



ORIGINAL RESEARCH

An overview of illegal opioid use and health services utilization in Canada

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Received 29 October 2004; received in revised form 29 June 2005; accepted 16 September 2005

KEYWORDSIllegal opioid use;
Methadone maintenance treatment;
Health services utilization;
Overdose mortality;
Canada

Summary Objectives: Systematic research on health and treatment services availability for and utilization by illegal opioid users in Canada are very limited. Comparative data across provinces and territories is almost entirely absent. This study was designed to provide an overview of illegal opioid use and health services utilization among illegal opioid users across Canada.

Methods: A combination of statistical data and key informant data was used. Surveys were sent to key informants in all provinces and territories of Canada. Survey questions covered the number of illegal opioid users in each province, the number of opioid users receiving methadone maintenance treatment (MMT), the number of physicians authorized to prescribe methadone, and the number of opioid users receiving other outpatient and inpatient treatment. In addition, relevant data were collected from several statistical sources, both provincial and federal. The number of substance-use-related overdose deaths was obtained from the provincial coroners' offices.

Results: It is estimated that there were more than 80,000 regular illegal opioid users in Canada in 2003. The most prevalent treatment utilized was MMT; about one-quarter (26%) of the estimated opioid users received this type of treatment in 2003. Other forms of outpatient and inpatient treatment were of only minor importance compared with MMT. The number of illegal drug-related overdose deaths in Canada was 958 in 2002. Rates of drug use, health services utilization and overdose deaths showed considerable variation by province.

Conclusions: Although the opioid use treatment system in Canada has expanded in recent years, especially with respect to the availability of MMT, the treatment utilization rates are still lower than in most countries in Western Europe. Rates of current treatment utilization as well as the relatively high number of overdose deaths suggest that there is still room for improvement in the Canadian health and

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social care system with respect to opioid use.

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Introduction

Canada has a general population of 31 million people and it has been estimated that between 80,000 and 125,000 people inject illegal drugs.¹⁻⁴ Approximately 60,000-90,000 individuals are estimated to use opioids regularly.^{2,5} One recent, comparative study on untreated illegal opioid users in the five cities of Vancouver, Edmonton, Toronto, Montreal and Quebec City revealed that heroin was the most frequently used opioid in the previous 30 days, followed by a variety of prescription opioids, including hydromorphone, codeine and street methadone,⁶ yet with considerable local variations. Although the prevalence of use of illegal opioids in the general population is relatively low, the subsequent burden to society from opioid use is high because of the associated extensive health and social harms.⁷⁻¹¹ The overall social cost of one untreated opioid-dependent person in Toronto has been estimated to be \$45,000/year.¹²

The main associated health risks include infections, chronic diseases and premature mortality. With regard to infection, the prevalence of human immunodeficiency virus infection in injection drug users (IDUs) in Canada varies from 20 to 35%,^{13,14} and hepatitis B infection varies from 25 to 35%.^{15,16} The prevalence of hepatitis C infection among IDUs varies more widely from 16 to 88%.^{17,18}

Illegal opioid users feature not only many chronic diseases, such as hypertension, diabetes, asthma, chronic liver disease and cirrhosis,^{19,20} but also psychiatric disorders including poly-drug dependence.^{21,22} Due to the extensive comorbidity, in addition to the risks of overdosing, the rates of morbidity and premature mortality for addicts are higher compared with non-dependent populations of the same age.^{8,11,23,24}

Opioid dependence is considered to be a chronic relapsing disease that is difficult to cure.^{25,26} However, comprehensive treatment and harm-reduction strategies can reduce harmful consequences of opioid use, improve the quality of life and social situation for patients, increase the life expectancy of users, and reduce the social cost of opioid use.^{9-11,27} It is well documented that people with chronic substance abuse problems have more diverse and complex health needs,^{28,29} yet have more barriers to accessing health and social care services compared to the general population.^{15,30}

One of the main barriers to providing adequate health care is the social stigma attached to the illegal opioid user, characterizing them as 'weak-willed and morally unsound people incapable of controlling their deviant behaviour'.³¹ As a result, illegal opioid users consult with primary health care less often than the general population, and often seek treatment only when medical conditions are advanced and symptoms are severe.^{32,33} It is well documented that illegal substance users, especially IDUs, use emergency clinics relatively frequently, which is costly and does not provide preventive healthcare services.^{15,34} In addition, these populations place a high demand on hospital services.³⁵ One recent study found that healthcare utilization rates among IDUs are as high as patients with acquired immunodeficiency syndrome or the elderly.³⁶ Once they have been hospitalized, IDUs have longer hospital stays compared with the general population and non-IDUs,^{35,37} which is also associated with higher hospital costs.

Currently, methadone maintenance treatment (MMT) is the primary form of treatment available in Canada for illegal opioid users.^{38,39} It has been shown that MMT reduces use of illegal opioids, the level of somatic and mental diseases, and mortality and healthcare utilization.^{27,39-41} However, MMT seems to reach only a minority of the illegal opioid user population in Canada, which is a substantially lower proportion than in the countries of Western Europe.³⁸

Despite the great number of individual studies related to injection drug use and its health consequences, systematic Canadian research on the health and treatment services available for, and utilized by, illegal opioid users in Canada has been very limited, and comparative data across provinces and regions are almost entirely absent. To fill this gap, the current study is designed to provide an overview of illegal opioid use and to map health service utilization among illegal opioid users across Canada.

Methods

Statistical data and key informant surveys were used to determine the prevalence of illegal opioid users and their healthcare utilization in Canada. A key informant survey was conducted between

December 2003 and April 2004 to obtain the best estimates for numbers of regular illegal opioid users, the number of opioid users receiving MMT, and other provincial healthcare parameters for each province or territory. Illegal opioid use was defined as the regular use of at least one type of opioid, which was not medically prescribed to the user or not used as prescribed. The survey was sent to select key informants in all provinces and territories of Canada. The key informants consulted were professionals who have been actively involved and knowledgeable about treatment services for opioid dependence in their provinces. In some cases, the names of experts were identified by the authors' research team based on contributions to the literature or membership in relevant committees, while in other cases, the names were provided by colleagues from different provinces in Canada. Key informants were requested to base their estimates on the best available provincial statistics, and to supply these statistics to the authors.

In total, 35 selected informants were contacted and asked to fill out the questionnaire. Seventeen either did not have the requested information or referred to a more appropriate key informant. In total, 18 informants sent back their completed questionnaires. Among those key informants, five were ministerial officials, four were field researchers, seven were drug addiction programme coordinators and two were treatment consultants.

The advantages and disadvantages of a key informant survey method are well described elsewhere.^{42,43} In order to enhance the validity of the data collected from the key informants, the following recommended steps⁴⁴ were implemented: (1) the data were restated, summarized and fed back to the key informants, asking them for comments and to make sure that the information was correctly understood; (2) after completion by the first informant, the questionnaire instrument was sent to at least one other informant, to get an individual of arm's length from the first respondent per target province, in order to validate and/or compliment the obtained data. All the concordances and differences generated by the two independent informants for each province were taken into consideration and verified with third parties or official sources where available (e.g. research literature, provincial statistics, grey papers).

The number of physicians authorized to prescribe MMT in 2003 in each province was obtained from the Office of Controlled Substances, Health Canada. Data on the number of opioid users receiving acute inpatient treatment services in the last available year (2000-2001) was derived from the Discharge

Abstract Database of the Canadian Institute for Health Information (CIHI) for all provinces, except Quebec. These data have been extracted using the International Classification for Diseases (Ninth Revision). The following codes were used: 304.0, morphine-type-drug dependence, which includes heroin, methadone, opium, opium alkaloids and their derivatives and synthetics with morphine-like effects; and 305.5, non-dependent opioid use. The data on the number of opioid users receiving acute hospital services in the province of Quebec during the year (2000-2001) with the same specification was obtained from the Quebec Ministry of Health and Social Services. The numbers of substance-use-related deaths (overdoses) for 2002 (except North West Territories and Nova Scotia which reported data for 2001) were obtained from the provincial chief coroners' offices.

Detailed descriptions about the specific sources and results, by province, can be found in an appendix available from the authors upon request.

Results

Overall, the provincial estimates totalled more than 80,000 regular illegal opioid users in Canada. There were some differences in prevalence rates between provinces, with a mean of about 500 opioid users per 100,000 population between the ages of 15 and 49 years (see [Table 1](#)).

With regards to outpatient treatment, there was also considerable variation between provinces. MMT is the most common form of treatment and has, in comparison, the highest prevalence in British Columbia, Saskatchewan and Ontario. In British Columbia, the number of illegal opioid users receiving MMT is approximately 2.8 the national population-adjusted average (see [Table 1](#)). Overall, approximately 26% of the estimated opioid user populations in Canada were enrolled in MMT in 2003. In interpreting such treatment population estimates, it should be understood that they usually reflect a snapshot at a certain point in time, and the numbers of people actually receiving treatment within a year are probably underestimated, as many MMT episodes last for less than 1 year.⁴⁵

British Columbia had the greatest number of physicians authorized to prescribe methadone for the treatment of opioid dependence, followed by Ontario and Quebec in 2003 ([Table 2](#)). The average number of MMT patients per physician was the highest in Saskatchewan (65.5) followed by Ontario (39.7) and British Columbia (25.6).

Table 1 Prevalence of illegal opioid use and methadone treatment utilization across Canada, 2003.

Province	Population 2003, aged 15-49 years	Prevalence of illegal opioid users		Methadone maintenance treatment		
		Estimate of regular illegal opioid users	Per 100,000 population, aged 15-49 years	Estimated number of patients	Per 100,000 population, aged 15-49 years	Percentage of patients of estimated illegal opioid users
ALB	1,726,518	10,000	579.2	900	52.1	9.0
BC	2,142,038	20,000	933.7	8000	373.5	40.0
MAN	581,926	2000	343.7	100	17.2	5.0
NB	383,401	1500	391.2	260	67.8	17.3
NFLD	268,707	1375 ^a	511.8 ^a	104 ^b	38.9	7.6 ^a
NS	473,133	6282	1327.7	125	26.4	2.0
ONT	6,366,193	30,000	471.2	9100	142.9	30.3
PEI	68,114	349 ^a	511.8 ^a	78 ^b	115.1	22.4 ^a
QUE	3,814,456	10,000	262.2	2186	57.3	21.9
SASK	490,279	2000	407.9	1244	253.7	62.2
YUK/NWT	57,392	294 ^a	511.8 ^a	0 ^b	0	0 ^a
CANADA	16,372,157	83,800	511.8	22,098	135.0	26.4

ALB, Alberta; BC, British Columbia; MAN, Manitoba; NB, New Brunswick; NFLD, Newfoundland; NS, Nova Scotia; ONT, Ontario; PEI, Prince Edward Island; QUE, Quebec; SASK, Saskatchewan; Yuk, Yukon Territory NWT, North West Territories.

^a Estimated based on average prevalence rate from other provinces. As there was no clear regional pattern, the national average was used as the best predictor.

^b Estimated based on numbers of methadone-dispensing doctors, assuming Canadian average number of clients per doctor (see Table 2).

The number of opioid users who received other outpatient treatment (e.g. detoxification, rehabilitation) during 2001, 2002 or 2003 was reported from only four provinces. Alberta reported that 2362 patients received other outpatient treatment (type of treatment was not specified) from April to September 2003. Two hundred patients in Manitoba received rehabilitation, and 299 patients in Saskatchewan received detoxification in 2003. In Ontario, 2143 patients were provided with outpatient counselling during 2000-2001. In total, 5004 opioid users, or 6.0% of the 80,000 estimated opioid users in Canada, received other outpatient treatment (detailed data not shown).

About 4% (3245) of the estimated 80,000 opioid users received acute care in hospitals during 2000-2001 in Canada (Table 3).

This may be an overestimate as the CIHI databank is based on treatment episodes and not cases hence, one person may incur two or more treatment episodes in the same year. Of these 3245 regular opioid users receiving treatment in acute care, only 289 (8.9%) were provided with social services during their hospitalization. According to the CIHI, 'social services' may be defined according to the client's information needs.⁴⁶ Therefore, there is no standard definition for this field that can be provided.

Table 2 Number of physicians holding exemptions to prescribe methadone for addiction treatment per province for 2003.

Province	Number of physicians	Average estimated number of MMT patients per physician ^a
ALB	51	17.6
BC	312	25.6
MAN	11	9.0
NB	11	23.6
NFLD	4	26.1 ^b
NS	25	5.0
ONT	229	39.7
PEI	3	26.1 ^b
QUE	178	12.3
SASK	19	65.5
YUK/ NWT	0	Not applicable
CANADA	846	26.1

ALB, Alberta; BC, British Columbia; MAN, Manitoba; NB, New Brunswick; NFLD, Newfoundland; NS, Nova Scotia; ONT, Ontario; PEI, Prince Edward Island; QUE, Quebec; SASK, Saskatchewan; Yuk, Yukon Territory NWT, North West Territories; MMT, methadone maintenance treatment.

^a Number of MMT patients (see Table 1) divided by number of physicians (Column 2).

^b Estimated based on the Canadian average numbers of MMT patients per physician in other provinces.

Table 3 Inpatient treatment utilization by illegal opioid users across Canada, 2000-2001.

	Province			Discharges from inpatient treatment ^a			
	Male	Female	Total	Per 100,000 population, all ages, 2001	Per 100,000 population, aged 15-49 years, 2001	Received social services during hospitalization	
						Number	Percent
ALB	175	253	428	14.4	26.4	0	0
BC	661	557	1218	31.2	60.8	66	5.4
MAN ^b	55	43	98	8.8	17.6	0	0
NB	63	47	110	15.1	29.5	25	22.7
NFLD	13	13	26	5.1	9.7	11	42.3
NS	12	21	33	3.6	7.2	3	9.1
ONT	443	360	803	7.0	13.7	162	20.2
PEI	9	1	10	7.4	15.0	0	0
QUE ^c	226	211	437	6.0	11.8	No data available	No data available
SASK	28	54	82	8.4	17.1	22	26.8
Yukon/NWT	0	0	0	0	0	Not applicable	Not applicable
Canada	1685	1560	3245	10.8	21.0	289	8.9

ALB, Alberta; BC, British Columbia; MAN, Manitoba; NB, New Brunswick; NFLD, Newfoundland; NS, Nova Scotia; ONT, Ontario; PEI, Prince Edward Island; QUE, Quebec; SASK, Saskatchewan; YUK, Yukon Territory; NWT, North West Territories.

^a Based on CIHI statistics—see Section 2 for further explanations.

^b The province of Manitoba only submits 40% (39 patients were reported in 2000-2001) of their data to CIHI. The numbers presented are based on the assumption that the non-reported data have the same distribution as reported data.

^c The data were received from the Ministry of Health and Social Services of the province of Quebec (2000-2001).

The average length of stay was 10.3 days, with a minimum of 1 day and a maximum of 143 days.

The information on the number of opioid users receiving other inpatient treatment (e.g. detoxification or abstinence-oriented treatment) during 2001, 2002 or 2003 in Canada was reported by key informants from only four provinces. In Alberta, 852 patients received inpatient detoxification and 344 patients received adult residential treatment (April-September 2003), while 22 clients in Newfoundland and 93 in Saskatchewan received abstinence-oriented treatment in 2003. Ontario reported that 1637 patients received withdrawal management and 1090 received residential treatments during the fiscal year of 2001. In summary, less than 5% (4038) of the estimated population of 80,000 illegal opioid users received inpatient abstinence-oriented treatment (e.g. detoxification, withdrawal management) during 2001, 2002 or 2003 in Canada (detailed data not shown).

There was a total of 958 illegal drug and combined drug and alcohol overdose deaths in Canada in 2002 (North West Territories and Nova Scotia reported data for 2001; see Table 4).

This highlights the fact that despite the expansion of the healthcare interventions and the establishment of harm-reduction measures^{38,47-49} in many jurisdictions, opioid drug use is still related

to a considerable death toll. These data only refer to direct overdose deaths. Opioid use causes an additional number of indirect deaths because of infection^{8,10,40,50} and due to suicide.^{7,51,52}

When comparing the two most populous provinces in Canada, marked trend differences in overdose deaths are observed. In British Columbia, the number of illegal drug deaths in 2002 was 162, which is about 60% less than the 400 deaths registered for 1998, and almost equal to the number of deaths (163) in 1992. No such recent downward trend could be observed in Ontario, where the absolute number of deaths and the rate increased slightly over the observation period from 354 (1992) to 490 (2002) overdose deaths (a 38% increase)¹.

Discussion

Canadian data related to illegal substance use are limited, often inconsistent and/or based on non-standardized measures.⁵³ Moreover, there is no universal definition of substance dependence or abuse in use nationally. The medical definitions are not used in the social or legal systems, so we are

¹ Overdose numbers for Ontario include suicides.

Table 4 Overdose deaths involving illegal drugs in Canada, 2002.

Province	Numbers of reported overdose deaths involving		Numbers of total overdose deaths involving illegal drugs ^a	Rate of overdose deaths per 100,000 population, age 15-49	Proportion of overdose deaths in estimated opioid users population ^b
	Illegal drugs only ^a	Illegal drugs combined with alcohol ^a			
ALB ^c	177	45	222	12.9	2.2
BC ^c	No separate information available	No separate information available	162	7.6	0.8
MAN ^c	23	10	33	5.7	1.7
NB	18	6	24	6.3	1.6
NFLD			16 ^d	5.9 ^d	1.1 ^d
NWT ^e	0	0	0	0	0
NS ^e	1	18	19	4.0	0.3
NUN	0	0	0	0	0
ONT ^c	301	83	384	6.0	1.3
PEI	5	0	5	7.3	1.5
QUE ^c	48	4	52	1.4	0.5
SASK	No separate information available	No separate information available	39	8.0	2.0
YUK	2	0	2	11.5	2.3
Canada			958	5.9	1.1

ALB, Alberta; BC, British Columbia; MAN, Manitoba; NB, New Brunswick; NFLD, Newfoundland; NWT, North West Territories; NS, Nova Scotia; NUN, Nunavut Territory; ONT, Ontario; PEI, Prince Edward Island; QUE, Quebec; SASK, Saskatchewan; YUK, Yukon Territory.

^a May involve more than one drug.

^b Overdose deaths divided by number of estimated illegal opioid users (see Table 1).

^c Cause of death was reported and suicide cases were excluded.

^d Estimated number based on average death rates for Canada as a whole.

^e 2001 (latest available data).

facing a data situation that is rather vague. The information collected by this study from various medical and legal sources, in addition to local key informants, was intended to fill the empirical gaps for a national picture on the phenomena of opioid use, related healthcare treatment services and their utilization. A more complete and systematic data set is essential not only for research but also for needs-based intervention planning.

Overall, the number of regular illegal opioid users, based on information provided by provincial key informants, was estimated to be approximately 80,000, which is consistent with previous estimates for this population.^{2,5} Since, there are no other indicators on dramatic changes in this population over the past 10 years, one can assume a relatively stable number of opioid-dependent people in Canada.

Overall, the most prevalent treatment for opioid use in Canada is outpatient MMT. The proportion of MMT spaces available across Canada relative to the

estimated total number of users in Canada is also relatively consistent with other recent estimates.³⁸ Since, many MMT episodes are considerably shorter than 1 year, it is likely that the actual number of regular opioid users who are in contact with the treatment system is higher. None of the experts could provide estimates on the average length of MMT episodes. Currently, the authors only have data for some provinces, which indicate considerable variability, so a good estimate of the proportion of opioid users who reported at least one contact with the MMT system, is hard to establish. If we somewhat arbitrarily assume an average length of MMT episodes of about 6 months and if all of the available treatment spaces were utilized, more than 50% of the opioid user population would have had at least one contact with the MMT system. However, the variations among provinces are substantial: assuming one person per treatment spot, 62% of estimated opioid users in Saskatchewan and 40% in British Columbia

received MMT, compared with less than 10% in Nova Scotia, Manitoba, Newfoundland and Alberta. It should be noted that these proportions are influenced by the estimated number of regular opioid users, i.e. errors in these estimates would have a direct impact on the estimated proportion of individuals utilizing treatment.

There are several observations from the system case study of Canada as presented with relevance for international comparison. First, currently emerging data document the pronounced (locally and culturally differentiated) diversity of opioid user populations across Canada in terms of drug use patterns. For example, in many Canadian cities, heroin is virtually absent while opioid use consists exclusively of diverted prescription opioids. In addition, cocaine and crack co-use are highly prevalent.⁶ This, of course, has implications for treatment planning and delivery, i.e. a treatment system (e.g. MMT) that is offered for a (increasingly non-existent) target group of mono-heroin or opioid users is limited in practical utility. Second, the Canadian example provides an illustrative example of how the availability of methadone treatment could be effectively expanded by: (1) Substantive drastic liberalization of requirements of prescriber licensing, and (2) active recruitment and incorporation of general practitioners into MMT delivery.^{48,54} These efforts have increased the number of MMT spaces more than 10-fold in the 1992-2002 period (although unequally distributed across the country), and Canada has thus partially applied the lessons of widespread opioid substitution treatment availability previously demonstrated in other country's systems (e.g. Australia, Germany, UK⁵⁵⁻⁵⁷). At the same time, Canada, unlike all of the abovementioned countries and even the US, has not, to date, succeeded in expanding its range of opioid substitution treatment, i.e. such treatment is still limited to MMT. Given that MMT is clearly limited in its acceptance by many opioid users, such diversity may help to attract a larger proportion of opioid users into treatment and provide therapeutic benefits.⁵⁸⁻⁶² In terms of substantive 'harm-reduction' interventions on a population scale, the described substantial decrease of overdose mortality among illicit opioid and other drug users in British Columbia, primarily driven by such effects in the city of Vancouver, since the late 1990s has been accomplished by an extensive mix of targeted interventions (e.g. expansion of MMT and detox, naloxone provision, expanded IDU support services, altered enforcement policies, etc.⁶³⁻⁶⁵). These activities and effects, including the subsequent installation of a safe injection facility in downtown Vancouver in 2003,⁶⁶ mirror the previous efforts of

several European cities throughout the 1990s, which have been able to substantially lower the illicit-drug-use-related mortality toll.^{67,68} However, it must be recognized that the pronounced mortality reduction effects observed in British Columbia are an anomaly for Canada at this point, facilitated in part by the excessively high baseline comparator mortality values yet also by a fairly homogeneous and centrally concentrated (and thus easily reachable) user population in Vancouver's Downtown Eastside core.^{63,64}

Acknowledgements

The authors acknowledge funding support from the Canadian Institutes of Health Research (CIHR), provided by an Interdisciplinary Health Research Team grant on illicit opioid addiction research, treatment and policy in Canada, and a contract from the Canadian Centre on Substance Abuse (CCSA) to estimate the costs of substance abuse in Canada.

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