



MMWR™

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Weekly

April 10, 2009 / Vol. 58 / No. 13

HIV-Associated Behaviors Among Injecting-Drug Users – 23 Cities, United States, May 2005–February 2006

Since the late 1980s, incidence of human immunodeficiency virus infection (HIV) has declined 80% among injecting-drug users (IDUs) in the United States; in 2006, an estimated 6,600 (12%) of new HIV infections occurred among IDUs (1). To assess HIV-associated behaviors among IDUs at risk for HIV infection, CDC analyzed data from the National HIV Behavioral Surveillance System (NHBS) collected during May 2005–February 2006 (the most recent data available). The results of that analysis indicated that, during that period, 31.8% of participating IDUs reported sharing syringes, and 62.6% had unprotected vaginal sex; 71.5% had been tested for HIV, and 27.4% had participated in an HIV behavioral intervention. These data can help guide local, state, and national prevention services tailored to IDUs at risk for HIV infection and other bloodborne or sexually transmitted infections.

NHBS is an ongoing behavioral surveillance system, established by CDC in 2003 in cities where approximately 60% of all cases of acquired immunodeficiency syndrome (AIDS) had been reported. NHBS assesses trends in HIV risk behaviors, testing, and HIV prevention services among three groups: IDUs, men who have sex with men (MSM), and heterosexuals. NHBS data are collected in rotating cycles, approximately once every 3 years from each of the three groups; however, the groups are not mutually exclusive (e.g., MSM who inject drugs might be participants in both the MSM and IDU cycles).

For this report, interviews were conducted with IDUs in 23 metropolitan statistical areas,* using respondent-driven sampling, a peer-referral sampling method (2). Recruitment

chains began in each city with fewer than 20 initial participants who either were referred from programs serving the local IDU community or were recruited by NHBS staff members through outreach. Initial participants who completed the interview were asked to recruit three other IDUs through the use of a coded coupon system to track the referrals. Recruitment continued for multiple waves of peer referrals; all participation was voluntary. Participants were paid \$25 for their interview time; those who recruited others were paid an additional \$10 for each eligible IDU they recruited to participate. Persons were eligible to participate if they had injected drugs during the preceding 12 months,† resided in the metropolitan statistical area where they were interviewed, were aged ≥ 18 years, and were able to give informed consent. Trained interviewers administered a standardized questionnaire in person, using a handheld computer; the survey took approximately 45 minutes to complete.

† Interviewees were asked, “Have you ever in your life shot up or injected any drugs other than those prescribed for you? By shooting up, I mean any time you might have used drugs with a needle, either by mainlining, skin popping, or muscling.” Those who said “yes” were then asked, “When was the last time you injected any drug? That is, how many days or months or years ago did you last inject?” Those who had injected during the 12 months preceding the date of the interview were eligible to participate.

* Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Fort Lauderdale, Florida; Houston, Texas; Las Vegas, Nevada; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Haven, Connecticut; New York, New York; Newark, New Jersey; Norfolk, Virginia; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; St. Louis, Missouri; and Seattle, Washington.

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The *MMWR* series of publications is published by the Coordinating Center for Health Information and Service, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

Suggested Citation: Centers for Disease Control and Prevention. [Article title]. *MMWR* 2009;58:[inclusive page numbers].

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For this report, data on eight selected HIV-associated behaviors were analyzed. Participants were asked whether, during the preceding 12 months, they 1) shared syringes; 2) shared injection equipment; 3) had vaginal sex[§]; 4) had unprotected vaginal sex; 5) had more than one opposite-sex partner; 6) were tested for HIV infection; and 7) participated in an individual or group HIV behavioral intervention; participants also were asked whether they 8) had ever been tested for hepatitis C virus (HCV) infection.[¶] Data from each metropolitan statistical area were analyzed using a respondent-driven sampling analysis program that produces estimates adjusted for differences in peer recruitment patterns and size of participant IDU peer networks (3). Results from these analyses were aggregated and weighted by the size of the IDU population in each metropolitan statistical area (4) to obtain an overall estimated prevalence for each behavior.

During May 2005–February 2006, a total of 13,519 persons were recruited to participate; of these, 1,563 (11.6%) were found ineligible, and 46 had missing recruitment information. Among the remaining 11,910 participants, data for 1,609 were excluded: 881 who already knew they had HIV infection, 334 whose data were lost during electronic upload, 288 initial participants (whose responses were excluded as part of the respondent-driven sampling methodology), 68 who could not be identified as either male or female, and 38 who gave responses with questionable validity. Data for the remaining 10,301 participants were used for this report. Overall, by demographic characteristic, the highest percentages of participants were men (66.7%), non-Hispanic blacks (47.1%), and persons aged 45–54 years (38.0%).

Among the participating IDUs, 31.8% reported sharing syringes, and 33.4% reported sharing injection equipment during the preceding 12 months (Table). Syringes were shared most commonly among non-Hispanic white IDUs (40.2%) and persons aged 25–34 years (38.6%).

Overall, 81.7% of the IDUs reporting having vaginal sex, and 62.6% reported having unprotected vaginal sex; 47.2% had more than one opposite-sex partner during the preceding 12 months. The prevalence of having unprotected vaginal sex was highest among those aged 18–24 years (67.4%). The prevalence of having more than one opposite-sex partner was highest among those aged 25–34 years (57.6%) (Table).

[§] For this report, data on anal sex were not analyzed.

[¶] Sharing syringes was defined as “using needles that might have already been used by someone else,” and sharing injection equipment was defined as using equipment such as cookers, cottons, or water used to rinse needles or prepare drugs “that someone else used.” Unprotected vaginal sex was defined as “sex without a condom.” Participating in an individual or group HIV behavioral intervention did not include counseling received as part of an HIV test. Testing for HCV infection was measured as ever tested or ever received a diagnosis of hepatitis C.

TABLE. Estimated percentage* of injecting-drug users (IDUs) engaging in selected behaviors associated with human immunodeficiency virus (HIV) infection† during the preceding 12 months, by sex, race/ethnicity, and age group — National HIV Behavioral Surveillance System, 23 cities,§ United States, May 2005–February 2006

Characteristic	Shared syringes % (SE¶)	Shared injection equipment % (SE)	Had vaginal sex % (SE)	Had unprotected vaginal sex % (SE)	Had more than one opposite-sex partner % (SE)	Tested for HIV infection % (SE)	Participated in HIV behavioral intervention % (SE)	Tested for hepatitis C % (SE)
Overall	31.8 (4.9)	33.4 (4.9)	81.7 (4.8)	62.6 (5.2)	47.2 (5.1)	71.5 (5.0)	27.4 (4.9)	72.2 (5.0)
Sex								
Men	32.1 (5.3)	36.4 (5.7)	82.7 (5.0)	62.8 (5.6)	50.8 (5.6)	69.8 (5.4)	26.3 (5.1)	73.8 (5.4)
Women	31.6 (6.6)	30.5 (6.4)	79.7 (6.5)	62.3 (6.9)	40.1 (6.7)	74.5 (6.4)	29.8 (6.6)	67.8 (7.4)
Race/Ethnicity								
White, non-Hispanic	40.2 (6.6)	37.0 (6.6)	80.6 (6.0)	63.9 (6.6)	48.4 (6.7)	68.6 (6.7)	21.7 (5.9)	75.2 (6.3)
Black, non-Hispanic	29.1 (5.4)	33.1 (5.5)	84.6 (4.9)	64.0 (5.6)	50.9 (5.7)	71.4 (5.4)	27.9 (5.3)	68.6 (5.5)
Hispanic	28.9 (10.0)	29.7 (9.7)	75.3 (10.5)	58.4 (10.9)	38.8 (10.7)	73.6 (10.1)	31.6 (9.9)	75.4 (10.1)
Other**	34.8 (11.7)	39.7 (12.1)	83.0 (10.3)	59.5 (12.1)	46.0 (12.1)	69.9 (12.0)	29.5 (11.3)	75.8 (10.9)
Age group (yrs)								
18–24	34.5 (9.7)	29.7 (8.0)	88.1 (8.3)	67.4 (10.5)	55.7 (10.6)	83.0 (8.5)	24.5 (9.3)	63.0 (10.5)
25–34	38.6 (7.5)	33.8 (7.3)	86.8 (6.6)	64.7 (7.8)	57.6 (7.6)	75.7 (6.7)	25.4 (7.1)	66.5 (7.4)
35–44	31.8 (6.5)	33.8 (6.6)	85.0 (6.3)	66.9 (6.9)	48.4 (6.9)	71.9 (6.8)	29.6 (6.8)	67.1 (7.0)
45–54	32.5 (6.2)	35.2 (6.5)	80.4 (6.1)	62.2 (6.6)	44.6 (6.6)	68.5 (6.5)	28.3 (6.2)	76.9 (6.1)
≥55	22.4 (7.9)	29.0 (8.9)	70.5 (9.4)	49.2 (9.1)	36.5 (8.9)	70.0 (9.4)	22.9 (8.0)	79.4 (7.9)

* Percentages were weighted to adjust for differences in recruitment, the size of participant IDU peer networks, and the size of the IDU population in each city.

† Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Fort Lauderdale, Florida; Houston, Texas; Las Vegas, Nevada; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Haven, Connecticut; New York, New York; Newark, New Jersey; Norfolk, Virginia; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; St. Louis, Missouri; and Seattle, Washington.

§ Sharing syringes was defined as “using needles that might have already been used by someone else,” and sharing injection equipment was defined as using equipment such as cookers, cottons, or water used to rinse needles or prepare drugs “that someone else used.” Unprotected vaginal sex was defined as “sex without a condom.” Persons tested for HIV infection include those with results that were negative, indeterminate, or unknown. Participating in an individual or group HIV behavioral intervention did not include counseling received as part of an HIV test. Testing for hepatitis C virus infection was measured as ever tested or ever received a diagnosis of hepatitis C.

¶ Standard error.

** Includes American Indian/Alaska Natives, Asians, Native Hawaiian or other Pacific Islanders, persons of multiple race, and those for whom race/ethnicity information was missing.

During the 12 months preceding their interviews, 71.5% of participants had been tested for HIV infection; the prevalence of testing was lowest among men (69.8%), non-Hispanic whites (68.6%), and persons aged 45–54 years (68.5%). Among the IDUs, 27.4% reported participating in an individual or group HIV behavioral intervention; such participation was least common among non-Hispanic whites (21.7%). HCV testing or diagnosis had been received by 72.2% of participants at some time in their lives; HCV testing was least common among those aged 18–24 years (63.0%) (Table).

Reported by: A Lansky, PhD, A Drake, MPH, HT Pham, MPH, Div of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC.

Editorial Note: NHBS provides the first national estimates of certain HIV-associated behaviors among IDUs in 23 cities with high AIDS prevalence. The finding that approximately one third of participants reported sharing syringes or injection equipment (31.8% and 33.4%, respectively) underscores the need to continue to focus HIV prevention strategies on these behaviors despite declines in HIV incidence among IDUs (1). These data are consistent with data on sharing syringes

reported in 2007 from a multi-city study (5). However, the NHBS data also indicate that approximately half of participants had unprotected vaginal sex (62.6%) or multiple opposite-sex partners (47.2%), suggesting that a substantial proportion of IDUs are at risk for acquiring HIV infection through their sexual behavior in addition to their drug use practices.

Behavioral interventions have been shown to reduce risk behaviors among IDUs (6). However, only 27.4% of NHBS participants had participated in individual or group HIV behavioral interventions during the preceding 12 months. Among racial/ethnic populations, HIV testing and participation in behavioral interventions were more common among non-Hispanic blacks and Hispanics, persons for whom HIV incidence rates are disproportionately high (1) and for whom interventions are most needed. Although IDUs aged 18–24 years had the highest prevalence of receiving HIV testing, they had the lowest prevalence of ever being tested for HCV. National recommendations for prevention and control of HCV infection call for risk-reduction counseling and screening of persons at risk for HCV infection, including IDUs (7). To increase the percentage of HIV-positive persons who know they have HIV infection, IDUs should have an HIV test at least annually (8).

The findings in this report are subject to at least three limitations. First, because no standard exists for obtaining probability samples of IDUs, the representativeness of the NHBS sample cannot be determined; although respondent-driven sampling adjusts for some biases, other factors (e.g., not every IDU network was sampled in each city) might have affected the representativeness of the sample. Second, findings from the 23 cities in this study might not be generalizable to all other cities or states in the United States. Finally, because the questionnaire was administered in person by an interviewer, some participants might not have accurately reported their behavior because of social desirability bias.

The NHBS data in this report underscore the need to continue current public health strategies (e.g., ready IDU access to HIV testing, sterile syringes, and condoms) and expand the reach of effective behavioral interventions that focus on the HIV risks of sharing syringes and other injection equipment and engaging in high-risk sexual behavior. Because IDUs are at high risk for numerous bloodborne and sexually transmitted infections, they are prime candidates for integrated health services (9) that provide disease prevention counseling and relevant screening (or vaccination) for hepatitis, sexually transmitted diseases, tuberculosis, or HIV, whenever they seek health care. Certain state and local syringe exchange programs already have expanded their scopes to include these types of integrated services (10). Providing comprehensive services to IDUs can help reduce the spread of bloodborne infections and

increase access to health care, providing an effective approach to the spread of disease for the entire population (6).

Acknowledgments

This report is based, in part, on contributions by local NHBS staff members, including the following principal investigators: L Shouse, Georgia Div of Human Resources; C Flynn, Maryland Dept of Health and Mental Hygiene; E Rubinstein, Massachusetts Dept of Public Health; C Ciesielski, Chicago Dept of Public Health; S Melville, Texas Dept of State Health Svcs; B Dillon, Colorado Dept of Health and Environment; A Roome, Connecticut Dept of Health; E Mokotoff, Michigan Dept of Community Health; M Wolverton, Houston Dept of Health, Texas; D Crockett, Nevada Dept of Public Health; T Bingham, Los Angeles County Dept of Public Health, California; M LaLota, Florida Dept of Health; C Nemeth, New York Dept of Health; C Murrill, New York City Dept of Health and Mental Hygiene, New York; H Cross, New Jersey Dept of Health and Senior Svcs; D Bensen, Virginia Dept of Public Health; K Brady, Philadelphia Dept of Health, Pennsylvania; A Ritieni, California Dept of Health; HF Raymond, San Francisco Dept of Public Health; SM De Leon, Puerto Rico Dept of Health; Y Friedberg, Missouri Dept of Health; and M Courogen, Washington Dept of Health. DD Heckathorn, Cornell Univ, Ithaca, New York.

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