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Prevalence of Gonorrhea and Chlamydia Testing by Anatomical Site Among Men Who Have Sex With Men in HIV Medical Care, United States, 2013–2014

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Abstract

Fewer than one-third of men who have sex with men were tested for *Neisseria gonorrhoeae* or *Chlamydia trachomatis* as part of HIV medical care in the United States in 2013 to 2014, and only 11.6% were tested for either sexually transmitted disease at an extragenital site.

Gay, bisexual, and other men who have sex with men (MSM) in the United States are disproportionately affected by HIV, representing 86% of 35,571 men newly diagnosed as having HIV in 2014.[1] Men who have sex with men are likewise disproportionately affected by the 2 most prevalent sexually transmitted diseases (STDs) in the United States, *Neisseria gonorrhoeae* (*GC*) and *Chlamydia trachomatis* (*CT*).[2] Among MSM tested in STD clinics sampled for sentinel STD surveillance in 2014, 19% tested positive for *GC* and 15% tested positive for CT. The proportion of MSM who tested positive for *GC* was roughly twice the proportion among men who have sex with women and 4 times the proportion among women.[3]

Sexually transmitted disease testing is an important component of HIV care for MSM, given common sexual risk behaviors for HIV and other STDs.[2] Testing and treating HIV-infected persons for *GC* and *CT* infection benefits their health and reduces ongoing STD transmission, and subsequently may also reduce HIV transmission.[4] Furthermore, incident STDs indicate ongoing sexual risk behavior, so diagnoses present opportunities for HIV prevention interventions.

N. gonorrhoeae and *CT* infections in MSM occur most often in the anorectum and pharynx, and extragenital testing substantially improves diagnostic yield.[5] Per US guidelines, providers should obtain a sexual history and test for *GC* and *CT* at anatomical sites of sexual

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contact among all HIV-infected MSM at least annually.[2] Reported frequencies of extragenital *GC* and *CT* testing have been low; however, previous studies comprise mostly convenience samples of urban MSM and may not have been representative of current testing practices nationally.[6,7] Our objective was to generate nationally representative estimates of testing for *GC* and *CT* by anatomical site among MSM in HIV medical care in the United States.

METHODS

The Medical Monitoring Project (MMP) is a surveillance system that produces nationally representative estimates of the clinical and behavioral characteristics of HIV-infected adults (>18 years) receiving medical care in the United States. The MMP used a 3-stage sampling strategy to produce estimates: US states and territories, HIV care facilities, and patients with at least 1 HIV medical care visit from January to April in any given year; for this analysis, data from 2013 to 2014 are included. Facility response rates ranged from 76% to 85% by year; approximately 50% of sampled patients completed an interview and had a medical record abstracted.[8] We included data collected from sexually active HIV-infected MSM. In accordance with the federal human subject protection regulations at 45 Code of Federal Regulations 46.101c and 46.102d and with the Guidelines for Defining Public Health Research and Public Health Non-Research, MMP was determined to be a nonresearch, public health surveillance activity used for disease control program or policy purposes.[9,10] As such, MMP is not subject to review by a federal institutional review board. Participating states or territories and facilities obtained local institutional review board approval to conduct MMP if required locally. Informed consent was obtained from all interviewed participants.

We estimated weighted percentages and corresponding 95% confidence intervals (CIs) of *GC* and *CT* testing during the previous 12 months among sexually active MSM in HIV medical care. Demographic and sexual behavior data were obtained through self-reported interviews. Patients who reported any sexual activity (ie, oral, vaginal, or anal) within the previous 12 months of interview were categorized as sexually active. Testing data on STD were abstracted from medical records at the participant's primary source of HIV care. We assessed urine, anorectal, and pharyngeal testing. We defined "tested" as having documentation of at least 1 test, separately for urine and each anatomical site, and separately for *GC* and *CT*. As a sensitivity analysis, we also explored the effect of expanding the time frame for estimating *GC* and *CT* testing from 12 to 24 months. Data were weighted to account for unequal selection probabilities and nonresponse. We assessed test positivity for each test type (type of STD by anatomical site); however, the same patients could have tested positive at multiple anatomical sites, precluding statistical comparisons of test positivity by test type. Analyses were conducted using SAS 9.3 (SAS Institute, Cary, NC).

RESULTS

Among 3118 sexually active MSM in HIV care meeting the inclusion criteria, the median age was 44 years (interquartile range, 33–51 years), 43.9% were non-Hispanic white, 27.9% were non-Hispanic black, 23.3% were Hispanic, and 4.8% were of other race/ethnicity.

Overall, 47.2% of sexually active MSM had documented testing for *GC* and 47.2% for *CT* during the previous 12 months; test positivity was 6.0% for *GC* and 6.9% for *CT* (Table 1). Approximately 13% of MSM were tested for each STD with no anatomical site specified.

Overall, 11.6% (95% CI, 8.4–14.8) of MSM were tested for either *GC* or *CT* at any extragenital site (either anorectum or pharynx) in the previous 12 months; expanding the time frame to 24 months did not yield a substantially different estimate (15.4% [95% CI, 10.9–19.4]). Testing of urine for *GC* (29.3%) was more frequent than testing of the anorectum (9.4%) or pharynx (9.0%); however, positivity was higher among anorectal (14.0%) and pharyngeal (9.6%) samples than among urine samples (2.5%). Similarly, testing of urine for *CT* (29.0%) was more frequent than testing of the anorectum (9.3%) or pharynx (8.2%), although *CT* positivity was higher for anorectal samples (17.8%) than for urine samples (3.3%). Pharyngeal sample positivity for *CT* (3.4%) was similar to that observed for urine samples. Testing of the urethra was infrequent (2.8% [95% CI, 1.9–3.6]), precluding estimation of test positivity.

DISCUSSION

In our analysis of nationally representative data on MSM who received HIV medical care in the United States, less than half were tested for *GC* or *CT*, with only 11.6% tested for either STD at an extragenital site in the previous 12 months. Testing sexually active MSM for STDs at any anatomical site was higher in our analysis (2013–2014) compared with an analysis of MMP data from an earlier period (2008–2010)[11] (47% vs 23% for *GC* and 47% vs 22% for *CT*), suggesting that there may have been some increase in STD testing in recent years, similar to trends recently documented in this population.[12] Nonetheless, our finding that 53.6% of MSM in HIV care were not tested for *GC* or *CT* in the previous 12 months suggests that testing per recommendations is unacceptably low in the United States.

The percentages of *GC* and *CT* testing at any anatomical site reported here are higher than the range of those previously published from studies conducted among convenience samples in large urban HIV clinics in the United States (19%–39%)[6,7]; this difference further suggests that there may have been some improvement in STD testing in recent years. Our findings regarding *GC* and *CT* testing at extragenital sites are also higher to those reported from prior studies, which indicate approximately 4% anorectal testing for both *GC* and *CT* and 3% pharyngeal testing for *GC*.[6,7]

Our analysis has several limitations. First, medical records were only abstracted from the primary source of HIV care; therefore, if a patient were tested for *GC* or *CT* at another health care facility and these results were not reported to the HIV care provider, then they would not have been captured in our estimates. Second, approximately 13% patients did not have the anatomical site of testing specified for *GC* and *CT*; however, even if all of these patients had been tested at extragenital sites, extragenital testing would have still been suboptimal. Third, during the years of this study, MMP included only people in HIV care; therefore, our estimates may not be generalizable to all HIV-infected MSM in the United States, some of whom had not initiated or been retained in HIV care and may have even less frequent STD testing than those in our study.

Suboptimal testing for *GC* and *CT*, particularly at extragenital sites, represents missed opportunities for treatment of STDs and prevention of ongoing HIV and STD transmission. Testing for *GC* and *CT* facilitates diagnosis and treatment, which benefits the health of the patient by alleviating current symptoms or averting future symptoms. Anorectal diagnosis of *GC* and *CT* in HIV-infected MSM also indicates engagement in unprotected, receptive anal intercourse. Although less risky for the HIV-uninfected partner than unprotected insertive anal intercourse, this may be a marker for engagement in other HIV transmission risk behaviors. Behavioral interventions, including promotion of condom use, can help prevent transmission of HIV as well as exposure to and transmission of other STDs. Biomedical interventions including antiretroviral medication for the HIV-infected patient and preexposure prophylaxis for the HIV-uninfected partner can help prevent HIV transmission; partner services can facilitate delivery of behavioral and biomedical interventions to sexual partners. Although all HIV-infected MSM should routinely receive STD prevention counseling, HIV-infected MSM diagnosed as having anorectal *GC* or *CT* may need additional counseling and other behavioral interventions.[2]

Previously reported barriers to extragenital screening for *GC* and *CT* include lack of regulatory approval for use of nucleic acid amplification testing of anorectal and pharyngeal specimens, and the additional time and skill required of providers to conduct a detailed sexual history and collect specimens accordingly.[6,7] Systems approaches, such as electronic health systems that include prompts for STD testing and use of patient self-collected specimens, may help minimize these barriers and facilitate extragenital testing.[13]

Extragenital testing for *GC* and *CT* among HIV-infected MSM in HIV care in the United States has marginally increased in recent years but remains low. Increased testing in this population is essential to diagnose and treat STDs and prevent ongoing transmission of STDs and HIV.

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TABLE 1.

Gonorrhea and Chlamydia Testing by Anatomical Site Among Sexually Active HIV-Infected MSM[*] in HIV Medical Care, MMP, United States, 2013–2014 (N = 3118)

	Gonorrhea[†]			Chlamydia[‡]		
	n	%[§]	95% CI[§]	n	%[§]	95% CI[§]
Total tested, any test	1541	47.2	43.3–51.2	1534	47.2	43.2–51.1
Test positivity, any *GC* or *CT*	89	6.0	4.4–7.5	102	6.9	4.5–9.3
Tested with no site specified	400	12.5	9.5–15.5	409	13.0	10.0–16.0
Urine tested	949	29.3	26.8–31.9	940	29.0	26.5–31.5
Test positivity	24	2.5	1.4–3.6	33	3.3	2.0–4.7
Anorectal tested	303	9.4	6.7–12.1	298	9.3	6.6–11.9
Test positivity	41	14.0	9.9–18.1	54	17.8	13.3–22.3
Pharyngeal tested	295	9.0	5.7–12.4	271	8.2	5.0–11.4
Test positivity	26	9.6	6.5–12.8	8	3.4	0.9–5.9

[*] MSM was defined as men who identified as homosexual, gay, or bisexual and/or men who reported sex with men during the 12 months preceding the interview regardless of whether they also reported sex with women.

[†] *GC* testing was defined as documentation in the medical record of a result from culture, Gram stain, enzyme immunoassay, the nucleic acid amplification test, or the nucleic acid probe.

[‡] *CT* testing was defined as documentation in the medical record of a result from culture, direct fluorescent antibody, enzyme immunoassay or enzyme-linked immunoassay, nucleic acid amplification test, or nucleic acid probe.

[§] Data were weighted to account for unequal selection probabilities and nonresponse.