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Prescription of Preexposure Prophylaxis to Men Who Have Sex With Men Diagnosed and Reported With Gonorrhea, STD Surveillance Network, 2016

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Abstract

Using a representative sample of gonorrhea cases in select jurisdictions, we estimated the proportion of eligible men who have sex with men reporting being prescribed preexposure prophylaxis (PrEP) to prevent HIV infection. In 2016, half (51.3%) of the estimated 33,165 eligible men who have sex with men reported being prescribed PrEP by their health care provider.

Preexposure prophylaxis (PrEP) with antiretroviral medications is efficacious in dramatically reducing HIV acquisition among gay, bisexual, and other men who have sex with men (MSM).^{1–3} Survey data suggest that acceptability and willingness to take PrEP are both greater than 45% among MSM.^{4–8} Since 2013, the Centers for Disease Control and Prevention has recommended PrEP as a prevention option for persons at increased risk for HIV.⁹ A diagnosis of a sexually transmitted infection (STI) among MSM not known to be living with diagnosed HIV should be considered a sentinel event triggering an evaluation for PrEP. With recent increases in STIs among MSM, particularly syphilis and gonorrhea,¹⁰ efforts to better promote and monitor prescription of PrEP to MSM with an STI are needed.

Previous studies have found PrEP uptake among MSM to be 60% in STD clinics¹¹ and between 42% and 80% in randomized control trials^{12,13}; however, limited information on

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the number and proportion of MSM who are being prescribed PrEP is available. Information on prescribing practices among all US health care providers is also limited, with one study finding that only 19% of providers had prescribed PrEP, and of these, 78% had prescribed to MSM.¹⁴ Information on differences in PrEP uptake by patient characteristics, as well as estimates of the proportion of PrEP-eligible MSM being prescribed PrEP from these previous studies, may not be comparable across provider settings. Information on provider practices across multiple provider settings is critical to help guide public health outreach aimed at assuring access to and maximizing provider prescription of PrEP, as well as for understanding patterns in health care provider compliance with current guidelines for the use of PrEP.^{1,7}

In this analysis, we report estimates of the number of MSM not known to be living with diagnosed HIV who were diagnosed and reported with gonorrhea, and who are potentially eligible for PrEP, as well as the proportion of these patients who reported being prescribed PrEP by their health care providers.

MATERIALS AND METHODS

We obtained case report, provider, and patient interview data from a random sample of gonorrhea cases reported January 1 through December 31, 2016 in 8 jurisdictions participating in the STD Surveillance Network (SSuN). The SSuN is a collaboration between the Centers for Disease Control and Prevention and state or local health departments conducting enhanced surveillance, including collecting data on provider prescription of PrEP, among a random sample of all gonorrhea cases reported in these jurisdictions.^{15,16} Jurisdictions funded for SSuN were selected competitively, and those contributing cases to this analysis included California, excluding San Francisco County; Multnomah County, Oregon; Minnesota; Massachusetts; New York City, New York; Philadelphia, Pennsylvania; San Francisco County, California; and Washington State. Following common protocols,¹⁶ investigators conducted provider investigations and patient interviews among the sampled cases.

Questionnaires varied slightly by jurisdiction, but all patients were asked if they had been prescribed PrEP to prevent HIV, if they are receiving PrEP, or if they are taking PrEP to reduce HIV risk. For our analysis, “Prescribed PrEP” was defined as responding “yes” to any of these questions. Preexposure prophylaxis–eligible MSM were defined as male patients who self-reported (1) at least 1 male sex partner in the past 3 months, or (2) being gay or bisexual, or (3) whose diagnosing provider reported the sex of the patient’s sex partners in the past 12 months as “male” or “both male and female,” and (4) were not known to be living with diagnosed HIV. Evidence of HIV diagnosis was based on multiple sources (self-report and/or HIV surveillance registry match). Although data are also available from men who have sex exclusively with women and women diagnosed and reported with gonorrhea, the current analysis is focused on MSM.

Interviewed cases were weighted to account for different sample fractions across jurisdictions and to adjust for local nonresponse by sex and age group.¹⁶ We included case and interview data only from counties within jurisdictions reporting 5 or more completed

interviews and calculated weighted prevalence estimates of prescription of PrEP to eligible MSM by jurisdiction and stratified by race/ethnicity and age group. For all prevalence estimates, we report 95% Taylor series confidence intervals (CIs). We also estimated the overall number of cases among eligible MSM who were and were not prescribed PrEP. These analyses provide estimates representative of all MSM cases diagnosed and reported with gonorrhea in participating jurisdictions.

RESULTS

During the study period, 102,891 cases of gonorrhea were diagnosed and reported in the included jurisdictions, of which 9448 cases were sampled for enhanced investigation. Complete patient interview data were obtained for 4017 cases, yielding an overall interview completion rate among sampled cases of 42.5%; Massachusetts had the lowest interview completion rate (19.3%), whereas Multnomah County had the highest (58.5%). Based on weighted analysis, we estimated that 51,261 (49.8%; 95% CI, 47.4–52.3) of all reported gonorrhea cases occurred among MSM, of whom 35,785 (69.8%; 95% CI, 66.5–73.1) were not known to be living with diagnosed HIV and considered eligible for PrEP. Complete information on provider prescription of PrEP (either “yes” or “no” responses) was available for 33,165 (92.7%) of 35,785 MSM eligible for PrEP (Table 1).

More than half of eligible MSM with complete information on prescription of PrEP (17,017/33,165 [51.3%; 95% CI, 47.1–55.5]). reported being prescribed PrEP (Table 1). Reported prevalence of provider prescription of PrEP among these eligible MSM varied by jurisdiction and ranged from 35.0% (95% CI, 26.5–43.4; 408/1168) in Philadelphia to 77.8% (95% CI, 73.1–82.5; 6598/8478) in New York City (Table 1). No differences in the proportion of eligible MSM reporting provider prescription of PrEP were found by age group and race/ethnicity (Fig. 1). We estimated that across all jurisdictions contributing cases to our analysis, 16,147 (48.7%; 95% CI, 44.5–52.9) cases among 33,165 potentially eligible MSM had not been prescribed PrEP by a health care provider (Table 1).

DISCUSSION

We present the first published estimate of the proportion of eligible MSM diagnosed with gonorrhea who reported being prescribed PrEP by health care providers across multiple, geographically diverse jurisdictions. We estimated that more than half of eligible MSM diagnosed with gonorrhea in 2016 reported that they had been prescribed PrEP, with those in New York City and San Francisco reporting being prescribed PrEP more frequently when compared with other jurisdictions, perhaps reflecting increased programmatic efforts to promote PrEP in these areas.^{17,18} In addition, there seem to be no differences by age group or race/ethnicity in the aggregate across contributing jurisdictions. We were not able to conduct jurisdiction-specific analysis to detect associations by age group or race/ethnicity because of the small samples in some jurisdiction-specific race/ethnicity and age strata. However, SSuN is an ongoing sentinel surveillance activity and our sample size will increase over time, allowing for future analyses stratified by additional variables of interests, such as provider characteristics and health care access and seeking patterns, which will more fully characterize eligible MSM who are prescribed PrEP.

Our analysis has several limitations. Our project is designed to be representative of gonorrhea cases being reported in the collaborating jurisdictions and not the entire US. Men who have sex with men diagnosed with gonorrhea, moreover, do not necessarily represent all MSM in these jurisdictions and may in fact be at considerably higher risk for HIV infection than MSM not diagnosed with gonorrhea or other STIs. Although our estimates are based on weighted analysis of randomly selected cases, and we adjusted for interview nonresponse by sex and age, unmeasured response bias may still exist. In addition, broad CIs in some strata limit our ability to detect small differences by patient characteristics. Some patients may also have confused PrEP for postexposure prophylaxis, responding “yes” to the PrEP question when they had actually been prescribed postexposure prophylaxis. Because of this, our study may overestimate prescription of PrEP by a provider. The variability in how the PrEP question was asked may have also affected our analysis. Finally, the SSuN sample may contain more than one case and related interview for the same individuals due to repeat infections diagnosed and reported during the study period. For this reason, we present our estimates as among gonorrhea cases rather than for individual persons with gonorrhea.

Despite limitations, this analysis provides a useful and timely cross-section of the proportion of eligible MSM with recent gonococcal infections who were prescribed PrEP. In the future, data documenting the use of PrEP among eligible MSM who are diagnosed and reported with an STI may help the public health community better understand the characteristics of PrEP users and help guide efforts to increase use of this important HIV prevention intervention. Recent evidence suggests that diagnoses of gonorrhea (and other STIs) may increase among MSM after PrEP initiation,^{11,19,20} perhaps resulting from more frequent screening and identification of asymptomatic infections rather than increased incidence. In addition to preventing HIV, widespread incorporation of PrEP into comprehensive MSM sexual health care will likely increase the frequency of STI screening, increase opportunities to identify and treat MSM infected with gonorrhea, provide counseling on services available for their sexual partners, and possibly result in long-term reductions in gonorrhea incidence.

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Figure 1.

*Estimates based on weighted data. Number and proportions represent MSM eligible for PrEP with complete information on prescription of PrEP by a health care provider. †Eligible refers to male patients who self-reported (1) at least 1 male sex partner in the past 3 months, or (2) being gay or bisexual, or (3) whose diagnosing provider reported the sex of the patient's sex partners in the past 12 months as "male" or "both male and female," and (4) were not known to be living with diagnosed HIV. ‡MSM indicates men who have sex with men. Includes men who reported having sex with both men and women. §PrEP indicates preexposure prophylaxis. ¶Prescription of PrEP was defined as responding "yes" when asked if they had been prescribed PrEP to prevent HIV, if they are receiving PrEP, or if they are taking PrEP to reduce HIV risk. Note: Error bars indicate 95% confidence intervals.

TABLE 1.

Prescription of PrEP* by a Health Care Provider to Eligible[†] MSM[‡] Diagnosed and Reported With Gonorrhea by Jurisdiction, SSuN, 2016

SSuN Jurisdiction	No. [§] Eligible [†] for PrEP	MSM [‡]			
		No. [§] Prescribed PrEP*	Proportion Prescribed PrEP*, % (95% CI) [§]	No. [§] Not Prescribed PrEP*	Proportion Not Prescribed PrEP*, % (95% CI) [§]
California (excluding San Francisco County)	15,147	5537	36.6 (28.4–44.7)	9610	63.4 (55.2–71.6)
Massachusetts	1836	715	39.0 (27.4–50.6)	1120	61.0 (49.4–72.6)
Multnomah County, Oregon	699	252	36.0 (27.3–44.7)	447	64.0 (55.3–72.7)
Minnesota	938	359	38.2 (27.2–49.3)	580	61.8 (50.7–72.8)
New York City, New York	8478	6598	77.8 (73.1–82.5)	1880	22.2 (17.5–26.9)
Philadelphia, Pennsylvania	1168	408	35.0 (26.5–43.4)	760	65.0 (56.6–73.5)
San Francisco County, California	3138	2258	72.0 (67.0–77.0)	880	28.0 (23.0–33.1)
Washington State	1760	890	50.6 (41.5–59.6)	870	49.4 (40.4–58.5)
Total	33,165	17,017	51.3 (47.1–55.5)	16,147	48.7 (44.5–52.9)

* Prescription of PrEP was defined as responding “yes” when asked if they had been prescribed PrEP to prevent HIV, if they are receiving PrEP, or if they are taking PrEP to reduce HIV risk.

[†] Eligible refers to male patients who self-reported (1) at least 1 male sex partner in the past 3 months, or (2) being gay or bisexual, or (3) whose diagnosing provider reported the sex of the patient’s sex partners in the past 12 months as “male” or “both male and female,” and (4) were not known to be living with diagnosed HIV.

[‡] Includes men who reported having sex with both men and women.

[§] Estimates based on weighted data. Number represents MSM eligible for PrEP with complete information on prescription of PrEP by a health care provider.

CI indicates confidence interval; MSM, men who have sex with men; PrEP, preexposure prophylaxis; SSuN, STD Surveillance Network.