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Sexual health discussion practices and HIV clinical care provided by primary care providers in the Southeast United States, K-BAP Study (2017–2018)

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Abstract

Objective: Research underscores the importance of providers having routine discussions with patients about their sexual health. We examined the occurrences and association of routine sexual health discussion practices and human immunodeficiency virus (HIV) clinical care among primary care providers (PCPs) in areas with high HIV prevalence.

Methods: We analysed data collected between April and August 2017 from an online survey that assessed PCPs knowledge, behaviours, attitudes, and practices of HIV-related care in 6 Southeast US jurisdictions (Atlanta, Baltimore, Baton Rouge, District of Columbia, Miami, and New Orleans).

Results: Among PCPs, we found that 39.2% routinely obtained sexual health histories, 78.5% offered HIV testing, and 16.0% ever prescribed preexposure prophylaxis (PrEP). Based on adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs), the proportion of PCPs who routinely obtained sexual histories was higher among female PCPs (aPR = 1.47, 95% CI 1.04, 2.08), PCPs who had a patient population that was >50% men who have sex with men (MSM)

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Authors' contributions

Study conceptualization and design were performed by Ashley Townes and Kirk D. Henny. Material preparation, data collection, and analysis were performed by Ashley Townes and Zaneta Gaul. The first draft of the manuscript was written by Ashley Townes and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

CDC disclaimer

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Ethical approval

The K-BAP Study was reviewed and approved by the Chesapeake Institutional Review Board and was performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

(aPR = 1.94, 95% CI 1.72, 2.18), offered HIV testing (aPR = 3.60, 95% CI 2.23, 5.79), and ever prescribed PrEP (aPR = 1.43, 95% CI 1.06, 1.93).

Conclusion: Improving patient-provider discussions are needed to reduce HIV-related service barriers for disproportionately affected populations.

Practice implications: Routine discussions can reduce barriers to important HIV prevention and care services and help reduce disparities among patients living in highly prevalent HIV locations.

Keywords

HIV prevention; PrEP; primary care providers; sexual health history

Introduction

Increased human immunodeficiency virus (HIV) prevention and care efforts have led to a decrease in the annual number and rates of HIV diagnoses in the United States from 2015 to 2019.[1] Despite the overall declines, disproportionate rates of HIV infection still exist for specific groups and in certain geographical locations.[1] In 2019, HIV was disproportionately concentrated in the Southeast United States with a rate of 15.2 diagnoses per 100,000 population of adults and adolescents and a prevalence rate of 378.7 persons living with diagnosed HIV infection per 100,000 persons.[1] Among all persons with HIV (PWH) in the South, 14.8% were among persons whose HIV infection had not been diagnosed.[2] Socioeconomic factors (e.g. poverty, unemployment, inadequate health insurance), limited transportation access, fewer HIV specialists, and disproportionately higher rates of sexually transmitted infections (STIs) have contributed to HIV incidence rate disparities in the South, particularly for African American/Black (hereafter referred to as Black) persons.[3-6] Higher concentration of HIV within social and sexual networks may increase risk of HIV infection regardless of individual-level sexual behaviour, particularly among Black persons.[7,8] Clinic-level barriers such as HIV-related stigma and provider bias impede critical prevention and care services and further compound existing HIV disparities in the region.[3,4,9,10]

Primary care providers (PCPs) practicing in the South have opportunities to reduce individual and community HIV risk by discussing sexual health with their patients during clinic encounters.[11-15] Clinic encounters that involve taking patient sexual health histories and conducting sexual risk assessments can reduce barriers to testing for HIV/STI infection and screening patients for preexposure prophylaxis (PrEP) eligibility.[15,16] PCPs practicing in the South who routinely engage in sexual health discussions can provide recommendations that mitigate individual HIV risk, particularly for patients living in locations with high HIV community viral load.[17,18] Therefore, we examined occurrences of specific types of provider sexual health discussions among PCPs practicing in 6 Southeast US jurisdictions with disproportionately high HIV incidence and prevalence. Additionally, we assessed provider characteristics and HIV clinical care outcomes associated with specific types of provider sexual health discussions.

Methods

Data collection and study population

All study protocols were reviewed and approved by the Chesapeake Institutional Review Board on 23 June 2016. The United States Government, Office of Management and Budget (OMB # 0920-1160) approved the data collection authorization on 1 February 2017. All research procedures with human subjects were performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments. Data are from the Knowledge, Behaviors, Attitudes and Practices of HIV-Related Care among Providers in the Southeast US (K-BAP) study, a cross-sectional study conducted in 2017–2018. The K-BAP Study was an online survey among practicing PCPs in high HIV incidence areas in the Southeast United States, based on national 2014 HIV surveillance data. The selection criteria for the metropolitan statistical areas (MSAs) included (i) located in the Southeast United States, (ii) having greater than 20% African American population of adults aged 18–54 years, and (iii) having an HIV incidence greater than 25 cases per 100,000 persons and HIV prevalence greater than 300 cases per 100,000 persons. The 6 MSAs selected were Atlanta, GA; Baltimore, MD; Baton Rouge, LA; Miami, FL; New Orleans, LA; and Washington, DC. For analyses, we used 4 geographic regions: Atlanta, Miami, Baton Rouge/New Orleans, and Baltimore/Washington, DC.

The study population was derived from a sampling frame consisting of 36,489 providers using the IQVIA provider database in January 2017, which contains all currently active health care providers in the United States; a sample of 7,330 providers was developed to represent the selected MSAs.[19] Eligible providers consisted of 3 provider types: physicians, nurse practitioners, and physician assistants. Postal mail and email invitations were sent to providers concurrently followed by reminders via post card (2 weeks later), email (3 sent 1 week apart), and providers who did not respond by either mail or email received up to 2 phone calls. Survey respondents provided informed consent before completing the baseline questionnaire. Participants who completed the baseline questionnaire received $20 cash incentive via postal mail. The survey response rate was calculated based on the standards published by the American Association for Public Opinion Research (AAPOR), with a raw response rate of 14.9% and an adjusted response rate at 29.6%, which excludes a total of 6,510 known and estimated ineligible respondents from the denominator.[20]

Analysis

We developed multivariate models to estimate the associations of provider characteristics with 6 types of provider sexual health discussions: (i) routinely obtains sexual history, (ii) asks about number of sexual partners, (iii) asks about gender of sexual partners, (iv) asks about frequency of sex, (v) asks about types of sex (e.g. vaginal, anal, oral), and (vi) explores opportunities for safer sex counselling. First, we di-chotomized each of the 6 discussion measures. For “routinely obtains sexual history,” we rescored the original responses into a binary measure. The “I routinely obtain a sexual history at the first encounter and update it on a regular (e.g. annual) basis” responses and “I routinely obtain a sexual history at the first encounter and update if new information is obtained” responses

were rescored as “routinely obtains sexual history.” All other responses were rescored as “does not routinely obtain sexual history.” The remaining discussion measures were described as a proportion of patients that receive the sexual health screening question. The original responses “most or all” were rescored as “yes” and all other responses as “no.”

We examined provider characteristics (e.g. sex at birth, race/ethnicity, age, sexual orientation, patient population) and HIV clinical care outcomes (e.g. offers HIV testing, ever prescribed PrEP) that were statistically associated ($P \leq 0.05$) with each of the sexual health discussion practices. We calculated bivariate prevalence ratios (PRs) and 95% confidence intervals (CIs) between each provider characteristic/clinical care outcome and the 6 aforementioned discussion practices. Next, we developed multivariate models using only the statistically significant factors from the bivariate results and reported the adjusted prevalence ratios (aPRs) and 95% CIs. All analyses were performed using SAS (Version 9.3, Cary, NC) and SUDAAN (Version 12, Research Triangle Park, NC). During analyses, we applied adjusted survey weights that were derived from weights used to represent each provider type and provider population size within each MSA and were combined with nonresponse and poststratification weights.

Results

Our sample included 820 PCPs, see Table 1 for frequencies and weighted proportions. In the weighted analyses, more than half of PCPs identified as female (52.6%), White (52.0%), and heterosexual (82.3%). Majority of PCPs indicated that they were physicians (75.3%), primarily practiced in outpatient settings (53.6%), and practiced in the Baltimore/Washington, DC region (47.6%). About 68% of PCPs reported >50% of their patient population were women and 44% of PCPs reported that majority of patients were White persons. PCPs reported the following clinical practices: 78.5% offered HIV testing and 16.0% ever prescribed PrEP. PCPs indicated having the following types of sexual health discussions on a routine basis: (i) 39.2% obtained sexual histories from their patients, (ii) 29.1% asked patients about the number of their sexual partners, (iii) 33.5% asked about the gender of their patients’ sexual partners, (iv) 15.2% asked about the frequency of sex, (v) 16.6% asked about the types of sex their patients engaged in, and (vi) 29.3% explored opportunities for safer sex counselling with patients. The most common barriers to discussing sexual health with patients were PCPs not having enough time during clinic appointment (52.4%) and PCPs reporting that it was not relevant to the reason for patient’s visit (58.8%).

aPRs and 95% CI were used to estimate correlates of sexual health discussion practices, see Table 2. We further assessed PCPs who routinely obtained sexual history, explored safer sex counselling, asked about the frequency and types of partnered sex, and asked about characteristics of their patients’ partners.

Discussions about sexual history and safer sex counselling

We found that PCPs who routinely obtained sexual histories were more likely to be female (aPR = 1.47, 95% CI 1.04, 2.08), have >50% men who have sex with men (MSM) patient population (aPR = 1.94, 95% CI 1.72, 2.18), offered HIV testing (aPR = 3.60, 95% CI 2.23,

5.79), and ever prescribed PrEP (aPR = 1.43, 95% CI 1.06, 1.93). PCPs who explored safer sex counselling with their patients were more likely to be gay, lesbian, or transgender (aPR = 1.86, 95% CI 1.02, 3.41), have >50% MSM patient population (aPR = 2.48, 95% CI 1.90, 3.23) and offered HIV testing (aPR = 10.38, 95% CI 4.57, 23.61).

Discussions about frequency and types of sex

PCPs who asked their patients about their frequency of sex were more likely to be 60 years or older (aPR = 1.97, 95% CI 1.14, 3.43) and offered HIV testing (aPR = 2.75, 95% CI 1.22, 6.23). PCPs who asked about types of sex their patients engaged in (e.g. vaginal, anal, oral) were more likely to be Asian (aPR = 1.44, 95% CI 1.18, 1.75) and more likely to report being bisexual (aPR = 2.82, 95% CI 1.44, 5.52).

Discussions about sexual partners

PCPs who asked their patients about the number of partners they had were more likely to be 60 years or older (aPR = 1.38, 95% CI 1.02, 1.88), have >50% MSM patient population (aPR = 2.26, 95% CI 1.40, 3.65), and offered HIV testing (aPR = 2.45, 95% CI 1.72, 3.48). Similarly, PCPs who asked their patients about the gender of their patients' partners were more likely to have >50% MSM patient population (aPR = 2.30, 95% CI 1.32, 4.01) and offer HIV testing in their practice (aPR = 2.40, 95% CI 1.66, 3.45). PCPs who asked about the gender of patients' partners were also more likely to have ever prescribed PrEP (aPR = 1.39, 95% CI 1.05, 1.83).

Discussion and conclusion

Discussion

Our study examined the occurrences and associations of routine sexual health discussion practices among PCPs in highly prevalent HIV areas in 6 jurisdictions in the Southeast United States. Overall, we found that less than 40% of PCPs are having sexual health discussions by conducting routine sexual health histories. Our analyses revealed that not having sufficient time during clinical visits or perceived irrelevance to purpose of patient visit are barriers that PCPs identified for not conducting routine sexual health histories. These findings are consistent with previous studies in literature indicating limited time during clinic visits and competing clinical priorities as barriers to implementing routing HIV testing policies.[21]

Although not examined in the larger K-BAP Study, evidence from existing literature indicates that HIV-related stigma could be negatively affecting HIV prevention and care during clinical encounters.[9,10,21-25] Provider attitudes and beliefs about HIV (e.g. individuals at greatest risk engage in risky sexual behaviours, belong to a particular racial/ethnic group, have frequent sexual encounters) likely influences the clinical care provided to patients.[22-25] Reducing HIV-related stigma is critical to improving health outcomes, particularly in areas with high HIV prevalence.[23-25] Possible approaches for addressing such barriers affecting routine sexual health discussions and assessments includes addressing structural policies and trainings designed to improve clinic care of PCPs (i.e. how to take a sexual history and its benefits, HIV and PrEP recommended clinical guidelines).[15,21,26]

To facilitate the adoption of routine sexual health discussions, the use of standardized tools (including computer assisted self-interviewing) may allow for data collection in a timely and efficient manner and reduced provider discomfort asking patients about their sexual practices.[15,21,27]

Our study shows that PCPs who routinely obtained patient sexual histories, including asking patients about the number and gender of their sexual partners, asking about frequency of sex, and exploring safer sex counselling reported higher HIV testing rates. The scarcity of research literature and the significant time gaps between published studies are limitations to adequately compare our findings. However, we note that existing literature provide evidence supporting routine sexual health discussions as a vital component to assessing behavioural risks associated with HIV acquisition and transmission.[28,29] Testing is essential to diagnosing HIV infection, providing rapid treatment, and/or prescribing PrEP to individuals with clinical indications, such as a diagnosed STI.[30] Primary care health care visits serve as an opportunity to promote and normalize HIV testing behaviour for persons who might not otherwise seek sexual health care. While our study shows that nearly 80% of PCPs reported offering HIV tests, unfortunately, only 35% of those PCPs were doing so correctly based on the standard of care.[23] Research literature indicates that suboptimal screening practices may be influenced by providers' misconceptions about the HIV risk of their clientele based on the race, gender, and age of their patient population.[13,22,23,31] Further research is needed to examine the implications of racism, sexism, and ageism as it relates to HIV prevention and care.

Our study revealed that PCPs gender and belonging to a specific race/ethnicity or age group did impact the types of sexual health discussions that took place with patients. PCPs who had a large MSM patient population were more likely to have these types of discussions. While this pattern is note-worthy, this characteristic only applies to <3% of the PCPs in the study sample. This finding was likely given that much of the national and local HIV prevention efforts have focussed on MSM populations, particularly African American/ Black and Hispanic/Latino MSM who have disproportionately high rates of HIV incidence and prevalence.[2] There remains a national priority to improve sexual health and wellbeing, the Ending the HIV Epidemic in America initiative (EHE) aims to have ≥95% of PWH aware of their infection by 2025.[32] HIV testing efforts will need to increase by at least 3-fold to reach this goal.[32,33] Therefore, providers need to think about the impact of HIV on other groups such as women, men who have sex with women (MSW), and older adults.[1-3,6,31,32]

Our findings also indicate that PCPs who routinely had sexual health discussions were more likely to have ever prescribed PrEP to their patients. This finding echoes the aforementioned importance of assessing behavioural risk routinely with patients to determine the best clinical outcome using a status-neutral approach.[34,35] The status-neutral approach begins with an HIV test and then offers 2 divergent paths for prevention or care depending on the result.[35] The primary care setting is an opportunity for providers, especially in high-incidence areas to reach patients regardless of their HIV status. Given the significant disparities in HIV prevention and care, it is critical that PCPs are equipped with adequate trainings and tools needed to have routine sexual health discussions that will improve HIV prevention and care efforts in the United States.[17,18,26,36-38]

Several aspects of our analysis characterize the strength of our study. First, our study provides a recent assessment of sexual health discussions and HIV clinical practices among a representative sample of PCPs in 6 jurisdictions in Southeast United States. Based on the representativeness of our study sample, our results can inform clinical practices that impact HIV prevention and care to achieve national goals of EHE) initiative.[32] Our sampling method estimated the population of providers within the selected MSAs and yielded a sample of 820 participants (29.6% adjusted response rate). Our study's response rate, though lower than other studies in the field of HIV,[39,40] is consistent with representative samples of providers who had not participated in previous studies.[41] In addition to these strengths, we note several limitations of our analyses. First, data were primarily based on survey respondents' recall that could not be verified with other data sources such as electronic medical records. Therefore, underreporting or overreporting may have occurred during data collection due to various factors including social desirability bias on the part of respondents. Secondly, our measure of routinely obtaining a sexual history was designed to assess frequency of data collected and updated in a patient's medical record. Rescoring this measure into di-chotomous categories and the exclusion of other responses may have led to measurement error; however, our results are consistent with other studies indicating the need to increase sexual health discussions and HIV testing in primary care settings.[15,21,26] Thirdly, the K-BAP Study did not include any measures to assess provider stigma in these jurisdictions. Though we did assess associations between provider characteristics (e.g. gender, age, race/ethnicity, and sexual orientation) and sexual health discussion practices, these characteristics alone are not sufficient for measuring potential provider bias. Lastly, providers in our sample were from urban MSAs and therefore our conclusions are not representative of sexual health practices in nonurban MSAs. Future studies should consider options to increase provider participation overall. In our sample, provider participation was lower in the Miami MSA compared with the other MSAs. Future studies should also consider various incentive options for survey completion, including monetary and nonmonetary incentives.

Conclusions

Primary care settings are an avenue to promote sexual health and wellness, and the implementation of status-neutral approaches where appropriate.. Patient–provider discussions provide an opportunity to reduce HIV-related barriers, such as stigma in clinical settings, and increase access to quality HIV prevention and care services in high HIV prevalence areas. Yet, only 39% of PCPs in 6 jurisdictions with a high HIV prevalence routinely obtained sexual health histories. HIV prevention and care efforts in primary care settings are essential to achieve the EHE goals, reduce HIV-related disparities, and improve health equity.

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Data availability

The data that support the findings of this study are not openly available.

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Key messages

- Routine discussions about sexual health reduces barriers to HIV care services.
- Less than 40% of PCPs routinely obtain sexual histories.
- PCPs who routinely obtain patient sexual histories report higher HIV testing rates.
- Improving patient–provider communication are needed to reduce barriers to HIV care.

Table 1.

Characteristics and practices of PCPs in the Southeast US, Knowledge, Behaviours, Attitudes, and Practices (K-BAP) Study, 2017–2018.

Provider characteristic	Raw[a] (*N* = 820)	Weighted %
Sex at birth		
Male	202	36.5
Female	542	52.6
Race/ethnicity		
White (non-Hispanic/Latino)	488	52.0
Black (non-Hispanic/Latino)	93	9.3
Asian (non-Hispanic/Latino)	42	7.8
Hispanic/Latino	85	16.2
Other	14	1.0
Age (years)		
<40	251	23.8
40–49	207	21.2
50–59	159	22.8
≥60	122	21.2
MSAs		
Atlanta	176	20.3
Baltimore/Washington, DC	344	47.6
Miami	88	23.2
Baton Rouge/New Orleans	212	8.8
Sexual orientation		
Straight or heterosexual	694	82.3
Gay, lesbian, same-gender loving, or transgender	29	4.0
Bisexual	12	1.5
Something else	2	0.2
Other	6	1.2
Clinical role		
Physician (MD/DO)	363	75.3
Nurse Practitioner (NP)	299	21.0
Physician Assistant (PA)	158	3.7
Primary clinical setting, ≥50% of time		
School or College Health Center	29	3.7
Outpatient (e.g. hospital, community clinic, private practice)	433	53.6
Emergency Department/Urgent Care	108	14.6
Public Health Department/Federally Qualified Health Center (FQHC)	31	3.4
Inpatient/Hospitalist	121	12.2
Retail Clinics (e.g. CVS, Walgreens, etc.)	21	1.6
Other	64	8.2
Patient population, >50%		

Provider characteristic	Raw[a] (*N* = 820)	Weighted %
White	331	44.0
Black	272	27.2
MSM	25	2.7
MSW	352	39.1
Women	553	68.1
Transgender	1	<1
People who inject drugs	11	<1
PCP routinely obtains sexual history		
Yes	320	39.2
No	414	49.0
PCP asks about number of sexual partners		
Yes	235	29.1
No	534	62.7
PCP asks about gender of sexual partners		
Yes	272	33.5
No	499	58.8
PCP asks about frequency of sex		
Yes	120	15.2
No	648	77.0
PCP asks about types of sex (e.g. vaginal, anal, oral)		
Yes	132	16.6
No	636	75.0
PCP explores opportunities for safer sex counselling		
Yes	231	29.3
No	539	63.0
Barriers to discussing sexual education (strongly/somewhat agree)		
I do not have enough time	414	52.4
I am not reimbursed for my time	189	27.2
My patients will not feel comfortable discussing sex	315	37.5
I do not feel comfortable discussing sex	154	20.0
Not relevant to reason for visit	507	58.8
PCP offers HIV testing		
Yes	637	78.5
No	139	14.6
PCP has ever prescribed PrEP		
Yes	114	16.0
No	626	72.3

[a]Due to missing values, not all categories have the same denominator.

Table 2.

Correlates of sexual health screening practices among PCPs in the Southeast US, Knowledge, Beliefs, Attitudes, and Practices (K-BAP) Study, 2017–2018.

	PCP routinely obtains sexual history		PCP asks about number of sexual partners		PCP asks about gender of sexual partners		PCP asks about frequency of sex		PCP asks about types of sex		PCP explores safer sex counselling	
	PR (95% CI)	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**
Provider characteristic												
Sex at birth (Ref. Male)												
Female	1.34 (1.06, 1.68)	1.47 (1.04, 2.08)	0.97 (0.66, 1.43)		1.15 (0.78, 1.70)		0.93 (0.53, 1.62)		0.91 (0.57, 1.45)		1.43 (0.90, 2.27)	
Race/ethnicity (Ref. White)												
Black	0.96 (0.58, 1.57)		0.86 (0.56, 1.32)		1.05 (0.80, 1.37)		0.74 (0.40, 1.36)		0.69 (0.40, 1.19)		0.94 (0.66, 1.34)	
Asian	1.01 (0.58, 1.76)		1.35 (0.69, 2.63)		1.01 (0.91, 1.12)		1.66 (0.98, 2.82)		1.68 (1.32, 2.15)	1.44 (1.18, 1.75)	1.08 (0.76, 1.55)	
Hispanic	0.99 (0.80, 1.22)		0.62 (0.46, 0.83)	0.71 (0.38, 1.32)	0.78 (0.65, 0.93)	0.83 (0.59, 1.16)	0.37 (0.22, 0.62)	0.50 (0.29, 0.85)	0.46 (0.21, 1.01)		0.52 (0.36, 0.75)	0.59 (0.45, 0.77)
Other	0.78 (0.25, 2.41)		0.81 (0.23, 2.91)		0.71 (0.22, 2.32)		1.39 (0.36, 5.46)		0.93 (0.25, 3.51)		0.94 (0.32, 2.72)	
Age (Ref. < 40 years)												
40–49	1.02 (0.73, 1.43)		1.24 (0.91, 1.70)		0.82 (0.64, 1.07)		0.98 (0.71, 1.36)		0.94 (0.39, 2.23)		1.24 (0.89, 1.72)	
50–59	1.17 (0.83, 1.67)		1.07 (0.68, 1.69)		0.94 (0.65, 1.36)		1.47 (0.82, 2.62)		1.03 (0.65, 1.63)		0.85 (0.53, 1.38)	
≥60	1.11 (0.81, 1.53)		1.71 (1.12, 2.61)	1.38 (1.02, 1.88)	1.21 (0.79, 1.84)		2.67 (1.14, 6.29)	1.97 (1.14, 3.43)	1.93 (1.04, 3.61)	1.48 (0.97, 2.24)	1.09 (0.70, 1.67)	
Sexual orientation (Ref. Straight/Heterosexual)												
Gay, lesbian, same-gender loving, or transgender	1.02 (0.41, 2.52)		1.49 (0.60, 3.74)		1.39 (0.60, 3.21)		1.98 (1.30, 3.01)	1.01 (0.37, 2.74)	2.91 (1.84, 4.59)	2.14 (0.86, 5.29)	1.87 (1.49, 2.35)	1.86 (1.02, 3.41)
Bisexual	1.30 (1.04, 1.62)	1.21 (0.82, 1.79)	1.09 (0.30, 3.99)		0.59 (0.21, 1.69)		0.24 (0.02, 2.59)		2.86 (1.59, 5.13)	2.82 (1.44, 5.52)	1.28 (0.85, 1.93)	

	PCP routinely obtains sexual history		PCP asks about number of sexual partners		PCP asks about gender of sexual partners		PCP asks about frequency of sex		PCP asks about types of sex		PCP explores safer sex counselling	
	PR (95% CI)	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**	**PR (95% CI)**	**aPR (95% CI)**
Something else	1.12 (1.04, 1.21)	0.96 (0.86, 1.08)	1.62 (1.39, 1.90)	1.77 (1.22, 2.57)	1.38 (1.14, 1.68)	1.36 (0.90, 2.05)	3.21 (1.41, 7.32)	3.18 (1.35, 7.51)	2.86 (1.19, 6.88)	2.82 (0.99, 8.01)	1.63 (1.48, 1.79)	1.77 (1.25, 2.50)
Other	0.17 (0.02, 1.41)		1.50 (0.31, 7.22)		1.27 (0.31, 5.30)		3.21 (2.05, 5.01)	3.18 (1.86, 5.46)	2.86 (1.68, 4.85)	2.82 (1.83, 4.35)	0.24 (0.03, 2.09)	
Patient population, >50%												
White	0.91 (0.81, 1.03)		0.95 (0.74, 1.23)		0.88 (0.76, 1.03)		1.06 (0.63, 1.78)		1.16 (0.81, 1.67)		1.00 (0.84, 1.19)	
Black	1.08 (0.70, 1.65)		1.02 (0.72, 1.44)		1.10 (0.88, 1.38)		0.80 (0.49, 1.30)		0.74 (0.52, 1.06)		1.11 (0.73, 1.68)	
MSM	1.98 (1.69, 2.32)	1.94 (1.72, 2.18)	2.32 (1.49, 3.63)	2.26 (1.40, 3.65)	2.36 (1.51, 3.70)	2.30 (1.32, 4.01)	2.88 (1.36, 6.10)	2.31 (0.67, 8.03)	3.49 (2.01, 6.07)	2.13 (1.32, 3.44)	2.63 (2.18, 3.18)	2.48 (1.90, 3.23)
MSW	0.72 (0.54, 0.97)	0.94 (0.72, 1.21)	0.68 (0.39, 1.20)		0.70 (0.53, 0.93)	1.09 (0.90, 1.31)	0.69 (0.34, 1.38)		0.72 (0.41, 1.27)		0.57 (0.30, 1.09)	
Women	0.98 (0.82, 1.16)		0.99 (0.54, 1.81)		0.95 (0.66, 1.37)		0.85 (0.58, 1.24)		0.82 (0.60, 1.13)		0.72 (0.56, 0.92)	0.75 (0.50, 1.12)
People who inject drugs	0.89 (0.61, 1.29)		1.09 (0.61, 1.95)		1.22 (0.69, 2.15)		1.70 (0.67, 4.34)		1.29 (0.47, 3.53)		1.46 (0.93, 2.28)	
PCP offers HIV testing (Ref. No)												
Yes	3.58 (2.38, 5.40)	3.60 (2.23, 5.79)	2.04 (1.29, 3.22)	2.45 (1.72, 3.48)	1.96 (1.40, 2.73)	2.40 (1.66, 3.45)	2.96 (1.18, 7.43)	2.75 (1.22, 6.23)	2.65 (0.99, 7.05)		5.61 (2.16, 14.60)	10.38 (4.57, 23.61)
PCP has ever prescribed PrEP (Ref. No)												
Yes	1.62 (1.27, 2.06)	1.43 (1.06, 1.93)	1.40 (1.14, 1.72)	1.16 (0.90, 1.48)	1.75 (1.40, 2.19)	1.39 (1.05, 1.83)	1.67 (1.02, 2.72)	1.12 (0.70, 1.77)	2.07 (1.52, 2.82)	1.48 (0.83, 2.65)	1.77 (1.28, 2.45)	1.08 (0.71, 1.63)

PCP, primary care provider.