walk-ins.

Treating different sicknesses related to drug using require medical attention from different departments. Clients therefore go through different service pathways accordingly. Minor physical illnesses and drug overdoses usually bring drug users to short periods of hospitalization. More severe sicknesses such as the uteritis that require surgeries would be treated either via long-term hospitalization, or regular medical appointments.

> *'If we know s/he has taken other ecstasy, we'd refer him/her to substance abuse clinics. This situation is relatively more. In recent year, we tell our colleagues to help the patient as much as possible. It is trying to achieve "help to the patient". Some of the patients are referred to A&E. It's because sometimes inflammation might occur after injection, we'll refer the patient to A&E. Some might malnutrition, or… Methadone is sweet, some might have inflammation, heart disease, and we'll refer them to other specialized faculty for these cases.' (Stakeholder interview #11, DH doctor)*

Physical medical attention services in hospitals is also as possible entrance for clients to receive psychiatric medications, and referrals to the SACs for out-patient services. If psychiatric treatment is required, patients admitted from the A&E would be transferred to in-patient psychiatric ward for stabilization. They would then be transferred to SACs for regular check-ups once their condition is stabilized.

'It's going to the emergency ward, then directly up to the hospital ward. ***(I: Directly into the wards, ohh!)*** *After the ward it's into the small rooms, and then after to the psychiatric ward. Then go to the in-patient wards.' (Interview #6, male)*

Partnerships are commonly established between hospitals' psychiatric wards and DTRCs. For example, 'Crisis Accommodation for Hidden Young Ketamine Users project' at North District Hospital collaborated with DTRC of Barnabas. Ketamine users admitting to the DTRCs could first go through a 5-day detoxification treatment, where various physical and psychological assessments would be conducted.

5.3.3.3. Interactions with other systems

It is common for drug users to be engaged in healthcare system simultaneously along with the CJS or SW system. In-patient psychiatric ward, SACs, or other medical surgeries or check-ups are available to drug users during their period of treatment or incarceration.

'If there's a need, I've come across some girls who need to be admitted to psychiatric ward because they've taken too much drugs. I mean they have to be admitted to the psychiatric ward at [name of public hospital]'s. But there're only few cases, as they are relatively more serious cases. Actually, referred cases tend to be more serious. This is because, actually, after chatting with them for a few times, they still wouldn't stop, and so we have to force them to go there. Or tell them we think there's something wrong with them. This would make them think maybe it's time for them to do a body check.' (Stakeholder focus group #3, NGO, respondent 2)

For example, ketamine users suffering from urinal problems might accept bladder surgeries during their voluntary treatment period in DTRCs.

*'****(I: Ohhh so you have to go out [from DTRC] then****.) Yes, [name of public hospital].* ***(I: And that's doing bladder surgery...)*** *And then I'd be back to normal.' (Interview #15, male)*

Partnerships are also common between NGOs and drug treatment services in the health system. Below are several examples of partnerships between SACs, methadone clinic and various NGOs (Table 5.3.5).

Table 5.3.5

Partnerships between healthcare and NGO services

Forms of services	**Partnering Organizations**
PYNEH SAU	Tung Wan CROSS Centre (long-term partnership)
	Barnabas (ad hoc)
	CYWCA night time outreaching social workers
KCH SAC	Barnabas (project-based)
	SRACP (recreational courses)
Methadone Clinics	Auxiliary Medical Service
	SARDA (long-term partnership, paid)

Format of these partnerships varies, from long-term partnership such as Tung Wah CROSS center and SAC in PYNEH, to project-based SAC visits with Barnabas. These forms of partnerships are often funded by the Beat Drugs Fund (BDF), Community Chests or the Hong Kong Jockey Club. For methadone clinics however, services provided by SARDA are 'bought' by the DH, where such partnership is paid to SARDA directly.

> *'Hm… basically it is partnership, but precisely, we buy service from SARDA… So we pay SARDA, and SARDA provides us social workers.' (Stakeholder interview #11, DH doctor)*

With numerous partnerships established between different parts of the health services, they created various entrances for drug users to both the health and SW system.

> *'It's a project team service. We have project teams and dorm service in [name of DTRC], for the project teams, they provide workshops at hospital, and voluntary work…' (Stakeholder interview #8, NGO)*

5.3.3.4. Harm reduction and education

Sustance abuse clinics are categorized as out-patient services, where clients are required to visit regularly for check-ups and medications. While the clinics focus on providing drug treatments to clients, staff in the clinics pointed out the shift of focus upon actual service provision, and the rare cases of clients seeking help to quit drugs.

> *'The major reason for most of them to be here is seeking treatment for psychiatric problems, instead of a drug abuse treatment. For example, the patient was sleepless because of Ice, they come to us for treatments for sleeplessness; but not treating the abuse of Ice.' (Stakeholder interview #12, SAC doctor)*

> *'They won't say to you like "I am giving up on drugs". I believe they had tried to quit drugs before. Maybe because of money, or had created troubles… they thought about it, I believe they have thought about it. But it is rare if the patient come over and say they are quitting drugs.' (Stakeholder focus group #4, respondent 3, SAC nurses)*

With the primary objective of SACs focusing on drug *treatment*, practitioners in the clinics indicated their more realistic approach in handling the clients, i.e. to moderate and control the harm related to drug use.

> *'I think this service is meaningful. Even you can only help 1 case out of a hundred, it's still a help. Sometimes the patient is still using drugs, but still coming back for consultation, at least we keep their life (keep them alive)…' (Stakeholder focus group #4, SAC nurse, respondent 1)*

> *'It's good enough if the patient is willing to come back for consultation. At least he's willing to come back. Regardless those who are just here for more medicine. Patients who keep appearing while using drugs… at the same time s/he might want someone to monitor him/herself. S/he would also afraid to have accident or overdosed.' (Stakeholder focus group #4, SAC nurse, respondent 3)*

As observed above, nurses and doctors aimed at 'keeping them alive' and 'willing to come back for consultation'. These aligned with the harm reduction approach where the major target of treatment shifted from drug abstinence to minimizing drug-related harm inflicted on the clients (UNDOC, 2008). They place their patients' well-being as the highest priority throughout the service provision.

> *'One of our treatment targets isn't treating their abuse, but stabilizing…. Preventing them from death or avoiding harm to their health. At a point it's*

"helping" them to take drugs, they are just using drugs in a safer way.' (Stakeholder Interview #13, SAC Doctor)

5.3.3.5. Engaging the system – the last resort

Clients tend to enter the healthcare system involuntarily due to losing consciousness on the streets, overdosed, pregnancies, psychiatric needs, and needing medical attention when they run out of money. As commented by one of the nurses in a SAC, they seek public medical services for certain purposes:

'(Drug users) they're often unwilling to come. They're referred when they have psychiatric issues and admitted to A&E…It usually starts with denials, denying the occurrence of problems on itself, and refuse to attend medical consultations until the next hospitalization because of crisis.' (Stakeholder interview #13, SAC Doctor)

This has echoed in the drug user interviews. Getting midazolam at a cheaper price in hospitals was one of the motivations for interviewee #10 going to SACs. Apart from seeking specific needs or being sent to hospitals involuntarily, referrals by social workers or family members are another cause of engagement in the healthcare system.

'It is more often the patient's family looking for nurses. Maybe the condition of the patient isn't ideal, and they are asking whether they should bring the patient here for follow-up consultation or inform the police. They don't know what to do. Yes… the family find us more often. Maybe calling us saying they are whoever's family, somethings going, and doesn't know how to cope with the problem. This would happen.' (Stakeholder focus group #4, SAC nurses, respondent 1)

Drug users tend to go to private or underground clinics for medical attention related to drugs or other reasons such as pregnancies (Interview #17b, female), as they do not need to reveal their drug using habit there. Similar to the wider public, efficiency is indicated as another reason opting for private medical services (Interview #2, male).

'And at that time I went to private doctor because I didn't want my family to know. If you see private doctor, they wouldn't tell your family. But if I see public hospital, they would find social worker to contact my family. In the end they finally knew...I couldn't ask my dad for money to see doctor. He would probably

ask me why. You could only get HKD200-300 for getting a cold, it wasn't enough.' (Interview #8, female, describing medical experience when she was before 18)

'I was pregnant at that time and seek for abortion. We went to those black market [clinic]. We couldn't make the decision. We couldn't do it in black market [clinic]. And then the whole group of friends accompanied me.' (Interview #17b, female)

Discrimination is another factor prompting drug users to go to private clinics. Respondents reflected that once their drug habit was known, they have experienced discrimination by doctors and nurses in public hospitals.

'Maybe I was being too sensitive, but...the two or three times I went to public hospital...I didn't have a good impression…. Mmhmm. And the nurses gossiped about me, saying things like "oh she takes drugs! She is so young but is a drug abuse already." They were being biased.' (Interview #8, female)

Drug users tend to minimize their interactions with the healthcare system, particularly for males. Interestingly, they tend to disregard overdoses and minor side-effects of drug using such as stomachaches and headaches, and believe that 'drug users do not get ill until they quit'.

'(I: Were there other side effects on your body brought by drugs?) *No.* ***(I: A headache?)*** *I won't visit a doctor for that. I just did drugs as usual. You could just ask around and they would give you similar answers. You were never bothered by illness. You felt nothing as the drugs numb your senses. And this is also a waste of money, too. Haven't you heard of a saying that drug users rarely get ill?' (Interview #16, male)*

'A person usually doesn't fall ill when he/she takes drugs. One falls ill whenever s/he quits it… When you stopped taking drugs, you would know your situation (health), and you would try to manage it accordingly. When you are taking

<u>Medical Costs</u>

In need of medical attention, drug users usually begin with visiting private clinics, and only go to A&E at the latter stage when they start to run out of money.

It is common for drug users to be under the CSSA scheme, which would help to lower their medical costs as they can receive a waiver for public hospitals ($60 per consultation, in 2016).

drugs you will usually regard yourself invincible. As if you could pick a fight on a few. ***(I: But you won't see a doctor.)*** *No. To be frank, when I have money I would spend it on those stuff. I would rather save some money.' (Interview #3, male)*

5.3.3.6. Usual causes of engaging in the system

Table 5.3.6

Comparisons of data between qualitative and quantitative data on causes of entering the healthcare system among drug users

Causes of Entering the Healthcare System (in qualitative interviews)	**Number of Interviewees (%)***	**Statistics from Survey (%) (Among 155 respondents who have used the healthcare system)**	**Causes of Entering the Healthcare System (in quantitative survey)**
A&E needs accidents, pains, overdoses	12 (63.2)	84 (54.2)	Injuries from Accidents
Urinal surgeries and check ups	5 (26.3)	86 (55.4)	Physical Illnesses
Heart surgeries and check ups	1 (5.3)		
Substance Abuse Clinics/Clinical Psychiatrists	8 (42.1)	83 (53.5)	Mental Illnesses
In-Patient Psychiatry Ward	3 (15.8)		
Health Check-ups and Drug Treatment Programs	6 (31.6)		
Methadone Clinics	4 (21.1)		

*divided with 19 as the base, of the total number of respondents involved in the healthcare system before

Jen was sent to the A&E as she could not withstand the pain triggered by her poly-drug use. Drug users mostly enter the system via involuntary circumstances, where drug overdoses served as the most common causes to enter the healthcare system.

Table 5.3.6 compares the qualitative and quantitative data on causes of entering the healthcare system among drug users. In particular, most drug users were either sent to the public hospitals' A&E unconsciously or opted out of choice.

> *'I was sent there by an ambulance.* ***(I: Under what circumstances were you sent there?)*** *I fainted on the streets.* ***(I: So suddenly fainted?)*** *It was shortly after I had injected the drugs into myself, 'Bang' I fell onto my knees. I was unconscious.* ***(I: Who assisted you in getting an ambulance back then?)*** *The pedestrians.' (Interview #11, male)*

> *'I was so painful that... with cold sweat...* ***(I: You couldn't stand?)*** *Yea. Once I... I took drugs with friends in the toilet. My boyfriend was waiting outside. Suddenly I was so painful that I had to crawl on the floor. They rushed in the toilet and picked me up. Then they sent me to the emergency unit. I couldn't walk after getting off the car so he rushed me into emergency unit. The doctor commented that it's Gastritis and I had to be on a saline drip. 5 days in a week. I was very young at that time.' (Interview #17a, female)*

The kinds of drugs used affect the forms of medical services required for the clients. Observing from 22 years of experience at a psychiatric ward in the hospital, a doctor pointed out the use of methamphetamine in relation to hospital admissions for urgent psychiatric attention.

> *'Usually those stimulates the nerves, sort of those stimulant [興奮劑], especially Ice which is the trend these days. 10 years ago, when Ice wasn't the trend, most of the admissions are related to cough mixture. It's because there are Ephedrine [麻黃素] in those cough mixture. It also has an effect of stimulation…. It's because symptoms like mania, illusions are urgent. Using Ice repetitively leads to continuous occurrence of delusion, hallucination. It might result in losing control of itself. So it's easy for the others to observe the patient is "crazy" hence, admitting the patient into hospital.' (Stakeholder interview #12, SAC doctor)*

Agendas could motivate clients to enter the health system as well, where some clients are found visiting the SACs for a myriad of reasons, from writing plea reports to referrals for housing arrangements at the Housing Authority. Mark for example, also visited the SAC in order to get Zopiclone at a cheaper price.

'They have some… demands, requests, or something they want. Knowledge… I always said, they are the users, of course they know about drugs. Things like symptoms, they had experienced. They won't say to me like "I have to pee very often because I took Ketamine." They are not asking for help for these kind of issues, because they know even clearer than us. If they find us, it might be… MIGHT BE… beneficial to their interest.' (Stakeholder focus group #4, SAC nurses, respondent 3)

'It's because the patient is impasse, such desperation makes him/her feel low. Another sort of opportunity (to visit the clinic) is… the patient convicted a crime, and seeking for legal assistance, such as asking me to write a report.' (Stakeholder interview #12, SAC doctor)

Methadone usage reached 75% among heroin users in the interviews. With only four interviewees as regular heroin users, three of them have entered MTP in their drug life. However, it usually serves as an alternative for them when they ran out of money to buy heroin:

I seldom take methadone. I seldom take methadone with heroin. Like, sometimes I will consume for few months when I have no money. After that, I rarely consume methadone. Very rarely...' (Interview #10, male)

'I am on Methadone over these few days. ***(I: Oh…In this entire month?)*** *Just over these days.* ***(I: What about this week?)*** *Yes. I haven't had drugs for the past month. Because I could not afford that.' (Interview #11, male)*

5.3.3.7. Comparisons with the CRDA data

Major findings in the CRDA analysis indicated positive correlations between age and usage of medical services. With the ageing of heroin users, methadone clinics has become the major source of intake for the 41-50 age group, i.e. the older population. In the qualitative interviews, all four heroin users interviewed have also used, or are still regularly using the services of methadone clinic service upon at the time of the interview.

However, it should be noted that there are differences in the forms of service mostly used by the different age of the users. While the general trend indicates a higher usage of medical service among the older drug users, it appears that the two population displayed different needs in the healthcare system. Interviewees aged between 33 and 58 (n=8) who are the oldest among the 26 interviewees, were all receiving long-term out-patient treatments, such as methadone clinics and SACs. While for the younger population aged between 18 and 33 (n=16), only 4 are engaged in similar long-term services. 11 of them have used the A&E and other urgent medical services, usually sicknesses such as uteritis and aching in body parts related to using psychotropic drugs. While the use of medical services among young drug users are smaller in comparison, they displayed more urgent needs once these users are in contact with the medical services.

Robert was referred to a religious DTRC for rehabilitation after leaving the Hong Kong Juvenile Care Centre. He successfully quit drugs after the treatment and continued to work at the center for 2.5 years as a peer counsellor.

Jen broke up with her boyfriend who is a drug dealer at 20, yet continued to take drugs although she had to pay for it. She then met her ex-husband where they lived together with several friends nearby. Despite Jen's frequent visits to hospitals due to the side effects of drug use, they were taking ketamine, cocaine and other drugs together at discos and their home. Eventually, Jen could not bear with her deteriorating health condition and went to a religious DTRC voluntarily for the first time at the age of 21.

5.3.4. Social welfare / NGO system (SW)

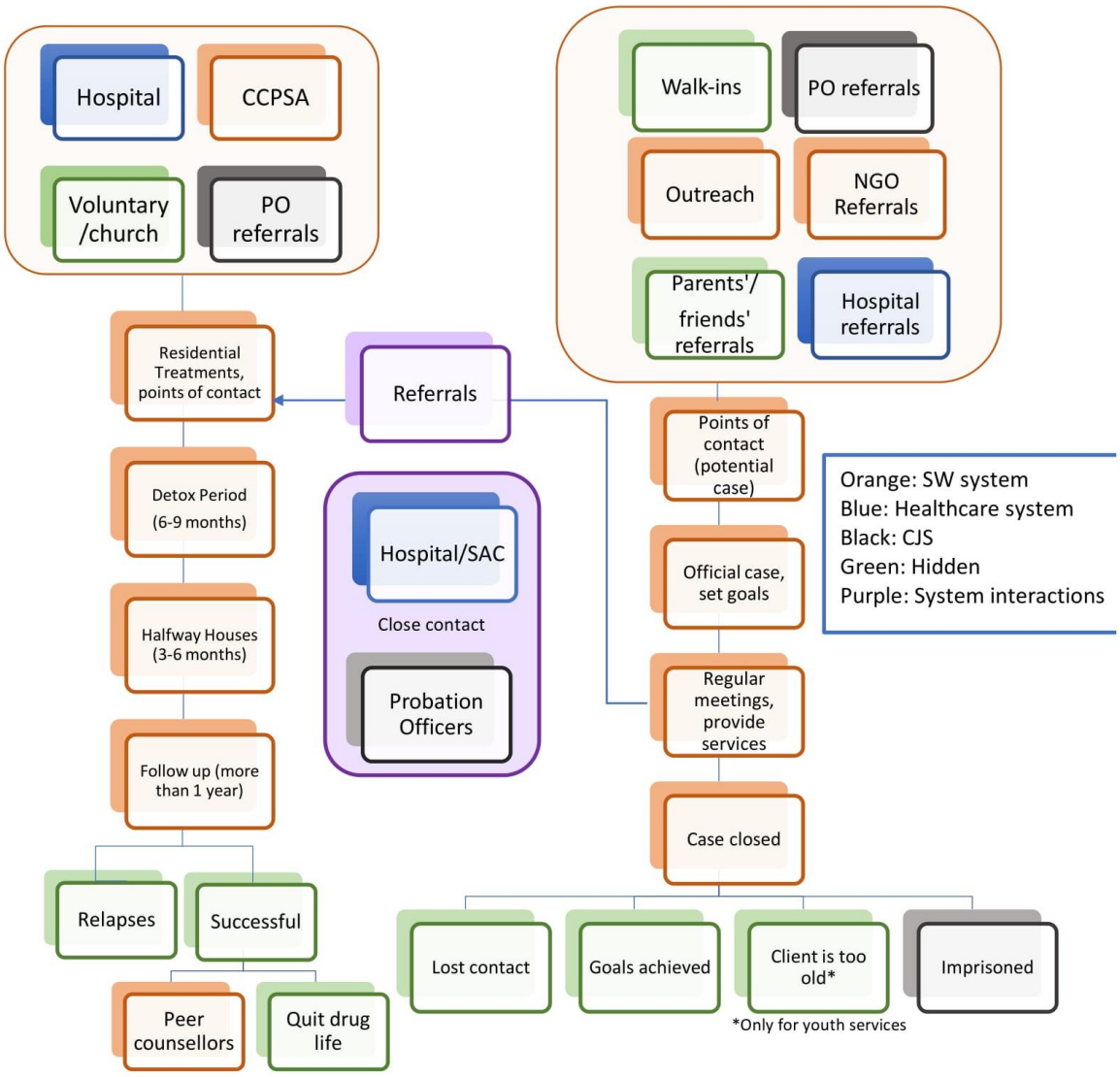


Figure 5.10. Service Pathway in the Social Welfare System (SW)

The kinds of social service received by Mark is different from the residential DTRCs that Robert and Jen entered. The SW system has two kinds of services which shares a similar feature with the healthcare service: (1) residential DTRCs, and (2) case-based appointment services. There are multiple NGOs that offer residential DTRCs, covering all ages of drug users in Hong Kong. The latter includes CCPSA, outreaching and regular social workers which does not involve having the clients to reside in certain premises. Instead, they meet up with their clients regularly to provide support. Within this category, the CCPSA and outreaching services target youths and young adults ranging from 18 to 30. With majority of drug users in Hong Kong shifted from youths to the mid-20s to 30s, services targeting youths have made corresponding adjustments to serving a wider population of

clients.

> *'For the first two years I worked here, most of them were teenagers under 21 years old. But in the last few years, most cases were 29 or above 30 years old. It's difficult to identify those under 21 years old. As the government says, they are 'hidden' and it's difficult to approach them. That's it. That's the changes of the cases we approach, from 21 years old in the past to 29 now...the youngest probably are 25 or 26 years old.' (Stakeholder interview #5, respondent 1)*

Summarizing from the interviews, *Figure 5.10* indicates the service pathway within the SW system experienced by the drug users. The pathway is divided into two streams: DTRC (left) and case-based appointment services (right). With orange indicating services under the SW system, it could be observed that CJS (black) and healthcare (blue) could be involved throughout the service provision as well. With the voluntary nature of NGO services, hidden state (green) of drug-users are also frequently observed when the clients exit the service.

76.9% (20/26) of the interviewees have engaged in the SW system before. Similar to the healthcare system, there are two forms of social services: residential DTRCs (which require clients to reside in their centres usually for 1 year); and case-based appointments or one-off social support services, including CCPSAs, outreaching social workers, and long term social workers assigned by hospitals, schools and the CSD.

Table 5.3.7
Overview of drug users' engagements in the SW services

Types of SW services engaged	**Number of interviewees (%)**	**Statistics from Survey (%)**
Residential DTRCs	11 (55)	135 (46.9%)
Non-residential drug counselling centres	6 (30)	17 (5.9%)
Outreaching services	5 (25)	14 (4.9%)
Regular social workers	11 (55)	N/A
SWD supported schools, family caring services	1 (5)	N/A
Other NGO services	1 (5)	45 (15.6%)

Sharing similar findings with the survey data, drug users in the interviews are usually engaged with social workers and residential DTRCs. However, it is difficult to dissect costs and service specifically for drug using among outreaching and regular social workers, as they tend to provide all-rounded support to their clients. Instead of 'treating their drug habit', these social workers aim at helping their clients to identify more inner issues in their lives.

> *'I think when seeing drug abuse behaviour, we may not think it's purely a drug abuse problem. There may have a lot of other issues behind. As mentioned earlier, the family may have various impacts on him. Maybe affected by peers, or maybe affected by relationship. Hence, when we first have contact with a person with drug abuse problem, we may not tackle this problem immediately. This drug abuse problem may not be solved instantly.' (Stakeholder Focus Group #3, respondent 3)*

In the following analysis, we have primarily focused on services specifically targeting drug use. We would also explore the role of regular social support services playing in serving drug users via stakeholder interviews with these agencies.

5.3.4.1. Voluntary residential DTRCs

This form of service requires clients to reside in the DTRCs usually for one year, with 9 months of detoxification period in the treatment centres, and 3 months in the half-way houses. The primary aim of the service is to help drug users achieve abstinence from drugs.

Residential treatment centres concern discipline and detoxification of the clients, which both stakeholders and clients have expressed a tougher living style in the villages.

> *'On the other hand, [name of DTRC village] is in the rural area, we also call there "the training home", it's harsher there. Actually, we all have to share the chores, like cooking and washing the dishes. However, on [name of DTRC village], since the house is quite far from the pier, they will need to push the cart to transport the food. So there's more training element on [name of DTRC village].' (Stakeholder interview #7, NGO)*

> *'If I had a choice, I would not have chosen this place. To be honest, I should fake madness so that I could stay in the hospital. You know… for catering services, we have to take the food all the way from the pier. Not the big one, but the one downstairs. Sometimes, it will be the pier in the middle.' (Interview #16, male)*

DTRCs offer career opportunities to their clients as well. Successful clients might be allowed to stay in the DTRC as a peer counsellor,

> *'As in, after I quit the drugs in half a year's time, I stayed at [name of DTRC] and they assessed me for a while before letting me work as a peer counsellor…'(Interview #14, male)*

> *'I only needed to stay for a year, but I was afraid I would take it again, so I decided to stay there for one more year to help out.' (Interview #21, male)*

5.3.4.2. Outreaching teams and CCPSAs

Outreaching teams serve a wider range of clients, not limited to drug users. Different from DTRCs, outreaching social workers establish different goals according to their clients' individual needs. Social workers view drug using as an indicator of deeper issues in the clients' lives, where their goal lies on improving or resolving such issue.

> *'See whether this objective is met... I mean harm reduction. If we think it's acceptable while the clients agree too, the case will be closed. Or, if he/she thinks the personal objectives have been met, the case will be closed too upon application.' (Stakeholder interview #5, NGO)*

> *'Whether she (the client) rehabilitates or not is on the side, unless she requests it, such as by saying I really need to be rehabilitated. Otherwise, we might just help her solve other issues first. After that we would move forward and see how to help her recover…. How to recover… apart from taking drugs, try to understand if there is another life she wants. I guess, this approach is more effective and all-rounded. If you just tell her taking drugs is bad... but this is all she has in her life. If you take it away from her, what can you give her as a substitute? This is something we discuss from time to time as well, that is we have to give her something that she likes as a replacement. After that, she may start to consider if rehabilitation is something that needs to be done.' (Stakeholder focus group #3, NGO, respondent 1)*

Duration of service for outreaching teams varies greatly with time, ranging from half a year to more than 6 years including the follow-up work. With a relationship-based service provision, cases tend to be followed up in a more continuous manner.

> *'So for such cycle, we may be talking about taking 7 times for it, ei, to be successful. If we're talking about 7 times, how much time do you think we need for this case or teenager? That's why, sometimes, perhaps, it takes us more than 4 years.' (Stakeholder interview #3, NGO)*

CCPSAs share the nature of both DTRCs and outreaching services. While their objectives primarily focus on drug abstinence, they adopted a community-based approach, where clients are contacted in a similar manner as the outreaching teams. Referred from all ranges of social support services such as Integrated Family Services Centres, Comprehensive Child Development Service, and Family and Child Protective Services Unit from the SWD.

'We aim at using the community resources to help them. We are connected with the doctor in the community network. There are health centres in the community for body check. We cooperate with different units to provide activities or services. We connect with the community.' (Stakeholder interview #5, NGO)

5.3.4.3. Causes of engagement

Drug users enter this system with a range of diversified reasons, ranging from referrals from probation officers or hospitals, voluntarily join this system for either detoxifications or determination to quit drugs, families' or friends' coercions, to referrals between NGOs.

'(I: Were you referred there by the social worker?) *No. But by the PO (probation officer). He gave me a list of choices. As I was living in Yuen Long, I chose what was closer to me, [location of DTRC].' (Interview #16, male)*

'I was admitted to only [name of DTRC] and the hospital. But my friends went to other institutions and shared with me. Maybe it only rely on the bible. One has to kneel down and pray, read the bible, with less other lessons. I knew that there're different learning here.' (Interview '#17a, female)

'(I: You went to DTRC to quit was because you didn't have a job?) *Yes. First I lost my job, and my body was getting worse. But you know, I wasn't very determined then, I just lost my job, I was feeling really down. I wanted to use drugs to numb myself. It's not just about the job. My body was getting really bad though. I was in my 20s only, I didn't want it to go downhill like this. That's why I went to quit.' (Interview #21, male)*

For religious DTRCs, clients are also referred via churches and religious groups.

'For why they are here, half of the cases are under probation order, and for the others, some of them have used our service or service from other organizations before, some of them are referred by other organizations like CCPSA. There are also some referred by other religious organizations.' (Stakeholder focus group #1, NGO)

<u>Not until it's necessary</u>

Several interviewees reflected that they do not believe voluntary DTRCs are

helpful,

> *'Nono, people take drugs in [name of DTRC]!' (Interview #6, male)*

> *'I won't… It's because I don't get freedom over there. I'd leave if I don't have any freedom. I left because I didn't have freedom at home.'(Interview #24, female)*

They would also tend to rely on their own abilities in quitting drugs, including throwing away their drugs, leaving home for a while, and locking themselves in a hotel room or home. Nine interviewees have tried to quit drugs on their own instead of going to DTRCs (Interview #5, 13, 14, 15, 16, 17b, 19, 20, 21).

> *'We didn't think about going to DTRC to quit, but thought about doing it on our own.' (Interview #21, male)*

> *'I went to stay at my relatives. Or I was at home for 9 months without taking drugs, in which I had not taken that.* ***(I: You have tried it on your own for 9 months?)*** *Yes. And for many times. It has been 10 years.' (Interview #16, male)*

Drug substitution is also a common method to 'quit' drugs. Using another drug to relieve the craving for another, pain in urinating or other sicknesses, are usually found among drug using interviewees. Ketamine users for example, have found that methamphetamine would help relieve their pain in urinating, and therefore they switched from one to another. For interviewee #14, his friends have adopted a 'creative' method to help him quit heroin,

> *'So, I don't know if this was coming from a loving mind-set or what, but… Well, I suppose their intentions were good… So they took me to their garage, and asked a bunch of people to keep an eye on me so I didn't leave. Like, there were houses and everything near the garage… So I couldn't leave the garage, and the people watching over me made sure I didn't take heroin. But then for anything else I wanted, they would give it to me. And the funniest thing is they ran drugs in that garage, there was cocaine, ketamine… There was methamphetamine…so basically everything aside from heroin that I wanted, there it was.' (Interview #14, male)*

They also denied the need to go for a DTRC until they could not handle the drug habit,

> *'It was not until the extent that was necessary. I thought that I could handle it myself.' (Interview #3, male)*

'I have been there for 20 times I guess'

For respondents who do seek help from DTRCs, it is common for them to have multiple experiences in different voluntary DTRCs. 6 out of 11 respondents who have been to voluntary DTRCs were admitted for more than three times in various organizations. Clients soon relapsed after the treatment, or were unable to bear the detoxification and quit the program for two common reasons behind.

> *'It's me who can't fit their requirement. You can't ask them to fit your standard…I have to fit in to theirs. You have to adapt to the environment, not the other way round.' (Interview #15, male)*

> *'I stayed there for 3 months. Thinking this time would be okay. I was feeling calm and in control. But still it didn't work.* ***(I: [relapsed] Right away?)*** *No, I think I was cleaned for quite a short period of time. Maybe a few days. Once I stared taking, I couldn't stop. My body went bad again. After half year….. or maybe one year, I went again, I stayed there [name of DTRC] for more than 2 years.' (Interview #21, male)*

> *'I really want to stay away from it… So I decided to seek help from those drug treatments organizations. Those organizations that can help me quit drugs…* ***(I: Have you been there in 2014?)*** *Hm… It is 2016 now. I was there in 2014. In total, I have been there for 20 times I guess.' (Interview #11, male)*

It is worth noting that all respondents who were admitted to voluntary DTRCs for more than 3 times are male drug users, all female respondents who have used voluntary DTRCs in this study have a significantly lower number of re-entrance to the service.

Younger Drug users

Younger drug users have a higher chance of involving in the SW system. When young drug-using respondents were recounting their drug history, they reflected interventions from school social workers, outreaching social workers, and the Healthy School Program (HSP) provided to them. Moreover, there are significantly more NGOs serving teenagers and young adults, such as the Hong Kong Young Women's Christian Association (YWCA), Hong Kong Federation of Youth Group (HKFYG), which attend to clients who are under 30.

HSP, first introduced by the Hong Kong Government in 2008, also served as a point of contact for young drug users engaging in the SW system. In the program, drug

testing and anti-drug education are provided by certain NGOs such as the Lok Sin Tong Benevolent Society and CROSS Centre of the Tung Wah Group of Hospitals (Narcotics Division, 2017), funded by the Narcotics Division. While no drug user interviewees reflected such entry to the SW system via this system, NGO informants on the relevant field have confirmed such form of engagement.

> *'It was emphasized that one would not be penalize no matter the result. One will not be charged if he/she is identified in this program. No one will be arrested. On the other hand, there will be inter profession meetings including the school masters, social workers, teachers and counsellors. Support will be provided with student's consent.' (Stakeholder interview #5, NGO)*

Direct Costs for admitting into a voluntary DTRC

> *'It would be impossible that I haven't had to pay… My brother was lured into the programme, too. He has paid for his 8 months over there. $3,600 x 8 months, excluding clothes and other daily necessities. You can do the math. 20k.' (Interview #16, male)*

> *'We need them to work and income, they have to pay for the program.' (Stakeholder Focus Group #1, respondent 3)*

There are costs involved when drug users are admitted to a DTRC. For residential DTRCS that we have contacted, it costs $3669/month for each respondent (ELCHK, 2012). The usual practice for clients would be to apply for CSSA, which would be able to cover the costs of DTRCs. The cost triggered therefore, shifted from personal costs to public costs.

> *'But here, you need to spend $3,600. I had to apply for CSSA… Among us (18 of us), there is only one person who pays. He didn't know about that. The rest are through CSSA.' (Interview #16, male)*

Certain practices of voluntary DTRCs would also induce extra costs for the drug users and their families,

> *'In here, whenever you are brought stuff, you have to share it with everyone. There ought to be enough for everyone. She cannot just get something for me alone. Its not allowed. So that time she spent around $1000 because she has to get something for 20 people. She cannot just get food for me alone.' (Interview #16, male)*

5.3.4.4. Partnerships

Partnerships in NGOs are arbitrary, and established according to different needs among drug users. They collaborate via meetings at the Alliance of Anti-Drug Abuse Professionals and Action Committee Against Narcotics (ACAN) to formulate possible co-operations and knowledge exchange.

> *'We don't have meetings regularly but depends on the needs. For example, we are having meetings with [name of NGO], to see how to enhance our cooperation. We have also organised some visits to [name of DTRC], [name of NGO], and [name of NGO] etc. We are not like symposium. We have joined platforms like ACAN and HKCSS. Other communications between NGOs are… I think it's to see what the organizations are focusing on, we sit down and have discussion.' (Stakeholder interview #1, NGO)*

> *'Actually, different organizations will do (clients' referral), but maybe, our district is more for CCPSA, that is [name of NGO]. We also have referred some cases to some rehabilitation hostels. There're girls. We've referred some to [name of NGO], as well as [name of NGO].' (Stakeholder focus group #3, NGO)*

Apart from partnering with NGOs serving drug users and hospitals, the CSD and childcare service providers are usual co-workers with these NGOs as well. *Figure 5.10* indicates the involvement of other systems during the provision of the SW services. The CSD and hospitals are usually involved during the process. In case of criminal offences, it is common for probation and supervision officers to keep close contact with social workers during the PO. The close partnerships between NGOs and hospitals also enables a high involvement of the healthcare services in the SW system. Regular check-ups in out-patient clinics and short-term hospitalization are possible during the NGO service. It is common for clients in the DTRCs to temporarily leave the treatment center for surgeries or medical check-ups. Interviewee #15 for example, has just completed a bladder surgery and has returned to the DTRC several days before the interview. The flexibility of the SW system enabled drug users to receive treatments and services simultaneously according to their situational needs.

> *'Our projects provide official detoxification service and work closely with different organizations, like [name of public hospital], [name of public hospital], and many rehabilitation organizations. So when they come to us, we can quickly refer them to [name of DTRC] or [name of public hospital] for detoxification.' (Stakeholder interview #2, NGO)*

'But we are also working on some inter-organization projects: it's about how we manage the children of families with drug using parents… For now, we haven't worked with any child care organizations yet. We are still discussing with some community detox service providers, since they have met a lot of these families as frontline. Then we will need to discuss with hospitals, and the government's Family and child protection service unit….' (Stakeholder interview #4, NGO)

Voluntary DTRCs and outreaching organizations also collaborate with hospitals and organizations outside the drug field. For example, one organization seeks funding and project collaborations with media companies and dental doctor services, hoping to promote the acceptance and welfare of drug users. While clients might not benefit directly from the service, these projects serve in the interests of their welfare and rehabilitation.

'That's a dental health company which sponsors us recently. As you know, a lot of drug users have really bad teeth, because the drugs they took erode their teeth with its extreme acidity or alkalinity. If our clients manage to stay off drugs, they promise to help them with their dental problems, including dental implants.' (Stakeholder interview #4, NGO)

'The third kind of partnership is with the media. As I mentioned, we hopefully will shoot 12 short stories, and show them on the public media. This will help educate the public, they will know more about detox service, and how it works. They will also learn more about the difficulties the clients will face, and other experiences of them. If all these goals are met, it will be very good. It will also help build our organization's image, and help the intake rate.' (Stakeholder interview #4, NGO)

5.3.4.5. Comparisons with the CRDA data

The CRDA data indicated that outreaching NGOs has the highest retention rate among youths, whereas entries from these NGOs significantly dropped for older drug users. Qualitative findings enable further elaboration on the data. As outreaching services mainly target youth drug users, entries from these NGOs for this population is therefore significantly higher than older drug users, who are out of their service target.

At the same time, the CRDA reflected high drop-out rates from all kinds of services for youths. However, the qualitative data provide a more in-depth picture than that appeared on the data, particularly from the NGO service perspective.

'If there's a colleague who has been working in the district for a long time, he will know a lot of people. They won't care if he's working on their cases or not. They will just come up and ask for help if needed. ***(I: So the relationship remains.)*** *Yes. Yes.' (Stakeholder interview #6, NGO)*

Although it appears that the case is 'dropped', where the client is out of radar, outreaching social workers expressed their continuous contact with those clients. Although those clients might not be officially 'registered', they are still receiving services from the social workers.

A summary of the life stories of Mark, Robert and Jen unfolded so far:

Mark started using cough medicine at 9, and gradually addicted to MDMA, ketamine and methamphetamine when he went to discos as a teenager. He was able to sustain his living and drug costs as he was working at a restaurant. However, he has been suffering from dizziness due to the poly-drug use at work. He first contacted the service systems in his early 20s when he was arrested for drug possession and was sentenced to an 18-month probation order. With him continued using drugs throughout the probation period, the probation officer referred him to a CCPSA by the end of the order. Suffering from depression and other psychiatric illnesses, the CCPSA eventually referred him to the SAC at PYNEH for regular check-ups and medication. He was then addicted to Zopiclone which he would take after using methamphetamine.

Robert had his first sniff of heroin at 12. Introduced by friends with triads background, he was gradually addicted and started to take heroin on his own. At 13, he was arrested for robbery and was sentenced to a probation order. Being expelled from school in the same year, the probation officer referred him to the Hong Kong Juvenile Care Centre to continue his studies. Although the residential nature of the school inhibited Robert from regularly using drugs, he was still using drugs on and off when he escaped from the school premises. Receiving multiple positive urine test results, the PO decided to transfer him to a religious DTRC for rehabilitation at 16. He successfully quit drugs after the treatment and continued to work at the center for 2.5 years as a peer counsellor.

Jen is a 28-year-old female with ketamine and cocaine as her 'major' drugs. Had the first sniff of Thinner at her boyfriends' home at 12, Jen was using ketamine, MDMA and Midazolam at discos soon after. She was sent to the Girls' School at 13 as she ran away from home too often. Upon release, she stayed clean and continued her education until 16. She first relapsed at 18 after re-connected with her old friends and shifted her 'major' drug from midazolam to ketamine. In the same year, she was arrested for drug possession and was sentenced to one year Probation Order. Throughout the years of nightlife, Jen was suffering from severe pain related to the poly-drug use when she was frequently sent to the hospital's A&E. At 21, as her health was deteriorating, Jen decided to quit drugs by admission to a voluntary religious DTRC. She managed to quit drugs despite her early exit from the treatment.

Life stories of Mark, Robert and Jen seem linear at this point, where they shifted from one service system to another. However, their stories did not end here.

5.3.5. Service transitions

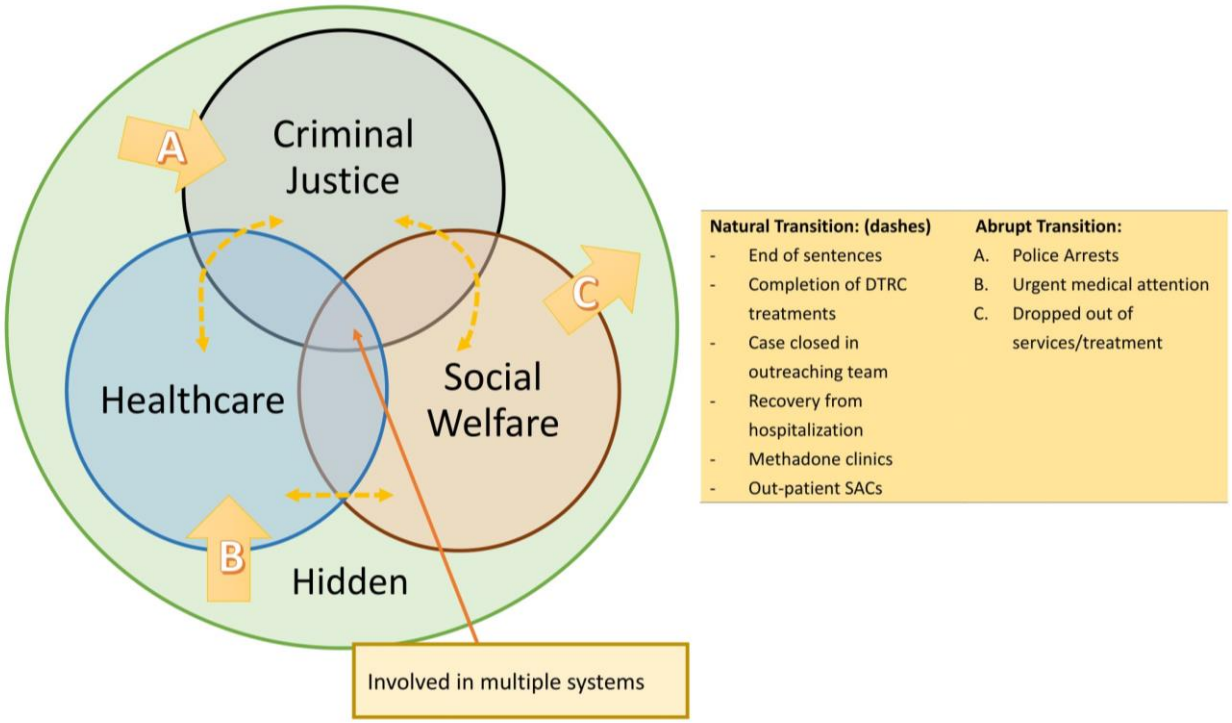


Figure 5.11. Interactions between services

Figure 5.11 shows the interactions between services. Based on their record of registration when they receive a service, the CRDA informs us of the general trend of how drug users go around in the system. Apart from the inconsistent recording of drug users across NGOs, government departments and hospitals, the data also lacked the context and reasons resulting in the transitions. Having discussed the characteristics of each system, their partnerships and interactions with other service systems, a better illustration of how, and why these transitions happened.

As illustrated by Mark, Robert and Jen's examples, it appears that the service pathway seems linear and direct, where drug users would receive services of their corresponding needs in an organized manner. However, the complexity and messiness of these pathways began to emerge as their stories developed.

Summarizing from the 26 drug interviews, we attempted to map out a clear service pathway that drug users commonly go through in various public services, based on their life experiences and interactions with the systems. Instead of a linear

and systematic service pathway, it is found that drug users kept hopping from one system to another, or sometimes exit abruptly from one and return hidden. Nonetheless, we have categorized two major ways of hopping between systems: (1) natural transition during or at the end of one service; and (2) abrupt transitions during a service.

Figure 5.11 attempts to demonstrate the fluidity and complexity of the pathways experienced by drug users. It first indicated the general relationship between each system (the Venn) which we have discovered interacting with each other, as discussed in the last section (the intersections between circles). Partnerships among agencies enabled drug users to transfer from one system to another, usually upon the end of a service. This belongs to the 'natural transition' (indicated as yellow dash arrows). We represent 'abrupt transition' with orange arrows in the diagram. This transition usually involves (a) coercive or involuntary intake into the service; and (b) sudden exit of service. We have placed the hidden state in the back of the Venn, as it is possible for drug users to fall back into hidden state before their next entry into a new system.

5.3.5.1. Normal transitions

This form of system transition includes probation officers, social workers or doctors referring drug users to another service system by the end of their service, or according to their needs during their service provision. Taking Mark's example, his contact with the CCPSA by the end of the PO would be a natural transition. With the social worker referring him to the SAC at PYNEH for check-ups, indicated another natural transition where agents in the SW system have referred him to the healthcare system due to his psychiatric needs.

For transitions due to the drug users' needs during service provision, the referred services are usually out-patient or temporary services which enable them to simultaneously involve in two systems. For example, referrals between CCPSAs and SACs in hospitals enable their clients to be both supported by social workers at the CCPSAs and receive regular check-ups by doctors at the SACs.

The usual destinations would be healthcare and SW system. SACs and non-emergency medical departments are common for referrals from the CSD, NGOs, or another department within healthcare. Below is an outline of drug users who were naturally transferred to the **healthcare system**, and the system they were transferred from. As it is common for drug user to be involved in the healthcare

system multiple times, in the following table, same form of transfer experienced by a drug user is still counted as one.

Table 5.3.8
Service transitions to the Healthcare system

Transferred from	**Number of drug users**
CJS	7
SW	2
Healthcare (across departments)	9

Table 5.3.8 shows the service transitions to the healthcare system. Inter-system transitions are frequent in the healthcare system, particularly as drug users are mostly admitted involuntarily to the system due to urgent medical attention, other kinds of illnesses such as urinal or chronical problems, or psychiatric medications required. Drug users would then be transferred to out-patient clinics or specialized departments for further assessments and medical attention.

Table 5.3.9
Service transitions to the SW system

Transferred from	**Number of drug users**
CJS	7
Healthcare	3
SW (across agencies)	6

Table 5.3.9 outlines the statistics on the drug users' transition to the SW system. Natural transitions to the SW system is common for the CJS, where drug users would be referred to CCPSAs, residential DTRCs or a regular social worker for further follow-ups upon their release from prison or end of a PO. Referrals between SW agencies or outreaching social workers referring their clients to residential DTRCs are regular. Partnerships between the healthcare and SW systems enable natural transitions between the two as well.

5.3.5.2. Abrupt transitions

Abrupt transitions include sudden exit of service and coercive or involuntary entrance to one. The usual causes of abrupt transitions are relapses, urgent medical illnesses, or arrested for criminal offences. These transfers depict drug users who were receiving a social service yet abruptly transited to another, or left the services.

Table 5.3.10
Cases of abrupt transitions between systems

Causes of Abrupt transitions	Number of drug users
Police Arrests	23
Urgent medical illnesses	12
Relapses	8

Table 5.3.10 shows cases of abrupt transitions between systems. Police arrests coercively pulled drug users from their usual hidden state into the criminal justice system. Due to the nature of the legal process and arrests, all entrance into the CJS are consider abrupt transitions. As discussed above in the healthcare system, drug users frequently encounter overdoses, faint or sicknesses related to drug using that require urgent medical attention. This is a common cause of abrupt transition, where they involuntarily entered the healthcare system from their hidden state.

Relapses are usual causes for drug users to exit the SW system. With the voluntary nature of most SW services, clients are free to leave at any point of the service. Upon relapses, drug users would therefore exit the service and fall back to 'hidden'. Relationships between the social workers and drug users also serve as a determinant of abrupt transitions. Among the interviewees who had received services from social workers, relationship between the two affects the outcome of a case. Drug users determine if they would like to be contacted and continue to receive the service by the sincerity of the social workers.

> *'**(I: I knew that some of the social workers in [name of DTRC] would conduct follow-up work, have you got similar experiences?)** Well... Some did. It was merely display. They don't really want to chat with you deep down.' (Interview #11, male)*

*'**(I: Did you still have a social worker following your case back then?)** Like I said, that really kind-hearted girl. **(I: Right, and after?)** After she didn't work that job anymore, and I lost contact.' (Interview #14, male)*

Frequency of abrupt transitions is significantly higher than natural transitions. With drug users who commonly carry their drugs with them, their possibility to be involved in the CJS is higher, depending on their 'skills' in hiding their drugs and luck. As indicated above, 11 interviewees have been charged with drug possession alone for more than 3 times in their drug history. It is common for drug users to be repeatedly arrested, relapsed or urgently admitted to hospitals, leading to a higher number of abrupt transitions.

Abrupt transitions in the CJS is rare, yet possible, particularly if for psychiatric reasons. Two interviewees were transferred directly from the CJS to hospitals' psychiatric ward upon breakdown.

*'I was arrested and didn't want to go to Ling Oi. I wanted to commit suicide. I tried to jump off the slop here. **(I: But you were stopped.)** My girlfriend called the police….I was so efficient, they just sent me to the psychiatric department here right away. They cuffed me, then the next morning the nurses and doctor came. I told them I really didn't want to go to jail anymore. I had been in and out of jail so many times. I was really blue, and just wanted to die. And that's how I went there for 3 weeks.' (Interview #20, male)*

Due to multiple overdoses and maniacs, Mark went in and out of A&E and hospitals' psychiatric wards in the next ten years. He was arrested for possession of dangerous weapons in 2014. Lost control in a quarrel with family, he broke everything at home and held a knife in his hand. However, different from his previous experience of arrest, he was directly sent to the hospital for 6 days by the police, and immediately followed by a court trial. Waited for 14 days at Siu Lam Psychiatric Centre for examination reports, he was sentenced to 3 months of mandatory stay at a hospital in his second trial. After the stay however, Mark claimed that no probation order was required and he was immediately discharged.

Robert successfully quit drugs after the religious treatment and continued to work at the center for 2.5 years as a peer counsellor. He stayed abstinence for another two years working there until 23 when he relapsed due to boredom and the desire to enjoy life. Robert was arrested for Drug Possession multiple times in the next 7 years. Although initially his family hired private lawyers to fight his case, they gradually stopped helping Robert. He sustained his living and drug costs through stealing from shops. While he was not caught in any of the thefts, he was arrested for DD and sentenced to Hei Ling Chou for 4-5 times throughout the years.

5.3.5.3. Multiple entries

> *'Although they haven't solved their psychological problems or other interpersonal problems, they think they are good to return (to the community). That's why the dropout rate (of residential DTRC) is higher now. I am sure you know about the detox cycle, a lot of people only manage to stay off drug after trying for the 7th or 8th time.' (Stakeholder interview #4, NGO)*

Apart from the form of transitions between systems, we also concern the number of times drug users are engaged in a system throughout their drug history. Re-entrance to the same system, or even the same service agency is expected by both drug users and stakeholders. There are also a significant number of interviewees who have entered the system for more than three times in their drug life.

Table 5.3.11

Re-entrance of systems among the drug user interviewees

Systems Re-entered	**Number of drug users**
CJS	11
Healthcare	10
SW	5

Table 5.3.11 shows the re-entrance of systems among the drug user interviewees. Drug users who keep entering the same system would usually fall back into the hidden state, regardless of whether they have completed the service. They would then naturally or abruptly enter the same system after certain incidents such as arrests, family coercing them to quit drugs, or they require medical attention. Although policies in residential DTRCs discourage drop out of service via restricting their clients' admittance to their centres, drug users are found frequently re-admitting to the services for a 'detox'. After a short period of time where their health recovered, drug users would leave the treatment and relapse again. Another form of re-entry is 'recall' in the CJS in the wake of violation of a supervision order upon the drug users' release from compulsory DATCs. Drug-users who violated the supervision order would be recalled to compulsory DATCs for 3 more months, and multiple violations afterwards would bring them to imprisonment.

Another reason of re-entries in the system is relapse. Cheung, Lee, & Lee (2003) maintained that 80% of drug users who received rehabilitation treatment relapsed within a year. All interviewees in this research have quit, whether voluntarily or coerced, but have relapsed at some point in their lives. This group of drug users experiences multiple relapses. They have quit drugs for a significant number of times after completing a treatment, left the CJS, undergone pregnancies or other medical treatments. Upon a relapse, drug users re-entered the drug cycle and service pathway.

Jen encountered relationship problems after her completion of drug treatment. 6 months after release from the DTRC, she had her fourth relapse. To support her living and drug cost, she also helped to deliver drugs regularly. Her relationship with her family reached the lowest point by then.

> *'My family are all rude people. It's difficult for them to understand and forgive me. That's how they talked to me at the beginning, 'Why? How many treatments do you need?'. Saying something nasty. My husband was similar. He...he compared me with those drug addicts living under the bridge...those at Tung Chau Street. He said that, 'Why would you marry me? Why don't you marry with those drug addicts at Tung Chau Street? Don't waste my time.' Many hurtful and nasty comments.' (Interview #17a, female)*

Robert struggled every time when he was released from compulsory DATC to quit heroin. His friends however, attempted to help him quit heroin by providing him unlimited and free supply of psychotropic drugs in a garage to substitute the craving for heroin. Robert eventually stopped taking the free drugs as he started to experience urinal problems and hallucinations. After numerous struggles and relapses immediately after his release from HLC, Robert voluntarily entered another residential DTRC to quit drugs in 2014. Similar to his experience in the religious DTRC, he successfully completed the treatment and worked as a peer counsellor for 1 year afterwards. Robert relapsed again in 2015 due to boredom in life and resigned from the second DTRC. He was sent to the third religious DTRC by his girlfriend. Feeling ashamed, Robert recounted his struggles before entering the treatment,

> *'Yeah, so it'd be very embarrassing. Whatever center I went to...like initially I thought I knew the least amount of people here... Because for XXX, XXX, XXX [names of DTRCs], I knew a lot of people there. But who knew that when I arrived here I realized...* ***(I: A lot of people...)*** *I know.'*

5.3.6. Gender differences

Table 5.3.12

Table of gender comparisons between types of drugs and the service systems involved

		F	M
Total		11	15
Types of Drugs	Ketamine	4 (36.4%)	8 (53.3%)
	Methamphetamine	5 (45.5%)	5 (33.3%)
	Heroin + TMZ	1 (9.1%)	3 (20%)
	Cocaine	2 (18.2%)	2 (13.3%)
	Cannabis	1 (9.1%)	0 (0%)
	Poly-drug	4 (36.4%)	9 (60%)
Service Systems involved	Health	9 (81.8%)	12 (80%)
	CSD	9 (81.8%)	14 (93.3%)
	NGO/SW	10 (90.9%)	11 (73.3%)

Table 5.3.12 provides a gender comparison of the types of drugs consumed by drug users and the service systems they have engaged in. Among the interviewees, methamphetamine and ketamine are common among female users, while more male users consume ketamine than methamphetamine. We should also note that more male drug users (60%) use poly-drugs than female (36.4%).

The service pathway provided to male and female drug users is very similar. Differences between the two focuses on the forms and degree of services used in the systems, as well as the reasons for entering those systems. Male respondents' involvement with the CJS is 10% more than the female respondents. Comparing the number of times involved in the CJS, male interviewees (8/11, 53.3%) showed a higher percentage (more than 3 times) compared to the female drug user (3/11, 27%).

Reasons for entering the CJS system also varies between male and female respondents. While male respondents were mostly caught by the police on the street, during police searches; a number of female respondents indicated that they were arrested to protect their friends, lovers, or children. One particular case worth exploring is Interview #8, a female drug user 'Water', who engaged in the CJS for better environment and money to raise her children. While there are

voluntary drug treatment services available to pregnant women, it appears that information regarding these services are not easily accessible to drug users.

> *'The last time was because...I just found out I was pregnant, so...I wanted to quit drugs, because my elder daughter was taken by Social Welfare Department. And I didn't want it to happen to this son too...so I went to steal things. Because in Hong Kong no volunteer drugs rehab will take pregnant woman...So I could only go to correctional institution. I put myself in jail to keep the baby... At that time I thought if you take drugs (when entering the voluntary DTRC), Social Welfare Department will take your baby away. I was afraid of that. But it wasn't the case. I asked them (voluntary DTRC) later and they said it depended. I didn't know that when I was small...and also, I don't think I could do a good job even if they let me raise her. Where could I find money to raise her?' (Interview #8, female)*

Female drug-users are more prone to be engaged in the SW system than male respondents. However, male respondents are mostly directly involved with drug treatment or related NGOs (9/11, 81.8%); whereas only 6/10 (60%) female respondents are involved there. Female respondents were also followed up by social workers from the SWD or other organizations. Male respondents who have been to voluntary DTRCs also share a higher drop out/readmission rate than female respondents. While there is only one female who dropped out from the treatment, 8 male respondents have been to more than one drug treatment programs, and either dropped out or relapsed afterwards.

Both genders however, share similar involvements in the healthcare system where they share similar treatments for psychiatric and physical illnesses. Pregnancies however, serve as an interesting determinant in female drug users' involvement in the system. 7 out of 11 interviewees were pregnant when they were still on drugs, where 4 have quit drugs voluntarily for the babies' health. However, those interviewees indicated their unwillingness to be involved in the healthcare system as they wanted to hide their drug habit. Interviewee #18 gave birth to three children at home when she could also opt for abortions in the Mainland.

Epilogue

Jen entered the religious DTRC for the fourth time in 2015. With her child being taken away by her family and her old friends from the disco have all quit, Jen was embarrassed with her drug habit and decided to quit again. Jen did not apply for CSSA to cover the treatment costs, yet her family was supportive and paid the fees for her throughout the treatment period. At the time of the interview, Jen was 2 months from completing the treatment.

Mark continued using methamphetamine and Zopiclone, and was visiting the SAC at PYNEH regularly at the time of our interview.

Robert overcame the embarrassment eventually and was admitted for 5 months in the current DTRC at the time of the interview. Hoping to successfully quit heroin this time, he planned to study a social work diploma after his treatment and work in residential DTRCs.

5.3.7. Discussion

We have explored the characteristics of each service system in this chapter. For each identified service system, the CJS system, healthcare, and SW system, we have drawn upon drug users and stakeholders' interview to map out a service pathway in Hong Kong. Each service system has a certain level of partnership and interactions with one another, aiming to provide a more comprehensive service for drug users.

While the quantitative analysis on the CRDA seems to be painting a horizontal pathway with drug users going from one institution to another, the qualitative data provided an in-depth picture of the complicity and dynamics in the service pathway. Interviews and focus groups with stakeholders also provided further interpretations on the CRDA data.

The mapping of service pathways of the three systems indicated interactions and partnerships between certain institutions in the systems. While the CRDA provided a general overview of how the drug users are captured by different institutions, it displayed a rather mutually exclusive and horizontal pathway to the readers. However, qualitative findings and the service pathway displayed a possible parallel service provision to the drug users from the three systems. Drug users receiving out-patient medical services or case-based counselling for example, are able to receive multiple services from the three systems simultaneously. For example, social workers in CCPSA from the SW system and out-patient SAC from the healthcare system manage to provide parallel services to drug users. This overlapping of services is also possible in the CJS if the drug user is freshly discharged from prison and under a supervision order.

While the CRDA are able to indicate the drug users' entries to the social service system, qualitative findings discovered that it is common for drug users to be involved in the system prior to their drug using habit. Parts of the CJS, healthcare and SW services are not exclusive to drug users. Interviewees are found commonly engaged in the CJS or SW systems before the start of their drug using habit. The use of drugs therefore did not bring these drug users to the system, but have further complicated their engagements in the services, as drug-related

services will be provided to these clients as well. For example, the use of DATCs, residential DTRCs or drug related medical services. While the CRDA indicated the drug users' first entry in the system, we should bear in mind that it only refers to their entry as a **'drug user'** in the system. The drug users' previous engagements in the system are not captured by the CRDA.

Arrests served as the major point of entry to the CRDA system (32%). Echoing with the qualitative findings, involvements in the criminal justice system are common and a 'normality' among drug users. However, their perception towards being arrested and entering DATCs reflected a diminished deterrence towards drug abstinence. Drug users have also reflected that incarcerations would even expand their drug network and community. Apart from the interviewees recruited through the CSD, all the interviewees who have been arrested have continued, or relapsed into their drug habit. In particular, high involvement in the CJS due to drug possession, and also unsuccessful drug treatment upon release might indicate that such treatment or imprisonment failed to address the 'issue' of drug abuse. These seemingly point to criminalization of drug users might not be as effective as it is perceived.

Drug using correlates with multiple immediate or chronic diseases that require medical attention. The service pathways of healthcare service therefore vary with the types of drugs their clients are using. Drug users reflected their reluctance in entering the system due to the troubles that come along with revealing their drug using habit. The stigma and discrimination drug users experienced when entering the public medical services have inhibited them from actively seek help. This has also led to drug user simply concealing their drug using habit when they enter the A&E units. Stigma in the healthcare system on drug users have therefore led to the failure to detect and provide services to drug users even when they are actually in the system. While the CRDA data indicated that most drug users entered the system via the HKPF, it is therefore suspected that medical services such as A&E are likely to be their first contact to social services in relation to their drug using habit.

Healthcare services provided to drug users have also geared towards the direction of harm reduction. Apart from the methadone clinics operated under the DH, the

out-patient SACs are also moving towards this direction. Practitioners have adopted a more harm reducing approach towards their clients, where the service aim is to 'keep the patients alive and willing to come back'. It appears that such switch of service rationale aligns with the United Nations Office on Drugs and Crime's vision in handling drug users since the 2000s (UNDOC, 2008).

The SW system has the most complicated service pathway due to its diversity of service and high involvement with other service systems. Outreaching teams of NGOs provided the second highest entry of drug users in the CRDA, as well as the retention rate (60% among drug users aged below 21; 62% among drug users aged between 21 and 30). As this type of service in the SW system only targets the youth (below 35), this points to several implications when compared to the qualitative data. Thus the service target of outreaching teams provided self-explanatory account for the 0% reporting of older drug users to the CRDA.

It is discovered that relationship served an important determinant to drug users as well as their likeliness to remain in one service. A good relationship between social workers and drug users, as reflected from the interviews, could be a major reason for drug users to stay under the radar. Outreaching teams build up their service through establishing relationships with the youth. Their primary aim of service is help their clients identify and improve certain problematic areas in their lives, instead of simply drug abstinence.

Issues within the service system have however inhibited healthy establishment of relationships between drug users and social workers. Interviews revealed that drug users leave the SW system due to undeveloped relationship and losing contacts with social workers. Stakeholder interviews reflected the overwhelming workload, and underpaid salaries of social workers. These factors inhibited social workers' better engagement with each of their clients, resulted in high turnover rate in social workers, and also deterred new social workers from entering the social work field.

The older the drug user, the more likely they are engaged in residential DTRCs during their drug career. It appears that the stigmatizing effects of drug use plays a role in determining the drug users' decision of going to DTRCs. Drug users are

separated into two groups, those only went out of no choice and frequent DTRC users. Significant number of drug users revealed that they tend to use their own way to quit drugs, such as going for a self-retreat or even at the expense of substituting with another drug. This group of drug users tend to disregard the DTRCs as one of their options until they have run out of choices. Another group, the frequent DTRC visitors, usually cannot complete the entire treatment and relapsed. They are then admitted to another DTRC. This study provides insight into understanding high retention rates of drug users in DTRCs from the CRDA data.

The frequent DTRC visitors pointed out an issue within drug treatment service, that is, despite the numerous drug treatment centers and clinics in the field, relapsed drug users are found hopping from one center to another regardless of the almost identical treatments offered. With the high number of agencies in the field moreover, no agencies involved in this research are overloaded with clients. This indicated a possible duplication of services, and as the stakeholders reflected, the existence of competitions of resources and the offering to clients the same services.

Partnerships are frequently observed across various agencies in the SW system, where DTRCs and NGOs seek collaborations and partnerships with hospitals, external corporates and even the media in providing better service to their clients. The flexibility of social service provided in SW agencies enables collaborations in various format, such as medical, public relations, to rehabilitations. With the rare systematic collaborations across the three service systems cannot be observed in this research, the flexibility in service provision in SW systems demonstrated a possible locale for establishing similar forms of large scale collaborations.

While the CRDA provided transition patterns across different services, qualitative data however, captured the process and the determinants affecting the drug users engaging in the services, as well as the perception of drug users on the transition of services. Further, reasons of dropouts or entry to a particular service were explored. Observing the themes shared throughout the analysis, the themes of stigma and relationship appeared as two important elements affecting drug users' decision in drug taking, seeking help, and quitting drugs.

As discussed above, relationship served as a double-edged sword. Healthy relationship with family encourages drug users to seek help from social services. Drug relapses, however, correlate with broken relationships such as break-ups, or family issues. Observing from the interviews, good relationships between service providers and drug users would also encourage the clients to stay in the service. Genuine relationships with social workers are important to drug users where they tend to remember clearly the names of the social workers, and the support they received from the service.

Negative stigma of drug using habit also emerged in the interviews, not only from stakeholders but also from drug users themselves. The attempt to remove the stigma of 'drug treatment services' among SACs, to partnership with the media and other companies in the DTRCs are attempts to encourage drug users to seek help through removing the negative labels on them. As discussed above, stigma has discouraged drug users from seeking medical help, as they had experienced discrimination in public hospitals. They have also developed a sense of community among the drug users, for example in prisons or DATCs, where they would internally labelled themselves as an outcast of society, where they would rather meet people 'of their own community'.

Service pathways for drug users are not examined in previous drug-related studies in Hong Kong. Utilizing the CRDA data enabled a macroscopic picture of the service pathways, while the qualitative findings provided in-depth contexts of how and what happened in the service transitions. The flow of services from one to another, as accounted by the drug users, reflected their experiences and interactions with the systems. For example, the repeated emphasis of 'relationship' and 'stigma' affected drug users' decision in seeking help. Interviews with drug users have also provided insights into the current limitations of the services provided in Hong Kong for drug users.

Service pathways as discussed in the above sections are heavily influenced by the drug users' life history and their interactions with the service systems. While addressing the societal causes of drug use as a relatively long-term intervention, this study on service pathways indicated areas that could encourage

improvements in various service systems to provide better social services to drug users in Hong Kong.

Chapter 6. Breakdown by age, genders and types of drugs

6.1. Introduction

This chapter attempts to estimate social tangible costs per drug user of different genders, age groups, and types of drug use. Based on the results of Chapter 4, it was estimated that, after adjusting for the "hidden" drug abuse population, the average social cost per drug user was HK$251,040.

To estimate cost specific to a sub-group of population, the best strategy is, obviously, to collect costs and caseload information separated by the factors of interests, and then estimate the costs attributable to drug abuse specific to that sub-group. However, the data collection process was found to be challenging, as most sources could not provide / contain data in such a detailed manner. In many sub-estimates of social costs presented in Chapter 3, the distributions of costs / number of caseloads across different factors were not that clear, although relatively, there was more information specific to genders.

To overcome the barriers and achieve the objectives, after adjusting for underestimations in Chapter 4, by estimating some distributions of number of drug user / caseloads across different factors (i.e. by genders, age groups, and types of drug use) in each sub-estimate of cost, each sub-estimate of social tangible costs was disaggregated. Then, an assumption was made that the costs would be proportionately distributed according to those distributions. The distributions would be given in the following three ways:

1. Be directly informed by the cost estimation methods as shown in Chapter 3, such as premature mortalities by genders and age groups, and hospital inpatients by genders.
2. (For the number of drug user; mainly applicable to loss of productivity) Be brought from the estimated number of drug users in the first half of 2014 by genders, age groups, and types of drug use done in Chapter 4.
3. (For the number of caseloads; mainly applicable to cost items related to services) Calculated from the transitions matrix estimated from quantitative pathways analysis using the Central

Registry of Drug Abuse (CRDA) data (Chapter 5). The model of estimation is detailed in Section 2.4.

It should be noted that the estimates in this chapter are some ball-park figures and the results should be interpreted with great caution.

6.2. Results

6.2.1. Gender

Table 6.2.1 displays the breakdown of social tangible costs in 2014 by genders. While male drug users accounted for 83.4% of the total estimated number (18,906 out of 22,658), they accounted for a similar proportion of social tangible costs, at 84.4% (HK4,799.4 million). The cost per drug user was HK$253,855 among men, and HK$236,857 among women, 7.2% higher among men. Men had higher costs per drug user than women in all major cost categories except welfare. The average welfare cost spent on a female drug user was HK$48,248, 128% higher than man (HK$21,123).

6.2.2. Age

Table 6.2.2 shows the social tangible costs in 2014 separated by age groups. Age group 21-30 accounted for the largest proportion of social costs (32.7%; HK$1,858.4 million), followed by 31-40 (30.2%; HK$1,719.2 million) and 41-50 (14.9%; 849.3 million). The average annual cost per drug user by age groups, increased from HK$176,806 in those aged <21 to HK$322,841 in the age group 41-50, and remained similar as the ages of drug users advanced (HK$308,551). A drug user at the age group 41-50 incurred higher average cost in loss of productivity, crime and law enforcements, and healthcare than the other age groups, while spending on welfare per drug user was the highest among the youngsters (aged<21; HK$37,788).

Table 6.2.1

Social tangible costs breakdown by gender (HK$ million)

	Est. method[1]	Male	Female
Loss of productivity			
Premature mortalities	1	481.6	94.5
Diminished size of workforce	1	1,326.6	237.6
Absenteeism	1	221.1	24.1
Crime victims	3	1.8	0.2
Sub-total		2,031.1	356.4
Sub-total per drug user (HK$)		107,433	94,970
Crime and law enforcements			
Arrests	3	117.2	14.2
Customs	3	172.7	17.9
Legal and adjudications	1	39.9	6.5
Incarcerations	1	996.8	152.4
Victimizations	3	136.6	14.2
Sub-total		1,463.1	205.2
Sub-total per drug user (HK$)		77,389	54,686
Healthcare			
Methadone	3	43.4	6.3
Non-hospital based T&R	3	153.8	18.8
Hospital inpatients	1	411.2	46.4
Medical outpatients – SAC	3	22.3	8.1
Medical outpatients – others	1	46.0	3.0
A&E services	1	7.6	4.4
Sub-total		684.3	105.7
Sub-total per drug user (HK$)		36,193	28,162
Welfare			
CSSA	1	163.5	37.6
Drug counselling	3	74.4	18.2
Services for offenders	1	93.4	56.2
Family and child welfare	1	50.3	65.2
Outreaching	3	17.8	3.8
Sub-total		399.4	181.0
Sub-total per drug user (HK$)		21,123	48,248
Drug productions	2	64.4	12.8
Others			
Preventive education, publicity and researches	2	39.3	7.8
Security Bureau	2	33.4	6.6
Government Laboratory	3	66.0	10.4
Mixed-type	3	18.4	2.9
Sub-total		157.1	27.7
Sub-total per drug user (HK$)		8,310	7,384
Social tangible cost		4,799.4	888.8
% of total		84.4%	15.6%
Costs per drug user (HK$)		253,855	236,857

Note:

[1] Estimation method: please refer to the list on p.39 or p.221.

Table 6.2.2

Social tangible costs breakdown by age groups (HK$ million)

	<21	21-30	31-40	41-50	>50
Loss of productivity					
Sub-total	295.9	769.8	712.0	347.0	262.9
Sub-total per drug user (HK$)	82,875	90,024	121,402	131,883	128,750
Crime and law enforcements					
Sub-total	132.2	546.8	530.7	275.5	183.2
Sub-total per drug user (HK$)	37,018	63,944	90,496	104,720	89,702
Healthcare					
Sub-total	30.5	208.5	282.0	145.0	124.0
Sub-total per drug user (HK$)	8,530	24,381	48,084	55,106	60,744
Welfare					
Sub-total	134.9	237.3	123.6	49.3	35.3
Sub-total per drug user (HK$)	37,788	27,754	21,073	18,747	17,267
Drug productions	12.2	29.1	20.0	9.0	7.0
Other social costs					
Sub-total	25.7	66.9	50.9	23.6	17.7
Sub-total per drug user (HK$)	7,187	7,828	8,675	8,978	8,680
Social tangible cost	631.3	1,858.4	1,719.2	849.3	630.0
% of total	11.1%	32.7%	30.2%	14.9%	11.0%
Cost per drug user (HK$)	176,806	217,339	293,137	322,841	308,551

Table 6.2.3

Social tangible costs per drug user by major types of drug use (HK$)

	Heroin	Cocaine	Meth	TMZ	Cannabis	Ketamine	CM	Others
Loss of productivity	105,399	105,357	105,366	105,370	105,362	105,351	105,350	105,344
Crime and law enforcements	113,309	59,243	68,239	75,404	59,755	47,362	53,071	54,671
Healthcare	72,535	15,597	18,060	54,722	15,581	13,160	28,191	22,358
Welfare	15,260	28,579	26,825	29,912	26,219	31,549	34,709	33,251
Drug productions	3,482	8,798	2,556	850	1,721	3,439	1,731	1,574
Other social costs	9,334	7,446	7,654	8,911	7,447	7,474	7,906	7,869
Costs per drug user (HK$)	319,319	225,020	228,700	275,168	216,085	208,335	230,957	225,067

Note:

Meth = Methamphetamine; CM = Cough Medicines; TMZ = Triazolam/Midazolam/Zopiclone

Table 6.2.4

Social tangible costs per drug user of poly-drug users

	Heroin+ TMZ	Heroin only	TMZ only	Cocaine+ Ketamine	Cocaine only	Ketamine only	Meth+ Ketamine	Meth only
Loss of productivity	105,404	105,381	105,395	105,327	105,382	105,354	105,320	105,379
Crime and law enforcements	136,486	105,289	74,951	47,278	69,552	46,071	44,901	67,122
Healthcare	86,123	82,307	37,988	13,572	14,049	13,305	10,448	16,823
Welfare	19,374	13,352	29,870	31,623	19,591	27,395	33,237	20,603
Drug productions	4,331	3,482	850	12,238	8,798	3,439	5,995	2,556
Other social costs	9,796	9,033	8,909	7,116	7,377	7,288	7,146	7,503
Costs per drug user (HK$)	361,514	318,844	257,963	217,153	224,749	202,852	207,048	219,986

Note:

Meth = Methamphetamine; TMZ = Triazolam/Midazolam/Zopiclone

6.2.3. Types of drugs

It is difficult for institutions to differentiate their expenditures by types of drug use. The issue of poly-drug users further complicated the breakdown of social tangible costs. It is therefore impossible for a poly-drug user to ascertain exactly how much was spent on treating the disability arisen from one particular type of drug he/she has taken. Hence, it can be expected that the social costs of different types of drugs will overlap with each other and therefore it may be misleading to present the total cost segmented by types of drug use. Nonetheless, the same methodology, as done on genders and age groups, was applied to breakdown the social costs by types of drug use, and only the average cost per drug user was presented to avoid any misleading interpretations of results.

Table 6.2.3 shows the average social costs per drug user in 2014 by major types of drug use, (no matter single user or poly user). Among all drug types, a drug user who **mainly** used heroin, had the highest average cost, at HK319,319. The higher average cost primarily resulted from a larger spending on crime and law enforcements (HK$113,309) and healthcare ($72,535). TMZ ranked the second at HK$275,168, probably due to its highly associated usage with heroin. Table 2.1.4 (p.19) shows that among 6,342 drug users who have ever used TMZ between 2006 and 2014, 4,842 (76.3%) also used heroin. For the remaining types of drugs, the average cost per drug user was similar. Drug users who **mainly** used ketamine had the lowest average cost (HK$208,335) in 2014.

Several common combinations of types of drug use were selected to investigate into the social costs among poly-drug users. Table 6.2.4 shows the costs per drug user among three types of poly-drug uses – heroin with TMZ, cocaine with ketamine, and methamphetamine with ketamine. Costs among single drug users were also estimated for comparison. Poly-drug users of heroin with TMZ showed a higher cost per drug user (HK$361,514) than those who used heroin **only** (HK$318,844) and TMZ **only** (HK$257,963). However, poly-drug uses of cocaine with ketamine and methamphetamine with ketamine did not show significant differences in per drug user's costs when compared to the single use of the corresponding drugs.

6.3. Summary

Estimating the social costs by genders, age groups, and types of drug use was found challenging, mainly due to limitation of data availability. This chapter proposed a methodology, and attempts to provide some estimates of costs breakdown based on the best available information. It was shown that the average annual cost per drug user in 2014 was higher among men (HK$253,855), higher in the age group 41-50 (HK$322,841) and higher in those drug users who mainly used heroin (HK$319,319). It is worth noting again that the estimates in this chapter are some ball-park figures and the results again should be interpreted with great caution. The precision however, can be improved, if the data apart from the CRDA could provide greater details.

Chapter 7. Summary and recommendations

7.1. Summary of the study

This report estimated the socioeconomic costs of drug abuse in Hong Kong in the year 2014. The framework was developed primarily based on the International Guideline for Estimating the Costs of Substance Abuse published by the WHO (Single et al., 2003). The study combined local and overseas exercises, and modified them to match the local and current contexts. The cost-of-illness economic evaluation technique was adopted to measure the burden of drug abuse. Costs of drug abuse were classified into three dimensions: social vs. private costs, tangible vs. intangible costs, and direct vs. indirect costs.

Broadly speaking, the study was separated into four parts to (1) estimate the total cost of drug abuse; (2) estimate the number of "hidden" drug users; (3) understand existing service pathways for drug users; and (4) estimate the social tangible cost per drug user by genders, age groups and types of drug use. Data collection was split into two major components – primary and secondary. Primary data were collected through surveys on drug users (N=364), interviews on drug users (N=26), interviews on stakeholders (N=13), focus groups (N=4), a qualitative survey on stakeholders (N=6), and information sheets (N=2) for stakeholders. Secondary data were sourced from online searches and existing databases.

The **social tangible cost** attributable to drug abuse in 2014 was estimated at **HKD$3.98 billion**. Crime and law enforcements accounted for the largest part of the total social cost (41.2%), followed by loss of productivity (32.7%) and healthcare (11.7%). The remaining was shared by welfare (8.8%), drug productions (0.9%) and others (4.6%). The social tangible cost per capita was HK$550. It was estimated that 61.5% of the social tangible cost was borne by the government.

Combining social tangible cost with the private tangible cost estimated from drug consumption (excluding drug productions) and property destruction, the **total tangible cost** was estimated at **HKD$4.69 billion**, accounting for 0.21% Gross Domestic Product (GDP) in 2014. The cost of drug consumption and productions accounted for 16.0% of the total tangible cost. Compared with the socioeconomic cost estimation of drug abuse in Hong Kong dated back in 1998

(Cheung et al., 2000), the total tangible cost has increased from HK$4.2 billion to 4.7 billion, despite a sharp decrease in the number of drug users from 16,990 in 1998 to 9,059 in 2014 as reported to the Central Registry of Drug Abuse (CRDA).

Private intangible cost of drug abuse was quantified based on the potential years of life lost (3,618 years) and quality-life years lost (1,040 years) attributable to drug abuse in 2014. The associated **total intangible cost** was estimated at **HK$2.38 billion**. Combining social, private, tangible and intangible costs, the **total cost** of drug abuse in 2014 was estimated at **HK$7.08 billion**.

In order to adjust for possible underestimations of the costs, a generalized partial linear regression model was utilized to estimate the size of the "hidden" drug abuse population in the society over the period 2006-2014. The total numbers and estimated number of drug users gradually decreased throughout the time, declining from 13,252 to 9,059 and 47,361-52,780 to 18,974-22,658, respectively. According to the analyses, a more serious hidden drug abuse issue could be observed among the youngest age group (<21) and ketamine users.

Four drug types specifically stood out from the others in Hong Kong during the period 2006-2014, namely heroin, ketamine, MDMA, and methamphetamine. There were significantly more heroin and ketamine users in Hong Kong despite the declining trend. The most significant drop in the numbers observed was seen for MDMA users, while a 2.4 fold increase was observed for methamphetamine users. The rise in methamphetamine users was made up mostly by men.

The cost attributable to drug abuse was re-calculated after the adjustments for the "hidden" drug abuse issue. The adjusted **social tangible cost** attributable to drug abuse in 2014 was estimated at **HK$5.69 billion.** Loss of productivity accounted for the largest portion of the cost (42.0%), followed by crime and law enforcements (29.3%), healthcare (13.9%), and welfare (10.2%). The adjusted **total tangible cost** increased to **HK$7.17 billion** and the **total cost** increased to **HK$10.33 billion**.

Service pathways of drug users were investigated both quantitatively and qualitatively. For the quantitative analysis, the majority of drug users were found to be firstly reported by the Hong Kong Police Force (HKPF) (32%) and Outreaching Teams/ Integrated Service Centres (21%). The percentage for HKPF was higher among men (36%) than women (22%), whereas, the percentage for Outreaching Teams was higher among women (25%) than men (19%). The transition patterns were significantly different between younger (age ≤30) and

older (>30) drug users. Younger individuals have a higher dropout rate from all services but more frequent contact with social services. Older drug users were more likely to be captured through the substance abuse clinics (SACs). For drug types, the usual pattern of being firstly reported by the HKPF and Outreaching Services / Integrated Service Centres could not be seen in heroin and TMZ users.

The qualitative analysis provided further insights and elaboration on the CRDA data, and also pointed out the limitations of the current existing social services. Social services provided to drug users are divided into three systems: the criminal justice system, healthcare system, and the social welfare system (SW). While institutions in each system provide different types of services to the drug users, these services are not mutually exclusive. Instead of a horizontal, rigid service pathway, it is found that the service pathway is **complex**. Drug users are able to receive services from the three systems in parallel, where at times, they might abruptly be transferred or dropped out from one service due to arrests, relapses or urgent medical attention.

Drug users are also found commonly engaged in the social services **prior** to their drug use habit. Minor criminal offences, or being assigned to a social worker is frequently observed in the drug user interviews. The use of drugs therefore did not bring the users into the system, but complicated their engagement. The CRDA data therefore only captured their first entry as a **'drug user**', where prior engagements in the system are not reflected in the data.

The criminal justice system is long and coercive, also the most commonly engaged system due to drug possession (77%). Despite the sentencing however, it is found that most drug users have relapsed to drug use again. Moreover, the sentencing to the drug addiction treatment centres (DATCs) and prisons has lost its deterring function, as arrests have become common among the drug users. Furthermore, it has also helped the drug users to **expand their drug community** during their incarcerations.

Types of drugs served as a heavy determinant in affecting the service pathways of drug users, as different drugs correlates to different illnesses. The healthcare system is divided into several clusters, long term hospitalization, methadone clinics, and out-patient (SACs). It is found that the latter two services have adopted a harm reduction approach, where practitioners aim to **'keep the drug users alive and monitored'** instead of pushing the idea of quitting drugs. Drug users have also experienced **negative stigma** due to their drug use behavior in public

hospitals. They are therefore reluctant to seek medical help in public hospitals unless it is necessary, or else they would conceal their drug use habit. It is therefore possible that first entry of drug users into the social service system, as into the healthcare system, is yet unable to capture their drug use habit by doctors and nurses.

The SW system is divided into residential Drug Treatment and Rehabilitation Centers (DTRCs) and case-based appointment services. Drug users in the interview indicated two groups of visitors to the DTRCs, frequent visitors, and those who only go there out of no choice. Frequent visitors go in and out of the services for multiple times, where they might drop out earlier from the service and relapsed. The other group tends to rely on their own methods in quitting drugs, such as substituting with another drug, going for a self-retreat, before seeking professional help. DTRCs are not their first 'go-to' choice when it comes to quitting drugs.

Case-based appointment services include the Counselling Centers for Psychotropic Substance Abusers (CCPSAs), outreaching teams of the non-governmental organizations (NGOs) and regular social workers. The theme of **relationship** emerged as an important determinant in affecting whether the drug users would leave the service. Good relationships between social workers and drug users are found to be a motivation for clients to stay in the service.

Partnerships and collaborations are also common across the three systems. Probation or supervision officers, medical staff and social workers are often found in contact with each other for a particular client. Towards the end of one service, for example incarceration, referrals to other social services to support the drug user could be observed. Partnerships with corporates, institutions outside of the drug use service are also found among drug treatment services.

This study also attempted to estimate the social costs per drug user across different genders, age groups, and types of drug use based on the information best available to the research team. The average social tangible cost per drug user, after adjusting for the "hidden" drug abuse population, was HK$251,040 in 2014. The average cost of a male drug user (HK$253,855) was 7.2% higher than a female (HK$236,857). It has increased with the advancement of age, from HK$176,806 for those aged <21 to HK$322,841, aged 41-50. Across the drug types, heroin users incurred the highest average cost at HK$319,319, while ketamine users had

the lowest at $208,335. It should also be noted that these estimates only presented some ball-park figures, and should be interpreted with great caution.

This study further updated the estimate of socioeconomic costs attributable to drug abuse in Hong Kong, which has been examined by Cheung et al. (2000) almost two decades ago. This study offers an update of cost estimates based on a revised framework, which is believed to be more suitable to the current context, especially since the characteristics of drug users have drastically changed during the period. The categorization of cost items was also revised. This study has an edge over the previous exercise. First, the credibility of estimations has improved due to the improvements in data availability and data quality over the years in various aspects (e.g. more detail cost information from the HA). Voluminous information related to costs and caseloads can now be found and accessed from the internet sources. Although the work of online searches and consolidation of the associated data was tedious and time-consuming for the research team, this actually shortened the time of communicating with different organizations and has saved their efforts of digging up the information for this study. Second, this study includes several cost items not estimated by the previous exercise due to the difficulties in identifying sufficient information in the past. They include, but not limited to, loss of productivity due to premature mortalities, outpatient and emergency services arisen directly from drug use or co-morbidities and traumas, utilization of social services, and quantification of intangible costs. Third, although the estimation of costs in this study also relied heavily on the number of drug users reported to the CRDA (which is an underreported number), a statistical model to estimate the size of the drug abuse population in the society is proposed, and this number is applied to re-estimate the costs. This approach adjusted for the underestimations arisen from the underreporting of number of drug users in the CRDA data and produced an estimate which was believed to be closer to the actual costs. Last but not least, this study has conducted a comprehensive qualitative analysis on the service pathways of drug users. This provided a holistic understanding of the services and referral mechanisms for drug users across the service systems. The cost-of-illness (COI) exercise also gives an estimate reflecting the magnitude of the issue, while our qualitative approach provides an insight of how the costs were incurred.

7.2. Recommendations / policy implications

Owing to the growing demands of fiscal planning and cost effectiveness of practices and policies, assessing the socio-economic costs of drug use is of great importance (Schori, 2011). Cost estimation exercises, using a COI framework, provides a broad picture on how societal resources are spent on anti-drug abuse across different domains. In turn, this provides policymakers with an evidence for resource allocations and outcome evaluations, and may assist in the development of targeted new anti-drug interventions. Based on the findings of this study, several recommendations in three areas, both short and long-term are made.

Table 5.1
Summary of recommendations

Improvements on the Monitoring and Surveillance System	
Short-term	● Tackling the "hidden" drug users issue
	● Revising the record sheet of CRDA
Long-term	● Monitoring Meetings – Establishment of Community Epidemiology Work Group
Assessing Cost effectiveness and the Relevance of Services	
Short-term	● Evaluation of the current drug-related treatment services
	● Evaluation on knowledge and understanding on drug users among medical/criminal justice service (CJS) providers, and provide training packages to increase their knowledge and reduce the stigma
Long-term	● Substance Abuse Clinic services in methadone clinics
Re-Assessing Current Drug Policies	
Long-term	● Re-balance expenditure on law enforcement - the introduction of drug courts
Long-term	● Introduction of harm reduction strategies in services

Improvements on the Monitoring and Surveillance System

Short-term

1. Tackling the "hidden" drug users issue

To achieve a reliable drug abuse monitoring and surveillance system, estimation of the hidden drug abuse issue ought to be tackled. The current CRDA reporting practice relies on the frontline workers' reporting practice, yet no assessment has been conducted to understand their views, concerns or difficulties in the reporting system. It is recommended:

i) Focus groups and roundtable meetings be held at regular intervals to gather their views, experiences, and challenges the frontline workers faced with the reporting system.

ii) In light of (i), the reporting format should be revised to generate useful information to address the concerns and interests of front line workers and professionals. Professional training in the handling of the CRDA should be provided, and frontline workers should be able to see the value of the reporting system to improve their working practices. This increases their incentives in reporting cases to the system in a timely manner, and in turn improves the rate of capturing and thus tackling the issue of hidden drug users.

2. Revising the record sheet of CRDA

The record sheet for reporting cases to the CRDA should be revised by adding more fields to collect relevant data of drug users which facilitate the understanding of the phenomenon and the direction of the strategy and intervention (e.g. some survey questions related to health and quality of life should be used in this study). It is further suggested to include some fields reporting whether a drug user is entering a drug-related treatment provided by the reporting agency and the type and duration of the treatment. This helps to identify the number of times a person is engaged in treatment and be informed of the risk of relapses. Information on relapses is valuable not only for refining the cost estimate, but also for better understanding the difference in service utilization between those who keep relapsing and those who do not. At the end, it will improve the management and outcome of the services to the drug users.

Long-term

3. Monitoring Meetings – Establishment of Community Epidemiology Work Group

Audit reports conducted in 2008 and 2015 regarding the Narcotics Division and the Beat Drugs Fund have repeatedly pointed out the need of establishing a Supplementary Drug Abuse Monitoring System in a qualitative manner (Audit Commission, 2008, 2015). Case studies on drug users recorded on the CRDA and establishment of the qualitative module in the drug user records are proposed as two qualitative measures to tackle the problem of the hidden drug users. Similarly, one of the major findings in this research is the limitation of the CRDA data in understanding the context of the service transitions and pathways experienced by drug users. The CRDA data provides only a partial portrait of the broader drug issues landscape. A holistic monitoring and surveillance mechanism is therefore needed to take into account the three pathways and various stakeholders dealing with drug related issues.

To effectively attain regular surveillance and monitoring of the drug abuse population in Hong Kong, it appears that qualitative approaches cannot be neglected in order to reach out to the hidden population. A systematic, mixed method research approach to evaluate current drug treatment services and its pathway is therefore recommended. The Community Epidemiology Work Group (CEWG) model in the US (National Institute on Drug Abuse, 2015) is recommended as a reference model for Hong Kong to develop a systematic quantitative and qualitative evaluation over drug trends and related treatment services. First assembled in 1976, the CEWG gather stakeholders in the drug treatment and service field every year to discuss on the changes in drug trends and then evaluation of treatment services provided (US Department of Health and Human Services, 2014). Collecting qualitative data from focus groups, interviews and ethnographic researches, and combining with the quantitative data collected from surveys and drug user records, together with data from service providers and researchers, would present the most updated drug trends. Not only would this enable a constant update regarding the upcoming drug trends in the US, but also enables conversations between stakeholders to adjust their services to best fit the needs of the drug abuse population.

Adopting a similar working group framework in Hong Kong therefore would enhance the stakeholders' understanding towards the value of qualitative data in

informing drug trends, understand the hidden drug abuse population, and evaluate the effectiveness of current treatment services. This would involve an annual or bi-annual meeting involving key stakeholders related to drug use (e.g. health, law, and the police) to update on epidemiological trends and the latest developments in the field. The meetings may serve as the key alert system for updating any significant changes in the trend of drug abuse in Hong Kong so that involved parties would benefit from the exchange, and they can react timely and accordingly to match the needs of their service users. This ultimately would provide an ongoing and holistic monitoring system. In addition to providing evaluation of effectiveness of drug treatment services, it is also recommend to incorporate an integration of the CEWG framework with the cost estimation research conducted in this project. To better inform the government regarding resource allocations, regular COI should be conducted, and presented in the CEWG meetings to enhance the cost-effectiveness of drug treatment services in Hong Kong.

Assessing Cost effectiveness and the Relevance of Services

Short-term

1. Evaluation of the current drug-related treatment services

One significant finding regarding service pathways is drug users' repeated returns for drug-related services. Many drug-users recounted seeking treatment on repeated occasions with the DATCs (CSD) and voluntary DTRCs as somehow part of a normal process. This would suggest that these services may benefit from being assessed to determine their strengths and areas for change. Apart from interviewees recruited from the CSD, all interviewees who have been in the DATCs or prisons before, had relapsed after their releases.

Similarly, a number of drug users interviewed reported multiple entries to voluntary DTRCs. These suggest the need for further research evaluating their effectiveness over the current drug-related treatment services in Hong Kong. Service relevance in addressing the drug users' needs in achieving abstinence and the services' cost effectiveness is required. In-depth understanding of the clients' needs and their feedbacks regarding the drug treatment services should be explored in order to provide a more comprehensive service that will meet the needs of drug users. The COI estimate can offer an important basis for

evaluating anti-drug interventions and programs using additional methods of evaluation such as cost-benefit analyses, cost-effectiveness analyses, and social return on investment. To facilitate the evaluations and enhance the effectiveness of individual services / programs, COI exercise should be conducted on a regular basis to monitor the trend of costs.

2. Evaluation on knowledge and understanding on drug users among medical/criminal justice service (CJS) providers, and provide training packages to increase their knowledge and reduce the stigma

Both this study as well as international researches have pointed to the stigmatization drug users experience as an important barrier to recovery. Stigmatization is linked to discrimination in seeking services, support and employment. In this study, interviewees revealed that discriminative attitudes from doctors and nurses in hospitals have discouraged them from seeking medical attention if required, or prompting them to conceal their drug use habit from medical staff. This led to the missing of opportunities of early intervention from the service providers.

Stigma on drug users has also led to the constant lack of manpower for substance misuse clinics. Doctors have expressed medical staff's unwillingness to work at clinics due to the targeted population.

Recognizing the long-term effort required to remove negative stigmas and change perceptions among medical staff, a further evaluation study on the knowledge and understanding on drug users among service providers in the drug-related services serves as a good starting point. Through evaluating the current knowledge and perceptions of the staff on drug users, appropriate training packages could therefore be designed to educate service providers about this population. Furthermore, evaluation studies also provide reflection opportunities for service providers on perceptions and stigmas on the vulnerable groups in society. Through conversations and increased understanding, this study and its deliverables therefore aim to begin removing stigmas from drug users in society.

Long-term

3. Substance Abuse Clinic services in methadone clinics

Apart from removing stigmas among service providers in drug treatment services, an enhancement of the current services provided in methadone clinics is also recommended. Report of Director of the Audit Commission has remarked in 2008 regarding the mismatch between high demand of SAC services and the limited opening hours of clinics (Audit Commission, 2008). Recommending to extend SAC services to the community level, findings in this research have also supported the proposition.

Observing from the service pathways, outpatient medical services provided to drug users are divided into substance abuse clinics in hospitals, and methadone clinics targeting heroin users. In the light of the stigma experienced by drug users in entering medical services in hospitals, substance abuse clinic services could also be included in the methadone clinics. Grouping drug users oriented to medical services together encourages drug users to actively seek help since they would know that the community-based clinics are oriented for this population. At the same time, it also provides better utilization of the current methadone clinics, as nowadays, most clinics are only open for limited hours every week due to the shrinking heroin population. Longer opening hours could therefore affords to expand to serve the psychotropic drug users as well.

Re-Assessing Current Drug Policies

Long-term

1. Re-balance expenditure on law enforcement - the introduction of drug courts

As reflected in our report, the CJS system pathway represents the largest costs in addressing the drug issue in Hong Kong. As such, it is appropriate to consider-balancing expenditures on the cost for law enforcement. In the light of the high service re-entry rate, assessment on current drug policy is recommended. Reviewing drug users-oriented criminal justice models in the US, introduction of drug courts in Hong Kong seems to complement the current limitations of the CJS.

Drug courts have been introduced in several countries including the UK, USA and Australia in the past two decades. Drug court is a 'specialized court docket

program' which involves stakeholders from multiple disciplines such as judges, prosecutors, defense attorneys, social workers and treatment service providers (US Department of Justice, 2017). Instead of going through the ordinary correctional services, eligible offenders will be sent to the drug courts. It is a court setting program where clients are required to attend court hearings and complete the treatment program sentenced to them. Drug courts are also categorised into adult drug courts, juvenile drug courts, and drug while intoxication courts, where they serve different groups of drug users.

Aiming to reduce chances of relapses and criminal recidivism, clients are ordered to various drug-related services such as treatment programs, mandatory court hearing attendances and urine tests. As Mitchell et al. (2012) remarked, it enabled a direct conversation between the judge, stakeholders and the client. The authority of the court created served as one of the clients' motivation to abide by court orders. Awards and punishment measures such as advancement to higher program level, or longer program duration are used to encourage order compliance in the US. Arrested drug users who completed the program will enjoy a reduction or dismissal of charges pressed against them

Instead of directly sentencing drug users to prison or compulsory drug treatment services, drug courts enable a continuous conversation between the judge and drug users. Presence of stakeholders and families also facilitates the court to sentence the client to the most appropriate treatment program. Mitchell et al. (2012) conducted a meta-analysis on research studies regarding the effectiveness of drug courts. Among the 154 evaluation reports, they concluded a significant reduction of criminal recidivism among adult clients from 50% to 38%, where drug abstinence or low recidivism rates rose for three years. Carey et al. (2013) compared the cost of a drug-user entering a juvenile drug court with those who did not participate in the program. After two years of entry, it is found that drug users participating in the drug court had spent $961 USD less than those who entered the ordinary criminal justice service pathway. Moreover, a large amount of costs has been saved from the lower adult re-arrests, service referrals and new court hearings.

In view of the current high and repeated usage of traditional criminal justice service among drug users in Hong Kong as well as the high cost involved, it appears that the treatment provided in the DATCs or prisons has not addressed their need in achieving drug abstinence. With the high effectiveness of drug

courts observed in the US, UK and Australia, drug court is therefore recommended as a more cost-effective approach in handling drug users in Hong Kong.

2. Introduction of harm reduction strategies in services

The above findings all pointed to cost-ineffectiveness in handling drug users through the present CJS. From the repeated entrance into the CJS and the high costs inflicted, to the low deterrence effect on drug users, it appears that the CJS might not be the best approach in handling drug users in Hong Kong. Healthcare services targeting drug users in Hong Kong seemed to have led the development of policy approaching towards drug use. Methadone Treatment Program serving the heroin users, has been the only harm reduction policy implemented in Hong Kong for drug users. However, it appears that substance abuse clinics have subtly shifted to a similar approach, where the staff have expressed their higher priority to keep their clients alive and monitored. Instead of coercive drug treatments, medical staff instead tried to minimize the harm of drugs on their clients. From strategies preventing overdoses to assisting clients in getting public housing or referrals to other social services, the SACs adopting the harm reduction approach has one of the highest service retention rates as indicated from the CRDA. These pointed to the introduction of harm reduction elements in our current treatment systems. In the light of the high retention rates in the two harm reduction oriented healthcare services, a shift of approach to drug use as a public health issue should be an appropriate move for Hong Kong.

Chapter 8. Limitations

8.1. Limitations of the cost-of-illness approach

While the cost-of-illness (COI) approach is a convenient measure for socioeconomic cost estimations, the long-established method does have some inherent limitations.

Traditional COI approach provides a single point estimation of drug abuse that draws more on precision than what is actually inherent in the calculation (Moore & Caulkins, 2006; Reuter, 1999). Since estimates of the degree of a causal relationship, the cost of treating a medical condition, or the fraction of the population affected can rarely be assured with certainty (Nicosia et al., 2009), COI estimations might best be understood as a range rather than as a single number.

In addition, as COI estimations take no account of alternative uses of resources beyond an individual level, intangible costs associated with other significant factors (e.g. pain and suffering of family and friends of drug users) are often omitted from the calculations. It has been shown that the intangible costs of crimes are more than three times the estimated tangible costs (Miller, Cohen, & Wiersema, 1996), thus the exclusion of such cost component is likely to result in an underestimation of the true costs of drug abuse.

The handiness of COI estimation however, takes its toll in inter-study consistencies. The World Health Organization recommended taking a societal perspective when choosing cost effective interventions for analyses. This approach has been adopted for policy formulations and resources allocation in various global health issues (Tan-Torres Edejer et al., 2003). However, COI studies estimating drug abuse costs have not reached consistencies in their treatment of future costs associated with drug use today (Nicosia et al., 2009). As an example, it is common for COI studies to include the value of future loss of productivity resulted from premature deaths attributable to drug abuse but the future costs of incarcerating an individual caught in the possession or selling a drug today might not fully be taken into consideration by all studies (Nicosia et al., 2009). The inconsistencies can lead to underestimations of the true socioeconomic costs of drug abuse, while hampering the inter-study comparability in the field.

8.2. Limitations of the current study

Although this study provided a comprehensive assessment of the economic burden of drug abuse in the local context, it was not free from limitations.

1. Similar to the previous exercise by Cheung et al. (2000), many of the stakeholders related to anti-drug work remained unprepared for such a study. Although data availability has much improved over the years, the organizations could hardly provide breakdowns of their expenditures to meet the needs of this study. Besides, many of them appeared to be afraid that the project would result in evaluating their services. These led to a long and frustrating process in communicating with some stakeholders before their misgivings could transform to support. Moreover, quite often, the research team hit a dead end after such a lengthy process.

2. The survey on drug users was aimed to obtain a probability sample by stratified sampling across three major types of services. For the medical services, support has been gained from two Substance Abuse Clinics, but failed in the data collection in the Methadone Treatment Programme (MTP) under the Department of Health (DH). In 2014, the Central Registry of Drug Abuse (CRDA) data revealed that there was a significant portion of drug users who had been reported by the MTP only, but none by the other reporting agencies. The extent of its impact on the representativeness of this survey was unknown.

3. Comparing the sociodemographic variables between the respondents surveyed and the CRDA data suggested some degree of external validity of our sample (except for genders in which an intention was made to collect a disproportionate stratified sample). However, due to the issue of "hidden" drug users which could be very different from those being reported to the CRDA, the true extent of the external validity of our sample to the whole drug abuse population was still not clear. This however, can hardly be avoided unless all drug users are captured by the system.

4. Further, some cost items have not been estimated in this study. For example, reduction of on-the-job productivity and forgone productivity of criminals exist theoretically and are believed to contribute to a considerable amount of costs, but reliable estimates of the proportion attributable to drug abuse are

difficult to be ascertained due to lack of available data and existing researches (Collins & Lapsley, 2008; Slack et al., 2009).

5. Attributable fractions used in this study were largely borrowed from overseas exercises. Whether they are suitable for Hong Kong is still unknown. Owing to the scope and length of the study, only a few attributable fractions were updated for some causes of premature moralities. Therefore, future researches to develop a set of attributable fractions in the local context are warranted.

6. The nature of some costs were mixed and probably hidden under other categories. For example, the Correctional Services Department (CSD) provides the drug addiction treatment centre (DATC) program for inmates who are addicted to drugs. A portion of the incarceration costs estimated in this study may have been spent on treatment and rehabilitation purposes. In addition, government departments and the non-governmental organizations (NGOs) may spend a small portion of their resources on education, publicity and researches. The associated expenditures would be mixed in the corresponding categories, and would be difficult to be disassembled based on the available information.

7. In addition, this study intended to estimate social costs by different subgroups of interests. However, collecting data in such great detail was found to be challenging. This study proposed a methodology and attempted to breakdown the costs based on the best information available to the research team. However, this involved immense assumptions and estimations. Thus, the estimates in Chapter 6 should only be viewed as ball-park figures and should be interpreted with great caution.

8. Needless to say, it should be reminded that no cost-estimation exercise can be perfect. The exercise involves loads immense estimations and assumptions. It is difficult to achieve exact costs of drug abuse. Thus, the final estimates of social tangible costs presented in this study were likely to have underestimated the true expenditure in the society.

9. Life history approach in the drug user interviews cannot be generalized and confirmed. With only 26 interviewees, the data yielded lacks generalizability despite our attempts to maintain a good ratio according to the drug users' demographics. During the interview, it is observed that some interviewees are not able to fully account their drug history, or only manage to share pieces

of information. The validity of data therefore could only be cross-checked with other interviewees who share similar age and background.

10. Some of the interviews with drug users are accompanied by supervision officers or social workers. The presence of another authority might have affected the power dynamics during the interview, where interviewees might not feel as open to share with the interviewer.

Glossary

Attributable fraction. Also known as aetiological fraction. It refers to the proportion of the total number of cases of a condition (e.g. mortalities, arrests, and incarcerations) in the population that can be attributed to drug abuse.

Cost of illness (COI). An economic evaluation technique used in the field of health to identify and measure the costs of an illness. The proposition of the current COI in this study is that if drug abuse were not to exist, then the resources spent on treatment and other relevant service purposed could be redeployed.

Counterfactual scenario. In the current study, this is a hypothetical scenario, referring to a society with neither past nor present abuse of illicit drugs.

Direct costs. Explicit monetary spending on services and treatments and other related expenditures attributable to drug abuse. This can include services and treatments used by drug users, their family members and other crime victims.

Indirect costs see **direct costs.** The value of potential loss of output or productivity that can no longer be generated due to premature mortalities or morbidity associated with drug abuse.

Intangible costs see **tangible costs.** Costs which do not yield resources that can be shifted for other uses, which when reduced, do not have resource implication for the society.

Potential years of life lost (PYLL). Also known as years of potential life lost (YPLL). It is an estimate of the average years a person would have lived if he or she has not died prematurely.

Private costs see **social costs.** Costs borne by the individuals who make the consumption decisions, i.e. drug users in the current study.

Private intangible cost. The sum of all cost items that are classified as private costs and intangible costs. In this study, this includes **potential years of life lost** and **quality-life years lost**.

Private tangible cost. The sum of all cost items that are classified as **private costs** and **tangible costs**. In this study, this includes consumption of drugs (excluding drug productions) and property destruction.

Quality-life years lost. The reduction in health-related quality of life, measured by the EQ-5D-3L instrument.

Social costs. External costs borne by the society, which can be incurred by public expenditure or the private sectors.

Social tangible cost. The sum of all cost items that are classified as **social costs** and **tangible costs**.

Tangible costs. Those costs which, when reduced, yield resources which are then available to the community for consumption or investment purposes.

Total cost. In this study, it refers to the sum of **social tangible cost**, **private tangible cost**, and **private intangible cost**.

Total intangible cost. The sum of all cost items that are classified as intangible cost. In this study, it is equivalent to the **private intangible cost** as no social intangible cost was quantified.

Total tangible cost. The sum of **social tangible cost** and **private tangible cost**.

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Appendix A

Questionnaire of survey

香港吸毒問題的社會經濟成本評估研究

個案編號：_____

訪問日期：_____

開始時間：_____

訪問員：_____

地點：_____

受訪者現在的毒品使用狀況：☐ (01) 使用中 ☐ (02) 正在戒毒 ☐ (03) 已成功戒毒

第一部分 — 基本資料

1) 出生日期 (dd/mm/yyyy)

__ __ / __ __ / __ __ __ __

2) 年齡

_____

3) 性別

☐ (01) 男 ☐ (02) 女

4a) 族裔

☐ (01) 華人 ☐ (03) 黑人 ☐ (05) 其他(請註明): _____
☐ (02) 非華裔亞洲人 ☐ (04) 白人

4b) 出生地

☐ (01) 香港 ☐ (02) 其他(請註明): _____

4c) 居港年期

_____年

5) 宗教信仰

☐ (01) 沒有
☐ (02) 天主教
☐ (03) 基督教
☐ (04) 佛教
☐ (05) 道教
☐ (06) 穆斯林
☐ (07) 其他(請註明): _____

6) 你的最高教育程度是：

☐ (01) 未受教育
☐ (02) 小學或以下
☐ (03) 初中（中一至中三）
☐ (04) 高中（中四至中六）
☐ (05) 預科
☐ (06) 專上教育 / 副學士
☐ (07) 學士學位
☐ (08) 碩士或以上

7) 你的婚姻狀況是：

☐ (01) 從未結婚
☐ (02) 已婚
☐ (03) 離婚
☐ (04) 分居
☐ (05) 同居
☐ (06) 喪偶
☐ (07) 其他(請註明): _____

8) 你有沒有任何子女？

☐ (01) 沒有
☐ (02) 有 → → → 子女數目: _____

子女年齡: _____歲 _____歲
_____歲 _____歲
_____歲 _____歲

9) 你現時與多少名家庭成員同住？

☐ (01) 沒有 / 不適用
☐ (02) _____ 位成員

10a) 你於過往一年內的就業狀況是：(請完成以下表格；可選多項)

就業狀況	過往一年內處於這就業狀況的時間	通常每週工作小時
☐ (01) 全職工作	月	
☐ (02) 兼職工作	月	
☐ (03) 失業 / 待業	月	
☐ (04) 學生	月	
☐ (05) 全職料理家務		
☐ (06) 義務工作		
☐ (07) 退休		
☐ (08) 其他(請註明):	月	

10b) 如果你在**過往一年內**有全職或兼職工作，你**每週**大約有多少小時因為使用毒品而導致損失工作時間（例如遲到早退，缺席）？

☐ (01) 沒有　　☐ (02) _____小時

11) 請列出你**平均一個月**的收入來源及其金額。(請完成以下表格；可選多項)

收入來源	金額（港幣）	是否為主要收入來源
☐ (01) 工作	HK$	☐
☐ (02) 家人	HK$	☐
☐ (03) 朋友	HK$	☐
☐ (04) 借貸	HK$	☐
☐ (05) 毒品兜售	HK$	☐
☐ (06) 其他非法途徑（如盜竊，搶劫）	HK$	☐
☐ (07) 綜合社會保障援助計劃（綜援）	HK$	☐
☐ (08) 其他(請註明):	HK$	☐
總數：	HK$	

12) 你正住在什麼類型的房屋？如你現正接受住院治療或被監禁，住院前或被監禁前你住在什麼類型的房屋？

☐ (01) 租住公共房屋　☐ (04) 自置私人樓宇　☐ (07) 工作場所 / 員工宿舍
☐ (02) 租住私人樓宇　☐ (05) 自置公共房屋　☐ (08) 露宿
☐ (03) 居者有其屋　☐ (06) 租房　☐ (09) 其他(請註明): _____

第二部分 — 吸食毒品情況

13) 吸食毒品指在沒有依照醫務人員指導或處方下服用違禁或危險藥物。此等藥物包括以下列出的所有毒品，但不包括香煙及酒精。

毒品種類		首次使用年齡	在過往的一年內…					你是否已戒掉？# 0 = 否 1 = 是
			平均每月使用次數	通常每次開支(港元)	通常服用的方法*	曾經尋求治療次數	你有多少次嘗試戒掉毒品？	
01	大麻、草 *(Cannabis)*							
興奮劑 – Simulants								
02	冰、甲基安非他命 *(Methamphetamine)*							
03	安非他命硫酸鹽 *(Amphetamine Sulphate)*							
04	可卡因粉、可可精、可樂 *(Powder Cocaine)*							
05	霹靂可卡因 *(Freebase Cocaine)*							
06	減肥藥 *(Diet Pills)*							
迷幻劑 – Psychedelics								
07	Fing 頭丸、忘我、E 仔、糖 *(MDMA)*							
08	氯胺酮、K 仔、茄、香水 *(Ketamine)*							
09	G 水、γ-羥丁酸 *(GHB)*							
10	二甲基苯乙基胺 *(Phentermine)*							
11	黑芝麻、FING 霸 *(LSD)*							
12	天使塵、苯環利定、PCP *(Phencyclidine)*							
13	2CB *(Nexus, N, 4-Bromo-2)*							
14	DMT、二甲基色胺 *(Dimethyltryptamine)*							
麻醉鎮痛劑 – Narcotics								
15	白粉、海洛英、三仔、四仔*(Heroin)*							
16	美沙酮、蜜瓜汁、老美 *(Methadone)*							
17	嗎啡 *(Morphine Ampoules)*							
18	鴉片、福壽膏 *(Opium)*							
19	紅色菲仕通 *(Dipipanone/ Wellconal)*							
鎮靜劑 – Tranquilizers								
20	十字架 *(Flunitrazepam/ Rohypnol)*							
21	安定、羅氏五號、羅氏十號 *(Diazepam)*							
22	白瓜子、瓜子 *(Zopiclone/Triazolam)*							
23	藍精靈、藍仔 *(Midazolam [Dormicum])*							
24	5 仔 *(Nimetazepam)*							
25	屋仔、二拾蚊 *(Brotizolam)*							
26	利眠寧 *(Chlordiazepoxide)*							
鎮靜劑（巴比士酸鹽）– Depressants (Barbiturates)								
27	忽得、糖仔 *(Methaqualone [Mandrax])*							
28	莉莉四十 *(Secobarbital [Seconal])*							
29	戊巴比妥 *(Pentobarbitone [Nembutal])*							
其他/新型毒品 – Others/New Drugs								
30	咳藥水、可待因 *(Cough Mixture [Codeine])*							
31	天拿水、打火機、油 *(Solvents, i.e. glue, gas)*							
32	O 仔 *(Dextromethorphan)*							
33	白芝麻 *(White Sesame)*							
34	其他(請註明):							
35	其他(請註明):							

*通常服用的方法: 不適用(0)；混合於飲品中(1)；口服(2)；以香煙或煙管吸食(3)；鼻吸(4)；注射(5)； # 3 個月內沒有服用

14) 平均你會在毒品上使用多少錢？

每 月 / 星期 / 日 HK$_____

(請刪去不適用)

15) 你的家人有沒有吸食毒品的背景？如有，請列出。

☐ (01) 沒有

☐ (02) 有 → → → 與你的關係 (例如:母親、哥哥): _____

_____

_____

第三部分 — 治療情況

16) 你有沒有**曾經**接受過任何機構所提供的戒毒治療？

☐ (01) 沒有

☐ (02) 有 (請完成以下表格；請倒序列出，即最近者最先敍述)

機構名稱	進行治療年份	服務種類 (可選多項)	主要涉及毒品種類#	自願或強制 0 = 自願 1 = 強制	整個療程為期多久? (如果自行提早離開，請加上"E")	復吸日數 (如無，請填上 NA) *
(1)		☐ 門診 ☐ 院舍 ☐ 宗教				
(2)		☐ 門診 ☐ 院舍 ☐ 宗教				
(3)		☐ 門診 ☐ 院舍 ☐ 宗教				
(4)		☐ 門診 ☐ 院舍 ☐ 宗教				
(5)		☐ 門診 ☐ 院舍 ☐ 宗教				
(6)		☐ 門診 ☐ 院舍 ☐ 宗教				
(7)		☐ 門診 ☐ 院舍 ☐ 宗教				

請參考第二部分的毒品種類編碼

* 復吸日數指由離開 / 完成療程後到再次吸食毒品之間的日子數目

第四部分 — 毒品衍生的問題

17) 你在有<u>吸食毒品習慣後</u>有否被臨床診斷出帶有以下病毒或患有以下疾病？(可選多項)

☐ (01) 沒有
☐ (02) 人類免疫力缺乏病毒 (HIV 帶菌者)
☐ (03) 愛滋病 (AIDS)
☐ (04) 乙型肝炎
☐ (05) 丙型肝炎
☐ (06) 其他肝臟疾病 [包括：藥物性肝炎、肝硬化、肝衰竭]
☐ (07) 泌尿疾病 [包括：腎水腫、腎衰竭、膀胱炎]
☐ (08) 呼吸系統疾病 [包括：肺炎、肺氣腫、哮喘]
☐ (09) 心血管疾病 [包括：高血壓心臟病、急性心肌梗塞、心律失常]
☐ (10) 其他(請註明): _____

18) 你在有<u>吸食毒品習慣後</u>有否被臨床診斷出以下的精神健康問題？(可選多項)

☐ (01) 沒有
☐ (02) 抑鬱症
☐ (03) 焦慮症
☐ (04) 思覺失調 [包括：幻覺、妄想]
☐ (05) 睡眠障礙 [包括：失眠症、嗜睡症]
☐ (06) 衝動控制失調 [包括：行為障礙、盜竊癖、縱火癖]
☐ (07) 創傷和壓力相關疾患 [包括：創傷後壓力症、適應障礙症]
☐ (08) 人格障礙 [包括：反社會人格障礙、邊緣性人格障礙]
☐ (09) 其他(請註明): _____

19) 你有沒有因吸食毒品而<u>曾經</u>引致以下的意外受損？(可選多項)

☐ (01) 沒有
☐ (02) 車輛相關意外
☐ (03) 自我傷害
☐ (04) 被襲擊
☐ (05) 其他(請註明): _____

20) 在過去的一年內，你有沒有試過因以下情況而需要使用公營機構(包括衛生署及醫管局)所提供的門診服務或住院服務？

☐ (01) 沒有 / 不適用 (請直接跳到第 21 題)
☐ (02) 沒有，因為使用了私人機構所提供的服務 (請直接跳到第 21 題)
☐ (03) 有 (請完成以下表格)

原因	使用門診次數	使用急症室次數	入院次數	平均每次留院日數(天)
身體健康 (如 Q17 所列出的疾病)				
精神健康 (如 Q18 所列出的問題)				
意外受損 (如 Q19 所列出的情況)				
毒品中毒				

21) 在過去的一年內，你曾否考慮自殺？

☐ (01) 沒有　　☐ (02) 有

22a) 在過去的一年內，你曾否在**毒品影響下**企圖自殺或自殘？如有，多少次？

☐ (01) 沒有　　☐ (02) 有，總共_____次

22b) 在過去的一年內，你曾否在**沒有毒品影響下**企圖自殺或自殘？如有，多少次？

☐ (01) 沒有　　☐ (02) 有，總共_____次

23) 在過去的一年內，有沒有試過因毒品影響下引致燒毀或毀壞物件 / 地方？

☐ (01) 沒有 (請直接跳到第 24 題)
☐ (02) 有 → → → a. 大概多少次？

燒毀物件/地方_____次；毀壞物件/地方_____次

b. 物品名稱及約合共多少錢？

	物品名稱	價值（港幣）
01		$
02		$
03		$
04		$
05		$
06		$
07		$
	約合共港幣:	$

24) 在過去的一年內，有沒有因為藏毒、販毒、或因吸毒所需而做出違法行為？

☐ (01) 沒有 (請直接跳到第 25 題)
☐ (02) 有 (請完成以下表格)

違法行為		做出違法行為次數	因而被警察拘捕次數	因而被法庭判罪次數	因而被判監次數
侵犯財物的罪案					
01	爆竊				
02	盜竊				
03	刑事毀壞				
04	縱火				
侵犯人身的罪案					
05	性罪行 (強姦、非禮)				
06	侵犯人身的罪行 (傷人、毆打)				
07	謀殺及誤殺、意圖謀殺				
08	虐待兒童				
嚴重毒品罪案及其他					
09	毒品罪行 (製毒、販毒、藏毒)				
10	其他(請註明):				

25) 於過去的一年內，你有沒有因你的吸毒行為而導致需要使用以下的違法者服務？

☐ (01) 沒有 (請直接跳到第 26 題)
☐ (02) 有 (請完成以下表格)

違法者服務		使用時間
01	感化服務	月
02	社會服務令計劃	月
03	更生人士社會服務中心	月
04	更生人士宿舍	月
05	核准院舍(感化院舍) / 感化院 / 收容所 / 羈留院	月
06	其他(請註明):	月

26) 於過去的一年內，你的家人有沒有因你的吸毒行為而使用以下的家庭及兒童福利服務？

☐ (01) 沒有 (請直接跳到第 27 題)
☐ (02) 有 (請完成以下表格)

家庭及兒童福利服務		使用時間
01	寄養服務	月
02	兒童之家	月
03	兒童院舍	月
04	幼兒中心	月
05	保護家庭及兒童服務	月
06	其他(請註明):	月
07	不清楚服務類型	月

第五部分 — EQ-5D-3L 健康問卷

27) 請在下列各組選項中，指出哪一項敘述最能描述你今天的健康狀況。

a. 行動

☐ 我可以四處走動，沒有任何問題
☐ 我行動有些不便
☐ 我臥病在床

b. 自我照顧

☐ 我能照顧自己，沒有任何問題
☐ 我在洗澡或穿衣方面有些問題
☐ 我無法自己洗澡或穿衣

c. 平常活動 (如工作，讀書，家事，家庭或休閒活動)

☐ 我能進行平常活動，沒有任何問題
☐ 我在進行平常活動方面有些問題
☐ 我無法進行平常活動

d. 疼痛 / 不舒服

☐ 我沒有任何疼痛或不舒服
☐ 我覺得中度疼痛或不舒服
☐ 我覺得極度疼痛或不舒服

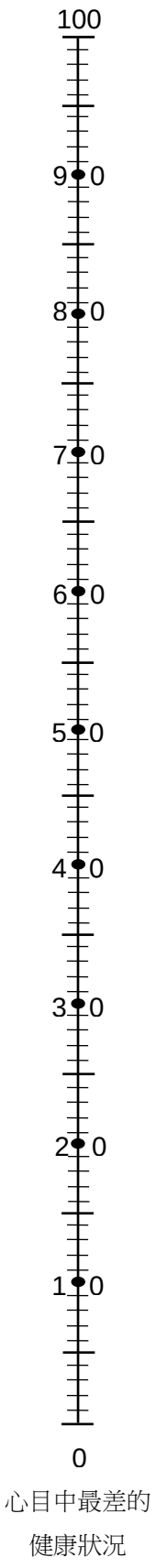
e. 焦慮 / 沮喪

☐ 我不覺得焦慮或沮喪
☐ 我覺得中度焦慮或沮喪
☐ 我覺得極度焦慮或沮喪

28) 為了幫助一般人陳述健康狀況的好壞，我們畫了一個刻度尺 (有點像溫度計)，在這刻度尺上，100 代表你心目中最好的狀況，0 代表你心目中最差的狀況。
我們希望就你的看法，在這個刻度尺上標出你<u>今天</u>健康狀況的好壞。請從下面方格中畫出一條線，連到刻度尺上最能代表你今天健康狀況好壞的那一點。

您今天的

健康狀況



訪問完結時間：_____

香港吸毒問題的社會經濟成本評估研究 - 懲教署版本

個案編號：_____

訪問日期：_____

開始時間：_____

訪問員：_____

地點：_____

受訪者現在的毒品使用狀況：☐ (01) 使用中 ☐ (02) 正在戒毒 ☐ (03) 已成功戒毒

受訪者是次監禁已有多長時間：_____ 月 / 星期 / 日

受訪者現在被監禁的原因：_____

第一部分 — 基本資料

1) 出生日期 (dd/mm/yyyy)

__ __ / __ __ / __ __ __ __

2) 年齡

_____

3) 性別

☐ (01) 男 ☐ (02) 女

4a) 族裔

☐ (01) 華人 ☐ (03) 黑人 ☐ (05) 其他(請註明): _____
☐ (02) 非華裔亞洲人 ☐ (04) 白人

4b) 出生地

☐ (01) 香港 ☐ (02) 其他(請註明): _____

4c) 居港年期

_____年

5) 宗教信仰

☐ (01) 沒有
☐ (02) 天主教
☐ (03) 基督教
☐ (04) 佛教
☐ (05) 道教
☐ (06) 穆斯林
☐ (07) 其他(請註明): _____

6) 你的最高教育程度是：

☐ (01) 未受教育
☐ (02) 小學或以下
☐ (03) 初中（中一至中三）
☐ (04) 高中（中四至中六）
☐ (05) 預科
☐ (06) 專上教育 / 副學士
☐ (07) 學士學位
☐ (08) 碩士或以上

7) 你的婚姻狀況是：

☐ (01) 從未結婚
☐ (02) 已婚
☐ (03) 離婚
☐ (04) 分居
☐ (05) 同居
☐ (06) 喪偶
☐ (07) 其他(請註明): _____

8) 你有沒有任何子女？

☐ (01) 沒有
☐ (02) 有 → → → 子女數目: _____

子女年齡: _____歲 _____歲
_____歲 _____歲
_____歲 _____歲

9) 你現時與多少名家庭成員同住？

☐ (01) 沒有 / 不適用
☐ (02) _____ 位成員

10a) 你**被監禁前的一年內**的就業狀況是：(請完成以下表格；可選多項)

就業狀況	**被監禁前的一年內**處於這就業狀況的時間	當時通常**每週**工作小時
☐ (01) 全職工作	月	
☐ (02) 兼職工作	月	
☐ (03) 失業 / 待業	月	
☐ (04) 學生	月	
☐ (05) 全職料理家務		
☐ (06) 義務工作		
☐ (07) 退休		
☐ (08) 其他(請註明):	月	

10b) 如果你**被監禁前的一年內**有全職或兼職工作，你當時**每週**大約有多少小時因為使用毒品而導致損失工作時間（例如遲到早退，缺席）？

☐ (01) 沒有　　☐ (02) _____小時

11) 請列出你**被監禁前平均每月**的收入來源及其金額。(請完成以下表格；可選多項)

收入來源	金額（港幣）	是否為主要收入來源
☐ (01) 工作	HK$	☐
☐ (02) 家人	HK$	☐
☐ (03) 朋友	HK$	☐
☐ (04) 借貸	HK$	☐
☐ (05) 毒品兜售	HK$	☐
☐ (06) 其他非法途徑（如盜竊，搶劫）	HK$	☐
☐ (07) 綜合社會保障援助計劃（綜援）	HK$	☐
☐ (08) 其他(請註明):	HK$	☐
總數：	HK$	

12) 你**被監禁前**住在什麼類型的房屋？

☐ (01) 租住公共房屋　☐ (04) 自置私人樓宇　☐ (07) 工作場所 / 員工宿舍
☐ (02) 租住私人樓宇　☐ (05) 自置公共房屋　☐ (08) 露宿
☐ (03) 居者有其屋　☐ (06) 租房　☐ (09) 其他(請註明): _____

第二部分 — 吸食毒品情況

13) 吸食毒品指在沒有依照醫務人員指導或處方下服用違禁或危險藥物。此等藥物包括以下列出的所有毒品，但不包括香煙及酒精。

毒品種類		首次使用年齡	被監禁前的一年內…					你是否已戒掉？# 0 = 否 1 = 是
			平均每月使用次數	通常每次開支(港元)	通常服用的方法*	曾經尋求治療次數	你有多少次嘗試戒掉毒品？	
01	大麻、草 *(Cannabis)*							
興奮劑 – Simulants								
02	冰、甲基安非他命 *(Methamphetamine)*							
03	安非他命硫酸鹽 *(Amphetamine Sulphate)*							
04	可卡因粉、可可精、可樂 *(Powder Cocaine)*							
05	霹靂可卡因 *(Freebase Cocaine)*							
06	減肥藥 *(Diet Pills)*							
迷幻劑 – Psychedelics								
07	Fing 頭丸、忘我、E 仔、糖 *(MDMA)*							
08	氯胺酮、K 仔、茄、香水 *(Ketamine)*							
09	G 水、γ-羥丁酸 *(GHB)*							
10	二甲基苯乙基胺 *(Phentermine)*							
11	黑芝麻、FING 霸 *(LSD)*							
12	天使塵、苯環利定、PCP *(Phencyclidine)*							
13	2CB *(Nexus, N, 4-Bromo-2)*							
14	DMT、二甲基色胺 *(Dimethyltryptamine)*							
麻醉鎮痛劑 – Narcotics								
15	白粉、海洛英、三仔、四仔*(Heroin)*							
16	美沙酮、蜜瓜汁、老美 *(Methadone)*							
17	嗎啡 *(Morphine Ampoules)*							
18	鴉片、福壽膏 *(Opium)*							
19	紅色菲仕通 *(Dipipanone/ Wellconal)*							
鎮靜劑 – Tranquilizers								
20	十字架 *(Flunitrazepam/ Rohypnol)*							
21	安定、羅氏五號、羅氏十號 *(Diazepam)*							
22	白瓜子、瓜子 *(Zopiclone/Triazolam)*							
23	藍精靈、藍仔 *(Midazolam [Dormicum])*							
24	5 仔 *(Nimetazepam)*							
25	屋仔、二拾蚊 *(Brotizolam)*							
26	利眠寧 *(Chlordiazepoxide)*							
鎮靜劑（巴比士酸鹽） – Depressants (Barbiturates)								
27	忽得、糖仔 *(Methaqualone [Mandrax])*							
28	莉莉四十 *(Secobarbital [Seconal])*							
29	戊巴比妥 *(Pentobarbitone [Nembutal])*							
其他/新型毒品 – Others/New Drugs								
30	咳藥水、可待因 *(Cough Mixture [Codeine])*							
31	天拿水、打火機、油 *(Solvents, i.e. glue, gas)*							
32	O 仔 *(Dextromethorphan)*							
33	白芝麻 *(White Sesame)*							
34	其他(請註明):							
35	其他(請註明):							

*通常服用的方法: 0 = 不適用; 1 = 混合於飲品中; 2 = 口服; 3 = 以香煙或煙管吸食; 4 = 鼻吸; 5 = 注射; # 3 個月內沒有服用

14) 平均你會在毒品上使用多少錢？

每 月 / 星期 / 日 HK$_____

(請刪去不適用)

15) 你的家人有沒有吸食毒品的背景？如有，請列出。

☐ (01) 沒有

☐ (02) 有 → → → 與你的關係 (例如:母親、哥哥): _____

_____

_____

第三部分 — 治療情況

16) 你有沒有**曾經**接受過任何機構所提供的戒毒治療？

☐ (01) 沒有

☐ (02) 有 (請完成以下表格；請倒序列出，即最近者最先敍述)

機構名稱	進行治療年份	服務種類 (可選多項)	主要涉及毒品種類#	自願或強制 0 = 自願 1 = 強制	整個療程為期多久? (如果自行提早離開，請寫上"E")	復吸日數 (如無，請填上 NA) *
(1)		☐ 門診 ☐ 院舍 ☐ 宗教				
(2)		☐ 門診 ☐ 院舍 ☐ 宗教				
(3)		☐ 門診 ☐ 院舍 ☐ 宗教				
(4)		☐ 門診 ☐ 院舍 ☐ 宗教				
(5)		☐ 門診 ☐ 院舍 ☐ 宗教				
(6)		☐ 門診 ☐ 院舍 ☐ 宗教				
(7)		☐ 門診 ☐ 院舍 ☐ 宗教				

請參考第二部分的毒品種類編碼

* 復吸日數指由離開 / 完成療程後到再次吸食毒品之間的日子數目

第四部分 — 毒品衍生的問題

17) 你在有**吸食毒品習慣後**有否被臨床診斷出帶有以下病毒或患有以下疾病？(可選多項)

☐ (01) 沒有
☐ (02) 人類免疫力缺乏病毒 (HIV 帶菌者)
☐ (03) 愛滋病 (AIDS)
☐ (04) 乙型肝炎
☐ (05) 丙型肝炎
☐ (06) 其他肝臟疾病 [包括：藥物性肝炎、肝硬化、肝衰竭]
☐ (07) 泌尿疾病 [包括：腎水腫、腎衰竭、膀胱炎]
☐ (08) 呼吸系統疾病 [包括：肺炎、肺氣腫、哮喘]
☐ (09) 心血管疾病 [包括：高血壓心臟病、急性心肌梗塞、心律失常]
☐ (10) 其他(請註明): _____

18) 你在有**吸食毒品習慣後**有否被臨床診斷出以下的精神健康問題？(可選多項)

☐ (01) 沒有
☐ (02) 抑鬱症
☐ (03) 焦慮症
☐ (04) 思覺失調 [包括：幻覺、妄想]
☐ (05) 睡眠障礙 [包括：失眠症、嗜睡症]
☐ (06) 衝動控制失調 [包括：行為障礙、盜竊癖、縱火癖]
☐ (07) 創傷和壓力相關疾患 [包括：創傷後壓力症、適應障礙症]
☐ (08) 人格障礙 [包括：反社會人格障礙、邊緣性人格障礙]
☐ (09) 其他(請註明): _____

19) 你有沒有因吸食毒品而**曾經**引致以下的意外受損？(可選多項)

☐ (01) 沒有
☐ (02) 車輛相關意外
☐ (03) 自我傷害
☐ (04) 被襲擊
☐ (05) 其他(請註明): _____

20) 被監禁前的一年內，你有沒有試過因以下情況而需要使用公營機構(包括衛生署及醫管局)所提供的門診服務或住院服務？

☐ (01) 沒有 / 不適用 (請直接跳到第 21 題)
☐ (02) 沒有，因為使用了私人機構所提供的服務 (請直接跳到第 21 題)
☐ (03) 有 (請完成以下表格)

原因	使用門診次數	使用急症室次數	入院次數	平均每次留院日數(天)
身體健康 (如 Q17 所列出的疾病)				
精神健康 (如 Q18 所列出的問題)				
意外受損 (如 Q19 所列出的情況)				
毒品中毒				

21) 被監禁前的一年內，你曾否考慮自殺？

☐ (01) 沒有　　☐ (02) 有

22a) 被監禁前的一年內，你曾否在**毒品影響下**企圖自殺或自殘？如有，多少次？

☐ (01) 沒有　　☐ (02) 有，總共_____次

22b) 被監禁前的一年內，你曾否在**沒有毒品影響下**企圖自殺或自殘？如有，多少次？

☐ (01) 沒有　　☐ (02) 有，總共_____次

23) 被監禁前的一年內，有沒有試過因毒品影響下引致燒毀或毀壞物件 / 地方？

☐ (01) 沒有 (請直接跳到第 24 題)
☐ (02) 有 → → →

a. 大概多少次？

燒毀物件/地方_____次；毀壞物件/地方_____次

b. 物品名稱及約合共多少錢？

物品名稱		價值（港幣）
01		$
02		$
03		$
04		$
05		$
06		$
07		$
	約合共港幣:	$

24) **包括今次監禁在內**，你在**被監禁前的一年內**，有沒有因為藏毒、販毒、或因吸毒所需而做出違法行為？

☐ (01) 沒有 (請直接跳到第 25 題)
☐ (02) 有 (請完成以下表格)

違法行為		做出違法行為次數	因而被警察拘捕次數	因而被法庭判罪次數	因而被判監次數
侵犯財物的罪案					
01	爆竊				
02	盜竊				
03	刑事毀壞				
04	縱火				
侵犯人身的罪案					
05	性罪行 (強姦、非禮)				
06	侵犯人身的罪行 (傷人、毆打)				
07	謀殺及誤殺、意圖謀殺				
08	虐待兒童				
嚴重毒品罪案及其他					
09	毒品罪行 (製毒、販毒、藏毒)				
10	其他(請註明):				

25) **被監禁前的一年內**，你有沒有因你的吸毒行為而導致需要使用以下的違法者服務？

☐ (01) 沒有 (請直接跳到第 26 題)
☐ (02) 有 (請完成以下表格)

違法者服務		使用時間
01	感化服務	月
02	社會服務令計劃	月
03	更生人士社會服務中心	月
04	更生人士宿舍	月
05	核准院舍(感化院舍) / 感化院 / 收容所 / 羈留院	月
06	其他(請註明):	月

26) **被監禁前的一年內**，你的**家人**有沒有因你的吸毒行為而使用以下家庭及兒童福利服務？

☐ (01) 沒有 (請直接跳到第 27 題)
☐ (02) 有 (請完成以下表格)

家庭及兒童福利服務		使用時間
01	寄養服務	月
02	兒童之家	月
03	兒童院舍	月
04	幼兒中心	月
05	保護家庭及兒童服務	月
06	其他(請註明):	月
07	不清楚服務類型	月

第五部分 — EQ-5D-3L 健康問卷

27) 請在下列各組選項中，指出哪一項敘述最能描述你今天的健康狀況。

a. 行動

☐ 我可以四處走動，沒有任何問題
☐ 我行動有些不便
☐ 我臥病在床

b. 自我照顧

☐ 我能照顧自己，沒有任何問題
☐ 我在洗澡或穿衣方面有些問題
☐ 我無法自己洗澡或穿衣

c. 平常活動 (如工作，讀書，家事，家庭或休閒活動)

☐ 我能進行平常活動，沒有任何問題
☐ 我在進行平常活動方面有些問題
☐ 我無法進行平常活動

d. 疼痛 / 不舒服

☐ 我沒有任何疼痛或不舒服
☐ 我覺得中度疼痛或不舒服
☐ 我覺得極度疼痛或不舒服

e. 焦慮 / 沮喪

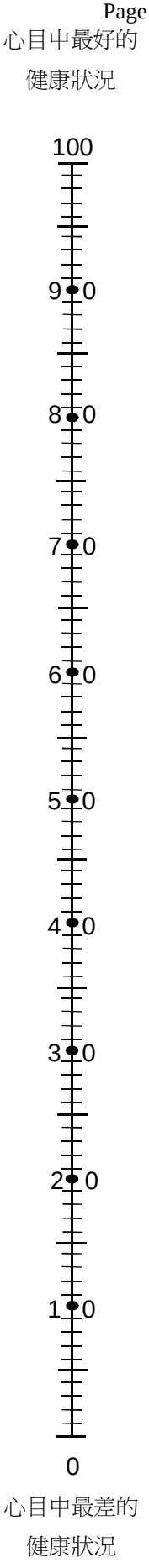
☐ 我不覺得焦慮或沮喪
☐ 我覺得中度焦慮或沮喪
☐ 我覺得極度焦慮或沮喪

28) 為了幫助一般人陳述健康狀況的好壞，我們畫了一個刻度尺 (有點像溫度計)，在這刻度尺上，100 代表你心目中最好的狀況，0 代表你心目中最差的狀況。

我們希望就你的看法，在這個刻度尺上標出你<u>今天</u>健康狀況的好壞。請從下面方格中畫出一條線，連到刻度尺上最能代表你今天健康狀況好壞的那一點。

您今天的

健康狀況



訪問完結時間：_____

Appendix **B**

Information sheet

Assessing the socioeconomic costs of drug abuse in Hong Kong SAR
Information Sheet on
Expenditure on Work related to Narcotic Drug Abuser for 2014

General Information:

1. Name of Centre/Agency:

2. Agency Head. Key Officials (e.g. President, Chairman, Hon. Sec., Treasurers, Exec. Dir.):

3. Agency Status: (Please tick appropriate box and specify higher authority or principal organization)

   - ☐ Government Department/Division/Section/Unit: _____
   - ☐ Statutory Body: _____
   - ☐ Non-Government Organization registered under Charitable Institution Section 88 of the Inland Revenue Ordinance (Company ordinance/registrar of Societies/Others)
   - ☐ International Agency: _____
   - ☐ Others: _____

4. Major service areas (Please tick appropriate box)

	Judicial and Law enforcement (describe major function):	
	Correctional Services:	
	Public Health Service (including Laboratory tests):	
	Emergency Treatment:	
	Out-patient maintenance or treatment:	
	Residential Treatment and Rehabilitation:	
	Counselling and Intervention:	
	Aftercare including HWH:	
	Self Help and Mutual Help:	
	Vocational Preparation and Job Placement:	
	Prevention and Education:	
	Research and Publication:	
	Others (please specify):	

Organization and Administration:

1. Please attach an organizational chart if available:

2. What are the number of staff in the organization and their general backgrounds?

<table>
<tr><td></td><td>Number of Staff</td><td colspan="2">General Background</td></tr>
<tr><td>Full Time Staff (including supporting staff)</td><td></td><td colspan="2"></td></tr>
<tr><td>Part Time and Temporary Staff</td><td></td><td colspan="2"></td></tr>
<tr><td rowspan="3">Volunteers</td><td rowspan="3"></td><td>Average Working Hours per week</td><td></td></tr>
<tr><td rowspan="2">Any subsistence or transportation allowances received?</td><td>Yes/No</td></tr>
<tr><td>Amount of person:</td></tr>
</table>

Cost Information:

1. What are the major sources of income and their rough percentages (Government Budget or subvention, Beat Drugs Fund, Community Chest Hong Kong, Overseas donations etc.) for the current financial year (2014/15)?

2. How much are your budgeted income and expenditures of the current financial year? (An audited account of financial years covering 2014 will be appreciated)

3. If you charge any fees/ and or deposits from your client/patient/residents, how much did you collect last year (2014-15) and will collect this year (2015-16)?

---

4. On average, how many clients cannot afford to pay? How is the problem dealt with?

---

5. What is the total caseload of your organization last year (2014-15)? What is your estimation for this year (2015-16)?

6. What percentages of your expenditure are spent on drug abuse related cases/programmes directly? Please estimate according to your experience.

7. Have you conducted any cost accounting or calculated united cost? (e.g. please describe in-patient day cost, HWH residential cost, out-patient cost etc.)

8. Do you provide drug prevention, education or research services? How many related projects in the last financial year? How many are running this year?

   Provision of research or educational services: Yes/No
   Number of projects running in 2014-15: _____
   Number of projects running in 2015-16: _____

9. How are the research projects funded?

[End of the form.]

Assessing the socioeconomic costs of drug abuse in Hong Kong SAR

Beat Drug Fund Information Sheet on

Expenditure on Work related to Narcotic Drug Abuser for 2014

(1) Name of Organisation: Beat Drugs Fund Association

(2) Contact Person:
Tel:

(3) Nature of Work involving Narcotics Drug Abuse: (Please tick where appropriate)

Drug Treatment and Rehabilitation ___

Drug Prevention and Education ___

Drug-related Research ___

Drug related Social Work ___

Others ___

(4) Number of **active** projects in 2014 funded by Beat Drug Fund:

Details of funded project in 2014:

Name of Project:	Project Type	Target Audience	Amount spend in 2014 ($)

(5) Number of **active** projects in 2014 funded by Special Funding Scheme:

Details of funded project in 2014:

Name of Project:	Project Type	Target Audience	Amount spend in 2014 ($)

(6) Estimation of total expenditure on work related to drug abuse for the year 2014 (Jan to Dec):

Psychoactive Drugs	Non-psychoactive Drugs (eg. Heroin)
HK$	HK$

(7) Detailed Breakdown of account:

	Expenditure ($)	Percentages in total expenditure: (%)
Drug Treatment and Rehabilitation		
Drug Prevention and Education		
Drug-related Research		
Drug related Social Work		
Others		

(8) Number of project proposals applied for **BDF** in 2013-2014: _____
Number of project proposals applied for **BDF** in 2014-2015: _____
Number of project proposals applied for **SFS** in 2013-2014: _____
Number of project proposals applied for **SFS** in 2014-2015: _____

(9) Procedures of Screening Proposals:

(10) Proposal Screening Criteria:

(11) Number of board meetings held in 2013-2014: _____
Number of board meetings held in 2013-2014 relevant to project funding: _____
Number of board meetings held in 2014-2015: _____
Number of board meetings held in 2014-2015 relevant to project funding: _____

Assessing the socioeconomic costs of drug abuse in Hong Kong SAR

Information Sheet on

Expenditure on Work related to Narcotic Drug Abuser for 2014

(1) Name of Organisation: Hong Kong Police Force
Bureau:

(2) Contact Person:
Tel:

(3) Nature of Work involving Narcotics Drug Abuse: (Please tick where appropriate)

Drug Prevention and Education ___

Drug-related Research ___

Drug related Social Work ___

Law Enforcement ___

Others ___

(4) To estimate the **cost per arrest**, the following inputs are needed:

Estimated average hours needed to process an arrest of offender with possession of dangerous drugs upon general patrol: _____

Estimated average number of officers needed for an arrest of offender with possession of dangerous drugs upon general patrol: _____

Thank you for your support on our research!

Appendix C

Interview schedule for drug user interviews, stakeholder interviews, and focus groups

濫藥者深入訪談

A：濫藥起因及背景

1. 請問您是何時開始使用毒品？
   - 那一種毒品？有試過戒毒嗎？who，where，how
2. 為什麼？
   - 朋輩？組織？環境？由賣家變使用者？為開心？
3. 可以描述一下您一般使用毒品時的感覺和經驗嗎？
   - 如何？何時？何地？與何人？
4. 你使用的毒品有隨時間變化嗎？使用過那種毒品？
   - 如何使用？變多變少？使用場所有改變嗎？中間有停止使用過嗎？為什麼？
5. 記得當時流行的毒品是什麼嗎？
   - 價錢？地方？純度？數量？source？poly drug？
6. 記得當時有新聞或其他媒體報道毒品問題嗎？
   - 有標籤嗎？

B：直接成本

1. 可以描述第一次因為使用毒品而需要公營或社區服務的經驗嗎？
   - 如何？何時？何地？與何人？
2. 使用了那種服務呢？
   - 公私營醫療？輔導？司法法庭？緊急服務？戒毒更生服務？
3. 有曾經因為使用毒品而需要緊急服務嗎？描述經驗？
   - 自己求醫定白車？年份，邊間醫院，等候時間，見咗邊種醫生，留咗幾耐，接受那種治療
4. 有使用過其他醫療服務嗎？
   - 選擇家庭醫生或醫院醫生？旁人推介或自己找到？描述經驗？有開藥嗎？多少日？價錢？看了多久？
5. 有使用過輔導服務嗎？
   - 有和社會福利署或其他社福機構有聯繫嗎？已正式 case? 為什麼和幾耐？多久會見社工？原因？機構提供的服務？
   - 私人輔導機構？ 為什麼和幾耐？價錢？
6. 有使用過自願或強制性戒毒服務嗎？
- 自願：如何？何時？何地？為何？如何選擇機構滿意療程結果嗎？幾耐復吸和原因)
- 強制性: 如何？何時？何地？為何？那間院舍？
7. 有曾經因為販毒而被捕嗎？
- 多少次?
8. 可以描述一下最近一次的經驗嗎？
- 如何？何時？何地？與何人？有多少毒品？你知道嗎？結果？有上庭嗎？法庭／司法服務？

C：間接成本

1. 您是如何支持使用毒品的支出呢？
2. 收入能應付支出嗎？
- 有其他工作支持吸毒習慣嗎？其他違法行為？
3. 您現在有全職工作嗎? 使用毒品有影響您的工作表現嗎？
- 與上司或同事關係如何？

- 有因為吸毒引致的其他問題影響工作嗎？負面或正面？
- 睇醫生？可以正常工作嗎？輔導對工作有幫助嗎？

4. 在有使用毒品的習慣前，尋找工作有遇上困難嗎？

- 犯罪記錄／戒毒所歷史

5. 有此習慣後，有否因為使用毒品而在一些特別領域的工作上遇上制肘呢？

- 名望？

D：無形成本

1. 你現在和家人同住嗎？

- yes－ 平日與家人的一天？
- No－多久見一次？何時何地？
- 家人關係如何？知道你吸毒嗎？支持你更生嗎？

2. 你滿意現在的家庭關係和生活嗎？
3. 你的家人有使用毒品的習慣嗎？如有，使用過哪一種？

- 子女有吸毒嗎？對他們有影響嗎？

4. 有因為使用毒品而在家中／家人之間引致意外或衝突嗎？如有，可以描述一下最深刻的經歷嗎？
5. 您滿意現在的社交生活嗎？

- 朋友知道你吸毒嗎？他們有吸毒習慣嗎？吸毒有否為維繫友誼帶來困難？

E：總結

1. 你對自己毒品使用習慣的看法？

- 香港毒品趨勢使用的看法？

2. 您認為社會如何看毒品使用者呢？

- 政府？戒毒機構？
- 評價自己的康復進度？

Assessing the Socioeconomic Costs of Drug Abuse in Hong Kong SAR
Stakeholder Interview and Focus Group Interview Schedule (2016)

Part I: Warm Up – Introduction and Background Information

1. Brief introduction of the interviewee: What is your role in the organization? How long have you been working in this post? What are your responsibilities? Which pillar of drug tackling strategy do you think your work belongs to?
2. How long have you been involved in drug work?
3. Brief introduction of your organization? How long has it been established? What are your serving targets?

Part II: Information regarding Clients/Drug Users

1. What is the general profile of drug users/dealers you currently encounter? What is its proportion to the overall population of the group of people you are serving?
   - Age; duration of drug use; gender; class; ethnicity; number of times of arrest/receiving services/treatment at your institution; major/more popular type of drug use; polydrug?
2. What are the sources of your clients? Where do you get in touch with them? Under what circumstances?
   - NGO: outreach; referral from schools/probation officers/parents; proactive help seeking clients
   - Law enforcement: Frontline officer - Direct arrest; In police station; Proportion of possession D.D. and trafficking; CID - investigation process; Juvenile Protection Section - case referral from other departments
   - Hospital staff: what kind of health issues of the drug users? How serious?
3. How is the caseload of the institution now? When is the 'peak' and 'low' season? Compare the current caseload with the highs and lows?

Part III: Service Pathway

1. When did your clients/drug users your institution/organization encounter first find they are in need of services related to drug user?
2. Is your institution/organization the one providing services they first encounter?
3. Please describe your referral services, say for special care, or public assistance. Where do they usually go?
4. Are you having any partnership with other organizations/institutions?
5. <u>Hospital:</u>
   - 5.1. Do they first go for family doctor or GP, how to choose? By recommendation? Research by themselves? Any prescribed medication provided? Dosage? How much to pay for each session (consultation and medication)? Change over time (include dosage and interval between visits)? What percentage of your clientele usually complete the service programme?
   - 5.2. Emergency services? Went to emergency by themselves or accompanied? By ambulance? The typical case?
   - 5.3. Do you have a waiting list? If so, how many are on it?
   - 5.4. What kind of services do the applicants receive while waiting for admission/enrollment?
6. <u>Counselling/social workers:</u>
   - 6.1. When the clients become an official "case"? Why and for how long? How

often do you see your clients? For what? What kind of services provided by the organization(s)?

6.2. Private counselling? Why? For how long? Costs? What percentage of your clientele usually complete the service programme?

6.3. Do you have a waiting list? If so, how many are on it?

6.4. What kind of services do the applicants receive while waiting for admission/enrollment?

7. Voluntary and compulsory treatment services staff:
   7.1. When/where/how/why your clients got into the first treatment? How did they choose? For how long? Average number of their treatment? Length? What percentage of your clientele usually complete the service programme?
   7.2. Do you have a waiting list? If so, how many are on it?
   7.3. What kind of services do the applicants receive while waiting for admission/enrollment?
8. Law Enforcers:
   8.1. Ratio of possession of D.D. and supplying drugs respectively (%)? What kind of operation? What was the outcome? Charge success? Appear in court? Court services?
   8.2. How many of CSSA relating to drug abuse received in received in the last financial year? What is the number for this year till now?
9. Please describe your typical day.
10. Any memorable case related to drug use? What is it?

Part IV: Cost Information

1. If you conduct client assessment, service monitoring, and/or programme evaluation, please describe it briefly or attach a recent report thereof?
2. Do you provide drug prevention, education or research services? What are they? How many related projects in the last financial year? How many are running this year? How are they funded? What are the projects about?
3. If you run into deficit, how would you make it up?
4. From your observation/opinion, has inflation or financial restraint caused any problem for your agency? If so, please describe how could it be resolved.
5. Do you have any conceivable or estimated socio-economic benefits that your clients are gaining from your programme (including the reduction of harms associated with their drug abuse eg minimizing HIV/AID risk)? If so, please explain and if possible give an estimation in dollars (for programme not serving any clients directly, please give the estimated indirect benefits to the community)

Part V: Wrap Up

1. How do you think about the drug use in Hong Kong, in general, will go?
2. How do you think the society views drug users? How do the government view them? How about the treatment agency views?
3. How about recovery of drug users? Relapse rate? Optimistic? What are the proportions?
4. For your organization, any comments to make on the financial needs or costs and benefits as a whole for the community?

Appendix **D**

Drug-attributable deaths and valuation of life

This appendix presents the categories of death causes that can be attributable to drug abuse, the associated attributable fractions, and the estimated present value of future earnings used in the valuations of loss of productivity due to premature mortalities.

Categories of drug-attributable mortalities

The categories of death causes attributable to drug abuse were borrowed from two overseas exercises – Australia (Collins & Lapsley, 2008) and the United States (Harwood & Bouchery, 2004). In this study, there were 15 categories under consideration. Table D.1 shows the categories and the defining ICD-10 codes.

Attributable fractions

The attributable fractions for drug-related premature mortalities used in this study were largely borrowed from Collins and Lapsley (2008), which were based on the original work of English et al. (1995), later updated by Ridolfo and Stevenson (2001) and subsequently by Collins and Lapsley (2008). Attributable fractions for assaults however, were borrowed from Harwood and Bouchery (2004). In view of the local data available to the research team, attributable fractions for Hepatitis B, Hepatitis C, HIV / AIDs, and suicides were revised. Table D.2 and Table D.3 summarize the age-, gender-, and cause-specific attributable fractions adopted in this report.

Table D.1

Drug-attributable death causes and defining ICD-10 codes

	Death causes	ICD-10 codes
1	Mental and behavioral disorders due to psychoactive substance use	F11-19
2	Accidental Poisoning	X40-44, X46[a]
3	Poisoning with undetermined intent	Y10-14, Y16[a]
4	Assault	X85-Y09
5	Hepatitis B	B16, B17.0, B18.0-18.1
6	Hepatitis C	B17.1, B18.2
7	HIV / AIDS	B20-B24, R75, Z20.6, Z21
8	Infective endocarditis	I33
9	Maternal drug dependence	O35.5
10	Newborn drug toxicity	P04.4, P96.1
11	Antepartum haemorrhage	O20, O44.1 O45-46, O67, P02.0-02.1
12	Low birth weight	P05-07, P22
13	Road injuries	V01.1-01.9, V02.1-02.9, V03.1-03.9, V04.1-04.9, V06.1-06.9, V09.2-09.3, V10.4-10.9, V11.4-11.9, V12.4-12.9, V13.4-13.9, V14.4-14.9, V15.4-15.9, V16.4-16.9, V17.4-17.9, V18.4-18.9, V19.4-19.9, V20.4-20.9, V21.4-21.9, V22.4-22.9, V23.4-23.9, V24.4-24.9, V25.4-25.9, V26.4-26.9, V27.4-27.9, V28.4-28.9, V29.4-29.9, V30.5-30.9, V31.5-31.9, V32.5-32.9, V33.5-33.9, V34.5-34.9, V35.5-35.9, V36.5-36.9, V37.5-37.9, V38.5-38.9, V39.4-39.9, V40.5-40.9, V41.5-41.9, V42.5-42.9, V43.5-43.9, V44.5-44.9, V45.5-45.9, V46.5-46.9, V47.5-47.9, V48.5-48.9, V49.4-49.9, V50.5-50.9, V51.5-51.9, V52.5-52.9, V53.5-53.9, V54.5-54.9, V55.5-55.9, V56.5-56.9, V57.5-57.9, V58.5-58.9, V59.4-59.9, V60.5-60.9, V61.5-61.9, V62.5-62.9, V63.5-63.9, V64.5-64.9, V65.5-65.9, V66.5-66.9, V67.5-67.9, V68.5-68.9, V69.4-69.9, V70.5-70.9, V71.5-71.9, V72.5-72.9, V73.5-73.9, V74.5-74.9, V75.5-75.9, V76.5-76.9, V77.5-77.9, V78.5-78.9, V79.4-79.9, V80.3-80.5, V80.9, V81.1, V82.1-82.9, V83.0-83.3, V84.0-84.3, V85.0-85.3, V86.0-86.4, V87.0-87.8, V89.2, V89.9, Y85
14	Suicide and self-inflicted injury	X60-84, Y87.0
15	Schizophrenia	F20-29

Note:

[a] Not all deaths resulted from “accidental poisoning” and “poisoning with undetermined intent” were included. For those records, T-codes, which specified the types of drug use, were investigated. Only those involved the use of illicit drugs were included as drug-attributable deaths.

Table D.2

Age- and cause-specific attributable fractions, males

Causes	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158
5	0	0	0	0	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391	.391
6	0	0	0	0	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561	.561
7	0	0	0	0	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047	.047
8	0	0	0	0	.140	.140	.140	.140	.140	.140	.140	0	0	0	0	0	0	0	0
9	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	.045	.071	.054	.044	.026	.017	.003	0	0	0	0	0	0	0	0
12	.009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055
14	0	0	0	0	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052
15	0	0	0	0	.036	.034	.056	.039	.034	.019	.009	.007	.001	0	.001	0	0	0	0

Table D.3

Age- and cause-specific attributable fractions, females

Causes	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158	.158
5	0	0	0	0	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293
6	0	0	0	0	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452	.452
7	0	0	0	0	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013
8	0	0	0	0	.140	.140	.140	.140	.140	.140	.140	0	0	0	0	0	0	0	0
9	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	.009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055
14	0	0	0	0	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052	.052
15	0	0	0	0	.031	.095	.101	.081	.087	.055	0.43	.016	.003	.004	0	0	0	0	0

Hepatitis B and Hepatitis C

The attributable fractions for Hepatitis B and C adopted in the Australian exercise appeared to be too high for Hong Kong. They were revised based on local and more updated statistics. The formula of the attributable fractions among the total population is given by (Ridolfo & Stevenson, 2001):

$$F = \frac{p_e(RR - 1)}{p_e(RR - 1) + 1}$$

where p_e is the proportion of the total population exposure to the risk factor and RR is the relative risk of a condition of the exposed group to the non-exposed group.

The value of p_e was borrowed from a local school and community survey on the youth (The Family Planning Association of Hong Kong, 2014), which covered the age range 12-27. An assumption has been made that this proportion can be applied to the whole population (7.3% for men and 4.7% for women). RRs were borrowed from the estimates by the Global Burden of Disease Study 2010 (Degenhardt et al., 2013) – 9.81 (95% CI=6.76-12.86) for Hepatitis B and 18.53 (95% CI=15.35-21.17) for Hepatitis C. Applying the above formula, the attributable risks for Hepatitis B were 0.391 for men and 0.293 for women, while the corresponding figures for Hepatitis C were 0.561 and 0.452, respectively.

HIV / AIDS

The attributable fraction for HIV / AIDS was estimated directly using the statistics extracted from the HIV surveillance report published by the DH (2016). The HIV surveillance system in Hong Kong reported the annual incidence of HIVs/AIDS and also the number by their routes of transmission. The number of injecting drug use by year from 1984 to 2016 was extracted, and the cumulative number to estimate the proportion attributable to the injecting drug use was used. The attributable fractions were estimated at 0.047 for men and 0.013 for women.

Suicides

The formula of attributable fractions used in estimating the fraction for suicides is given by (Ridolfo & Stevenson, 2001):

$$F = \frac{p_c(RR - 1)}{RR}$$

where p_c is the prevalence of exposure among cases of the conditions. Due to the difference in available data, the formula was different from the one used in estimating attributable fractions of Hepatitis B and Hepatitis C. The data of suicides were obtained from the Coroner's Court. From 2013 to 2015, 6.1% of suicide deceased were found to have evidence of drug abuse (p_c). The value of RR was, again, borrowed from the estimates by the Global Burden of Disease Study 2010 (Degenhardt et al., 2013) – 6.9 (95% CI=4.5-10.5) for opioid dependence, and 8.2 (95% CI=3.9-16.9) for dependence on amphetamine / cocaine. Those RRs were further pooled, and then the pooled value (7.2; 95% CI=6.7-7.7) was applied. The attributable fraction for suicides was estimated at 0.052 for both men and women.

Deaths by suicides attributable to drug abuse – a case study

Ms B was a 35-year-old woman died of suicide in 2014. She was diagnosed with drug-induced schizophrenia, as she had a history of drug abuse during her teenage, including ketamine and MDMA. She suffered from auditory hallucinations and developed suicidal thoughts. She received treatments in a public hospital psychiatric outpatient clinic. However, she was found to have poor drug compliance and frequent records of defaulting follow-ups. In addition, when she came across some adverse life events, for example, losing her job and suffering from debts, she could not withstand the pressure and her mental status deteriorated. Subsequently, she had three suicide attempts and was admitted to the psychiatric inpatient ward for treatment. She finally killed herself by charcoal burning. Taking dangerous drugs could cause the manifestation of psychotic symptoms. The mental condition could be further worsened by experiencing adverse life events, which might in turn induce the development of suicidal thoughts and hence increase the risk of suicides.

Valuation of life

Valuation of life in this study estimates a worker's future stream of earnings brought back to present day value using a plausible discount rate. This value of wages forgone can be taken as the value of loss of productivity, given that wages are equal to a worker's productivity, and usually the value of average earnings is used (Single et al., 2003). Loss of productivity from both the paid sector (the employed) and unpaid household work (homemakers and the retired) were considered.

In this study, valuation of life involves the construction of work life tables for the average population in Hong Kong in 2014. Present value of future stream of earnings at different age of death were estimated through the work life tables. In total, six work life tables, across two genders and three types of economic activities (the employed, homemaker and the retired) were produced.

The following statistics, all obtained from the C&SD, were utilized for the valuation of the employed:

1. Hong Kong life tables, 2014
2. Labour force participation rates, excluding foreign domestic helpers ("FDH"s), 2014 (Table D.3)
3. Median monthly employment earnings of employed persons, excluding FDHs, 2014 (Table D.4)
4. Nominal indices of payroll per person, 2014

The expected number of person-year work life between age x and x+1 is

$$W_x = [(1- q_x)l_x + 0.5q_x l_x]f_{x+n}$$

where l_x is the number of survivors at age x, q_x is the probability of dying between age x and x+1, and f_x is the labour force participation rate at age x. It was assumed that on average, people died in the middle of a year (0.5). l_x and q_x are functions from Hong Kong life tables, 2014.

Table D.3

Labour force participation rates (%), excluding FDHs, 2014

Age Groups	Male	Female
15-19	11.1	12.4
20-24	61.4	59.3
25-29	93.4	83.4
30-34	96.6	76.4
35-39	96.4	71.0
40-44	95.7	70.3
45-49	93.8	70.6
50-54	91.8	63.0
55-59	81.3	48.1
60-64	56.2	25.8
65+	14.3	3.7

Note:

Source from the General Household Survey, C&SD

Table D.4

Median monthly employment earnings of employed persons, excluding FDHs, 2014

Age Groups	Male (HK$)	Female (HK$)
15-19	5,300	3,700
20-29	12,000	12,000
30-39	18,000	15,900
40-49	20,000	14,000
50-59	16,000	10,500
60+	12,000	8,000

Note:

Source from the Social Analysis and Research Section (2), C&SD

The expected work life of a person at age x (in years) is given by

$$\frac{1}{l_x}\sum_{n=0}^{\infty}[(1-q_{x+n})l_{x+n}+0.5q_{x+n}l_{x+n}]f_{x+n}=\frac{1}{l_x}\sum_{n=0}^{\infty}W_{x+n}$$

The expected value of future earnings at age x, assuming a constant annual income growth rate g in the future and a discount rate d, is

$$\frac{1}{l_x}\sum_{n=0}^{\infty}[(1-q_{x+n})l_{x+n}+0.5q_{x+n}l_{x+n}]f_{x+n}y_{x+n}\frac{(1+g)^{n+1}}{(1+d)^{n+1}}$$

where y_{x+n} is the median annual employment earnings at age $x+n$. In this study, the discount rate was set at 5% (Single et al., 2003) and the annual income growth rate, estimated from nominal indices of payroll per person in 2014, was set at 4.3%.

For the "work" life tables in the unpaid household sector, the same methodology was applied by replacing labour force participation rates and median monthly earnings from employment with the following statistics:

1. Proportion of homemakers and retired persons, 2014 (Table D.5)
2. Average time spent on household commitment per day for homemakers and retired persons (Table D.6)
3. Statutory minimum wage in 2014, HK$30 per hour

Table D.5

Proportion of homemakers and retired persons (%), 2014

	Homemakers		Retired persons	
Age Groups	Male	Female	Male	Female
15-19	0	0	0	0
20-24	0.1	2.2	0	0
25-29	0.1	7.9	0	0
30-34	0.4	15.2	0	0
35-39	0.7	21.2	0	0
40-44	0.9	22.8	0	0
45-49	0.6	22.9	0.4	0
50-54	0.9	29.1	1.5	1.1
55-59	1.1	38.4	9.6	6.1
60-64	0.6	35.0	39.0	35.0
65+	0.2	10.3	84.0	85.0

Note:

Estimated from 20% sample dataset of the General Household Survey Microdata, 2014 Quarter 1 to 2014 Quarter 4.

Table D.6

Average time spent on household commitment per day for homemakers and retired persons, 2014, and their estimated monthly value

	Male	Female
Homemakers		
Hours per day[1]	5.0	5.6
Estimated monthly productivity (HK$)[2]	4,562.5	5,110.0
Retired persons		
Hours per day[1]	1.6	3.1
Estimated monthly productivity (HK$)[2]	1,460.0	2,828.8

Note:

[1] Source from the Thematic Household Survey Report No. 56, C&SD

[2] Assuming the statutory minimum wage in 2014 (HK$30 per hour)

The values of monthly "earnings" for homemakers and retired persons were estimated using the average hour spent on household commitment per day, assuming that the value of work per hour was equal to the statutory minimum wage (HK$30 per hour) in Hong Kong in 2014 (Table D.6).

Table D.7 and Table D.8 show the results of work life expectancy in years and present values of future earnings for males and females in 2014. For example, an average man at the age 25 is expected to have a work life of 37.0 years, a homemaker life of 0.3 year and a retirement life of 17.1 years in the future. His present value of future stream of earnings from employment is estimated at HK$6,386,751, and he is expected to produce household services with value equivalent to HK$227,832 (HK$13,231 + HK$214,601). For an average woman at the same age, she is expected to have a work life of 26.0 years, a homemaker life of 11.7 years and a retirement life of 20.9 years. Her present value of productivity in the paid and unpaid sectors are HK$3,627,887 and HK$1,092,379, respectively.

Table D.7

Work life expectancy and present value of future earnings of employed persons, homemakers and retired persons for males, 2014

	Work life expectancy (years)			Present value of future earnings (HK$)		
Age	Employed	Homemaker	Retired	Employed	Homemaker	Retired
0	40.4	0.3	17.0	5783732	11299	180611
1	40.4	0.3	17.0	5830589	11391	182074
2	40.4	0.3	17.0	5870920	11469	183334
3	40.5	0.3	17.0	5911347	11548	184596
4	40.5	0.3	17.0	5951891	11628	185862
5	40.5	0.3	17.0	5992575	11707	187133
6	40.5	0.3	17.0	6033416	11787	188408
7	40.5	0.3	17.0	6074438	11867	189689
8	40.5	0.3	17.0	6115666	11948	190976
9	40.5	0.3	17.0	6157124	12029	192271
10	40.5	0.3	17.0	6198845	12110	193574
11	40.5	0.3	17.0	6240855	12192	194886
12	40.5	0.3	17.0	6283199	12275	196208
13	40.5	0.3	17.0	6325907	12358	197542
14	40.5	0.3	17.0	6369021	12443	198888
15	40.5	0.3	17.0	6412557	12528	200248
16	40.4	0.3	17.1	6449480	12614	201621
17	40.3	0.3	17.1	6486805	12700	203009
18	40.2	0.3	17.1	6524532	12788	204410
19	40.1	0.3	17.1	6562651	12877	205826
20	40.0	0.3	17.1	6601154	12966	207255
21	39.4	0.3	17.1	6558665	13018	208697
22	38.8	0.3	17.1	6515980	13070	210153
23	38.2	0.3	17.1	6473095	13123	211621
24	37.6	0.3	17.1	6430016	13177	213104
25	37.0	0.3	17.1	6386751	13231	214601
26	36.0	0.3	17.1	6297218	13253	216112
27	35.1	0.3	17.1	6207187	13276	217639
28	34.2	0.3	17.1	6116651	13299	219181
29	33.3	0.3	17.1	6025622	13322	220740
30	32.4	0.3	17.1	5934116	13346	222316
31	31.4	0.3	17.1	5767977	13217	223911
32	30.5	0.3	17.1	5600878	13088	225526
33	29.5	0.3	17.1	5432843	12958	227164
34	28.6	0.3	17.2	5263887	12829	228826
35	27.6	0.3	17.2	5094032	12699	230516
36	26.7	0.3	17.2	4923713	12432	232235
37	25.7	0.2	17.2	4752500	12164	233985
38	24.8	0.2	17.2	4580380	11895	235767
39	23.8	0.2	17.2	4407336	11625	237583
40	22.9	0.2	17.2	4233346	11354	239434
41	22.0	0.2	17.3	4036917	10940	241323
42	21.0	0.2	17.3	3839319	10523	243249
43	20.1	0.2	17.3	3640527	10104	245216
44	19.2	0.2	17.3	3440515	9683	247226
45	18.3	0.2	17.4	3239262	9260	249282
46	17.4	0.2	17.4	3041294	9025	251319
47	16.4	0.2	17.4	2842046	8790	253408
48	15.5	0.2	17.5	2641483	8555	255551
49	14.6	0.2	17.5	2439575	8318	257753

	Work life expectancy (years)			Present value of future earnings (HK$)		
Age	Employed	Homemaker	Retired	Employed	Homemaker	Retired
50	13.7	0.2	17.5	2236297	8081	260022
51	12.8	0.1	17.6	2080556	7657	262167
52	12.0	0.1	17.6	1923870	7231	264397
53	11.1	0.1	17.6	1766230	6803	266726
54	10.2	0.1	17.7	1607609	6373	269168
55	9.3	0.1	17.7	1447968	5941	271739
56	8.5	0.1	17.7	1307438	5392	273039
57	7.8	0.1	17.7	1165956	4839	274484
58	7.0	0.1	17.7	1023416	4282	276086
59	6.2	0.1	17.7	879692	3721	277861
60	5.4	0.1	17.7	734640	3155	279821
61	4.9	0.1	17.4	663504	2846	276804
62	4.4	0.0	17.2	591759	2535	273908
63	3.9	0.0	16.9	519316	2221	271130
64	3.3	0.0	16.7	446096	1904	268480
65	2.8	0.0	16.4	372025	1583	265976
66	2.7	0.0	15.8	357677	1522	255718
67	2.6	0.0	15.1	343438	1461	245538
68	2.5	0.0	14.5	329357	1401	235471
69	2.3	0.0	13.8	315482	1342	225551
70	2.2	0.0	13.2	301856	1284	215809
71	2.1	0.0	12.6	288492	1227	206255
72	2.0	0.0	12.0	275386	1172	196885
73	1.9	0.0	11.4	262520	1117	187686
74	1.8	0.0	10.8	249883	1063	178651
75	1.7	0.0	10.2	237474	1010	169780
76	1.7	0.0	9.7	225308	958	161082
77	1.6	0.0	9.2	213412	908	152577
78	1.5	0.0	8.6	201817	859	144287
79	1.4	0.0	8.1	190558	811	136238
80	1.3	0.0	7.7	179665	764	128450
81	1.2	0.0	7.2	169161	720	120940
82	1.2	0.0	6.8	159058	677	113717
83	1.1	0.0	6.3	149357	635	106781
84	1.0	0.0	5.9	140048	596	100126
85	0.9	0.0	5.5	131112	558	93737
86	0.9	0.0	5.2	122541	521	87610
87	0.8	0.0	4.8	114328	486	81738
88	0.8	0.0	4.5	106460	453	76112
89	0.7	0.0	4.1	98918	421	70720
90	0.7	0.0	3.8	91677	390	65543
91	0.6	0.0	3.5	84703	360	60557
92	0.6	0.0	3.3	77949	332	55729
93	0.5	0.0	3.0	71349	304	51010
94	0.5	0.0	2.7	64810	276	46335
95	0.4	0.0	2.4	58194	248	41605
96	0.4	0.0	2.1	51292	218	36670
97	0.3	0.0	1.8	43777	186	31298
98	0.2	0.0	1.4	35124	149	25112
99	0.2	0.0	1.0	24450	104	17480
100+	0.1	0.0	0.4	10227	44	7312

Table D.8

Work life expectancy and present value of future earnings of employed persons, homemakers and retired persons for females, 2014

	Work life expectancy (years)			Present value of future earnings (HK$)		
Age	Employed	Homemaker	Retired	Employed	Homemaker	Retired
0	29.4	11.8	20.8	3441987	501700	420489
1	29.5	11.8	20.9	3472259	506515	426172
2	29.5	11.8	20.9	3496698	510092	429230
3	29.5	11.8	20.9	3521059	513656	432275
4	29.5	11.8	20.9	3545375	517214	435310
5	29.5	11.8	20.9	3569691	520770	438341
6	29.5	11.8	20.9	3594046	524332	441373
7	29.5	11.8	20.9	3618481	527904	444410
8	29.5	11.8	20.9	3643029	531492	447457
9	29.5	11.8	20.9	3667729	535101	450518
10	29.5	11.8	20.9	3692607	538735	453598
11	29.5	11.8	20.9	3717683	542398	456697
12	29.5	11.8	20.9	3742966	546090	459819
13	29.5	11.8	20.9	3768459	549812	462964
14	29.5	11.8	20.9	3794156	553563	466131
15	29.6	11.8	20.9	3820262	557374	469352
16	29.4	11.8	20.9	3840831	561179	472556
17	29.3	11.8	20.9	3861546	565010	475782
18	29.2	11.8	20.9	3882405	568868	479030
19	29.1	11.8	20.9	3903415	572753	482302
20	28.9	11.8	20.9	3924584	576667	485598
21	28.4	11.8	20.9	3866022	579279	488918
22	27.8	11.8	20.9	3807075	581912	492263
23	27.2	11.8	20.9	3747737	584564	495633
24	26.6	11.7	20.9	3688007	587237	499028
25	26.0	11.7	20.9	3627887	589931	502448
26	25.2	11.6	20.9	3532680	589123	505896
27	24.3	11.6	21.0	3436866	588317	509375
28	23.5	11.5	21.0	3340448	587515	512886
29	22.7	11.4	21.0	3243438	586721	516433
30	21.9	11.3	21.0	3145828	585934	520015
31	21.1	11.2	21.0	3021935	580709	523635
32	20.3	11.0	21.0	2897243	575460	527291
33	19.6	10.9	21.0	2771729	570184	530981
34	18.8	10.7	21.0	2645380	564881	534707
35	18.1	10.6	21.0	2518182	559548	538466
36	17.4	10.4	21.0	2400435	550513	542260
37	16.7	10.2	21.0	2281900	541425	546090
38	15.9	10.0	21.0	2162587	532286	549963
39	15.2	9.8	21.0	2042498	523101	553881
40	14.5	9.6	21.0	1921639	513872	557852
41	13.8	9.3	21.0	1817383	503611	561881
42	13.2	9.1	21.1	1712489	493309	565976
43	12.5	8.9	21.1	1606952	482967	570143
44	11.8	8.7	21.1	1500765	472588	574388
45	11.1	8.4	21.1	1393918	462174	578715
46	10.4	8.2	21.1	1285885	451663	583129
47	9.7	8.0	21.1	1177149	441115	587634
48	9.0	7.8	21.2	1067685	430529	592233
49	8.3	7.6	21.2	957470	419905	596931

	Work life expectancy (years)			Present value of future earnings (HK$)		
Age	Employed	Homemaker	Retired	Employed	Homemaker	Retired
50	7.6	7.3	21.2	846483	409243	601733
51	7.0	7.1	21.2	773960	394730	606287
52	6.4	6.8	21.3	700950	380154	610965
53	5.7	6.5	21.3	627441	365516	615782
54	5.1	6.2	21.3	553414	350820	620752
55	4.5	5.9	21.4	478849	336064	625889
56	4.0	5.6	21.3	422511	315548	629478
57	3.5	5.2	21.3	365746	294911	633233
58	3.1	4.8	21.3	308527	274144	637159
59	2.6	4.5	21.3	250826	253238	641267
60	2.1	4.1	21.3	192616	232185	645563
61	1.9	3.8	21.1	169768	213064	640250
62	1.6	3.4	20.8	146727	193801	635049
63	1.4	3.1	20.5	123485	174390	629976
64	1.1	2.8	20.3	100029	154824	625055
65	0.9	2.4	20.0	76346	135095	620310
66	0.8	2.3	19.3	73690	130395	598732
67	0.8	2.2	18.5	71035	125698	577163
68	0.8	2.1	17.8	68384	121006	555620
69	0.7	2.1	17.0	65739	116326	534130
70	0.7	2.0	16.3	63104	111663	512722
71	0.7	1.9	15.6	60483	107025	491426
72	0.6	1.8	14.9	57880	102420	470278
73	0.6	1.7	14.2	55301	97856	449321
74	0.6	1.6	13.5	52752	93346	428613
75	0.6	1.5	12.8	50242	88903	408215
76	0.5	1.5	12.2	47777	84543	388192
77	0.5	1.4	11.5	45367	80276	368603
78	0.5	1.3	10.9	43016	76117	349504
79	0.4	1.2	10.3	40730	72073	330934
80	0.4	1.2	9.7	38514	68151	312925
81	0.4	1.1	9.1	36368	64354	295494
82	0.4	1.0	8.6	34295	60685	278643
83	0.4	1.0	8.1	32291	57139	262364
84	0.3	0.9	7.6	30355	53713	246631
85	0.3	0.9	7.1	28484	50403	231433
86	0.3	0.8	6.6	26680	47211	216775
87	0.3	0.7	6.2	24943	44136	202659
88	0.3	0.7	5.8	23271	41178	189078
89	0.2	0.6	5.4	21664	38335	176023
90	0.2	0.6	5.0	20120	35603	163476
91	0.2	0.6	4.6	18635	32975	151409
92	0.2	0.5	4.2	17204	30443	139783
93	0.2	0.5	3.9	15821	27995	128542
94	0.2	0.4	3.5	14475	25614	117609
95	0.1	0.4	3.2	13154	23276	106876
96	0.1	0.3	2.9	11838	20948	96188
97	0.1	0.3	2.6	10501	18581	85319
98	0.1	0.3	2.2	9099	16101	73932
99	0.1	0.2	1.8	7571	13396	61511
100+	0.0	0.1	0.4	1764	3122	14334

Appendix E

Consent forms for survey and qualitative interviews

香港大學
賽馬會防止自殺研究中心
犯罪學中心
“香港吸毒問題的社會經濟成本評估”

同意書

香港大學賽馬會防止自殺研究中心總監葉兆輝教授及香港大學犯罪學中心總監黎樂琪教授正進行一項有關香港吸毒問題的社會經濟成本的研究。是項研究由香港禁毒基金會資助。

研究目的

1. 評估香港吸毒問題構成的社會經濟成本，識別及估算各種相關因素的性質及對成本的影響程度；
2. 分析使用不同違禁藥物對社會經濟成本的差異；
3. 從社會經濟成本的角度辨別社會中最受吸食毒品影響的群組。

程序

現誠邀 閣下參與是次研究項目，填寫一份有關個人吸毒經驗的問卷，需時約 30 分鐘。參與純屬自願性質， 閣下可拒絕回答問卷上的任何問題或隨時終止參與是項研究，有關決定將不會引致任何不良後果。

利益

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程序

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津貼 / 補助

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如 閣下明白以上內容，並願意參與是項研究，請在下方簽署。希望 閣下能踴躍支持是項研究。

回覆便條

參加者的姓名: _____

我 明白以上內容，並 ** 願意 / 不願意 參與是項研究. (**請刪去不適用者)

簽署: _____

日期: _____

準備日期	:	2016 年 3 月 4 日
香港大學研究操守委員會批准到期日期	:	2017 年 2 月 1 日
香港大學研究操守委員會參考編號	:	EA1601029

香港大學
賽馬會防止自殺研究中心
犯罪學中心
“香港吸毒問題的社會經濟成本評估”

同意書

香港大學賽馬會防止自殺研究中心總監葉兆輝教授及香港大學犯罪學中心總監黎樂琪教授正進行一項有關香港吸毒問題的社會經濟成本的研究。是項研究由香港禁毒基金會資助。

研究目的

1. 評估香港吸毒問題構成的社會經濟成本，識別及估算各種相關因素的性質及對成本的影響程度；
2. 分析使用不同違禁藥物對社會經濟成本的差異；
3. 從社會經濟成本的角度辨別社會中最受吸食毒品影響的群組。

程序

是次研究項目計劃於葵涌醫院藥物誤用評估中心邀請 5 位已完成問卷調查的參加者進行有關個人吸毒經驗的深入訪談。現誠邀 閣下參與是次研究項目，需時約 45 分鐘。訪談將於藥物誤用診所裡進行。參與純屬自願性質， 閣下可拒絕回答訪談中的任何問題或隨時終止參與是項研究，有關決定將不會引致任何不良後果。為能將訪談內容完整紀錄，訪談過程將會被錄音。若 閣下不希望訪談被錄音，我們將改為以筆錄形式記錄訪談內容。

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潛在風險

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參加者的姓名：_____

我 明白以上內容，並 ** 願意 / 不願意 參與是項研究. (**請刪去不適用者)

參加者簽署：_____ 日期：_____

只適用於 16－17 歲青年:

合法授權人姓名（如適用）：_____

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是次研究項目計劃於東區尤德夫人那打素醫院藥物誤用診所邀請 5 位已完成問卷調查的參加者進行有關個人吸毒經驗的深入訪談。現誠邀 閣下參與是次研究項目，需時約 45 分鐘。訪談將於藥物誤用診所裡進行。參與純屬自願性質， 閣下可拒絕回答訪談中的任何問題或隨時終止參與是項研究，有關決定將不會引致任何不良後果。為能將訪談內容完整紀錄，訪談過程將會被錄音。若 閣下不希望訪談被錄音，我們將改為以筆錄形式記錄訪談內容。

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取得同意書人員簽名：_____

取得同意書日期：_____

*本人已獲得已簽署之知情同意書副本乙份

THE UNIVERSITY OF HONG KONG
Hong Kong Jockey Club Centre for Suicide Research and Prevention
Centre for Criminology
"Assessing the socioeconomic costs of drug abuse in Hong Kong SAR"
Informed Consent Form

We, Professor Yip Paul Siu Fai of Hong Kong Jockey Club Centre for Suicide Research and Prevention and Professor Karen Joe Laidler of Centre for Criminology at the University of Hong Kong and our research assistants, are conducting a research study on "Assessing the socioeconomic costs of drug abuse in Hong Kong SAR".

PURPOSE OF THE STUDY

1. To identify and assess the nature, extent and impact of various associated factors and externalities contributing to the socioeconomic costs due to drug abuse in the context of Hong Kong;
2. To determine the socioeconomic consequences of drug abuse by different types of illicit drugs in Hong Kong based on the available analytical framework;
3. To identify which subgroups of population suffers the most from drug abuse in terms of socioeconomic costs;

PROCEDURES:
We are interested in conducting an open-ended interview with you, as someone who has been involved with drug users in Hong Kong.We would like to invite you to share your views, structure and service pathway of your organisation through participation in an interview. The interview is expected to last for about 60 minutes. Your participation is entirely voluntary and you have the absolute right to refuse answering any questions or even withdraw from participation at any stage. If you wish to withdraw from the interview, we can destroy your responses.

POTENTIAL BENEFITS:
There will not be any direct benefits to you. However, it is hoped that the findings could provide insights for members of the community in understanding drug use so as to formulate policies which would be friendly and beneficial to users and community as a whole.

CONFIDENTIALITY:
All information and views expressed are kept anonymous and confidential. For ease in facilitating the interview, the session will be audio-recorded, subject to participant's agreement. If you do not want to have the session recorded, we will, instead take notes.

There will not be any identifying information about you in the audio record, transcripts or notes. The audio record will be transcribed by a research assistant, who will sign a consent form which will state that s/he cannot disclose any information of the interview.

DATA RETENTION:
The audio record and the transcript will be kept confidential and secured at the centre's office and both will be destroyed one year after the completion of this project. In any report of this

study, pseudonyms will be used.

QUESTIONS AND CONCERNS:
If you have any questions about the research, please feel free to contact the research assistant of this project, Ms. Mavis Yip (Tel: 3917 7459, Email: myip120@hku.hk) . If you want to know more about the rights as a research participant, please contact the Human Research Ethics Committee for Non-Clinical Faculties, the University of Hong Kong at 2241-5267. If you understand the contents described above and agree to participate in this research, please sign below. Your help is very much appreciated.

Reply Slip

Name of Participant: _____

I ** will / will not participate in the research. (** Please delete as if inappropriate.)

Signature: _____

Date: _____

Date of Preparation	:	4th March, 2016
HREC Approval Expiration date	:	1st February, 2017
HREC Reference Number	:	EA1601029

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3. To identify which subgroups of population suffers the most from drug abuse in terms of socioeconomic costs;

PROCEDURES:
We would like to invite you to share your views, your organisation service pathway and daily working routine through participation in a focus group. The focus group is expected to last for about 60 minutes. Your participation is entirely voluntary and you have the absolute right to refuse answering any questions or even withdraw from participation at any stage. If you wish to withdraw from the focus group, we can destroy your responses.

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