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Increasing methamphetamine injection among non-MSM who inject drugs in King County, Washington

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ABSTRACT

Background: In King County, Washington, the HIV prevalence among men who have sex with men (MSM) who inject methamphetamine is high, while it is low among other people who inject drugs (PWID). Local drug problem indicators suggest that methamphetamine use is increasing. The extent to which this increase affects MSM and non-MSM, and whether MSM and non-MSM networks are connected through injection equipment sharing, is unknown.

Methods: We used data from two serial cross-sectional surveys of PWID including five biannual surveys of Public Health–Seattle and King County Needle and Syringe Exchange Program clients (NSEP, N = 2135, 2009–2017) and three National HIV Behavioral Surveillance IDU surveys (NHBS, N = 1709, 2009–2015).

Results: The proportion of non-MSM PWID reporting any recent methamphetamine injection increased significantly from approximately 20% in 2009 to 65% in 2017. Most of this increase was attributable to injecting methamphetamine in combination with heroin (goofballs). PWID who injected goofballs were more likely to be younger, homeless or unstably housed, report daily injection, and self-report an opioid overdose in the past year than other PWID. The majority of PWID who injected methamphetamine reported sharing any injection equipment. Among these PWID, 43% of MSM had last shared injection equipment with a non-MSM. Eight percent of non-MSM men and 15% of women had last shared equipment with an MSM.

Conclusions: Given non-trivial rates of sharing injection equipment with methamphetamine-using MSM, a population with an HIV prevalence of 40%, non-MSM who inject methamphetamine could be an emerging population at risk for acquiring HIV.

1. Introduction

A notable success in HIV prevention has been the substantial decrease in HIV/AIDS incidence among people who inject drugs (PWID) in the United States. The number of AIDS diagnoses among PWID peaked in 1993 at approximately 23,000 new diagnoses and by 2016 had declined by nearly 90% (Centers for Disease Control et al., 2017a). This is in contrast to an approximate 70% decline in AIDS cases among men who have sex with men (MSM) during the same time period (Centers for Disease Control and Prevention;Viral Hepatitis, Sexual Transmitted Diseases and Tuberculosis Prevention, Division of HIV/AIDS Prevention, 2017). In addition to the use of antiretroviral therapy, this reduction in risk among PWID is likely due to expanded harm reduction services like needle and syringe exchange programs (NSEP), decreased needle and syringe sharing among PWID, and decreased transmission risk from HIV-infected persons due to antiretroviral therapy (Aspinall et al., 2014; Burt and Thiede, 2016; Montaner et al., 2010). However, the recent HIV outbreak among PWID injecting pharmaceutical opioids in Scott County, Indiana, demonstrated the ongoing potential for explosive transmission when HIV is introduced in the context of injection equipment sharing and uncontrolled HIV viral load (Peters et al., 2016).

Despite the overall reduction in new HIV diagnoses among PWID, in some U.S. jurisdictions HIV risk has been strongly associated with methamphetamine use (both injection and non-injection use) among men who have sex with men (MSM) (Buchacz et al., 2005; Plankey et al., 2007; Thiede et al., 2009). For example, in King County, Washington, HIV prevalence among MSM who have used methamphetamine in the past year is

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approximately 40%, which is higher than any other subgroup (Glick et al., 2016, 2015). This is in contrast to the prevalence among all MSM (15–20%) and non-MSM and women who inject drugs (~3%) (Glick et al., 2016). Moreover, methamphetamine use has been associated with lower levels of viral suppression among HIV-infected persons (Fairbairn et al., 2011; Feldman et al., 2015).

There have been recent signals of increased methamphetamine use in King County, Washington. The number of methamphetamine-involved overdose deaths, the number of police cases involving methamphetamine, and wastewater measures have all indicated an increase in methamphetamine use (Banta-Green et al., 2016). Recently published data from Denver also reported an increase in methamphetamine use over the past decade, especially methamphetamine injected with heroin (goofballs) (Al-Tayyib et al., 2017). However, these reports have not indicated if the increase in methamphetamine use was among MSM, where use has historically been concentrated in King County, or among non-MSM. An increase in methamphetamine use among MSM would suggest the need for more targeted HIV prevention efforts. An increase in methamphetamine use among non-MSM men and women – particularly in the context of injection equipment sharing – could predict an emerging population at risk for HIV.

1.1. Aims

To identify the populations in which methamphetamine use is increasing and the potential of HIV transmission risk across MSM and non-MSM networks, we investigated temporal trends in methamphetamine use and injection equipment sharing in King County among MSM and non-MSM who inject drugs. We also evaluated characteristics of people who inject methamphetamine – alone and in combination with other drugs – as well as characteristics of recent equipment sharing partners.

2. Methods

2.1. Data and measures

We analyzed data from two serial, cross-sectional surveys of PWID in King County.

2.1.1. Public Health – Seattle and King County Needle and Syringe Exchange Program Survey (NSEP)

This is an attempted census of NSEP clients that has been conducted on an approximately biannual basis since 2003. Survey methods and cross-sectional findings from earlier surveys have been published elsewhere (Cedarbaum and Banta-Green, 2016; Jenkins et al., 2011; Peavy et al., 2012). Briefly, over a two week period in early summer, NSEP staff attempted to invite every client seeking services at the NSEP to participate. There were no other inclusion or exclusion criteria. The survey includes questions about client demographics, drug use and drug-related behaviors, sexual behavior, and health conditions and needs. Interviewers administered the surveys by reading aloud each question and recording responses on paper (2003–2013 surveys) or directly into a laptop computer or tablet using REDCap (Research Electronic Data Capture) electronic data capture tools (2015–2017 surveys) (Harris et al., 2009). The survey is anonymous and most clients completed it in about 10 min. Clients were offered a piece of candy for their participation. When collected, participation rates have ranged from 51% to 82%. (These response rates are likely underestimates since NSEP clients may have been approached multiple times to participate. Given the anonymous nature of the survey, there was no way to link participation data for participants who initially declined but later agreed to participate.) Because the NSEP survey was conducted for purposes of public health surveillance and program evaluation, and did not include any identifiable data, it was not considered human subjects research and it did not require IRB approval.

For this analysis, we used data from the five most recent surveys – 2009, 2011, 2013, 2015, 2017–due to the inclusion of questions about gender of sexual partners and methamphetamine use. Participants were asked about the gender of their sex partners in the past year: male, female, both male and female, or no sex in the past year. Clients were defined as MSM if they reported male gender and any male partners in the past year. To measure recent methamphetamine injection, we used responses from a series of questions that asked clients about the drugs they had injected in the past 3 months (2011–2017) or since the beginning of the year (2009 only; surveys are typically conducted in June, so this would equate to approximately 5–6 months). The questions asked about both injecting methamphetamine alone and in combination with heroin. To measure any methamphetamine injection, we included any reported methamphetamine injection, either alone or in goofballs. There were separate questions that asked about the number of persons with whom a client shared syringes or other injection sharing equipment (cottons, cookers, or rinse water) in the past 3 months. If clients reported sharing any injection equipment with one or more other people, we classified them as sharing. The survey also included questions about client demographics (age, race/ethnicity), current housing status, average number of injections per day, and any self-reported opioid overdose in the past 12 months.

2.1.2. Seattle-Area National HIV Behavioral Surveillance Injection Drug Use Survey (NHBS-IDU)

NHBS is a CDC-funded surveillance system of HIV and risk behaviors, and we used data from the three most recent NHBS-IDU cycles conducted in the Seattle area (2009, 2012, 2015). NHBS-IDU survey methods have been previously described (Burt et al., 2017; Burt and Thiede, 2014, 2012). Briefly, participants were recruited using respondent-driven sampling, a coupon-based incentivized peer referral method. To be eligible for the NHBS-IDU cycles, participants must have been age 18 years or older, a resident of King or Snohomish Counties, able to complete the survey in English, alert enough to complete the survey, and reported any injection drug use in the past 12 months. Trained interviewers administered the 60-90-min anonymous behavioral survey, which included questions about participant demographics, drug use and drug-related behaviors, sexual behaviors, and health conditions including HIV and hepatitis C. Participants received $50 for completing the survey and an HIV test, and an additional $10 for each other eligible participant recruited. All survey procedures were approved by the Washington State Institutional Review Board (IRB). The data used in the analysis did not include any identifiers, thus this analysis did not require IRB approval.

The measures used from NHBS-IDU were very similar to those in the NSEP surveys, although the time frame for most questions was 12 months as opposed to 3 months. Participants were asked separately about their number of male and female sex partners in the past 12 months and categorized as MSM if they identified as male and reported any male partners in the past year. The survey included questions about the frequency of individual drug and drug combinations injected in the past 12 months, which allowed us to measure any methamphetamine injection. The NHBS-IDU survey did not include a question specifically about goofball injection. Syringe and other equipment sharing in the past 12 months were measured in separate questions. In the NHBS-IDU surveys, there was a module regarding the participant's most recent injection equipment sharing partner, which included questions about that person's gender and whether that person was ever a MSM. For this analysis, we also included questions on participant demographics (age, race/ethnicity), current housing status, average number of injections per day, and overdose in the past 12 months.

2.2. Analysis

Participants who did not answer questions about their gender or the gender of their sex partners were excluded from analysis (32 in the