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| Seynabou Denise Niang | July 30,2020 |

Examining primary care providers' attitudes, behaviors, knowledge and confidence regarding Pre-Exposure Prophylaxis (PrEP) in Fulton County, Georgia

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# Examining primary care providers' attitudes, behaviors, knowledge and confidence regarding Pre-Exposure Prophylaxis (PrEP) in Fulton County, Georgia

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Spelman College
2016

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An abstract of A thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Global Health
2020

## Abstract

Examining primary care providers' attitudes, behaviors, knowledge and confidence regarding Pre-Exposure Prophylaxis (PrEP) in Fulton County, Georgia

By Seynabou Denise Niang

**Background:** The Southern region of the United States constitutes the highest number of new HIV diagnosis in any region in the U.S. Fulton county, Georgia accounts for 1.5 percent of new diagnoses across the country. To better understand primary care providers (PCPs) engagement with patients at risk for HIV in Atlanta, this study examines PCPs' confidence, attitudes, behaviors, and knowledge of PrEP, specifically in Fulton County, GA.
**Methods:** Six key informant interviews (KIIs) were conducted to examine attitudes, knowledge, and confidence around PrEP prescribing practices. Interviews were then transcribed and coded using MAXQDA2020. Data analysis was guided by grounded theory focusing on thematic and descriptive analyses.
**Results:** On average, participants demonstrated high confidence in prescribing PrEP. PCPs viewed PrEP as an effective medication in preventing HIV acquisition. All participants were confident in prescribing and discussing PrEP with patients but suspected many of their PCP colleagues may not be. Confidence in prescribing PrEP by PCPs perceived as closely attributed to a provider's comfort in discussing sex and PrEP. Participants also perceived their colleagues had greater issues with prescribing PrEP.
**Discussion:** There is a need for additional training on PrEP care for PCPs, better communication, and empowerment tools for providers in discussing sexual practices, and enhanced electronic medical records system that can capture diverse sexual practices surrounding non-heterosexual and non-monogamous sexual practices. Future research is needed to examine support in sustaining the knowledge, confidence, and overall attitudes of prescribing PrEP among providers in HIV hotspot areas in the U.S.

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**Thesis Project Content**

**Overview of Project Content**

# I. Introduction

## A. Introduction and Rationale

Human Immunodeficiency Virus (HIV) is a virus transmitted through certain body fluids (e.g. blood, semen, rectal and vaginal fluids and breast milk) that compromises the human body's immune system, specifically the CD4 and T cells (Centers for Disease Control and Prevention, 2018). Pre-exposure prophylaxis (PrEP) is a daily HIV prevention medication commonly recommended for individuals at an increased risk of acquiring HIV (Tetteh, 2017). The Centers for Disease Control and Prevention (CDC) reports PrEP treatment as a highly effective form of HIV prevention (2017). PrEP is estimated to reduce risk of HIV infection via sexual intercourse by 99 percent with daily use (CDC, 2019a; Nunn, et al., 2017; Turner, Roepke, Wardell, & Teitelman, 2018; Riddell, 2018; Blackwell, 2018). PrEP is most often referred to by its brand names, Truvada and Descovy; both are currently approved by the Food and Drug Administration (FDA) (What is PrEP, 2014). Since 2012, PrEP has been available to eligible persons by prescription. Truvada for PrEP has been recommended for all individuals at high risk for HIV whereas Descovy for PrEP is recommended to prevent HIV through sex, except for individuals engaging in "receptive" vaginal intercourse (CDC, 2020).

In the U.S., HIV incidence rates continue to rapidly increase while PrEP use remains stagnant (Hall, 2017; CDC, 2017). While approximately 1.2 million individuals are eligible for PrEP treatment, while PrEP usage is disproportionate across the United States. (Siegler, 2018; Smith, 2015; AIDSVu, 2018). Fewer than 20 percent of those eligible are currently on treatment (Riddell, 2018). Eligibility for PrEP is determined by individual's sexual behaviors, number of sexual partners whose HIV status is unknown, and history of injectable drug use. (HIV.gov, 2019b).

It is estimated that since 2016, roughly 80,000 individuals are currently using PrEP to prevent HIV infection in the U.S, where a majority (69 percent) of PrEP users identified as white, compared to Hispanic (13 percent) and Black/African American (11 percent) (Huang, Zhu, Smith, Harris, & Hoover, 2018).

## Guidelines for PrEP

### PrEP Eligibility

PrEP eligibility is determined by the risk of acquiring HIV through sex, as well as sharing needles for injectable drug use (Center for Disease Control and Prevention, 2019a). Among men who have sex with men (MSM), eligibility for PrEP is primarily determined by the risk of acquiring HIV through anal intercourse. As reported by the CDC, PrEP should be taken by individuals identifying as engaging in risky sexual behavior, such as unprotected anal intercourse with partners whose HIV status is unknown, unprotected intercourse with multiple partners, or partners engaging in injectable drug use.

In the U.S., PrEP eligibility is typically assessed via discussions with a health care provider. Individuals seeking PrEP are required to consult a health care provider in order to receive the appropriate prescriptions based on their risk (Petroll, 2017). Providers report assessing patients' HIV risk and PrEP eligibility through self-reported sexual health history information examining patient's sexuality and sexual activity, along with any contraceptive use (Tetteh, 2017; Petroll, 2017). Therefore, most risk assessments performed by providers are conducted through discussion and information obtained from medical records.

### Access to PrEP

Since FDA approval in 2012, approximately 400,000 individuals globally are using PrEP as a preventative medication. In total, at least 171,000 active PrEP users were reported in the U.S

(AIDSVu, 2018). In 2016, nearly 50 percent of PrEP users in the U.S were in five states: New York, California, Florida, Texas, and Illinois. Though these states are among the most populous states (Kershner, 2020), HIV epicenters are centralized in Southern states (Centers for Disease Control and Prevention, 2019b). In 2017, the Northeast region had approximately double the rate of PrEP use (47.4) compared to the West (28.1), South (22.6) and the Midwest (23.5) per 100,000 people (AIDSVu, 2017). The South, however, accounts for 52 percent of all new HIV diagnoses while representing less than 30 percent of all PrEP users (AIDSVu, 2017). PrEP use reportedly increased nationally by 39 percent, between 2017 and 2018 (AIDSVu, 2018). In 2018, however, the South reported approximately 59,000 PrEP users, where most users identified as male (94.3 percent) ranging between the ages of 25 and 34 (38.4 percent) (AIDSVu, 2018). For Georgia specifically, estimates suggest that less than 5,000 active PrEP users reside in the state (AIDSVu, 2018).

The need for PrEP, as calculated by AIDSVu PrEP-to-Need ratio (PNR) indicator, is "used to describe the distribution of prescriptions relative to the epidemic need relative to the number of new diagnoses", where a lower PNR demonstrates a higher unmet need (AIDSVu, 2018). More simply, the PNR ratio calculates the need for PrEP by the quantitative relationship between PrEP users and the number of new diagnoses. The PNR ratio of the Southern region signals more unmet need compared to other regions. As of 2018, the PNR ratio was three persons newly diagnosed with HIV for every four PrEP users (AIDSVu, 2018). In Georgia, the PNR ratio was one newly diagnosed person per two persons using PrEP. In metropolitan Atlanta, specifically, Fulton County, the PNR was reported one newly diagnosed person per three PrEP users (2018).

**HIV Epidemic in the South, Georgia and in metropolitan Atlanta**

The rate of HIV diagnoses within the Western, Northeast and Midwest regions are significantly lower than that of the Southern states at 9.4, 10.6 and 7.4, compared to 16 per 100,000 people, respectively. (Centers for Disease Control and Prevention, 2019b).

In 2017, the Southern region of the U.S, which consists of 16 U.S. states, had an HIV diagnosis rate of 16 per 100,000 people, constituting the highest number of new HIV diagnoses of any region in the U.S. (Centers for Disease Control and Prevention, 2018). Among new diagnoses in the South, 53 percent of individuals identified as Black/African American, 23 percent as white and 21 percent as Hispanic/Latino in 2017. With Black/African Americans contributing over half of new HIV diagnoses but only comprising 19 percent of the Southern population (AIDSVu, 2018), there is a distinct burden of HIV diagnoses among people of color.. Within the Southern region, Louisiana and Florida maintained the highest rate of people living with HIV at 63 and 79 per 100,000 individuals, respectively (AIDSVu, 2018)). Georgia comprises five percent of new HIV diagnoses in the South, with a rate of people living with HIV being 602 per 100,000 population (AIDSVu, 2018). Metropolitan Atlanta, specifically DeKalb, Clayton and Fulton counties, has the highest rates of people newly diagnosed with HIV of the South (AIDSVu, 2017). Fulton county and metropolitan Atlanta are considered “epicenters of HIV in America” (Fulton County Task Force on HIV/AIDS, 2015) with Fulton County, Georgia accounts for 1.5 percent of new diagnoses across the country (Fulton County Task Force On HIV/AIDS, 2015).

In 2017, Fulton County ranked as the county with the fifth highest HIV rate in the county. (Fulton County Task Force On HIV/AIDS, 2015; AIDSVu, 2018). In 2018, over 36,000 individuals living in metropolitan Atlanta were HIV-positive, with 4.5 percent were new HIV

diagnoses (AIDSVu, 2018). Among new diagnoses in metropolitan Atlanta, 74 percent were Black/African American, and 80 percent identified as male (AIDSVu, 2018; Hickson, 2017). Though Black/African Americans are disproportionately affected by HIV, Black MSM continue to bear the greatest burden of new diagnoses (Hickson, 2017). In 2017, the percentage of new HIV diagnosis among Black/ African American MSM was five times higher compared to their white counterparts (AIDSVu, 2017). Furthermore, 10 percent of all new HIV diagnoses among Black/African American MSM in the U.S. lived in metropolitan Atlanta, GA (Greene, 2019). HIV prevalence among Black/African American MSM in metropolitan Atlanta is roughly 46 percent (Greene, 2019; Hicks, 2017).

**Current PrEP Usage in the South, Georgia and in Metropolitan Atlanta**

Despite having the highest HIV burden, PrEP use in the South is estimated to be the lowest among all U.S. regions (Ransome, et al., 2019). In 2016, Georgia reported 602 per 100,000 individuals were PrEP eligible (AIDSVu, 2017). Though new diagnosis rates continue to increase; new PrEP prescriptions in metropolitan Atlanta remain relatively stagnant (Reif, 2017). As of 2018, roughly 3,300 people living in metropolitan Atlanta were PrEP users, and the majority were male (AIDSVu, 2018). Currently, only 50 clinics in metropolitan Atlanta are known to provide PrEP care services (AIDSVu, 2017).

**Barriers to PrEP among Primary Care Providers**

Along with high cost and lack of insurance coverage, insufficient awareness of PrEP among PrEP eligible patients has been reported as a critical barrier to HIV prevention and PrEP promotion by patients (Marcus, et al., 2018). Limited research has been conducted focusing on primary care providers' (PCPs) awareness and comfort surrounding PrEP. A 2017 study was conducted to investigate overall PrEP awareness, familiarity, comfort and prescribing experience

among U.S. PCPs across major metropolitan cities, including Atlanta (Petroll, 2017). PCPs in this study displayed less overall awareness, knowledge and prescription experience compared to other types of HIV provider, such as infectious disease specialists (Petroll, 2017). In metropolitan Atlanta specifically, PCPs demonstrated lower rates of comfort; defined as ease in performing PrEP related activities, as compared to other types of providers (Petroll, 2017). In fact, metropolitan Atlanta PCPs had the third lowest comfort rating among PCPs surveyed across major metropolitan cities. While most PCPs in metropolitan Atlanta were familiar with PrEP (67 percent), only 15 percent were familiar with best prescribing practices, and only 11 percent reported having actual experience prescribing PrEP (Petroll, 2017).

In the Petroll study, the vast majority (88 percent) of PCPs reported discomfort in discussing sexual behaviors with patients, a finding which likely contributed to a similarly high proportion (79 percent) reporting an unwillingness to prescribe PrEP to patients. Even if offered appropriate knowledge and skills to improve their comfort in prescribing PrEP, PCPs are more likely (96 percent) to refer patients seeking PrEP treatment to other specialists, such as infectious disease specialists (Petroll, 2017). Data shows rates of awareness, knowledge, comfort and willingness of primary care providers are low and detrimental to the health of patients (Petroll, 2017). Most reported barriers to providing PrEP to eligible patients among PCPs specifically, including lack of familiarity with prescribing PrEP, difficulty discussing patients' sexual history, and limited knowledge regarding PrEP (Petroll, 2017). PCPs report higher levels of negative attitudes than any other provider towards PrEP treatment and prescription (61 percent). Negative attitudes included views regarding condom use preferred over PrEP use; PrEP use resulting in risk compensation; increased resistance to PrEP; PCPs belief that PrEP users are not likely to adhere to PrEP care; and lastly, PrEP is too costly. In fact, more PCPs reported

preferring condom over PrEP use compared to HIVPs (Petroll, 2017). PCPs were more likely to report barriers to prescribing PrEP compared to other providers such as HIVPs (Petroll, 2017).

### B. Problem Statement

Though barriers have been reported by providers, the limited data does not examine the ways in which awareness, knowledge and comfort in PrEP prevention can impact PCP's overall confidence in providing PrEP services. More specifically, studies focusing on Fulton County, Georgia's HIV epidemic, PrEP usage and prescription have not been centered around reported barriers. Considering Fulton county is ranked within the top ten highest rates of new HIV diagnoses epicenter, this area requires extensive research to understand the complexities related to PrEP prescription and usage. This understanding could aid in the development and implementation of targeted interventions to lessen the HIV burden in Fulton County, Georgia. The limited knowledge of PCPs PrEP prescribing practices, along with any associated barriers, is detrimental for future HIV interventions.

### C. Purpose Statement

This study will bridge any gaps related to knowledge through examining PCPs' attitudes, behaviors, knowledge and confidence regarding Pre-exposure prophylaxis (PrEP) specifically those who practice in Fulton County, Georgia.

### D. Research Questions

For the purpose of this study, the research questions are as follows; What are the current PrEP promotion and recommendation strategies among PCPs in Fulton County? ; What are Primary Care Providers' (PCP) overall attitudes, behaviors, knowledge and confidence in PrEP in Fulton County, Georgia?; What are current PrEP promotion and recommendation strategies among PCPs in Fulton County?

### E. Significance Statement

Although HIV and PrEP are heavily studied topics in academia and research, PrEP prescribing practices among PCPs have not been documented as needed. It does not suffice to examine new HIV diagnoses and PrEP eligible persons; research should link persons in need of care to providers who are able to provide appropriate services. Research that examines PrEP usage in the U.S. often compares PCPs to other providers such as infectious disease specialists, across the regions. Though Georgia and the heavy HIV burden have been openly discussed, rarely is Fulton county specifically studied. Fulton county is ranked as an HIV epicenter yet display low PrEP prescriptions among PCPs. In order to effectively address the issue of high rates of new HIV diagnoses in metropolitan Atlanta, research must examine current PrEP prescribing practices among PCPs practicing in Fulton county. This project will increase PCP visibility in the PrEP cascade, specifically in metropolitan Atlanta, Fulton county.

### F. Definition of Terms

Some terms to be mindful of while reviewing this project are PCP, attitudes, behaviors, knowledge, confidence, PrEP, initiation and retention, and comfort.

**PCP:** board-certified primary care providers who prescribe PrEP to eligible patients. **PrEP:** Pre-Exposure Prophylaxis, a pharmaceutical intervention to prevent HIV infection. **Attitudes:** how PCPs' recognize and perceive PrEP as a prevention method, and their motivation of prescribing PrEP. Any judgment and stigma around prescribing PrEP are also noted. **Behaviors:** how PCPs' conduct themselves when discussing PrEP eligibility and prescription. **Knowledge:** PCPs' understanding of PrEP prescription, eligibility and required follow-ups. Knowledge can be self-described by study participants of their own understanding, as well as perceptions of other providers and their perceived understanding of PrEP. **Confidence:** PCPs' comfort in prescribing

PrEP, initiate discussions regarding sexual behavior with patients, as well as PCPs methods of empowering eligible patients to begin PrEP. In this project, confidence and comfort is reported to be used interchangeably. **Initiation**: PCPs' strategies to initiate eligible patients to being PrEP. **Retention:** PCPs' strategies to retain patients to their care. **FCBOH:** Fulton County Board of Health.

## II. Literature Review

### Introduction

Research and academic literature have successfully investigated rates of new HIV diagnoses across different cities, states and regions in the U.S. The literature selected below demonstrates an in-depth review of identified barriers to PrEP as described by PCPs, in the respective studies. This research adds to the rich knowledge around HIV and PrEP in the U.S., as well as the Southern region. In order to utilize a qualitative approach in exploring explore PCPs knowledge, confidence and attitudes around PrEP prescribing practices, research on existing data sought to identify existing information this topic. A plethora of statistics regarding previous and current trends around HIV prevalence and PrEP usage has been documented by trusted sources such as the CDC, and AIDSVu. To this effect, statistical data have been omitted from the literature below since relevant information pertaining to this project were rates and prevalence of PrEP usage and HIV, respectively. Therefore, the literature review examines descriptive information on PCP knowledge, attitudes and confidence in prescribing PrEP.

**Edelman, J. M. (2020). Preferences for implementation of HIV pre-exposure prophylaxis (PrEP): Results from a survey of primary care providers. Preventative Medicine Reports.**

A convenience sample of practicing physicians and members of the Society of General Internal Medicine (SGIM) totaling to 240 participants. Participants were SGIM members who

provided clinical PrEP care. Mean age across participants was 40 years where the majority identified as white (72 percent). Approximately 63 percent of participants were women. Majority of participants maintained attending physician status (78 percent) in their respective clinics, with an average of ten years of practical experience (51 percent).

Potential participants were recruited from the SGIM, and surveyed based on SGIM membership, PCP sociodemographic, methods of direct or indirect (e.g. supervisory or attending position) clinical care. The 57-item survey, adopted by Lum et al., 2011 and Blackstock et al. 2017, examined PCP PrEP prescribing practices, preferences in implementing PrEP models, practice characteristics, and perceived barriers and facilitators of implementing PrEP in their respective practices.

Based on survey results, participants were categorized by their preferred PrEP implementation strategy; "all providers trained, "PrEP specialist", or "refer out" Overall, most participants practiced in the Northeast (49 percent), in urban settings (85 percent). Among all providers trained, roughly 11 percent practiced in the South. PrEP specialists and "refer out" only 28 percent and 15 percent practiced in the South, respectively. Participants demonstrated a preference for integrating PrEP into primary care services (85 percent) rather than referring patients out of their respective practices (15 percent, $p<0.001$). Approximately 42 percent of participants supported training all providers to administer PrEP to patients. Participants also favored having a PrEP specialist within the practice (43 percent). The most perceived barrier to PrEP implementation was reported by participants was training and education. This study explicitly examines PrEP prescribing practices, implementations and associated barriers among PCPs. Common facilitators as reported by participants was onsite support along with being

knowledgeable or supportive of PrEP within respective practices. This informs this thesis project by demonstrating preferred PrEP implementation strategies among PCPs.

Edelman et al., 2020 demonstrated that most PCPs who would prefer to implement PrEP into their respective practices by way of training all providers (42 percent) or having a PrEP specialist on site (43%). A lack of clinical protocol for prescribing PrEP was the highest reported barrier among participants who preferred to train all providers and an onsite PrEP specialist, alike.

**Petroll, A. E. (2017). PrEP Awareness, Familiarity, Comfort, and Prescribing Experience among US Primary Care Providers and HIV Specialists. AIDS and Behavior, 1256-1267. sample size and characteristics,**

A cross sectional study was conducted with PCPs, HIV providers (HIVP), nurse practitioners (NP) and physician's assistants (PA) to assess comfort, awareness, familiarity of PrEP. Participants were recruited across ten major U.S. cities with high HIV prevalence. Cities include, but are not limited to Atlanta, Chicago, Dallas, Los Angeles, and New York City. Approximately 2,088 potential participants were invited to complete an online survey, where 525 participated in the study.

A 177-item survey was given to participants in order to examine comfort, familiarity and barriers to PrEP prescribing practices. Roughly nine percent of participants indicate practicing in Atlanta. Of the participants in Atlanta, 11 percent were PCPs. Approximately 59 percent of PCPs in Atlanta were comfortable with PrEP activities, which include discussing sexual orientation and activities, screening for sexually transmitted infections (STI) and HIV, as well as assessing the risk for HIV. However, only 15 percent were familiar with prescribing PrEP and 11 percent have had experience in prescribing PrEP. Among Atlanta HIVPs, 86 percent were comfortable

with PrEP activities, 57 percent were familiar with PrEP prescription and 50 percent have prescribed PrEP.

Among PCPs, 89 percent reported relative or complete comfort with all PrEP related activities. Most PCPs discussed sexual orientation (95 percent), sexual activities (94 percent) and screened for HIV and STIs (98%), however 76 percent reported somewhat or very familiar with prescribing PrEP. Most PCPs reported prescribing PrEP in 2013 (38 percent), after the FDA approved PrEP for use. Overall, most PCPs have experience prescribing PrEP (64 percent). PrEP related tasks among the PCPs who have never prescribed PrEP or given appropriate PrEP knowledge and skills, show that most PCPs reported referring out PrEP eligible patients (96 percent), where 89 percent typically initiate PrEP discussions with patients.

This study effectively examines PCP comfort, familiarity and barriers to PrEP among PCPs across the nation, however, produces relevant data to PCPs specific to Atlanta. Fulton county is not specified in this study; therefore, this can be beneficial in setting up the foundation of PrEP prescribing practices among PCPs in Fulton county

**Siegler, A. M. (2018). The prevalence of pre-exposure prophylaxis use and the pre-exposure prophylaxis–to-need ratio in the fourth quarter of 2017. Annals of Epidemiology, 841-849.**

A cross-sectional study using population-level data in order to examine the rate of PrEP uses and the PrEP-to-need Ration (PnR) within the U.S. in 2017. Data collected was aggregated of the last quarter of 2017. Declassified data on PrEP usage in the U.S. was retrieved through a national health data company that collects data across clinics, patients and providers. Data was collected across states and U.S. region, however for the purpose of this literature review, only data around the South will be reported.

The PnR is interpreted as for every single new HIV diagnosis, the South had 1.0 PrEP users. Therefore, the lower the PnR, the higher the need for PrEP. The South reported 30 percent of PrEP eligible persons were on PrEP and constituted 52 percent all new HIV diagnosis in the U.S. The South reported the highest need for PrEP at 1.0, however the West South-Central states (includes Arkansas, Louisiana, Oklahoma, and Texas) reported a PnR of 0.9. In Georgia, 21.7 per 100,000 persons were reported PrEP users, with a PnR of 0.7. PnR was higher in states where Medicaid expansion took place. Among persons aged 25-34, the lowest rate of PrEP usage was reported to be in the South. Across all age groups, the South was ranked the lowest in overall PrEP usage.

This study effectively assessed PrEP usage in the U.S., by region and by state. It is necessary to have background information on previous PrEP usage, in order to demonstrate any related changes in trend. Although reported data was not specific to Atlanta or Fulton county, results align with previous research on how PrEP is underused in communities where HIV prevalence continues to increase.

**St. Vil., N. P. (2019). Barriers and facilitators to initiating PrEP conversations: Perspectives and experiences of health care providers. Journal of HIV/AIDS & Social Services, 166-179.**

A total of 28 health care providers (HCPs) were interviewed on their experiences with PrEP. All participants were HCP in the state of New York, licensed to prescribe medication and have prescribed PrEP no less than three months. Interviews assessed PrEP training barriers and facilitators to PrEP, sexual health screening protocols and recommended skills for PrEP implementation in their respective practices. Using a thematic analysis tool, data was analyzed for salient themes across interviews.

Participants reported several barriers and facilitators to PrEP implementation. Some include but are not limited to, a lack of comfort in discussing PrEP with patients, HCPs not collecting patients' sexual histories or perceiving patient's sexual engagements as low risk behavior. Participants viewed perceived their peers to avoid initiating discussion around PrEP with patients. This was attributed to a lack of training in effective communication with patients, inexperience, and low perceived demand. HCPs reported an inconsistency in collecting sexual histories from patients. Some logistical concerns were documented as not every clinic or practice have built-in protocol in collecting sexual histories. HCPs noted that a "PrEP team" of nurses and health educators may be beneficial in allowing the patient to be more forthcoming about their sexual behaviors.

This study effectively examines HCPs knowledge and perceived barriers to prescribing PrEP to eligible patients. Though the study population include other providers, results are rather consistent with other literature. Applicability to this thesis project is low, yet still provides pertinent information about barriers perceived by other providers.

**Turner, L., Roepke, A., Wardell, W., & Teitelman, A. M. (2018). Do You PrEP? A Review of Primary Care Provider Knowledge of PrEP and Attitudes on Prescribing PrEP. Journal of the Association of Nurses in AIDS Care, 83-92.**

This study was a literature review to provide synthesized literature on provider level barriers to prescribing PrEP among PCPs and their practices. The focus was assessing knowledge and attitude of PCPs around PrEP prescription using the Integrated Behavioral Model (IBM) expanded from the Theory of Planned Behavior/Theory of Reasoned Action. Therefore, examining intention and behavior in addition to knowledge, beliefs and attitudes among PCPs. Knowledge was defined as "information, awareness, and/or skills acquired nu a person through

experience of education." Attitudes was defined as "relating to whether providers perceived PrEP as beneficial or harmful". Using a Grade of Recommendation Assessment Development and Evaluation (GRADE) approach to classify the quality of evidence produced by each study by ranking evidence as "very low", "low", "moderate" or "high".

A total of 11 studies or articles were included in this review, where majority demonstrated "low" quality of evidence (n=10). Most articles in this study included PCPs or infection disease specialists in HIV as study participants. Overall, HIV specialists demonstrated more knowledge on PrEP-related activities compared to PCPs. One study reported that 62 percent of PCPs in the Air Force demonstrated poor knowledge of PrEP, compared to five percent of infection disease specialists. Results show that PCPs demonstrated positive attitudes around PrEP, yet still advocated for additional training in HIV testing and PrEP eligibility and counseling. Concerns around PrEP prescribing practices were reported as clinical and laboratory monitoring of PrEP patients as well as the time constraints in providing adequate patient education and counseling.

The low quality of evidence in the 11 studies included in this review suggests additional, and more efficient research on PrEP prescribing practices among PCPs in the U.S. Majority of included studies were not specific to PCPs in the South, however does provide a comprehensive view of how PCPs across the U.S. and Canada.

## III. Methodology

### Introduction

This qualitative study examined primary care providers' attitudes, behaviors, knowledge and confidence regarding PrEP specifically in Fulton County, Georgia. We conducted six key

informant interviews (KIIs) with Primary care providers (PCPs) in Fulton County, Georgia between July and August 2019.

**Population Sample**

Study population was limited to PCP practicing in Fulton county, Georgia. PCPs were medical doctors specializing in general medicine, internal medicine or primary care. PCPs were identified based on existing PrEP promotion strategies and classified as either a "Champion" or less experienced PrEP provider. Identification of PCPs to include in this study was based upon HIV prevalence in zip codes around PCP offices; providers practicing in the areas with the highest HIV burden were invited to participate Identification of PCPs to be selected was conducted through close collaboration with the Fulton County Board of Health (FCBOH). Practicing PCPs located in the areas of high HIV burden were identified and recruited through recommendations by the FCOBH and direct contact with providers to their practice via email and telephoning.

**Procedures**

Key informant interviews were conducted by members of the research team who were trained in qualitative research methods. The duration of interviews ranged from 45 to 60 minutes. All KIIs were audio recorded and transcribed verbatim by a third-party agency. We used a semi-structured KII interview guide which focused primarily on PrEP promotion among providers, incentivizing PrEP promotion and recommendations practices among providers. Data collected and analyzed for this paper focused on the attitudes, knowledge, behavior and confidence of PCP's that reported prescribing PrEP at their respective clinics. For the purpose of this paper, awareness is defined as the PCP being cognizant of PrEP as an FDA-approved medication to prevent HIV. Knowledge, however, is defined as the PCPs understanding of PrEP and its

associated regimen requirements and patient eligibility. Comfort refers to the PCP's comfort with discussing PrEP requirements and eligibility, such as initiating and maintaining conversations regarding sexual behaviors. All aforementioned definitions were derived and adapted from preexisting data examining PCPs perceptions of PrEP in various studies (Davies, 2016; Haberer, 2016; Marcus, et al., 2018; Petroll, 2017). After data collection and transcription, data was analyzed using MAXQDA2020 (Berlin, Verbi GMBH).

**Instruments**

This project attempted to investigate primary care providers' knowledge, attitude and confidence regarding PrEP prescription in Fulton County, Georgia. Data analysis was guided by approaches based in grounded theory focusing on thematic and descriptive analyses. In the first phase, one team member reviewed all transcripts to examine broad themes and topics discussed by participants. Suggested codes were discussed with other team members and underwent many revisions. Prior to creating a codebook, all codes were approved by a lead team member for accuracy and code saturation. Subsequently, a thematic codebook was created. Some codes were deductively developed, as a result of extensive research examining knowledge, awareness and comfort. Other codes, however, were inductive codes specific to the themes identified in the transcripts and discussed by the participants. The codebook is listed below as reference.

| Code name | Definition of code |
|---|---|
| **Knowledge** | |
| **Knowledge** | Knowledge, or lack thereof, of PCPs regarding PrEP prescription (Rx), eligibility and follow-ups. |
| **Access** | PCP discusses access, lack of access, to care as a part of PrEP care. |
| **Cost** | PCP discusses cost of consultation to receive PrEP Rx |
| **Aversive effects** | Unfavourable outcomes of PrEP Rx as reported by patients to PCPs. |
| **Access** | |
| **Recognition** | The ways in which PCPs are open to being recognized as a PrEP Provider. |
| **Judgement** | Shame/judgement regarding risky sexual behavior. |
| **Stigma** | Social/cultural implications that create judgement or shame around PrEP. |
| **Motivation** | PCPs motivation to prescribe PrEP. |
| **Perception** | Perception of PCPs regarding PrEP services. |
| **Confidence** | |
| **Comfort** | PCP comfortability, or lack of comfort regarding PrEP Rx (i.e. eligibility, protocol). |
| **Rx Practice** | Current and perceived prescribing practices and rates of PCPs regarding PrEP Rx. |
| **Sex Talk** | PCP ability, or lack thereof, to have conversations regarding sexual behavior with patients. |
| **Empowerment** | PCP empowering patients to start PrEP through creating safe interactions with patients. |

The second phase of analysis applied codes to explain emerging themes across transcripts. Codes were categorized by three main themes: knowledge, attitude and confidence. For the purpose of this study, confidence and comfort are terms used interchangeably. Categorizing codes by themes allowed the student researcher to conduct thematic analyses examining PCPs comfort, or discomfort, in prescribing PrEP and the ways in which it informs PrEP knowledge and attitudes. Themes are presented as results by reoccurring topics as reported by participants.

### Ethical Considerations

This project was approved by the Emory University Institutional Review Board (IRB) (IRB00020524). Participation, as prompted in the IRB-approved script, was completely voluntary and was compensated with the provision of an Amazon e-Gift card of $50. Considering this study included human subjects, IRB approval was required. Protocol and research instruments were submitted to IRB and approval was granted on May 24, 2019.

### Limitations and Delimitations

Limitations to this project include a non-random sample of PCPs participants practicing in zip codes with high HIV burden and therefore experience prescribing PrEP; findings pertaining to factors associated with low confidence in PrEP prescribing practices is based solely on participants' perceptions of PCP colleagues with less experience screening for prescribing PrEP. To this effect, it decreases the generalizability of the findings.

## IV. Results

### Introduction

Of the six participants, four specialized in general or family medicine and two providers practiced internal medicine. All participants practiced in zip codes with a four percent HIV burden (AIDSVu, 2017). Four participants identified as female while the remaining two participants identified as male. Self-reported PrEP prescribing practices among the participants varied. Most providers reported prescribing PrEP at their respective practices for an average of three to four years, with a range of less than one year to six years.

Through data analysis the research team identified pertinent themes which aided our understanding of PCPs attitudes, behaviors, knowledge and confidence in prescribing PrEP in Fulton County, Georgia. Three salient themes were common across all interviews: 1). -- PCPs

comfort in PrEP prescribing; 2). -- PCPs ability to engage in conversations regarding patient's sexual behaviors, and 3). -- PCPs current initiation and retention strategies for PrEP patients. Participants responded based on personal experiences as well as perceptions of other PCPs and colleagues. To this effect, results were categorized and reported respective to participant experiences, or participant perceptions of other PCPs.

## Findings

### Primary Care Provider's confidence regarding PrEP prescribing

Participants generally reported being comfortable and knowledgeable in prescribing and discussing PrEP with eligible patients. PrEP was uniformly acknowledged as a necessary prevention drug for those at risk for HIV. Participants also felt that being comfortable in prescribing PrEP necessitates a level of knowledge related to PrEP, specifically understanding eligibility criteria for PrEP along with awareness of how to encourage patients to maintain a routine PrEP regimen including regular in-person follow-ups was viewed as very important. PCPs knowledge of PrEP was stated by participants to be intrinsically related to PCPs prescribing practices, which informs PCPs' level of confidence in prescribing PrEP. This was best captured by a quote from one of the participants specializing in HIV care:

> *Patients come in and tell me all the time their doctor is like looking up in the book and scared and is like, no, I just feel afraid to write this drug.* (MD in Internal medicine and HIV Specialist)

Participants attributed gaps in PrEP knowledge and related services to lack of adequate training during medical school and residency. Across key informant interviews, providers related gaps in knowledge to PCPs lack of discussions between providers regarding best practices on prescribing PrEP, PrEP eligibility & patient retention. Participants also reported an overall lack

of discussions between colleagues around PrEP and best practices. One provider shared the need for further exposure to PrEP practices from other providers, even as an established provider.

> *Personally, I feel like you should always, periodically, be seeing how other [providers] do it, so that you don't get into your set of ruts and not see that maybe the other way is different and just as good or different and better, or different and worse, but it's good to see. So, in general, I'm open to hearing how other people do it, although, I have to tell you I got a lot of things I need to get better at which is PrEP*. (MD in Primary Care).

When discussing other PCPs, participants believed that other PCPs were not often comfortable prescribing PrEP due to not being able to have nuanced conversations about sex with patients who may not conform to monogamous heterosexual practices. In this regard, comfort was closely related to the knowledge about PrEP and having conversations around sex. To this effect, participants shared the perception of other provider's inability to ask the appropriate questions regarding non-heterosexual and non-monogamous. One of the participants, who specializes in HIV care, stated:

> *So, providers don't know about gay sex. They don't know exactly what is risky and not risky. You could ask a lot of doctors what's considered risky and they might not understand or know how to ask. I always tell people not everybody needs to take PrEP, but everybody needs a detailed sexual history because everybody needs to know about it, but not everybody needs to take it. (MD in Internal medicine and HIV Specialist)*

> *And, you know, if you ask a question the right way you usually get a true answer* (MD in Primary Care)

The scope of logistical concern was also mentioned as barriers to prescribing PrEP when considering PrEP prescribing activities among PCPs generally. Some providers perceived other providers as having difficulty prescribing PrEP due to not understanding the necessary protocol or having insufficient ancillary staff to assist with frequent follow-ups and blood panels.

> *I think that if you don't have staff to help with outreach and things like, that person is certainly going to have a lower persistence risk than other people where there are more effective outreach models.*
> (MD in General Medicine)

**Primary Care Provider's comfort related to discussions on sexual behaviors**

Participants reported being comfortable discussing sexual behaviors with and collecting comprehensive sexual histories from their patients. One mentioned leveraging her supervisory role in a PrEP program at a hospital in metropolitan Atlanta to educate other PCPs on how to engage in more effective discussions about sexual behaviors with potential PrEP patients:

> *I like to listen to how people promote PrEP before I educate them and, in general, their approach is often risk-based… "You gotta put on a condom, you gotta lower your risk" rather than asking or getting the patient to identify [their own risk]. And so that's generally what I've heard that I most try to correct.* (MD in General Medicine)

Though participants shared a high degree of comfort in having conversations about intercourse and sexual practices, participants detailed salient trainings or experiences that fostered comfort. Participants also shared the importance of not assuming normative sexual behaviors based upon other self-reported lifestyles or activities. For example, monogamy should not be assumed when someone reports being married. Ensuring that providers ask the right questions pertaining to sexual behaviors, regardless of marital status, can aid in increasing comfort in discussing PrEP and identifying individuals truly in need of the medication. Participants understood this to be vital information to assess a patient's risk of acquiring HIV, and in turn their PrEP eligibility.

> *I will say one thing that I have learned in this practice that I had not really thought of. When people are married, they are not always formally monogamous… when they got there, ask them when they said they're married, "Oh, and are you monogamous?" Now I do, and a much bigger percentage than I ever dreamed say, "Oh, no, we play outside of whatever." It's like, "Oh, okay. Well, then we need to talk about something here." Yeah, that is something I've added to my questioning…* (MD in Primary Care)

> *Even for me, I had to learn how to get comfortable talking to people about it and so sex is just, do you take a multivitamin? Do you have sex? Are you male or female? And I have to learn the terminology to use and get patients comfortable with me.* (MD in Primary Care).

Participants, however, believed other providers experienced discomfort in initiating and maintaining discussions regarding sexual behaviors with patients. Participants perceived this discomfort as a result of an overall inability to have conversations regarding non-heterosexual and non-monogamous sex with patients. A participant described this inability to be result of insufficient medical education and training. It is important to note that the participant shared the need for further training during medical school and residency for PrEP and other sexual health related services

> *When I was in medical school, we had this sexual health seminar where they had us watch very, you know, sexually explicit movies, and that was supposed to help desensitize us to talk about sex, but I don't think that was very effective.* (MD in Family Medicine)

Along with an overall lack of comfort in discussions on sexual behaviors, participants reported inadequate training during medical school and residency on sexual behaviors of non-heterosexual and non-monogamous persons, as well as discussions of such behaviors.

> *[Using the vernacular] is just feeling comfortable with asking those questions of their patients…. I started going and talking to providers individually and what came up was that "….I don't know how to ask, you know, 'Do you have anal sex?' I don't know how to ask, 'Do you use sexual toys?' You know, I don't know." They feel very uncomfortable talking about those things.* (MD in Internal Medicine)

Though participants shared the overwhelming need for training, some participants discussed revamping electronic medical records (EMR) with questions that capture the nuances of sexual history and behavior, especially non-heterosexual and non-monogamous behaviors may be particularly helpful. Participants suggested that modifying EMR to capture the nuances of non-heterosexual practices and behaviors. Doing this can routinize inquiries about sexual behaviors in a way that might help alleviate some of the discomfort certain providers may have towards organic conversations about explicit sexual behaviors. EMR modifications can also help providers track patients and retain them in care:

> *Do you have sex with men/women? Do you have unsafe sex?" So, everybody that's having—I don't think multiple partners is on there, but anybody having unsafe sex or multiple partners should be screened offered PrEP. I think the EMR is that structured—that you could run reports every month and target patients.* (MD in Internal Medicine and HIV Specialist)

> *[…] EMR tools to decrease the amount of knowledge that providers need to know to order upfront labs and refills, putting it on the formulary or prescribing to where any provider can prescribe it.* (MD in General Medicine)

It is important to note that participants adamantly stated that modified EMR should not absolve PCPs from receiving necessary training on initiating and maintaining conversations on non-heterosexual and non-monogamous sex. EMR modification can simply provide a practical solution to help PCPs provide and document better PrEP care.

As previously discussed, participants perceived an unmet need for other providers to learn how to gain comfort initiating, engaging and leading dialogues about sexual practices, specifically from non-heterosexual and non-monogamous perspectives. Participants spoke about the need to adopt innovative ways of having conversations around sexual activity, number of sexual partners, contraception and protection with patients. Participants shared that they viewed other providers as struggling with using non-heterosexual, non-monogamous language and terminology around sex that some PrEP-seeking patients identify with:

> *And then once we get to that part, then you ask them if they're top or they're bottom or are they're verse? Do they wear condoms? And people are hesitant to say these things, so you've got to read the patient and just go down the list. But then other patients come in and you're just like, "Are you top, are you bottom, do have unsafe sex, do you oral sex, do you take ejaculate," or whatever, and they're just completely honest and you decide whether or not you're going to give PrEP.* (MD in Internal Medicine and HIV Specialist)

In addition to a perceived inability to have discussions surrounding non-heterosexual and non-monogamous behavior among other providers, participants acknowledged social stigma experienced by patients as an important barrier to assessing risk by sexual behaviors. Reported difficulty in having these discussions with patients, as perceived by participants, may be

attributed to patient's reluctance to disclose their sexual behavior in fear of being judged or stigmatized. Therefore, participants perceived other providers having difficulty in providing care without inadvertently stigmatizing patients.

> *Especially the African American community, somebody's going to tell and they're on the down low. And so, there's like from both sides a huge disconnect. And providers are stressed, and this is the Bible Belt and there's no time, no really interest, and a lot of uncomfortable [discomfort] on both sides.* (MD in Internal Medicine and HIV Specialist)

> *Yeah, I've been doing it for a long time. So, the issue here in the South is African American and Latino communities don't sometimes identify them self as gay because of the stigma. They don't want anybody to know or they're afraid if they say it, it's going to be in the chart, the government's going to know, there's all these social issues with it.* (MD in Internal Medicine and HIV Specialist)

One participant reported having many Black/African American patients specifically because he is a White provider. This participant believed it to be a result of stigma providers perceived that patients experience while seeking PrEP care. To this effect, this participant perceived that patients felt more comfortable seeking care from him considering he was outside of their typical community and social/ethnic circles:

> *And I can tell on their face like they don't want to say, so they'll say bisexual, they won't admit to it. And then just talking, a lot of times they'll cry. Then they come and they know they can feel safe and a lot of times they feel safer with a White doctor than a Black doctor because they feel like their community is so small.* (MD in Internal Medicine and HIV Specialist)

The success of PrEP prevention and safer sexual health promotion relies on providers' ability to have these intimate conversations with patients in a non-stigmatizing manner. Participants suggested other methods of successful approaches providers can do that involve increasing and improving their communication skills generally. Participants believed that strengthening communication skills can permit providers to use conversations regarding sex to empower patients to want to protect themselves sexually. Participants demonstrated the importance of using empowerment to minimize stigma as it relates to having discussions on

sexual behaviors. Participants believed that if patients felt less stigmatized, safer and more empowered while under their care, this could entice patients to maintain their PrEP care. Using empowerment as a means for providers to initiate and retain PrEP in their respective practices. Participants demonstrated the importance of using empowerment of providers to minimize stigma as it relates to having discussions on sexual behaviors. Participants believed that if patients felt less stigmatized, safer and more empowered while under their care, this could entice patients to maintain their PrEP care.

Lastly, through improved communication and conversations, participants acknowledged the real stigma that impacts people's overall sexual health promotion. One participant shared:

> *I think promoting PrEP is a delicate balance of making somebody feel good about themselves in terms of their sex life while raising their awareness of their own vulnerability and using PrEP as a way to promote strength, empowerment, health, perception of health, and even self-esteem....And so for young people for primary prevention… I've seen the empowerment method of self—self-empowerment and boosting self-esteem through protecting one's own health is a very effective way to promote PrEP…. so it's kind of what's the risk you're taking if it empowers somebody to feel safe, if it puts control in their hands, if it promotes their own self-image of their health and their mind and makes them feel a little bit like they're taking care of themselves?* (MD in General Medicine)

**Primary Care Provider's PrEP Initiation and Retention**

Participants were asked in what ways they maintain patients on PrEP, and responses varied across interviewees. Participants reported measuring retention in care among PrEP patients differently. Some participants measured it by how often patients returned for follow-up visits and/or picking up PrEP prescriptions at pharmacies.

> *We recommend it, we give them a prescription and they don't fill it.... I know it's very different dynamics down here. So, when basically the patient doesn't come back or he doesn't pick up his medicine, that's the best way we have.* (MD in Internal Medicine and HIV Specialist)

> […] *I think the way that a provider can increase the [retention] rate with a patient who's willing to engage would be to say, "Come see me every three months," just because a lot*

> *of providers don't have a system to provide lab monitoring and oversight when they're not seeing people directly in clinic. They just don't have enough administrative time.* (MD in Internal Medicine)

Other participants measured retention by how clinics and ancillary staff equip themselves with resources and infrastructure necessary to comprehensively serve PrEP patients. Participants cited funding, infrastructure and a well-equipped clinical staff as necessary in initiating and retaining patients to PrEP care.

> *Having the infrastructure and resource[s] to have someone to help them with the Gilead program* [provides co-pay support for PrEP eligible individuals] *for those who are uninsured and don't have access to insurance to pay for their medicine.* (MD in Internal Medicine)

These two conceptualizations of measuring retention suggested a nuanced understanding of retention and patient compliance. Participants reported being more willing to offer PrEP prescriptions to patients who present more "compliant" behaviors such as returning for follow-up visits and picking up their prescriptions in a timely manner. Though participants cited structural issues to PrEP prevention such as lack of access to providers, and financial instability, providers expressed being in a dilemma. Participants shared that while it is the provider's responsibility to provide treatment and prevention, retention and compliance requires substantial willingness on the part of the patient.

> *I think the follow-up intervals that are needed for a primary care provider to routinely prescribe it that would basically necessitate that a person who is otherwise healthy in many cases, to come to the doctor every three months. I do think that it sets patients up to not want to subscribe to that care interval, especially in [the] young, healthy...I think that if a person is in care with a provider or has a relationship with the provider and agrees to see a provider every three months to get PrEP, then I definitely agree that that is the perfect venue to prescribe PrEP...* (MD in General Medicine)

> *Some of the retention is not going to be on you as a provider. I can only do so much. [The patient has] got to want to and be motivated and willing to come back so we can talk about it, go from there. So, I think it's is also empowering the patient.* (MD in Primary Care)

In efforts to increase retention to a PrEP regimen, participants adopted some helpful approaches to ensuring retention in PrEP prevention and ancillary services. Examples shared included requiring each PrEP patient to have a scheduled follow-up visit before leaving their current visit, tasking clinic staff with ensuring that every PrEP patient has a scheduled follow-up visit and monitoring any reoccurring positive results from STI panels.

## V. Discussion

PrEP-related comfort as perceived by providers, is a shared experience of ease between provider and patient, as it pertains to discussions of PrEP eligibility and PrEP prescription. As we learned from our interviews, it takes culturally appropriate training and practice to become adept at eliciting the very private details of patient's sexual life to appropriately ascertain their HIV risk. Lack of comfort and confidence in prescribing PrEP can too often result in PCPs referring PrEP-eligible patients to infectious disease specialists (Patel, 2018). However, a 2019 study which surveyed 240 PCPs to examine PrEP implementation strategies within U.S. primary care settings found that 85 percent of PCPs "favored on-site models for integrating PrEP into primary care", rather than referring out (15 percent) (Edelman, 2020). A large portion (43 percent) preferred to have a PrEP specialist on staff to provide PrEP care. Another (42 percent) reported wanting to be trained on PrEP rather than to refer patients to PrEP specialists. Though having a PrEP specialist on staff could increase patient's access to PrEP care (Sullivan, 2018), relying on PrEP specialists could render undue strain on those specialists in providing care to increasing numbers of patients. St. Vil suggests the difference between providers preferring training over a PrEP specialist on staff could be attributed to difficulty having conversations about sexual practices (St. Vil, 2019). Additionally, providers who preferred having an onsite PrEP specialist could be attributed to difficulty having conversations about sexual practices. Our

study demonstrated similar results where participants maintained positive views of PrEP prevention, however perceived other providers as experiencing difficulties in having discussions about sex, especially regarding non-heterosexual and non-monogamous behaviors.

Our participants supported routine collection of detailed sexual histories of all potential patients, regardless of heteronormative sexual behaviors or relationship status. Perceived barriers to routinizing this activity among PCPs generally included a lack of awareness of appropriate language around non-heterosexual and non-monogamous sexual practices, challenges which have previously been reported (Law, 2015; Brooks, 2018). Understanding how to ask questions about sexual positioning (e.g. Top, bottom, or versatile) and relationship status (e.g. monogamous, polyamorous, open-relationship, occasional play) will aid the provider in understanding the patient's potential risk and eligibility for PrEP. Understanding and utilizing the correct vernacular is especially important in metropolitan Atlanta, where 68.8 percent of HIV transmission is from male-to-male contact, and only 3.5 percent is through heterosexual contact (AIDSVu, 2017). In Atlanta, approximately 70 percent of people testing positive for HIV were gay, bisexual or other men who have sex with men (Moore, 2019). In 2017, Black MSM in metropolitan Atlanta made up 10 percent of new HIV diagnoses in the U.S. (Greene, 2019). One provider in our study suggested that fostering greater communication among PCPs in ways that promote sharing of best practices regarding conversations about sex could help in building PCPs sexual vocabulary and understandings of non-heterosexual and non-monogamous sexual behaviors-- and how best to elicit that information from patients. Similarly, detailed modifications to EMR could remind providers to ask more detailed questions that pertain to sexual activities may increase risk for HIV acquisition.

It is important to note that stigma affects providers as well as patients in discussing sexual behaviors and practices, especially non-heterosexual and non-monogamous ones (Gessner, 2019). The inability providers have in initiating candid and honest discussions about sex with patients demonstrates an interaction between providers confidence in promoting PrEP to patients and the social stigma surrounding non-heterosexual and non-monogamous sexual behaviors.

Stigma continues to plague important conversations about sexual behavior and practices (Golub, 2018; Schwartz, 2019), and in the U.S. South this stigma is often amplified due to entrenched heteronormative cultural norms within Black/African America communities (Hicks, 2017; Hickson, 2017). In a few cases in this study, comfort was reported to be understood as a tool of empowerment of providers to their patients. Empowerment has been identified as a necessary tool of patient retention, specifically in HIV care (Wilson, 2018; Clonan-Roy, 2016). Providers benefit from being empowered as well. Providers state that it does not suffice to solely provide scientific evidence that PrEP is very effective in preventing HIV. Offering providers, the conversational tools and training to make them effective in inspiring and empowering patients to make healthier decisions regarding sexual practices is just as important. One PCP spoke on empowerment to enable healthier self-image among patients, while placing control back into the hands of patients. Research shows that empowering patients can happen alongside empowering providers through target training (MacLachlan, 2016). Empowering patients can include increasing patient self-efficacy, leading to better communication skills with providers in PrEP care. To this effect, PrEP initiation and retention resonates with providers need to share retention strategies between providers and patients.

## VI. Recommendations

Given the current climate around telehealth services, the shift to virtual healthcare services amidst the Coronavirus (COVI-19) pandemic displays a greater need for more accessible services. This means that greater attention may need to be paid to the value of providing online trainings to PCPs interested in improving their PrEP-promotion skills- as these online trainings could more effectively support their ability to compliment the virtual HIV care activities that have shown promise for patients. In 2017, a pilot study assessed the usability and acceptability of a mobile HIV prevention Android application among MSM. Results demonstrated that among the 121 participants, one out of every ten participants reported starting PrEP within the four-month time span, partly due to the accessibility of PrEP via mobile application and home delivery HIV tests and condoms (Sullivan, 2017). A similar 2019 study revealed that telehealth services via mobile applications can reduce the barriers to PrEP access (Touger, 2019). While virtual services like theses can mitigate risks of discrimination and stigma while expanding access among PrEP eligible people (Touger, 2019), it is important that the providers that promote adoption of these tools by their patients still remain appropriately trained and capable in virtually supporting their patients sustained participation with them. Parlaying what we learned about effective approaches to retaining patients in PrEP-related care during non-pandemic times, providing similar guidance and tools to PCPs to best equip them to retain patients at risk for HIV in virtual PrEP care is suddenly of great importance (Jones, 2020). Further research must be conducted to explore the feasibility of telehealth services for PrEP-related patient and provider needs in metropolitan Atlanta and beyond.

PCPs practicing in Fulton county with an HIV burden of four percent demonstrated overall high confidence and positive attitudes in prescribing PrEP (AIDSVu, 2017). Providers

view PrEP as an effective medication in preventing HIV acquisition. As reported in this study, confidence was closely attributed to provider's comfort in discussing sexual behaviors with patients. There is a need for additional training on PrEP care for PCPs, better communication and empowerment tools for providers in discussing sexual practices, and enhanced EMR capturing the nuances surrounding non-heterosexual and non-monogamous practices. Future research is needed to examine support in sustaining the knowledge, confidence and overall attitudes of prescribing PrEP among providers in HIV hotspot areas in the U.S.

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