Health System and Personal Barriers Resulting in Decreased Utilization of HIV and STD Testing Services among At-Risk Black Men Who Have Sex with Men in Massachusetts

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Abstract

Testing for HIV and other sexually transmitted diseases (STD) remains a cornerstone of public health prevention interventions. This analysis was designed to explore the frequency of testing, as well as health system and personal barriers to testing, among a community-recruited sample of Black men who have sex with men (MSM) at risk for HIV and STDs. Black MSM ($n = 197$) recruited via modified respondent-driven sampling between January and July 2008 completed an interviewer-administered assessment, with optional voluntary HIV counseling and testing. Logistic regression procedures examined factors associated with not having tested in the 2 years prior to study enrollment for: (1) HIV (among HIV-uninfected participants, $n = 145$) and (2) STDs (among the entire mixed serostatus sample, $n = 197$). The odds ratios and their 95% confidence intervals obtained from this analysis were converted to relative risks. (1) HIV: Overall, 33% of HIV-uninfected Black MSM had not been tested for HIV in the 2 years prior to study enrollment. Factors uniquely associated with not having a recent HIV test included: being less educated; engaging in serodiscordant unprotected sex; and never having been HIV tested at a community health clinic, STD clinic, or jail. (2) STDs: Sixty percent had not been tested for STDs in the 2 years prior to study enrollment, and 24% of the sample had never been tested for STDs. Factors uniquely associated with not having a recent STD test included: older age; having had a prior STD; and never having been tested at an emergency department or urgent care clinic. Overlapping factors associated with both not having had a recent HIV or STD test included: substance use during sex; feeling that using a condom during sex is "very difficult"; less frequent contact with other MSM; not visiting a health care provider (HCP) in the past 12 months; having a HCP not recommend HIV or STD testing at their last visit; not having a primary care provider (PCP); current PCP never recommending they get tested for HIV or STDs. In multivariable models adjusting for relevant demographic and behavioral factors, Black MSM who reported that a HCP recommended getting an HIV test (adjusted relative risk [ARR] = 0.26; $p = 0.01$) or STD test (ARR = 0.11; $p = 0.0004$) at their last visit in the past 12 months were significantly less likely to have not been tested for HIV or STDs in the past 2 years. Many sexually active Black MSM do not regularly test for HIV or STDs. HCPs play a pivotal role in encouraging testing for Black MSM. Additional provider training is warranted to educate HCPs about the specific health care needs of Black MSM, in order to facilitate access to timely, culturally competent HIV and STD testing and treatment services for this population.

Introduction

WITH THE HIV and sexually transmitted diseases (STD) epidemics continuing for the foreseeable future, HIV

and STD testing are an important part of strategies designed to decrease the rates of new infections. Not only can HIV testing lead to early diagnosis and access to treatment and prevention services,^{1,2} but knowledge of serostatus can

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positively affect a variety of health behaviors, including enhanced self-care and reduced sexual risk-taking.³⁻⁷ HIV testing is a particular public health concern among men who have sex with men (MSM), who continue to be the group at greatest risk for HIV in the United States.⁸ Although rates of HIV testing among MSM have been shown to be as high as 60% to 88%,⁹⁻¹¹ suboptimal rates of testing among MSM remain common after engaging in risk-taking behavior.¹²

MSM are even less likely to be tested for STDs than HIV. Data from the National HIV Behavioral Surveillance System demonstrated that among a venue-based sample of 10,030 MSM, 39% and 36% had been tested for syphilis and gonorrhea in the past year, respectively.¹³ Johnson and colleagues¹⁴ found that whereas 81% of MSM has been recently tested for HIV, only 61% had been screened for STDs. Similar results were found in another sample of MSM in Massachusetts.¹⁵ In light of recent increases in syphilis and drug-resistant gonorrhea among MSM,¹⁶⁻¹⁸ research on STD testing behavior is timely.

While black MSM appear equally or more likely than other MSM to get tested for HIV in some studies,¹⁹⁻²² other research suggests that, compared to other MSM, Black MSM are tested less frequently and are less likely to be aware of their HIV infection.^{19,21,23-25} Recently, the Centers for Disease Control and Prevention (CDC) found that 67% of Black MSM were unaware of their HIV infection, compared to 48% of Latino MSM and 18% of White MSM.¹⁹ In a study of 5649 young MSM ages 15 to 29, MacKellar and colleagues²⁵ reported as many as 91% of HIV-infected Black MSM were unaware of their infection. Given that Black men bear a disproportionate burden of incident HIV and STDs and male-to-male sexual contact is the primary transmission category,^{8,16} these infrequent testing behaviors and high rates of unrecognized infections among Black MSM are a source of concern, and may partially explain the increased HIV prevalence and incidence among Black MSM compared to other MSM in general.

Numerous studies have sought to explain differential rates of HIV testing among MSM. The likelihood of testing has been associated with a variety of sociodemographic and behavioral factors, including younger age,²⁶⁻³⁰ gay sexual orientation,^{31,32} disclosure of sexual identity to health care provider,³³ social support,^{32,34-37} sexual risk behavior,^{5,31,34,37-41} and drug behavior,^{34,36} as well as knowledge of and access to a comfortable testing site.^{15,32,35,37} Rates of HIV testing have also been shown to differ by partner type.^{32,35-37} MSM with a main male partner are more likely to get tested for HIV than those with no main partner.^{32,36} Sumartojo and colleagues³⁷ demonstrated that rates of HIV testing increased with greater sexual risk with main partners, but were lowest among men engaging in risk behavior with casual partners.

Correlates of testing for STDs other than HIV have received less attention but, like HIV testing, STD testing among MSM has been associated with younger age, minority race, gay orientation, disclosure of sexual identity to health care provider, sexual risk, and alcohol and substance use.^{13-15,42} Studies also suggest that MSM may not screen for HIV and STDs due to perceived low risk for infection and fear of a positive result, as well as concerns over test access, affordability, and confidentiality.^{15,19,43-45}

Few studies to date, however, have examined HIV and STD testing with exclusively Black MSM samples. Mashburn and colleagues³⁵ found that among Black MSM, recent sex with

both main male partners and nonmain male partners was associated with higher rates of testing than sex with nonmain partners only. Wilton⁴² reported that among a sample of 481 mixed HIV serostatus Black gay and bisexual men, nearly all of them (91%) indicated previous HIV testing and 83% indicated previous STD testing. Moreover, alcohol use before or during sex was associated with being tested for an STD but not HIV.⁴²

The current study examined HIV testing experience among HIV-uninfected Black MSM in Massachusetts, and STD testing experience among mixed serostatus Black MSM. The primary objectives were to: 1) determine the frequency of HIV and STD testing in the sample, and 2) investigate the association of sexual risk, substance use, and other behavioral factors with not testing for HIV or STDs in the two years prior to study enrollment. Identifying the Black MSM at highest risk for not getting tested for HIV or STDs and additional factors associated with not testing may help inform how to tailor HIV prevention and intervention strategies for this population.

Methods

Design and setting

Between January and July 2008, 197 participants were recruited via modified respondent-driven sampling,^{14,15,46} and completed a quantitative assessment with a trained interviewer, which included open-ended questions, and were offered voluntary HIV counseling and testing. The study was a joint collaboration between Fenway Community Health,⁴⁷ the Multicultural AIDS Coalition (MAC), the Justice Resource Institute (JRI), and the Massachusetts Department of Public Health (MDPH) Office of HIV/AIDS. The Institutional Review Boards at Fenway and JRI approved the study and all study activities took place at two participating study sites in Boston, Massachusetts.

Sample

Eligibility criteria. Individuals were eligible for the study if they (1) identified as African American or Black, (2) identified as male, (3) were age 18 years or older, (4) reported living in Massachusetts, and (5) reported oral or anal sex with a man in the preceding 12 months. Each study participant was screened for study eligibility prior to enrollment.

Recruitment. A modified respondent-driven sampling (RDS) method,⁴⁸ conducted with previous studies of MSM in Massachusetts,^{14,15,46} was used to recruit participants. Initially study participants were selected to function as recruiter seeds (17 seeds at JRI and four at MAC). In order to qualify, seeds had to meet the study eligibility criteria outlined above and had the potential to recruit up to five of their social/sexual network members (all prospective participants were queried as to the total number of study eligible men they had in their personal social/sexual network). Tracking social networks was accomplished using cards with a number code that connected participants back to recruits and initial seeds. A dual incentive system was used; participants were compensated \$25 for the survey, \$25 for the HIV testing (optional), and \$10 for each eligible peer they recruited (up to five). Recruitment procedures have been described in detail elsewhere.⁴⁹

Assessment and measures

Demographics, sexual risk behavior, substance use, STD history. Demographic, sexual risk-taking, substance use, and STD history questions were adapted from the Centers for Disease Control and Prevention's National HIV Behavioral Surveillance Survey, MSM cycle.⁵⁰ Demographic information included age, ethnicity, education, health insurance, housing, religious affiliation, sexual identification, disclosure of MSM status (i.e., "outness"), and how often MSM "hang out" with other MSM. Questions assessed substance use during sex in the prior 12 months, including use and frequency of non-parenteral and injection drugs. Participants were asked about their lifetime STD history, and recent STD history in the previous 12 months.

HIV and STD testing behaviors. As part of the study procedures, HIV testing and pre- and post-test counseling were offered via rapid HIV antibody test (see procedures below).

Participants were asked to report their past testing behaviors separately for HIV and STDs. For each, questions included: (1) the location(s) they had ever tested, (2) who, if anyone, had ever recommended that they get tested (e.g., medical or mental health provider, friend, family, sexual partner), (3) the result of their last test, and (4) the number of times they had been tested in the 2 years prior to study enrollment.

In addition, when applicable, participants were asked the following open-ended questions regarding their testing behaviors separately for HIV and STDs: (1) "What were your motivations for HIV/STD testing during the last time you were tested?", (2) "What do you think are some of the reasons why you have not gotten tested for HIV/STDs?", and (3) "What would be some reasons why you might get tested for HIV/STDs in the future?"

HIV and STD knowledge. The 18-item HIV Knowledge Questionnaire (HIV-KQ-18), a brief self-report measure shown to have internal consistency across samples (Cronbach $\alpha = 0.75$ – 0.89), was used to assess participants' HIV-related knowledge.⁵¹ The 27-item STD-Knowledge Questionnaire (STD-KQ), a comprehensive self-report measure of knowledge about STDs demonstrating good internal consistency reliability (Cronbach $\alpha = 0.86$) was used to assess STD knowledge.⁵² For both HIV and STD scales, responses were "true," "false," or "don't know." In scoring, each correct answer was awarded one point; incorrect and "don't know" responses were scored zero. A single summary score was obtained for each scale by summing the number of items correctly answered. Higher scores indicated greater HIV or STD knowledge.

Alcohol use. The CAGE questionnaire, a clinical screening instrument for alcoholism (Cronbach $\alpha = 0.69$), was used to assess alcohol use where a score of three or more indicated a possible problem with alcohol.^{53–55}

Depression. Depressive symptoms were assessed with the Center for Epidemiologic Studies Depression Scale (CES-D), which has been validated in many populations to assess clinically significant depressive symptoms (Cronbach $\alpha = 0.89$).^{56,57} The 20 items were scored on a 4-point Likert scale from 0 to 3, with a score of 16 or greater indicative of clinically significant depressive symptoms; we also used the scale score as a continuous variable.

HIV testing as part of this study

After both the consent process and administration of the quantitative assessment, each participant had the option to have a voluntary confidential rapid HIV antibody test. Overall, 91% of the sample ($n = 180$) opted to have a rapid HIV test during their study visit (those who did not test already knew their HIV-positive status). The FDA-approved OraQuick® ADVANCE™ HIV-1/2 Antibody Test (OraSure Technologies, Inc., Bethlehem, PA) was used for HIV testing (sensitivity: 99.6% [98.5–99.9]; specificity: 100% [99.7–100]). Like conventional HIV enzyme immunoassays (EIAs), rapid HIV tests are screening tests that require confirmation if reactive (rapid reactive). Reactive rapid HIV test results were confirmed by confirmatory Western blot testing. Each participant who consented to HIV testing received standard-of-care, pretest and posttest HIV counseling. Clients were referred to medical and psychosocial support services as appropriate and at the discretion of study staff. All HIV test counselors were certified in HIV counseling and testing according to Massachusetts' state standards prior to meeting with participants.

Data analysis

Data presented in the analysis of HIV testing were restricted to MSM who were HIV-uninfected at their enrollment visit ($n = 145$), confirmed via testing as part of this study. Analyses of STD testing included the entire sample (including 52 HIV-infected participants, $n = 197$).

SAS version 9.1 statistical software was used to perform each analysis,⁵⁸ where statistical significance was determined at the $p < 0.05$ level. The distribution and range of each variable was assessed, both by whether or not the participant self-reported being tested for HIV/STDs in the 2 years prior to study enrollment.

Outcomes of interest. Two separate dichotomous outcomes were examined: (1) not having been tested for HIV in the 2 years prior to study enrollment and (2) not having been tested for STDs in the 2 years prior to study enrollment.

Bivariate and multivariable logistic regression model. For all variables, bivariate logistic regression analyses were conducted to establish which variables resulted in statistically significant parameter estimates with each separate outcome. A multivariable logistic regression model was constructed for each outcome. Variables with a p value of < 0.05 in the bivariate models were retained in the final multivariable models,⁵⁹ and were adjusted for age and education regardless of their significance in the bivariate procedures. Model fit was assessed using the -2 Log Likelihood test statistic. The odds ratios and their 95% confidence intervals obtained from this analysis were converted to relative risks using the formula suggested by Zhang et al.⁶⁰ This procedure is recommended to obtain unbiased estimates of relative risks when the outcome event is common (10% or more). Because there were multiple, potentially correlated indicators of variables in this analysis, multicollinearity among these variables was assessed; intercorrelation among the independents above 0.80 were considered to be problematic. For significant bivariate predictors that were multicollinear with each other, the variable thought to be theoretically most important in the analysis was chosen and retained in each final multivariable model, whereas the others were dropped.⁵⁹

Analysis of open-ended question on HIV and STD testing motivations and experiences. Data from open-ended questions were analyzed using content analysis.⁶¹ After written responses were reviewed for errors and omissions, the study staff developed thematic codes in a series of iterative steps. Data were reexamined and ongoing consultation among the coders helped to determine themes and refine coding categories.

Results

HIV testing

Overall, 33% (48/145) of HIV-uninfected Black MSM had not been tested for HIV in the 2 years prior to study enrollment. Of those who had been tested for HIV in the past 2 years ($n = 97$), 41% tested twice, and 42% tested three or more times. Ten participants (6.9%) had never been tested for HIV in their lifetime. Demographic characteristics of men by whether or not they have tested for HIV in the prior 2 years are presented

in Table 1. As a result of HIV testing as part of this study, there was only one new identifiable case of HIV.

Location(s) participants had ever tested for HIV. Participants reported a variety of locations where they had ever been tested for HIV, including an emergency room or urgent care clinic (53%), a private physician's office (34%), a community health clinic (32%), an STD clinic (28%), in jail/prison (20%), or via an HIV street outreach event or mobile testing unit (10%).

Motivations for HIV testing. The primary reasons for participants seeking their last HIV test were: (1) person-driven: having the desire to know one's own status and being tested as a matter of regular self-care (46%); (2) event-driven: having engaged in risky sex, finding out a partner was HIV-infected, or experiencing symptoms or illness (28%); (3) provider-driven: having the test offered and often being encouraged by a doctor or other medical staff (9%); and (4) socially driven: getting

TABLE 1. DEMOGRAPHIC, BEHAVIORAL, AND PSYCHOSOCIAL CHARACTERISTICS OF: (1) HIV-UNINFECTED BLACK MSM ($n = 145$) BY HAVING AN HIV TEST VS. NOT; AND (2) BLACK MSM ($n = 197$) BY HAVING AN STD TEST VS. NOT IN THE TWO YEARS PRIOR TO STUDY ENROLLMENT

	Not HIV tested in past 2 years ($n = 48$)		HIV tested in past 2 years ($n = 97$)		Total sample ($n = 145$)		Not STD tested in past 2 years ($n = 118$)		STD tested in past 2 years ($n = 79$)		Total sample ($n = 197$)	
Mean age (SD)	40.8 (9.4)		37.7 (11.1)		38.8 (10.7)		38.5 (10.7)		33.4 (11.8)		38.7 (11.3)	
Mean number male partners (SD)	5.1 (7.4)		6.1 (11.7)		5.8 (10.5)		6.0 (8.7)		5.8 (12.3)		6.0 (10.3)	
Mean number female partners (SD)	4.6 (3.9)		3.9 (4.0)		4.1 (4.0)		4.6 (5.5)		4.0 (4.1)		4.4 (5.0)	
Mean CES-D score (SD)	12.3 (13.9)		14.8 (12.8)		14.0 (13.2)		13.6 (13.3)		12.6 (11.3)		13.2 (12.5)	
Mean HIV Knowledge score (SD)	15.0 (3.2)		15.8 (2.0)		15.5 (2.5)		15.5 (2.5)		15.5 (2.4)		15.5 (2.4)	
Mean STD Knowledge score (SD)	16.1 (4.7)		17.0 (3.8)		16.7 (4.1)		16.7 (4.1)		16.8 (4.7)		16.8 (4.3)	
Mean self-perceived HIV risk (SD)	3.5 (2.1)		3.8 (2.4)		3.7 (2.3)		3.7 (2.5)		3.9 (2.2)		3.8 (2.4)	
Mean self-perceived STD risk (SD)	3.5 (2.3)		4.0 (2.6)		3.8 (2.5)		3.8 (2.7)		3.9 (2.5)		3.9 (2.6)	
	n	%	n	%	n	%	n	%	n	%	n	%
Education												
≤High school degree/GED	46	95.8	81	83.5	127	87.6	107	90.7	71	89.9	178	90.4
>High school degree/GED	2	4.2	15	15.5	17	11.7	11	9.3	7	8.9	18	9.1
Not reported	0	0.0	1	1.0	1	0.7	0	0.0	1	1.3	1	0.5
Health insurance												
Private health insurance/HMO	9	18.8	16	16.5	25	17.2	22	18.6	19	24.1	41	20.8
Public health insurance	39	81.3	78	80.4	117	80.7	98	83.1	58	73.4	156	79.2
Veteran's Administration	0	0.0	4	4.1	4	2.8	3	2.5	2	2.5	5	2.5
None	2	4.2	5	5.2	7	4.8	6	5.1	3	3.8	9	4.6
Sexual identity												
Heterosexual/straight	5	10.4	10	10.3	15	10.3	10	8.5	7	8.9	17	8.6
Homosexual/gay	18	37.5	33	34.0	51	35.2	51	43.2	36	45.6	87	44.2
Bisexual	23	47.9	51	52.6	74	51.0	52	44.1	34	43.0	86	43.7
Not out about MSM	16	33.3	19	19.6	35	24.1	25	21.2	13	16.5	38	19.3
STDs												
HIV-infected	0	0.0	0	0.0	0	0.0	24	20.3	11	13.9	35	17.8
History of STDs ever	8	16.7	27	27.8	35	24.1	35	29.7	22	27.8	57	28.9
STD in past 12 months	1	2.1	4	4.1	5	3.4	5	4.2	7	8.9	12	6.1
Substance use during sex past 12 months (used at least once per month)												
Crystal methamphetamine	4	8.3	6	6.2	10	6.9	9	7.6	4	5.1	13	6.6
Crack	9	18.8	11	11.3	20	13.8	19	16.1	9	11.4	28	14.2
Cocaine	10	20.8	26	26.8	36	24.8	27	22.9	15	19.0	42	21.3
Heroin	1	2.1	5	5.2	6	4.1	5	4.2	3	3.8	8	4.1
Marijuana	15	31.3	41	42.3	56	38.6	42	35.6	34	43.0	76	38.6
Poppers	7	14.6	14	14.4	21	14.5	14	11.9	12	15.2	26	13.2

(continued)

TABLE 1. CONTINUED

	n	%	n	%	n	%	n	%	n	%	n	%
Sexual risk past 12 months												
UAS casual male	24	50.0	50	51.5	74	51.0	53	44.9	46	58.2	99	50.3
US female	19	39.6	37	38.1	56	38.6	37	31.4	22	27.8	59	29.9
US transgender	2	4.2	6	6.2	8	5.5	6	5.1	3	3.8	9	4.6
Sexual risk during last sexual encounter												
Serodiscordant UAS casual male	9	18.8	9	9.3	18	12.4	16	13.6	9	11.4	25	12.7
Serodiscordant UIA casual male	8	16.7	6	6.2	14	9.7	14	11.9	5	6.3	19	9.6
Serodiscordant URA casual male	3	6.3	3	3.1	6	4.1	4	3.4	5	6.3	9	4.6
Self-reported substance use during last sexual encounter with casual male partner												
Both drugs and alcohol	22	45.8	32	33.0	54	37.2	44	37.3	19	24.1	63	32.0
Partner's substance use during last sexual encounter with casual male partner												
Both drugs and alcohol	22	45.8	32	33.0	54	37.2	44	37.3	19	24.1	63	32.0
Psychosocial												
CAGE positive (score 3 or 4)	18	37.5	30	30.1	48	33.1	33	30.0	25	31.6	58	29.4
Depression (CES-D 16+)	13	27.1	38	39.2	51	35.2	38	32.2	27	34.2	65	33.0
History drug or alcohol treatment	20	41.7	45	46.4	65	44.8	50	42.4	34	43.0	84	42.6
History of incarceration	23	47.9	52	53.6	75	51.7	61	51.7	40	50.6	101	51.3
Condom use												
"Very difficult" to use a condom	37	77.1	58	59.8	95	65.5	76	64.5	38	48.1	114	57.9
Exposure to MSM community in past 12 months												
Frequently hang out with MSM (once per month or more vs. less than once per month)	19	39.6	65	67.0	84	57.9	70	59.3	58	73.4	128	65.0
HIV testing location(s)												
Private physician's office	15	31.3	28	28.9	43	29.7	9	7.6	29	36.7	38	19.3
Community health clinic	6	12.5	36	37.1	42	29.0	13	11.0	26	32.9	39	19.8
STD clinic	6	12.5	37	38.1	43	29.7	24	20.3	32	10.5	56	28.4
Emergency department or urgent care clinic	24	50.0	58	59.8	82	56.6	45	38.2	33	41.8	78	39.6
Mobile van	3	6.3	14	14.4	17	11.7	3	2.5	13	16.5	16	8.1
Jail	5	10.4	29	29.9	34	23.4	5	4.2	8	10.1	13	6.6
Other (rehab, shelter, outreach)	0	0.0	4	4.1	4	2.8	1	0.8	1	1.3	2	1.0
Health care providers (HCP)												
Visited HCP in past 12 months	28	58.3	84	86.6	112	77.2	89	75.4	72	91.1	161	81.7
HCP recommended HIV test during last visit	5	10.4	42	43.3	47	32.4	15	12.7	39	49.4	54	27.4
Primary care providers (PCP)												
Have a PCP	27	56.3	72	74.2	99	68.3	78	66.1	64	81.0	142	72.1
PCP ever recommended HIV test	5	10.4	38	39.2	43	29.7	16	13.6	35	44.3	51	25.9
Comfortable accessing health care												
Mobile van	17	35.4	45	46.4	62	42.8	44	37.3	29	36.7	73	37.1
Veteran's Administration services	17	35.4	44	45.4	61	42.1	46	39.0	28	35.4	74	37.6
Hospital	37	77.1	83	85.6	120	82.8	98	83.1	66	83.5	164	83.2
Doctor	44	91.7	95	97.9	139	95.9	111	94.1	78	98.7	189	95.9
Community health center	30	62.5	75	77.3	105	72.4	76	64.4	62	78.5	138	70.1

SD, standard deviation; CES-D, Center for Epidemiologic Studies Depression Scale; HMO, health maintenance organization; MSM, men who have sex with men; STDs, sexually transmitted diseases; UAS, unprotected anal sex; US, unprotected sex; UIA, unprotected insertive anal; URA, unprotected receptive anal.

tested with a partner, being recommended by a friend, and following peer norms (6%). In addition, some participants (7%) mentioned getting tested for compulsory reasons (e.g., in jail, in the military, for a drug program, as a job requirement, as an insurance or hospital policy, for visa purposes, etc.). Less frequently mentioned reasons for HIV testing were clinic compensation and participation in a research study or prevention services.

HIV testing experiences. Nearly all participants (94%) reported having a relatively positive perception of HIV testing. Among those with a recent negative testing experience, the most commonly cited complaints were the staff being "cold," distant," and "judgmental." A few participants mentioned that very little was explained to them and suggested

more HIV counseling in the testing process. Additionally, among participants who had never tested for HIV, reasons for not seeking testing included considering themselves at low risk for HIV and being scared to learn their status. One participant expressed specific concern about privacy. Nontesters believed they would get tested in the future if they engage in perceived risky sex, feel sick, or "just want to know."

Bivariate associations and multivariable model predicting not having been tested for HIV in the two years prior to study enrollment

Bivariate associations with not having been tested for HIV in the 2 years prior to study enrollment are presented in Table 2.

TABLE 2. BIVARIATE ASSOCIATIONS AND MULTIVARIABLE MODEL EXAMINING ASSOCIATIONS TO NOT HAVING TESTED FOR HIV IN THE TWO YEARS PRIOR TO STUDY ENROLLMENT ($n = 145$)

	Unadjusted RR (95% CI)	p Value	Adjusted RR ^a (95% CI)	p Value
Education				
> High school degree/GED	1.00	—	—	—
≤ High school degree/GED	0.31 (0.03–0.99)	0.048	—	—
Community involvement				
Do not frequently hang out with MSM (less than once per month)	1.00	—	1.00	—
Frequently hang out with MSM (once per month or more)	0.49 (0.16–0.66)	0.002	0.56 (0.10–1.56)	NS
Sexual risk during last sexual encounter				
No serodiscordant unprotected insertive anal sex with last casual male sex partner	1.00	—	1.00	—
Serodiscordant unprotected insertive anal sex with last casual male sex partner	1.55 (1.11–10.66)	0.030	1.02 (0.16–6.63)	NS
Self-reported substance use during last sexual encounter with casual male partner				
Neither drug or alcohol	1.00	—	1.00	—
Both drugs and alcohol	1.48 (1.01–8.13)	0.048	1.19 (0.33–6.48)	NS
Partner's substance use during last sexual encounter with casual male partner				
Neither drugs or alcohol	1.00	—	—	—
Both drugs and alcohol	1.48 (1.01–8.13)	0.049	—	—
Substance use during sex in prior 12 months				
No crack use	1.00	—	—	—
Crack use once a month or more	1.47 (1.01–7.74)	0.047	—	—
Condoms				
Not "Very difficult" to use a condom	1.00	—	1.00	—
"Very difficult" to use a condom	1.39 (1.03–4.96)	0.040	1.37 (0.55–8.71)	NS
Health care providers (HCP)				
Did not visit an HCP in the past 12 mo	1.00	—	—	—
Visited HCP in past 12 mo	0.39 (0.11–0.55)	0.001	—	—
HCP did not recommend HIV test at last visit	1.00	—	1.00	—
HCP recommended HIV test at last visit	0.35 (0.07–0.60)	0.004	0.26 (0.04–0.67)	0.010
Primary care providers (PCP)				
Do not have a PCP	1.00	—	—	—
Have a PCP	0.60 (0.21–0.89)	0.020	—	—
PCP never recommended HIV test	1.00	—	—	—
PCP ever recommended HIV test	0.33 (0.07–0.60)	0.004	—	—
HIV testing locations				
Never HIV test at community clinic	1.00	—	—	—
HIV test at community clinic	0.49 (0.12–0.83)	0.020	—	—
Never HIV test at STD clinic	1.00	—	—	—
HIV test at STD clinic	0.46 (0.12–0.80)	0.020	—	—
Never HIV test at jail	1.00	—	—	—
HIV test at jail	0.53 (0.13–0.99)	0.049	—	—

^aAdjusted for age and education.

Variables not included in the multivariable model due to multicollinearity are represented with dashes.

CI, confidence interval; RR, relative risk; MSM, men who have sex with men; STD, sexually transmitted disease; NS, not significant.

In a multivariable model adjusting for relevant demographic and behavioral factors, Black MSM reporting that a HCP recommended HIV testing at their last visit sometime in the past 12 months (adjusted relative risk [ARR]=0.15; $p=0.01$) were less likely to not have been tested for HIV in the past 2 years.

STD testing

Overall, 60% (118/197) of Black MSM had not been tested for any STDs in the 2 years prior to study enrollment. Of those who had been tested for STDs in the past 2 years, 44% tested twice, and 16% tested three or more times. Demographic

characteristics of men by whether or not they tested for STDs in the prior 2 years are presented in Table 1.

Location(s) participants had ever tested for STDs. Participants reported an array of locations where they had been tested for STDs, including an emergency room or urgent care clinic (40%), an STD clinic (28%), a community health clinic (20%), a private physician's office (19%), via street outreach event or mobile testing unit (8%), or in jail/prison (7%).

Motivations for STD testing. The most frequently discussed reasons for STD testing were event-driven, in partic-

ular, presenting symptoms or feeling sick (45%). A few participants noted that STD partner notification provided the initial motivation to seek testing. Other main reasons for seeking STD testing were: (1) person-driven (39%); (2) provider-driven (7%); and (3) and socially driven (5%).

Reasons for not testing for STD. Overall, 24% (48/197) of the sample had never been tested for STDs in their lifetime. Reasons for not seeking an STD test included not experiencing symptoms, not considering themselves at risk, and the belief that their partners are “clean.” Individual factors such as fear of knowing one’s status and lack of motivation to seek testing were also frequently mentioned. A few participants cited time constraints (e.g., “don’t have time,” “never got around to it,” etc.) and concerns over confidentiality as additional barriers to STD testing.

Perceived reasons for future STD testing. The majority of participants (79%) identified presenting symptoms and engaging in risk behavior as reasons to get tested for STDs in the future. Another perceived motivator to STD testing was the desire “just to know” and “make sure everything is ok.” One respondent thought that he might get tested in the future if a doctor insisted he do so.

Bivariate associations and multivariable model predicting not having been tested for STDs in the two years prior to study enrollment

Bivariate associations with not having tested for STDs in the 2 years prior to study enrollment are presented in Table 3.

In a multivariable model adjusting for relevant demographic and behavioral factors, Black MSM reporting that a HCP recommended STD testing at their last visit sometime in

TABLE 3. BIVARIATE ASSOCIATIONS AND MULTIVARIABLE MODEL EXAMINING ASSOCIATIONS TO NOT HAVING TESTED FOR STDs IN THE TWO YEARS PRIOR TO STUDY ENROLLMENT (n = 197)

	Unadjusted RR (95% CI)	p Value	Adjusted RR ^a (95% CI)	p Value
Demographics				
Age (continuous)	1.02 (1.01–1.06)	0.008	1.02 (0.97–1.12)	NS
Self-reported substance use during last sexual encounter with casual male partner				
Neither drugs or alcohol	1.00	—	1.00	—
Both drugs and alcohol	1.49 (1.36–6.29)	0.006	1.37 (0.56–7.26)	NS
Partner’s substance use during last sexual encounter with casual male partner				
Neither drugs or alcohol	1.00	—	—	—
Both drugs and alcohol	1.48 (1.36–6.29)	0.006	—	—
Condoms				
Not “Very difficult” to use a condom	1.00	—	1.00	—
“Very difficult” to use a condom	1.32 (1.09–3.49)	0.020	1.35 (0.51–8.64)	NS
STD history				
No STD history	1.00	—	1.00	—
History of one or more STDs	1.46 (1.35–5.27)	0.005	1.39 (0.61–8.28)	NS
Community involvement				
Do not frequently hang out with MSM (less than once per month)	1.00	—	1.00	—
Frequently hang out with MSM (once per month or more)	0.69 (0.28–0.98)	0.040	0.31 (0.03–0.96)	0.040
Health care providers (HCP)				
Did not visit a HCP in the past 12 mo	1.00	—	—	—
Visited HCP in past 12 mo	0.48 (0.13–0.78)	0.010	—	—
HCP did not recommended STD test at last visit	1.00	—	1.00	—
HCP recommended STD test at last visit	0.29 (0.08–0.35)	0.0001	0.11 (0.01–0.28)	0.0004
Primary care providers (PCP)				
No PCP	1.00	—	—	—
Have a PCP	0.60 (0.21–0.87)	0.020	—	—
PCP never recommended STD test	1.00	—	—	—
PCP ever recommended STD test	0.34 (0.10–0.44)	0.0001	—	—
STD testing locations				
No STD test at community clinic	1.00	—	—	—
STD test at community clinic	0.63 (0.22–0.99)	0.049	—	—
No test at private physician’s office	1.00	—	—	—
STD test at private physician’s office	0.40 (0.11–0.59)	0.001	—	—
No STD test at ER or urgent care clinic	1.00	—	—	—
STD test at ER or urgent care clinic	1.43 (1.29–4.87)	0.007	—	—

^aAdjusted for age and education.

Variables not included in the multivariable model due to multicollinearity are represented with dashes.

STD, sexually transmitted disease; RR, relative risk; CI, confidence interval; NS, not significant.

the past 12 months ($ARR = 0.06$; $p = 0.0004$) and those who reported frequently hanging out with MSM (once per month or more versus less than once per month; $ARR = 0.18$; $p = 0.04$) were less likely to not have been tested for STDs in the past 2 years.

Discussion

Despite the CDC's recommendation that all sexually active MSM receive annual screening tests for HIV, syphilis, and gonorrhea,⁶² findings from this study suggest that many Black MSM do not regularly get tested and continue to remain unaware of their HIV and STD status. One in three HIV-uninfected Black MSM had not been tested for HIV in the previous 2 years, and almost two out of three of the full sample of Black MSM (26.4% of whom were HIV-infected) had not been tested for STDs in the 2 years prior to study enrollment. Given that rates of HIV and STDs are on the rise among Black MSM,^{8,16} and that STDs have been shown to facilitate transmission and acquisition of HIV infection at least twofold to fivefold,^{63,64} the high percentage of Black MSM having not recently tested highlights an urgent need to provide access to timely, culturally competent HIV and STD testing and treatment services for this population. Given that testing for HIV and other STDs remains a cornerstone of public health prevention interventions, increasing testing rates using strategies such as universal testing in accordance with CDC recommendations may be warranted.⁶⁵

Prior research has documented that HCPs are trusted sources of information about HIV and STDs,⁶⁶ and can play a significant role in the diagnosis, treatment, and prevention of HIV/STDs among MSM.^{14,15,19,25,62} Findings from the current study underscore the pivotal role HCPs play in testing among Black MSM. Ninety-five percent of all enrolled participants were covered by some type of health insurance, and 82% had visited a HCP at least once during the previous 12 months. After adjusting for relevant demographic and behavioral factors, participants whose HCP recommended HIV or STD testing during their last visit were more likely to have been recently tested for these, relative to Black MSM whose providers had not recommended getting tested. These findings illustrate the need for clinicians and other health care providers to adopt a proactive approach to HIV and STD counseling and screening, regardless of race, ethnicity, or how men identify or present themselves. Additional training is warranted so providers understand the specific health care needs of MSM,^{14,15,67–69} in particular the need for routine and regular HIV and STD screening.

Although findings principally highlight the role of HCPs in HIV and STD testing and suggest universal screening, they also present a more complex portrait of those issues pertaining to Black MSM.⁶⁹ First, many Black MSM face socioeconomic disadvantage that may prevent access to basic health care, and in this study, not being in care was associated with not being tested for HIV or STDs. As such, a universal testing approach runs the risk of continuing to underserve those populations at greatest risk for HIV and STD infection and would benefit from rigorous efforts to link and retain Black MSM into clinical care. Financial stress may further be a barrier to Black MSM receiving care. Second, as evident in the open-ended response data, some Black MSM may face issues surrounding fear about knowing their status and HIV-related

stigma and discrimination. Third, Black MSM may have differential challenges related to substance use and mental health. In the current study, use of cocaine was associated with not having had an HIV test in the past 2 years. Having sex while both high and drunk was also associated with not recently having an HIV or STD test. These host of issues—socioeconomic disadvantage, fear of knowing one's status, HIV stigma and discrimination, substance abuse, and mental health factors—must be taken into account when trying to triage and improve access to and utilization of HIV and STD testing among Black MSM.⁷⁰

Although HIV and STD testing is recommended for MSM at highest risk (e.g., those having multiple partners, having sex while using drugs, or those whose partners engage in these activities) every 3 to 6 months,⁶² many of the Black MSM meeting these “highest risk” criteria in this study had not been tested in more than 2 years, suggesting that the riskiest Black MSM are not being tested for HIV and STDs regularly. Factors associated with not having a recent HIV or STD test were substance use during sex; feeling that using a condom during sex is “very difficult”; and less frequent contact with other MSM. Lower levels of education; serodiscordant unprotected sex during last sex with a casual male partner; and not having ever been HIV tested at a community health clinic, STD clinic, or jail were all uniquely associated with not having a recent HIV test in bivariate analyses. Factors uniquely associated with not having a recent STD test in bivariate analyses were older age, a lifetime history of one or more STDs, and not having ever been tested at an emergency department or urgent clinics. Future prevention and intervention programs should focus efforts to address the complex and varied contextual and behavioral factors faced by this group.

Concerning motivations and reasons for HIV testing among Black MSM, the most commonly reported motivations for recent HIV testing were person-driven (i.e., having the desire to know one's own status and being tested as a matter of regular self-care). In contrast, event-driven reasons were most frequently discussed for STD testing, in particular, presenting with symptoms or feeling sick. Differences in reasons for HIV or STD testing may reflect differing perceptions about HIV or STDs, in particular the incorrect assumption that STDs are always symptomatic.¹⁵ Education for MSM about asymptomatic infections should be incorporated into the provision of regular HIV and STD counseling and testing and/or public health education campaigns.

Few study limitations bear mention. First, because the survey was interviewer-administered, responses could have been biased toward social desirability, which may be especially pertinent because participants self-reported on sexual risk behaviors. However, if this happened it would likely bias estimates such that these behaviors are an underreporting of the true effects. Second, in contrast to traditional RDS, this study did not weight the final sample according to the population being studied. Modifications to the traditional RDS technique included ending recruitment prior to the achievement of equilibrium to harness the in-group recruitment tendencies of seeds, and hence the generalizability of study finding may be limited. Last, the use of incentives may have contributed to a sample of more socially marginalized Black MSM, potentially further limiting generalizability of findings.

Findings suggest that many Black MSM in Massachusetts do not regularly get tested for HIV or STDs and continue to

remain unaware of their status, despite being at increased risk for these infections. HCPs play a pivotal role in testing for Black MSM, and additional provider training is warranted so HCPs understand the specific health care needs of MSM, in particular the urgent need to provide access to timely, culturally competent HIV and STD testing and treatment services for this population. It is possible that HCPs will not be able to discern whether or not their Black male patients are engaging in sexual behaviors with other men, and hence increasing testing rates using strategies such as universal testing in accordance with CDC recommendations may be warranted.⁶⁵

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