


PrEP Prescription for Black Adolescent Girls and Young Women in Alabama: Findings from a Survey of Healthcare Providers

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Madeline C. Pratt, MPH¹ , Samantha V. Hill, MD, MPH²,
Latesha Elope, MD, MSPH¹, Tina Simpson, MD, MPH²,
Robin Lanzi, PhD, MPH³, and Lynn T. Matthews, MD, MPH¹ 

Abstract

Black adolescent girls and young women (AGYW) are disproportionately affected by HIV in the United States. HIV pre-exposure prophylaxis (PrEP) is effective for HIV prevention, but prescription rates remain low. We conducted a survey of medical providers caring for Black AGYW in Alabama to explore PrEP prescription practices. While over half of the N=36 providers reported minimal HIV testing of AGYW in clinic, most (N=29, 81%) reported feeling confident discussing HIV prevention. Most reported willingness to prescribe PrEP to Black AGYW (58%-72%), but only 11 (31%) had prescribed PrEP to any female client. Low familiarity with CDC guidelines (N=20, 56%) and PrEP options (N=19, 53%) were barriers to prescription. Prescribing PrEP to AGYW was associated with provider training, with internal medicine providers being least likely to prescribe. These findings support the need to develop training tools to directly address unique training needs of providers who care for this population.

Keywords

HIV prevention, PrEP, heterosexual women, adolescents, healthcare providers

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Introduction

Black adolescent girls and young women (AGYW) ages 13–24 are disproportionately affected by HIV in the United States.¹ In 2018, Black women accounted for 58% of new HIV diagnoses among women, while making up only 13% of women in the U.S.² The rate of new HIV diagnoses among Black women was highest in the South (24.6 per 100,000) compared to any other region,² and Black women in Alabama are approximately 9 times more likely to become infected with HIV than non-Black women.³ Black AGYW are particularly vulnerable to HIV infection, and a majority of incident cases in this population are transmitted through heterosexual contact.⁴ Many complex and interacting factors contribute to the increased risk of HIV infection among Black AGYW, including prevalence of STIs, lack of awareness about HIV, challenging socioeconomic conditions, and stigma against sexuality, HIV, and certain behaviors.⁴ These factors, along with decreased

opportunities, access, and likelihood of using medication as prevention, put Black AGYW at higher risk of acquiring HIV.

Tenofovir disoproxil fumarate with emtricitabine (TDF/FTC) was approved by the FDA as HIV pre-exposure prophylaxis for adults in 2012 and for adolescents (weighing

¹ Department of Medicine, Division of Infectious Diseases, School of Medicine, University of Alabama at Birmingham (UAB), Birmingham, Alabama, USA

² Department of Pediatrics, Division of Adolescent Medicine, School of Medicine, University of Alabama at Birmingham (UAB), Birmingham, Alabama, USA

³ Department of Health Behavior, School of Public Health, University of Alabama at Birmingham (UAB), Birmingham, Alabama, USA

Corresponding Author:

Madeline C. Pratt, Department of Medicine, Division of Infectious Diseases, The University of Alabama at Birmingham, Ziegler Research Building 210, 1720 second Ave S, Birmingham, AL 35294, USA.

Email: mcpratt@uabmc.edu



at least 35 kilograms) in 2018,⁵ yet wide disparities exist between those with indications for and prescribed PrEP.⁶ Women account for less than 5% of all U.S. PrEP users, and only about 2% of the 176,670 heterosexual women estimated to have a PrEP indication in 2015 had used it.⁶ An adolescent primary care clinic located in Alabama found that 45% of 429 adolescents accessing primary care had PrEP indications, based on the current CDC guidelines at the time; approximately 70% were Black women and none were prescribed PrEP.⁷

While discussions about PrEP are becoming more prominent in efforts introduced by the federal initiative to End the HIV Epidemic, data exploring provider PrEP prescribing practices are limited. In a 2014 survey of ninety providers recruited from the Adolescent Medicine Trials Network for HIV/AIDS Interventions, 52% and 40% reported intentions to prescribe PrEP to heterosexual adults (older than 18) and adolescents (younger than 18) respectively, who have multiple partners of unknown HIV status; only 12% and 10% had prescribed PrEP to these populations.⁸ A 2017 survey of Philadelphia providers from HIV/infectious disease, family and internal medicine, women's health, and pediatric/adolescent clinics found that, while 75% (N=61) felt comfortable providing PrEP and 77% (N=62) had ever written a PrEP prescription, pediatric and women's health providers reported feeling less comfortable providing PrEP.⁹ The limited literature indicates a gap in services and PrEP access in part driven by provider PrEP prescription practices for female and adolescent populations.

The majority of current literature explores barriers to PrEP uptake among AGYW in African settings¹⁰ and young men who have sex with men,¹¹ but few studies examine the intersecting stigmas of sexuality, race, and HIV prevention in the context of young Black women living in a rural Southern state. We conducted a mixed-methods study to further explore provider and client perspectives about barriers to and promoters of PrEP prescription and uptake among Black AGYW living in rural and urban settings within Alabama. Here we present quantitative data from a survey of healthcare providers caring for Black AGYW in Alabama.

Methods

Study Population and Setting

Healthcare providers able to prescribe medications and caring for Black AGYW in Alabama were eligible to participate in this study, which was conducted in 2020, exploring PrEP prescription practices according to the CDC's 2017 PrEP clinical practice guidelines.¹²

Recruitment

Potential participants were initially identified through web-based searches using databases including PleasePrEPMe.org¹³;

websites of pediatric, adolescent, and family medicine providers across Alabama; and academic and professional catalogues of state providers.^{14, 15} Providers caring for adolescent populations, including adolescent, family, infectious disease, internal, pediatric, obstetrics/gynecology, and student health providers, were sent an email invitation to participate in an online survey. Additionally, academic and professional leaders from departmental training programs, the UAB Center for AIDS Research, and the Alabama Chapter of the American Academy of Pediatrics disseminated the recruitment invitation among stakeholders throughout the state. Finally, potential participants were invited to complete the survey during an STI/HIV prevention presentation at the Southeast Prevention Training Center's Fall Conference.^{16,17} Potential participants were contacted by email approximately three times and invited to forward the invitation to other providers.

The online REDCap survey provided a detailed description of the study and asked participants to consent to participation before data collection. The survey gathered provider demographic data (Table 1) and clinical practices (Table 2), including the number of Black AGYW cared for in the past week. Those who indicated they had cared for at least one Black AGYW in the past week continued on to questions about their clinical practices regarding sexual health, HIV prevention, and PrEP. These providers were also eligible to participate in an in-depth interview and could indicate their willingness by entering their contact information. The data from in-depth interviews are reported separately.¹⁷

Survey

The survey consisted of items adapted from published¹⁸ and ongoing surveys,¹⁹ as well as questions developed by our team which includes providers (SVH, LE, TS) who care for Black AGYW in Alabama. Participants were asked to reflect on their last full week of clinical practice and estimate the number of AGYW they cared for. A series of questions asked participants to estimate, among that number, whether none, some, many, most, or all were tested for HIV, tested for STIs, and identified as Black or African American. Participants were asked about their confidence discussing HIV prevention options (Table 2) with and willingness to prescribe PrEP (Figure 1) to 14–17- and 18–24-year-old Black AGYW, with 5-point Likert response options. Participants were asked if they had ever prescribed Truvada or TDF/FTC to any female clients for the purpose of HIV prevention, and providers who had offered PrEP were asked about indications for prescription. All providers were asked to rate the impact of barriers to PrEP prescriptions (Figure 2), select the most impactful barriers, and name any additional barriers not covered by the responses.¹⁸ Free response items asked participants to list factors that may promote PrEP prescriptions to AGYW and what can be done to promote HIV prevention for HIV-exposed Black AGYW in Alabama.¹⁸

The survey was estimated to take 15 min to complete, and all surveys were completed between May and October 2020.

Table 1. Demographics of Surveyed Providers.

Variables		N = 36 N (%)
Clinical Roles	Physician	24 (67)
	Nurse Practitioner or Physician Assistant	12 (33)
Race	Non-Hispanic White	23 (64)
	Non-Hispanic Black or African American	12 (33)
	Multiracial	1 (3)
Sex (Missing = 1)	Female	26 (72)
	Male	9 (25)
Years in Practice	0-10 years	24 (67)
	11-19 years	6 (17)
	20 years or more	6 (17)
Type of Practice and Training*	General Pediatrics	11 (31)
	Adolescent Medicine	7 (19)
	Family Medicine	9 (25)
	Infectious Diseases/HIV Care	6 (17)
	Internal Medicine	8 (22)
	General Obstetrics and Gynecology	8 (22)
Practice Setting	Academic Institution	11 (31)
	Public Health	4 (11)
	Hospital Outpatient Clinic	7 (19)
	Private Practice	8 (22)
	School-Based Health Center	5 (14)
	Family Planning Clinic	1 (3)
Number of AGYW cared for in past week	1 to 15	25 (69)
	16 to 25	6 (17)
	≥26	5 (14)
How many of the AGYW cared for during last week were Black or African American	Some	8 (22)
	Many	13 (36)
	Most or All	15 (42)

*Providers could select more than one. Total is not equal to N = 36.

Table 2. Clinical Practices.

Variables		N = 36 N (%)
Number of AGYW tested for STIs	None	2 (6)
	Some	15 (42)
	Many	5 (14)
	Most	8 (22)
	All	6 (17)
Number of AGYW tested for HIV	None	7 (19)
	Some	14 (39)
	Many	2 (6)
	Most	6 (17)
	All	7 (19)
Confidence discussing HIV prevention with Black AGYW ages 14-17	Very/somewhat uncertain	4 (11)
	Neutral	3 (8)
	Somewhat/very confident	29 (81)
Confidence discussing HIV prevention with Black AGYW ages 18-24	Very/somewhat uncertain	1 (3)
	Neutral	5 (14)
	Somewhat/very confident	30 (83)

Ethical Approval and Informed Consent

All procedures were conducted in accordance with the ethical standards of the Institutional Review Board at the University

of Alabama at Birmingham (Protocol #IRB-300004672). Informed consent was obtained from all individual participants involved in the study at the time of survey completion.

Statistical Analysis

Descriptive statistics summarize participant demographics (Table 1). Outcomes described in Table 2 and Figures 1, 2, and 3 include the number of adolescent girls and young women tested for STIs and HIV, confidence discussing HIV prevention with AGYW, barriers to prescribing PrEP, willingness to prescribe PrEP, and indications for prescribing PrEP.

Bivariate analyses were conducted using two-tailed Fisher’s Exact test, given the small sample size. Bivariate analyses examined provider demographic and practice factors for correlations with PrEP prescription practices (Table 3). Analyses were performed using SAS OnDemand for Academics.

Results

Survey Demographics

We emailed the survey to 94 unique individuals and were copied on an additional 49 emails that included directors of residency programs, community organizations, and AIDS Service

Organizations. These contacts indicated they would or did forward the survey to entire clinics, physician training programs, and professional organizations across the state. Officers of the Alabama Chapter of the American Academy of Pediatrics were contacted at least four times via email, and they forwarded the survey to all members at least one time. Additionally, investigators presented the survey QR code and described the study at the Southeast STI/HIV Prevention Training Center’s Fall conference, a presentation to a group of approximately 20 physician community members, and a presentation on PrEP at a private pediatric clinic in rural Alabama.

Forty-two individuals, primarily physicians (N = 29, 69%), completed the screening survey, and 36 (86%) screened providers were eligible to complete the entire survey, based on caring for at least one Black AGYW during a typical week.

Survey Outcomes

Among 36 providers who cared for Black adolescent girls and young women in a typical week, 47% (N = 17) reported minimal STI testing (none or some) and 53% (N = 19) reported many or all AGYW were tested for STIs. Similarly, 58% (N = 21) reported minimal HIV testing (none or some) and 42% (N = 15) reported either many or all AGYW were tested for HIV.

Over 80% (N = 29 (81%) and N = 30 (83%)) of participating providers reported feeling confident discussing HIV prevention with Black AGYW ages 14–17 and 18–24, respectively. About half (N = 21, 58%) and two-thirds (N = 26, 72%) of respondents reported willingness to prescribe PrEP to Black AGYW in each age group, respectively (Figure 1). Nine (25%) and 6 (17%) respondents reported willingness to refer patients to another provider for PrEP (Figure 1).

Of a list of potential barriers, providers identified their own lack of familiarity with CDC guidelines (N = 28, 78%) and

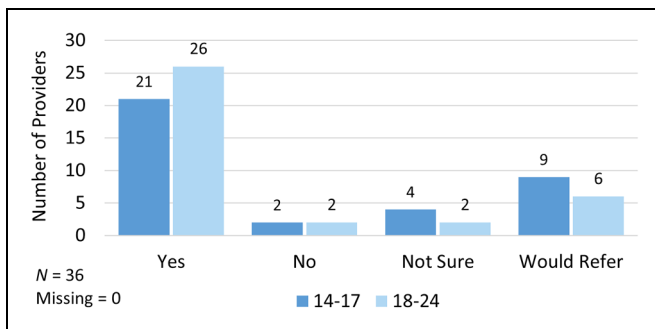


Figure 1. Provider Willingness to Prescribe PrEP to Black AGYW, by Client Age.

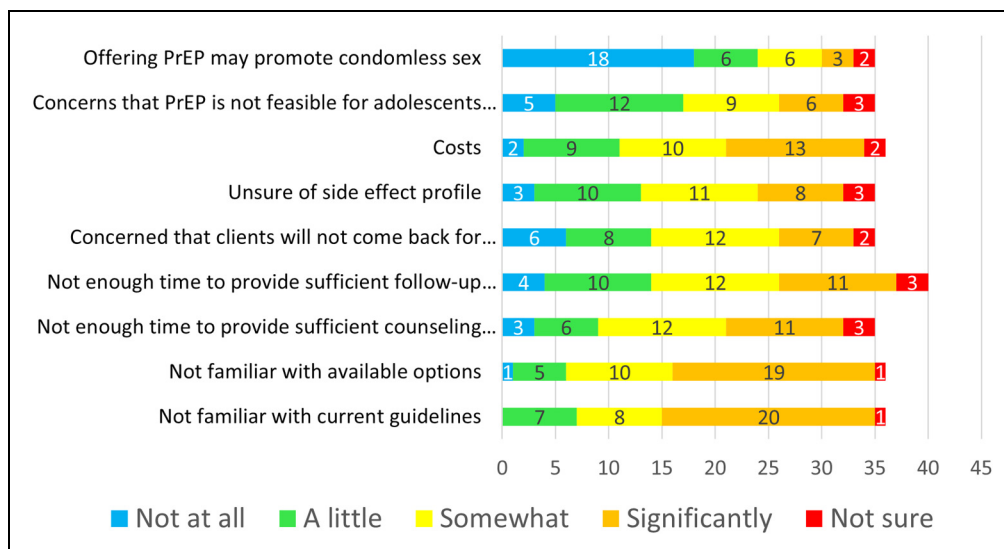


Figure 2. Likert-Type Items Examining Barriers to Prescription of PrEP for AGYW.

current PrEP options (N = 29, 81%) as somewhat or significantly impacting their PrEP prescription practices (Figure 2). Other barriers marked as somewhat or significantly impacting providers prescribing PrEP to AGYW included costs (N = 23, 64%), lack of time to provide sufficient follow-up (N = 23, 64%) and counseling (N = 23, 64%), uncertainty about PrEP’s side effects (N = 19, 53%), concerns about clients coming back for follow-up (N = 19, 53%), and concerns that PrEP is not feasible for adolescents (N = 15, 42%) (Figure 2). These barriers are explored in more depth elsewhere.¹⁷

Eleven (26%) respondents had ever prescribed PrEP to any female client. Of those respondents who had prescribed PrEP to a female client, 4 (36%) reported prescribing it in response to client request. Other indications for prescription included client STI diagnosis, known exposure to HIV, and, less frequently, injection drug use, sex work, and multiple uses of post-exposure prophylaxis (Figure 3).

Bivariate Results

Associations were found between several factors and ever having prescribed PrEP to a female client, including the training of the provider, the number of AGYW cared for in a typical week, the number of years a provider had been practicing, and the provider’s confidence discussing HIV prevention with AGYW.

Among surveyed providers, 10 (77%) of those trained in pediatrics or adolescent medicine, 7 (78%) of those trained in family medicine, 6 (100%) of those trained in obstetrics-gynecology, and 0% of N = 7 providers trained in internal medicine had prescribed PrEP to a female client. More providers caring for 1–15 versus 16–25 AGYW in a typical week reported prescribing PrEP to female clients (76% vs 33%). All providers who had been practicing for 10–19 years reported having prescribed

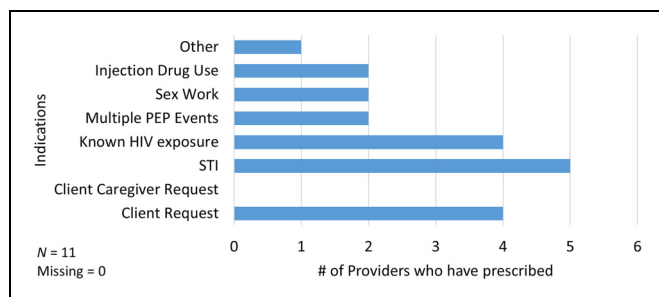


Figure 3. Indications for Which Providers Have Prescribed PrEP to Black AGYW.

Table 3. Bivariate analyses of provider factors and PrEP prescription practices.

Variables	Percent of respondents who had ever prescribed PrEP to female client N (%)	P-Value
Type of provider training (N = 35)		
Pediatrics/Adolescent Medicine (N = 13)	10 (77)	
Family Medicine (N = 9)	7 (78)	0.0003
Internal Medicine (N = 7)	0 (0)	
Obstetrics/Gynecology (N = 6)	6 (100)	
Number of AGYW cared for in a typical week (N = 36)		
None (N = 0)	0 (0)	
1-15 (N = 25)	19 (76)	
16-25 (N = 6)	2 (33)	0.1229
26-35 (N = 1)	1 (100)	
36-45 (N = 4)	2 (50)	
Years in practice (N = 36)		
0-10 (N = 24)	14 (58)	
10-19 (N = 6)	6 (100)	0.1753
20+ (N = 6)	4 (67)	
Provider confidence discussing HIV prevention with AGYW ages 18-24 (N = 36)		
Very Confident (N = 17)	8 (47)	
Somewhat Confident (N = 13)	10 (77)	
Neutral (N = 5)	5 (100)	0.0706
Somewhat Uncertain (N = 1)	1 (100)	
Very Uncertain (N = 0)	0 (0)	
Provider gender (N = 35)		
Female (N = 26)	18 (69)	0.6855
Male (N = 9)	5 (56)	
Provider type (N = 36)		
Physician (N = 24)	17 (71)	
Physician Assistant (N = 11)	6 (55)	0.6337
Nurse Practitioner (N = 1)	1 (100)	

PrEP to a female client, while 58% and 67% respectively of those who had been practicing for 0–10 years and 20 or more years reported prescription (Table 3).

Discussion

In this survey of provider attitudes and practices relating to PrEP prescription for Black adolescent girls and young women in Alabama, providers reported high levels of STI and HIV testing among their clients. Most providers reported feeling confident discussing HIV prevention options with young women, and 58% and 72% reporting a willingness to prescribe PrEP to Black AGYW ages 14–17 and 18–24, respectively. About one third ($N = 11$, 31%) of the $N = 36$ respondents had ever prescribed PrEP to a female client. Providers identified limited knowledge of current PrEP guidelines ($N = 20$, 48%) and current PrEP options for AGYW ($N = 19$, 45%) as barriers to PrEP prescription. We found differences in prescription practices by provider training, AGYW client load, the number of years a provider had been practicing, and provider confidence discussing HIV prevention with AGYW ages 18–24. While only the type of provider training in relation to their prescription practices was statistically significant, these data from a sample of Alabama providers indicate that a small proportion of providers are prescribing PrEP to Black AGYW. In-depth interviews with a subset of these providers, reported elsewhere, provide further insight into PrEP prescription practices, barriers, and facilitators in the context of this Southern state.¹⁷

Few studies have explored provider perspectives on barriers to PrEP prescription for cisgender women, let alone Black cisgender adolescent girls and young women. The few published studies describe similar barriers among providers caring for women of color in the United States. One study reported by Kimmel *et al* conducted in 2017 in an undisclosed major U.S. city found that only three women of color were prescribed PrEP across three clinical sites after one year, and interviews with staff revealed that providers were reluctant to prescribe PrEP and uncomfortable with counseling clients.²⁰ Another study examining PrEP prescription, without age or gender focus, found lack of provider knowledge of PrEP, discomfort prescribing PrEP, discomfort discussing HIV prevention, and time constraints as barriers.²¹ Other studies support the finding that providers are willing to prescribe PrEP but lack the knowledge to do so, resulting in low numbers of PrEP prescriptions.^{22,23} Many studies find the cumulative incidence of PrEP prescriptions among those with indications for PrEP is less than 10%, including a study at an adolescent primary care center in the Deep South where the rate of prescription was 0%.^{24,25} A 2015 study of providers found that those trained in internal medicine were 1.6 times more likely than infectious disease practitioners to have prescribed PrEP²⁶; among our study participants, none of those trained in internal medicine had prescribed PrEP compared to over 75% of those trained in pediatrics, obstetrics/gynecology, and family medicine. This contradictory finding may suggest that these providers who work frequently with AGYW may be more likely to

have prescribed PrEP to a female client because they are already engaged in discussions about sexual health with this population. Overall, these studies support our findings, suggesting that providers are willing to prescribe PrEP, despite a lack of knowledge and practice. Furthermore, our findings suggest that many providers are comfortable conducting STI/HIV testing among AGYW, and our sample of providers may have been more likely to participate based on their interest in the topic. These providers are primed to be early adopters of PrEP because of their current engagement in HIV prevention for adolescents, yet PrEP prescription to these populations remains infrequent.

This study has some limitations, including the small sample size of provider participants. Recruitment was conducted May through October 2020, during the early stages of the SARS-CoV2 pandemic, which limited our study recruitment to virtual efforts. The competing priorities among providers may have limited the number of participants willing or able to complete our survey. The small sample size limits the generalizability and analytic power of the data. However, these data provide new insight into an understudied population in a rural EHE priority state and can inform future studies and interventions across the South and other rural regions of the U.S. Additionally, multiple biases may have influenced the sample of providers who completed the survey, including social desirability bias, which may have prompted providers to answer questions in a specific manner, and selection bias, which may have caused providers with a specific interest in this topic to be more likely to participate. While we aimed to include more rural providers, many of those who participated work in academic and urban medical centers, potentially making our findings more optimistic than the realities of PrEP prescription in Alabama.

Our study also has a number of strengths, including providing an updated view of PrEP prescription practices in an Ending the HIV Epidemic target state ten years after the approval of PrEP. Additionally, this study provides data on a uniquely vulnerable population with inequitable access to care, including sexual health and HIV prevention services. Findings from in-depth interviews with providers and Black AGYW clients reported elsewhere continue to provide insight into the barriers faced by this population.¹⁷

Our findings support the updated 2021 CDC PrEP guidelines, which call for expanding discussions of PrEP to include all patients who are sexually active.²⁷ However, more detailed guidelines may be needed to support PrEP prescription for the unique and dynamic population of AGYW, as well as more frequent discussions about HIV, PrEP, and sexual health among providers caring for AGYW, as nuances of psychological and physical development, culture, race, and gender make these discussions less straightforward. Additionally, our findings suggest that, though guidelines may be helpful in promoting PrEP knowledge and prescription among providers, there is a lag in uptake of new practices, and more work may be needed to disseminate information more quickly and strategically among providers caring for adolescent and young adult populations, especially those caring for young cisgender

women who may be overlooked in discussions about HIV prevention. Providers should have easy access to training, workshops, and peer guidance to promote the prescription of PrEP and discussion of HIV prevention with their clients, which may overall ameliorate providers' PrEP prescription barriers and promote safer sex practices among AGYW. Our team is funded to continue working with providers caring for this population by implementing a family medicine resident physician intervention and evaluation of PrEP prescribing practices in three sites, inclusive of rural communities, across Alabama.

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Declaration of Conflicting Interests

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Ethics

All procedures were conducted in accordance with the ethical standards of the Institutional Review Board at the University of Alabama at Birmingham (Protocol #IRB-300004672). Informed consent was obtained from all individual participants involved in the study at the time of survey completion.

ORCID iDs

Madeline C. Pratt  <https://orcid.org/0000-0003-2255-0401>

Lynn T. Matthews  <https://orcid.org/0000-0001-6167-6328>

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