HHS Public Access

Author manuscript

J Psychoactive Drugs. Author manuscript; available in PMC 2016 March 07.

Published in final edited form as:

J Psychoactive Drugs. 2014 ; 46(3): 208–214. doi:10.1080/02791072.2014.915363.

Correlates of Having Never Been HIV Tested Among Entrants to Substance Abuse Treatment Clinics: Empiric Findings from Real-World New England Settings

Jeanne J. Chadwick, Ph.D., M.P.H.[1], **Leonardo F. Andrade, Ph.D.**[2], **Frederick L. Altice, M.D., M.A.**[3,4], and **Nancy M. Petry, Ph.D.**[2,*]

[1]Eastern Connecticut State University, Department of Biology, Willimantic, CT, USA

[2]University of Connecticut School Medicine, Calhoun Cardiology Center, Farmington, CT, USA

[3]Yale University School of Medicine, Infectious Diseases Section, AIDS Program, New Haven, CT, USA

[4]Yale University School of Public Health, Division of Epidemiology of Microbial Diseases, New Haven, CT, USA

Abstract

Routine testing is the cornerstone to identifying HIV, but not all substance abuse treatment patients have been tested. This study is a real-world evaluation of predictors of having never been HIV tested among patients initiating substance abuse treatment. Participants (N=614) from six New England clinics were asked whether they had ever been HIV tested. Eighty-five patients (13.8%) reported having never been tested and were compared to those who had undergone testing. Clinic, male gender (adjusted odds ratio (AOR)=1.91, 95% confidence interval (CI)=1.07-3.41) and having fewer employment (AOR=0.31; 95% CI=0.11-0.88) and medical problems (AOR=0.40, 95% CI=0.17-0.99) were independently correlated with having never been HIV tested. Thus, there is still considerable room for improved testing strategies as a clinically significant minority of substance abuse patients have never undergone HIV testing when they initiate treatment.

Keywords

substance abuse treatment; HIV; HIV testing; clinical settings

Approximately 20% of people living with HIV/AIDS in the United States are unaware of their HIV status because they have never been tested (Gardner, McLees, Steiner, Del Rio, & Burman, 2011). Persons living with HIV/AIDS are the only ones who can transmit HIV, and those who are unaware of being HIV-infected contribute to the majority of new HIV infections (Centers for Disease Control, 2008; Marks, Crepaz, & Janssen, 2006; Marks, Crepaz, Senterfitt, & Janssen, 2005). As a result, the Centers for Disease Control (CDC) and

*To whom all correspondence should be addressed. Nancy M. Petry, Professor, Calhoun Cardiology Center, University of Connecticut School of Medicine, 263 Farmington Avenue, Farmington, CT 06030-3944. Phone: 860-679-2593; Fax: 860-679-1312, npetry@uchc.edu.

Prevention (CDC, 2011) recommends routine HIV testing in a number of settings, including substance abuse treatment programs that serve individuals at high risk for contracting HIV (Branson et al., 2006; Metsch et al., 2012; Substance Abuse and Mental Health Service Administration (SAMHSA), 2011; Winstanley, Gust, & Strathdee, 2006). Although the CDC encourages all substance abuse treatment clinics to support routine HIV testing, not all patients entering treatment get tested. Examination of characteristics of real-world substance abuse treatment patients who have not undergo HIV testing are needed to better inform enhanced testing efforts that directly target this population.

While clinics likely vary in their proclivity to encourage and facilitate testing, individual or patient factors can also affect propensity to receive HIV testing. Some, but not an exhaustive list of such characteristics, include age, race/ethnicity, income and education. Age, for example, impacts the likelihood of being HIV tested, with younger individuals, especially those under age 24, being least often tested (Anderson, Chandra, & Mosher, 2005; CDC, 2011; Robinson, Sanders, & Boyd, 2012; Rountree, Chen, & Brown, 2009). African Americans account for nearly half of all new HIV infections (Hall et al., 2008; Prejean et al., 2011) and are a primary focus for HIV testing efforts; as a result, African Americans are more likely to undergo testing than Whites or Hispanics (Anderson et al., 2005; CDC, 2008; Robinson et al., 2012; Rountree et al., 2009). African American males undergo HIV testing more frequently than males of other racial/ethnic groups, and also at higher rates than white females (Robinson et al., 2012; Rountree et al., 2009). Hispanic females, however, have higher testing rates than Hispanic males and white females (Robinson et al., 2012; Rountree et al., 2009). Income and education have also been positively associated with HIV testing in some studies (Robinson et al., 2012; Rountree et al., 2009), but not others (Petroll et al., 2008).

Unfortunately, many individuals with substance use disorders do not undergo HIV testing until they become clinically symptomatic and present with late stage disease in hospitalized settings. Approximately 40% of HIV diagnoses are made after the disease has progressed to the point at which the person has advanced HIV infection, or acquired immune deficiency syndrome (AIDS) (Castilla et al., 2002; Dybul et al., 2002; Klein, Hurley, Merrill, & Quesenberry, 2003). As a result, symptomatic patients with substance use disorders or those who have health concerns may be more likely to undergo HIV testing than their asymptomatic counterparts (Anderson et al., 2005; Bond, Lauby, & Batson, 2005).

In sum, a number of patient factors appear to impact HIV testing rates in patients with substance use disorders. Early testing and treatment can substantially decrease HIV-related morbidity and mortality (Castilla et al., 2002; Denison, O'Reilly, Schmid, Kennedy, & Sweat, 2008), and knowledge of HIV status is strongly associated with reductions in risk behaviors that result in HIV transmission to others (Marks et al., 2005, 2006). Thus, a better understanding of characteristics associated with non-testing is important to target enhanced testing strategies to the patient subgroups least likely to have undergone HIV testing.

Evaluation of these associations in real-world substance abuse treatment clinics is critical, as these settings are where many high-risk individuals access services. Most assessments of HIV testing has been conducted in opioid substitution programs such as in methadone

clinics (SAMSAH, 2010), but substantially more patients each year enter psychosocial substance abuse treatment programs (SAMSAH, 2012). The purpose of this retrospective analyses was to examine, in an exploratory manner, variables potentially associated with never having been HIV tested among patients initiating outpatient psychosocial (i.e., non-methadone) community-based substance abuse treatment.

Methods

Study Participants

This study analyzed combined data from individuals from four randomized controlled trials (*N*=614) (Petry et al., 2004; Petry, Alessi, Marx, Austin, & Tardif, 2005; Petry et al., 2006; Petry, Weinstock & Alessi, 2011), each comparing the effects of an enhanced behavioral treatment versus standard care in treating substance use disorders. The studies were conducted across six New England clinics, all of which were located in large urban areas and provided similar types and levels of care. The treatment modality in each clinic was almost exclusively group-based and included cognitive-behavioral, daily planning and 12-step therapies. Each clinic provided intensive outpatient treatment and aftercare programming. Consistent across all studies, inclusion criteria included age ≥18 years, past-year diagnosis of cocaine, opioid or alcohol abuse or dependence, and English-speaking. Exclusion criteria included severe cognitive impairment, major uncontrolled psychiatric disorders (e.g., psychosis, bipolar), and in recovery from pathological gambling. The studies were also similar in assessments administered. Criteria for study entry and basic demographics did not differ among patients in all four trials, thereby providing rationale for combining studies for the purposes of these analyses. All participants provided written informed consent, approved by the University Institutional Review Board.

Study Sites

All six clinics were located in urban areas, such Hartford and New Haven, CT, but the clinics are not mentioned specifically by name or location to preserve anonymity. Information about the six clinics where recruitment was conducted is presented in Table 1.

Evaluations

Data for this study were derived from the baseline evaluation, consisting of demographic information, including questions about HIV testing, drug use and treatment histories, and checklists related to substance use modules of the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (First, Spitzer, Gibbon, & Williams, 1996). The Addiction Severity Index (ASI) (McLellan et al., 1985) assessed psychosocial functioning in seven domains: alcohol use, drug use, medical, employment, legal, family/social relationships, and psychiatric. Scores range from 0 to 1, with higher scores indicating more severe problems for each domain. The HIV Risk Behavior Scale (HRBS) evaluated lifetime sexual and drug use risk behaviors. Total scores range from 0 to 55; drug use and sexual risk subscales range from 0 to 30 and 0 to 25, respectively, with higher scores associated with increased risk behaviors. The reliability and validity of the HRBS have been previously documented (Darke, Hall, Heather, Ward, &

Wodak, 1991; Kelley & Petry, 2000; Petry, 2001; Petry, Weinstock, Alessi, Lewis, & Dieckhaus, 2010).

Data Analysis

During the baseline assessment of the parent studies, participants were asked if they were HIV-positive. Participants who reported being HIV-positive (n = 37, 6.0%) were excluded from further analyses because this group is likely to alter risk and other behaviors in response to their HIV status (Marks et al., 2005, 2006). Those who reported not being HIV-positive (or unaware of their status) were asked if they had ever been tested for HIV. Participants who reported having never been HIV tested were compared to those who had undergone HIV testing with respect to demographic and drug use characteristics using independent *t*-tests, Mann Whitney U tests and χ^2 tests, as appropriate given the nature and distribution of the variables. Some individuals may have undergone HIV testing but never received the results of the test; for the purposes of these analyses, these individuals were classified as having been tested. Detailed information about whether (or why) patients never received results of tests was not collected as part of the studies.

A logistic regression evaluated correlates of never having been HIV tested, with testing status as the dependent variable. Variables that differed significantly at $p < 0.05$ between those who had never been tested for HIV and those who had previously tested negative were included as independent variables in the model. These variables included clinic, gender, race, income, years of alcohol use, and three ASI scores: medical, employment and psychiatric. Clinic, gender, and race were entered as categorical variables and the others as continuous variables. Odds ratios and 95% confidence intervals are presented for variables significantly associated with not having ever been tested for HIV. Analyses were conducted in SPSS v. 15.

Results

Table 2 compares demographic and drug use characteristics of study participants based on their previous HIV testing status. Overall, 85 (13.8%) of the 614 participants entering treatment reported never having been tested for HIV. In the bivariate analysis, several individual and structural characteristics were associated with testing status. Participants from Clinic B were less likely to have been previously HIV tested compared to participants from the other clinics. Relative to those who had been tested, those not having been tested were more likely to be male, Caucasian, and to report longer durations of regular alcohol use, have higher incomes and lower ASI employment scores. Participants who had never been HIV tested had lower ASI medical scores and higher ASI psychiatric scores than participants who had been tested. There were no differences in drug use diagnoses, severity of substance use problems, or HIV risk behaviors between those who reported having never been HIV tested and those who had.

In the logistic regression analysis evaluating unique and independent correlates of having never been HIV tested, only four variables remained significant (Table 3). Participants from Clinic B were 13.6 times more likely than those from Clinic F to have never been HIV tested at time of initiating a substance abuse treatment episode. Males were almost twice as

likely as females to have never been tested. Finally, those with fewer medical and employment problems, as assessed by the ASI, were significantly less likely to have ever been tested for HIV than those with more severe medical or employment difficulties. The model was significant, χ^2 (13) = 113.12, $p < .001$, with 86.5% of cases correctly identified.

Discussion

Previous HIV testing was high among this large sample of individuals entering community-based substance abuse treatment clinics in New England, with nearly 86% of patients reporting prior HIV testing. Compared to only 46% of patients initiating buprenorphine maintenance therapy in primary care settings (Edelman et al., 2012) and 70% of those in the National Institute on Drug Abuse Clinical Trials Network study (Metsch et al., 2012), this sample of participants entering New England-based substance abuse treatment clinics had remarkably higher experiences with HIV testing.

Among this sample, three individual factors were identified as significantly and independently associated with having never been previously HIV tested: gender and severity of employment and medical problems. Women are likely to have increased access to HIV testing in the setting of obstetric or gynecological visits, especially women of childbearing age, which may, in part explain the gender differences in HIV testing rates in this and other samples (Anderson & Sansom, 2007; Anderson et al., 2005; Bond et al., 2005; Nearns, Baldwin, & Clayton, 2009). Similarly, individuals with more medical problems are more likely to interface with the healthcare system, including emergency departments and inpatient hospitalization, and thereby may increase access to HIV testing (Bond et al., 2005; Nearns et al., 2009; Jenness et al., 2009; Wenzel et al., 2012).

An inverse relationship between severity of employment problems and HIV testing has not been documented previously. One potential explanation is that individuals who are more meaningfully employed may fear they will be discriminated against by their employer if testing reveals they are positive. Any hypothesis related to this finding requires further exploration, however, because employment rates did not differ between those with and without prior testing.

Individuals with substance use disorders are clearly at increased risk for HIV infection (Altice, Kamarulzaman, Soriano, Schechte, & Friedland, 2010), not only related to injection-related risk, but also due to the sexual risk associated with disinhibition from mind-altering substances as well as a number of medical, psychiatric and social co-morbidities that accelerate risk (Altice et al., 2010). As a result, substance abuse treatment settings clearly occupy an important structural setting for provision of routine HIV testing. In this sample, HIV prevalence was 6%, profoundly higher than 1% recommended by the CDC for the provision of routine, opt-out HIV testing (Branson et al., 2006). Encouraging routine HIV testing, irrespective of patient characteristics, is crucial in substance abuse treatment patients because these individuals often have limited access to routine medical care (Branson et al., 2006; Guerrero & Cederbaum, 2011; Metsch et al., 2012; Pollack & D'Aunno, 2010; SAMHSA, 2011).

These substance abuse treatment clinics differed dramatically in terms of the proportion of patients initiating treatment who had been tested previously. All six clinics were located in urban areas within close proximity to free HIV testing sites, and patients accessing treatment at them were relatively similar. Because reasons for not having been tested were not assessed in the context of this study, it is unclear why these rates were so discrepant. Further, the methods by which clinics encouraged HIV testing were not evaluated, and the extent to which patients successfully underwent testing after initiating treatment is unknown.

Although these data confirm that patient- and possibly setting-level factors contribute to varying levels of HIV testing across substance abuse patients initiating treatment, several important limitations exist. First, this study relied entirely on self-reports, which may contribute to social desirability bias responses, especially because there is the expectation that drug-using patients are at risk for HIV and should be tested routinely. Second, data on the number of prior HIV tests and the dates of previous testing were not collected. The CDC recommends annual testing for high-risk patients (Branson et al., 2006), and a significant number of previously tested participants may have been tested in the distant past or even once and not as recommended. Third, among untested participants, some may have been initiating treatment for the first time and therefore may not have had other previous opportunities for HIV testing. Fourth, the study was not originally designed to assess HIV testing rates, and it did not address reasons for refusal, difficulties accessing testing, or other explanations for not having been tested. This study also did not determine how many or why patients who underwent HIV testing did not receive results or how many of these patients underwent HIV testing after initiating substance abuse treatment. Thus, more detailed information is needed to better understand how patient and structural factors interact to influence testing.

Findings from this study cannot be generalized across all drug abuse treatment settings because these clinics did not cater services to people who inject drugs, the highest risk group for HIV among drug using populations. These clinics provided only behavioral treatments and did not include medication-assisted therapies like methadone, buprenorphine or extended-release naltrexone. Rates of testing may have differed had a wider variety of settings been included.

Numerous structural, cultural, and cognitive factors can reduce the likelihood of undergoing HIV testing (Bond et al., 2005; Guerrero & Cederbaum, 2011; Inungu, 2002; Kalichman & Simbavi, 2003; Pollack & D'Aunno, 2010; Rountree et al., 2009). Although such issues were not addressed in the present study, these data are derived from a fairly large sample of patients with substance use disorders from six clinical sites in New England. Overall rates of prior HIV testing in this sample were similar to or higher than those reported at other outpatient substance abuse treatment settings nationally (Metsch et al., 2012), and this study affirms that HIV testing among individuals with substance use disorders not only varies across clinics but appears to be related to some patient characteristics.

Despite availability of accurate, rapid and non-technical HIV testing, these results highlight that improved methods are needed to increase routine testing. Such changes can occur through implementation science and rapid cycle change teams targeting clinic staff, or

through approaches that target the individual. In either case, changes are urgently needed if public health approaches such as seek, test and treat are going to reduce the 56,000 new HIV infections expected annually in the United States. Among the 1.1 million people believed to be HIV-infected in the United States, one in five remains undiagnosed (Gardner et al., 2011).

HIV testing remains the critical first step in accessing HIV care for the individual, and current technologies that include rapid, HIV testing can be done by non-licensed staff quickly, efficiently and at low cost. If retained in care and on antiretroviral therapy, the risk of HIV transmission is markedly reduced at the community level (Anderson et al., 2005; Montaner, 2011; Montaner et al., 2010; Paltiel et al., 2005; Pollack & D'Aunno; 2010). Public health authorities have called for expanded routine HIV testing in all settings with high HIV prevalence rates (Branson et al., 2006), and the National Institute on Drug Abuse recommends routine HIV testing in individuals with substance use disorders (Volkow & Montaner, 2011). In order to achieve these goals, interventions that target the substance abuse treatment setting as well as individual patients who access treatment at these clinics are urgently needed to reduce the number of incident HIV infections.

References

Altice FL, Kamarulzaman A, Soriano VV, Schechte M, Friedland GH. Treatment of medical, psychiatric, and substance use co-morbidities in people infected with HIV who use drugs. The Lancet. 2010; 376(9738):367–387.

Anderson, JE.; Chandra, A.; Mosher, W. HIV Testing in the United States, 2002. Advance data from vital statistics. National Center for Health Statistics; Hyattsville, MD: 2005.

Anderson JE, Sansom S. HIV testing in a national sample of pregnant US women: Who is not getting tested? AIDS Care. 2007; 19(3):375–380. [PubMed: 17453572]

Bond L, Lauby J, Batson H. HIV testing and the role of individual and structural-level barriers and facilitators. AIDS Care. 2005; 17(2):125–140. [PubMed: 15763709]

Branson BM, Hansfield HH, Lampe MA, Janssen R, Taylor AW, Lyss SB, Clark JE. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. Morbidity and Mortality Weekly Report. 2006; 55(RR14):1–17. [PubMed: 16410759]

Castilla J, Sobrino P, de la Fuente L, Noguer I, Luis G, Parras F. Late diagnosis of HIV infection in the era of highly active antiretroviral therapy: Consequences for AIDS incidence. AIDS. 2002; 16(14): 1945–51. [PubMed: 12351955]

Centers for Disease Control and Prevention. HIV prevalence estimates: United States 2006. Morbidity and Mortality Weekly Report. 2008; 57:1073–1076. [PubMed: 18830210]

Centers for Disease Control and Prevention. HIV Surveillance: United States from 1981-2008. Morbidity and Mortality Weekly Report. 2011; 60(21):690–693.

Denison JA, O'Reilly KR, Schmid GP, Kennedy CE, Sweat MD. HIV voluntary counseling and testing and behavioral risk reduction in developing countries: A meta-analysis 1990-2005. AIDS and Behavior. 2008; 12(3):363–373. [PubMed: 18161018]

Darke S, Hall W, Heather N, Ward J, Wodak A. The reliability and validity of a scale to measure HIV risk-taking behavior among intravenous drug users. AIDS. 1991; 5(2):181–185. [PubMed: 2031690]

Dybul M, Bolan R, Condoluci D, Cox-Iyamu R, Redfield R, Hallahan CW, Folino M, Sathasivam K, Weisberg M, Andrews M, Hidalgo, Vasquez J, Fauci AS. Evaluation of initial CD4+ T cell counts in individuals with newly diagnosed human immunodeficiency virus by sex and race in urban settings. Journal of Infectious Diseases. 2002; 185(12):1818–21. [PubMed: 12085332]

Edelman EJ, Dinh AT, Moore BA, Schottenfeld RS, Fiellin DA, Sullivan LE. HIV-testing practices among buprenorphine-prescribing physicians. Journal of Addiction Medicine. 2012; 6(2):159–165. doi: 10.1097/ADM.0b013e31824339fc. [PubMed: 22367499]

First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JB. Structured Clinical Interview for DSM-IV Axis I Disorders (Clinician Version). American Psychiatric Press; Washington, DC: 1996.

Gardner EM, McLees MP, Steiner JF, Del Rio C, Burman WJ. The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. Clinical Infectious Diseases. 2011; 52(6):793–800. [PubMed: 21367734]

Guerrero EG, Cederbaum JA. Adoption and utilization of sexually transmitted infections testing in outpatient substance abuse treatment facilities serving high risk populations in the U.S. International Journal of Drug Policy. 2011; 22(1):41–48. [PubMed: 20970314]

Hall H, Song R, Rhodes P, Prejean J, An Q, Lee LM, Karon J, Brookmeyer R, Kaplan EH, McKenna MT, Janssen RS. Estimation of HIV incidence in the United States. Journal of the American Medical Association. 2008; 300(5):520–529. [PubMed: 18677024]

Inungu JN. Potential barriers to seeking human immunodeficiency virus testing among adults in the United States: data from the 1998 National Health Interview Survey. AIDS Patient Care and STDs. 2002; 16(6):293–299. [PubMed: 12133264]

Jenness SM, Murrill CS, Liu KL, Wendel T, Begier E, Hagan H. Missed opportunities for HIV testing among high-risk heterosexuals. Sexually Transmitted Diseases. 2009; 36(11):704–710. [PubMed: 19652632]

Kalichman SC, Simbayi LC. HIV testing attitudes, AIDS stigma, and voluntary HIV counseling and testing in a black township in Cape Town, South Africa. Sexually Transmitted Infections. 2003; 79(6):442–447. [PubMed: 14663117]

Kelley JL, Petry NM. HIV risk behaviors in male substance abusers with and without antisocial personality disorder. Journal of Substance Abuse Treatment. 2000; 19(1):59–66. [PubMed: 10867302]

Klein D, Hurley LB, Merrill D, Quesenberry CP Jr. Review of medical encounters in the 5 years before a diagnosis of HIV-1 infection: implications for early detection. Journal of Acquired Immune Deficiency Syndrome. 2003; 32(2):143–152.

Marks G, Crepaz N, Janssen RS. Estimating sexual transmission of HIV from persons aware and unaware that they are infected with the virus in the USA. AIDS. 2006; 20(10):1447–1450. [PubMed: 16791020]

Marks G, Crepaz N, Senterfitt JW, Janssen R. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the US: Implications for HIV prevention programs. Journal of Acquired Immune Deficiency Syndrome. 2005; 39(4):446–453.

McLellan AT, Luborsky L, Cacciola J, Griffith J, Evans F, Barr HL, O'Brien CP. New data from the Addiction Severity Index: Reliability and validity in three centers. The Journal of Nervous and Mental Diseases. 1985; 173(7):412–423.

Metsch LR, Feaster DJ, Gooden L, Matheson T, Mandler R, Haynes L, Colfax GN. Implementing rapid HIV testing with or without risk-reduction counseling in drug treatment centers: Results of a randomized trial. American Journal of Public Health. 2012; 102(6):1160–1167. [PubMed: 22515871]

Montaner JS. Treatment as prevention—a double hat-trick. The Lancet. 2011; 378(9787):208–209.

Montaner JS, Lima VD, Barrios R, Yip B, Wood E, Kerr T, Shannon K, Harrigan PR, Daly P, Kendall P. Association of highly active antiretroviral therapy coverage, population viral load, and yearly new HIV diagnoses in British Columbia, Canada: A population-based study. The Lancet. 2010; 376(9740):532–539.

Nearns J, Baldwin JA, Clayton H. Social, behavioral, and health care factors associated with recent HIV testing among sexually active non-Hispanic black women in the United States. Women's Health Issues. 2009; 19(1):52–60. [PubMed: 19111788]

Paltiel AD, Weinstein MC, Kimmel AD, Seage GR, Losina E, Zhang H, Freedberg KA, Walensky R. Expanded screening for HIV in the United States— Analysis of Cost-Effectiveness. The New England Journal of Medicine. 2005; 352(6):586–595. [PubMed: 15703423]

Petroll AE, DeFranceisco W, McAuliffe TL, Seal DW, Kelly J, Pinkerton S. HIV testing rates, testing locations, and health-care utilization among African-American men. Journal of Urban Health. 2008; 86(1):119–131. [PubMed: 19067176]

Petry NM. Reliability of drug users' self-reported HIV risk behaviors using a brief, 11-item scale. Substance Use and Misuse. 2001; 36(12):1731–1747. [PubMed: 11758820]

Petry NM, Alessi SM, Carroll KM, Hanson T, MacKinnon S, Rounsaville B, Sierra S. Contingency management treatments: Reinforcing abstinence versus adherence with goal-related activities. Journal of Consulting and Clinical Psychology. 2006; 74(3):592–601. [PubMed: 16822115]

Petry NM, Alessi SM, Marx J, Austin M, Tardif M. Vouchers versus prizes: Contingency management for treatment of substance abusers in community settings. Journal of Consulting and Clinical Psychology. 2005; 73(6):1005–1014. [PubMed: 16392974]

Petry NM, Tedford J, Austin M, Nich C, Carroll KM, Rounsaville BJ. Prize reinforcement contingency management for treatment of cocaine abusers: How low can we go, and with whom? Addiction. 2004; 99(3):349–360. [PubMed: 14982548]

Petry NM, Weinstock J, Alessi SM. A randomized trial of contingency management delivered in the context of group counseling. Journal of Consulting and Clinical Psychology. 2011; 79(5):686–696. [PubMed: 21806297]

Petry NM, Weinstock J, Alessi SM, Lewis MW, Dieckhaus K. Group-based randomized trial of contingencies for health and abstinence in HIV patients. Journal of Consulting and Clinical Psychology. 2010; 78(1):89–97. [PubMed: 20099954]

Pollack HA, D'Aunno T. HIV testing and counseling in the nation's outpatient substance abuse treatment system 1995–2005. Journal of Substance Abuse Treatment. 2010; 38(4):307–316. [PubMed: 20171038]

Prejean J, Song R, Hernandez A, Ziebell R, Green T, Walker F, Lin LS, An Q, Mermin J, Lansky A, Hall HI. Estimated HIV incidence in the United States, 2006-2009. PLoS ONE. 2011; 6(8):175–182.

Robinson K, Sanders SA, Boyd JL. High-risk HIV minorities in the United States: Who gets tested and where? American Journal of Health Behavior. 2012; 36(3):348–359. [PubMed: 22370436]

Rountree MA, Chen L, Brown A. HIV testing rates and locations by race and ethnicity. Health and Social Work. 2009; 34(4):247–255. [PubMed: 19927473]

Substance Abuse and Mental Health Services Administration. The N-SSATS report: Infectious disease screening. Rockville, MD: 2010.

Substance Abuse and Mental Health Services Administration. Rapid HIV testing in Substance Abuse Treatment Facilities. 2011. Advisory 10

Substance Abuse and Mental Health Services Administration. National Survey of Substance Abuse Treatment Services (N-SSATS): 2011. Data on Substance Abuse Treatment Facilities. Rockville, MD: 2012. BHSIS Series S-64, HHS Publication No. (SMA) 12-4730

Volkow ND, Montaner JS. Enhanced HIV testing, treatment, and support for HIV-infected substance users. Journal of the American Medical Association. 2011; 303(14):1423–1424. [PubMed: 20388900]

Wenzel S, Rhoades H, Tucker JS, Golinelli D, Kennedy DP, Zhou A, Ewing B. HIV Risk Behavior and Access to Services: What predicts HIV testing among heterosexually active homeless men? AIDS Education and Prevention. 2012; 24(3):270–279. [PubMed: 22676465]

Winstanley EL, Gust SW, Strathdee SA. Drug abuse and HIV/AIDS: international lessons and imperatives. Drug and Alcohol Dependence. 2006; 82:S1–S5. [PubMed: 16769437]

Table 1

Characteristics of substance abuse treatment clinics

	Clinic					
	A	**B**	**C**	**D**	**E**	**F**
Number of full-time counselors	3	4	5	5	4	5
Evening treatment program available	No	Yes	No	Yes	Yes	Yes
Part-time medical staff (MD or RN) onsite	Yes	Yes	No	Yes	Yes	Yes
Accepts Medicaid	Yes	Yes	Yes	Yes	Yes	Yes
In operation >5 years	Yes	Yes	Yes	Yes	Yes	Yes
Affiliated with a hospital	No	Yes	No	Yes	No	Yes
Provides onsite HIV testing	No	No	No	No	Yes	No

SD = standard deviation; MD = medical doctor; RN = registered nurse

Table 2

Demographic and drug use characteristics by HIV testing status

Variable	Prior HIV testing (n = 492)	Never tested for HIV (n = 85)	Statistics, *p*
Clinic, % (n)			χ^2 (5) = 94.42, $p < .001$
Clinic A	5.5 (27)	3.5 (3)	
Clinic B	15.2 (75)	61.2 (52)	
Clinic C	20.5 (101)	16.5 (14)	
Clinic D	18.1 (89)	9.4 (8)	
Clinic E	11.8 (58)	0.0 (0)	
Clinic F	28.9 (142)	9.4 (8)	
Age	36.5 (9.2)	36.2 (8.7)	t (575) = 0.26, $p = .79$
Male gender, % (n)	50.4 (248)	65.9 (56)	χ^2 (1) = 6.96, $p < .01$
Hispanic ethnicity, % (n)	10.2 (50)	15.3 (13)	χ^2 (1) = 1.96, p =.16
Race, % (n)			χ^2 (2) = 20.4, $p < .001$
Caucasian	30.1(148)	51.8 (44)	
African-American	57.7 (284)	31.8 (27)	
Other	12.2 (60)	16.5 (14)	
Married, % (n)	12.2 (60)	18.8 (16)	χ^2 (1) = 2.78, p = .0 .10
Years of education	12.0 (1.9)	11.6 (2.1)	t (575) = 1.75, $p = .08$
Income, median (IQR)	$4,450 ($16, 910)	$9,600 ($20, 900)	U = 17477, $p = .02$
Employment status, % (n)			χ^2 (2) = 0.99, $p = .61$
Full time	49.9 (226)	55.7 (44)	
Part time	24.3 (110)	20.3 (16)	
Unemployed/other	25.8 (117)	24.1 (19)	
Cocaine dependent, % (n)	76.6 (377)	81.2 (69)	χ^2 (1) = 0.86, $p = .36$
Alcohol dependent, % (n)	52.6 (259)	50.6 (43)	χ^2 (1) = 0.12, $p = .73$
Opioid dependent, % (n)	23.0 (113)	21.4 (18)	χ^2 (1) = 0.10, $p = .76$
Years of regular use of:			
Alcohol	13.9 (10.8)	16.5 (10.2)	t (575) = −2.01, p =.05
Cocaine	9.1 (7.6)	10.5 (8.9)	t (575) = −1.59, p =.11
Heroin	1.8 (4.9)	2.2 (6.8)	t (575) = − 0.63, $p = .53$
Marijuana	7.9 (8.4)	7.6 (8.6)	t (575) = 0.37, p =.71
Times treated for alcohol, median (IQR)	1.0 (3.0)	2.0 (4.0)	U = 18923, $p = .14$
Times treated for drugs, median (IQR)	2.0 (4.0)	2.0 (5.0)	U = 20624, p =.89
Psychiatric hospitalizations, median (IQR)	0.0 (1.0)	0.0 (1.0)	U = 20852, p =.96
Ever incarcerated, % (n)	51.6 (254)	42.4 (36)	χ^2 (1) = 2.49, $p = .11$
Addiction Severity Index scores			
Medical	0.23 (0.34)	0.16 (0.30)	t (575) = 1.94, $p = .05$

Variable	Prior HIV testing (n = 492)	Never tested for HIV (n = 85)	Statistics, *p*
Employment	0.70 (0.29)	0.62 (0.31)	t (575) = 2.40, p = .02
Alcohol	0.23 (0.24)	0.24 (0.23)	t (575) = −0.64, p = .52
Drug	0.15 (0.10)	0.15 (0.10)	t (574) = 0.08, p = .94
Legal	0.14 (0.21)	0.15 (0.24)	t (574) = −0.60, p = .55
Family/social	0.18 (0.22)	0.17 (0.21)	t (572) = 0.21, p = .83
Psychiatric	0.26 (0.24)	0.32 (0.25)	t (571) = −1.95, p = .05
HIV Risk Behavior Scale			
Total score, median (IQR)	11.0 (8.0)	12.0 (7.0)	U = 20299, p = .98
Drug score, median (IQR)	0.0 (1.0)	0.0 (0.0)	U = 19774, p = .42
Sexual score, median (IQR)	10.0 (6.0)	11.0 (7.0)	U = 19594, p = .57

Values represent means (SD=standard deviations) unless otherwise indicated. IQR=interquartile range.

Table 3

Logistic regression predicting non-HIV tested status.

Variable	Beta (SE)	Wald	Significance	Odds ratio	95% Confidence interval
Clinic		47.13	$p < .001$		
Clinic A	1.17 (0.75)	2.44	$p = .12$		
Clinic B	2.61 (0.46)	31.97	$p = .00$	13.61	5.51 - 14.00
Clinic C	0.90 (0.49)	3.34	$p = .07$		
Clinic D	0.78 (0.56)	1.90	$p = .17$		
Clinic E	−18.38 (51.56)	0.00	$p = .98$		
Male gender	0.65 (0.30)	4.83	$p = .03$	1.91	1.07 - 3.41
Race		4.99	$p = .08$		
African American	−0.79 (0.41)	3.68	$p = .06$		
Other	−0.24 (0.41)	0.33	$p = .57$		
Income	0.00 (0.00)	.50	$p = .48$		
Years of alcohol use	−0.01 (0.01)	.00	$p = .96$		
ASI-Medical	−0.91 (0.46)	3.94	$p = .04$	0.40	0.17 – 0.99
ASI-Employment	−1.17 (0.53)	4.87	$p = .03$	0.31	0.11 – 0.88
ASI-Psychiatric	0.22 (0.59)	0.13	$p = .72$		

For categorical variables, Clinic F, female gender, and White race were the reference categories. ASI = Addiction Severity Index