

Sharing of Injection Drug Preparation Equipment Is Associated With HIV Infection: A Cross-sectional Study

Ball, L et al JADS 2019

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Background

HIV and PWID

- 9% of all new HIV infections worldwide (uncommon in Australia)
- Prevention; NSP, OAT, anti-retrovirals
- 2015/16 – increase HIV diagnoses among PWID

Setting

London – Canada (not UK)

Has largest per capita NSP in Canada

3 needle/syringes million in 2016 (population 370,000)

Injection Drug Preparation Equipment?

- 3 commonly used drugs hydromorphone CR, hydromorphone IR and methamphetamine
- Associated with multiple 'washes'
- Considering large NSP – is sharing injection drug preparation equipment (cookers, spoons, filters) associated with transmission of HIV

Cross-sectional study

- Aug 2016 to June 1017
- Case HIV + compared to HIV –ve controls
- Primary exposure sharing IDPE
- Age > 17, from London (Canada), report IDU in last 3 months
- Recruited from local NSP/Safe injecting site or hospital with drug related infection

- Detailed questionnaire and HIV testing

- Univariable logistic regression comparing HIV +ve and HIV –ve trial participants
- Multivariable logistic regression for primary exposure (IDPE sharing)
- Significance defined as $P < 0.05$

Cohort - Results

	Case (HIV+) (n = 35)	Control (HIV-) (n = 84)	Odds Ratio (95% Confidence Interval)
Sharing of injection equipment¶			
None	14 (42%)	61 (73%)	Reference
Only needles/ syringes†	4 (12%)	16 (19%)	1.09 (0.32 to 3.76)
Only IDPE‡	10 (30%)	3 (4%)	14.52 (3.53 to 59.77)*
Both IDPE and needles/ syringes§	5 (15%)	3 (4%)	7.26 (1.55 to 34.03)*
Sociodemographic factors			
Age	38.4 (10.2)	41.2 (10.5)	1.03 (0.99 to 1.07)
Female	6 (17%)	21 (25%)	0.62 (0.23 to 1.70)
MSM#	5 (18%)	2 (3%)	6.63 (1.20 to 36.60)*
LGBTQ**	3 (12%)	7 (9%)	1.29 (0.61 to 5.39)
Stable housing††	19 (54%)	34 (41%)	1.71 (0.77 to 3.79)
Aboriginal (Ref = white)‡‡	9 (26%)	17 (21%)	1.33 (0.53 to 3.39)
Stable employment§§	2 (6%)	5 (6%)	1.02 (0.19 to 5.53)
Endocarditis	9 (25%)	14 (17%)	1.73 (0.67 to 4.48)
Injection drug use			
Hydromorphone controlled- release	31 (89%)	66 (79%)	2.11 (0.66 to 6.77)
Hydromorphone immediate- release	20 (57%)	64 (76%)	0.42 (0.18 to 0.96)*
Methamphetamine	27 (77%)	63 (75%)	1.13 (0.44 to 2.85)

MSM defines a behavior while LGBTQ is an umbrella term for sexual and gender identities.

IDPE, injection drug preparation equipment.

*Statistically significant value ($P < 0.05$).

†"Have you shared a needle or syringe but not shared a cooker or filter or wash within the past 3 months?"

‡"Have you shared cookers or filters or washes but not shared a needle or syringe within the past 3 months?"

§"Have you shared both needles or syringes and also a cooker or filter or wash within the past 3 months."

||SD.

¶Sharing data available for 33 cases and 83 controls.

#MSM data available for 28 cases and 63 controls.

**LGBTQ (lesbian, gay, bisexual, transgender, and queer) data available for 26 cases and 76 controls.

††Housing data available for 35 cases and 83 controls.

‡‡Race data available for 34 cases and 80 controls.

§§Employment data available for 33 cases and 84 controls.

|||Totals add to >100% as most local PWID inject multiple substances.

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Characteristics of HIV-Infected and HIV-Uninfected Participants

Odds Ratio (95% Confidence Interval)

Sharing (Ref = neither)

Both IDPE and needle/syringes 23.88 (2.36 to 241.82)

Only IDPE* 22.12 (4.51 to 108.59)

Only needle/syringes† 0.91 (0.16 to 5.37)

MSM 11.34 (1.79 to 71.69)

Stable housing 1.83 (0.55 to 6.10)

*Have you ever shared cookers or filters or washes but not shared a needle or syringe within the past 3 months?.

†Have you shared a needle or syringe, but not shared cookers or filters or washes within the past 3 months?.

Association of HIV Status With Injecting Behavior and Sociodemographic Variables (Adjusted Model)

Results

- 9/35 diagnoses of HIV were new
- Formulation of drug mattered i.e CR hydromorphone required multiple washes and longer drug preparation time
- Note huge OR – acknowledging the data is cross-sectional, hard to imagine there isn't a causal relationship

Discussion

- Sharing IDPE was a strong risk factor for HIV transmission in this cohort
- Occurred in area with large and well established NSP
- Sharing IDPE is common, sharing needles far less so due to known transmission risk
- Likely no 'serosorting' with IDPE
- In some programs IDPE are distributed
- Heating shown to inactivate HIV – 'cook your wash'

Limitations

- Sexual risk factors not fully investigated
- Recall bias
- Didn't differentiate between receptive sharing (order of use)
- Only asked within last 3 months
- HIV status may affect injecting practice

For us

- What should we have in our NSP packs?
- Study limitations? What is a reasonable standard for roll out of a harm reduction intervention?
- Difficult to study area
- Focused public health messaging

