

Regional Patterns and Correlates of Substance Use Among Young Men Who Have Sex With Men in 7 US Urban Areas

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Several studies have demonstrated a high prevalence of illicit drug or alcohol use by men who have sex with men (MSM) in the United States.^{1–6} One recent study found that illicit drug use was severalfold higher in a large sample of MSM than in a nationally representative sample of single urban men.⁶ Illicit drug use has been repeatedly associated with high-risk sexual behaviors and increased HIV incidence among MSM.^{2,7–18} In addition to factors that have been linked to drug use among people in general, such as parental substance use behaviors and attitudes, family conflict, depression, and physical and sexual abuse,^{19,20} several complex psychosocial factors related to affiliation with gay culture have been associated with substance use by MSM. They include being “out” to others about having sex with men, effects of homosexuality on social roles such as occupational and residential status, and attending gay bars.^{1,2,21} Initiation of drug use during adolescence has been shown to be a risk factor for more rapid progression to drug abuse and dependence than initiation during adulthood.^{19,22,23} In spite of the elevated prevalence of illicit drug use among MSM and the serious health and social consequences of such drug use, especially for those who began using drugs early, there are no published reports of the prevalence and correlates of illicit drug use among young MSM across the United States. A more detailed understanding of drug-use patterns among young MSM is needed to address illicit drug-use prevention and treatment needs as well as the consequences of drug use, including high-risk sexual behaviors and HIV transmission in this population.

We describe the prevalence of drug and alcohol use and factors associated with illicit

Objectives. We sought to characterize substance use patterns in young men who have sex with men (MSM) in 7 US urban areas and sociodemographic characteristics and history associated with such use.

Methods. We examined data collected from 1994 through 1998 in a venue-based, cross-sectional survey.

Results. Among the 3492 participants, 66% reported use of illicit drugs; 28%, use of 3 or more drugs; 29%, frequent drug use (once a week or more); and 4%, injection drug use. These practices were more common among participants who were White, self-identified as bisexual or heterosexual, had run away, or had experienced forced sex.

Conclusions. Effective drug prevention and treatment programs addressing local drug-use patterns and associated factors are urgently needed for young MSM, a population with a high rate of illicit drug use. (*Am J Public Health.* 2003;93:1915–1921)

drug use by young MSM sampled in 7 US urban areas.

METHODS

Study Design, Sampling, Enrollment, and Data Collection

The Young Men's Survey (YMS) was a cross-sectional, venue-based sampling survey conducted in Baltimore, Md; Dallas, Tex; Los Angeles, Calif; Miami, Fla; New York, NY; the San Francisco Bay Area, Calif; and Seattle, Wash, from 1994 through 1998. The methods have been previously described in detail.^{24,25} Young men aged 15 to 22 years who resided in specific counties in the participating areas and who had not previously participated were eligible for the study. Public venues frequented by young MSM were identified through a community assessment process, which was conducted throughout the survey and included key informant interviews, focus groups, and counting and interviewing young men at potential study venues. Venues that generated at least 7 eligible young men during a 4-hour time period were included in a sampling frame from which venues and time periods were randomly drawn to construct

monthly sampling calendars. Trained staff approached young men at sampled venues to assess their eligibility. Eligible young men were invited to enroll in the study and complete the survey in a nearby van or were given a later appointment at a nearby location.

After obtaining informed consent, a trained interviewer administered a standardized questionnaire that assessed sociodemographic characteristics, health history, psychosocial factors, and sexual and drug-use behaviors (in this article, *drug* refers to an illicit drug). Participants were asked about their lifetime and recent (past 6 months) use of alcohol and specific drugs and the frequency of recent use. After the interview, participants received HIV pretest counseling, which focused on prevention of HIV and other parenterally and sexually transmitted infections, and a blood sample was drawn for HIV antibody testing. A posttest appointment was scheduled, and participants received a monetary incentive and referral for health and social services, as needed.

Data Analysis

Four categories of drug use during the past 6 months were further evaluated. In addition

to use of any drugs, we also assessed 3 measures of more serious drug use: use of 3 or more different drugs (polydrug use), use of drugs at least once a week (frequent drug use), and injection drug use. These definitions of frequent and polydrug use have been used in other recent studies of MSM as indicators of more problematic drug use.^{1,2} Univariate associations among each of these variables, sociodemographic characteristics, and lifetime experiences were assessed with the χ^2 test. Characteristics and experiences included age, race/ethnicity, parents' educational level, sexual identity, being "out" about having sex with other men, ever being forced to have sex, and ever having run away. Sexual identity was ascertained with a 7-point scale ranging from *exclusively straight*¹ to *exclusively gay*.⁷ Responses were categorized into straight,^{1,2} bisexual,³⁻⁵ and gay.^{6,7} Respondents who reported another identity were labeled as Other. Being out about having sex with men was assessed with a 7-point scale ranging from *not out to anyone*,¹ *out to about half the people I know*,⁴ and *out to everyone*.⁷ Responses were categorized into out to less than 50%, out to half, and out to more than 50%. We also examined whether internalized homophobia was associated with any of the 4 recent-drug-use variables. Internalized homophobia was measured as 5-point factor-based scales ranging from *do not agree* to *strongly*

agree with the following 4 items: "Sometimes I dislike myself for being gay/bisexual/transgender," "I feel stress and conflict within myself over having sex with men," "Sometimes I wish I was not gay/bisexual/transgender," and "I sometimes feel guilty after having sex with men." Responses to each item were combined into 1 variable (Cronbach $\alpha=.79$).

We calculated the prevalence of lifetime, recent, and frequent use of alcohol and individual drugs for the full sample and for each urban area. We also calculated the prevalence of frequent use of any drug, use of multiple drugs, and injection drug use. Unconditional logistic regression was used to assess associations between each of the 4 drug-use measures and variables that were found to be statistically significant ($P<.05$) by univariate analyses.²⁶ Each association was adjusted for survey site. The Breslow-Day test was used to assess homogeneity across urban areas between each of the 4 drug-use measures and their associated variables. The data from the 7 urban areas were pooled as tests demonstrated homogeneity.²⁶

RESULTS

Participants

Of 23 881 men who were approached during 1592 sampling events at 194 venues in the 7 urban areas, 21 096 (88%) completed

the brief interview. Of these, 6866 (33%) were eligible for participation in the survey and 4272 (62%) enrolled. Responses from 161 (4%) duplicate enrollments were excluded, leaving 4111. After removal of records from participants whose answers were considered to be unreliable (1%), men who had never had sex (3%), and men who had never had sex with men (11%), 3492 participants remained for this analysis. Enrollment rates and numbers of participants varied by urban area, age, and race/ethnicity (Table 1).

Prevalence of Alcohol and Drug Use

Alcohol and drug use were common among participants. Overall, 88% (ranging from 84% in Miami to 93% in Dallas) reported using alcohol in the past 6 months, and 5% reported drinking on 4 or more occasions weekly during the past 6 months (Table 2). Two thirds (ranging from 59% in Dallas to 70% in New York City and Seattle) of the participants reported using drugs in the past 6 months. For all sites combined, marijuana (59%) was the most commonly reported drug used in the past 6 months, followed by cocaine (21%), uppers/amphetamines (20%), ecstasy (19%), LSD/hallucinogens (19%), and poppers/nitrite inhalants (14%). With the exception of marijuana, the relative rank of other commonly used drugs varied by urban area. The second

TABLE 1—Sampling Periods and Enrollment for the Young Men's Survey: United States, 1994–1998

	Total	Baltimore, Md	Dallas, Tex	Los Angeles, Calif	Miami, Fla	New York, NY	San Francisco Bay Area, Calif ^a	Seattle, Wash
Years sampled	1994–1998	1996–1998	1994–1995	1994–1996	1995–1996	1997–1998	1994–1995	1997–1998
Enrollment rate, %	62	57	51	57	75	64	74	61
No. of MSM enrolled	3492	357	530	509	488	541	702	365
Age, %								
15–19 y	45	39	37	49	43	57	41	48
20–22 y	55	61	63	51	57	43	59	52
Race/ethnicity, %								
White	36	48	59	31	18	12	32	66
African American	17	40	15	8	16	24	15	8
Hispanic	30	3	19	41	61	41	27	4
Asian/Pacific Islander	6	3	3	6	2	2	15	7
Mixed or other ^b	11	7	5	14	4	21	11	16

Note. MSM = men who have sex with men.

^aThe Bay Area includes San Francisco, Oakland, and San Jose.

^bIncludes American Indians (n = 45).

TABLE 2—Alcohol and Drug Use Among Young Men’s Survey Participants in 7 US Urban Areas: 1994–1998

Total, % (n = 20)	Total, % (n=3492)	Baltimore, Md, % (n=357)	Dallas, Tex, % (n=530)	Los Angeles, Calif, % (n = 509)	Miami, Fla, % (n = 488)	New York City, NY, % (n = 541)	San Francisco Bay Area, Calif, % (n = 702)	Seattle, Wash, % (n = 365)
Alcohol use								
Ever	92.7	91.9	96.6	92.9	89.1	89.8	93.0	95.6
Past 6 mo	88.0	87.4	92.5	86.8	84.4	85.4	88.0	92.1
≥ 4 times/wk	4.8	5.9	7.4	3.5	3.5	5.7	3.9	4.4
Any illicit drug use								
Ever	75.9	73.1	71.5	76.8	72.3	77.8	78.6	80.6
Past 6 mo	66.0	62.8	58.5	66.6	64.8	69.9	69.1	69.6
≥ 1 time/wk	29.1	26.6	22.3	25.3	30.3	38.6	28.8	31.2
Illicit drugs used during past 6 mo								
0 drugs	34.0	37.3	41.5	33.4	35.3	30.1	30.9	30.4
1 drug	25.9	34.2	18.7	24.2	15.8	37.2	27.4	24.4
2 different drugs	12.4	9.2	13.2	14.9	11.7	13.3	12.7	10.1
≥ 3 different drugs	27.8	19.3	26.6	27.5	37.3	19.4	29.1	35.1
Marijuana use								
Ever	71.2	68.4	65.3	69.4	67.8	76.3	74.1	76.7
Past 6 mo	58.8	57.7	48.9	55.6	57.8	66.0	63.0	61.4
≥ 1 time/wk	23.1	24.4	14.7	16.3	24.0	36.0	22.0	25.2
Cocaine use								
Ever	31.1	24.9	32.6	28.4	42.4	27.0	28.9	34.0
Past 6 mo	20.6	19.3	23.6	15.7	35.3	20.0	13.8	18.4
≥ 1 time/wk	3.9	5.6	4.0	2.8	10.3	3.5	1.1	1.1
Upper/amphetamine use								
Ever	28.0	19.1	24.6	42.2	18.0	10.6	36.8	44.4
Past 6 mo	20.1	13.5	16.4	32.0	12.5	7.0	28.5	28.2
≥ 1 time/wk	5.7	3.6	3.2	12.2	2.7	1.5	9.1	5.8
Ecstasy use								
Ever	26.5	21.0	32.6	20.2	33.4	20.2	25.5	34.3
Past 6 mo	18.8	16.8	25.5	14.2	26.8	13.1	16.4	19.7
≥ 1 time/wk	2.8	1.7	7.7	2.2	2.9	1.5	1.3	1.9
LSD/hallucinogen use								
Ever	33.0	26.1	34.3	31.8	35.5	20.3	36.0	49.3
Past 6 mo	18.5	12.9	20.8	15.3	24.4	9.1	20.8	26.6
≥ 1 time/wk	1.4	1.1	1.7	1.0	2.5	0.6	2.0	0.3
Popper/nitrite use								
Ever	21.5	12.6	19.3	23.6	28.5	17.2	19.4	31.8
Past 6 mo	14.0	7.3	13.2	15.3	19.9	12.4	11.7	18.4
≥ 1 time/wk	1.0	0	0.9	1.0	1.4	1.3	1.0	0.8
Downer/barbiturate use								
Ever	13.9	8.1	15.9	10.6	23.2	7.8	12.3	20.8
Past 6 mo	9.8	6.2	10.9	6.5	19.5	5.4	8.8	11.8
≥ 1 time/wk	2.0	1.1	3.0	2.0	3.9	1.1	1.9	0.3
Crack use								
Ever	9.5	7.3	7.8	12.4	8.6	6.5	11.7	11.2
Past 6 mo	5.2	4.2	4.2	7.1	4.7	3.9	7.4	3.6
≥ 1 time/wk	0.6	0.6	0.4	1.4	0.2	0.9	0.6	0
Heroin use								
Ever	7.8	9.2	7.0	4.9	9.4	6.7	8.6	9.9
Past 6 mo	4.1	5.3	2.6	2.2	4.9	4.8	5.4	3.0
≥ 1 time/wk	1.4	2.0	0.6	0.4	0.8	1.9	2.7	0.6
Injection drug use								
Ever	7.2	3.9	5.3	7.5	4.7	5.9	9.4	13.2
Past 6 mo	3.6	1.7	1.5	3.9	2.3	3.3	6.3	5.2
Drugs ever injected								
Uppers/amphetamines	3.4	0.6	1.7	4.7	0.4	1.3	6.0	9.3
Heroin	3.3	1.7	2.5	2.4	1.2	2.2	6.3	6.3
Cocaine	2.6	1.4	2.5	2.6	1.0	1.7	3.9	4.9
Speedball ^a	1.7	1.1	1.1	0.8	0	1.5	3.6	3.6
Downers/barbiturates	0.7	0.6	0.6	0.2	0	0.4	1.9	1.1

^aCocaine and heroin injected together.

most commonly used drug in the past 6 months was cocaine in Miami (35%), New York City (20%), and Baltimore (19%); amphetamines in Los Angeles (32%), the San Francisco Bay Area (29%), and Seattle (28%); and ecstasy in Dallas (26%). Use of other drugs in the past 6 months also varied by urban area. LSD/hallucinogens were more commonly used in Dallas, Miami, San Francisco, and Seattle (21% to 27%) than in Baltimore, Los Angeles, and New York City (9% to 15%). Dallas and Miami had the highest prevalence of ecstasy use (26% and 27%, respectively).

Almost one third (29%) of the participants reported using drugs weekly or more frequently. Although marijuana alone accounted for 56% of the frequent drug use (data not shown), frequent cocaine use was reported by

10% of participants in Miami, and frequent amphetamine use by 12%, 9%, and 6% in Los Angeles, San Francisco, and Seattle, respectively. Twenty-eight percent had used 3 or more different drugs. The most common combinations reported by those who reported polydrug use were marijuana in conjunction with 2 or more of the following drugs: cocaine, amphetamines, ecstasy, or LSD/hallucinogens. Having ever injected a drug was reported by 7%; 4% had injected in the past 6 months (ranging from less than 2% in Dallas to 6% in San Francisco).

Correlates of Drug Use, Frequent Drug Use, Polydrug Use, and Injection Drug Use

Table 3 shows factors associated with the 4 drug-use measures for which we performed multivariate analysis. Participants aged 20 to

22 years were more likely than those aged 15 to 19 years to report polydrug use, but there were no age differences for any drug use overall, frequent drug use, or injection drug use. African American and Asian/Pacific Islander MSM were less likely than young White MSM to report any of the 4 drug-use practices in the past 6 months, as were Hispanics with the exception of injection drug use. Participants with a lifetime history of having run away or having experienced forced sex were at higher risk on all 4 drug-use measures.

Participants who self-identified as bisexual or heterosexual were more likely to report any of the 4 drug-use practices than were those who self-identified as gay. Those who were out to a higher percentage of acquaintances were also more likely to report all 4

TABLE 3—Correlates of Drug Use, Polydrug Use, Frequent Drug Use, and Injection Drug Use in the Past 6 Months Among Young Men’s Survey Participants in 7 US Urban Areas: 1994–1998

	Participants (n = 3492)	Any Drug Use		Used ≥ 3 Different Drugs		Used Drugs ≥ Once/Wk		Injection Drug Use		
		% Yes	AOR (95% CI)	% Yes	AOR (95% CI)	% Yes	AOR (95% CI)	% Yes	AOR (95% CI)	
Age, y										
15–19	1564	65.5	1.0	25.3	1.0	28.5	1.0	3.5	1.0	
20–22	1927	66.4	NS	29.8	1.2 (1.1, 1.5)	29.6	NS	3.7	NS	
Race/ethnicity^a										
White	1259	70.9	1.0	36.4	1.0	32.5	1.0	4.9	1.0	
African American	597	57.1	0.6 (0.5, 0.7)	7.4	0.2 (0.1, 0.2)	22.3	0.6 (0.4, 0.7)	1.3	0.3 (0.1, 0.7)	
Hispanic	1042	66.9	0.8 (0.7, 0.99)	29.9	0.7 (0.6, 0.9)	29.7	0.8 (0.6, 0.97)	3.2	0.6 (0.4, 1.1)	
Asian/PI	204	48.5	0.4 (0.3, 0.5)	18.6	0.4 (0.3, 0.7)	14.2	0.4 (0.2, 0.6)	
Mixed or Other	384	70.8	0.8 (0.6, 1.1)	30.2	0.7 (0.6, 0.97)	34.6	0.8 (0.6, 1.1)	4.1	0.6 (0.3, 1.02)	
Sexual identity										
Homosexual	2267	63.7	1.0	24.8	1.0	25.0	1.0	2.4	1.0	
Bisexual	1041	68.6	1.7 (1.4, 2.0)	31.1	2.0 (1.7, 2.5)	33.9	2.0 (1.7, 2.4)	4.2	2.5 (1.6, 4.0)	
Heterosexual	132	81.8	3.6 (2.0, 6.4)	48.5	5.1 (3.2, 8.4)	53.8	4.3 (2.7, 6.9)	10.6	6.0 (2.5, 14.3)	
Other	42	73.8	1.2 (0.6, 2.6)	38.1	1.9 (0.9, 3.8)	52.4	2.7 (1.4, 5.1)	26.2	12.6 (5.5, 29.0)	
Out about having sex with men										
Out to <50%	767	57.5	1.0	19.0	1.0	23.5	1.0	2.6	1.0	
Out to about 50%	688	60.8	1.4 (1.1, 1.7)	23.3	1.8 (1.4, 2.4)	25.6	1.4 (1.1, 1.9)	1.2	0.6 (0.3, 1.4)	
Out to >50%	1992	70.8	2.2 (1.8, 2.7)	32.3	2.8 (2.2, 3.6)	31.8	2.1 (1.7, 2.7)	4.6	2.4 (1.4, 4.3)	
Ever been forced to have sex										
No	2265	62.9	1.0	24.0	1.0	26.6	1.0	2.6	1.0	
Yes	1215	72.0	1.4 (1.2, 1.6)	34.5	1.4 (1.2, 1.7)	33.4	1.3 (1.1, 1.5)	5.4	1.5 (1.03, 2.3)	
Ever run away										
No	2262	60.1	1.0	22.1	1.0	23.3	1.0	1.5	1.0	
Yes	1229	77.0	1.9 (1.6, 2.2)	38.2	1.9 (1.6, 2.2)	39.6	1.8 (1.6, 2.2)	7.6	4.0 (2.6, 6.1)	

Note. AOR = adjusted odds ratio; CI = confidence interval; PI = Pacific Islander; NS = not significant. Percentages indicate the proportion of persons in each category who reported the specific drug use. Individual categories may not add up to total because of missing data. All AORs were controlled for survey site.

drug-use practices. We further examined the apparently contradictory finding that gay identity was associated with lower prevalence of use, whereas being out about having sex with men was associated with greater prevalence of use (data not shown). Although participants who self-identified as gay were more likely to be out than were participants who identified themselves as bisexual or heterosexual (70% vs 35% and 16%, respectively, for being out to more than 50% of acquaintances), higher prevalence of use was consistent among those who were out to a higher percentage of people, regardless of their own sexual identity. Furthermore, those who identified themselves as bisexual and heterosexual had a higher prevalence of drug use than those who self-identified as gay, regardless of level of being out.

Parents' educational level and internalized homophobia were not associated with any of the measures. The same factors found to be associated with the 4 drug-use variables were also associated with frequent use of each of the most commonly used drugs, which included marijuana, cocaine, amphetamines, and ecstasy. Racial/ethnic differences, however, were less pronounced for frequent marijuana use.

DISCUSSION

To our knowledge, ours is the first study that uses a community-based sampling approach to provide estimates of drug and alcohol use among young MSM in several different urban areas of the United States. Three quarters of the 15- to 22-year-old MSM reported having previously used a drug, two thirds had used drugs in the past 6 months, and many reported more problematic drug use.

Prevalence of drug use among the young MSM in our study was higher than in previous studies of young men from the general population and of adult MSM, and alcohol use was similar. In the 2000 National Household Survey on Drug Abuse, 51% of young adults aged 18 to 25 years reported having ever used illegal drugs, and 28% reported using them in the past year.²⁷ Although the YMS sample had an urban bias compared with this national sample, it is unlikely that this bias alone accounts for the observed dif-

ferences between YMS and the National Household Survey. Furthermore, drug use in a large sample of MSM was 3.6-fold higher than drug use in an age-adjusted National Household Survey on Drug Abuse sample of single urban men, whereas alcohol use was similar.⁶ Lifetime use of cocaine, amphetamines, heroin, or injection drugs was between 1.6 and 2.3 times higher among YMS participants than among 12th-grade male students who participated in the 1999 Youth Risk Behavior Survey, whereas marijuana use was only slightly higher, and alcohol use was similar.²⁸ The results from this nationally representative sample may not represent youth in individual urban areas. However, city-specific results were available for male high school students from some of the YMS areas, including New York City, Dallas, Miami, San Francisco, and Seattle. These results were all within the range of or lower than the national results, probably because they included younger students. Our results were similar to results from a San Francisco survey of 20- to 29-year-old MSM that showed a high prevalence of frequent drug use and polydrug use.² However, the prevalence of frequent drug use and polydrug use, as well as use of individual drugs, was higher among the young MSM in our study than among MSM aged 18 years and older who participated in a multisite probability sampling telephone survey, which included 3 of the same cities as the YMS.¹ The high prevalence of drug use, especially more serious forms of use, among the young MSM in our study is disturbing, considering the increased risk for abuse and dependence associated with early initiation of drug use and the serious health and social consequences (e.g., HIV infection) of use of certain drugs.^{16-19,22,23} These findings emphasize the importance of promoting and providing access to drug use prevention and treatment programs that address the special needs of young MSM.

We found that amphetamine use was more frequent in the West Coast urban areas than in the East Coast and the Southern urban areas, where cocaine was the predominant drug except for the use of alcohol and marijuana, which were the most commonly used substances in all survey sites. This is consistent with findings from the telephone survey

cited above and from a multisite study of HIV-seropositive MSM.^{1,4} Studies of recent arrestees and increases in admissions for methamphetamine treatment indicate that methamphetamine use is spreading throughout the United States from the West and the Southwest to the Midwest and the South, a finding that underscores the need to closely monitor amphetamine use in young MSM.^{29,30} Although increasing use of methamphetamine in New York City has not been officially documented and only 7% of YMS participants from New York City reported using amphetamine in the past 6 months, there is growing concern that amphetamine is becoming increasingly popular in clubs in that city.^{31,32} Considering the addictive properties and the serious neurological, behavioral, and psychological sequelae of cocaine and methamphetamine use, prevention and treatment services that address the medical and psychiatric conditions associated with use of, abuse of, and dependency on these drugs should be made available to young MSM in areas where use is already common.^{33,34} Use of poppers/nitrite inhalants was lower in our study than in other studies of MSM, possibly because poppers are often used in conjunction with anal sex (relaxes the anal sphincter muscle), a sexual practice that may have been less common in our sample of young MSM.^{1,6,35}

Although other studies have not reported higher prevalence of drug use among White MSM than among MSM of color, our finding is consistent with results from the 1999 national Youth Risk Behavior Survey, which showed that lifetime use of cocaine, heroin, or injection drugs was much lower among African American youth compared with White youth.²⁸ Further research is needed to determine why these racial/ethnic differences apparently do not persist among adult MSM and whether substance use plays a role in HIV transmission among young MSM of color.

In our study, young MSM who identified themselves as gay were less likely to use drugs, whereas those who were out about having sex with men were more likely to use drugs. These findings may initially seem contradictory. However, sexual identity represents a person's own perception of his sexual

identity, whereas being out relates to his choice to disclose to others that he has sex with men. Being out is considered an indicator of affiliation with gay culture, a culture in which social alcohol and drug use are common. Previous reports cite this cultural affiliation as the mechanism that links “outness” with substance use.^{1,21} Drugs and alcohol play a significant role in the lives of many gay men. In their struggle to develop a gay sexual identity, many young men in this marginalized group seek to integrate themselves into an urban gay culture that has traditionally involved environments supportive of drug and alcohol use. Our findings show that among those MSM who identify themselves as bisexual or heterosexual and who are out about having sex with men, there exists a subgroup of young MSM who are at especially high risk of more serious drug use. It is likely that other young people who are dealing with sexual identity and disclosure issues, such as transgender and lesbian youth, are at similar risk for more problematic drug use.

Young men in our study who reported a history of forced sex were more likely to use drugs, which is consistent with findings from other reports.^{36,37} It is not surprising that those with more serious levels of drug use were also more likely to report a history of having run away, because family conflicts and physical and sexual abuse are risk factors for substance use.^{19,36,37}

The independent associations between the more serious measures of drug use and race/ethnicity, sexual identity, being out about having sex with men, and adverse life experiences illustrate the complexities of factors related to drug use and the need for further research in this area. Previous reports have stressed the importance of addressing issues of gay sexuality within drug treatment environments to effectively counsel MSM about substance use reduction and cessation.^{1,2} Addressing the complex issues related to substance use is also essential in the development of effective prevention strategies for HIV transmission within this highly vulnerable population. Stall et al.^{5,38} recently demonstrated the synergistic effect of multiple psychosocial health factors, including polydrug use, on high-risk sexual behaviors and HIV prevalence, and other reports³⁹

have emphasized the significant value of substance use treatment in HIV prevention.

Our findings have some limitations. They only represent young MSM from the 7 participating urban areas, and they may be affected by sampling bias, because only young MSM who frequented the sampling venues could participate. All 7 sites continued community assessment throughout the survey period to ensure that new sampling venues were constantly identified and included. Our 62% enrollment rate is high, considering that sampling was accomplished at venues through outreach methods which can be a more difficult form of sampling, but it does raise the issue of enrollment bias. Younger men were more likely to enroll than older men. Men of mixed race were also more likely to enroll, whereas men of Asian/Pacific Islander race were less likely to enroll. However, because there was little difference in the prevalence of drug use by age and because relatively few Asian/Pacific Islanders and men of mixed race enrolled, we do not think that enrollment rate variations biased our findings. As with other interviewer-administered surveys, it is possible that personal behaviors and illegal activities such as drug use may have been underreported. Hence, our survey would have underestimated the prevalence of drug use. However, there is no indication that underreporting was systematically related to any of the characteristics and behaviors we found to be associated with the 4 drug measures. The cross-sectional nature of the survey prevents us from assessing the direction of temporal relationships between the drug-use variables and reporting a history of forced sex or having run away. We collected very limited data on history of forced sex and were unable to examine further the associations between forced sex and drug use. We did not collect data on other factors such as family drug use and depression that are reportedly associated with drug use.^{1,19,20}

In summary, our study found regional differences in drug-use patterns of young MSM, indicating the need to monitor local use and to tailor drug-use prevention and treatment programs accordingly. We found a high prevalence of drug use and of more serious forms of drug use among young MSM compared with previous findings for older MSM and

young men in the general population, suggesting a need for more targeted drug-use prevention and treatment programs. Our findings also suggest that sexual identity, being out about having sex with men, and lifetime experiences with running away and forced sex may need to be addressed to successfully prevent, reduce, or treat drug use and its health and social consequences, including HIV infection. ■

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Contributors

H. Thiede conceived of the idea for this article, conducted the analyses, and led the writing. L.A. Valleroy, D. MacKellar, and H. Hagan assisted with the analyses and the writing. L.A. Valleroy was the CDC project officer with overall responsibility for the study at all sites. Duncan MacKellar was the CDC project coordinator responsible for coordinating the study at all sites and ensuring compliance with the study protocol. H. Thiede, D.D. Celentano, W.L. Ford, M. LaLota, W. McFarland,

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