

# Illicit Prescription Opioid Injection Among HIV-Positive People Who Inject Drugs In The Context Of A Community-Wide Treatment-As-Prevention (TASP) Initiative

Stephanie Lake<sup>1,2</sup>, T Kerr<sup>1,3</sup>, R Hogg<sup>1,4</sup>, S Guillemi<sup>1</sup>, H Dong<sup>1</sup>, J Montaner<sup>1,3</sup>, E Wood<sup>1,3</sup>, M-J Milloy<sup>1,3</sup>

1. British Columbia Centre for Excellence in HIV/AIDS, St. Paul's Hospital, Vancouver; 2. School of Population and Public Health, University of British Columbia, Vancouver; 3. Department of Medicine, University of British Columbia, St. Paul's Hospital, Vancouver; 4. Faculty of Health Sciences, Simon Fraser University, Burnaby, BC, Canada

## Background

- The prescribing of opioids (POs) for non-cancer pain has increased substantially in North America over the last decade, including among people living with HIV/AIDS.
- Among high-intensity substance-using populations, such as people who inject drugs (PWID), illicit PO injection has become common.
- Little is known about PO injection among HIV-positive PWID, especially within the context of a community-wide Treatment-as-Prevention (TasP) initiative.
- This study was undertaken to identify the prevalence and correlates of PO injection among HIV-positive PWID in Vancouver, Canada.

## Methods

- Data was obtained from the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS): an ongoing prospective cohort study of HIV-positive people who use illicit drugs from Vancouver, BC.
- Participants who had completed an interview between December 2005 and November 2013, were actively injecting drugs, and had at least one CD4 and VL determination were included in this analysis.
- Generalized estimating equations (GEEs) were used to examine associations between various demographic, behavioural, and clinical factors and PO injection over the study period.

## Results

- In total, 634 HIV-positive PWID were eligible to be included in this analysis, including 210 (33.1%) women, and 413 (65.1%) on HIV treatment.
- On average, 1 in 4 participants reported injecting POs at each follow-up (range: 10.6% – 27.4%, median: 24.2%; Figure 1).
- In a multivariable GEE analysis:
  - PO injection was significantly and positively associated with Caucasian ethnicity, heroin injecting, and drug dealing (Table 1).
  - PO injection was significantly and negatively associated with older age and methadone maintenance treatment (Table 1).
- Periods of PO injection were characterized by lower odds of engagement in HIV treatment; however, this association did not remain significant after adjusting for age and heroin injection.

Figure 1. Proportion of participants reporting PO injection in the previous six months, by follow-up period (December 2005 - November 2013)

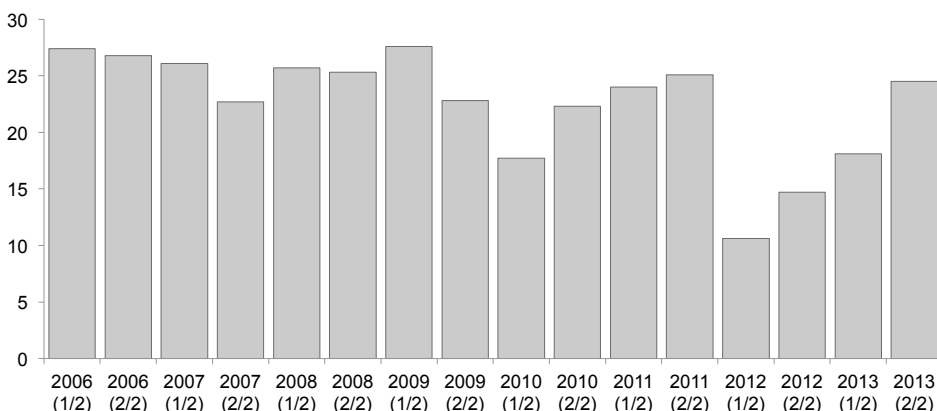


Table 1. Bivariable and multivariable GEE\* analyses of factors associated with recent prescription opioid injection among 634 HIV-Positive PWID

Characteristic	Unadjusted		Adjusted	
	Odds Ratio (95% CI)	p - value	Odds Ratio (95% CI)	p - value
<b>Age</b>				
(Per 10 year increase)	0.97 (0.96 – 0.99)	<0.001	<b>0.97 (0.96 – 0.99)</b>	<b>0.004</b>
<b>Gender</b>				
(Male vs. female)	1.18 (0.87 – 1.60)	0.283		
<b>Ethnicity</b>				
(Caucasian vs. other)	1.34 (1.00 – 1.79)	0.053	<b>1.65 (1.21 – 2.27)</b>	<b>0.002</b>
<b>Relationship Status</b> <sup>†</sup>				
(Partner vs. single)	0.99 (0.80 – 1.49)	0.960		
<b>Education Status</b> <sup>†</sup>				
(> Sec vs. ≤ sec)	1.11 (0.83 – 1.49)	0.486		
<b>Employed</b> <sup>†</sup>				
(Yes vs. no)	0.96 (0.78 – 1.17)	0.659		
<b>Homeless</b> <sup>†</sup>				
(Yes vs. no)	1.43 (1.17 – 1.76)	0.001	1.15 (0.95 – 1.40)	0.154
<b>Incarcerated</b> <sup>†</sup>				
(Yes vs. no)	1.36 (1.07 – 1.74)	0.001	1.07 (0.84 – 1.36)	0.602
<b>Heroin Injection</b> <sup>†</sup>				
(Yes vs. no)	2.44 (1.91 – 3.13)	<0.001	<b>2.24 (1.85 – 2.72)</b>	<b>&lt;0.001</b>
<b>Cocaine Injection</b> <sup>†</sup>				
(Yes vs. no)	1.04 (0.83 – 1.29)	0.738		
<b>Crack Smoking</b> <sup>†</sup>				
(Yes vs. no)	1.41 (1.10 – 1.79)	0.006	1.20 (0.96 – 1.49)	0.108
<b>Methadone Maintenance</b> <sup>†</sup>				
(Yes vs. no)	0.76 (0.59 – 0.97)	0.031	<b>0.76 (0.61 – 0.93)</b>	<b>0.009</b>
<b>Drug Dealing</b> <sup>†</sup>				
(Yes vs. no)	2.14 (1.74 – 2.63)	<0.001	<b>1.88 (1.57 – 2.25)</b>	<b>&lt;0.001</b>
<b>Sex Work</b> <sup>†</sup>				
(Yes vs. no)	1.35 (0.99 – 1.84)	0.059	1.07 (0.81 – 1.42)	0.614
<b>ART dispensation</b> <sup>†</sup>				
(≥ 1 day vs. 0 days)	0.73 (0.57 – 0.94)	0.014	1.02 (0.82 – 1.27)	0.834
<b>Viral Load</b>				
(>1500 vs. ≤ 1500 c/mL)	1.34 (1.06 – 1.69)	0.013	-	-
<b>CD4 Cell Count</b>				
(Per 100 cells/mL)	0.95 (0.89 – 1.01)	0.097	1.02 (0.92 – 1.02)	0.271

\*GEE = Generalized estimating equation; 95% CI = 95% Confidence interval

<sup>†</sup> Denotes events/exposures in the previous six months

- Indicates variable was excluded from multivariable model-building protocol

## Conclusion

- A relatively high proportion of participants in this study reported PO injection (median 24.2%)
- We were unable to show a significant impact of PO use on HIV treatment engagement and outcomes, which could be due in part to the small proportion of participants on antiretroviral therapy (65%) and few measurable outcomes.
- Periods of PO injecting were associated with a constellation of drug-related vulnerabilities, including increased odds of drug dealing and decreased odds of being on methadone maintenance therapy.
  - These findings contribute to a growing list of high-risk behaviours and socio-structural exposures characterizing PO injection.
- People who inject POs may benefit from interventions to increase antiretroviral therapy and opioid substitution treatment (OST) initiation.
  - Integrating addiction medicine into medical training and practice.
  - Expanding access to evidence-based alternatives to methadone.

## Acknowledgements

We wish to thank the study participants for their contribution to the research, as well as current and past researchers and staff. The study was supported by the US National Institutes of Health VIDUS: U01DA38886, R01DA011591 and ACCESS: R01DA021525. We have no conflicts of interest to declare.

