



Correlates of risky injection practices among past-year injection drug users among the US general population

Lauren R. Ropelewski^{a,*}, Brent E. Mancha^b, Alicia Hulbert^c, Abby E. Rudolph^d, Silvia S. Martins^e

^a Johns Hopkins University Bloomberg School of Public Health, Department of Mental Health, 2213 McElderry Street, Suite 437, Baltimore, MD 21205, USA

^b Johns Hopkins University Bloomberg School of Public Health, Department of Mental Health, 2213 McElderry Street, Suite 413, Baltimore, MD 21205, USA

^c Johns Hopkins University School of Medicine, Department of Oncology, 1650 Orleans St., Suite 541, Baltimore, MD 21231, USA

^d Johns Hopkins University Bloomberg School of Public Health, Department of Epidemiology, 2213 McElderry Street, Suite M435, Baltimore, MD 21205, USA

^e Johns Hopkins University Bloomberg School of Public Health, Department of Mental Health, 624 N. Broadway, 8th Floor, Suite 896, Baltimore, MD 21205, USA

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ABSTRACT

Background: With an estimated 1 million active injection drug users (IDUs), injection drug use continues to be a public health concern in the United States. Risky injection practices have been associated with the transmission of HIV, Hepatitis B and C, as well as other skin and soft tissue infections.

Methods: We used data from 463 respondents, aged 18 and older, who were past-year IDUs in the 2005–2008 National Survey of Drug Use and Health (NSDUH). We investigated correlates of risky injection behavior among these recent IDUs.

Results: Older age (≥ 35 versus 18–25) was associated with reusing one's own needle at last injection (aOR = 1.80 [1.02–3.17]), as were past year heroin (aOR = 2.59 [1.18–5.66]) and cocaine injection (aOR = 2.17 [1.13–4.15]). Past year crack cocaine use was positively associated with not cleaning needles with bleach (aOR = 2.18 [1.10–4.33]). Past year cocaine injection was associated with obtaining needles in a risky manner (aOR = 2.29 [1.23–4.25]). Methamphetamine injection was associated with obtaining needles in less risky ways (aOR = 0.41 [0.20–0.84]).

Conclusion: Our findings indicate that some IDUs are continuing to engage in high risk injection behaviors. The identification of potential at-risk populations of IDUs may have implications for harm reduction interventions and HIV prevention programs.

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1. Introduction

Approximately 1 million people in the United States are active injection drug users (IDUs) (Centers for Disease Control and Prevention, 2001a; Gibbs et al., 1991). Oftentimes injection drug use comes with many serious health risks. One of the most prominent and well-recognized health risks is the transmission of human immunodeficiency virus (HIV), which is transmitted via injection when IDUs share needles and injection equipment (i.e., cookers, cotton, tourniquets, etc.) contaminated with infected blood (Centers for Disease Control and Prevention, 1987). Since the 1980s, injection drug use has accounted for 36% of the acquired immunodeficiency syndrome (AIDS) cases in the United States (Centers for Disease Control and Prevention, 2002a). Despite evidence that the incidence of HIV among IDUs has declined since the 1980s (Centers for Disease Control and Prevention, 2009), a significant proportion of HIV cases can still be attributed to injection drug use. Of the

56,300 new cases of HIV reported in the United States annually, 12% are related to injection drug use (Centers for Disease Control and Prevention, 2008; Centers for Disease Control and Prevention, 2010).

In addition to HIV/AIDS, other infectious diseases are associated with and transmitted by injection drug use. Due to shared routes of transmission, Hepatitis B virus (HBV) and Hepatitis C virus (HCV) are common among IDUs (Homann et al., 1991; Sherman et al., 2002), with 50–70% and 50–80% of IDUs becoming infected with HBV and HCV, respectively, within the first 5 years of initiating injection drug use (Centers for Disease Control and Prevention, 2002b). The prevalence of HCV among IDUs has been estimated to be between 50 and 90% (Centers for Disease Control and Prevention, 2005; Hahn et al., 2002; Des Jarlais et al., 2009). Similarly, persistent risk behaviors in IDUs, like sharing injection equipment, can at least partly account for HCV transmission among IDU populations (Hagan and Des Jarlais, 2000).

Sex differences in risky injection behaviors have been reported among both established and novice IDU populations. In some studies, females were more likely to report needle-borrowing at some point in their lifetime (Montgomery et al., 2002), even after control-

* Corresponding author. Tel.: +1 410 502 9501; fax: +1 410 955 0237.
E-mail address: lropelew@jhsph.edu (L.R. Ropelewski).

ling for number of years injecting (Evans et al., 2003). Frajzyngier et al. (2007) found that, at the time of first injection episode, females were more likely than males to share a needle or other drug preparation equipment. Conversely, other studies found that females exhibit more protective behaviors, for example, obtaining needles from safe sources such as needle exchange programs, carrying their own needles with them less frequent needle sharing, less frequent shooting gallery attendance, and fewer injection equipment-lending behaviors (Montgomery et al., 2002; Latkin and Forman, 2001; Bennett et al., 2000).

Other factors have been associated with injection behaviors that increase risk for contraction of HIV/AIDS and other infectious diseases. In some instances, the specific type of drug that is injected has been associated with risky injection behaviors. The injection of cocaine, or forms of “speed” like methamphetamine, have been associated with increased frequency of injection and greater likelihood of using previously used or contaminated needles (Anthony et al., 1991). Additionally, Molitor et al. (1999) found that IDUs injecting methamphetamine were more likely to borrow used needles and lend used needles to other injectors, and less likely to always disinfect used needles with bleach. Concurrent crack cocaine use has also been associated with increased HIV risk behaviors. IDUs who smoke crack are more likely to report injection risk behaviors than IDUs who inject only, such as unsafe needle acquisition (e.g., obtaining needles in shooting galleries, from someone selling needles on the street, etc.), needle sharing (Golub et al., 2005), and greater amounts of injection drug use, overall (Booth et al., 1993). McCoy et al. (2004) found that compared with those who neither injected nor smoked crack, individuals that smoked crack and injected were 5.27 times as likely to be HIV seropositive. Additionally, demographic factors like low socioeconomic status can increase exposure to risk conditions, as well as introduce individuals to risky drug-use behaviors, which place individuals at risk for contracting HIV and other infectious diseases (Blankenship et al., 2005).

A great deal of intervention work with high risk groups like IDUs has been conducted within the past few decades. Some studies show that risky injection behaviors have been decreasing over time within this population (Roy et al., 2007; Nelson et al., 2002; Des Jarlais et al., 2000), while others indicate that a steady decline in injection risk may not be a reality (Mehta et al., 2006; Burt et al., 2007). Other studies have highlighted sub-populations of highly marginalized IDUs who need more targeted interventions to promote risk reduction (Rudolph et al., 2010). Regardless, it is apparent that some IDUs are still engaging in high risk behaviors. A better understanding of the demographics of injectors that continue to engage in high risk injection practices can aid in the development of finer-tuned interventions directed at those individuals previously missed. The present paper aims to examine whether demographic and drug use characteristics are associated with high risk injection behaviors that consequently increase the risk for disease transmission and other health complications among a nationally representative sample of recent injectors.

2. Methods

2.1. Sample and measures

Data came from the 2005 ($n = 55,905$), 2006 ($n = 55,279$), 2007 ($n = 55,435$) and 2008 ($n = 55,739$) National Survey on Drug Use and Health (NSDUH) public use data files. Four consecutive years were combined to increase sample size. Of the 222,358 participants surveyed, 72,561 were excluded because they were younger than age 18, and an additional 149,334 participants were excluded because they were not past-year injection drug users, leaving 463 partici-

pants for this analysis. The NSDUH is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) and is designed to provide estimates of the prevalence of extra-medical use of legal drugs and illegal drugs in the household population of the United States, age 12 and older (Substance Abuse and Mental Health Services Administration, 2006–2009). The survey employs a 50 state design with an independent multistage area probability sample for each of the 50 states and the District of Columbia. To increase the precision of estimates, African-Americans, Hispanics, and young people were oversampled. Response rates for completed surveys were 76%, 74%, 74%, and 74.4% in 2005, 2006, 2007, and 2008, respectively.

Informed consent was obtained prior to the start of every interview. Participants were given a description of the study, then instructed to read a statement that described the legislation that assures the confidentiality of any information provided by the participant, and assured that participation in the study was strictly voluntary. To protect the confidentiality of respondents, the full analytic files were treated using a statistical disclosure limitation known as Micro Agglomeration, Substitution, Sub-sampling, and Calibration (MASSC). All directly identifying information on file was eliminated. Census, region, state, and other geographic identifiers were removed; allowing for protection of confidentiality, while still allowing most variables to be available for analysts to use. Additional information on maintenance of data confidentiality has been reported elsewhere (Substance Abuse and Mental Health Services Administration, 2006–2009). Survey items were administered by computer-assisted personal interviewing conducted by an interviewer (CAPI) and audio computer-assisted self-interviewing (ACASI). Use of ACASI was designed to provide respondents with a highly private and confidential means of responding to questions and to increase the level of honest reporting of illegal drug use and other sensitive behaviors (Substance Abuse and Mental Health Services Administration, 2006–2009; Macalino et al., 2002). Respondents were offered a US \$30 incentive payment for participation. All respondents provided information about their drug use, injecting practices and demographics. This secondary data analysis was approved by the Johns Hopkins University Institutional Review Board.

Sampling weights for the NSDUH were computed to control unit-level and individual-level non-response and were adjusted to ensure consistency with population estimates obtained from the US Census Bureau. In order to use data from the four years of combine data, a new weight was created upon aggregating the four datasets by dividing the original weight by the number of data sets combined. Further descriptions of the sampling methods and survey techniques for the 2005–2008 NSDUH are found elsewhere (Substance Abuse and Mental Health Services Administration, 2006–2009).

2.2. Demographic variables

Socio-demographic variables selected for this analysis were age, sex, race/ethnicity, educational attainment, population density, and marital status. We focused only on adult respondents (aged 18 and older). Age was categorized into approximate tertiles (18–25, 26–34, >35). Race/ethnicity was dichotomized as “white” and “non-white” due to the small number of respondents reporting a race/ethnicity other than white (i.e., black/African American, Native American/Alaska Native, Native Hawaiian/other Pacific Islander, Asian, more than one race, Hispanic). Educational attainment was categorized as “less than a high school diploma” or “high school or more” (Latkin et al., 2009; Huo and Oullet, 2007; Mitchell and Latimer, 2009). Population density was examined by looking at “large metropolitan areas”, or core-Based Statistical Classification Area (CBSA) with 1 million or more persons, “small

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