

HIV Infection and HIV-Associated Behaviors Among Injecting Drug Users — 20 Cities, United States, 2009

Despite a recent reduction in the number of human immunodeficiency virus (HIV) infections attributed to injecting drug use in the United States (1), 9% of new U.S. HIV infections in 2009 occurred among injecting drug users (IDUs) (2). To monitor HIV-associated behaviors and HIV prevalence among IDUs, CDC's National HIV Behavioral Surveillance System (NHBS) conducts interviews and HIV testing in selected metropolitan statistical areas (MSAs). This report summarizes data from 10,073 IDUs interviewed and tested in 20 MSAs in 2009. Of IDUs tested, 9% had a positive HIV test result, and 45% of those testing positive were unaware of their infection. Among the 9,565 IDUs with HIV negative or unknown HIV status before the survey, 69% reported having unprotected vaginal sex, 34% reported sharing syringes, and 23% reported having unprotected heterosexual anal sex during the 12 previous months. Although these risk behavior prevalences appear to warrant increased access to HIV testing and prevention services, for the previous 12-month period, only 49% of the IDUs at risk for acquiring HIV infection reported having been tested for HIV, and 19% reported participating in a behavioral intervention. Increased HIV prevention and testing efforts are needed to further reduce HIV infections among IDUs.

NHBS monitors HIV-associated behaviors and HIV prevalence among populations at high risk for acquiring HIV. In 2009, NHBS staff members in 20 MSAs with high prevalence of acquired immunodeficiency syndrome (AIDS)* collected cross-sectional behavioral risk data and conducted HIV testing among IDUs using respondent-driven sampling, a peer-referral sampling method (3,4). Recruitment chains in each city began with one to 15 initial participants recruited by NHBS staff

members during formative assessment and planning. Initial participants who completed the interview were asked to recruit up to five other IDUs through use of a coded coupon system designed to track referrals. Recruitment continued for multiple waves; all participation was voluntary. Persons were eligible to participate if they had injected drugs during the previous 12 months, resided in the MSA, and could complete the interview in English or Spanish. After participants gave oral informed consent, in-person interviews were conducted by trained interviewers who administered a standardized, anonymous questionnaire about HIV-associated behaviors. All respondents were offered anonymous HIV testing, which was performed by collecting blood or oral specimens for either rapid testing in the field or laboratory-based testing. A nonreactive rapid test result was considered HIV negative; a reactive rapid test result was considered HIV positive if confirmed by Western blot or indirect immunofluorescence assay. Incentives were offered for participating in the interview, completing an HIV test, and for recruiting IDUs to participate.†

For this report, data on HIV testing and 13 HIV-associated behaviors were analyzed. Participants were asked whether, in the previous 12 months, they 1) had shared syringes; 2) had shared injection equipment other than syringes; 3) had vaginal

† The incentive format (cash or gift card) and amount varied by MSA based on formative assessment and local policy. A typical format included \$25 for completing the interview, \$25 for providing a specimen for HIV testing, and \$10 for each successful recruitment (maximum of five).

*The 20 MSAs were Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Houston, Texas; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Orleans, Louisiana; New York, New York; Newark, New Jersey; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; Seattle, Washington; and Washington, District of Columbia.

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sex; 4) had unprotected vaginal sex; 5) had heterosexual anal sex; 6) had unprotected heterosexual anal sex; 7) had male-male anal sex; 8) had unprotected male-male anal sex; 9) had more than one opposite sex partner; 10) had been tested previously for HIV infection; and 11) had participated in an HIV behavioral intervention. In addition, participants were asked whether they had ever been tested for 12) HIV or 13) hepatitis C virus (HCV) infection.[§] IDUs who tested HIV positive during the survey were defined as unaware of their HIV infection if they had reported that their most recent previous HIV test result was negative, indeterminate, or unknown, or that they had never been tested. IDUs with self-reported negative, indeterminate, or unknown status (including those who tested positive during the survey), were considered to be at risk for acquiring HIV. Data from each MSA were analyzed using a respondent-driven sampling analysis tool that produces estimates adjusted for differences in peer recruitment patterns and size of participant

IDU peer networks. Results from these analyses were aggregated and weighted by the size of the IDU population in each MSA (5) to obtain estimates overall.[¶]

In 2009, a total of 13,186 persons were recruited to participate; of these, 2,687 (20%) were found ineligible. An additional 426 (3%) eligible participants were excluded from analysis.** Data for the remaining 10,073 participants were used in the analysis of HIV prevalence and participant awareness of serostatus (Table 1). To focus the analysis of HIV-associated behaviors on persons at risk for acquiring HIV infection, 508 participants who reported that they previously had tested positive for HIV were excluded (Table 2).

Among 10,073 IDUs, 9% tested positive for HIV. Prevalence of HIV infection was higher among Hispanics (12%) and non-Hispanic blacks (11%) than non-Hispanic whites (6%). IDUs in the Northeast and South regions had higher HIV prevalence (12% and 11%) than those in the Midwest and West regions

[§] Sharing syringes was defined as “using needles that someone else had already injected with.” Sharing injection equipment was defined as using cookers, cottons, or water to rinse needles or prepare drugs “that someone else had already used.” Unprotected vaginal and anal sex were defined as “sex without a condom.” Male-male anal sex was restricted to males and includes both insertive and receptive anal sex. Participating in an individual or group HIV behavioral intervention (e.g., a one-on-one conversation with a counselor or an organized discussion regarding HIV prevention) 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.

[¶] City-level estimates with inadequate sample size for analysis (five or fewer observations) were excluded from aggregation. For city-level estimates for which confidence intervals could not be calculated, maximally wide confidence intervals (0–1) were used in aggregation. Such estimates represented <4% of the analysis.

** Data from 426 participants were excluded because of missing recruitment data (five participants), lost data during electronic upload (142), incomplete survey data (25), survey responses with questionable validity (63), invalid HIV test results (130), could not be identified as male or female (53), or other reason (eight). Reasons for exclusion were not mutually exclusive and were applied hierarchically in the order listed.

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TABLE 1. Estimated prevalence of human immunodeficiency virus (HIV) infection among injecting drug users (IDUs) (N = 10,073), by selected characteristics — National HIV Behavioral Surveillance System,* United States, 2009

Characteristic	Overall†		HIV prevalence†	
	%	(95% CI)	%	(95% CI)
Overall	100	—	9	(8–11)
Sex				
Men	71	(69–73)	9	(8–10)
Women	29	(27–31)	10	(8–13)
Race/Ethnicity				
Hispanic	22	(20–25)	12	(9–15)
Black, non-Hispanic	42	(40–44)	11	(10–13)
White, non-Hispanic	31	(29–34)	6	(4–8)
Other‡	4	(4–5)	—	—
Age group (yrs)				
18–29	11	(10–13)	3	(0–10)
30–39	19	(18–21)	10	(6–13)
40–49	32	(30–34)	11	(9–13)
≥50	38	(36–39)	10	(7–12)
Education				
Less than high school diploma	36	(34–38)	13	(10–15)
High school diploma	39	(37–41)	8	(6–10)
More than high school diploma	25	(24–27)	7	(5–9)
Poverty level				
At or below federal poverty level	81	(80–83)	10	(8–11)
Above federal poverty level	19	(17–20)	7	(4–9)
Drug injected most frequently				
Heroin only	64	(62–66)	7	(4–9)
Other/Multiple¶	36	(34–38)	14	(12–16)
Region**				
Northeast	34	(21–48)	12	(9–14)
South	27	(13–40)	11	(9–14)
Midwest	8	(0–22)	5	(2–7)
West	28	(15–42)	6	(4–8)

Abbreviation: CI = confidence interval.

* The National HIV Behavioral Surveillance System covers the following 20 metropolitan statistical areas (MSAs): Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Houston, Texas; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Orleans, Louisiana; New York, New York; Newark, New Jersey; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; Seattle, Washington; and Washington, District of Columbia.

† Percentages were weighted to adjust for differences in recruitment, the size of participants' networks of IDUs, and the size of the population of IDUs in each MSA.

‡ Includes American Indian/Alaska Natives, Asians, Native Hawaiian or other Pacific Islanders, and persons of multiple races.

¶ Other drugs injected alone or two or more drugs injected with the same frequency.

** The Northeast region includes the MSAs of Boston, Massachusetts; Nassau-Suffolk, New York; New York, New York; Newark, New Jersey; and Philadelphia, Pennsylvania. South region includes Atlanta, Georgia; Baltimore, Maryland; Dallas, Texas; Houston, Texas; Miami, Florida; New Orleans, Louisiana; and Washington, District of Columbia. Midwest region includes Chicago, Illinois and Detroit, Michigan. West region includes Denver, Colorado; Los Angeles, California; San Diego, California; San Francisco, California; and Seattle, Washington. San Juan, Puerto Rico, was not included.

(5% and 6%). Those with less than a high school education had higher HIV prevalence (13%) than IDUs who completed high school (8%) or had more than high school education (7%)

What is already known on this topic?

Injecting drug users (IDUs) in the United States are at increased risk for acquiring human immunodeficiency virus (HIV) infection. Surveys of IDUs entering drug treatment centers during 1993–1997 found local HIV prevalence ranging from 1% to 37% and an overall prevalence of 18%.

What is added by this report?

The National HIV Behavioral Surveillance System recruited 10,073 IDUs from 20 U.S. metropolitan statistical areas to be interviewed and tested for HIV infection in 2009. Nine percent tested positive for HIV, of whom 45% were unaware of their infection. Among those at risk for acquiring HIV infection, 34% reported sharing syringes, and 69% reported having unprotected vaginal sex in the previous 12 months.

What are the implications for public health practice?

Many IDUs are at risk for acquiring HIV infection because of their drug use practices and sexual behaviors, and a substantial percentage of IDUs in urban areas with high HIV prevalence are already infected but unaware of their infection. To prevent infections, IDUs need ready access to HIV testing, new sterile syringes, condoms, and substance abuse treatment.

(Table 1). Among HIV-infected IDUs, 45% (95% confidence interval [CI] = 38%–51%) were unaware of their infection.

Among the 9,565 IDUs at risk for acquiring HIV infection and responding to questions regarding HIV-associated behaviors in the previous 12 months, 34% reported sharing syringes, 46% reported multiple opposite sex partners, 69% reported unprotected vaginal sex, and 23% reported unprotected heterosexual anal sex. In addition, 19% reported participating in an HIV behavioral intervention, and 49% reported having had an HIV test (Table 2).

Among the IDUs at risk for acquiring HIV infection, 72% reported ever being tested for HCV infection (Table 2), and 89% (CI = 88%–90%) reported ever having an HIV test. Among male IDUs at risk for acquiring HIV infection, 7% (CI = 5%–8%) reported male-male anal sex in the previous 12 months, and 5% (CI = 3%–7%) reported unprotected male-male anal sex in the previous 12 months.

The prevalence of HIV-associated risk behaviors in the previous 12 months generally decreased with increasing age. For example, among persons aged 18–29 years, 52% reported sharing syringes, compared with 39% aged 30–39 years, 34% aged 40–49 years, and 25% aged ≥50 years. A higher percentage of IDUs with less than a high school education reported sharing syringes (38%), compared with high school graduates (32%) or those with higher education (31%). Lower percentages of IDUs with less than a high school education reported participation in HIV interventions (16%) and testing for HCV infection (67%), compared with those with a high school education (20% and 73%, respectively) and those with higher

TABLE 2. Estimated percentage* of injecting drug users at risk for acquiring human immunodeficiency virus (HIV) infection (n = 9,565)[†] who engaged in behaviors[§] associated with HIV infection, by selected characteristics — National HIV Behavioral Surveillance System,[¶] United States, 2009

Characteristic	Shared syringes (95% CI)	Shared injection equipment (95% CI)	Had vaginal sex (95% CI)	Had unprotected vaginal sex (95% CI)	Had heterosexual anal sex (95% CI)	Had unprotected heterosexual anal sex (95% CI)	Had more than one opposite sex partner (95% CI)	Was tested for HIV infection (95% CI)	Participated in behavioral intervention (95% CI)	Was ever tested for hepatitis C** (95% CI)
Overall	34 (32–36)	58 (56–60)	80 (78–82)	69 (67–71)	29 (27–31)	23 (21–24)	46 (44–48)	49 (47–51)	19 (18–21)	72 (70–74)
Sex										
Men	32 (30–34)	57 (54–59)	79 (77–81)	67 (65–69)	29 (27–31)	23 (21–25)	45 (43–48)	47 (45–50)	18 (17–20)	71 (69–73)
Women	38 (35–42)	60 (57–64)	81 (79–84)	73 (70–76)	28 (25–31)	22 (20–25)	47 (43–50)	52 (48–55)	22 (19–25)	73 (70–77)
Race/Ethnicity										
Hispanic	34 (30–38)	59 (55–63)	81 (78–85)	67 (62–71)	40 (35–44)	31 (27–35)	45 (40–50)	48 (44–53)	17 (13–20)	71 (67–75)
Black, non-Hispanic	27 (24–29)	54 (51–57)	81 (79–84)	69 (67–72)	24 (22–27)	19 (17–21)	47 (44–50)	52 (49–54)	21 (18–23)	67 (64–70)
White, non-Hispanic	43 (39–47)	62 (58–66)	80 (76–83)	72 (68–76)	29 (26–32)	23 (20–26)	45 (42–49)	44 (40–48)	20 (17–22)	78 (74–81)
Other ^{††}	40 (31–50)	58 (50–67)	71 (61–80)	59 (50–67)	23 (16–30)	16 (11–21)	47 (39–56)	52 (43–61)	18 (13–23)	80 (72–87)
Age group (yrs)										
18–29	52 (47–57)	73 (69–78)	92 (88–97)	83 (79–88)	44 (38–49)	35 (30–40)	62 (57–67)	52 (46–58)	23 (18–27)	70 (65–75)
30–39	39 (34–44)	64 (60–68)	88 (85–91)	79 (75–83)	41 (37–45)	35 (30–39)	51 (46–56)	48 (43–53)	19 (16–23)	72 (67–76)
40–49	34 (31–38)	55 (52–59)	79 (76–82)	69 (65–72)	28 (25–31)	22 (19–25)	45 (41–48)	54 (51–58)	19 (16–22)	71 (68–75)
≥50	25 (23–28)	52 (49–55)	72 (70–75)	59 (56–62)	19 (16–21)	14 (12–15)	39 (36–42)	43 (40–46)	19 (16–22)	73 (70–76)
Education										
Less than high school diploma	38 (35–42)	59 (56–62)	81 (78–83)	69 (67–72)	32 (29–35)	26 (23–29)	47 (43–50)	47 (43–50)	16 (14–18)	67 (63–70)
High school diploma	32 (30–35)	57 (54–60)	79 (76–82)	68 (65–71)	27 (24–30)	21 (19–23)	43 (40–46)	50 (47–53)	20 (18–23)	73 (70–75)
More than high school diploma	31 (27–35)	57 (53–61)	81 (78–84)	69 (66–73)	28 (24–31)	22 (18–25)	49 (46–53)	49 (45–53)	24 (20–27)	78 (74–81)
Poverty level										
At or below federal poverty level	35 (33–38)	58 (56–60)	80 (78–82)	68 (66–70)	28 (26–30)	22 (20–24)	46 (43–49)	48 (46–50)	20 (18–22)	70 (68–72)
Above federal poverty level	27 (23–31)	55 (51–59)	81 (77–85)	71 (67–75)	30 (26–34)	24 (21–28)	43 (39–48)	52 (48–57)	18 (15–21)	78 (75–82)

See table footnotes on page 137.

deduction (24% and 78%, respectively). A higher percentage of those living at or below the federal poverty level (35%) shared syringes than those above the poverty level (27%), and a lower percentage of those living at or below the poverty level had HCV testing (70%) than those above the poverty level (78%) (Table 2).

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Editorial Note

The 2009 data in this report provide the first estimates from a large-scale survey of HIV seroprevalence among IDUs since 1993–1997, when CDC conducted anonymous HIV testing among IDUs entering drug treatment centers in 14 MSAs (6). In the study of IDUs entering drug treatment, HIV prevalence was found to be 18% (range by MSA = 1%–37%). In this analysis, 9% of IDUs tested positive for HIV infection. Furthermore, 45% of those testing positive were unaware of their infection.

Risk behavior prevalences in this report showing that IDUs are at risk for acquiring HIV infection through their sexual behavior in addition to their drug use practices are similar to previously reported NHBS surveillance data (7). Compared with a similar analysis of IDUs interviewed during 2005–2006,

TABLE 2. (Continued) Estimated percentage* of injecting drug users at risk for acquiring human immunodeficiency virus (HIV) infection (n = 9,565)[†] who engaged in behaviors[§] associated with HIV infection, by selected characteristics — National HIV Behavioral Surveillance System,[¶] United States, 2009

Characteristic	Shared syringes (95% CI)	Shared injection equipment (95% CI)	Had vaginal sex (95% CI)	Had unprotected vaginal sex (95% CI)	Had heterosexual anal sex (95% CI)	Had unprotected heterosexual anal sex (95% CI)	Had more than one opposite sex partner (95% CI)	Was tested for HIV infection (95% CI)	Participated in behavioral intervention (95% CI)	Was ever tested for hepatitis C** (95% CI)
Drug injected most frequently										
Heroin only	33 (30–35)	57 (54–59)	78 (76–81)	66 (64–69)	25 (23–27)	20 (18–22)	42 (39–44)	47 (45–50)	19 (17–21)	73 (70–75)
Other/Multiple ^{§§}	36 (33–39)	60 (57–63)	83 (80–86)	74 (71–77)	35 (32–38)	27 (24–30)	53 (50–56)	51 (48–55)	21 (18–23)	70 (67–73)
Region^{¶¶}										
Northeast	35 (32–39)	55 (51–59)	82 (78–85)	71 (67–75)	34 (30–37)	27 (24–30)	46 (42–50)	51 (47–55)	22 (19–25)	74 (71–78)
South	33 (30–37)	62 (59–65)	84 (82–86)	73 (70–76)	26 (23–29)	20 (17–23)	48 (44–51)	53 (50–56)	21 (18–24)	68 (64–71)
Midwest	26 (22–31)	44 (39–49)	80 (76–85)	62 (57–67)	24 (20–28)	17 (13–20)	48 (43–53)	41 (37–46)	11 (8–14)	59 (54–64)
West	35 (32–39)	61 (57–65)	74 (70–78)	64 (60–68)	26 (22–29)	20 (17–24)	43 (39–47)	45 (40–49)	16 (13–19)	77 (73–81)

Abbreviation: CI = confidence interval.

* Percentages were weighted to adjust for differences in recruitment, the size of participants' networks of IDUs, and the size of the population of IDUs in each metropolitan statistical area (MSA).

[†] IDUs at risk for acquiring HIV infection were defined as those reporting having never had an HIV test or that their most recent HIV test result was negative, indeterminate, or unknown. This group includes those IDUs who did not know they were HIV positive before the interview but tested positive during the interview.

[§] Sharing syringes was defined as "using needles that someone else had already injected with," 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 had already used." Unprotected vaginal sex/Unprotected anal sex was defined as "sex without a condom." Participating in an individual or group HIV behavioral intervention (e.g., a one-on-one conversation with a counselor or an organized discussion regarding HIV prevention) did not include counseling received as part of an HIV test.

[¶] The National HIV Behavioral Surveillance System covers the following MSAs: Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Houston, Texas; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Orleans, Louisiana; New York, New York; Newark, New Jersey; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; Seattle, Washington; and Washington, District of Columbia.

** Testing for hepatitis C virus infection was measured as ever tested or ever received a diagnosis of hepatitis C. All other behaviors are reported for the previous 12 months.

^{††} Includes American Indian/Alaska Natives, Asians, Native Hawaiian or other Pacific Islanders, and persons of multiple races.

^{§§} Other drugs injected alone or two or more drugs injected with the same frequency.

^{¶¶} The Northeast region includes the MSAs of Boston, Massachusetts; Nassau-Suffolk, New York; New York, New York; Newark, New Jersey; and Philadelphia, Pennsylvania. South region includes Atlanta, Georgia; Baltimore, Maryland; Dallas, Texas; Houston, Texas; Miami, Florida; New Orleans, Louisiana; and Washington, District of Columbia. Midwest region includes Chicago, Illinois and Detroit, Michigan. West region includes Denver, Colorado; Los Angeles, California; San Diego, California; San Francisco, California; and Seattle, Washington. San Juan, Puerto Rico, was not included.

lower percentages in this 2009 study reported receiving HIV interventions (19% compared with 30%) and HIV testing (49% compared with 66%) in the previous 12 months (7). These results highlight the need for expanded HIV testing and prevention among IDUs. The combination of declining HIV prevalence and high-risk behavior represent a critical intervention opportunity to further reduce HIV prevalence and incidence among IDUs.

Consistent with previous reports (8), this analysis found higher HIV prevalence among Hispanic and non-Hispanic black IDUs than non-Hispanic white IDUs. However, minority IDUs were neither more nor less likely to have received HIV testing, participated in HIV behavioral interventions, or engaged in risk behaviors than white IDUs in the 12 months preceding the NHBS interview. These data suggest factors not assessed by this study might be contributing to racial/ethnic disparities in HIV prevalence among IDUs.

The findings in this report are subject to at least three limitations. First, some participants might not have accurately reported their behavior to interviewers, and results might be affected by social desirability bias. Second, because no method of obtaining

probability samples of IDUs exists, the representativeness of the NHBS sample cannot be determined. Although respondent-driven sampling adjusts for some selection biases (4), other biases might have affected the sample. Finally, IDUs were interviewed in 20 MSAs with high AIDS prevalence; findings from these cities might not be generalizable to other cities or states.

To reduce the number of new HIV infections, the National HIV/AIDS Strategy^{††} calls for intensifying prevention efforts in communities where HIV is most heavily concentrated. CDC's high impact prevention approach^{§§} is an essential step toward achieving the goals of the national strategy. HIV prevention strategies for IDUs, including HIV testing and linkage to care, prevention and care for HIV-infected IDUs, and access to new sterile syringes,^{¶¶} have been shown to be effective. Targeted, effective approaches to HIV prevention will help reduce the number of new HIV infections among IDUs.

^{††} Additional information available at <http://www.whitehouse.gov/administration/eop/onap/nhas>.

^{§§} Additional information available at <http://www.cdc.gov/hiv/strategy>.

^{¶¶} In December 2011, Congress reinstated a ban on the use of federal funds for carrying out any program of distributing sterile needles or syringes for hypodermic injection of illegal drugs.

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❖ SUBSTANCE ABUSE AND HIV/AIDS ❖

The spread of HIV disease in the United States is fueled in part by the use of illicit drugs. Injection drug use (IDU) is directly related to HIV transmission because it may involve the sharing of drug equipment. The use of both injected and noninjected illicit drugs impairs decision making and increases sexual risk-taking behavior, which, in turn, increases the risk for acquiring HIV.¹

SURVEILLANCE

A reported 13 percent of adults and adolescents with AIDS who were diagnosed in 2006 were infected through IDU.²

Men

- ❖ Among reported AIDS cases for men in 2006, IDU was the transmission category in 12 percent of diagnoses, and male-to-male sexual contact and IDU in 6 percent of diagnoses.³
- ❖ Among all men estimated to be living with AIDS at the end of 2006, an estimated 19 percent contracted HIV through IDU, but the estimated rate was higher among Black and Hispanic men (27 and 23 percent, respectively).⁴
- ❖ AIDS mortality estimates among men for whom the HIV transmission category was IDU declined by over 29 percent from 2002 to 2006; mortality decreased by over 17 percent among men for whom the HIV exposure category was male-to-male sexual contact and IDU.⁵

Women

- ❖ Among women, IDU was the transmission category in 17 percent of AIDS diagnoses in 2006.⁶

- ❖ At the end of 2006, IDU was the HIV exposure category for an estimated 32 percent of women living with AIDS, ranging from 38 percent among White women and 39 percent among American Indian/Alaska Natives to 30 percent for Blacks, 30 percent for Hispanics, and just 15 percent for Asian/Pacific Islanders.⁴

- ❖ Among women infected through IDU, the AIDS mortality rate decreased by over 24 percent from 2002 to 2006.⁵

Critical Issues

In 2006, the National Survey on Drug Use and Health reported that an estimated 22.6 million Americans (9.2 percent of the population aged 12 or older) were either substance-dependent or substance abusers.⁷ Substance-dependent people rely on an illicit drug and cannot physically or psychologically cope without it in their system; they need addiction treatment. Substance abusers are people who abuse a drug regularly but have not become physically or psychologically addicted to it.⁷

The risk for HIV associated with substance abuse involves more than simply the sharing of IDU paraphernalia. Use of drugs and alcohol interferes with judgment about sexual and other behavior. As a result, substance users may be more likely to have unplanned and unprotected sex.¹

Even though substance abuse treatment is crucial for staying in HIV care and adhering to a treatment regimen, it is in short supply. The introduction of buprenorphine, a treatment for opiate addiction that may be given in a primary care setting, offers hope for improved access to treatment for addiction. Special training, however, is required to administer buprenorphine, and the training may not be readily available in all health care environments.



Recent studies have found that trauma, substance abuse, and sexual risk factors are interconnected. For example, women who have experienced sexual abuse, whether as a child or an adult, may be more likely than other women to use drugs as a coping mechanism, have difficulty refusing unwanted sex, or engage in sexual activities with strangers. Women who have experienced trauma also may be less assertive about birth control and have a greater number of lifetime partners, increasing their risk for HIV infection.⁸ In addition, research has found that people who suffer from mental illness are more likely to use injection drugs.⁹

HRSA'S RESPONSE TO SUBSTANCE ABUSE ISSUES

Given the challenges of accessing drug addiction treatment, the Ryan White Special Projects of National Significance (SPNS) Program funded the Buprenorphine Initiative to determine the effectiveness of integrating buprenorphine opioid abuse treatment into HIV primary care settings. The initiative is designed to improve the health of people living with HIV/AIDS

(PLWHA) in the primary care setting who also have substance abuse issues. This initiative began in September 2004 and comprises 10 demonstration sites coordinated by a technical assistance/evaluation center. As a demonstration project, this initiative seeks to determine the feasibility and/or effectiveness of integrating buprenorphine opioid abuse treatment into HIV primary care settings. The results of this study will be published at the end of the initiative in 2009.

Users of illicit substances may receive HIV services through all parts of the Ryan White HIV/AIDS Program. The lack of drug treatment services in the United States has placed increased pressure on Ryan White HIV/AIDS Program providers because they must address substance abuse issues to sustain individuals in care over time.

For more information about substance abuse and HIV/AIDS, see the March 2004 issue of *HRSA CAREAction*, available at <http://www.hab.hrsa.gov/publications/march04>.

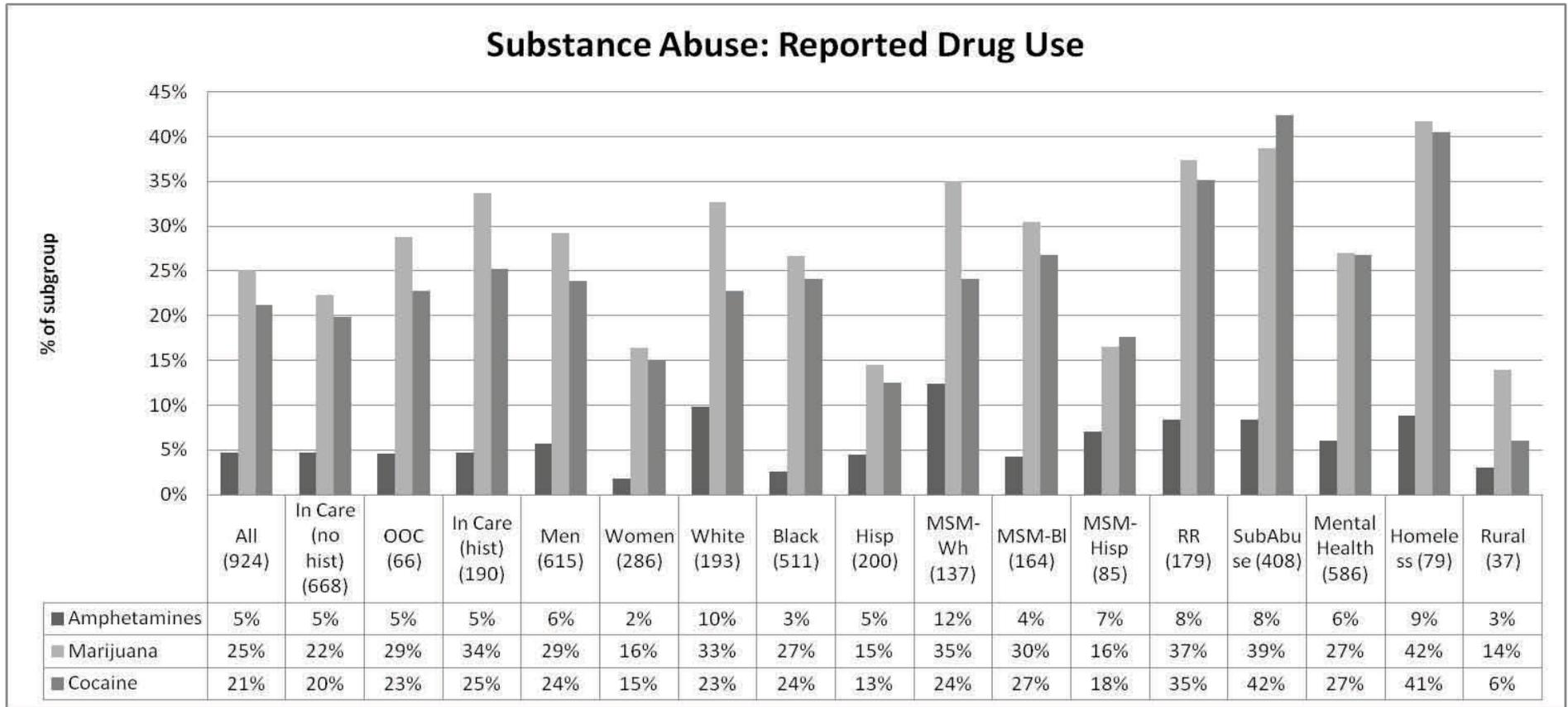
END NOTES

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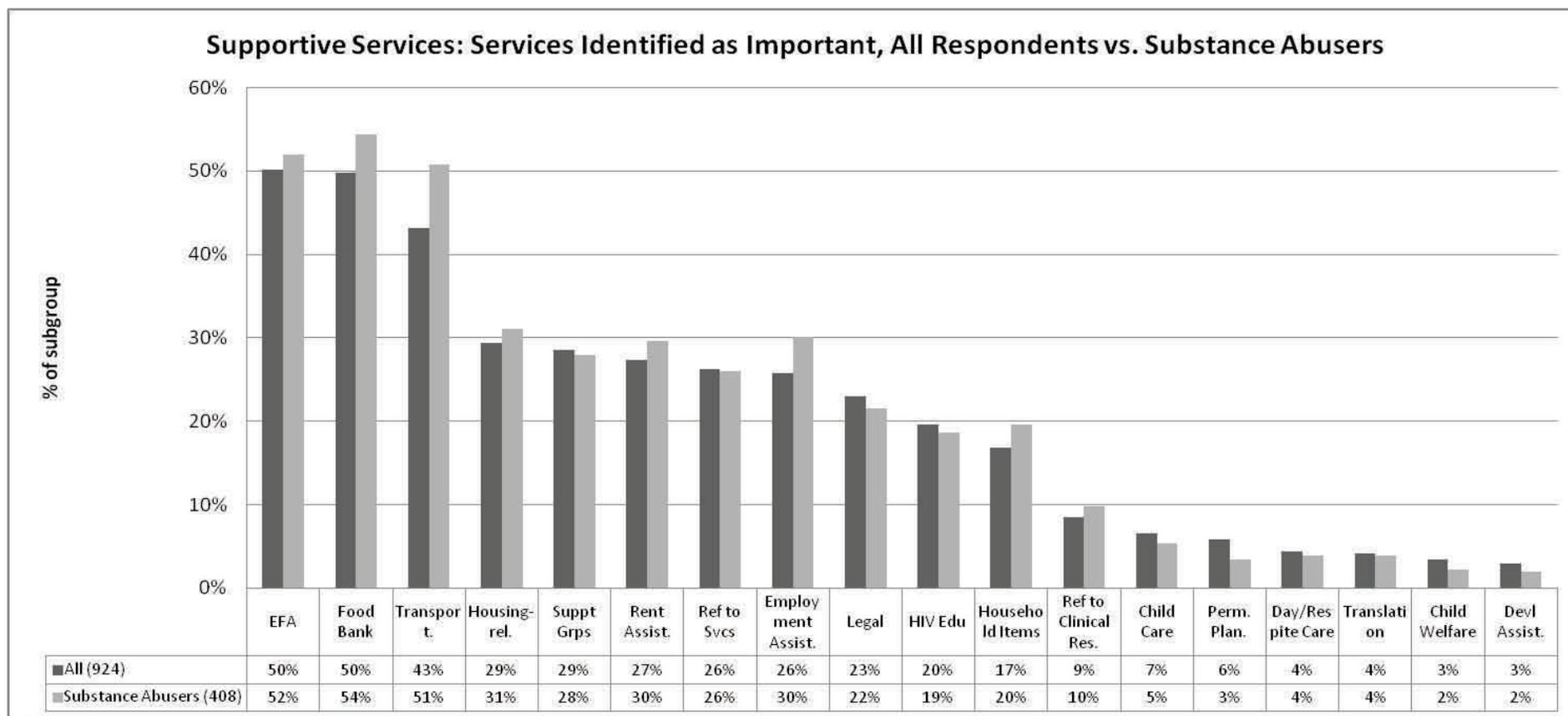
Survey Respondents - Substance Abuse



The chart above shows the self-reported use of amphetamines, marijuana and cocaine for each subgroup.

- Overall, 25% of respondents reported using marijuana, 21% cocaine and 5% amphetamines.
- MSM-Whites (12%) and Whites (10%) reported using amphetamines more often than other subgroups.
- The Homeless (42%), Substance Abusers (39%) and the Recently Released (37%) reported using marijuana more often.
- Substance Abusers (42%) and the Homeless (41%) reported using cocaine more often.

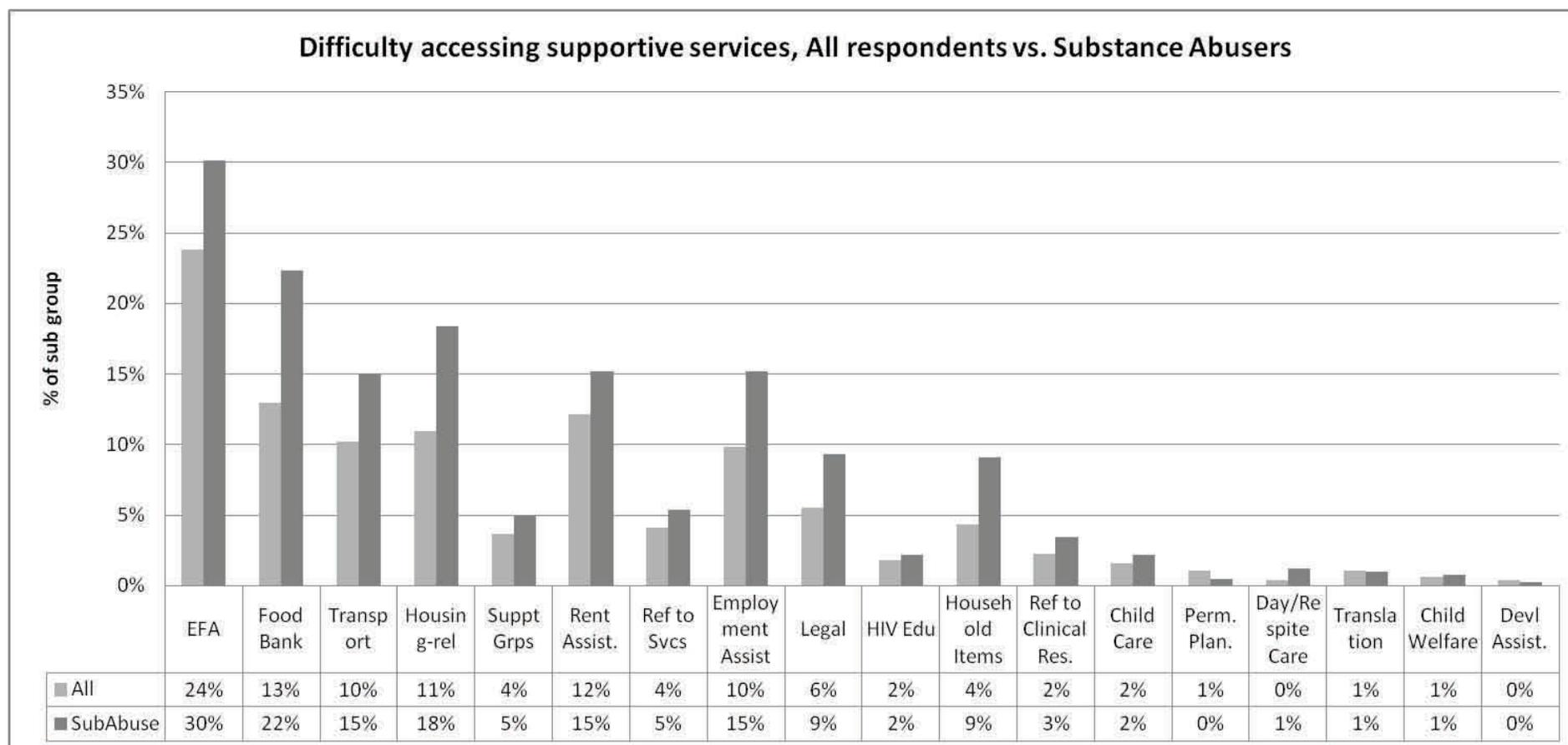
Access to Supportive Services



The chart above shows the supportive services reported as useful or helpful by Substance Abusing respondents compared to the overall sample of 924 respondents.

- Compared to the overall sample, this subgroup was more likely to report food bank, transportation, employment assistance and household items as important supportive services.

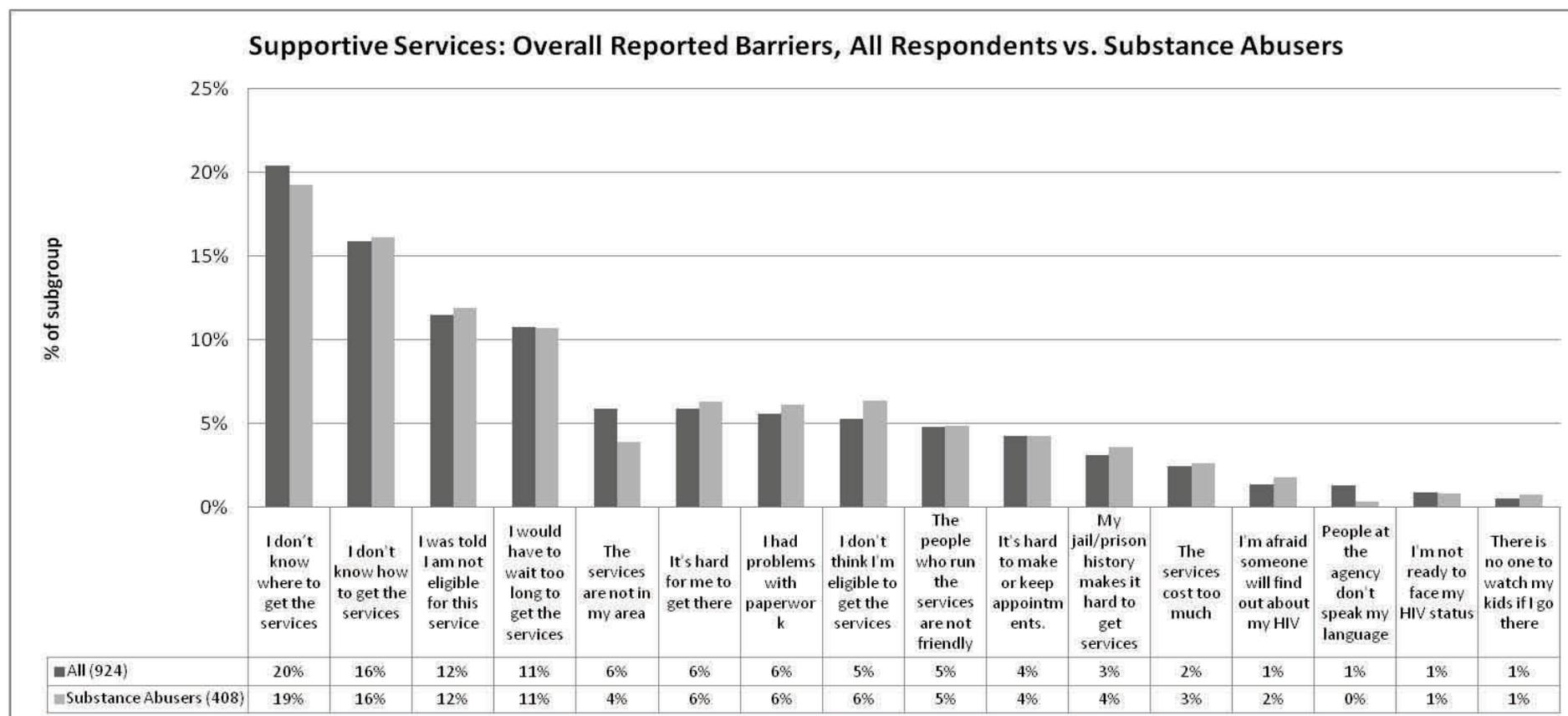
Difficulty Accessing Supportive Services



The chart above shows the proportion of Substance Abusers that experienced difficulties accessing each supportive service, compared to the overall sample of respondents.

- Similar to the overall sample of respondents, this subgroup had the most difficulties accessing emergency financial assistance.
- In addition to emergency financial assistance, other difficult to access services were food bank and housing-related services.

Barriers to Supportive Services



The chart above shows the proportion of barriers reported by Substance Abusing respondents compared to the overall sample of 924 respondents.

- Compared to the overall sample, this subgroup was more likely to report being unsure about eligibility, jail/prison histories and cost of services as barriers to supportive services.



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Innovative Programs for HIV Positive Substance Users

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Background

[Introduction](#)

[Project Goals](#)

[Phase One](#) (including literature review)

[Phase Two](#)

Since the AIDS epidemic began, injection drug use (IDU) has directly and indirectly accounted for more than one-third of AIDS cases in the United States. Of the 42,156 new cases of AIDS reported in 2000, 11,635 (28%) were IDU-associated. Racial/ethnic minorities in the U.S. are most heavily affected by IDU-associated AIDS. In 2000, IDUs accounted for 26 percent of all AIDS cases among African American and 31 percent among Hispanic adults and adolescents, compared with 19 percent of all cases among white adults and adolescents. IDU-associated AIDS accounts for a larger proportion of cases among women than among men. Fifty-seven (57) percent of all AIDS cases reported among women have been attributed to injection drug use or sex with partners who inject drugs, compared with 31 percent of cases among men. The use of noninjection drugs also contributes to the spread of HIV. Users may trade sex for drugs or money or engage in behaviors that put them at risk while under the influence of drugs.

adolescents, compared with 19 percent of all cases among white adults and adolescents. IDU-associated AIDS accounts for a larger proportion of cases among women than among men. Fifty-seven (57) percent of all AIDS cases reported among women have been attributed to injection drug use or sex with partners who inject drugs, compared with 31 percent of cases among men. The use of noninjection drugs also contributes to the spread of HIV. Users may trade sex for drugs or money or engage in behaviors that put them at risk while under the influence of drugs.

The Health Resources and Services Administration's HIV/AIDS Bureau (HRSA/HAB) recognizes that substance abuse treatment is an important component of HIV care for many people living with HIV (PLWH). CARE Act funds can be used for substance abuse treatment and counseling and many grantees also provide enabling services that help ensure access to primary health care for individuals with a history of substance abuse. However, little research has been done to identify effective substance abuse treatment modalities for PLWH and performance standards and best practices for treatment and care of substance users with HIV have not been developed. To address this gap, HRSA/HAB, through the Special Projects of National Significance (SPNS) Program, provided funds to the Health and Disability Working Group (HDWG) at Boston University's School of Public Health to establish the Evaluation and Program Support Center (EPSC) on Innovative Programs for HIV-Positive Substance Users. The EPSC is conducting various activities that will result in the development of a set of performance standards for programs serving substance users with HIV, a description of best practices based on existing innovative programs, and a training program.

Project Goals

- Increase knowledge of innovative interventions for HIV-infected substance users.
- Increase understanding of interventions that assist HIV-infected substance users in obtaining primary health care, substance abuse treatment, and supportive services.
- Develop a set of guiding principles for use by HIV medical care, substance abuse treatment, care coordination and outreach programs.
- Provide information about evaluation and training to assist HRSA/HAB in planning for future activities.

[TOP](#)

Phase One

The first phase of the project included the following activities:

- Review of published and unpublished literature;
- Surveys of CARE Act-funded grantees and HIV-infected substance users;
- Site visits to 12 innovative programs; and
- Development of a set of guiding principles.

Literature Review

The literature review provides a thorough examination of existing literature related to HIV-infected substance users. Described are:

- HIV/AIDS epidemiology among substance users in the United States;
- Historical evolution of the service delivery systems for substance abuse and HIV medical care;
- Performance standards for HIV/AIDS primary care, substance abuse treatment, and support services;
- Barriers to providing substance abuse treatment to PLWH; and
- Innovative programs and interventions that link substance abuse treatment and HIV primary care.

The literature review also discusses the needs of specific populations such as people of color, men who have sex with men, women, homeless individuals, and people living in rural areas and a discussion of abstinence-only and harm reduction substance abuse programs is included.

Surveys

The EPSC team surveyed more than 400 CARE Act-funded grantees and 100 providers funded by other sources. Interviews were conducted with 40 HIV-infected substance users and 50 key informants.

Title I and Title II. Forty-three Title I grantees (86%) responded to the survey. Of these, 88 percent funded substance abuse treatment at 197 agencies. More than half of the grantees (60%) use Title I funds to promote substance abuse treatment programs that target underserved populations (African Americans [44%], women [42%], Latinos [33%], women and their children [28%], incarcerated or recently released [28%], gay/lesbian [26%], homeless [23%], and adolescents [16%]). For the programs targeting underserved populations, the largest service category is outpatient counseling, followed by detoxification, residential treatment programs, outreach, support services, peer support, methadone maintenance, day treatment, acupuncture and inpatient treatment.

Forty-seven Title II grantees (87%) responded. Of these, 38 percent funded substance abuse treatment at 29 agencies. Eight states use Title II funds to

support substance abuse treatment programs that target underserved populations. Seven states (15%) funded programs targeting women and four states (9%) funded programs targeting women and children. Incarcerated/recently released individuals, African Americans, adolescents, Latinos, other minority populations, homeless, and the mentally ill were also targeted as special populations. The largest service category among programs for special populations is outpatient counseling followed by residential treatment and detoxification. Other services provided include outreach, peer support and methadone maintenance.

Service Type	Title I Grantees Providing Service	Service Title II Grantees Providing Service
Acupuncture Detoxification	12%	4%
Acute Detoxification	21%	9%
Inpatient Treatment	14%	2%
Methadone Treatment/LAAM	28%	13%
Outpatient Counseling	75%	21%
Residential Treatment	35%	9%
Other (collateral, support services)	19%	11%

One quarter of Title I grantees report funding some form of harm reduction and 15 percent of Title II grantees funded harm reduction activities. The most commonly reported included pre-treatment counseling, outreach and education, and prevention case management. Some grantees included methadone maintenance programs in their description of harm reduction programs.

The most common systemic barriers to care identified by Title I and Title II grantees are: lack of housing options; too few residential programs, too few detoxification programs/beds; lack of transportation; and the lack or inadequacy of insurance coverage for substance abuse treatment. Programmatic barriers identified include: women with children are not supported in programs; harm reduction/recovery readiness services are not provided; substance abuse treatment providers need more HIV training; HIV-infected substance users fall through the cracks in the service system; and the lack of outreach to bring people into care.

Common weaknesses identified by Title II grantees in the service delivery system of their state include insufficient treatment capacity, difficulty obtaining any services in rural areas, program siting problems, and the lack of different options such as residential care or detoxification. Strengths include comprehensive systems of care, integration of HIV medical care and substance abuse treatment, and the use of Title II funds to provide wrap-around services for HIV-infected substance users.

Title III, IV and SPNS Grantees. Surveys were returned by 165 Title III, Title IV and SPNS grantees, representing 58 percent of the sample. Programs varied in the percent of their HIV population that were substance users. Some programs reported that less than five percent of clients were substance users while others reported substance abuse by more than 75 percent of their clients. Of the respondents, 49 percent reported providing substance abuse treatment, although many of these agencies reported only providing counseling services and this often was not provided by certified or licensed addictions counselors. All of the medical programs and almost three quarters of the other programs provided services to assist HIV-infected substance users to access care such as drop in services, extended hours, or home/shelter-based services. In addition, many respondents provided services designed to engage and retain people in care, such as street outreach, mobile vans, peer support services and harm reduction programs.

Of the programs providing substance abuse treatment services, 90 percent took a harm reduction approach to treatment. Of the programs that did not provide on-site substance abuse treatment, 65 percent stated that they had a formal relationship with a substance abuse treatment program that offered a harm reduction approach. A substantial number of respondents operated programs that integrate medical, mental health and substance abuse treatment services.

Innovative and/or effective program features identified by respondents include: support services such as clothing, food, child care and transportation; money management training; housing advocacy; adherence support; recreational activities; complimentary therapies (acupuncture and massage); strategies to provide services in rural or geographically distant areas; domestic violence education, counseling, and services; and prison linkages.

Major barriers to care identified by respondents include: difficulty retaining people in substance abuse treatment; lack of substance abuse treatment slots; difficulty retaining substance users in medical care; and lack of housing. Other barriers identified included: duration of substance abuse treatment is too short; lack of treatment programs for women and children; medical and substance abuse treatment programs not co-located; lack of harm reduction programs, fear of HIV disclosure in substance abuse treatment programs; lack of insurance coverage; limited transportation; clients get lost between referrals; lack of primary care provider expertise in substance abuse; substance abuse treatment providers lack HIV expertise; lack of outreach; substance abuse treatment providers are judgmental; difficulty recruiting/retaining bilingual staff; primary care providers are judgmental toward substance users; and substance abuse treatment providers lack cultural sensitivity.

Gaps in services identified by respondents include: lack of resources for staff

training in HIV, substance abuse, and cultural issues; lack of time for case conferencing; home visits; administrative and clinical effort needed to integrate health care with addiction and mental health services; services and staff to support adherence to HIV treatment; services and staff to assess readiness for substance abuse treatment; availability of substance abuse treatment programs that accept and are responsive to PLWH; and financial support for substance abuse treatment integration with HIV medical care.

Consumers. Twenty-four (24) HIV-infected substance users in Boston, Baltimore, Atlanta and San Francisco were interviewed in the spring of 2000.

Demographic Characteristics and Drug Use/Treatment History

- 15% male, 8% female, 1 transgender
- Mean age was 37.2 (range from 27 to 49)
- 17% African American, 3% Caucasian, 3% Latino/a
- 71% heterosexual, 13% homosexual, 4% bisexual (13% did not respond)
- 63% have some type of health coverage (Medicaid was the most common)
- Average age at first use was 18.6 years old and more than half began at age 16 or younger.
- Heroin was used most frequently (46%), followed by crack and alcohol (29% each), cocaine (21%) and multiple substances (25%).
- Median number of times respondents had been in substance treatment was 5.5, with a range from 1 to 52 treatment episodes.
- 83% of respondents were in recovery at the time of the interview.

For their most recent substance abuse treatment experience, respondents reported various modalities and many reported multiple modalities. The most frequently reported modalities were self-help groups, detoxification, group counseling, individual counseling and residential treatment. Forty-two (42) percent reported preferring substance abuse treatment programs that were specific to their gender, race/ethnicity, sexual orientation, or HIV status.

Only 13 percent of respondents reported being unable to obtain treatment when they sought it. Barriers included long waits for treatment, stigma (negative attitudes about HIV by substance abuse treatment staff), comfort and readiness for treatment, and confidentiality. Respondents also identified factors that supported their recovery efforts such as spirituality, fear of dying young, not wanting to hurt one's self or others, honesty, and being in a program where they felt comfortable.

The majority of respondents were seeing a doctor or nurse for HIV care at the

time of the interview and 75 percent reported taking HIV-related medications. When asked what they liked about their care, responses included health care providers that care about and understand them and providers that are knowledgeable about HIV and can explain their treatment. Seventy-five (75) percent reported experiencing some type of barrier to care. Not wanting people to know their HIV status was the most frequently reported barrier, followed by judgmental attitudes, medical care not being a priority, not wanting their health care provider to know about their substance abuse, long waits for appointments, and getting lost in the referral process. Eighty-eight (88) percent of respondents reported that they had no need for other services. Those who did need other services reported that mental health services, eye care and housing were difficult to obtain.

Key Informants. Fifty (50) key informants, interviewed between January and April 2000, provided information about key components of program success and barriers to care.

Components of program success identified (in order of importance) include:

- Referral to support services (including transportation, child care, employment assistance, legal assistance, food or meals, and housing assistance);
- Cultural sensitivity/population-specific services;
- Integrated service delivery models;
- Staff skills, sensitivity and attitudes;
- Use of harm reduction philosophy and tolerance for relapse;
- Availability of case management;
- Using outreach to keep people in care;
- Family-focused treatment that includes children along with their mothers;
- Using ex-addicts as counselors; and
- Being a client-direct and empowered model of care.

Barriers to care identified include:

- Limited funding (includes lack of insurance and shortage of treatment slots);
- Staffing concerns (staff retention, stress, role definition, training issues, and negative staff attitudes toward HIV-infected substance users);
- Lack of coordination among programs, particularly those providing HIV medical care and those providing substance abuse treatment;
- Client behavior (manipulation of the system, difficulties faced when some members of their peer group return to active drug use, and missed appointments);

- Programs that do not accept the reality of substance abuse (do not incorporate harm reduction treatment models or are not relapse tolerant);
- Stigmas associated with both HIV and substance abuse (includes the difficulty of siting facilities within communities);
- Unique challenges faced by women and racial/ethnic minorities;
- Lack of adequate housing;
- Difficulty of retaining people in care; and
- Lack of community-based and street outreach.

Site Visits

Based on the results of the surveys, the ESPC developed a set of criteria for defining innovative models of care and identified over 50 programs that met the criteria. Twelve programs were selected, following in-depth telephone interviews, and site visits were conducted that explored various program models, interventions for different populations, specialized case management systems, and linkages between primary medical care, substance abuse treatment and support services. Because each program that was visited was unique, the findings of the site visits address a broad range of issues. These include outreach and engagement, points of entry, harm reduction approaches, cultural competence, consumer involvement, adherence, retention in care, housing and shelter, working with other agencies, and quality improvement.

Guiding Principles

Guiding principles were developed for primary HIV care, substance abuse treatment, outreach services and care coordination. They were developed with the help of an advisory committee using the information gathered in the literature search, surveys, and case studies. These principles, which represent the first comprehensive set of standards of care for HIV-infected substance users, are designed to assist funders, purchasers of service, and service providers in improving the delivery of services to this population.

Standards of Care: Title I Grantees

Fifty-eight (58) percent of the Title I grantees responding to the survey reported that they have standards of care for substance abuse treatment. While 70 percent have standards of care for HIV medical care, only 14 percent report that the HIV medical care standards address issues specific to substance abuse. Fourteen (14) percent of grantees have case management standards that address substance abuse issues and nine percent have supported housing standards addressing substance abuse issues.

The guiding principles are based on three themes:

- Both substance abuse and HIV disease are preventable and treatable;
- All HIV-infected substance users should receive the same level and high quality of care as any other individuals accessing health care and/or substance abuse treatment; and
- Services should be provided in a manner that encourages engagement and retention in care.

The principles are organized in general categories. These include: integrated services; care coordination; assessment; referral; staff education and support; consumer education; quality improvement; confidentiality; cultural sensitivity and competence; and consumer involvement. The document first describes the general guiding principles applicable to all facets of care and then discusses more specific guidelines for primary care, substance abuse treatment, care coordination, and outreach.

Key Informants on Performance Standards

- Confusion between performance standards, performance measures, and outcomes indicate a need for more information on the concept of performance standards in general and the need to develop standards specific to HIV-infected substance users.
- Key informants familiar with programs based in outpatient medical settings were most likely to identify performance standards (73 percent). Only 40 percent of those familiar with case management programs and 33 percent of those familiar with substance abuse treatment programs were aware of performance standards relevant to HIV-infected substance users.
- Areas for which performance standards might be developed include: how long a person remains in care; availability of primary care providers knowledgeable about HIV; access to or referral to support services; linkage to medical services for HIV for people in substance abuse treatment programs; and standards for consistency, structure, and guided confrontation in substance abuse treatment.

[TOP](#)

Phase II

Based on the knowledge gained from Phase One, the EPSC developed and pilot tested a training program, using a train-the-trainer approach, that includes a training curriculum for providers of services to HIV-infected substance users. A national training program was conducted in January 2003 with nearly 80 doctors, nurses, psychologists, social workers, therapists, outreach workers, and substance abuse professionals from six different regions. Participants will

conduct additional trainings in their regions in spring/summer 2003. The curriculum will be translated into Spanish and pilot tested in Puerto Rico.

Training Program Objectives

- Provide training to substance abuse treatment providers, HIV medical care providers, and HIV support service providers that enhances their capability to serve HIV-infected substance users.
- Encourage Title I and II grantees to collaborate with State and local agencies responsible for the funding of substance abuse treatment services in order to promote policies and funding initiatives that support collaboration and service integration at the provider level.
- Provide specific assistance to programs in evaluating their performance in serving HIV-infected substance users, and using this information to improve performance.
- Promote the capacity to sustain this level of technical assistance by engaging AETCs and local experts in curriculum development and a train-the-trainer program

[TOP](#)



U.S. Department of Health & Human Services

**COMBATING THE SILENT EPIDEMIC
of VIRAL HEPATITIS**

**Action Plan for the
Prevention, Care & Treatment
of Viral Hepatitis**

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INTRODUCTION

Viral hepatitis is a silent epidemic in the United States. Although it is a leading infectious cause of death and claims the lives of 12,000–15,000 Americans each year, viral hepatitis remains virtually unknown to the general public, at-risk populations, and policymakers (1–3); even health-care providers lack knowledge and awareness about these infections (1). As a consequence, most of the 3.5–5.3 million Americans living with viral hepatitis do not know that they are infected, placing them at greater risk for severe, even fatal, complications from the disease and increasing the likelihood that they will spread the virus to others. Viral hepatitis is a major cause of liver cirrhosis and liver cancer in the United States (1–4); persons living with viral hepatitis are at increased risk for both conditions.

In January 2010, the Institute of Medicine (IOM) released the report *Hepatitis and Liver Cancer: a National Strategy for Prevention and Control of Hepatitis B and C* (1). In this report, IOM identifies viral hepatitis as an underappreciated health concern for the nation and outlines multiple barriers impeding efforts to prevent viral hepatitis transmission and disease. In its 2010 report, IOM provides 22 specific recommendations to help improve 1) disease surveillance, 2) knowledge and awareness of viral hepatitis among the public and providers, 3) access to vaccination, and 4) delivery of viral hepatitis prevention and care services (Appendix A).

In response to the IOM report, Assistant Secretary for Health Dr. Howard Koh convened a Viral Hepatitis Interagency Working Group comprised of subject matter experts from various U.S. Department of Health and Human Services (HHS) agencies (Appendix B). This group was charged with responding to the IOM comments by developing a comprehensive strategic viral hepatitis action plan that would:

- address IOM recommendations for viral hepatitis prevention, care, and treatment;
- set forth actions to improve viral hepatitis prevention and ensure that infected persons are identified and provided care and treatment; and
- improve coordination of all viral-hepatitis–related activities across HHS and promote collaborations with other government agencies and non-governmental organizations.

To prepare the report *Combating the Silent Epidemic of Viral Hepatitis: U.S. Department of Health and Human Services Action Plan for the Prevention, Care and Treatment of Viral Hepatitis* (referred to as the Viral Hepatitis Action Plan), the Working Group convened expert panels from various HHS agencies and offices (Appendix B). Panel members were tasked with developing components of the action plan specific to their area of expertise. To engage key federal stakeholders in the planning process, the Working Group solicited input from other government agencies. Additionally, two meetings were held to solicit feedback from professional societies, community-based organizations, and other members of the public.

VIRAL HEPATITIS: THE SILENT EPIDEMIC

An estimated 3.5–5.3 million persons are living with viral hepatitis in the United States, and millions more are at risk for infection. Because viral hepatitis can persist for decades without symptoms, 65%–75% of infected Americans remain unaware of their infection status and are not receiving care and treatment (1). Most morbidity and mortality result from the chronic form of viral hepatitis caused by hepatitis B virus (HBV) and hepatitis C virus (HCV) infection.

Viral hepatitis is the leading cause of liver transplantation in the United States (5). In the absence of treatment, 15%–40% of persons living with viral hepatitis will develop liver cirrhosis (6–8) or experience other conditions that affect the liver, including liver cancer. Rates of liver cancer have tripled over the last several decades (4), with at least half of these cases attributable to HCV (9). In the decade to come, more than 150,000 Americans are expected to die from viral-hepatitis-associated liver cancer or end-stage liver disease (1).

Liver cancer and other liver diseases caused by viral hepatitis (e.g., cirrhosis) affect some U.S. populations more than others, resulting in substantial health disparities. Persons with certain risk behaviors, including men who have sex with men (MSM) and injection-drug users (IDUs), have high rates of viral hepatitis. Also at risk are baby boomers. Compared with other age groups, a greater proportion (about 1 in 33) of persons aged 46–64 years is infected with HCV (10). African Americans are twice as likely to be infected with HCV when compared with the general U.S. population (10), and approximately 1 in 12 Asian/Pacific Islanders (APIs) are living with hepatitis B, representing half of all HBV-infected persons in the United States (11). These health disparities are reflected in viral-hepatitis-associated morbidity and mortality; for example, liver cancer incidence is highest among APIs and is increasing among African Americans, persons aged 46–64 years, and men.

Persons with HIV also are disproportionately affected by viral hepatitis and related adverse health conditions. Because HIV, HBV, and HCV share common modes of transmission, one third of HIV-infected persons are coinfecting with HBV or HCV. The progression of viral hepatitis is accelerated among persons with HIV; therefore, persons who are coinfecting experience greater liver-related health problems than non-HIV infected persons (1–3,5,7,12).

Recipients of organs, blood, and tissue, along with persons working or receiving care in health settings continue to be at risk for viral hepatitis infection. Although dramatic progress has been made towards reducing the risk for health-care-associated HBV and HCV infections among these persons, outbreaks continue to occur as a result of breakdowns in basic infection control and limitations in the laboratory screening of donated organs, blood, and tissues.

In addition to causing substantial morbidity and mortality, viral hepatitis infection has adverse economic consequences. End-stage treatments for viral hepatitis (e.g., liver transplants) are expensive — the lifetime health-care costs for a person with viral hepatitis can easily total hundreds of thousands of dollars (1). During the 1990s and early 2000s, hospital discharges with an HBV diagnosis increased fourfold, with a rise in health-care costs from \$357 million in 1990 to \$1.3 billion in 2006 (13). Compared with other patients of similar age and sex, managed-care enrollees with HCV are hospitalized more frequently (24% for HCV-infected persons versus 7% for other patients) and have higher annual health-care expenses (approximately \$21,000 per HCV-infected enrollee versus about \$5,500 for each non-infected enrollee), exceeding the per-

person costs associated with diabetes (approximately \$10,000 per year) (14–16). Hepatitis C also increases other societal costs. A study of 339,456 workers revealed that employees with HCV had significantly more lost work days than other employees, resulting in lost productivity (17).

Computer models indicate that cases of life-threatening liver disease caused by viral hepatitis infections and health-care-associated costs will increase as infected persons grow older and as their disease progresses (1,2). Fortunately, treatments for hepatitis B and hepatitis C can reduce morbidity and are cost-effective (18,19). Economic studies of therapy have yielded estimates of cost-saving to \$33,900 per quality-adjusted life year (QALY) gained for HBV therapy and cost saving to \$120,000 per QALY gained for HCV therapy (20–34).

VIRAL HEPATITIS: THE GLOBAL PERSPECTIVE

Current rates of viral hepatitis in the United States are reflective of the large global disease burden involving hundreds of millions of persons. One in every 12 persons worldwide is living with viral hepatitis; approximately 350–370 million persons are infected with HBV, and another 130–170 million are living with HCV infection (35–37). Globally, an estimated 78% of primary liver cancer and 57% of liver cirrhosis cases are caused by viral hepatitis (36), and 1 million deaths from viral hepatitis occur each year (35,36). The proportion of persons living with viral hepatitis is greatest in Asia, sub-Saharan Africa, and Egypt; however, prevalence of HCV infection is high among subpopulations (e.g., IDUs and persons living in correctional settings) in almost all parts of the world. Increasing immigration to the United States from endemic countries has resulted in more infections within U.S. borders; approximately 54,000 persons infected with hepatitis B immigrate to the United States annually (CDC, unpublished data).

THE EPIDEMIOLOGY OF VIRAL HEPATITIS ***HEPATITIS B***

In the United States, an estimated 800,000–1.4 million persons are infected with hepatitis B. Hepatitis B is a vaccine-preventable disease; immunization programs for infants and adolescents have resulted in substantial declines in the incidence of HBV infection (38). However, in 2008, an estimated 38,000 persons were newly infected with the virus (39). HBV is spread in several distinct ways: from mother to child at the time of birth, through incidental household exposures to blood, through injection-drug use, and through sexual contact (2,10,40). Globally, unsafe infection control in health-care settings represents a significant mode of viral hepatitis transmission. In the United States, outbreaks also occur in residential care and health-care settings, where poor infection control has been identified as the primary source of transmission (41). Rates of HBV infection are highest among adults, reflecting low hepatitis B vaccination coverage among persons with risks (2,10,38,40). Mother-to-child transmission of HBV is concerning, because 90% of HBV-infected newborns remain infected throughout their lives. Of these infants, one in four dies from complications of viral hepatitis in later life (42,43).

HEPATITIS C

In the United States, 2.7–3.9 million persons are estimated to be infected with HCV (10). Many of these persons were infected prior to the 1990s. Since then, the development of serologic screening tests and other prevention strategies have contributed to large declines in HCV transmission. Despite these advances, approximately 20,000 persons are newly infected with HCV in the United States each year (39). Because HCV is primarily spread through contact with blood, persons who inject drugs are at increased risk for HCV infection (1,2,5,13). HCV transmission also occurs through unsafe injection practices in health-care facilities (41), from mother to child at the time of birth, and infrequently through sexual contact with an infected partner (2).

HEPATITIS TYPES A, D, AND E

In addition to HBV and HCV, at least three other agents cause viral hepatitis in the United States: hepatitis A virus (HAV), hepatitis E virus (HEV), and hepatitis D virus (HDV) (2). Spread by the fecal-oral route, HAV is largely transmitted by person-to-person contact and through exposure to contaminated food and food products (44,45). Hepatitis A is vaccine preventable, with childhood vaccination contributing to substantial declines in hepatitis A incidence (45); however, adults at risk for hepatitis A have low rates of vaccination, and as a result, the highest incidence of disease (44). Also spread by the fecal-oral route, HEV represents the leading cause of viral hepatitis in south and central Asia, sub-Saharan Africa, and the Middle East (46). Although clinical cases of hepatitis E are rarely reported in the United States, serologic surveys suggest that a substantial number of persons have been exposed (47); additional data are needed to explain this discrepancy. The hepatitis D virus is unique, in that it can only replicate in the presence of HBV; therefore, it is only infectious among persons who have both types of infection (2,48). Hepatitis B vaccination is protective against both HBV and HDV infection.

NEW SCIENCE AND TOOLS FOR PREVENTION, CARE, AND TREATMENT

Recent developments in science, policy, communication, and health information technology [HIT] represent opportunities for reducing rates of viral hepatitis in the United States and improve health outcomes for infected persons. Researching new vaccines can improve the immune response following hepatitis B vaccination and enhance prevention interventions for other types of viral hepatitis (e.g., HCV and HEV). Seven agents are now licensed for the treatment of hepatitis B. Further, the licensure of the first agents designed to directly attack and eliminate HCV (i.e., direct acting agents) is anticipated in 2011; compared with standard treatment, these agents will substantially increase virologic cure rates while decreasing duration of therapy. A rapid point-of-care test for HCV (i.e., an HCV test that can be performed at or near the site of patient care) also is now available; rapid tests can expand access to HCV testing, particularly for injection-drug users and other marginalized and underserved populations.

Evolving health policies can play a critical role in improving viral-hepatitis-related prevention and care services (49). For instance, recent changes in federal policies governing the use of federal funds to support syringe service programs will expand access to prevention services that serve as an access point for substance abuse treatment (50). Substance abuse treatment is effective in

reducing injection drug use behaviors and promoting recovery from drug addiction (51). Recovery is an important step in reducing risk of viral hepatitis acquisition and transmission and achieving a healthy lifestyle (52).

Advances in the communication of health information, including on-line resources, can help improve the viral hepatitis knowledge base of providers. Computer applications can now provide algorithms for providers, assisting in the provision of testing, care, and treatment to their patients; further, web-based tools to promote social networking can help increase access to accurate viral hepatitis information tailored to persons in priority populations (i.e., those at high risk for viral hepatitis, such as IDUs, MSM, HIV-infected persons, baby boomers [persons born during 1945–1965], African Americans, APIs, and pregnant women).

Finally, changes in HIT can improve surveillance and provide public health data to ensure that persons at risk are receiving needed preventive and clinical care services. Implementation of standards for electronic medical records (EMRs) can expedite the reporting of laboratory and clinical information to public health surveillance systems, improving detection of disease outbreaks and emergence of new populations at risk. EMRs also create an opportunity for public health entities to monitor the quality of viral hepatitis prevention, care, and treatment services.

NEW OPPORTUNITIES FOR ADDRESSING VIRAL HEPATITIS IN A REFORMED HEALTH-CARE SYSTEM

The Viral Hepatitis Action Plan builds upon the 2010 Patient Protection and Affordable Care Act — the landmark law that will bring health insurance coverage to more than 30 million people and promote disease prevention, data collection and reporting, and quality improvement. The Act also calls for investments in public health that will facilitate health promotion and disease prevention activities for many Americans, particularly those experiencing health disparities. Through these provisions and several associated health initiatives (i.e., the National Strategy for Quality Improvement in Health Care, the National Prevention and Health Promotion Strategy, and the Community Transformation grant program), the Affordable Care Act presents multiple opportunities to identify persons infected with viral hepatitis and provide them with access to care.

Expanded health insurance coverage will improve patient access to viral-hepatitis-related prevention, care, and treatment services (e.g., health education, testing, vaccination, referral, antiviral therapy, counseling, substance abuse/addiction treatment, and medical monitoring), as will state-based Health Insurance Exchanges, which are anticipated to begin in 2014. The Exchanges, along with newly competitive private health insurance markets, will help individuals and their employers select and enroll in high-quality, affordable private health plans. The Exchanges will make the purchase of health insurance easier, more understandable, and more accessible to vulnerable, underserved populations. The Affordable Care Act requires health plans and encourages state-based Medicaid programs to cover 1) those clinical preventive services recommended by the U.S. Preventive Services Task Force (USPSTF) (i.e., those graded “A” or “B”), including viral hepatitis testing for pregnant women, and 2) immunizations recommended by the Advisory Committee on Immunization Practices (ACIP), such as those for hepatitis A and

hepatitis B; Medicare beneficiaries also will be entitled to an initial preventive physical exam and a personalized prevention plan.

Over the next 5 years, the Affordable Care Act will further expand access to preventive and primary health care by calling for an \$11 billion investment in the Health Resources and Service Administration (HRSA) Community Health Center (CHC) program. The Act will enable this program to significantly increase preventive and primary health-care services for underserved populations, such as migrant and seasonal farm workers, people experiencing homelessness, and residents of public housing, many of which have been impacted by viral hepatitis. As a result of Affordable Care Act funding, HRSA expects to nearly double the number of patients served in CHCs over the next 5 years.

Finally, the Affordable Care Act is expected to improve the U.S. health infrastructure by fostering the development of new electronic medical records and health information exchanges and by further developing the nation's health-care workforce, leading to a more comprehensive approach to viral-hepatitis-related prevention, treatment, and care.

VIRAL HEPATITIS ACTION PLAN OVERVIEW

VISION AND PURPOSE

“A NATION COMMITTED TO COMBATING THE SILENT EPIDEMIC OF VIRAL HEPATITIS.”

HHS is committed to ensuring that new cases of viral hepatitis are prevented and that persons who are already infected are tested; informed about their infection; and provided with counseling, care, and treatment. This increasing commitment is evidenced in the new *Healthy People 2020* (HP 2020) report, the first Healthy People publication to document increasing viral hepatitis awareness among infected persons as a formal HHS objective. In addition to moving the nation towards reaching HP 2020 objectives, by 2020, full implementation of the Viral Hepatitis Action Plan could result in:

- an increase in the proportion of persons who are aware of their hepatitis B virus infection, from 33% to 66%;*
- an increase in the proportion of persons who are aware of their hepatitis C virus infection, from 45% to 66%;†
- a 25% reduction in the number of new cases of HCV infection; and
- elimination of mother-to-child transmission of HBV.

The Action Plan will help HHS improve its current efforts to prevent viral hepatitis and related disease by 1) identifying steps that can be taken to reach specific goals; 2) leveraging opportunities to improve coordination of viral hepatitis activities across HHS operating divisions; 3) setting priorities for HHS to develop public-health and primary-care infrastructure needed for viral hepatitis prevention and care at the federal, state, and local levels; and 4) providing a framework for HHS to engage other governmental agencies and nongovernmental organizations in viral hepatitis prevention and care.

*Data source: The Racial and Ethnic Approaches to Community Health (REACH) Risk Factor Survey (www.cdc.gov/reach).

†Data source: National Health and Nutrition Examination Survey (NHANES) (www.cdc.gov/nchs/nhanes.htm).

STRUCTURE

The Viral Hepatitis Action Plan is organized by the following six topic areas, which correspond to the 2010 IOM recommendations:

1. Educating Providers and Communities to Reduce Health Disparities;
2. Improving Testing, Care, and Treatment to Prevent Liver Disease and Cancer;
3. Strengthening Surveillance to Detect Viral Hepatitis Transmission and Disease;
4. Eliminating Transmission of Vaccine-Preventable Viral Hepatitis;
5. Reducing Viral Hepatitis Caused by Drug-Use Behaviors; and
6. Protecting Patients and Workers from Health-Care Associated Viral Hepatitis.

For each topic area, the Action Plan offers a dedicated chapter that begins with background information and is followed by recommended goals, strategies, and actions to be undertaken by specified lead and participating HHS agencies and federal/external partners (listed alphabetically) (Appendix C). Recommended actions are listed by calendar year of initiation. Extensive reference lists for individual chapters are located at the end of the publication, along with several appendices.

IMPLEMENTATION

The actions presented in the Viral Hepatitis Action Plan primarily represent new efforts to begin in calendar year 2011, 2012, or 2013. Successful implementation of the Plan will require leveraging multiple opportunities. Some of the actions can be accomplished through improved coordination and integration of existing activities, whereas others are subject to the availability of funds.

Also critical to the overall success of this plan are policy-related support and system changes, which likely will be afforded by the Affordable Care Act and numerous national initiatives, including the National HIV/AIDS Strategy, the National Prevention and Health Promotion Strategy, the HHS Action Plan to Reduce Racial and Ethnic Health Disparities, the National Vaccine Plan, and the HHS Action Plan to Prevent Health-Care-Associated Infections. Components of each of these initiatives are reflected in the Viral Hepatitis Action Plan, resulting in a multifaceted, comprehensive approach to preventing viral hepatitis and improving the lives of millions of infected persons. Within a reformed health-care system, the Viral Hepatitis Action Plan will offer an unprecedented opportunity to provide Americans, particularly those in vulnerable and underserved populations, with improved viral hepatitis prevention, care, and treatment services.