

Health and Social Services Accessed by a Cohort of Canadian Illicit Opioid Users Outside of Treatment

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ABSTRACT

Objective: To examine the use of social and health services by illicit opioid users outside of treatment in five Canadian cities ('OPICAN' cohort).

Methods: 677 eligible participants completed an interviewer-administered protocol and 584 supplied saliva samples for HIV and HCV antibody-testing. Chi-squared tests and multivariate analyses of variance (MANOVA) were carried out in order to determine the associations between use of services and specific factors. The explanatory variables of service utilization were determined with multiple regression analysis.

Results: The average age of respondents was 35 years, 66% were male and 68% were Caucasian. Women and HIV-positive individuals were more likely to receive health care. Participants who had a history of injection drug use, but had not injected within the previous 30 days, visited doctors more regularly and had a higher uptake of community-based services. Those who reported mental health problems used services less frequently than others. Participants recruited in Vancouver had more visits to needle exchange programs and centres specifically for women. Toronto participants were more likely to use homeless shelters and had a higher uptake of other types of community-based services.

Conclusion: Our study found a high rate of physical and mental health problems in illicit untreated opioid users in Canada, including the transmission of infectious disease. The availability of services seems to be a predictor of use of services. Setting up, adapting and evaluating front-line services tailored to illicit opioid users outside of treatment should be a policy and program priority.

MeSH terms: Illicit opioid use; heroin use; treatment; health services; social services; comorbidity; drug addiction; HIV; HCV

La traduction du résumé se trouve à la fin de l'article.

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Acknowledgements: Funding was received from the Canadian Institutes of Health Research (CIHR). We thank the OPICAN study participants and staff who contributed to the collection, processing and analysis of the study data, with particular thanks to Amélie Bédard, Dolly Baliunas and Yelena Chorny.

Illicit drug use, especially by injection, is a major public health concern and linked with enormous economic and social costs.^{1,2} Research on health care service utilization by illicit drug users who are not in treatment is an important yet neglected issue.³ Drug users not in treatment have complex health care needs.³⁻⁸ A large proportion of illicit drug users do not receive medical attention, resulting in emergency room consultations and a higher probability of hospitalization.^{8,9} Drug injection, unstable housing, cocaine use, sex work, gender and presenting concomitant mental and physical health problems have been identified as major determinants of health care service utilization.^{1,10} Fear of stigma and discrimination by health care providers toward drug users contributes to access barriers to primary or preventive care, which in turn contribute to frequent emergency room utilization.^{1,11} More recently, the emergence of human immunodeficiency virus (HIV) and hepatitis C (HCV) has had an impact on health care service utilization by illicit drug users in Canada.¹²⁻¹⁷

The OPICAN cohort is a prospective study of opioid users. Participants are being followed over a period of several years during which key health, social and behavioural characteristics are being described and analyzed as the empirical basis for improved prevention and treatment efforts. The aim of the present paper is to examine the relationships among drug use, health status and services accessed by illicit opiate users at study entry.

METHODS

The OPICAN cohort recruited individuals who had used illicit opioids regularly (i.e., majority of days per week) for at least one year, and who had not been in treatment during the 6 months prior to enrolment, in five Canadian cities (Edmonton, Montreal, Quebec City, Toronto and Vancouver) (see Fischer et al.¹⁸ for detailed information on recruitment and tools). Baseline data – on which this analysis is based – were collected between March and November 2002, during which time 730 subjects were recruited. After providing informed consent, participants completed a semi-structured interviewer-assisted questionnaire, the CIDI-SF-12,¹⁹ and were tested for HIV and HCV antibodies.²⁰ Of

TABLE I

Number of Social and Health Services Visits in the Last 30 Days by City (Mean and Standard Deviation)

	Edmonton (n=93) Mean (SD)	Montreal (n=157) Mean (SD)	Quebec (n=87) Mean (SD)	Toronto (n=139) Mean (SD)	Vancouver (n=201) Mean (SD)	Overall (n=677) Mean (SD)
Medical Visits						
Emergency or in-patient (ER)	1.15* (3.49)	0.54 (1.25)	0.91 (2.86)	0.71 (1.82)	0.30* (1.09)	0.63 (2.04)
Walk-in clinic / CLSC / community health centre	3.80* (7.93)	0.82* (2.11)	0.79* (2.17)	2.88* (6.71)	1.69 (4.67)	1.91 (5.19)
Out-patient (OP)	0.56 (3.28)	0.47 (1.87)	0.34 (0.91)	0.27 (0.89)	0.19 (2.15)	0.34 (1.98)
Private physician	0.74 (1.41)	0.26* (0.83)	0.68 (1.22)	1.46* (2.16)	0.24* (0.71)	0.62 (1.39)
Social Services						
Needle exchange program (NEP) fixed or van	7.40* (9.54)	9.31 (13.05)	3.45* (4.66)	3.04* (5.42)	28.87* (30.67)	12.82 (21.30)
Drop-in centre / shelter / community organization / ethnocultural centre (CO)	9.61 (10.94)	5.42* (10.82)	0.82* (3.41)	20.51* (19.75)	11.76* (14.81)	10.39 (15.12)
Food bank	0.55 (0.81)	1.08 (3.14)	1.44 (5.53)	0.78 (1.69)	0.92 (2.25)	0.94 (2.90)
Employment centre	1.22* (4.11)	0.69 (3.06)	0.05* (0.21)	0.89* (2.87)	0.16* (0.82)	0.56 (2.55)
Welfare office	0.54 (1.00)	0.66 (1.49)	0.24* (0.57)	0.60 (0.89)	1.18* (1.50)	0.73 (1.27)
Women's centre† (WC)	1.14 (5.67)	0.15* (0.69)	0.15 (0.77)	2.51 (6.20)	8.51* (10.84)	3.95 (8.38)
Mental health organization (MHO)	0.04 (0.25)	0.03 (0.33)	0.02 (0.15)	0.50 (2.30)	0.15 (2.12)	0.16 (1.57)
Perceived Health Care‡	3.58 (1.33)	3.50 (1.28)	3.40 (1.29)	3.47 (1.33)	3.33 (1.32)	3.45 (1.31)

Wilks' Lambda=.46 [$F_{(40,1795)}=10.27; p<0.001$]

* statistically significant difference from other sites ($p<0.05$)

† calculated for women

‡ calculated for those receiving services. Range: 1=poor to 5=excellent

TABLE II

Proportion of Participants Receiving Health Care at Time of Assessment

	Receiving Any Health Care %	See One Doctor Regularly %	Doctor Knows the Extent of Drug Use %
City			
Edmonton (n=93)	78.5*	87.1*	63.0*
Montreal (n=157)	35.7*	33.8*	18.5*
Quebec (n=87)	50.6	69.0*	55.2*
Toronto (n=139)	64.0*	66.2*	38.1
Vancouver (n=201)	53.2	40.5*	30.0
Gender			
Female (n=224)	59.8	55.4	38.0
Male (n=449)	51.5*	53.4	36.0
Injection drug			
Never injected (n=43)	58.1	48.8	20.9
Not in last 30 days (n=89)	62.9	66.3*	46.1
In last 30 days (n=545)	52.8	52.8	36.5
HIV status†			
HIV+ (n=87)	66.7	63.2	44.8
HIV- (n=471)	48.0*	46.2*	30.4*
HCV status†			
HCV+ (n=270)	54.4	54.3	37.9
HCV- (n=244)	47.5	43.9*	27.5*
Type of health problem			
Physical and mental (n=311)	69.1*	65.9*	47.6*
Physical only (n=169)	59.8	58.6	38.7
Mental only (n=100)	35.0*	40.0*	20.0*
None (n=96)	18.8*	23.2*	14.7*
Overall (n=677)	54.5	54.3	36.7

* statistically significant difference from other categories ($p<0.05$)

† saliva test components not conducted in Edmonton

this baseline sample, 677 were included in the analysis on the basis of verified study criteria. The study received ethics review board approval in all participating local institutions.*

Statistical analyses were conducted using the SAS statistical software package.²¹ Based on scaling level, multivariate analyses of variance (MANOVA) for metric data were employed to test differences between

* The infectious disease antibody tests were not conducted in Edmonton due to ethical constraints.

sites or categories of services. A level of 0.05 was used to determine significance. For specific service variables, when F was significant, contrasts were done *a posteriori* to compare one category with all others. For categorical data, table analyses were employed to test differences between sites or categories. When cross-tabulations had an overall significant chi-square, a multi-test procedure was used with bootstrap testing to compare each category with all the others. To identify explanatory variables of number of visits, multiple regres-

sions were used with STEPWISE procedure and FORWARD method. In addition to a significance level established at 0.05, a variable had to count for at least 1% of supplementary variance (partial R^2) to be included in the model.

RESULTS

Drug use patterns were slightly different from site to site. Montreal and Vancouver had primarily a heroin-using population whereas Edmonton, Toronto and Quebec City had a higher proportion of participants who used other opioids (hydromorphone, Tylenol 1, 2, 3, Demerol). Co-use of non-opioid drugs was reported by two thirds of the subjects, and more than 90% of the overall subjects had injected drugs at some point in the past.

The unit of analysis for health and social services use was the number of service visits during the past 30 days. Subjects from Vancouver had a lower number of emergency room (ER) and private physician visits (Table I). Conversely, they visited needle exchange programs (NEPs), welfare offices and women's centres more often. The average number of visits to community health centres, community organizations (COs) and women's centres for Montreal and Quebec City participants was lower than in any other site. Toronto had the highest number of visits to COs and private physicians and showed the lowest number of NEP visits. Finally, Edmonton showed the highest number of visits to community health centres.

As the nature of street drug use in Vancouver's Downtown Eastside presents a unique situation, a two-category variable (VANCAN) was created to measure the effect of being recruited in Vancouver on services use. Then, a multivariate interaction effect (MANOVA) of city (VAN-CAN) with each independent variable was calculated. Where no statistical significance was observed, data are presented globally. Otherwise, the simple main effect on dependent variables is calculated separately for Vancouver and for the rest of the OPI-CAN study sites.

More women than men reported receiving health care (Table II). As the multivariate interaction effect of gender and city was significant (Wilk's Lambda=.96 [$F_{(10,641)}=2.32;p<0.05$]), the number of visits to services varied according to gender only for Vancouver. Vancouver women visited COs substantially more often than men (14.76 vs. 9.35; $p<0.05$) (data not shown in table), but they made less use of food banks.

Using drugs by injection was associated with visiting a NEP in the last 30 days (Table III). However, it is those participants who have injected at some point in their lives but have not done so during the last 30 days who visit private doctors' offices and COs most often.

Subjects who indicated HIV-positive status (as per salivary test) were more likely to report receiving health care (Table II) and seeing a doctor regularly when compared to HIV-negative individuals. As there is a multivariate interaction effect

TABLE III

Number of Social and Health Services Visits in the Last 30 Days by Injection Status (Mean and Standard Deviation)

	Never Injected (n=43) Mean (SD)	Injected but Not in Last 30 Days (n=89) Mean (SD)	Injected in Last 30 Days (n=545) Mean (SD)
Medical Visits			
Emergency or in-patient (ER)	0.32 (0.93)	0.53 (1.16)	0.67 (2.21)
Walk-in clinic / CLSC / community health centre	1.33 (2.56)	2.62 (7.51)	1.84 (4.88)
Out-patient (OP)	0.17 (0.54)	0.19 (0.77)	0.38 (2.18)
Private physician	0.73 (1.23)	1.02* (2.18)	0.54* (1.22)
Social Services			
Needle exchange program (fixed or van) (NEP)	2.44* (6.90)	1.67* (6.01)	15.43* (22.76)
Drop-in centre / shelter / community organization / ethnocultural centre (CO)	8.16* (11.12)	16.91* (20.53)	9.52* (14.10)
Food bank	0.84 (2.29)	1.36 (4.05)	0.88 (2.72)
Employment centre	0.76 (2.10)	0.66 (2.25)	0.53 (2.63)
Welfare office	0.79 (1.15)	0.72 (0.98)	0.73 (1.32)
Women's centre† (WC)	3.33 (8.71)	1.77 (4.60)	4.30 (8.74)
Mental health organization (MHO)	0.02 (0.15)	0.35 (2.20)	0.15 (1.51)
Perceived Health Care‡	3.40 (1.32)	3.69 (1.29)	3.40 (1.31)

Wilks' Lambda=.89 [$F_{(20,1290)}=3.94;p<0.001$]

* statistically significant difference from other categories ($p<0.05$)

† calculated for women

‡ calculated for those receiving services. Range: 1=poor to 5=excellent

with cities regrouped, only the HIV-positive participants from Vancouver visited COs more often (18.49 vs. 10.46; $p<0.05$). HCV-positive participants were not different from HCV-negative participants regarding use of health care services, but used social services like NEPs more often (16.56 vs. 9.26; $p<0.05$).

Participants who reported any kind of physical and/or mental health problem and/or specific medication associated with a health problem were retained for the analysis of use of services by type of problem. Depression-related mental health problems were also validated with the CIDI-SF (score equal to 3 or higher). Analysis of physical

and mental health problems was divided into four categories: physical and mental, physical, mental, and none.

Individuals with physical and mental health problems were more likely to report receiving health care (Tables II and IV) compared to other subgroups. The inverse situation is observed for the category of illicit opioid users with mental health problems only. This group was less likely to receive medical attention. Table IV presents a comparison of health and social services use of participants according to health status.

Multiple regressions were carried out for each type of service used. The predicted

TABLE IV

Number of Social and Health Services Visits in the Last 30 Days by Type of Health Problem (Mean and Standard Deviation)

	Physical and mental (n=311) Mean (SD)	Physical (n=169) Mean (SD)	Mental (n=100) Mean (SD)	None (n=96) Mean (SD)
Medical Visits, Last 6 Months				
Emergency or in-patient (ER)	0.97* (2.67)	0.47 (1.65)	0.31 (0.76)	0.19 (0.53)
Walk-in clinic / CLSC / community health centre	2.56* (6.52)	1.79 (3.47)	1.10 (3.96)	0.85 (3.49)
Out-patient (OP)	0.36 (1.46)	0.58 (3.36)	0.13 (0.60)	0.09 (0.41)
Private physician	0.84* (1.69)	0.71 (1.33)	0.31 (0.69)	0.08* (0.45)
Social Services, Last 6 Months				
Needle exchange program fixed or van (NEP)	9.97* (18.33)	16.98* (25.45)	10.46 (16.92)	16.93 (24.53)
Drop-in centre / shelter / community organization / ethnocultural centre (CO)	12.37* (16.62)	11.08 (15.17)	6.52* (11.72)	6.93 (11.56)
Food bank	1.08 (2.92)	0.72 (2.07)	1.22 (4.44)	0.61 (1.92)
Employment centre	0.57 (2.81)	0.63 (2.84)	0.73 (2.13)	0.23 (1.10)
Welfare office	0.83 (1.34)	0.62 (0.96)	0.66 (1.71)	0.71 (0.94)
Women's centre† (WC)	2.96 (7.38)	6.41* (9.99)	2.31 (7.04)	5.47 (9.17)
Mental health organization (MHO)	0.31 (2.27)	0.05 (0.62)	0.05 (0.22)	0.00 (0.00)
Perceived Health Care‡	3.46 (1.36)	3.39 (1.29)	3.46 (1.15)	3.56 (1.21)

Wilks' Lambda=.87 [$F_{(30,1888)}=3.06;p<0.001$]

* statistically significant difference from other categories ($p<0.05$)

† calculated for women

‡ calculated for those receiving services. Range: 1=poor to 5=excellent

TABLE V

Multiple Regression Analysis for Number of Social and Health Services Visits in the Last 30 Days

Dependent Variable	Predictors	Standardized Coefficient	R ²	Partial R ²	p
Social or Health Services Needle exchange program fixed sites or van	Recruited in Vancouver	0.35	0.24	0.24	0.0001
	Number of days injecting drugs in the last 30 days	0.26	0.31	0.07	0.0001
	Street housing	0.18	0.35	0.04	0.0001
	Total income	0.12	0.37	0.02	0.0001
	Panhandling income	-0.12	0.39	0.01	0.0001
Drop-in centre / shelter / community organization / ethnocultural centre	Recruited in Toronto	0.32	0.12	0.12	0.0001
	Permanent housing	-0.24	0.19	0.07	0.0001
	To be Aboriginal	0.11	0.21	0.02	0.0001
	Recruited in Quebec	-0.12	0.22	0.01	0.0028
	To have physical and mental health problem	0.10	0.23	0.01	0.0029
Women's centre (n=224)	Recruited in Vancouver	0.40	0.19	0.19	0.0001
	To be Aboriginal	-0.21	0.23	0.04	0.0019
	To have unprotected sex in past 6 months	-0.20	0.26	0.03	0.0030
	Sex work income	0.14	0.29	0.03	0.0048
	To have an overdose in last 6 months	0.14	0.31	0.02	0.0147
	Permanent housing	-0.15	0.33	0.02	0.0203

Notes:

Only models with R² greater than 0.20 are shownOnly variables with partial R² greater or equal to 0.01 are kept

variable is the self-reported number of visits to the respective service in the last 30 days. Category variables were converted into dummy variables for use in the regression. The variables used with stepwise procedure were: city, ethnic origin (white, Aboriginal or other), age, type of housing (permanent, transition or street), amounts of money obtained from each source of income and total income, HIV and HCV status, type of health problem (as defined previously), having had unprotected sex (last 6 months), having consumed opioids in combination with other drugs (last 30 days), having had an overdose (last 6 months), sharing of injection equipment (shared needle, shared other injection equipment, did not share), drug treatment history (methadone, other treatment, none) and criminal arrest history. Explanatory models emerged for visits to NEPs (fixed or van), COs and women's centres.

The Vancouver site emerged as the main predictor of NEP use, followed by the number of days injecting in the last 30 days, unstable (street) housing and total income (Table V). Unstable housing also explained visits to shelters and drop-in centres. The impact of the Toronto site on the number of visits to different types of COs was explained by the numerous visits to ethno-cultural centres. The Quebec City site is clearly set apart by its low rate of visits to shelters and community centres. The impact observed remained significant even after taking into account the type of housing and the ethnic group.

DISCUSSION

Our data indicate that there are numerous differences in health and social services access between different groups of illicit opiate users. In contrast to the studies of Palepu,⁸ Latkin et al.²² and Solomon²³ which documented HIV-positive injection drug users visiting ER and being hospitalized more often than HIV-negative ones, the results of the present study did not show this link. On the other hand, our data showed that a greater proportion of HIV-positive participants received health care and visited a doctor regularly. An explanation could be the observation time period. When we compared the use of ER and hospitalization of injectors to non-injectors in our study population for a 6-month period (data not shown), a significant difference between the two groups emerged.

Participants indicating both physical and mental health problems reported the use of health services most often, followed by those who reported physical health problems only, and those with mental health problems only. The scope and impact of mental health problems may be underestimated in this study population, and physical health problems may typically be suspected as the main motivating factor to visit health services. As well, the identification of a mental health concern during a visit for a physical health problem may initiate a greater use of services.

In each predictive analysis exploring the number of service visits, a city emerged as the

principal predictor of use of services. We suggest that this is attributable largely to the fundamental differences between the cities included in the study with regard to the availability of various services. The picture that seems to emerge, for example, is that the use of mobile needle exchange vans, as in Vancouver, contributes effectively to a better distribution of sterile needles. A similar observation was made for COs, with Toronto being positively associated with CO use; the opposite was true for Quebec City. This highlights a major lack of available resources for the latter site compared to other cities. Finally, as was found by Palepu¹ and Van Ness,¹⁰ housing status also emerges as a predictor of the use of services, which indicates the extensive service and support needs of street drug users without stable housing.

Recent studies^{4,6,9} strongly support the development of more efficient approaches in addressing the risks and harm consequences of illicit drug use.² Regular medical care,³ the development of targeted outreach services³ as well as attracting users to drug treatment programs²⁴ all have shown effect potential in reducing the harms associated with illicit drug use as well as reducing health services-related costs and risk behaviours.²⁵ The crucial link between health status and service utilization^{7,11} and the need to evaluate such services^{26,27} has been highlighted by many authors. Our results also highlight the need to develop primary care services adapted to illicit drug users, especially those with mental health problems and unstable housing.

In terms of methodological limitations, the snowball sampling strategy used for the OPICAN cohort may have introduced a population bias. Another limitation stems from the fact that illicit opioid use is a hidden activity characterized by local socio-ecological determinants that differ as influenced by local drug cultures and intervention measures. These factors limit the representativeness of our findings for other opioid users or their generalizability to other street drug use populations in or beyond the study sites.

In conclusion, the transmission of infectious diseases and the high rate of physical and mental health problems in illicit untreated opioid users in Canada as found by the OPICAN study constitute major concurrent health problems, and require systematic understanding as the basis for effective interventions. It was observed in the present study that the availability of services seems to be a predictor of use of services. Furthermore, policy-makers should consider the development of services for drug users and such interventions should be evaluated for an empirical understanding of their impact.

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Received: March 1, 2005
Accepted: January 3, 2006

RÉSUMÉ

Objectif : Étudier l'utilisation des services sociaux et de santé par des consommateurs d'opiacés illicites ne suivant pas un traitement dans cinq villes canadiennes (cohorte OPICAN).

Méthode : Les 677 participants admissibles ont répondu à un questionnaire administré par un intervieweur, et 584 ont fourni un échantillon de salive pour le sérodiagnostic du VIH et du VHC. Des analyses du khi-carré et des analyses de variance à plusieurs variables ont été réalisées pour déterminer les liens entre l'utilisation des services et les différents indicateurs. Les variables explicatives de l'utilisation des services ont été déterminées au moyen d'analyses de régression multiple.

Résultats : L'âge moyen des répondants était de 35 ans, 66 % étaient des hommes, et 68 % étaient de race blanche. Les femmes et les personnes séropositives pour le VIH étaient plus susceptibles de recevoir des soins. Les utilisateurs et utilisatrices de drogues injectables qui ne s'étaient pas injectés au cours des 30 jours précédents consultaient plus régulièrement leur médecin et faisaient plus souvent appel aux services communautaires. Ceux qui déclaraient avoir un problème de santé mentale utilisaient les services moins régulièrement. Les participants recrutés à Vancouver avaient plus souvent fait appel à des programmes d'échange de seringues et à des centres pour femmes. Les participants de Toronto étaient plus susceptibles d'utiliser les refuges pour sans-abri et avaient davantage recours aux autres types de services communautaires.

Conclusion : Notre étude révèle un taux élevé, au Canada, de problèmes de santé physique et mentale, dont la transmission de maladies infectieuses, chez les consommateurs d'opiacés illicites ne suivant pas un traitement. La disponibilité des services semble être un prédicteur de leur utilisation. L'implantation, l'adaptation et l'évaluation de services de proximité conçus pour ces clients devraient constituer une priorité dans la formulation de politiques et de programmes.