



“Hooked on painkillers” before first injection among PWID in 16 US cities

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BACKGROUND

- Misuse of prescription opioids (PO) has increased dramatically in the US since the early 2000s
- Increases in PO use may lead to increases in heroin use and drug injection
- Drug injection places persons at increased risk of HIV and hepatitis C through multi-person sharing of injection equipment
- Understanding the role of PO use in injection initiation and subsequent risk behaviors is therefore key to preventing injection-related harms, including HIV and hepatitis C

OBJECTIVE

- Compare self-reported PO use disorder prior to first injection among persons who inject drugs (PWID) by year of injection initiation
- Assess factors associated with PO use disorder prior to first injection

METHODS

- National HIV Behavioral Surveillance (NHBS) monitors HIV-associated behaviors and HIV prevalence in 20 cities among key populations at risk for HIV, including PWID
 - We use data from the most recent NHBS cycle among PWID in 2015
- PWID who injected in the past 12 months were recruited using respondent-driven sampling, interviewed and offered HIV testing
- Self-report indicative of PO use disorder (from here on “PO use”) prior to first injection was assessed by asking participants if they were “hooked on painkillers before you injected for the very first time”
- Analysis is restricted to the 16 NHBS cities that included questions on PO use prior to first injection and to PWID who reported injecting heroin and/or PO at the time of the interview
- Log-linked Poisson regression models with GEE clustered on recruitment chain and accounting for sampling design covariates were used to examine year of injection initiation and other factors associated with PO use prior to first injection
- We report adjusted prevalence ratios (aPR) and 95% confidence intervals (CI) for selected variables

Participating cities – NHBS, 2015



RESULTS

Figure. Prescription opioid (PO) use prior to first drug injection by year of injection initiation among PWID (n=7,454)

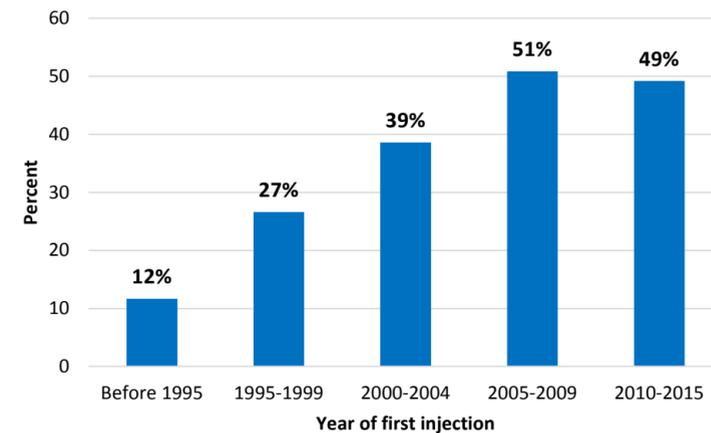


Table 1. First PO use and injection in the sub-group of PWID who reported PO use prior to first drug injection (n=2,208)

Characteristic	
Years between first ever PO use and first drug injection	
Mean (SD)	5.4 (5.7)
Median	4
Source of first ever PO	
Given by doctor with a prescription	673 (30.5%)
Given by friend, family or someone else	443 (20.1%)
Purchased from friend, family, dealer or someone else	435 (19.7%)
Stolen from friend, family, or someone else	149 (6.7%)
Purchased from Internet	1 (<0.1%)
Other/multiple sources ^a	498 (22.5%)
First drug injected	
Heroin	1,684 (76.3%)
PO	224 (10.1%)
Cocaine/Speedball	169 (8.1%)
Methamphetamine	94 (4.3%)
Other	27 (1.2%)

Abbreviations: PO, prescription opioid; SD, standard deviation
^aParticipants reported >1 sources (n=475) or some other source (n=23). Most commonly reported multiple sources were given by a friend, family or someone else AND purchased by a friend family, dealer or someone else (n=108).

Table 2. Drug injection initiation during the opioid epidemic (2000-2015) and other factors associated with PO use prior to first drug injection among PWID (n=7,454)

Characteristic	PO use prior to first injection			PR (95% CI) ^a	Adjusted PR (95% CI) ^b
	Total n=7,454 %	Yes n=2,208 %	No n=5,246 %		
Year of first injection					
<2000	53.5	26.2	64.9	ref	ref
2000-2015	46.5	73.8	35.1	2.9 (2.60-3.18)	2.5 (2.27-2.71)
Background					
Age 18-29 vs ≥30 years	18.8	31.4	13.4	1.7 (1.58-1.87)	--
Female sex	27.8	32.0	26.0	1.2 (1.13-1.31)	1.1 (1.02-1.18)
White vs other race/ethnicities ^c	42.2	64.9	32.6	2.1 (1.85-2.47)	1.7 (1.52-1.91)
More than HS education	69.7	74.2	67.8	1.2 (1.12-1.30)	--
Homeless, past 12 months	64.2	72.6	60.6	1.3 (1.17-1.45)	1.2 (1.07-1.27)
HIV-positive test result	5.1	2.0	6.3	0.4 (0.32-0.60)	0.6 (0.40-0.80)
Injection-related behaviors					
Age at first injection <20 years	43.0	31.1	48.0	0.6 (0.53-0.64)	--
Shared syringes, past 12 months	36.3	43.9	33.1	1.3 (1.19-1.37)	--
Shared other injection equipment ^d , past 12 months	59.3	66.6	56.3	1.3 (1.17-1.34)	--
Received substance use treatment, 12 months	46.2	53.1	43.3	1.2 (1.16-1.32)	--
Used syringe services program, past 12 months	51.3	54.5	49.9	1.0 (0.90-1.08)	--

Abbreviations: PO, prescription opioid; HS, high school; PR, prevalence ratio; CI, confidence interval
^a Estimated using Poisson regression models with generalized estimating equations clustered on recruitment chain and adjusted for city, participant peer network size, and recruiters' value on the outcome.
^b Estimated using Poisson regression models with generalized estimating equations clustered on recruitment chain and adjusted for city, participant peer network size, recruiters' value on the outcome and covariates listed.
^c Includes PWID reporting black (33.3%), Hispanic (19.0%) and other or multiple race/ethnicities (5.4%).
^d Cookers, rinse water and filters.

LIMITATIONS

- NHBS is not a nationally representative sample, so results may not be generalizable to all cities or to all PWID in participating cities.
- PWID in NHBS are recruited from large urban cities, therefore these results may not reflect experiences with PO use and injection drug use in non-urban areas.
- Measures of PO use are based on self-reported data and might be subject to social-desirability and recall bias that might lead to under-representing PO use, particularly among long-time PWID.

SUMMARY OF RESULTS

- Reports of PO use prior to first injection increased from 12% among PWID who initiated injection prior to 1995 to 49% among PWID who initiated in 2010-2015 (Figure).
- The median time between first ever PO use and first injection was 4 years and the top 2 sources of first ever PO were a prescription by a physician and given by friends, family or someone else (Table 1).
- In bivariate analysis, PWID reporting PO use prior to first injection compared to other PWID were nearly 3 times as likely to have initiated injection since the year 2000 and were more likely to be younger, female, and non-Hispanic white, to have been homeless, to have high school education or higher, and to have receptively shared syringes and other injection equipment (Table 2).
- PWID did not differ in use of syringe services programs (Table 2).
- In a multivariable model adjusting for sampling design and other covariates, having initiated drug injection since the year 2000 remained strongly associated with reports of PO use prior to first injection (Table 2).

DISCUSSION

- PO use prior to first injection was substantially higher among PWID who began injecting during the opioid epidemic (i.e., since 2000).
- PWID reporting PO use prior to first injection differed in socio-demographic characteristics and despite lower HIV prevalence, were more likely to engage in practices that increase risk of infection.
 - Further research to understand risk network characteristics that may lead to increases in HIV transmission is needed.
- Nearly a third reported a prescription from a health care provider as a source of their first PO suggesting an important role for Prescription Drug Monitoring Programs to help reduce potential misuse
- Efforts to prevent HIV transmission and other blood-borne infections would benefit from injection prevention interventions for people with PO use disorder and increased understanding of barriers to effective prevention delivery for those already injecting. Such efforts include:
 - Opioid use disorder treatment, including medication-assisted treatment
 - Peer-based behavioral interventions to prevent injection initiation and to provide risk reduction education
 - Syringe services programs

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