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INFECTIOUS DISEASES SURVEILLANCE AMONG INJECTION DRUG USERS

EPIDEMIOLOGY OF HIV FROM 1995 TO 2004
EPIDEMIOLOGY OF HCV FROM 2003 TO 2004

INSTITUT NATIONAL DE SANTÉ PUBLIQUE DU QUÉBEC

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EPIDEMIOLOGY OF HCV FROM 2003 TO 2004

DIRECTION RISQUES BIOLOGIQUES, ENVIRONNEMENTAUX ET OCCUPATIONNELS

SEPTEMBER 2005

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This document has been realized with the financial collaboration of Health Canada.

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injection - Épidémiologie du VIH de 1995 à 2004 - Épidémiologie du VHC de 2003 à 2004 ».*

GRAPHIC DESIGN
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DOCUMENT DEPOSITED ON SANTÉCOM ([HTTP://WWW.SANTECOM.QC.CA](http://www.santecom.qc.ca))
CALL NUMBER: INSPQ-2006-033

LEGAL DEPOSIT – 2ND QUARTER 2006
BIBLIOTHÈQUE ET ARCHIVES NATIONALES DU QUÉBEC
NATIONAL LIBRARY OF CANADA
ISBN 2-550-47070-2 (PRINTED VERSION)
ISBN 2-550-47071-0 (PDF)
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FOREWORD

The SurvUDI network was put in place in 1995 in the province of Quebec. It does epidemiological surveillance of human immunodeficiency virus and hepatitis C infections among injection drug users.

Recruitment is based in a large number of settings. Most are met in centers providing access to sterile injection equipment. Others are recruited for instance in detention centers, detox and rehab clinics.

Individuals who report having injected in the preceding six months are eligible if judged able to give an informed consent. A questionnaire is then administered and two oral fluid samples are taken to be tested for HIV (since 1995) and HVC (since 2003). The codification scheme allows for the detection of multiple visits by repeaters to the study. (Interested readers will find more details in: Continuing HIV Transmission Among Injection Drug Users in Eastern Central Canada: The SurvUDI Study, 1995 to 2000. Hankins C, Alary M, Parent R, Blanchette C, Claessens C and The SurvUDI Working Group. JAIDS 30: 514–521)

Three principal investigators are in charge of this network. They are Dr. Michel Alary, from the Unité de recherche en santé des populations, Centre hospitalier *affilié* universitaire de Québec, Dr. Élise Roy, from Sherbrooke University, Addiction programme, research, Medicine and health sciences faculty, Longueuil campus, and Dr. Carole Morissette from Montreal's Public Health Department. Each also works at Quebec's National Public Health Institute.

Mr. Raymond Parent is the coordinator of the study.

SurvUDI activities are financed by the Public Health Agency of Canada (Centre for Infectious Disease Control and Prevention). Additional funding is also provided by Quebec's Ministry of Health and Social services. A sub-analysis on HCV infections has been funded by Réseau sida et maladies infectieuses, Fonds de la recherche en santé du Québec (FRSQ).

In 2002, Health Canada authorities extended this type of surveillance to other Canadian provinces creating the I-Track network. SurvUDI is now a part of this study.

** This document will be update each year and will be available on the Institut Web site.*

NOTE TO READERS

A number of recruitment sites and several questions were added to the study along the way. This is why sample sizes are smaller for certain documented behaviours. Most of the additions to the questionnaire were made in 2003 when the SurvUDI Study joined the Canadian I-Track network. The tables that present these new variables are those whose titles refer to the 2003-04 period.

HIGHLIGHTS¹

As of June 30, 2004, 14,773 questionnaires had been administered to 8,964 individuals (Table 1). Three-quarters of participants are men (6,542/8,964) with an average age of 33. The average age of female participants is 28 (Table 1).

Educational levels are low, with only one in four (269/1,105) participants having completed high school (Table 3; 2003-04 data).

Cocaine is the injection drug most often used (88% of the 8,939 respondents had used cocaine), followed by heroin at 36% (Table 5). Cocaine is also the drug most frequently injected by 75% (6,639/8,897) of participants (Table 9).

Injection drug use varies a lot by region (Table 5). While cocaine is the most pervasive drug in all regions (84-98% of respondents in each region), heroin use is particularly widespread in Montreal (53% of 3,994 respondents), as is dilaudid in Quebec City (10% of 2,420 respondents), non-prescription morphine in Ottawa (35% of 1,367 respondents), and PCP in Saguenay-Lac-Saint-Jean (28.5% of 186 respondents).

There are also significant differences in injection drug use by age (Table 7). For example, heroin use was reported by 60% of injection drug users (IDUs) aged 24 or less (1,465/2,461) and by 27% of older IDUs (1,697/6,234).

A majority of the persons recruited also use non-injection drugs (Table 6; 2003-04 data). More than three-quarters of 1,124 respondents reported having used alcohol (83%) and cannabis (76%), while half had smoked crack (57%) and inhaled cocaine (53%).

While alcohol and cannabis use is widespread in all recruitment sites, non-injection drug use varies (Table 6; 2003-04 data). For example, PCP use was reported by only 10% of IDUs recruited in Ottawa (20/210), but by 28% of those recruited in Montreal (156/560).

In terms of non-injection drug use by age (Table 8), PCP, cannabis and amphetamines appear to be more popular among those aged 24 or less, while benzodiazepines are favoured by older users. Cocaine and crack use was comparable in both age groups (Table 8; 2003-04 data).

The injection site used by the largest number of IDUs during the previous six months was their own apartment (55%); the street was the most common injection site for 18% of recruited IDUs (98/559) (Table 15; 2003-04 data).

Levels of behavioural risk are generally higher among urban IDUs, both in terms of drug use (Table 16) and sexual behaviour (Table 20). Urban IDUs are more often long-term users, as well as more regular in their use, and are more inclined to inject drugs with strangers. Men recruited in urban areas are also more likely to report having had sex with other men, while urban women are more likely to report involvement in the sex trade.

However, use of needles and other supplies that have previously been used by others is more common

1. Unless otherwise indicated, behaviours refer to the six-month period that preceded the interview.

among semi-urban IDUs. The latter are also more likely to obtain needles and other materials from people they do not know (Table 16).

Condom use by women (Table 18) and men (Table 19) is too infrequent to have a protective effect (be it with regular or casual partners, or with clients in the case of sex-trade workers).

Close to one man in 10 (613/6,522) and one woman in two (917/2,114) reported having worked as a prostitute (Table 20).

The prevalence of human immunodeficiency virus (HIV) infection is 15% (1,310/8,899). Among IDUs aged 40 or more, one individual in four is already infected (Table 21).

The prevalence of hepatitis C virus (HCV) infection is 65% (725/1,116). Among IDUs aged 40 or more, four individuals in five are already infected (Table 22; 2003-04 data).

HIV prevalence is highest in Montreal, Ottawa and Hull, at close to 20% (Table 23).

HCV prevalence is 67% (95% CI = 64-70%) in urban areas, and 49% (95% CI = 40-59%) in semi-urban areas (Table 25; 2003-04 data).

HIV prevalence, based on initial participation in the study, remained stable over time throughout the network (Figure 1). It rose slightly in Quebec City and decreased in Ottawa.

The incidence rate of HIV is 3.5 per 100 person-years (PY). It is 4.5 per 100 PY in Ottawa/Hull, 4.3 per 100 PY in Montreal, 2.7 per 100 PY in Quebec City, and 1.8 per 100 PY in semi-urban programs (Table 32).

HIV incidence rates decreased consistently throughout the network until 2001 (Figure 2). Since then, an increase has been observed in Quebec City (since 2002) and Montreal (since 2001). However, observations recorded in 2003 remain to be confirmed, since follow-up data will be added for a number of individuals in the coming months.

Needle sharing remains the primary risk factor for HIV transmission. Cocaine as the most frequently injected drug, injection with strangers, older ages, and recruitment in Montreal are also independently associated with a higher risk of becoming infected (Table 33).

The proportion of those who reported having borrowed needles in the past six months decreased significantly in Montreal and Ottawa. A downward trend can also be observed in Quebec City, although this proportion increased between 2001 and 2003. No decrease was observed in semi-urban recruitment sites, where rates of needle sharing are highest (Figure 3).

The trends observed for risk factors associated with a higher incidence of HIV vary considerably from one recruitment site to the next (figures 7 to 10).

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Table 1 – Description of sample, by recruitment region, SurvUDI/I-Track Study, 1995-2004

Recruitment region	Year implemented	Number of questionnaires administered	Number of women/average (median) age	Number of men/average (median) age
Abitibi-Témiscamingue	1995	199	35/29.2 (31)	126/29.5 (28)
Estrie	1998	509	48/28.9 (28)	273/35.1 (36)
Hull	1997	278	45/35.0 (35)	158/38.5 (39)
Mauricie-Centre-du-Québec	2000	296	48/30.0 (30)	153/34.4 (35)
Montréal	1995	203	33/26.9 (24)	163 33.5 (33)
Montreal	1995	6,390	1,003/25.9 (23)	2,969/32.3 (32)
Ottawa	1996	2,213	306/33.6 (34)	1,058/35.9 (36)
Quebec City	1995	4,455	637/28.3 (27)	1,780/32.7 (32)
Saguenay-Lac Saint-Jean	1995	230	54/24.5 (21)	132/24.7 (21.5)
Network	1995	14,773 ¹	2,125/28.2 (6)	6,542/33.2 (33)

1: 8,964 different individuals.

Table 2 – Ethnicity, SurvUDI/I-Track Study, 2003-2004

Ethnic group	n/1,099	%
Canadian	1,021 ¹	97.2
European	17	1.5
Other	8	0.7
American	6	0.5

1: Including 47 Aborigines.

Table 3 – Education level reached, SurvUDI/I-Track Study, 2003-2004

Education level	n/1,105	%
Secondary ¹	734	66.4
College ²	207	18.7
University ³	102	9.2
Primary	62	5.6

1: 24.3% (269/1,105) obtained their diploma.

2: 8.4% (93/1,105) obtained a degree.

3: 3.6% (40/1,105) obtained a degree.

Table 4 – Current place of residence, SurvUDI/I-Track Study, 2003-2004

Place of residence	n/1,111	%
Private residence (apartment/house)	749	67.4
Room (hotel, motel, boarding house)	131	11.8
Street/squat	116	10.4
Institution (shelter, hostel, half-way house, rehabilitation centre, detox centre)	104	9.4
Detention centre	11	1.0

24% (273/1,117) reported that they had been living on the street for the past 6 months.

15.6% (174/1,117) reported having been in a detention centre during the past 6 months, and 17 individuals had resided in a psychiatric institution.

Table 5 – Drugs injected during the previous six months, by recruitment region, SurvUDI/I-Track Study, 1995-2004

Site	n ¹	% of IDUs who injected					PCP
		Cocaine	Heroin	Speedball ²	Dilaudid	Non-prescription morphine	
Abitibi-Témiscamingue	161	93.8	23.6	8.7	3.7	1.2	7.5
Estrie	422	90.8	25.1	4.0	3.8	2.8	3.1
Hull	266	97.7	7.5	3.0	0.0	1.5	1.1
Mauricie-Centre-du-Québec	268	92.1	32.5	8.2	7.1	3.4	4.1
Montréal	197	92.4	35.0	14.2	3.1	2.5	4.6
Montreal	3,994	86.1	52.6	16.5	8.6	4.7	6.1
Ottawa	1,367	87.1	26.1	8.5	9.3	34.9	2.4
Quebec City	2,420	90.1	22.2	1.5	10.4	3.0	6.3
Saguenay-Lac-Saint-Jean	186	83.9	30.7	7.5	8.1	3.8	28.5
Network	8,939	88.2	35.9	9.8	8.5	8.6	5.6

1: Number who responded to the question on injection drug use during the past six months.

2: Injectable mixture of cocaine and heroin.

Other frequently reported injection drugs:

- crack = 2.2%
- amphetamines = 1.0%
- steroids = 0.5%
- benzodiazepines = 0.4%
- barbiturates = 0.4%
- oxycontin = 0.4%

Table 6 – Non-injection drug use during the previous six months, by recruitment region, SurvUDI/I-Track Study, 2003-2004

Site	n ¹	% of IDUs who used the following other than by injection					
		Alcohol	Cannabis	Crack	Cocaine	PCP	Dilaudid
Abitibi-Témiscamingue	5	80.0	80.0	60.0	80.0	60.0	20.0
Estrie	36	94.4	88.9	50.0	80.6	8.3	5.6
Mauricie-Centre-du-Québec	57	86.0	75.4	36.8	63.2	35.1	19.3
Montréal	5	80.0	80.0	20.0	80.0	0.0	0.0
Montreal	560	83.8	75.2	57.3	46.3	27.9	21.1
Ottawa	210	79.1	78.6	75.7	63.8	9.5	32.9
Quebec City	237	80.2	73.0	45.6	50.2	24.5	21.1
Saguenay-Lac-Saint-Jean	14	100.0	92.9	50.0	92.9	85.7	42.9
Network	1,124	82.7	76.1	56.8	53.2	24.2	22.9

1: Number who responded to the question on non-injection drug use during the previous six months.

Other frequently reported non-injection drugs:

- benzodiazepines = 20.8%
- amphetamines = 18.8%
- ecstasy = 16.4%
- heroin = 14.4%

Table 7 – Injection drug use during the previous six months, by age group, SurvUDI/I-Track Study, 1995-2004

Drug (Nb. who have used)	Proportion of users among those aged				p-value
	24 or less		25 or more		
	%	n	%	n	
Cocaine (7,653)	77.9	2,461	92.1	6,234	<0.001
Crack (194)	1.2	2,453	2.6	6,223	<0.001
Heroin (3,162)	59.5	2,461	27.2	6,234	<0.001
Dilaudid (752)	8.5	2,453	8.7	6,223	0.696
Speedball ¹ (864)	14.3	2,461	8.2	6,234	<0.001
Non-prescription methadone (1,759)	5.8	2,453	9.9	6,223	<0.001
PCP (498)	15.9	2,461	1.7	6,233	<0.001
More than one drug (5,145)	54.2	2,461	35.5	6,230	<0.001

1: Injectable mixture of cocaine and heroin.

Table 8 – Non-injection drug use during the previous six months, by age, SurvUDI/I-Track Study, 2003-2004

Drug (Nb. who have used)	Proportion of users among those aged		p-value
	% 24 or less n=232	% 25 or more n=884	
Alcohol (922)	86.6	81.6	0.069
Cannabis (846)	82.3	74.1	0.009
Crack/freebase (634)	59.5	56.1	0.356
Cocaine (590)	55.2	52.3	0.429
PCP (267)	59.5	14.6	<0.001
Dilaudid (254)	22.0	23.0	0.751
Benzodiazepines (231)	14.2	22.4	0.006
Amphetamines (209)	40.1	13.1	<0.001

Table 9 – Drug most frequently injected during the previous six months, SurvUDI/I-Track Study, 1995-2004

Drug	n/8,897	%
Cocaine	6,639	74.6
Heroin	1,569	17.6
Non-prescription morphine	182	2.1
Dilaudid	159	1.8
PCP	122	1.4
Crack	43	0.5
Speedball ¹	41	0.5
Prescription morphine	22	0.3
Amphetamines	20	0.2
Steroids	16	0.2
(MS/Oxy)contin	13	0.2
Alcohol	9	0.1
Demerol	4	0.1
Other drugs ²	30	0.4
Unknown	18	0.2

1: Injectable mixture of cocaine and heroin.

2: 8 other products were reported by one or two individuals as the drug they most frequently used.

Table 10 – Heroin as the drug most frequently injected during the previous six months, by age group, SurvUDI/I-Track Study, 1995-2004

Site	% who most frequently injected heroin (n)	% aged 24 or less (n)	% aged 25 or more (n)
Abitibi-Témiscamingue	6.9 (160)	17.7 (51)	1.8 (109)
Estrie	11.6 (414)	30.6 (66)	8.5 (248)
Hull	3.1 (261)	0.0 (19)	4.4 (158)
Mauricie-Centre-du-Québec	14.6 (268)	36.7 (49)	7.4 (149)
Montréal	15.4 (195)	31.9 (47)	10.1 (148)
Montreal	29.3 (3,973)	53.1 (1,389)	16.5 (2,582)
Ottawa	7.1 (1,365)	13.6 (147)	6.3 (1,215)
Quebec City	10.0 (2,401)	19.4 (696)	6.1 (1,705)
Saguenay-Lac-Saint-Jean	13.9 (180)	16.0 (119)	9.8 (61)
Network	17.6 (8,897)	37.1 (2,432)	10.5 (6,206)

Table 11 – Non-injection drugs most frequently used during the previous six months, SurvUDI/I-Track Study, 2003-2004

Drug	n/1,086	%
Cannabis	307	28.3
Cocaine and crack/freebase	270	24.9
Alcohol	265	24.9
Prescription methadone	44	4.1
PCP	42	3.9
Benzodiazepines	24	2.2
Dilaudid	18	1.7
Non-prescription methadone	17	1.6
Barbiturates	17	1.6
White heroin	13	1.2
Amphetamines	7	0.6
Ecstasy	4	0.4
Other drugs ¹	7	0.6

1: Seven other non-injection drugs were reported as most frequently used.

Table 12 – Drug most frequently injected during the previous month, SurvUDI/I-Track Study, 2003-2004

Drug	n/514	%
Cocaine	355	69.1
White heroin	50	9.7
Non-prescription morphine	29	5.6
Dilaudid	21	4.1
Crack	20	3.9
Prescription morphine	18	3.5
Oxycontin	9	1.8
Speedball	5	1.0
Other drugs ¹	7	1.4

1: Six other injection drugs were reported by one or two individuals as the drug they most frequently used.

Table 13 – Non-injection drugs most frequently used during the previous month, SurvUDI/I-Track Study, 2003-2004

Drug	n/528	%
Cannabis	150	28.4
Alcohol	122	23.1
Cocaine and crack/freebase	122	23.1
Benzodiazepines	29	5.5
Prescription methadone	28	5.3
Oxycodone	13	2.5
Prescription morphine	12	2.3
Non-prescription morphine	11	2.1
PCP	10	1.9
Tylenol with codeine	10	1.9
Dilaudid	9	1.7
Other drugs	67	12.7

Table 14 – Injection sites used during the previous six months, SurvUDI/I-Track Study, 2003-2004

Injected drugs in:	n/559	%
Own apartment	384	68.7
Street	248	44.4
Friend's home	247	44.2
Hotel/motel	145	25.9
Room/rooming house	82	14.7
Public washrooms	56	10.0
Home of a relative	41	8.0
Squat	37	6.6
Shelter, hostel	33	5.9
Other ¹	45	8.0

1: For example: detention centre (14), rehab clinic (5), psychiatric institution (3), half-way house (4), automobile (4).

Table 15 – Injection site most frequently reported during the previous six months, SurvUDI/I-Track Study, 2003-2004

Most frequently injected drugs in:	n/559	%
Own apartment	307	54.9
Street	98	17.5
Home of a friend	71	12.7
Own home	15	2.7
Rooming house	15	2.7
Public washrooms	15	2.7
Hotel/motel	11	2.0
Shelter/hostel	7	0.9
Detention centre	5	0.9
Automobile	4	0.7
Other ¹	11	2.0

1: Six other injection sites were reported by one or two individuals as the places they most frequently used.

Table 16 – Comparison of injection behaviours during the previous six months, in IDUs recruited in urban and semi-urban areas, SurvUDI/I-Track Study, 1995-2004

Behaviour ¹	% urban IDUs (n)	% semi-urban IDUs ² (n)	p-value
Injection partners:			
- Reg. sex. part./close friends/family	43.9 (7,601)	46.1 (1,017)	<0.001 (2df) ³
- Strangers	39.1 (7,601)	32.4 (1,017)	
- Alone	16.9 (7,601)	21.5 (1,017)	
Have used injection drugs for more than 5 years	60.6 (7,613)	54.5 (687)	<0.001
Have lent needles	29.6 (7,891)	38.5 (1,037)	<0.001
Have used injection drugs at least once a week	64.3 (7,784)	34.9 (1,030)	<0.001
Have borrowed needles ⁴	35.2 (7,851)	44.2 (1,021)	<0.001
Borrowed needles primarily from strangers (out of 3,090 needle borrowers who responded)	24.7 (2,657)	31.2 (433)	0.004
Borrowed other injection material (e.g. filters) ⁵	40.5 (4,783)	45.6 (899)	0.004
Borrowed other injection material primarily from strangers (out of 2,984 materials borrowers who responded)	22.9 (2,501)	33.2 (383)	< 0.001
Smoked crack or freebase	54.2 (7,839)	51.5 (1,037)	0.102
Injected PCP	5.3 (7,911)	8.5 (1,039)	0.001
Drug most frequently injected:			
- Cocaine	73.5 (7,821)	83.0 (1,099)	<0.001 (2df) ³
- Heroin	18.5 (7,821)	10.9 (1,099)	
- Other	8.0 (7,821)	6.0 (1,099)	

1: Behaviour during the six-month period that preceded the interview.

2: Semi-urban IDUs: Abitibi-Témiscamingue, Mauricie-Centre-du-Québec, Montérégie (with the exception of those from Montreal's immediate south shore or those who indicated that they reside in Montreal), Saguenay-Lac-Saint-Jean and Estrie.

3: df: Degree of freedom.

4: Among the 1,136 IDUs who had borrowed needles during the previous six months and who answered the question, 61% (698) indicated having borrowed only one or two needles out of every 10, while 27% (305) indicated borrowing 3 to 5 needles out of 10, and 12% (133) stated 6 or more out of 10.

5: Among the 1,397 IDUs who had borrowed materials other than needles during the previous six months and who answered the question, 47% (650) indicated that they had borrowed such supplies once or twice out of every 10 uses, while 27% (377) indicated borrowing 3 to 5 times out of 10, 26% (370) stated 6 or more times, and 16% (218) indicated 10/10.

Table 17 – Borrowing and lending of other injection material during the previous six months, SurvUDI/I-Track Study, 2003-2004

	%	n/N
Borrowed injection material		
Water	30.8	502/1,892
Filter	16.8	316/1,887
Containers	29.6	558/1,887
Lent injection material		
Water	23.0	129/560
Filter	15.9	89/560
Containers	23.5	126/561

61% (654/1,075) of IDUs who reported smoking drugs during the previous six months also reported that they had borrowed supplies to do so.

Table 18 – Condom use during the previous six months, in women, by type of male sexual partner, SurvUDI/I-Track Study, 1995-2004

Frequency of condom use by women	Regular partners n=1,349 ¹	Casual partners n=789 ¹	Clients n=792 ¹
Always	205 15.2%	332 42.1%	512 64.7%
Sometimes	453 33.6%	287 36.4%	221 27.9%
Never	691 51.2%	170 21.6%	59 7.5%

1: Number of women who indicated having this type of male partner. The question regarding the sex of partners was added during the second year of surveillance

45.4% of women (917/2,114) reported having worked in the sex trade (exchange of money, drugs or other goods and services) during the previous six months.

55% of women (240/563) reported having used a condom the last time they had sexual intercourse.

60.4% of women (340/563) reported having had sexual relations during the previous month.

Table 19 – Condom use during the previous six months, in men, by type and sex of sexual partners SurvUDI/I-Track Study, 1996-2004

Frequency of condom use by men	Regular partners (n=2,966) ¹		Casual partners (n=2,864) ¹		Clients (n=539) ¹	
	M n=280 ²	F n=2,753 ²	M n=394 ²	F n=2,644 ²	M n=379 ²	F n=199 ²
Always	74 26.4%	579 21.0%	107 27.2%	1,028 38.9%	141 37.2%	84 42.2%
Sometimes	73 26.1%	867 31.5%	107 27.2%	898 34.0%	97 25.6%	54 27.1%
Never	133 47.5%	1,307 47.5%	180 45.7%	718 27.2%	141 37.2%	61 30.7%

1: Number of men who indicated having this type of partner and who answered the question concerning the sex of partners, which was added during the second year of observation.

2: Number of men who indicated having this type of male or female partner. The question relating to the sex of sexual partners was added during the second year of observation.

9.4% of men (613/6,522) reported having worked in the sex trade (exchange of money, drugs or other goods and services) during the previous six months.

14.0% of men (917/6,534) reported having had male sexual partners during the previous six months.

Table 20 – Comparison of sexual behaviours during the previous six months among IDUs recruited in urban and semi-urban areas, SurvUDI/I-Track Study, 1996-2004

Behaviours	% Urban IDUs n=7,921	% Semi-urban IDUs ¹ n=1,043	p-value
Among women	n=1,938	n=176	
Prostitution ²	44.3	33.0	0.004
Nb. of male sexual partners ³	n=1,944	n=180	
- 0	6.2	5.0	
- 1	25.9	28.3	
- 2 – 5	26.4	38.9	<0.001
- ≥6	41.5	27.8	(3df) ⁵
Among men	n=5,845	n=677	
Prostitution	9.3	9.9	0.639
Nb. of male sexual partners	n=5,854	n=676	
- 0	85.6	90.1	
- 1	4.4	3.9	
- 2 – 5	4.8	2.8	0.009
- ≥6	5.2	3.3	(3df) ⁵
Nb. of female sexual partners	n=5,847	n=669	
- 0	26.3	19.3	
- 1	29.5	30.8	
- 2 – 5	31.6	38.1	0.003
- ≥6	12.7	11.8	(3df) ⁴

1: Semi-urban IDUs are in Abitibi-Témiscamingue, Mauricie-Centre-du-Québec, Montérégie (with the exception of those from Montreal's immediate south shore and those who indicated that they resided in Montreal), Saguenay-Lac-Saint-Jean and Estrie.

2: Exchange of money, drugs or other goods and services.

3: Sexual partners include regular and casual partners, as well as clients in the case of sex-trade workers.

4: Degree of freedom.

Of the 603 men who reported working in the sex trade during the previous six months, 337 (55.9%) reported having had fewer than six sexual partners during this period.

Of the 914 women who reported working in the sex trade during the previous six months, 173 (8.2%) reported having had fewer than six sexual partners during this period.

Of the 5,905 men who did not report working in the sex trade during the previous six months, 60 (1.0%) reported having had six or more partners during this period.

Of the 1,190 women who did not report working in the sex trade during the previous six months, 113 (9.5%) reported having had six or more partners during this period.

Table 21 – HIV prevalence, by age and sex, SurvUDI/I-Track Study, 1995-2004

Age/Sex	% HIV pos. ¹ N						
	Women		Men		Sex not known	Total	
Age not known	11 (3 pos.)		22 (5 pos.)		229 (30 pos.)	262 (38 pos.)	
<20	0.5	441	0.2	491	1 (0 pos.)	0.3	933
20-24	4.6	481	4.8	1,030	6 (0 pos.)	4.7	1,517
25-29	10.7	310	9.1	976	5 (1 pos.)	9.6	1,291
30-34	19.9	302	18.8	1,029	7 (1 pos.)	19.0	1,338
35-39	21.9	297	22.1	1,157	5 (1 pos.)	22.1	1,459
≥40	20.0	275	24.2	1,815	9 (4 pos.)	23.7	2,099
Total	11.3	2,117	15.8	6,520	262 (38 pos.)	14.7 ²	8,899

1: HIV test results (on oral fluid samples) are not known for 14 women, 44 men, and 2 individuals whose sex is also not known.

2: 95% CI: 13.9-15.5.

The significant difference between the HIV prevalence rates of men and women is due to the fact that male recruits were older than their female counterparts.

Table 22 – HCV prevalence, by age and sex, SurvUDI/I-Track Study, 2003-2004

Age/Sex	% HCV pos. ¹ N						
	Women		Men		Sex not known	Total	
Age not known	1 (0 pos.)		0		0	1 (0 pos.)	
<20	11.8	34	12.5	16	1 (0 pos.)	11.8	51
20-24	35.2	54	49.6	127	0	45.3	181
25-29	68.2	44	45.0	131	2 (2 pos.)	51.4	177
30-34	81.6	38	70.0	110	4 (2 pos.)	72.4	152
35-39	74.3	35	77.7	139	2 (2 pos.)	72.3	176
≥40	75.4	65	80.0	310	3 (3 pos.)	79.4	378
Total	58.7	271	66.9	833	12 (9 pos.)	65.0 ²	1,116

1: HIV test results (on oral fluid samples) known in all cases.

2: 95% CI: 62.1-67.8.

The significant difference between the HIV prevalence rates of men and women is due to the fact that male recruits were older than their female counterparts.

Table 23 – HIV prevalence and adjusted prevalence, by recruitment region, SurvUDI/I-Track Study, 1995-2004

Site	n	% HIV pos.	95% CI ¹	% HIV pos. adjusted ²
Abitibi-Témiscamingue	159	5.7	2.6/10.5	5.4
Estrie	421	8.8	6.3/11.9	7.1
Hull	266	19.9	15.3/25.2	13.1
Mauricie-Centre-du-Québec	270	5.2	2.9/8.6	4.6
Montréal	192	10.4	6.5/15.6	9.3
Montreal	3,957	17.5	16.3/18.3	17.5
Ottawa	1,357	18.5	16.5/20.7	13.8
Quebec City	2,412	10.8	9.6/12.1	10.0
Saguenay-Lac-Saint-Jean	184	2.2	0.6/5.5	4.0

1: Confidence interval on unadjusted prevalence.

2: Prevalence was adjusted for each program, based on the age/sex structure of participants recruited in all Montreal collaboration sites. Only IDUs whose age and sex are known were included in the table.

The crude prevalence rates for urban programs is 15.7% (95% CI: 14.9-16.5) and that of urban programs is 6.2% (95% CI: 4.9-7.8).

Table 24 – HIV prevalence by region of residence, SurvUDI/I-Track Study, 1995-2004

Region of residence ¹	n	% HIV pos.	95% CI
Abitibi-Témiscamingue	171	6.4	3.3/11.2
Chaudière-Appalaches	80	7.5	2.8/15.6
Estrie	324	8.6	5.8/12.2
Hull	285	19.0	14.6/24.0
Lanaudière	74	13.5	6.7/23.5
Laurentides	86	5.8	1.9/13.1
Laval	87	9.2	4.1/17.3
Mauricie-Centre-du-Québec	351	6.0	3.7/9.0
Montréal	400	9.8	7.0/13.1
Montreal	3,054	19.1	17.7/20.5
Ottawa	1,344	18.7	16.6/20.9
Quebec City	2,312	10.9	9.7/12.2
Saguenay-Lac-Saint-Jean	202	2.5	0.1/5.7

1: Data reported only for regions of residence mentioned by at least 30 participants.

Table 25 – HCV prevalence, by recruitment region, SurvUDI/I-Track Study, 2003-2004

Site ¹	n	% HCV pos.	95% CI
Abitibi-Témiscamingue	5	0.0	0.0/45.7
Estrie	36	50.0	32.9/67.1
Mauricie-Centre-du-Québec	57	54.4	41.5/67.6
Montréal ²	5	80.0	28.4/99.5
Montreal	560	66.6	62.5/70.5
Ottawa	209	64.6	58.1/71.0
Quebec City	237	69.6	63.3/75.4
Saguenay-Lac-Saint-Jean	13	30.8	9.1/61.4

1: Only visits from repeaters at a same site are deleted here.

2: 36 individuals who indicated that they resided in Montréal were recruited, primarily in Montreal. 18 of these recruits were found to be HCV positive (50%; 32.9 – 67.1).

HCV prevalence for urban programs is 66.9% (95% CI: 63.9-69.8) and that of semi-urban programs is 49.1% (95% CI: 39.7-58.6).

Table 26 – Risk factors associated with HIV prevalence, SurvUDI/I-Track Study, 1995-2004

Behaviour during the previous six months (n)		% HIV pos.	p-value
Injected cocaine (8,893)	Yes	16.2	<0.0001
	No	3.6	
Injected heroin (8,893)	Yes	9.2	<0.0001
	No	17.9	
Injected PCP (8,892)	Yes	4.6	<0.0001
	No	15.3	
Cocaine most frequently injected drug (8,832)	Yes	17.7	<0.0001
	No	6.0	
Smoked crack (8,855)	Yes	14.0	0.0226
	No	15.7	
Injection history (8,568)	Less than 6 years	5.8	<0.0001
	6 years or more	20.7	
Frequency of injection – previous month (8,750) ¹	Occasional user	13.6	0.0075
	Regular user	15.7	
Lent needles (8,863)	Sometimes	10.7	<0.0001
	Never	16.5	
Injection partners (8,729)	Strangers	17.0	<0.0001 (2df) ²
	Known persons	12.3	
	Alone	16.7	
Borrowed needles from others (8,854)	Sometimes	15.2	0.3301
	Never	14.5	
Needles obtained from whom (8,713)	Strangers	22.7	<0.0001 (2df) ²
	Known persons	12.9	
	Did not use	14.5	
Borrowed injection material other than needles (7,205)	Sometimes	14.1	0.0215
	Never	16.0	
Injection material other than needles obtained from whom (7,106)	Strangers	19.4	<0.0001 (2df) ²
	Known persons	12.3	
	Did not use	16.0	
Use of needles and other injection material previously used by others (7,184)	Needles and material	15.8	0.0006 (3df) ²
	Material only	11.1	
	Needles only	16.7	
	Neither	16.0	

Table 26 – Risk factors associated with HIV prevalence, SurvUDI/I-Track Study, 1995-2004 (cont.)

Behaviour during the previous six months (n)		% HIV pos.	9-value
Men:			
Number of male partners (6,486)	0	15.1	0.0002 (3df) ²
	1	23.1	
	2 – 5	19.9	
	6+	19.1	
Number of female partners (6,472)	0	29.0	<0.0001 (3df) ²
	1	13.0	
	2 – 5	10.4	
	6+	9.6	
Sex with other men (6,493)	Yes	20.5	<0.0001
	No	15.1	
Prostitution (6,478) ³	Yes	18.3	0.0868
	No	15.6	
Women:			
Number of male partners (2,105)	0	14.8	0.0007 (3df) ²
	1	10.9	
	2 – 5	7.1	
	6+	13.7	
Prostitution (2,096) ³	Yes	15.2	<0.0001
	No	8.3	

1: The question on frequency of injection relates to the preceding month. All other behaviours presented here relate to the six-month period that preceded the interview.

2: Degree of freedom.

3: Includes prostitution in exchange for money, drugs, or other goods and services.

Table 27 – Multivariate analysis of HIV prevalence using logistic regression, SurvUDI/I-Track Study, 1995-2004

Behaviour			Crude OR ¹	Adj. OR ¹	95% CI	p-value
Injection history	AND	drug most frequently injected				
- Less than 6 years		not cocaine	1.0	1.0	-	-
- Less than 6 years		cocaine	5.7	4.9	2.9-8.2	<0.001
- 6 years or more		not cocaine	8.4	7.2	4.2-12.3	<0.001
- 6 years or		more cocaine	19.7	16.1	9.8-26.7	<0.001
Borrowed previously used needles						
- Did not borrow needles			1.0	1.0	-	-
- Primarily borrowed needles from reg. sex. part./close friends or family			0.9	1.0	0.8-1.2	0.895
- Primarily borrowed needles from strangers			1.7	1.4	1.1-1.7	0.002
Sex and sexual partners						
Women		no prostitution	1.0	1.0	-	-
		prostitution	2.0	1.3	1.0-1.7	0.097
Men		female sexual partners only	1.0	1.0	-	-
		female and male sexual partners	1.5	1.4	1.1-1.9	0.009
		male sexual partners only	3.2	2.9	2.2-3.8	<0.001
		no sexual partners ²	3.3	2.9	2.5-3.5	<0.001

1: OR: Odds ratio.

2: These individuals are older and have been using injection drugs for a longer period.

Table 28 – Risk factors associated with HCV prevalence, SurvUDI/I-Track Study, 2003-2004

Behaviour during the previous six months (n)		% HCV positive	p-value
Injected cocaine (1,114)	Yes	67.7	<0.0001
	No	43.4	
Injected heroin (1,114)	Yes	54.1	<0.0001
	No	71.1	
Injected prescription morphine (1,114)	Yes	82.9	0.0250
	No	64.5	
Injected PCP (1,114)	Yes	39.3	0.0037
	No	65.8	
Cocaine most frequently injected drug (1,113)	Yes	70.1	<0.0001
	No	53.0	
Used cannabis (1,115)	Yes	63.3	0.0450
	No	70.0	
Cocaine use other than injection (1,115)	Yes	59.2	<0.0001
	No	71.4	
Injection history (1,113)	Less than 6 years	45.0	<0.001
	6 years or more	74.0	
Injected drugs at least once a week in previous month (1,107) ¹	Yes	60.5	0.0162
	No	67.7	
Injection partners (1,112)	Strangers	68.1	0.0629 (2df) ²
	Known persons	61.4	
	Alone	68.2	
Borrowed needles (1,110)	Sometimes	68.6	0.0706
	Never	63.1	
Needles obtained from whom (1,094)	Strangers	75.8	0.0488 (2df) ²
	Known persons	65.5	
	Did not use	63.1	
Injection material other than needles obtained from whom (1,093)	Strangers	75.5	0.0169 (2df) ²
	Known persons	59.9	
	Did not use	65.5	
Male prostitute (832)	Yes	55.9	0.0620
	No	67.8	
Large number of sexual partners (men) (833)	Yes	61.7	<0.0001
	No	76.2	
Men who have had sex with other men (831)	Yes	59.0	0.0732
	No	68.0	

Table 28 – Risk factors associated with HCV prevalence, SurvUDI/I-Track Study, 2003-2004 (cont.)

Behaviour during the previous six months (n)	% HCV infected		p-value
Condom use (825)	No partners	78.9	<0.0001 (2df) ²
	Always	68.2	
	Not always	60.3	
Female prostitute (266) ³	Yes	75.3	<0.0001
	No	49.1	
Number of male partners among women (267)	0	57.7	0.0012 (3df) ²
	1	58.1	
	2 – 5	39.7	
	6+	71.7	
Large number of sexual partners among women (267)	Yes	71.7	0.0014
	No	51.4	
Bisexual relations among women (268)	Yes	48.1	0.0867
	No	61.1	

1: The question on frequency of injection relates to the preceding month. All other behaviours presented here relate to the six-month period that preceded the interview.

2: Degree of freedom.

3: Includes prostitution in exchange for money, drugs, or other goods and services.

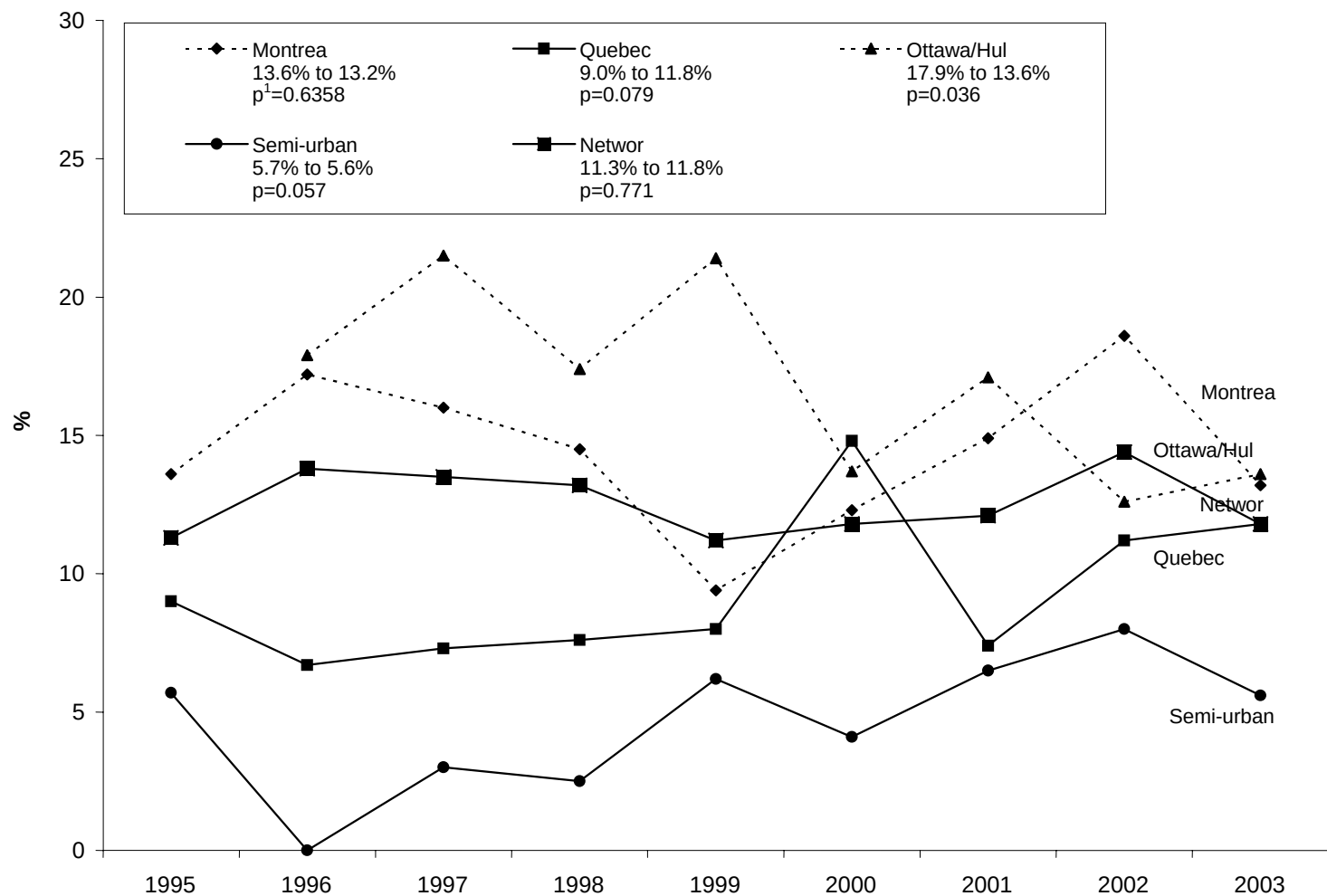
85.5% of IDUs (953/1,115) indicated having been tested for HCV. Of these, 534 (56.0%) indicated that they were HCV positive.

494 of these 534 IDUs (92.5%) tested positive on the oral fluid tests we carried out.

Of the 348 IDUs who indicated that their last HCV test results had been negative, 228 (65.5%) tested negative on the oral fluid tests and 120 (34.5%) tested positive.

Among those who stated that they had HCV infection, 52.4% indicated that they were being monitored by a doctor for their infection (279/533) and only 3% (16/532) stated that they were taking medication for their condition.

Figure 1 – HIV prevalence trends based on first visits, by recruitment site, SurvUDI/I-Track Study, 1995-2003



1: Mantel-Haenszel chi-square test.

Table 29 – Distribution of multiple visits generated by repeaters, by recruitment region, SurvUDI/I-Track Study, 1995-2004

Program	Intra-program duplicates ¹		Inter-program duplicates ²		Last visits		Total visits
	n	%	n	%	Overall ³	By progr ⁴	
Abitibi-Témiscamingue	38	19.1	4	2.0	157	161	199
Estrée	87	17.1	20	3.9	402	422	509
Mauricie-Centre-du-Québec	26	8.8	13	4.4	257	270	296
Montréal	6	3.0	27	13.3	170	197	203
Montreal	2,396	37.5	124	1.9	3,870	3,994	6,390
Ottawa	845	38.2	2	0.1	1,366	1,368	2,213
Hull	10	3.6	1	0.4	267	268	278
Quebec City	2,034	45.7	116	2.6	2,305	2,421	4,455
Saguenay-Lac-Saint-Jean	44	19.1	16	7.0	170	186	230
Network	5,486	-	323	-	8,964	9,287	14,773

1 : Visits by individuals seen more than once at the same site.

2: Visits by individuals subsequently seen at another site.

3: Visits retained in overall HIV/HCV prevalence and behavioural analyses (no inter- or intra-site duplicates).

4: Visits retained in HIV/HCV and behavioural analyses by collaboration site (inter-site duplicates included, intra-site duplicates excluded).

73% (6,511/8,964) of individuals took part in the study on one occasion only.

24% (2,172/8,964) participated 2 to 5 times.

Table 30 – Comparison of injection behaviours in repeaters and non-repeaters, SurvUDI/I-Track Study, 1995-2004

Behaviour during the previous six months	% of non-repeaters n=6,207	% of repeaters ¹ n=2,422	p-value
Injection partners:			
- Reg. sex. part./close friends/family	44.1	45.3	
- Strangers	38.9	40.3	0.013
- Used alone	17.0	14.4	(2 df) ²
Lent needles	30.0	37.2	<0.001
Injected drugs at least once a week ³	59.5	67.5	<0.001
Borrowed needles	36.3	42.0	<0.001
Borrowed needles primarily from strangers (among the 3,178 needle borrowers)	26.1	22.3	0.024
Borrowed other injection material (e.g., filters) ⁴	42.3	46.9	0.002
Borrowed injection material primarily from strangers (among the 2,728 borrowers) ⁴	24.6	23.0	0.406
Smoked crack or freebase	54.6	54.1	0.719
Drug most frequently injected:			
- Cocaine	74.6	74.7	
- Heroin	17.8	19.7	0.001
- Other	7.6	5.6	(2df) ²
Injection history of 6 years or more	56.1	52.4	0.002

1: Repeater data pertains to first visits.

2: Degree of freedom.

3: The question on frequency of injection relates to the preceding month. All other behaviours presented here relate to the six-month period that preceded the interview.

4: The questions relating to borrowed injection material and the sources of these materials were added in 1996. Respective sample sizes are 6,493 (5,012 non-repeaters and 1,481 repeaters) and 2,728 (2,049 non-repeaters and 679 repeaters).

Men represent 76.4% (4,784/6,261) of non-repeaters and 73.0% (1,780/2,439) of repeaters.

Table 31 – Comparison of sexual behaviours in repeaters and non-repeaters, SurvUDI/I-Track Study, 1995-2004

Behaviour during the previous six months	% of non-repeaters	% of repeaters ¹	p-value
Women	n=1,476	n=659	
Prostitution ²	41.7	49.2	0.001
Nb. of male sexual partners			
- 0	6.1	4.6	
- 1	25.4	22.8	
- 2 – 5	29.1	24.7	0.003
- ≥6	39.4	48.0	(3 df) ³
Men	n=4,785	n=1,780	
Prostitution ²	9.8	9.4	0.577
Nb. of male sexual partners			
- 0	85.8	85.2	
- 1	4.2	4.7	
- 2 – 5	4.7	4.4	0.583
- ≥6	5.3	5.8	(3df) ³
Nb. of female sexual partners			
- 0	22.4	23.7	
- 1	28.6	29.8	
- 2 – 5	34.1	34.8	0.105
- ≥6	14.0	11.6	(3df) ³

1: The data on repeaters are those provided on the first visit.

2: Includes prostitution in exchange for money, drugs, or other goods and services.

3: Degree of freedom.

Table 32 – HIV incidence, by recruitment region, SurvUDI/I-Track Study, 1995-2004

	Network	Quebec City	Montreal¹	Ottawa-Hull	Semi-urban²
Number of repeaters	2,453	762	1,103	378	177
Number of repeaters who initially tested negative for HIV	2,100	694	921	313	172
Follow-up (PY)	5,468.2	2,026.6	2,365.3	693.9	382.3
Number of seroconversions	194	54	102	31	7
Incidence rate (per 100 PY)	3.5	2.7	4.3	4.5	1.8
95% CI (per 100 PY)	3.0 – 4.0	2.0 – 3.4	3.5 – 5.1	2.9 – 6.0	0.5 – 3.2

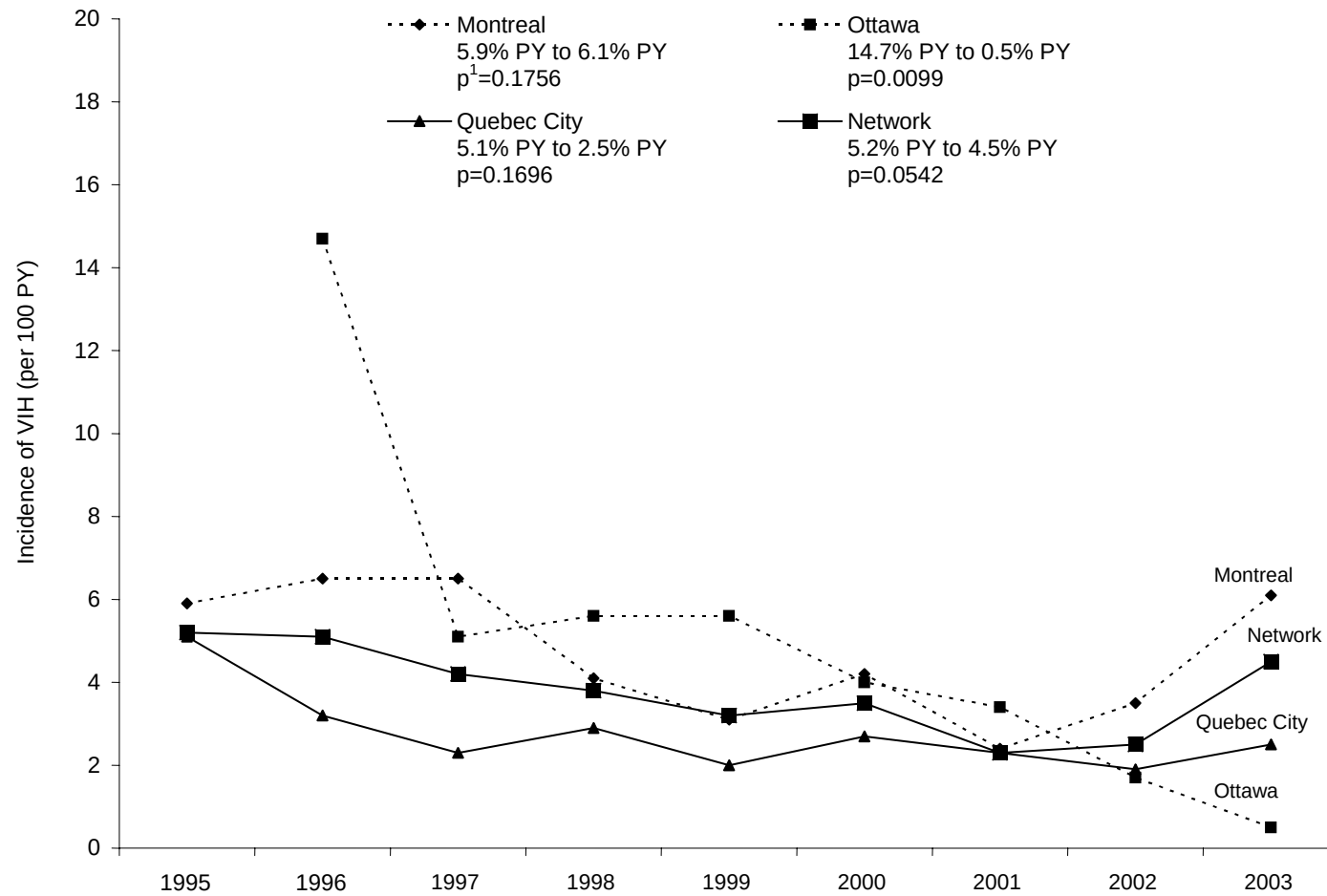
1: IDUs recruited in Montreal, or in Montérégie but residing on Montreal's immediate south shore or in Montreal.

2: IDUs recruited in Abitibi-Témiscamingue, Montérégie (minus those who stated that they resided on Montreal's immediate south shore or in Montreal), Saguenay-Lac-Saint-Jean, Estrie and Mauricie-Centre-du-Québec.

The average interval between two participations in the study is 1.4 years (median = 1.0).

The average period of observation per repeater was 918.3 days (median = 670.5).

Figure 2 – HIV incidence trend, SurvUDI/I-Track Study, 1995-2003



1: Bootstrap test (1,000 iterations)

Table 33 – Multivariate analysis of HIV incidence, SurvUDI/I-Track Study, 1995-2004

Risk factors	Crude RR¹	Adjust. RR	95% CI²	p-value
Used borrowed needles ³	2.4	2.3	1.7/3.1	<0.001
Cocaine drug most frequently injected ³	2.3	1.9	1.2/3.1	0.004
Used with strangers ³	1.8	1.3	0.9/1.8	0.1322
25 years or older	2.2	2.1	1.4/3.2	<0.001
Also in the model:				
Recruitment region				
- Quebec City	1.0	1.0		(reference)
- Montreal	1.6	1.7	1.2/2.4	0.005
- Ottawa-Hull	1.6	1.4	0.9/2.3	0.172
- Semi-urban	0.8	0.7	0.3/1.4	0.291

1: Risk ratio obtained with the Cox model.

2: Confidence interval 95%.

3: During the previous six months.

Table 34 – Use of previously used needles by repeaters during the previous six months, SurvUDI/I-Track Study 1995-2004

Statistically significant reduction

Used needles previously used by others		Quebec City last visit			Montreal last visit		
		Yes	No		Yes	No	
First visit	Yes	130	186	316 (41.9%)	265	220	485 (43.3%)
	No	102	336		179	456	
		232 (30.8%)			444 (39.6%)		
		McNemar = 24.5 p<0.0001			McNemar = 4.2 p=0.0401		

No statistically significant trend

Used needles previously used by others		Ottawa last visit			Semi-urban last visit		
		Yes	No		Yes	No	
First visit	Yes	64	70	134 (35.1%)	49	38	87 (50.3%)
	No	55	193		29	57	
		119 (31.2%)			78 (45.1%)		
		McNemar = 1.8 p=0.1797			McNemar = 1.2 p=0.2715		

Table 35 – Use of previously used other injection material by repeaters during the previous six months, SurvUDI/I-Track Study, 1995-2004

Statistically significant reduction

Used injection supplies previously used by others		Quebec City last visit			Ottawa Last visit		
		Yes	No		Yes	No	
First visit	Yes	77	91	168 (42.4%)	65	70	135 (48.0%)
	No	53	175		29	117	
		130 (32.8%)			94 (33.5%)		
		McNemar = 10.0			McNemar = 17.0		
		p=0.0015			p<0.0001		

No statistically significant trend

Used injection supplies previously used by others		Montreal last visit			Semi-urban last visit		
		Yes	No		Yes	No	
First visit	Yes	179	139	318 (48.5%)	42	24	66 (50.8%)
	No	117	221		19	45	
		296 (45.1%)			61 (46.9%)		
		McNemar = 1.89			McNemar = 1.8		
		p=0.1691			p=0.1797		

Table 36 – Cocaine as drug most frequently injected by repeaters during the previous six months, SurvUDI/I-Track Study, 1995-2004

				Statistically significant reduction		Statistically significant increase		
Cocaine as drug most frequently injected				Montreal last visit		Ottawa last visit		
				Yes	No		Yes	No
First visit	Yes			659	89	748 (67.1%)	243	52
	No			123	244		22	64
				782 (70.1%)			265 (69.6%)	
				McNemar = 5.45 p=0.0195			McNemar = 12.16 p=0.0005	
No statistically significant trend								
Cocaine as drug most frequently injected				Quebec City last visit		Semi-urban last visit		
				Yes	No		Yes	No
First visit	Yes			576	53	629 (83.5%)	130	12
	No			46	78		18	17
				622 (82.6%)			148 (83.6%)	
				McNemar = 0.4949 p=0.4817			McNemar = 1.2 p=0.2733	

Figure 3 – Borrowed syringes/needles during the six-month period prior to their first visit, SurvUDI/I-Track Study, 1995-2003

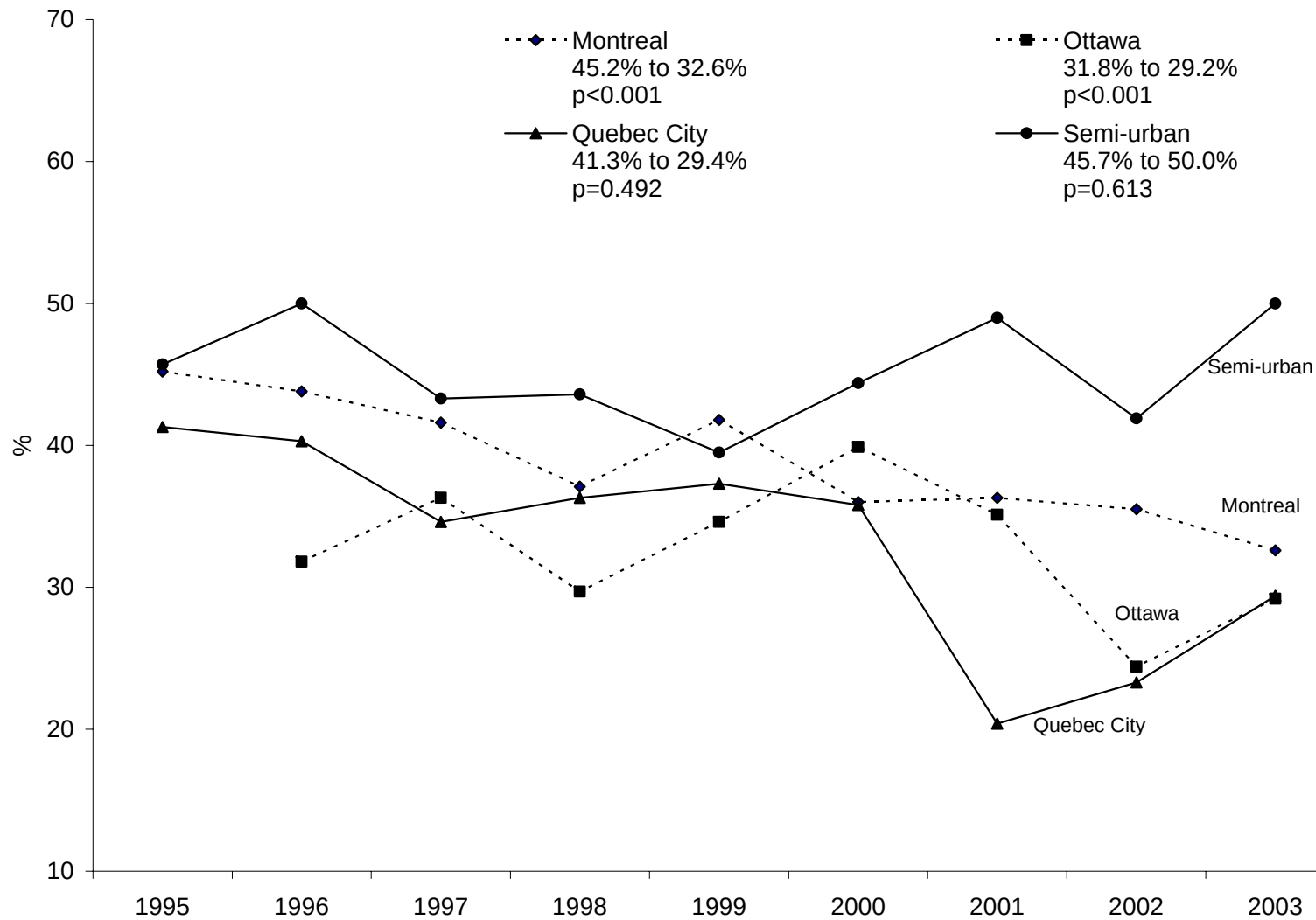


Figure 4 – Borrowed other injection material during previous six months, SurvUDI/I-Track Study, 1996-2003

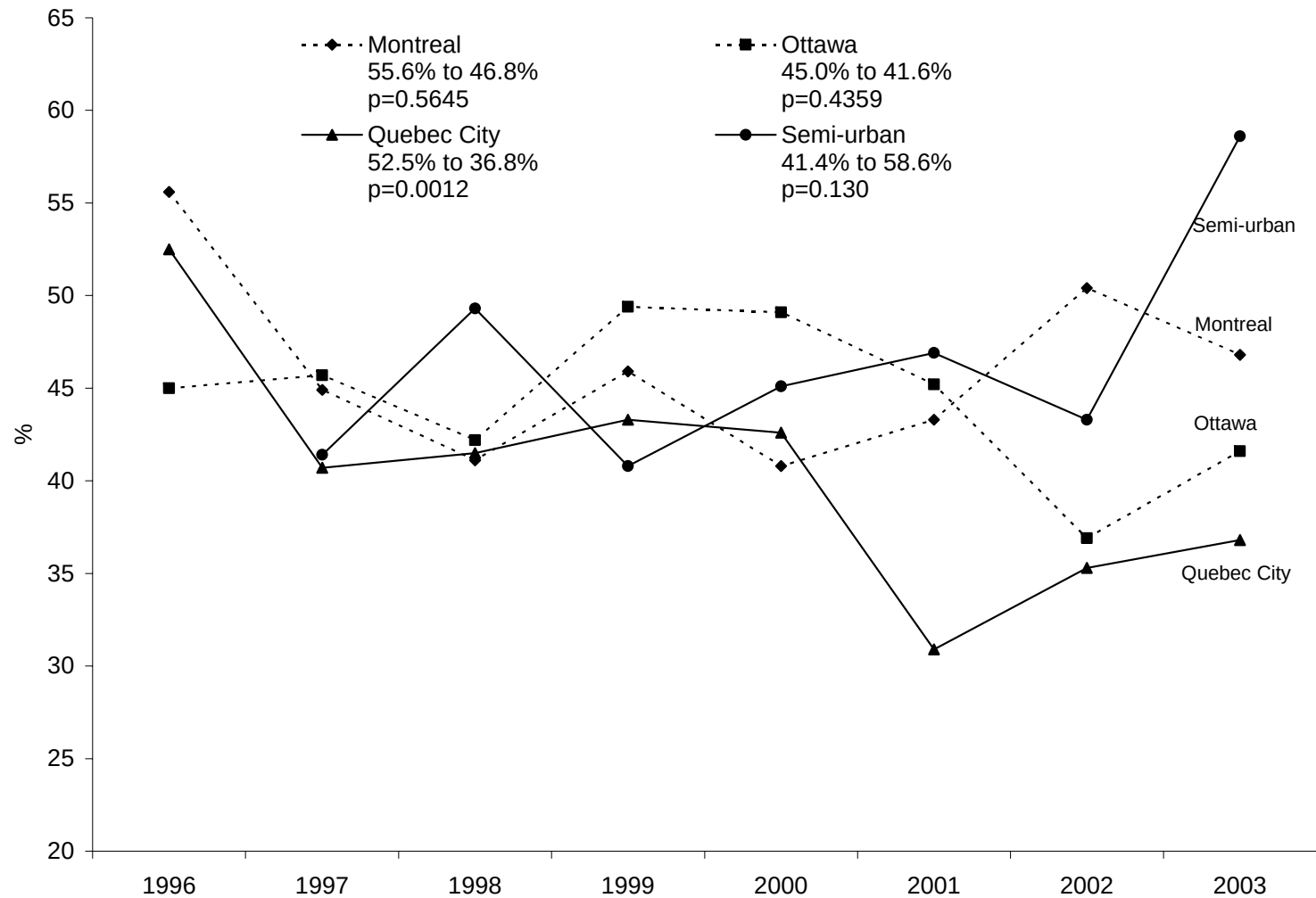


Figure 5 – Borrowed syringes/needles, average % during one-month period prior to first visit, SurvUDI/I-Track Study, 1999-2003

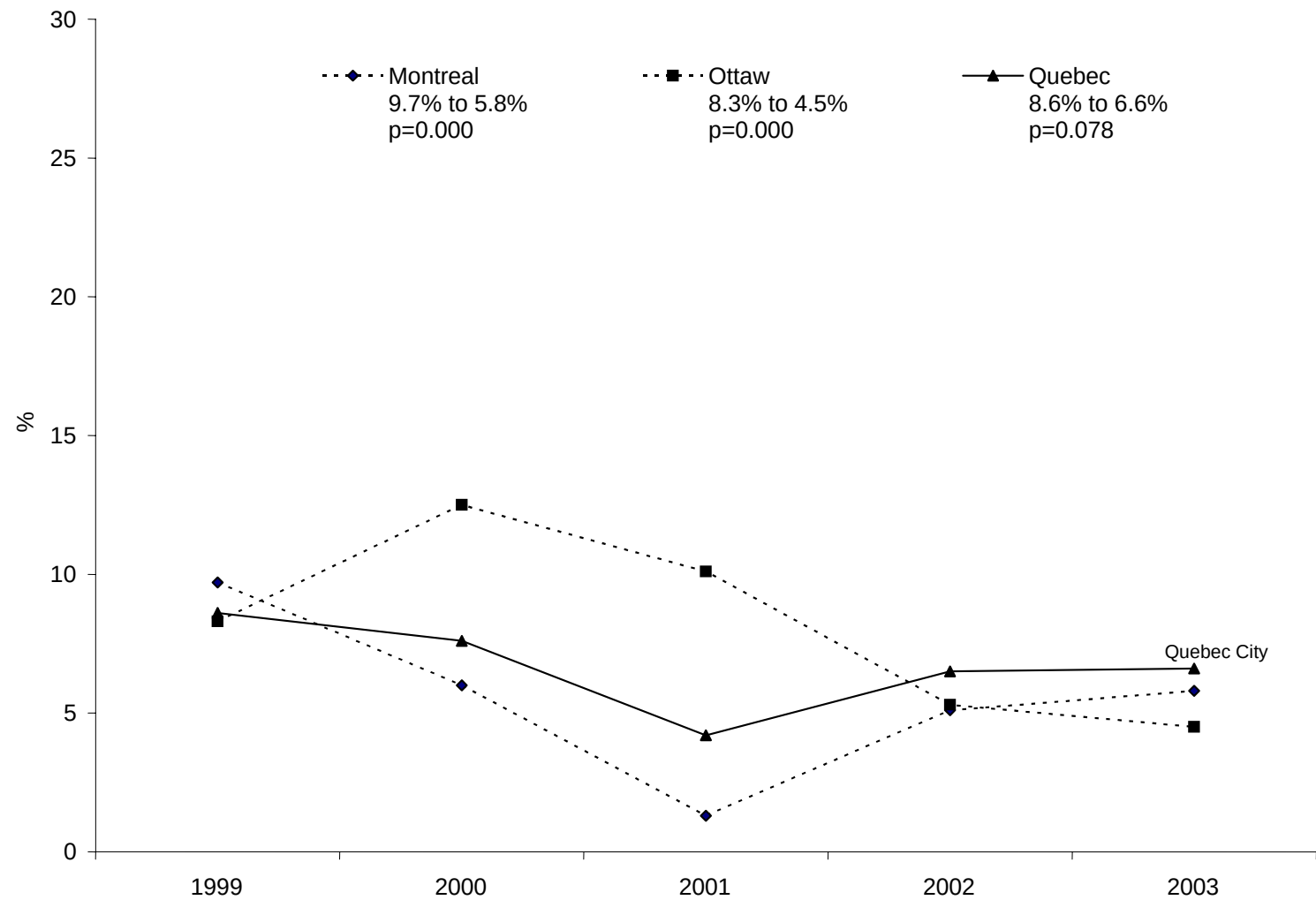


Figure 6 – Borrowed other injection material, average % during one-month period prior to first visit, SurvUDI/I-Track Study, 1999-2003

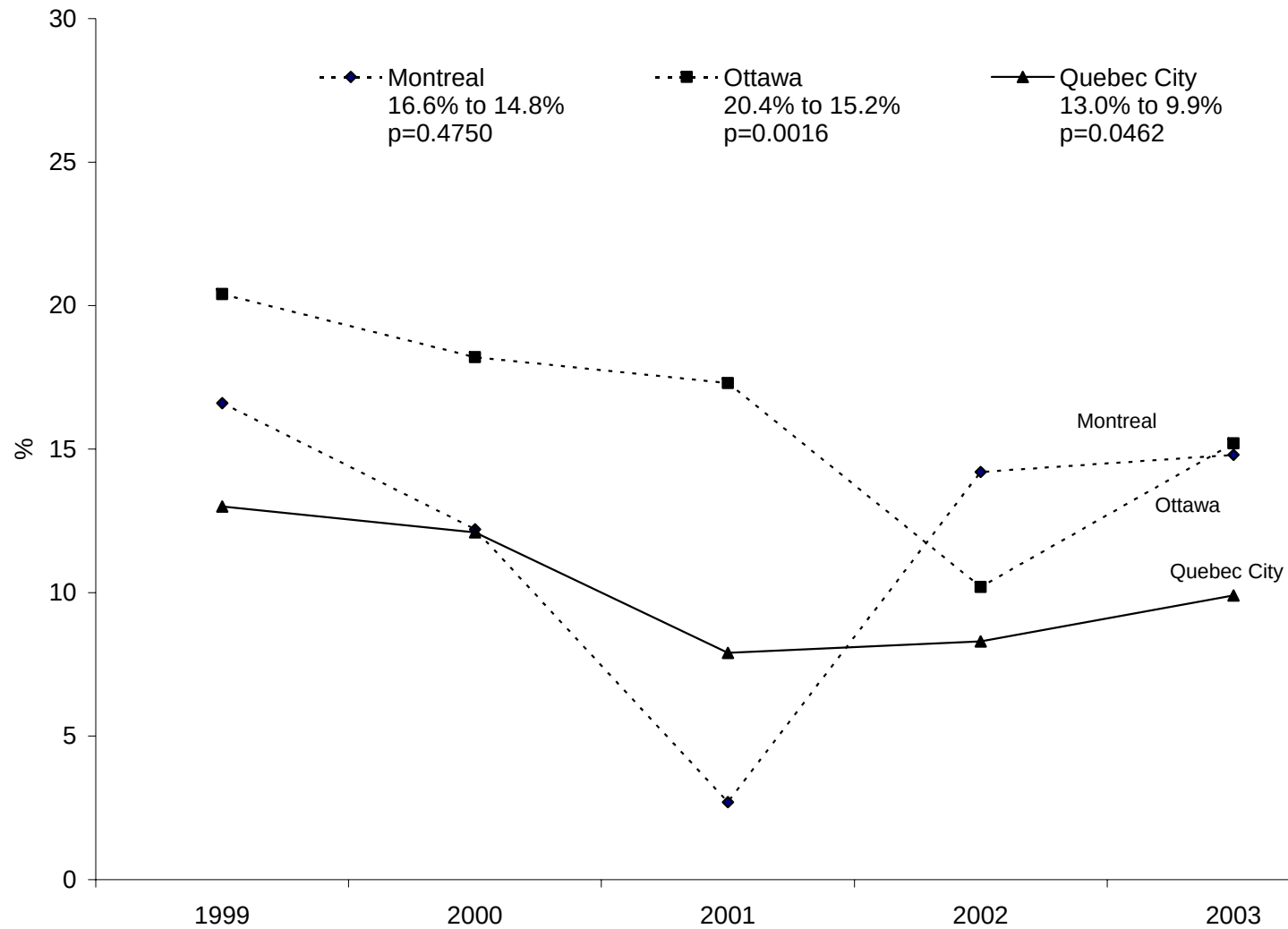
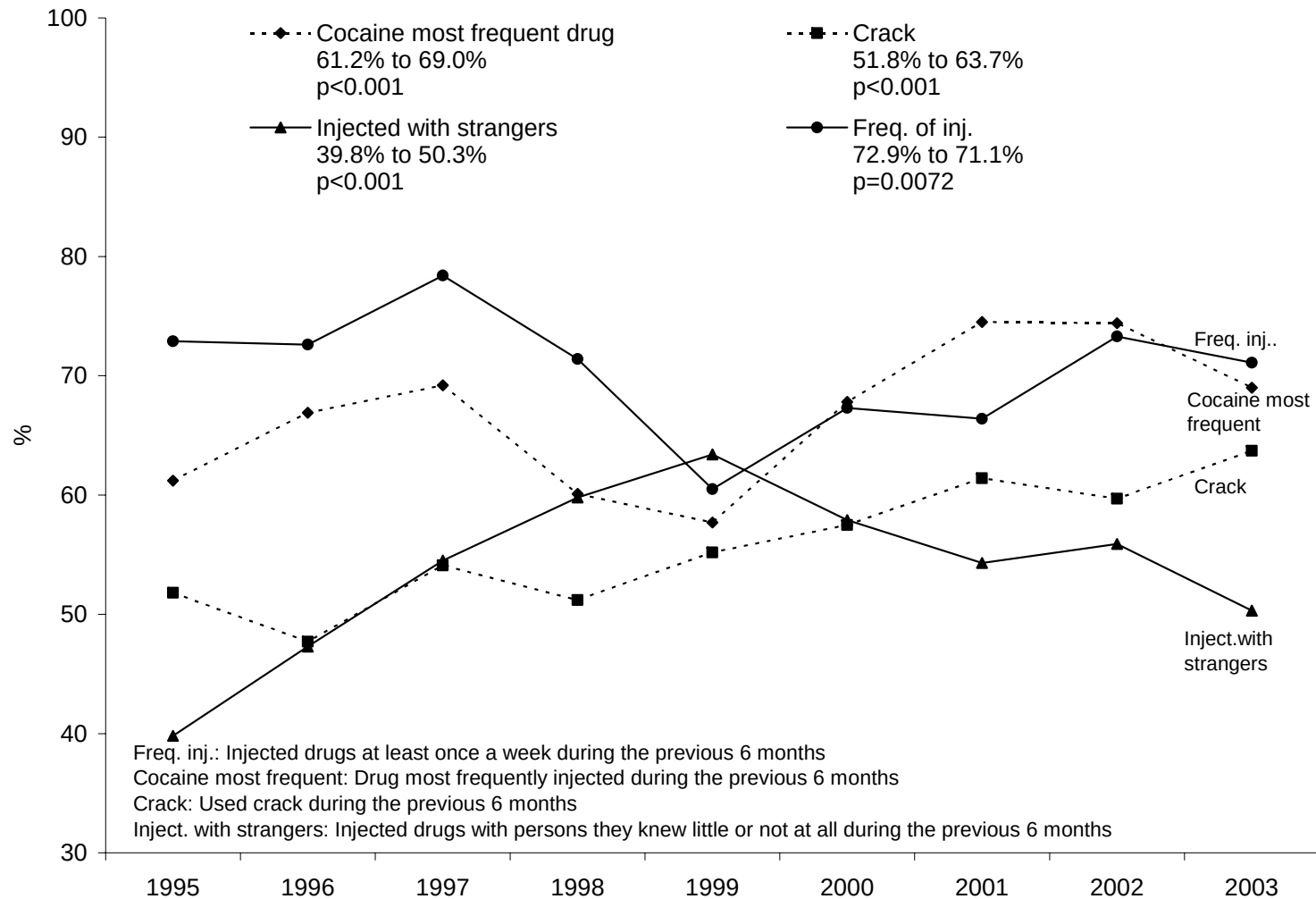
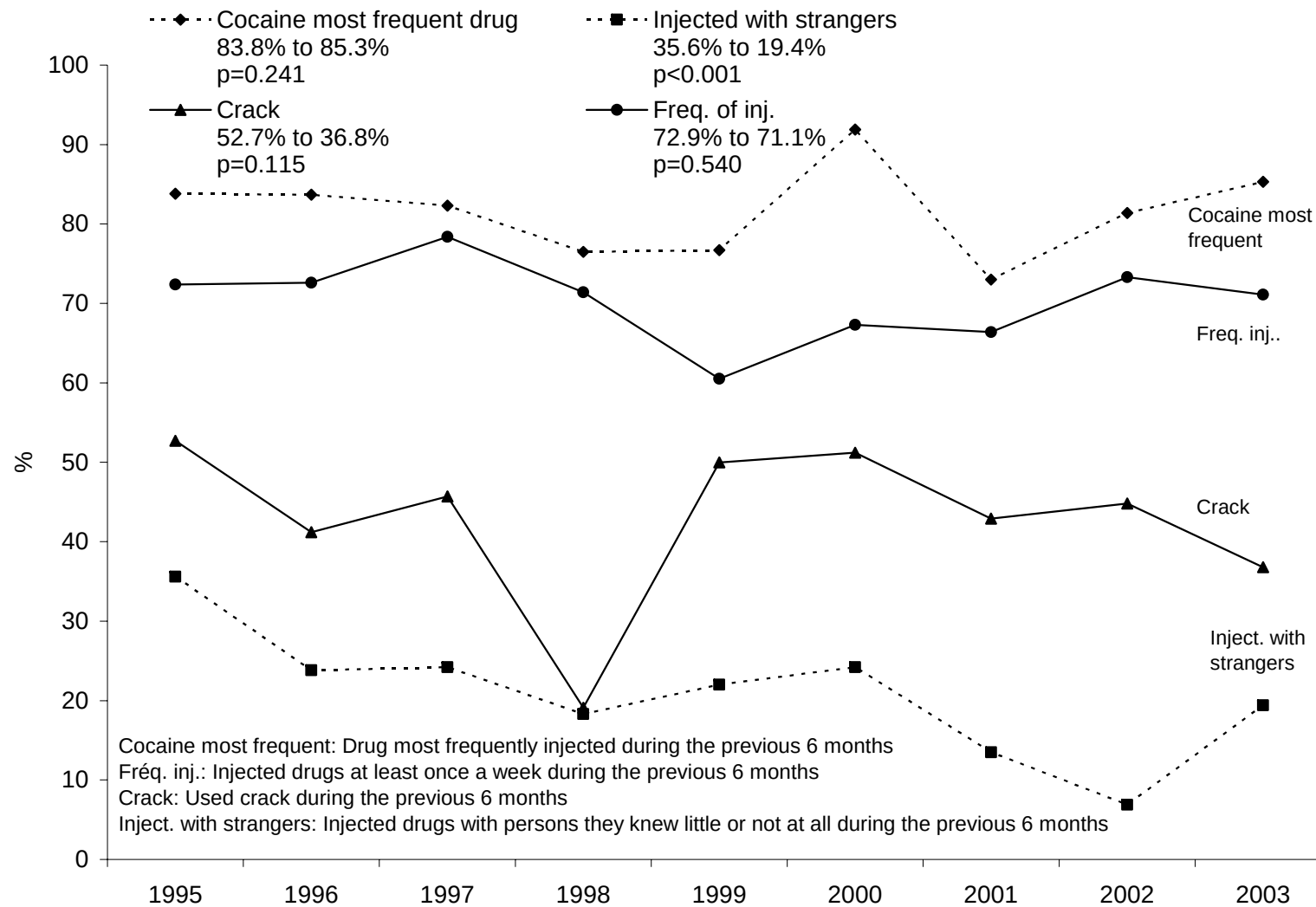


Figure 7 – Trends for factors associated with HIV incidence – Montreal, during the six-month period prior to the first visit, Réseau SurvUDI/I-Track, 1995-2003



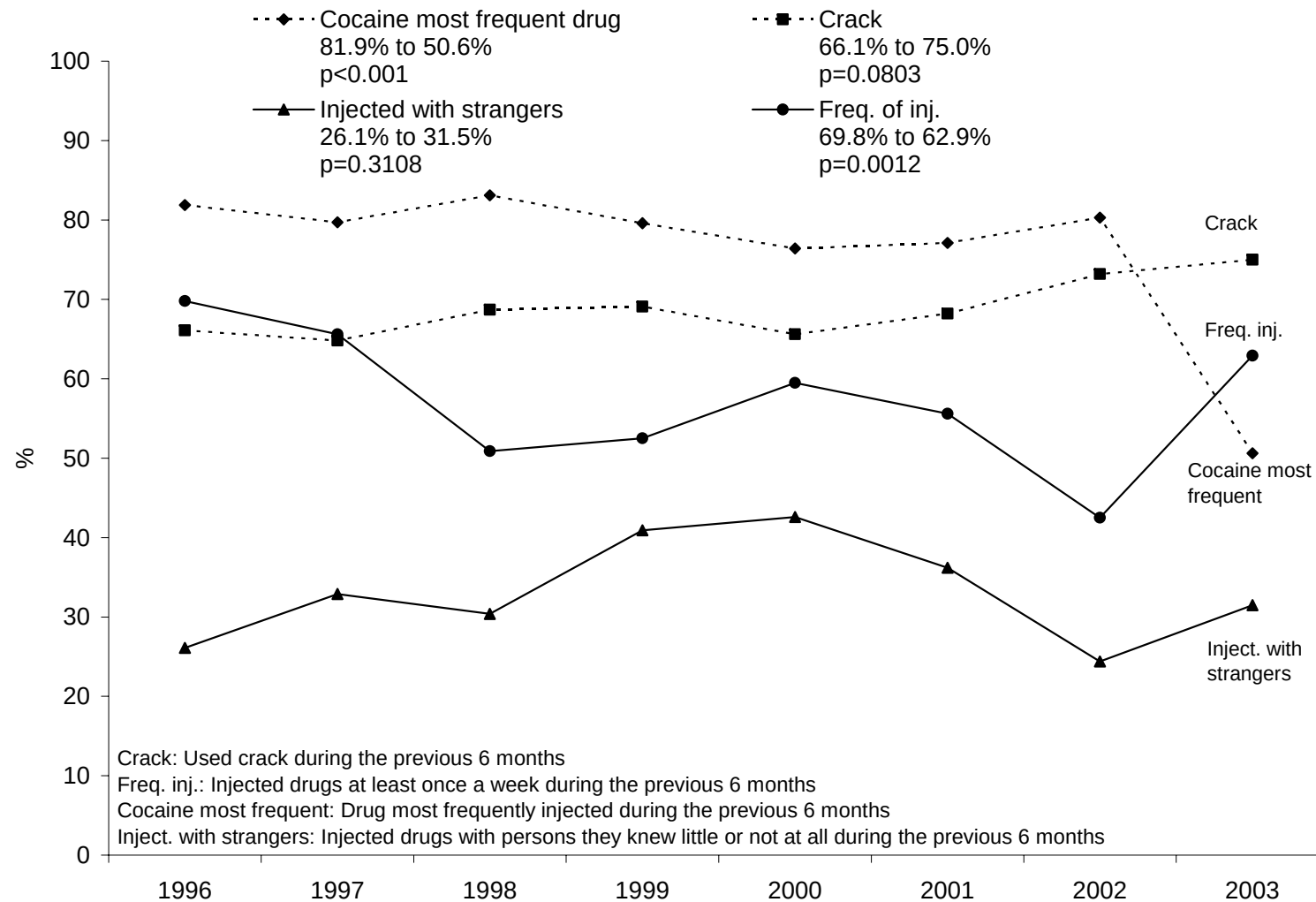
Comment: Injection frequency trends are similar and significant ($p=0.0329$) when the analysis is limited to those who reported cocaine as the drug they injected most frequently.

Figure 8 – Trends in factors associated with HIV incidence – Quebec City, in the six-month period prior to the first visit, SurvUDI/I-Track Study, 1995-2003



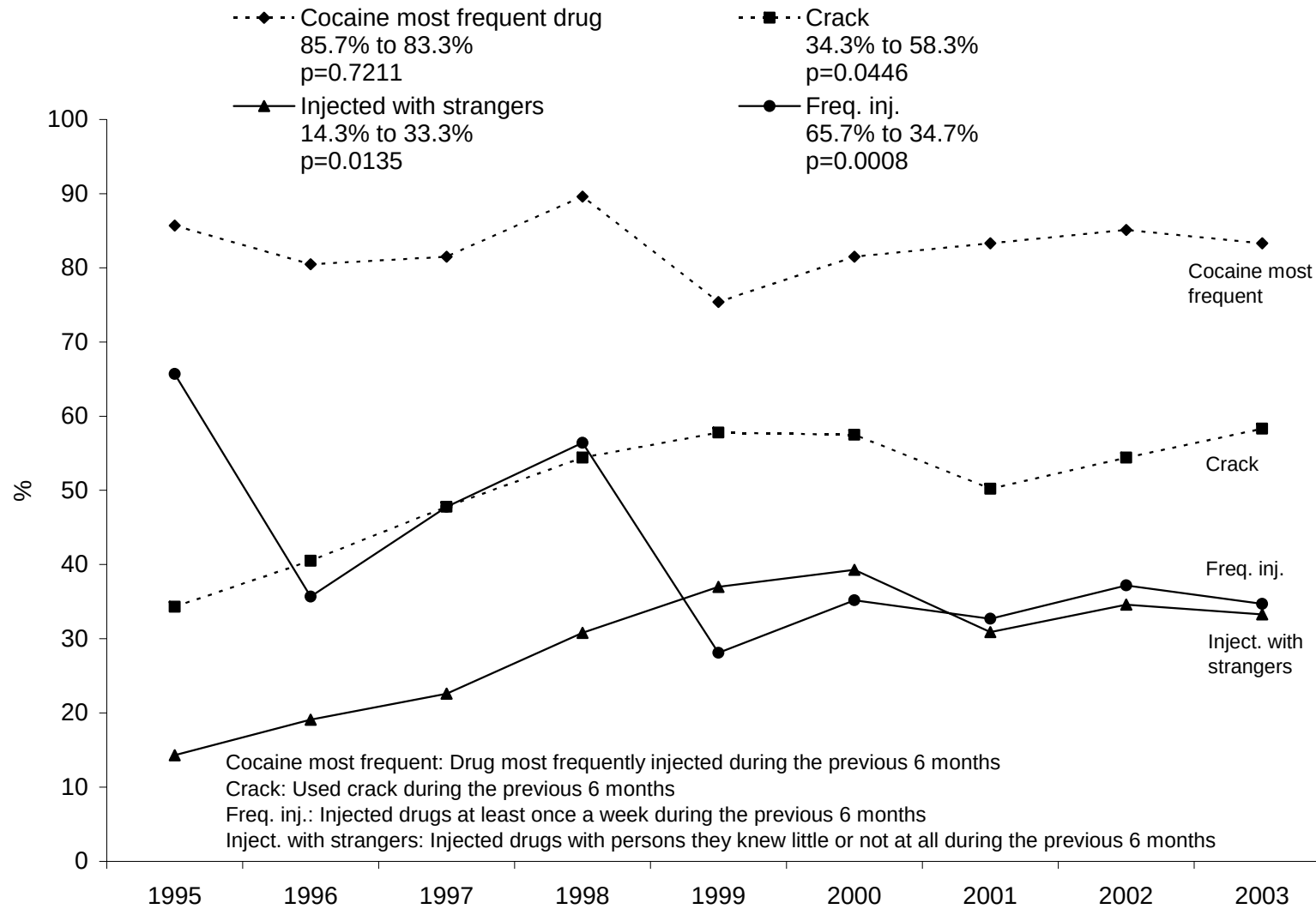
Comment: Frequency of injection does not vary significantly in Quebec City, regardless of whether or not the analysis is limited to those who reported cocaine as the drug they most frequently inject.

Figure 9 – Trends in factors associated with HIV incidence – Ottawa, in the six-month period prior to the first visit, SurvUDI/I-Track Study, 1996-2003



Comment: Injection frequency trends are similar and significant ($p < 0.001$) when the analysis is limited to those who reported cocaine as the drug they injected most frequently.

Figure 10 – Trends for factors associated with HIV incidence – Semi-urban, in the six-month period prior to the first visit, SurvUDI/I-Track Study, 1995-2003



Comment: Injection frequency trends are similar and significant ($p < 0.001$) when the analysis is limited to those who reported cocaine as the drug they injected most frequently.

APPENDIX
SURVUDI I-TRACK STUDY

ANNEXE – SURVUDI I-TRACK STUDY

Figure 11 – SurvUDI I-Track Study in Canada

