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## Factors Associated with Initiating Someone into Illicit Drug Injection

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### Abstract

**Aims**—Most people who inject drugs (PWID) were first initiated into injection by a current PWID. Few studies have examined PWID who assist others into drug injection. Our goal is to describe the prevalence of and risk factors for initiating someone into injection in the last 12 months.

**Methods**—We recruited a cross-sectional sample of PWID (N=605) in California from 2011 to 2013. We examined bivariate and multivariate risk factors for initiating someone into injection with a focus on behaviors that might encourage injection initiation such as injecting in front of non-PWID, describing how to inject to non-PWID, and willingness to initiate someone into drug injection.

**Results**—Having initiated someone into injection was reported by 34% of PWID overall and 7% in the last 12 months. Forty-four PWID had assisted 431 people into injection in the past year. Factors independently associated with initiating someone into injection in the last 12 months were having injected any person in past month – referred to as being a street doctor<sup>†</sup> -- (Adjusted Odds Ratio [AOR]=3.49; 95% confidence interval [CI]=1.72, 7.08), having described how to inject to non-injectors (2.76; 95% CI=1.28, 5.93), self-reported likelihood of initiating someone in the

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### Author Disclosures

Ricky Bluthenthal designed the study, conducted the statistical analysis, and prepared drafts of the manuscript. Ricky Bluthenthal and Lynn Wenger managed the literature searches and summaries of previous related work. Lynn Wenger managed the study protocol. All authors contributed to and have approved the final manuscript.

### Conflic of Interest

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future (AOR=6.37; 95% CI=3.12, 13.01), and non-injection powder cocaine use in past month (AOR=4.40; 95% CI= 1.90, 10.19).

**Conclusion**—Active PWID are important in facilitating the process of drug injection uptake. Interventions to reduce initiation should include efforts to change behaviors and intentions among PWID that are associated with injection uptake among others.

## Keywords

Injection initiation; injection drug use; HIV/HCV; initiators; observation epidemiology

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## 1. Introduction

### 1.1. Background on injection initiation

Researchers have long examined factors associated with initiation of injection drug use. These studies have described the circumstances of first injection episodes and examined a wide range of individual, dyadic, social network, and community factors associated with initiation. Factors found to influence injection initiation include pragmatics of drug use such as the greater drug effects (i.e., better “high”) and lower cost per use when drugs are injected (Crofts et al., 1996; Fitzgerald et al., 1999; Goldsamt et al., 2010; Kermodé et al., 2009; Swift et al., 1999; Witteveen et al., 2006). Socio-demographic and economic factors positively associated with injection initiation include being male, race (typically not African Americans), sex work, and poverty and homelessness (Crofts et al., 1996; Feng et al., 2013; Fuller et al., 2001, 2002; Hadland et al., 2012; Kuo et al., 2007; Miller et al., 2011; Nasir and Rosenthal, 2009; Roy et al., 2011; Sherman et al., 2005; Stenbacka, 1990). Further, social network characteristics and personal relationships such as having good friends or an intimate partner (e.g., girlfriend or boyfriend) who inject have also been repeatedly positively associated with initiation into injection (Bryant and Treloar, 2007; Crofts et al., 1996; Doherty et al., 2000; Goldsamt et al., 2010; Harocopos et al., 2008; Kermodé et al., 2009, 2007; Khobzi et al., 2008; Neaigus et al., 2006; Roy et al., 2011; Simmons et al., 2012; Stenbacka, 1990; Stillwell et al., 1999). Lastly, a history of childhood physical and sexual abuse has been associated with increased risk for injection initiation (Hadland et al., 2012; Neaigus et al., 2006; Ompad et al., 2005; Roy et al., 2010, 2003).

Along with general consideration of injection initiation, there is also a literature on uptake of injection by drug type. Studies have examined injection initiation for most major drugs including cocaine (Dunn and Laranjeira, 1999; Lloyd-Smith et al., 2009), crack cocaine (Lankenau et al., 2004), methamphetamine (Marshall et al., 2011; Werb et al., 2013b; Wood et al., 2008), heroin (Day et al., 2005; Draus and Carlson, 2006; Lankenau et al., 2010; Mackesy-Amity et al., 2013; Swift et al., 1999; Valdez et al., 2011), ketamine (Lankenau and Clatts, 2004; Lankenau et al., 2007), and opiate prescription medications (Lankenau et al., 2012; Mars et al., 2014; Young and Havens, 2011). In these studies, factors found to be associated with injection initiation in general are the similar to those associated with drug-specific injection initiation.

## 1.2. Initiating other people into injection drug use

While researchers have focused on the contexts surrounding initiation into injection, few studies have examined the role of established people who inject drugs (PWID) in assisting injection-naïve people to get their first injection. This is somewhat surprising since studies show that most PWID are assisted with their first injection (range: 68–88%; Crofts et al., 1996; Rotondi et al., 2014). In addition, qualitative and quantitative research indicates that people who transition into drug injection are typically socialized into it by established PWID who describe injection to non-injectors, inject in front of non-injectors, and even encourage drug injection (Hunt et al., 1998; Khobzi et al., 2008; Mars et al., 2014; Simmons et al., 2012; Stillwell et al., 1999; Strike et al., 2014). The role of established PWID in facilitating injection initiation has not been extensively studied.

To our knowledge, only three studies in the peer-reviewed literature have described or examined factors associated with PWID initiating others into injection. Reports of ever initiating vary from a high of 47% (Crofts et al., 1996) to a low of 17% (Bryant and Treloar, 2008). The average number of people initiated into injection drug use per PWID ranged from 0.6 to 2.3 in these studies (Crofts et al., 1996; Rotondi et al., 2014). Factors associated with initiating people into injection included years of injection, socio-economic deprivation, history of incarceration, poly-drug use, and some injection-related risk (Bryant and Treloar, 2008; Crofts et al., 1996). However, these studies have significant weaknesses including samples that only included younger or new injectors (Bryant and Treloar, 2008; Crofts et al., 1996) or small sample sizes (Rotondi et al., 2014). To better understand the phenomenon of initiating others into injection, we need studies that involve large numbers of PWID across the whole age spectrum and who have had short and long injection careers.

Drug injection continues to spread globally; 148 countries reported drug injection in 2008 as compared to 90 in 1993 (Mathers et al., 2008; Stimson, 1993). In the United States and elsewhere, there is an ongoing concern that increased availability of opiate prescription medications is leading to an increase in the number of PWID (Al-Tayyib et al., 2013; Bruneau et al., 2012; Cicero et al., 2014; Mars et al., 2014; Pollini et al., 2011) after a period of stability or even decline (Brady et al., 2008; Tempalski et al., 2013). In the face of this potential growth in drug injection, it is important to better understand the contribution of established PWID to injection drug initiation.

In this study, we examine the characteristics of PWID who initiate others into drug injection. This research examines the prevalence of, and risk factors for, initiating others into drug injection in a large, racially/ethnically diverse sample of PWID. We describe lifetime and recent prevalence of initiation of non-injectors among our sample. We then examine factors associated with initiating someone in the last 12 months with a goal of identifying potential areas that could be the focus of prevention interventions.

## 2. METHODS

### 2.1 Study Procedures

Data for this paper was derived from a larger National Institute on Drug Abuse (NIDA) study on PWID who initiated injection drug use later in life. Data analysis is ongoing and

initial results have been reported elsewhere (Arreola et al., 2014; Quinn et al., 2014). Study participants were recruited in Los Angeles and San Francisco, California, using targeted sampling and community outreach methods (Bluthenthal and Watters, 1995; Kral et al., 2010; Watters and Biernacki, 1989). Data collection occurred at community-based field sites in locations convenient for participants. Recruitment took place between April, 2011 and April, 2013. Eligibility criteria for the study were: 1) age 18 or older, 2) injection drug use in the past 30 days as verified by visual inspection for signs of recent venipuncture (tracks; Cagle et al., 2002), and 3) the ability to provide informed consent. Study participants were paid \$20 for completing the survey.

After providing informed consent, interviewers administered the computer-assisted personal interview using laptops programmed with Questionnaire Development System (QDS) software (NOVA Research, Bethesda, MD). All study procedures were reviewed and approved by the Institutional Review Boards at RTI International and the University of Southern California.

## 2.2. Study Sample

The total sample size was 777; 397 participants were recruited in Los Angeles and 380 in San Francisco. Beginning August 2011, after four months of data collection, we added initiation risk behaviors to the questionnaire (described below). To make use of these items, we restricted our analytic sample in this paper to only those subjects who participated after these questions were asked, resulting in a loss of 170 participants. Lastly, to examine gender effects more precisely, we excluded two transgendered participants from the analysis, leaving an analytic sample of 605 participants.

## 2.3. Study Measures

**2.3.1. Main outcome variable**—Our main outcome variable was initiating someone into injection in the last 12 months. To elicit information about this, we asked participants: “In the last 12 months, have you helped anyone get their first hit (the first time they ever injected)?” Those responding, ‘Yes,’ were next asked “In the last 12 months, how many people have you helped get their first hit?” We also collected information on lifetime initiating, including numbers of people and the relationship of the initiator to the initiate (e.g., friend, acquaintance, parent, brother/sister, other family members, girlfriend/boyfriend, pimp, trick/client, drug dealer, and inmate/prisoner). Based on low response counts, we re-categorized parents and siblings into “family member” and pimp, trick, client, drug dealers and inmate/prisoners into “criminal associates.”

**2.3.2. Main independent variables**—We collected information on behaviors that prior research has indicated is associated with initiating someone into drug injection (Hunt et al., 1998; Strike et al., 2014). These items included “Have you ever explained or described how to inject to someone who had never injected an illicit drug (i.e., a non-injector)?” (Response options: yes or no). “In the last 12 months, how often have you injected drugs in front of someone who was not already a drug injector?” (Response options: “Always, Often, Sometimes, Rarely, Never”). We also asked “How likely is it that you would initiate someone into injection drug use in the future?” (Response options: “Definitely would not,

Probably would not, Not sure, Probably would, Definitely would”). Participants responding ‘yes’ to having ever described injection to a non-injector were next asked how many injection-naïve people they had described injection to. Based on the response pattern, we recoded the item on injecting in front of non-injectors in the last 12 months into a dichotomized variable where “never” equals ‘no’, and any other response (“Rarely” to “Always”) equals ‘yes.’ For likelihood of initiating someone in the future, we recoded this item, based on response pattern, into a dichotomized variable where “Definitely would not” equals ‘no’, and all other responses (“Probably would not” to “Definitely would”) equals ‘yes.’

We also collected information on injecting anyone in the last 30 days (regardless of whether it was their first time or not) or being a “street or injection doctor” (Kral et al., 1999; Murphy and Waldorf, 1991). Response options for this item were: ‘Yes’ or ‘No.’ Information on frequency of injecting in a public place (such as parks, alleys or parking lots) and frequency of injection with other people were assessed. Response options for the latter two variables was assessed on a 5-point scale from “Never” to “Always” and recoded into dichotomized variables where “Never” equals ‘no’ (no public injection and always inject alone) and all other responses equals ‘yes.’

We also asked participants whether they had “ever been asked to help someone inject an illicit drug for their first time?” followed up with a question on whether they had “ever refused to inject someone for their first illicit drug injection?” If respondents answered ‘yes’, they were asked how many people had asked them to be initiated and how many they had refused to initiate, respectively.

**2.3.3. Covariates**—Measures of socio-demographic characteristics included self-reported race/ethnicity (White, African American, Hispanic, others). We collapsed Asian American, Pacific Islanders, Native Americans, and Mixed race into a single category, “other race.” Other variables considered included gender (male/female), age and age cohort (born prior to the 1960s, in the 1960s, 1970s, and 1980s or later), high school graduation or equivalent (yes/no), employment status (full, part-time, disabled, retired, student), income, and income sources (paid employment, welfare, illegal sources among others).

Substance use history was assessed for the following drugs: crack cocaine, powder cocaine, heroin, methamphetamine, prescription opiates, and marijuana among others. For each substance, participants were asked about age at first injection, and counts of injection and non-injection use in the last 30 days. For alcohol we collected information on number of drink days and number of standard drinks on a typical drink day in the last 30 days.

Lastly, as prior research has found that intimate partnerships are associated with injection initiation, we assessed sexual partnerships (steady, casual or paid sex partners) in the last six months as well as whether any of these sex partners were PWID (Frajzyngier et al., 2007; Simmons et al., 2012; Young et al., 2014).

## 2.4. Statistical Analysis

Descriptive statistics (e.g., frequencies, means, standard deviations [SD], medians, interquartile range [IQR]) were examined for all study variables. We also summed the numbers of people initiated ever and in the last 12 months. In addition, we summed the number of people initiated by type of person initiated. We conducted bivariate analysis to determine factors associated with injection initiation in the last 12 months. Statistical significance for bivariate comparisons was tested using chi-square test for categorical variables and t-test for continuous variables. Due to multiple comparisons, we used a Bonferroni correction such that bivariate significance was set at  $p < 0.002$  ( $0.05/25$ ; Curtain and Schulz, 1998). Multivariate logistic regression was conducted to assess variables independently associated with having initiated someone into injection in the last 12 months. Items significant in bivariate analysis within the same domain (age-related items for instance include age cohort, current age, and years of injection) were evaluated for multicollinearity using Pearson's correlation. Highly correlated items ( $r$  above 0.30) were compared and the item more strongly associated with injection initiation in the last 12 months was selected for inclusion in the final model. The final multivariate model included only variables significant at  $p < 0.05$ . All statistics were computed using SPSS/PASW Statistics 18.0 (released July 30, 2009).

## 3. RESULTS

Our sample was racially and ethnically diverse, mostly male (74%), older (51% > 49 years old), and heterosexual (84%; Table 1). The sample was also low income (80% reported income below 150% of the federal poverty rate in 2012) and 64% were homeless.

Thirty-five percent ( $n=214$ ) reported having ever initiated a total of 3,271 people into drug injection for the first time (mean=15.5, SD=54.6; median=3; IQR=2, 10). Of the total number of people initiated, 42% were acquaintances, 37% were friends, 14% were criminal associates, 4% were boyfriend/girlfriend, and 2% were family members.

In addition, 422/605 (70%) reported having been asked to initiate a total of 12,192 non-injectors (mean=28.9, SD=252.7; median=5; IQR=2, 12). Almost three-quarters of participants reported refusing to initiate a non-injector 442/605 (or 73%) a total of 7,519 times (mean=17.0, SD=69.1; median=5; IQR=3, 12). We found that 223/605 (37%) had ever described how to inject to a total of 10,790 non-injectors (mean=48.4, SD=372.7; median=3; IQR=2, 10). Whether these individuals went on to inject for the first time was not captured in our questionnaire.

Seven percent (44/605) of participants reported initiating someone into injection in the last 12 months. These 44 participants initiated 431 people (mean=9.8; SD=30.6; median=2; IQR=1, 4.75) during this period. On average, participants who had initiated someone in the last 12 months had done so for more people in their lifetime (mean=32.47; SD=79.49; median=5; IQR=2, 20) as compared to participants who had ever initiated someone but not done so in the last 12 months (mean=11.16; SD=45.43; median=3; IQR=1, 7.75).

In bivariate analysis (Table 2), demographic variables (including recruitment city, age cohort, being US-born, income source, sex partner type, and having a sex partner who injects) and some drug use patterns (i.e., non-injection powder cocaine and marijuana use, poly injection drug use, injection frequency, and years of injection), but not others (i.e., heroin, methamphetamine, and opiate prescription injection and non-injection use) were statistically associated with having initiated someone in the last 12 months. Injection initiation risk variables, measured here as any public injection, being a ‘street or injection doc,’ injecting in front of non-injectors, describing injection to non-injectors, and likelihood of initiation someone in the future, were also associated with having initiated someone in the last 12 months.

In the multivariate model (Table 3), factors independently associated with having initiated someone into injection in the last 12 months were self-reported likelihood of initiating someone in the future (Adjusted Odds Ratio [AOR]=7.09; 95% Confidence Interval[CI]=3.40, 14.79), 30-day injecting others – referred to as being a ‘street doctor’ (AOR=4.05; 95% CI=1.94, 8.47), describing how to inject to non-injectors (AOR=2.61; 95% CI=1.19, 5.71), non-injection powder cocaine use in the past month (AOR=4.97; 95% CI=2.08, 11.84), and residing in Los Angeles (AOR=3.20; 95% CI=1.52, 6.71).

#### 4. DISCUSSION

Prior studies have found that the majority of PWID receive assistance during their first injection episode (Crofts et al., 1996; Rotondi et al., 2014). Yet, few studies have sought to understand factors associated with assisting others with their first injection (Bryant and Treloar, 2008; Crofts et al., 1996; Rotondi et al., 2014). In this study, we found a history of initiating others to be relatively common (34%), but recent initiation (last 12 months) of someone is much less prevalent (7%). Our finding that one-third of PWID had ever initiated someone into injection is within the range reported by other studies (27% to 47%; Crofts et al., 1996; Rotondi et al., 2014; Strike et al., 2014). Since our study was the first large-scale study of initiation and was only located in Los Angeles and San Francisco, California, more studies are needed to establish the prevalence of this important public health phenomenon in other settings.

Although only 7% of PWID reported having initiated someone into injection in the past year, the number of people they had initiated was substantial (431 people, a nearly 10:1 ratio). Prior studies reported lower averages of initiating others; however these studies were focused on new injectors or had small sample sizes (Bryant and Treloar, 2008; Crofts et al., 1996; Rotondi et al., 2014). If the ratio we observed is consistent across injecting populations, then even a small number of PWID are capable of sustaining and perhaps growing the overall number of active PWID in a locale. Future research, including prospective studies, is needed to determine whether this ratio is consistent over time and place.

In this study, we examined a number of potential initiation risk behaviors and found two - describing to a non-injector how to inject and likelihood of initiating someone into injection in the future – were associated with initiation of others into drug injection in the last 12

months. These risk factors have not been commonly studied, although prior research suggests an association between some of these factors and uptake of injection (Sherman et al., 2005). Future intervention research should focus on addressing changing these attitudes and behaviors among established PWID. One potential approach is Carol Strike and Neil Hunts' "Change the Cycle" intervention, a brief, single session intervention to reduce initiating and initiating risk factors among PWID (Hunt et al., 1998; Strike et al., 2014). Other approaches that focus on transitioning away from injectable routes of administration should also be implemented and tested (Bridge, 2010; Dolan et al., 2004; Hunt et al., 1999; Stillwell et al., 2005). Efforts to test the efficacy of such approaches should be a high priority for those interested in reducing the transmission of injection-related diseases (e.g., HIV, HCV) and other harms associated with drug injection.

We also found that PWID who inject others – also referred to as being a 'street' or 'injection doctor' (Carlson, 2000; Cherry et al., 2009; Fairbairn et al., 2006; Kral et al., 1999; Murphy and Waldorf, 1991) – have higher odds of initiating people into injection than other PWID. This association is not surprising; qualitative studies on injection initiation processes note that one reason to initiate someone is to show new injectors how to inject properly (Simmons et al., 2012). As part of developing prevention interventions for injection initiators, this sub-population might be worthy of special attention given their role in recent initiations into drug injection.

While we found that non-injection powder cocaine use was associated with initiating others, other studies have been less conclusive on this (Crofts et al., 1996; Roy et al., 2011, 2003). We have data only on the initiators and not the individuals they initiated, so we can only suppose that using non-injection powder cocaine may put PWID into contact with non-injectors who may be susceptible to injection uptake. More research on the social network characteristics of initiators appears warranted.

Lastly, initiators were more common in Los Angeles as compared to San Francisco. The source of this difference is not obvious and more qualitative and quantitative research will be required to understand this finding.

Study results should be viewed in light of several potential limitations. This was a cross-sectional study, so we were not able to establish temporality. Further, all data are based on participant self-reports, which may be subject to social desirability and recall bias. Most study measures were selected based on their strong psychometric properties (Dowling-Guyer et al., 1994; Fisher et al., 2007; Needle et al., 1995; Weatherby et al., 1994). However, our measures on initiation of others and initiation risk items have not been tested for reliability or validity. Nonetheless, the observed prevalence of these measures appeared to be similar to other reports. Formal reliability and validity testing of these items should be pursued.

Injection drug use dramatically increases risk for blood borne infectious diseases, endocarditis, cellulitis and soft tissue infections, drug overdose, psychiatric disorders, and mortality (Aceijas and Rhodes, 2007; Aceijas et al., 2004; Britton et al., 2010; Degenhardt et al., 2011; Ebright and Pieper, 2002; Khan et al., 2013; Mackesy-Amiti et al., 2012; Mathers

et al., 2013; Nelson et al., 2011; Silva et al., 2013). Increasing use of prescription opioid medications and heroin may be creating a new cohort of drug users for whom drug injection may appear to be attractive (SAMHSA, 2013; Mars et al., 2014). Observational epidemiological studies that further characterize trajectories to drug injection are urgently needed. In addition, implementing and evaluating promising injection initiation prevention interventions should be conducted to respond to this growing public health threat (Brener et al., 2010; Bridge, 2010; Des Jarlais et al., 1992; Hunt et al., 1999, 1998; Stillwell et al., 2005; Strike et al., 2014; Werb et al., 2013a).

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### Highlights

This paper is the largest observational epidemiology study of PWID that initiate others into drug injection. There have been several editorials, reviews and commentaries calling for more studies on injection initiation patterns and risk. This paper, with its robust findings, makes a very important contribution to the little studied behavior of initiating others into injection drug use.

**Table 1**

Sample characteristics of people who inject drugs, Los Angeles and San Francisco, California, 2011–13 (N=605)

Characteristic	n (%)
Male	447 (74%)
Age	
<29	66 (11%)
30 to 39	65 (10%)
40–49	165 (27%)
50 or more	309 (51%)
Race	
White	216 (36%)
African American	206 (34%)
Hispanic	114 (19%)
All others	64 (11%)
High school or equivalent education or more – Yes	395 (65%)
Born in the US – Yes	577 (95%)
Gay, lesbian, or bisexual – Yes	99 (16%)
Any US military service - Yes	67 (11%)
Currently homeless – Yes	384 (64%)
HIV positive – Yes	41 (7%)
Recruitment Site	
San Francisco	297 (49%)
Los Angeles	308 (51%)
Monthly income	
<\$1,351	487 (81%)
\$1,351 plus	115 (19%)
Major Income source, last 30 days	
Welfare	209 (35%)
Supplemental Security Income	218 (36%)
Recycling	151 (25%)
Illegal or possibly illegal source	235 (39%)
Panhandling	169 (28%)
Injection drug use, last 30 days	
Crack cocaine	58 (10%)
Powder cocaine	73 (12%)

Characteristic	n (%)
Methamphetamine	238 (39%)
Heroin	477 (79%)
Opiate prescription medication	69 (11%)
<b>Injection frequency, last 30 days</b>	
Less than once a day	298 (49%)
Once or twice a day	169 (28%)
Three times or more a day	138 (23%)
<b>Years of drug injection</b>	
<10 years	91 (16%)
10 to 19 years	98 (16%)
20 or more years	396 (68%)
<b>Initiation of non-injectors</b>	
Ever	212 (35%)
Last 12 months	44 (7%)

**Table 2**

Bivariate factors associated with initiating someone into drug injection in the last 12 months among people who inject drugs in Los Angeles and San Francisco, California (N=605)

Variable	Initiation in last 12 mos (n=44) n (%)	No initiation in last 12 mos (n=561) n (%)	p=
Recruitment City			0.04
Los Angeles	29 (66%)	279 (50%)	
San Francisco	15 (34%)	282 (50%)	
Age cohorts (born in)			0.001
Pre-1960s	15 (34%)	250 (45%)	
1960s	10 (23%)	172 (31%)	
1970s	5 (11%)	78 (14%)	
1980s or later	14 (32%)	61 (11%)	
US Born - Yes	39 (89%)	538 (96%)	0.05
Income source, last 30 days			
Spouse you live with	8 (18%)	36 (6%)	0.01
Illegal or possibly illegal source	25 (57%)	210 (37%)	0.02
Panhandling	20 (46%)	149 (27%)	0.01
Steady sex partner is a PWID – Yes	21 (48%)	151 (27%)	0.005
Paying sex partner in the last 6 months – Yes	11 (25%)	70 (13%)	0.04
Paying sex partner is a PWID – Yes	8 (18%)	44 (8%)	0.04
Non-injection drug use, last 30 days			
Powder cocaine	12 (27%)	42 (8%)	<0.0001
Marijuana	32 (73%)	302 (54%)	0.02
Injected 2 or more drugs, last 30 days – Yes	25 (57%)	218 (39%)	0.03
Injection frequency, last 30 days			0.02
Less than once a day	13 (30%)	285 (51%)	
Once or twice a day	18 (41%)	151 (26%)	
Three times or more a day	13 (30%)	125 (21%)	
Years of injection			0.005
<10	15 (35%)	76 (14%)	
10–19	4 (9%)	94 (17%)	
20 or more	24 (56%)	372 (69%)	
Any public injection, last 30 days – Yes	33 (75%)	285 (51%)	0.003
Injected other person in last 30 days – Yes	28 (64%)	146 (26%)	<0.0001

Variable	Initiation in last 12 mos (n=44) n (%)	No initiation in last 12 mos (n=561) n (%)	p=
Injected by another person, last 30 days – Yes	17 (39%)	124 (22%)	0.02
Inject in front of non-injectors in the last 12 months Yes	30 (68%)	203 (36%)	<0.0001
Ever described injection to non-injector – Yes	33 (75%)	195 (35%)	<0.0001
Likelihood of initiating in the future Yes	29 (66%)	110 (20%)	<0.0001

**Table 3**

Multivariate analysis of factors associated with initiating someone into injection drug use in the last 12 months (N=605)

<b>Variables</b>	<b>Adjusted odds ratio</b>	<b>95% Confidence Interval</b>
Likelihood of initiating in the future		
No	Referent	
Yes	7.09	(3.40, 14.79)
Non-injection cocaine use, last 30 days		
No	Referent	
Yes	4.97	(2.08, 11.84)
Injected others – ‘Street doc’		
No	Referent	
Yes	4.05	(1.94, 8.47)
Study Site		
San Francisco	Referent	
Los Angeles	3.20	(1.52, 6.71)
Ever described injection to a non-injector		
No	Referent	
Yes	2.76	(1.28, 5.93)