Health Care Access and Sexually Transmitted Infection Screening Frequency Among At-Risk Massachusetts Men Who Have Sex With Men

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Objectives. We sought to assess risk exposures, health care access, and screening rates for HIV and sexually transmitted infections (STIs) among men who have sex with men (MSM) in Massachusetts.

Methods. We used a modified respondent-driven sampling method to collect data between March 2006 and May 2007. Overall, 126 MSM completed a survey.

Results. Seventy percent of participants reported unprotected receptive anal intercourse with at least 1 nonmonogamous male partner; 50% reported having had a previous STI. Although 98% had visited a health care provider in the previous year, 39% had not been screened for STIs during the previous 2 years. Bisexual respondents were less likely to have told their health care providers that they engage in male-to-male sexual contact (OR=4.66; $P<.001$), less likely to have been tested for STIs during the previous 2 years (OR=6.91; $P<.001$), and more likely to engage in insertive anal intercourse without a condom with an HIV-infected partner (OR=5.04; $P<.005$) than were non-bisexual respondents.

Conclusions. Clinicians need to assess sexual risk-taking behaviors and more routinely screen for STIs among sexually active men regardless of disclosure of a history of having sex with men. (*Am J Public Health.* 2009;99:S187–S192. doi: 10.2105/AJPH.2007.127464)

Gay, bisexual, and other men who have sex with men (MSM) in the United States continue to be at high risk for HIV and other sexually transmitted infections (STIs). Composing perhaps 9% of the US male population,[1] MSM represent 54% of cumulative AIDS cases in the United States, with non-White MSM accounting for half of the 230 000 MSM currently living with HIV/AIDS. Additionally, in the 33 states with long-term, confidential name-based reporting of HIV/AIDS diagnoses, the proportion of diagnoses attributable to MSM rose from 44% in 2001 to 53% in 2005,[2] and a similar trend has been identified in Massachusetts.[3]

Increases in syphilis and drug-resistant gonorrhea rates among MSM have been observed over the same period, suggesting a resurgence in sexual risk taking. Although overall syphilis rates are in decline because of national elimination efforts, recent increases are largely attributable to MSM. Men who have sex with men currently account for more than half (64% in 2004) of reported cases of primary and secondary syphilis, up from 5% of cases in 1999.[4] In 2005, the proportion of men testing positive for drug-resistant gonorrhea was nearly 8 times higher among MSM than among male heterosexuals (29% vs 3.8%).[4] In Massachusetts, the number of primary and secondary syphilis cases attributable to MSM increased from 33 in 2000 to 159 in 2005, representing a proportionate change from 23% to 72% of total cases, and the number of MSM reporting drug-resistant gonorrhea rose from 2 in 2001 to 66 in 2005, representing a proportionate change from 100% to 83% of total cases.[3,5] Because STIs may present without signs of infection or symptoms[6] and have been shown to facilitate transmission and acquisition of HIV infection at least 2- to 5-fold,[7,8] these trends highlight an urgent need to provide HIV and STI prevention services to MSM, including access to timely, relevant, and sensitive testing and treatment.

Beginning in 2002, the Centers for Disease Control and Prevention (CDC) recommended that all sexually active MSM receive annual screening tests for HIV, syphilis, and gonorrhea, and that MSM at highest risk (e.g., those having multiple partners, having sexual intercourse in conjunction with recreational drug use, or those whose partners engage in these activities) be tested every 3 to 6 months.[9] However, many MSM, especially men who are younger than 25 years,[10,11] Black or Latino,[11] or are of lower income,[12] do not regularly get tested and remain unaware of their HIV status.[13] The reasons MSM do not get screened for HIV or other STIs include their perception of being at low risk and fear of a positive result, as well as lack of access to free or low-cost anonymous testing and failure of providers to recommend testing.[14–17]

Primary care providers and other health care providers can play a significant role in the diagnosis, treatment, and prevention of HIV and STIs among MSM.[9] According to Centers for Disease Control and Prevention data, 54% to 85% of MSM have a regular source of health care, with 65% to 85% receiving primary health care from a private provider.[18] MSM are more likely to be tested for HIV if they visit a health care provider and the provider recommends an HIV test.[13] Growing evidence indicates that ease of communication with health care providers about sexual orientation (including same-sex attraction, sexual identity, and behavior) may promote preventive screenings.[17,19–21] However, MSM may be reluctant to disclose sexual orientation to providers because of concerns about confidentiality or discrimination.[19,22,23] Providers may not inquire about these issues because of insufficient time, discomfort with discussions of sexual behavior, or presumptions about sexuality and behavior,[24] suggesting the need for additional training so they understand the specific health care needs of MSM.[17,19,23,25]

To more fully describe the relationship between health care access and STI screening frequency among MSM, we surveyed 126 MSM in Massachusetts, assessing sexual behavioral risks, health care access, and rates of HIV and STI screenings in primary care settings. To enrich

the sample with racial minority MSM compared with previous studies conducted by Fenway Community Health,[26–28] we used modified respondent-driven sampling[17] to obtain a diverse sample of 55% racial minority MSM, with 54% of all respondents being HIV-infected, 21% not disclosing their status as MSM to their health care providers, and 21% not having regular housing at some point over the previous 12 months.

METHODS

Participants and Procedures

Between March 2006 and May 2007, 126 participants were recruited with a modified respondent-driven sampling method.[17] Participants were eligible if they were a Massachusetts resident 18 years or older who indicated they had sex with men. All study activities took place at Fenway Community Health, a freestanding health care and research facility specializing in HIV/AIDS care and serving the needs of the lesbian, gay, bisexual, and transgender community in the greater Boston, Massachusetts, area.[29,30]

Recruitment

Respondent-driven sampling is a sampling strategy designed to analyze social networks by having initial study participants, "seeds," recruit their peers.[31] In traditional respondent-driven sampling, participant recruitment continues to equilibrium—the point at which the composition of the study sample, as reflected in key characteristics and behaviors, is independent of the original seeds, thereby approaching representativeness of the target population.[32,33] We modified respondent-driven sampling to terminate recruitment when the desired sample size had been met, before equilibrium. Another modification included adding many seeds from diverse backgrounds to expedite the recruitment process. For example, among the 10 eligible participants selected to act as seeds, 40% were Black, 20% had no regular place to live in the previous 12 months, 30% had a high school education or less, and 30% had a college degree or higher.

We selected potential seeds from Fenway Community Health patients who presented for STI testing because they were concerned about high-risk sexual behavior (defined as unprotected oral receptive sex or protected or unprotected anal intercourse), were experiencing STI symptoms, or had been diagnosed as HIV-infected within the previous 6 months. Seeds were selected on the basis of these eligibility criteria and on their willingness and motivation to recruit others. Seeds were asked to recruit a maximum of 3 members of their social or sexual network, who in turn were asked to recruit a subsequent wave of up to 3 participants, and so on, until the target sample size had been reached. We gave each participant 5 cards with study information to hand to potential recruits. To keep track of social networks, each card had a code that connected participants to the initial seed. Participants received $40 for completing the survey and $20 for each recruit who completed a survey.

Development of Study Instruments

Demographic, sexual behavior, and substance use questions were adapted from the CDC's MSM Behavioral Surveillance Survey, including self-reports of racial and ethnic identity.[34] Questions about health care access and HIV and STI testing were developed from findings from a previous study.[17]

Disclosure as men who have sex with men. To assess whether participants were "out" (disclosers) or "not out" (nondisclosers) about being MSM, participants were asked, "Have you told anyone that you are attracted to or have sex with men?" to which they could answer "yes" or "no." If they answered yes, they were considered to be "out." If they answered no, they were considered not to be "out." Participants who answered yes were asked a follow-up question: "Which of the following people have you told? (1) gay, lesbian, or bisexual friends; (2) other friends; (3) family members; (4) health care providers; (5) other." Participants were asked to check all that applied. Responses were dichotomized as having told or not told health care providers.

Access to health care and HIV and sexually transmitted infection testing. To assess health care access and utilization, participants were asked whether they had visited a doctor, nurse, or other health care provider in the previous 12 months. If participants answered yes, they were asked 2 follow-up questions: "During your last visit, did the health care provider or someone in his/her office, clinic, or hospital recommend that you get an HIV test?" and "During your last visit, did the health care provider or someone in his/her office, clinic or hospital recommend that you get an STI test other than HIV?"

Participants were also asked whether they had a primary care provider. If yes, they were also asked, "Has your primary care provider ever recommended that you get an HIV test?" and "Has your primary care provider ever recommended that you get an STI test other than HIV?"

To determine HIV testing, participants were asked whether they had ever been tested for HIV and the date and result of their most recent test. For STI screening, participants were asked whether they had ever been tested for any STI (such as syphilis, gonorrhea, and chlamydia) and the date of their most recent test. Participants were also asked whether they had ever been diagnosed with an STI.

Data Analysis

Survey responses were entered into a Microsoft Excel 2003 (Microsoft Corp, Redmond, WA) database and analyzed with SPSS version 12.0 (SPSS Inc, Chicago, IL). We used the χ^2 test of independence to test independent associations between variables. Odds ratios (ORs) were calculated to assess the risk of particular outcomes. Correlations were used to assess the extent to which scores on 2 variables occupy the same relative position. Mean group comparisons were made with the *t* test and analysis of variance. Comparisons were made by racial group (White vs non-White), HIV and STI history, and other demographic variables.

Because our modified respondent-driven sampling approach terminated recruitment before equilibrium, we anticipated that the composition of recruits would not be independent of those selected as seeds. To determine possible differences between seeds and recruits, we performed demographic comparisons across seeds and waves. To increase group size for the χ^2 analysis comparing differences between waves and seeds, we combined waves 9 through 14 (n=16), resulting in a total of 10 waves.

RESULTS

Demographics

Demographics are reported in Table 1. Participants ranged in age from 20 to 66 years

TABLE 1—Demographic and Psychosocial Characteristics of a Sample of Massachusetts Men Who Have Sex With Men (MSM) At Risk for HIV and Sexually Transmitted Infections

	Percentage of Total (N = 126)
Age,[a] y	
18–25	2
26–35	13
36–45	51
≥46	34
Race/Ethnicity[b]	
White	45
Black	45
Hispanic	11
Asian/Native Hawaiian/ Pacific Islander	1
American Indian/Alaska Native	6
Born outside the United States	6
No place to live at some point in the previous 12 mo	21
Education	
High school diploma or less	36
Some college	37
Undergraduate degree	20
Graduate degree	8
Annual income, $	
<12 000	44
12 000–29 999	30
30 000–59 999	10
≥60 000	2
Prefer not to say	13
Health insurance status	
No health insurance	3
Private health insurance or HMO	17
Public (Medicare, Medicaid, MassHealth, US Dept of Veterans Affairs)	75
Other	9
Sexual identity[c]	
Heterosexual	2
Gay	64
Bisexual	30
Other	3
MSM status disclosure[d]	
Out	88
Not out	12
HIV status[e]	
HIV infected	54
Non–HIV infected	43
Do not know	3
STI history	
Any STI[f]	50
Syphilis	15
Gonorrhea	32
Chlamydia	8
Other STI	14

Note. HMO = health maintenance organization; STI = sexually transmitted infection.
[a]Age range was 20 to 66 years (mean = 43, SD = 8).
[b]Percentages total more than 100% because participants were allowed to select more than 1 category.
[c]Participants chose from the categories shown. Percentages do not total 100% because of rounding.
[d]Participants were asked, "Have you told anyone that you are attracted to or have sex with men?" "Yes" answers were categorized as out, and "no" answers were categorized as not out.
[e]HIV status was self-reported.
[f]This is the percentage of men reporting a diagnosis of syphilis, gonorrhea, chlamydia, or another STI.

(mean=43, SD=8). Overall, 55% were non-White; 83% of non-White participants identified as Black. Eleven percent of the sample identified as Hispanic, and 6% were born outside of the United States. Thirty-six percent had a high school diploma or less, 44% reported an annual income of less than $12 000, and 21% did not have a regular place to live at some point over the previous 12 months. Non-White participants were significantly more likely to have a high school education or less and to earn less than $12 000 than were White participants ($P<.05$). Fifty-four percent of our respondents were HIV infected, 43% were not HIV infected, and 3% did not know their HIV status.

The majority of participants (64%) identified as gay, 30% as bisexual, 2% as heterosexual, and 3% as other. Twelve percent (n=15) of participants were not out; of these, 87% (n=13) were non-White.

Respondent-Driven Sampling

There was a trend toward increasing diversity among the waves of subsequent participants. For example, the seeds were 60% White, 70% HIV-infected, and 30% in the lowest income category, and 80% identified as gay. The waves were 44% White, 53% HIV-infected, and 45% in the lowest income category, and 63% identified as gay. However, on age, race, income, education, sexual identity, HIV status, and history of previous STIs, differences between seeds and waves were not found to be statistically significant (Pearson's $\chi^2=.05$).

Significant differences were found on health insurance and disclosure as MSM between seeds and waves. Whereas seeds were more likely to be privately insured, later waves (waves>6) were more likely to be publicly insured ($P<.01$). Relative to later waves, seeds were also more likely to be out to their health care providers (OR=6.98; $P<.01$).

Behavioral Risk Factors

Almost all participants (98%) reported having had oral or anal (insertive or receptive) intercourse in the previous 12 months, with an average of 10 male sexual partners (SD=18), of whom an average of 6 were anonymous (SD=14); 33% reported having had oral, anal, or vaginal intercourse in the previous 12 months with an average of 2 female sexual partners (SD=7). Participants who reported having anonymous sexual partners were more likely to engage in insertive anal intercourse without a condom and reported having more HIV-infected sexual partners than those who did not report having anonymous sexual partners ($P<.01$).

Unprotected receptive and insertive anal intercourse with at least 1 nonmonogamous male partner were commonly reported (by 70% and 65% of participants, respectively). Of these, 17% reported unprotected receptive and 26% reported unprotected insertive anal intercourse with at least 1 HIV-infected male sexual partner in the previous 12 months. Thirty-eight percent of the sample reported oral sex with exposure to ejaculate from an HIV-infected partner.

Participants reported having had sex while under the influence of a variety of substances in the previous 12 months. The most prevalent were alcohol (55%), marijuana (48%), nitrite inhalants ("poppers"; 39%), crystal methamphetamine (18%), and ecstasy (14%). A significant correlation was observed between the number of times an individual had sex while using crystal methamphetamine and his total

number of male sexual partners (r=0.41; P<.01) and anonymous sexual partners (r=0.35; P<.01). The use of poppers and ecstasy were also associated with an increased number of male sexual partners (P<.05).

Access to Health Care and HIV and Sexually Transmitted Infection Testing

Forty-six percent of participants were directly enrolled in a federal health care assistance program (29% Medicaid, 25% Medicare, 4% Department of Veterans Affairs; participants could select more than 1); 62% of them were HIV infected. Thirty-seven percent were enrolled in MassHealth (state-subsidized health care), 17% had private health insurance or a health maintenance organization (HMO), 9% had other insurance, and 3% had no health insurance. Non-White participants were more likely to be publicly insured compared with White participants (OR=3.08; P<.007). Participants who had a regular place to live throughout the previous 12 months were more likely to be privately insured than were those without a place to live at some point in the previous year (OR=11.37; P<.003). Participants insured with MassHealth were more likely to have been previously tested for STIs than were those with other types of insurance (OR=2.31; P<.01).

Overall, 98% of the sample had visited a health care provider in the previous 12 months. Among non–HIV-infected participants, 14% indicated that their health care provider recommended HIV testing during their last visit; STI screening was offered to only 26% of the entire cohort. The majority of participants (87%) also had a regular primary care provider. Among non–HIV-infected participants, 23% reported that their primary care provider had recommended HIV testing; only 42% of all participants were screened for STIs during their last visit. White participants were more likely than were non-White participants to have been offered STI screening by their primary care provider during their last visit (OR=2.48; P<.02).

Ninety-eight percent of the sample had been tested for HIV and 75% for an STI other than HIV at least once in their lifetime. Fifty percent of the sample had a history of 1 or more STI (syphilis, 15%; gonorrhea, 32%; chlamydia, 8%; other, 14%). HIV-infected participants were more likely to report having been ever diagnosed with an STI than were non–HIV-infected participants (OR=4.04; P<.001). Among those not infected with HIV, 81% had been tested for it during the previous 2 years. However, 39% of the total sample had not been screened for STIs within the previous 2 years, and 26% had not been screened since 1998. Compared with non-White participants, White participants were more likely to have ever been tested for STIs (OR=3.82; P<.01).

Participants were tested for HIV in community clinics (68%), private physicians' offices (42%), STI clinics (19%), emergency departments or urgent care clinics (19%), and other settings (21%; including but not limited to jail, mobile testing van, military, as part of research). STI testing also occurred in diverse settings: community clinics (51%), private physician's offices (40%), STI clinics (22%), emergency departments or urgent care clinics (17%), and other (7%).

Disclosure and Disparities in HIV and Sexually Transmitted Infection Testing

Twenty-one percent of participants reported that they were not out about being MSM to their health care providers. Participants who had disclosed being MSM to their health care providers were almost 3 times more likely to have been tested for STIs (OR=2.79; P<.02) and almost 6 times more likely to have been tested for HIV (OR=5.81; P<.005) in the previous 2 years than were those who had not disclosed to their health care providers. But nondisclosers were more likely to engage in risky sexual behavior than were those who had disclosed their MSM status to their health care providers. Compared with disclosers, participants who were not out to their health care provider were 10 times more likely to have had receptive anal intercourse without a condom (OR=9.99; P<.001) and 11 times more likely to engage in insertive anal intercourse without a condom with an HIV-infected partner (OR=11.20; P<.001) in the previous 12 months.

Compared with Whites, non-White participants were more likely to identify as bisexual (OR=5.83; P<.001), to not be out about their sexuality (OR=6.38; P<.01), and to not have told their health care providers that they engage in male-to-male sexual contact (OR=2.94; P<.01). Compared with men who identify as gay, heterosexual, or other, bisexual MSM were disproportionately more likely not to have told their health care providers that they engaged in male-to-male sexual contact (OR=4.66; P<.001). They were also more likely not to have been tested for STIs in the previous 2 years (OR=6.91; P<.001) and more likely to report engaging in insertive anal intercourse without a condom with an HIV-infected partner in the previous 12 months (OR=5.04; P<.005) than were all other men.

DISCUSSION

Although HIV, STIs, and sexual risk taking were commonly reported by this diverse sample of Massachusetts MSM, screening rates differed by demographic group. Half of the participants had a history of 1 or more STIs, and men who were HIV infected were 4 times more likely to report having ever been diagnosed with an STI. With an average of 10 male sexual partners in the previous 12 months (6 of them anonymous) and high rates of unprotected receptive and insertive anal intercourse, the sample represents men who are at very high risk for HIV and STIs.

Ninety-seven percent of participants were covered by some type of health insurance, and 98% had visited a health care provider at least once during the previous 12 months. Even though 98% had been tested for HIV and 75% for an STI other than HIV at least once in their lifetime, only 61% had been screened for STIs within the previous 2 years. Compared with non-White participants, White participants were almost 4 times more likely to have ever been tested for STIs. Compared with White participants, non-White participants were almost 6 times more likely to be bisexual and 3 times less likely to have told their health care providers that they engage in male-to-male sexual contact. Compared with men who identified as gay, heterosexual, or other, bisexual MSM were disproportionately less likely to have told their health care providers that they engaged in male-to-male sexual contact; they were 7 times less likely to have been tested for STIs in the previous 2 years, and 5 times more likely to engage in insertive anal intercourse without a condom with an HIV-infected partner.

In light of current discussions and conflicting federal recommendations on the efficacy of routine HIV and STI testing,[35–38] these differences dramatically illustrate the need for clinicians and other health care providers to adopt a more proactive approach to HIV and STI counseling and screening, regardless of race, ethnicity, or how men identify or present themselves. The CDC's Sexually Transmitted Disease/HIV Prevention Training Centers provide guidance in the clinical prevention of HIV and STIs, including the need for clinicians to obtain an unbiased sexual history.[8,9] Clinicians should demonstrate an open, comfortable, and nonjudgmental attitude toward sexuality, sexual behavior, and substance use, and should speak compassionately and frankly about behaviors that put men and their sexual partners at risk for HIV or STIs.[39] Additionally, the opportunities for client-centered behavior change are strengthened when clinicians know about and will refer patients to specific resources for these populations, including community-based HIV testing and counseling, peer-based HIV prevention and risk-reduction services, homeless services, mental health services, substance abuse treatment programs, and support groups such as Alcoholics Anonymous (including those specifically for gay and bisexual populations).

Modified respondent-driven sampling enabled us to describe HIV and STI risk taking and health care utilization among a racially diverse sample of Massachusetts MSM, including a substantial proportion of individuals who were homeless and with relatively low levels of education and income. However, there were several study limitations. Because recruitment was terminated before equilibrium, our study represented a convenience sample, with the nonrandom selection of seeds subsequently affecting the characteristics of recruits. By contrast to traditional respondent-driven sampling, we did not weight the final sample according to the population being studied, so that inferences about the prevalence of specific conditions in the population could not be assessed. Furthermore, HIV and STI screening rates between HIV-infected and non–HIV-infected participants may be confounded if non–HIV-infected men differentially avoided screenings.

Nonetheless, the efficacy of respondent-driven sampling in accessing hidden or difficult-to-reach populations[32] has important implications for public health interventions targeting those at highest risk for HIV or STIs, including ethnic/racial minority and HIV-infected MSM. The sample was not representative of all Massachusetts MSM, but it has provided important details on a subset of MSM who remain at very high risk for HIV and STIs and about the need for improved prevention counseling and screening services for these men. ■

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Contributors

C.V. Johnson synthesized analyses and led the writing. M.J. Mimiaga and K.H. Mayer originated the study and supervised all aspects of its implementation. C.V. Johnson, M.J. Mimiaga, S.L. Reisner, and A.M. Tetu completed the analysis. A.M. Tetu assisted with the study. All authors helped to conceptualize ideas, interpret findings, and review drafts of the article.

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Human Participant Protection

The Fenway Community Health institutional review board approved the study, and each study participant completed a written informed consent process.

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