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■ EPI-UPDATE

CRYSTAL METHAMPHETAMINE USE AMONG CANADIAN STREET-INVOLVED YOUTH (1999-2005):

Results from the Enhanced Canadian Street Youth
Surveillance (E-SYS) program

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EPI-UPDATE: Crystal Methamphetamine Use Among Canadian Street-Involved Youth (1999-2005)
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ACTUALITÉS EN ÉPIDÉMIOLOGIE : Consommation de la méthamphétamine en cristaux chez les jeunes canadiens de la rue (1999-2005)

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■ EPI-UPDATE

CRYSTAL METHAMPHETAMINE USE AMONG CANADIAN STREET-INVOLVED YOUTH (1999-2005):

Results from the Enhanced Canadian Street Youth Surveillance (E-SYS) program

At a Glance:

- Between 1999 and 2005, the overall level of reported crystal methamphetamine (crystal meth) among street-involved youth was 5.8%.
- There has been an increase in the proportion of street-involved youth reporting crystal meth as being one of the drugs used most often during the past three months - from 2.5% in 1999 to 9.5% in 2005 ($p < 0.0001$).
- Street-involved youth who reported crystal meth use were more likely to:
 - reside in Western Canada (compared to Eastern Canada);
 - be older and Caucasian;
 - have a history of interaction with social service agencies and the justice system;
 - report current cigarette smoking and a history of injecting drugs and using other non-injecting drugs;
 - report practising high-risk sexual behaviours (e.g. no regular sex partner, same sex partner and having obligation sex); and
 - having been previously diagnosed with sexually transmitted infections (STIs).

Introduction

Crystal methamphetamine (crystal meth) is a purified form of methamphetamine, a potent central nervous system stimulant. It is a highly addictive drug. Crystal meth users may experience anxiety, depression, mental confusion, fatigue and headaches after initially feeling powerful and confident, having endless energy, increased productivity, enhanced sexual performance and reduced appetite. Long-term use of crystal meth can cause severe changes in the brain which account for many of mental health problems among its abusers.¹

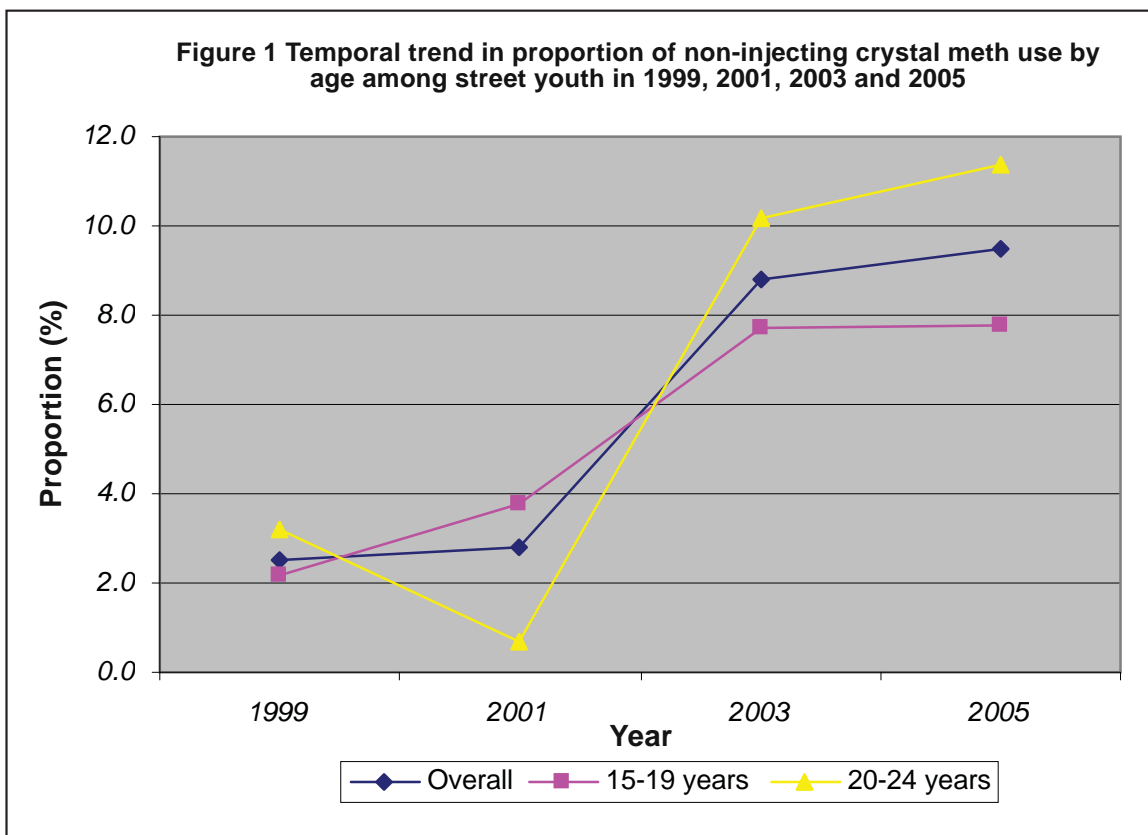
Despite reports that the levels of crystal meth use among the general youth population have decreased in North America,¹⁻⁴ its use remains high in some marginalised populations, including street-involved youth. For example, in one study, 67% in street-involved youth in British Columbia reported having used crystal meth.⁵ Another study found that homosexual or bisexual students were 26 times more likely to have used crystal meth than their heterosexual counterparts.⁶

The purpose of this Epi-Update is to provide information on the proportion of street-involved youth across Canada who report using crystal meth, whether these proportions have changed over time, and what factors are associated with its use. The results presented here are based on the data collected through the Enhanced Canadian Street Youth Surveillance (E-SYS) program between 1999 and 2005. The E-SYS is an ongoing, multi-centre surveillance system that describes changing patterns of sexually transmitted bloodborne infections (STBBIs) and associated factors (including drug use) among street-involved youth in Canada. A total of 6,053 participants were included in the analysis from seven cities across Canada (Vancouver, Edmonton, Saskatoon, Winnipeg, Ottawa, Toronto, and Halifax). The analysis only considers non-injecting use of crystal meth. Crystal meth users were identified as those street-involved youth who reported this drug as being one of the drugs they used most often during the past three months.

Results

Level of crystal meth use (Figure 1):

- Overall, a total of 353 of 6,053 (5.8%) street-involved youth reported crystal meth as being the drug that they most often used over the past three months.
- The proportion reporting crystal meth use has significantly increased from 2.5% in 1999 to 9.5% in 2005 ($p < 0.001$) and has been observed among the younger (15-19 years) and older (20-24 years) street-involved youth participants.



Note: Data from Vancouver in 2001 and Winnipeg in 2005 are not available.

Crystal meth use and demographics (Table 1):

- Street-involved youth who reported crystal meth use were more likely to be older (20-24 years vs. 15-19 years) and Caucasian.
- Big geographic differences reported crystal meth use were observed; more than half of street-involved youth reporting crystal meth user 'resided' in Vancouver.
- Caucasians were more likely to be crystal meth users.
- There was no significant difference in crystal meth use between males and females, Aboriginal and non-Aboriginal, Canadian-born and non-Canadian-born and for those with different educational levels.

Table 1: Demographics

Characteristic	Crystal meth use n (%) [*]	OR (95% CI) ^{**}	p value
Age (year)			
15-19	186 (5.9)	Ref	
20-24	167 (8.2)	1.4 (1.1, 1.8)	0.0016
City			
Vancouver	181 (25.6)	19.9 (11.2, 35.3)	<0.0001
Edmonton	93 (7.4)	4.9 (2.7, 8.8)	<0.0001
Saskatoon	15 (2.2)	1.3 (0.6, 2.7)	0.55
Winnipeg	20 (2.8)	1.6 (0.8, 3.3)	0.18
Toronto	28 (2.1)	1.4 (0.7, 2.8)	0.28
Ottawa	13 (1.8)	Ref	
Halifax	3 (0.5)	0.3 (0.1, 1.1)	0.066
Ethnicity			
Caucasian	264 (8.2%)	1.9 (1.5, 2.4)	<0.0001
Other	89 (4.6%)	Ref	

* Proportion of the use in bracket;

** Odds ratio (95% confidence interval)

Interaction with social and correctional services/family (Table 2):

- Street-involved youth who reported a history of accessing social service and/or being in a jail or in a remand centre were more likely to report crystal meth use.
- Reported use of crystal meth was higher among those who were not living with their parents.

Table 2: Social and correctional services/ family

Characteristic	Crystal meth use n (%)	OR (95% CI)	p value
Ever been in foster care			
No	180 (5.8)	Ref	
Yes	173 (8.3)	1.5 (1.2, 1.8)	0.0005
Ever had a social worker			
No	84 (5.4)	Ref	
Yes	268 (7.4)	1.4 (1.1, 1.8)	0.0073
Ever been in a group home			
No	168 (5.9)	Ref	
Yes	185 (8.0)	1.4 (1.1, 1.7)	0.0032
Ever been in jail / detention facility			
No	117 (5.8)	Ref	
Yes (overnight or longer)	232 (7.5)	1.3 (1.1, 1.7)	0.016

Ever had a probation officer			
No	126 (5.2)	Ref	
Yes	226 (8.2)	1.6 (1.3, 2.0)	<0.0001
Currently living with parent			
No	335 (7.6)	3.9 (2.2, 6.9)	<0.0001
Yes	13 (2.1)	Ref	

Other substance use (Table 3):

- Frequency of smoking cigarettes was significantly related to reported crystal meth use.
- Alcohol consumption was not linearly related to crystal meth use.
- There was no difference in crystal meth use among those who reported bingeing on alcohol and those who did not.
- Street-involved youth who reported other non-injecting drug use or injecting drug use were more likely to report crystal meth use.
- Among those who reported crystal meth use, the leading reported other non-injecting drugs were: marijuana (51.3%), crack (19.3%), cocaine (13.3%) and ecstasy (13.3%); and the most commonly injecting drugs reported were: cocaine (34.6%), heroin (30.8%) and morphine (26.2%).

Table 3: Other substance use

Characteristic	Crystal meth use n (%)	OR (95% CI)	p value
Smoking			
Never	11 (2.6)	Ref	
Occasionally	18 (4.6)	1.8 (0.8, 3.8)	0.14
Everyday	323 (7.4)	3.0 (1.6, 5.5)	0.0005
Drinking			
Never	103 (10.8)	Ref	
Occasionally	154 (6.5)	0.57 (0.44, 0.74)	<0.0001
Regularly, one or two times a week	40 (4.3)	0.37 (0.25, 0.54)	<0.0001
Regularly, three or four times a week	31 (6.2)	0.54 (0.36, 0.82)	0.004
Everyday	25 (6.7)	0.59 (0.38, 0.93)	0.023
Other non-injecting drug use*			
No	38 (3.2)	Ref	
Yes	54 (21.5)	8.2 (5.3, 12.7)	<0.0001
Injecting drug use			
No	216 (5.4)	Ref	
Yes	137 (11.9)	2.4 (1.9, 3.0)	<0.0001

* Includes period between 2001 to 2005.

Sexual behaviours/prior STI (Table 4):

- Street-involved youth reporting crystal meth use were more likely to also report high-risk sexual behaviours in their lifetime, including no regular sex partner, same sex partner and having obligation sex. They were also more likely to report having had an STI.
- Among the factors examined, trade sex, family-related authority sex, or sex with someone diagnosed with an STI, were not significantly associated with reported crystal meth use.

Table 4: Sexual behaviours/prior STI

Characteristic	Crystal meth use n (%)	OR (95% CI)	p value
Ever had male same sex partner (MSM)			
No	167 (6.3)	Ref	
Yes	47 (10.7)	1.8 (1.3, 2.5)	0.0011
Ever had female same sex partner (FSF)			
No	63 (5.3)	Ref	
Yes	73 (10.7)	2.2 (1.5, 3.1)	<0.0001
Ever had obligation sex			
No	201 (9.1)	Ref	
Yes	68 (13.5)	1.6 (1.2, 2.1)	0.0034
Ever had sex with regular partner(s)			
No	71 (12.7)	1.4 (1.1, 1.9)	0.015
Yes	199 (9.2)	Ref	
Had a history of STI			
No	242 (6.4)	Ref	
Yes	109 (8.8)	1.4 (1.1, 1.8)	0.0046

Prevalence of STBBIs (Table 5):

- Street-involved youth diagnosed with hepatitis C infection reported marginally higher levels of crystal meth use.
- Differences in reported crystal meth use did not reach a significant level for diagnosis with any single STI.

Table 5: Prevalence of hepatitis C

Characteristic	Crystal meth use n (%)	OR (95% CI)	p value
Hepatitis C infection			
No	241 (6.6)	Ref	
Yes	19 (10.3)	1.6 (1.0; 2.7)	0.052

Discussion:

The proportion of street-involved youth participating in E-SYS who reported crystal meth use over the past three months has increased almost four fold from 2.5% in 1999 to 9.5% in 2005 (p<0.0001). These rates are between

two and nine times higher than the numbers reported from general youth populations in Canada depending upon the city⁷⁻⁸. These rates among street-involved youth are alarming particularly since crystal meth is a highly addictive drug and has devastating effects on the mental and physical health for long term users. Furthermore, treatment is challenging because of the lack of effective medication or other behavioural approaches with long-term benefits.

The rates of crystal meth use among the street-involved youth population make it clear that actions are needed to reduce the rates of substance abuse and lessen the impacts of associated social, physical, and psychological harms. Given distinct geographic differences in reported crystal meth use, multi-faceted but locally relevant approaches addressing broader determinants of health are needed, as single-issue public health interventions are unlikely to address the root causes of risk behaviours among this uniquely vulnerable population.

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