Contrasting Self-Perceived Need and Guideline-Based Indication for HIV Pre-Exposure Prophylaxis Among Young, Black Men Who Have Sex with Men Offered Pre-Exposure Prophylaxis in Atlanta, Georgia

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Abstract

Despite high HIV incidence among young black men who have sex with men (YBMSM), pre-exposure prophylaxis (PrEP) uptake in this group is low. In a cohort of HIV-negative YBMSM in Atlanta, GA, all participants were offered PrEP as standard of care with free clinician visits and laboratory testing. We explored self-perceived need for PrEP among 29 in-depth interview participants by asking about reasons for PrEP uptake or refusal and factors that may lead to future reconsideration. Self-perceived need was compared to US Center for Disease Control and Prevention guidance for clinical PrEP indication using behavioral data and laboratory testing data. Self-perceived need for PrEP consistently underestimated clinical indication, primarily due to optimism for choosing other HIV prevention strategies, such as condom use, abstinence, or monogamy. Many participants cited consistent condom use and lack of sexual activity as reasons for not starting PrEP; however, follow-up survey data frequently demonstrated low condom use and high levels of sexual activity in the period after the interview. Study participants endorsed perceptions that PrEP is only for people with very high levels of sexual activity. Only one participant perceived incident sexually transmitted infection (STI) to be an indication for PrEP, despite the fact that several of the participants had a history of an STI diagnosis. These findings point to an opportunity for clinician intervention at diagnosis. Disconnect between self-perceived and guidance-based PrEP indications, as well as other factors such as medical mistrust or difficulty with access, may contribute to low PrEP uptake among YBMSM. A better understanding of the ways in which these issues manifest may be one tool for clinicians to support PrEP uptake.

Keywords: HIV, prevention, YBMSM, MSM, PrEP

Introduction

YOUNG BLACK MEN who have sex with men (YBMSM) in the United States (US) are at high risk for HIV. Previous studies have estimated that in the absence of PrEP and/or other efficacious HIV prevention intervention scale-up, lifetime risk of HIV acquisition is 41% among YBMSM in the United States.¹

HIV pre-exposure prophylaxis (PrEP) with tenofovir/emtricitabine (TDF/FTC), approved by the FDA in 2012, ef-

fectively prevents HIV infection when taken as prescribed, with particularly high effectiveness among men who have sex with men (MSM).^{2–5} PrEP initiation is increasing in the United States: an estimated 98,731 individuals started PrEP from 2012 to 2016, and from 2013 and 2015, there was a 523% increase in filled PrEP prescriptions.^{6,7} PrEP use among black Americans, however, is low relative to HIV burden: in 2015, only 10% of PrEP users in the United States were black,⁶ yet this group accounted for 44% of new HIV diagnoses in 2015.⁸ PrEP use is also low among younger

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people: only 8% of PrEP users in 2015 were younger than 25, despite this group accounting for 22% of new HIV diagnoses in 2015.^{6,8} A recent study in 20 US cities showed high self-reported willingness to take PrEP among both black and white MSM (59.7% and 58.9%, respectively); however, black MSM were only half as likely to have ever taken PrEP (2.5% and 5.3%, respectively).⁹ Another study among young MSM in Houston and Chicago showed that only 4.7% of YBMSM had ever used PrEP, compared to 29.5% of young white MSM.¹⁰ Previous studies have identified several barriers to PrEP uptake, including economic barriers, lack of access to health care, medical mistrust, low risk perception, concerns about side effects, and pill burden.^{11–13} Because a significant proportion of PrEP uptake may be among those who self-refer or seek out PrEP,¹⁴ lack of self-perceived need for PrEP may be an important contributor to lower uptake among young and minority MSM.

Currently, the main source of guidance on PrEP indication the United States is the Clinical Practice Guidelines jointly released by the United States Public Health Service (USPHS) and Centers for Disease Control and Prevention (CDC).^{15,16} USPHS guidelines indicate PrEP for any HIV-negative adult male who has had any male sex partners in the past 6 months, who is not in a monogamous partnership with a recently tested HIV-negative male, and who meets at least one of the following criteria: (1) any anal sex without condoms (receptive or insertive) in the past 6 months, (2) any sexually transmitted infection (STI) diagnosed or reported in the past 6 months, or (3) in an ongoing sexual relationship with an HIV-positive male partner. An estimated one-quarter of MSM in the United States meet these criteria.¹⁷ The guidelines additionally recommend clinicians consider a patient's epidemiologic context, such as community prevalence; however, no guidance is provided regarding how this might be implemented.¹⁵

YBMSM face many documented barriers to PrEP access, including perceived or experienced racism, medical mistrust, and lack of health care access.^{12,13,18–20} Whether at-risk individuals perceive a need for PrEP, for example, their demand for PrEP, is a key determinant of PrEP uptake that is likely influenced by these barriers. In this study, we offered PrEP as standard of care to a cohort of HIV-negative YBMSM in Atlanta, GA. The PrEP program includes free clinical and laboratory services and navigation assistance to obtain the medication for no or low out-of-pocket costs. In this context of complete PrEP awareness and improved accessibility, we conducted in-depth interviews (IDIs) to further understand what contributes to YBMSM's self-perceived need for PrEP. We compared these interview data to each participant's self-reported risk behavior and laboratory data, with a particular focus on if participants successfully used their intended prevention strategies after the interview. In this study, we explore areas of agreement and dissonance between self-perceived need and guideline-based indication among YBMSM after an offer of PrEP has been made, potentially illuminating mechanisms that clinicians and programs can explore to best engage YBMSM on their perceived need for PrEP.

Methods

Ethics statement

This study was reviewed and approved by the institutional review board of Emory University (IRB #00078950).

EleMEnt study

The EleMEnt study is an ongoing, observational, prospective cohort study designed to examine the longitudinal relationship between substance use and HIV incidence among sexually active YBMSM in Atlanta. Enrollment occurred from July 2015 to June 2017 and is now closed, with 300 participants enrolled for prospective follow-up. Recruitment materials focused on men's health and HIV, and did not reference PrEP. Participants were recruited by venue-time-based sampling, peer referral, and advertisements on Grindr, Facebook, and local transit systems. Eligibility criteria included the following: age 18–29, black race, non-Hispanic ethnicity, male sex at birth, living or working in the Atlanta Metropolitan Statistical Area, HIV-negative serostatus, and having at least one male sex partner in the previous 3 months. After enrollment, follow-up visits occur at 3–6 month intervals. At each visit, participants are tested for HIV and STIs and complete an electronic survey that covers topics related to demographics, substance use, sexual behavior, and interest and willingness to take PrEP.

PrEP program

We elected to offer PrEP to all EleMEnt participants, regardless of reported risk behavior, given our observation of >10% yearly HIV incidence among Atlanta YBMSM 18–24 years of age in a prior cohort study.²¹ All participants were shown an informational video about PrEP at their baseline visit (www.whatisprep.org), after which they could choose to discuss PrEP more with a counselor. For counseled participants interested in initiating PrEP, appropriate laboratory testing was done and participants were scheduled for a visit with a prescribing clinician within 1–2 weeks.²² Procedures for laboratory testing and clinical follow-up are described elsewhere.²² Supplemental funding was obtained to cover all costs associated with laboratory testing and clinician visits for PrEP. Participants receive no additional incentive for the optional PrEP program, including for extra study visits that are required for the recommended 3-month follow-up intervals for HIV testing. The study does not provide PrEP medication, but a navigator assists with obtaining the medication with no or low out-of-pocket costs through the participant's insurance and/or the manufacturer assistance programs. For participants not already on PrEP, interest in PrEP is assessed at each follow-up visit by a counselor. Participants who have indicated interest in initiating PrEP, but have not yet scheduled a PrEP enrollment visit, are contacted at least every other week by the study team to consider scheduling a visit. Participants who are diagnosed with an STI are also told about PrEP and given the opportunity to schedule a visit during their notification.

Qualitative substudy

Participants were recruited for IDIs across three categories of PrEP uptake and interest: (1) those who indicated interest in PrEP and then attended an enrollment appointment, (2) those who did not indicate interest in PrEP and who did not want to discuss it further at their next visit, and (3) those who indicated they would be interested in discussing it further. Participants from each of these three categories were invited to be interviewed based on strategic case selection, in which

we targeted for recruitment participants who had chart notes from clinicians indicating the case as particularly informative, such as a participant changing their attitude toward PrEP between their study visits. A total of 29 semistructured IDIs were conducted from May 2016 to February 2017. All interviews were conducted by an experienced qualitative researcher using a standard interview guide, and data were audio recorded and transcribed verbatim.

We sought to explore participants' self-perceived need for PrEP by looking at how participants created and applied criteria to their decision regarding PrEP uptake. This was accomplished with three complementary questions: (1) "What made you ultimately decide to take or not take PrEP?," (2) "Are there circumstances under which you could see yourself deciding to go on PrEP?," and (3) "Are there things you see as happening that might make you consider taking or not taking PrEP in the future?" Transcripts were checked for quality and accuracy. Deductive and inductive codes were developed based on a hybrid coding model.²³ Deductive codes were created based on the USPHS guidelines, including participant perception of need for PrEP related to the following: (1) having any male sex partners, (2) condom use or condomless sex, (3) any STI diagnosis, (4) any ongoing sexual relationship with an HIV-positive male partner, (5) any monogamous partnership, and (6) epidemiological context. Analysis of codes considered differences in experience such as whether the participant was taking PrEP and stated interest in PrEP at the time of the IDI. All code assignments were verified by two study staff. Any coding disagreements were addressed by discussion among the coders, after which a final decision was made by consensus. Interviews were analyzed using MAXQDA 12 qualitative data analysis software (MAXQDA, 2017).

Qualitative data for each participant were contextualized for analysis by self-reported risk behavior and laboratory data relevant to guideline-based PrEP indication. These data elements specifically included the following: laboratory-confirmed STI diagnoses, self-reported condom use, self-reported monogamous partnership with an HIV-negative man, and self-reported ongoing relationship with an HIV-positive partner. Each quantitative measure was obtained from the first visit after the interview that included a questionnaire covering the time period of the interview as well as up to 6 months after the interview. The interviewer conducting the IDI was blinded to participants' survey responses and laboratory data, and these data did not inform the interview process (the interviewer was unaware of each participant's data). Data were analyzed using SAS 9.2 (Cary, NC).

Results

Participant PrEP use and demographics

The plurality of participants (11/29) interviewed had yearly incomes between \$20,000 and \$39,999 and most (21/29) had attended at least some college (Table 1). Participants ranged in age from 19 to 29 years (Table 1).

According to chart records, of the 29 participants, 13 had been prescribed PrEP and 16 had never been prescribed PrEP. Among those prescribed PrEP, five reported consistent PrEP use; one reported inconsistent use; five decided not to fill their

TABLE 1. CHARACTERISTICS OF 29 QUALITATIVE INTERVIEW PARTICIPANTS

<i>Characteristics</i>	<i>n</i>	<i>%</i>
PrEP Status		
Prescribed PrEP	13	45
Never prescribed PrEP	16	65
Yearly income		
\$0–\$9,999	5	17
\$10,000–\$19,999	6	21
\$20,000–\$39,999	11	38
\$40,000 or more	5	17
Don't know	2	7
Education		
College, post-graduate, or professional school	7	24
Some college, Associate's degree and/or Technical School	14	48
High school or GED	6	21
Did not finish high school	2	7
Age at interview		
<20	9	31
21–24	7	24
25–27	10	34
>28	3	10

prescriptions; one had a gap in PrEP use due to a serious medical issue; and one had discontinued PrEP after taking it for 2 months due to being in a relationship. Four of the five participants who decided to not fill their prescription said they would consider starting PrEP in the future. The other participant who had not filled his prescription disclosed during his interview that he had recently tested positive for HIV. The participant with a gap in care sought to restart PrEP within the study shortly after the IDI, but tested positive for HIV at the appointment. Both HIV-positive participants are excluded from this analysis. Of the 16 participants who had never been prescribed PrEP, only one indicated a definitive lack of interest. All others indicated that they were either undecided about PrEP or that there were circumstances under which they would consider it. For this analysis, the five participants who reported consistently taking PrEP and the one participant who reported inconsistently taking PrEP ($n=6$) are considered to be "on PrEP." All other participants ($n=21$) are considered to be "not on PrEP."

Self-perceived need for PrEP compared to guideline indication

Overall, self-perceived need for PrEP was low compared to guideline-based indication. Half of participants not on PrEP (11/21) stated or alluded to reasons they did not think PrEP was right for them. The reasons they cited included the following: being in a monogamous relationship, not being at risk, or not needing PrEP because of consistent condom use. However, according to subsequent self-reported survey data and laboratory data, most (8/10 who perceived themselves to be eligible and 8/11 who did not perceive themselves to be eligible) had an indication for PrEP based on the guidelines. Below, we examine participant responses to our indication questions, structured by the framework of domains of PrEP indication from the USPHS guidelines.

Indication guidance: any male sex partner in the past 6 months

All participants who discussed it felt strongly that sexual activity is a prerequisite for being on PrEP, which aligns with the guidelines. Four of the 21 participants not on PrEP (19%) cited lack of sexual activity as the main reason for not starting PrEP. One noted, “If I’m not having sex, then why am I taking this pill that’s going to protect me from HIV?” (Table 2). In contrast to their IDI discussions, three of the four self-reported anal sex in the follow-up survey that covered the period in which the interview was conducted.

Many participants described sexual activity with qualifiers such as “as active” or “more active,” indicating that they viewed sexual activity on a scale rather than as the binary cut point used to determine guideline-based indication. Participants seemed to perceive that there was a critical frequency of sex or number of partners that needed to be reached before they had a sufficient need for PrEP. Some participants categorized themselves as not sexually active if they were not having frequent sexual encounters with multiple partners. Many participants seemed to think that high frequency of intercourse and a high number of partners were prerequisites for taking PrEP. One participant noted that he was not sexually active enough for PrEP, and that PrEP is for people who have sex “like bunnies.” (Table 2).

Indication guidance: not in a monogamous relationship with a recently tested, HIV-negative man

Four of the 21 participants not on PrEP (29%) cited a relationship as a main reason not to use PrEP (Table 2). One participant stated, “I’ve had the same sexual partner for years [...] so there’s no benefit in me taking PrEP” (Table 2). This suggests partial alignment of self-perceived need with guideline-based indication. The guidelines exclude any individual who is in a mutually monogamous relationship with a recently tested HIV negative partner; however, participants did not explicitly describe their relationships as monogamous or mention their partners’ HIV testing histories. In follow-up survey responses covering the period of the interview, 2/4 self-reported that their main relationships were not mutually monogamous or that they did not know their partner’s HIV status.

Indication guidance: any anal sex without condoms (receptive or insertive) in past 6 months

There was a high level of concurrence between self-perceived need and guideline-based indication regarding anal sex without condoms as a reason to take PrEP. Four of the six (67%) participants who were on PrEP noted recent unprotected sex as one of the factors that led them to initiate PrEP. One of these participants cited optimism in wanting to use condoms versus actual condom use as a reason for starting PrEP (Table 2). Another participant described the difficulty of condom negotiation: “it’s super hard to ask a guy to wear a condom” (Table 2). In contrast, participants not on PrEP commonly cited consistent condom use as one of the reasons they did not use PrEP: 13 of the 21 participants not on PrEP (62%) said they did not take PrEP because they preferred to rely on condoms (Table 2). As one participant noted, “I guess I felt like I didn’t need it because I always use a condom.”

However, of the participants who cited consistent condom use as a reason they did not use PrEP, 9/13 (69%) reported unprotected anal sex in a follow-up survey or counseling session that covered the period in which the interview was conducted. The role of ‘condom optimism,’ identified by one of the participants on PrEP, is a potential source for the discord between interview reports about anticipated future prevention and survey reports that address past sexual activity.

Indication guidance: any STI diagnosed or reported in past 6 months

Only one participant mentioned an STI diagnosis as an indication for PrEP. This participant self-reported two previous STI diagnoses and described one diagnosis as serving as a catalyst for prioritizing HIV prevention. In contrast, one participant on PrEP described having unprotected sex and receiving an STI diagnosis as a reason to consider stopping PrEP, “Once I got the STD I was like no thank you, I’ll just use the condoms.” Six participants not on PrEP described previous STI diagnoses or scares during their interview, but did not connect these with a self-perceived need for PrEP. Four of these six participants described STI diagnoses as a catalyst to reduce their number of sex partners, get tested more often, or change their sexual behavior, but did not view these STI diagnoses as reasons to start PrEP. This is a missed opportunity for engaging at-risk individuals with PrEP care.

Indication guidance: ongoing sexual relationship with an HIV-positive male partner

Self-perceived need aligned well with guideline-based indication that an ongoing relationship with an HIV-positive male is a reason to take PrEP. Three of the six participants on PrEP (50%) mentioned a sexual relationship with an HIV-positive partner as one of their reasons for initiating PrEP. In addition to their own protection, several participants described wanting their positive partner to feel comfortable and accepted as a motivating factor for taking PrEP. Of the 21 participants not on PrEP, 13 (62%) described, without prompting, a sexual relationship with an HIV-positive partner to be an appropriate reason to start PrEP in the future. As one participant noted, “If anything happened to [my partner], I would never leave his side. I would just have to wear condoms and take PrEP.” Among the participants not interested in PrEP, some described a relationship with a positive partner to be the only circumstance under which they would consider PrEP (Table 2).

Indication guidance: epidemiological context

For some, epidemiological context and population risk played a role in self-perceived need for PrEP. These participants felt that their risk of HIV, based on their population or location, was a driving factor for going on PrEP. Other participants reacted negatively if this was mentioned, and remarked that it was unfair to single out certain groups for PrEP. Five participants (four on PrEP and one not on PrEP) mentioned their epidemiological context as a contributing factor for initiating PrEP or a reason someone could go on PrEP. These participants were aware of the high incidence of HIV among YBMSM and seemed to view PrEP as a way to

TABLE 2. SELECTED PARTICIPANT QUOTES REGARDING INDICATION FOR PRE-EXPOSURE PROPHYLAXIS

Any male sex partner in the past 6 months

- I didn't feel like I needed at that time because I wasn't sexually active at that time. And then I'm like if I do, I have to use a condom.
- But if I'm not having sex, then why am I taking this pill that's going to protect me from HIV?
- I've been a lot - not a lot more sexually active, but I've been with like a couple more guys? But not having sex. The only other guy I had sex with was the other man, and we used a condom. But the other guys, you know, it was just like oral, stuff like that.
- I would say it depends on your lifestyle, if you're like a very sexually active person you should probably take it if you don't use condoms.
- And I really think that's for people that really had sex a lot. Like my friend who got infected in college, they needed PrEP, because they were having sex like bunnies.

A monogamous relationship with a recently tested, HIV-negative man

- I've had the same sexual partner for years and if I was to have outside intercourse or anything it would be definitely protected. So honestly there's no benefit in me taking PrEP.
- Whenever we're messing with other people or doing anything sexually, we just want to make sure that we both know each other's status. So it's, very important that we know each other's status. And that, you know, we support each other in being protective of one another and letting each other know if something happens.
- I didn't want to do it because I was scared my boyfriend would be like why do you need PrEP, are you cheating on me.
- Just to have that extra protection, because you'll never know what the other person is doing.

Any anal sex without condoms (receptive or insertive)

- Because it only takes one time [having unprotected sex]. Like I could be with one person one time and then regret it. But if I'm with PrEP, maybe it prevents that.
- I had a scare, and because I know that it's accurate a lot of us don't use protection as much as we would like, I decided to do it and even though it's a pharmaceutical drug.
- It was hard for me to tell him to put on a condom because I didn't want him to feel like I didn't trust him. And to an extent I did trust him. But at the same time, I just don't trust the universe.
- [...] it's super hard to ask a guy to wear a condom.
- I guess I felt like I didn't need it because I always use a condom.
- Interviewer: Are there circumstances under which you could see yourself deciding to go on PrEP? Participant: If they stop making condoms, yeah.
- Maybe if I was deep into a relationship and we decided to stop using condoms, I guess [I would go on PrEP].

Any STI diagnosed or reported

- Now, it doesn't protect you against STIs. But at the same time, it's just like if you've had an STI before and you know—I mean, you could still use condoms with [PrEP]. But it's like if you've had an STI before, and you're the type of person where you could take care of it, then [PrEP is] good for you.
- I follow a lot of gay guys on Twitter, so they talk about [PrEP] sometimes. So there's this one guy in particular, I don't remember his name but he lives in New York and I think he works in the STI prevention clinic or something, so he's always talking about it too. So 1 day he was like, 'Why isn't everybody taking PrEP, oh my God.'
- But yeah once I got the STD, I am like no thank you. I'll just use the condoms. So I didn't know if I should continue [on PrEP].
- So I got tested again and found out I had gonorrhea. I said dude, obviously I needed to slow down again.

Ongoing sexual relationship with an HIV-positive male partner

- If ever anything happened to him, I would never leave his side. I would just have to wear condoms and take PrEP.
- I would hate for his positive status to be the reason why he can't feel his lover.
- Unless I'm in a relationship where the person is HIV positive—that would be the only time I would consider it. For right now, I would just use condoms.
- So I was actually going to work for it [PrEP], like that was going to be a goal for me. Because there was a guy who I really had like a very, very close relationship with him. He has HIV. And he's undetectable and all that. And I remember the hell that I put him through because I was so super ignorant about it. But you know, he stuck around long enough to just keep you know, educating me on it and telling me you know, PrEP is an option.
- So, I think it [PrEP] kind of eases some anxiety. I think it actually makes it easier for HIV positive people, because a lot of times they don't feel like they don't have a chance.

Epidemiological context

- I remember my doctor that I worked with, saying that there is a 60% chance [sic] of contracting the virus as an African American male by the age of 30. And I am like oh hell no, I've got to do something to make sure that it doesn't happen to me outside of using condoms.
- Atlanta is not that safe. It's ridiculous and it's very high in my community. One of the guys I live with is HIV positive and he's 23.
- That wouldn't be fair. [...] to single it out to that group. Even though if it is at high rates in that specific group [...] it's not just gay black men, it's other races and genders and areas too. [...] It'd be different if they said, 'Okay, the people who have a highly active sex life should be on there.'

PrEP, pre-exposure prophylaxis.

protect themselves in response to the disproportionate prevalence of HIV in their community (Table 2). As one participant noted, “I remember my doctor [...] saying that there is a 60% chance [sic] of contracting the virus as an African American male by the age of 30. And I am like oh hell no, I’ve got to do something to make sure that it doesn’t happen to me outside of using condoms.” However, two participants who were asked about being a YBMSM and considering PrEP reacted negatively. These participants felt that it was unfair to be singled out based on their race or sexual orientation, and that some individuals in other populations had riskier behavior and therefore merited equal consideration for PrEP (Table 2). As one participant noted, “That wouldn’t be fair [...] it’s not just gay black men, it’s other races and genders and areas too.”

Discussion

Among YBMSM in Atlanta, self-perceived need for PrEP was consistently lower than guideline-based PrEP indication. Among the participants in this substudy, over three-quarters of participants not on PrEP met guideline-based indication criteria. Most of these participants not on PrEP did not perceive themselves as having a need for PrEP, which is unsurprisingly given that the study limited other barriers to care. This perception was primarily due to optimism for choosing other HIV prevention strategies, such as condom use, abstinence, or monogamy. Other key factors included a misunderstanding of the types or degree of sexual activity that would indicate need for PrEP and a lack of recognition that STI acquisition is an indication for PrEP. Lack of self-perceived need may be an important cause of low PrEP uptake, since a substantial proportion of PrEP uptake comes from self-referral.¹² Because all participants received education on PrEP, and all PrEP-related care was offered free of charge, the study setting offered a unique context in which barriers related to willingness could be differentiated from barriers related to awareness or access. In addition, we interviewed participants at various stages of PrEP willingness/initiation and showed that low self-perceived need persists even after education and an offer of PrEP has been made.

Optimism for choosing other HIV-prevention strategies

YBMSM may have low self-perceived need for PrEP because they are optimistic about choosing other HIV prevention strategies, such as a monogamous partnership with a tested partner, abstinence, or condom use. Consistent use of any of these strategies would indeed exclude an individual from guideline-based indication criteria; however, many YBMSM in this study did not successfully use their stated HIV prevention strategy in the months surrounding their interview. Although some participants stated that they did not feel they needed PrEP because they were in a relationship, later surveys revealed that these relationships were not always mutually monogamous or not with a recently tested HIV-negative partner. Other qualitative studies among young MSM reveal similar attitudes, particularly that a relationship may exclude someone from PrEP indication.²⁴ Models parameterized with survey data among MSM in US cities have estimated that 38–68% of HIV transmissions arise from main sex partners,^{25,26} indicating that this perception may lead to

substantial risk of HIV acquisition. Given this, it is crucial that clinicians help YBMSM recognize the role of main partners and recent HIV testing in the prevention of HIV. Another study showed that relationship agreements were positively associated with PrEP uptake,²⁷ possibly suggesting an avenue to encourage a better understanding of PrEP guidelines among couples. In addition, because of the high willingness of participants to consider PrEP if in a relationship with an HIV-positive partner, increased awareness of partner serostatus may lead to increased PrEP uptake.²⁵ Individuals who cycle on and off PrEP based on their relationship status may unknowingly be at substantial risk of HIV transmission if they go off PrEP while in a relationship that is not monogamous or with a partner who was not recently been tested.

Condom optimism also contributed to underestimation of PrEP indication. Many YBMSM see condom use as an alternative to PrEP, which is consistent with the guideline-based indication criteria. Other studies have also shown that MSM may frequently prefer condoms to daily PrEP for HIV prevention.²⁸ However, survey data from our study showed that unprotected anal intercourse was common, even among participants who cited consistent condom use as a reason for not starting PrEP. YBMSM may be optimistic about choosing consistent condom use and about their ability to negotiate condom use with all of their partners. Previous studies have shown that although unprotected anal sex is common among MSM, there are many complicated reasons for lack of consistent condom use, including difficulty with condom negotiation, drug or alcohol use, lack of self-efficacy, reduction in perceived pleasure, and lack of community norms surrounding condom use.^{29–31} This suggests that culturally sensitive and nonjudgmental probing by clinicians of these other issues surrounding condom use may be an important tool to assist patients in accurately determining likely future protective behavior, thereby improving PrEP uptake among those in need.

Although lack of sexual activity was frequently cited as a reason for not initiating PrEP, survey results showed that very few participants had a gap in sexual activity of at least 6 months. Clinicians should also consider that patients may have a different definition of “sexually active,” and should instead ask more pointed questions directly related to the guidelines, such as “have you had any anal sex in past 6 months?” Reported behavior in our IDIs differed greatly from behavior reported on the study surveys. Providing patients with a short pre-clinic visit sexual behavior survey could also enhance clinicians’ conversations with patients about their risk.

Lack of awareness of indication criteria

Self-perceived need for PrEP was lower than guideline-based indication, in part, due to misunderstanding of what types of sexual risk comprise sufficient risk for PrEP initiation. Participants recognized sexual activity as a prerequisite to PrEP indication. Participant perceptions of the meaning of “sexually active” varied greatly and did not match the definition of “any male sex partner in last 6 months,” as stated in the USPHS guidelines. Instead, participants based the characterization of sexually active on the number of partners someone has or the frequency of sex acts. Many participants

did not see themselves as suitable candidates for PrEP due to having what they perceived as a low number of partners compared to their peers. This is consistent with another qualitative study that found young MSM cited having multiple partners as a reason for starting PrEP.²⁴ Other studies have shown that young MSM often underestimate their risk for HIV, leading to lower uptake of HIV testing services.³² In this study, we expand on that finding and show that underestimation of risk may result in lower self-perceived need for PrEP, and thus lower uptake of PrEP. It is important for clinicians to emphasize that PrEP can be indicated for someone with just one partner, and that the guidelines do not state a high number of partners as a requirement for PrEP initiation.

Only one participant reported an STI diagnosis as a possible reason for PrEP use, and a second noted that STI diagnosis might be a reason to discontinue PrEP. One study showed no difference in willingness to take PrEP among young MSM irrespective of recent STI diagnosis,¹¹ while another showed that a previous STI diagnosis was the only factor associated with PrEP uptake.¹² These findings point to an opportunity for clinician intervention at diagnosis, as well as a possibility of wider social marketing efforts to emphasize that a positive STI result is an indication for PrEP. There is a need to develop guidance for clinicians on how to leverage disclosure of a positive STI result into a conversation about PrEP. Such guidance should be informed by the data indicating that some YBMSM may not see themselves as candidates for PrEP even after a recent STI diagnosis.

Limitations

The findings presented in this study are subject to several limitations. The study population only included YBMSM in Atlanta, and thus may not be nationally representative. In addition, although our analysis focuses on perceptions of PrEP in a context of near complete PrEP accessibility, barriers to PrEP access persist in our study population. While our analysis was able to focus on self-perceived need for PrEP in the absence of many previously studied barriers, such as access to a health care provider or lack of disclosure of same sex behavior,^{13,33} this may limit the generalizability of results. Survey data at the time of interview were not available; data used in our analysis were taken from the survey after the interview, which could have been up to 6 months after the interview.

Conclusions

Many YBMSM participants in our study had low perceived need for PrEP, despite high population incidence and meeting guideline-based indication criteria. This discordance indicates an opportunity for clinical intervention. Clinicians should be aware that although patients may cite consistent condom use or lack of sexual activity as a reason for not taking PrEP, there may be many complicated factors why patients may not be able to successfully use these prevention strategies consistently. Given the high incidence of HIV among YBMSM,³⁴ facilitating access to PrEP and other HIV prevention interventions is critical. Several novel HIV prevention strategies targeted specifically to YBMSM have recently been developed, including a program to enhance YBMSM's engagement in HIV prevention care and a home-based PrEP monitoring and support program.^{35,36} Our study results provide evidence that even if PrEP is indicated, many

patients may not seek it. To address underestimation of need, health care providers could take more proactive approaches such as screening all relevant individuals for PrEP with structured assessment tools and encouraging those who screen positive to consider PrEP.

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