UnPrEPed for HIV prevention services
Hesitancy among US primary care providers

Amanda Blair Spence, MDa,* Cuiwei Wang, MSa, Katherine G. Michel, PhD, MPHb, Daniel Merenstein, MDc, Michael Kharfen, BAc, Lakshmi Goparaju, PhDd, Seble Kassaye, MDe, MSa

1. Introduction
In 2019, there were an estimated 34,000 new HIV infections in the United States despite the availability of highly effective prevention strategies such as HIV pre-exposure prophylaxis (PrEP).[1,2] Implementation of PrEP is a key component in the strategy to End the HIV Epidemic, but in 2020 only ~25% of the estimated 1.2 million persons with PrEP indications received PrEP.[3]

Centers for Disease Control and Prevention PrEP use guidelines and the US Preventive Services Task force recommend routine collection of sexual history to identify persons at risk for HIV and that sexually active individuals be informed about PrEP.[2,4]

2. Objective
To estimate assessment of HIV risk during routine health examination by primary care providers (PCPs) in the post-PrEP era.

3. Methods
Licensed healthcare providers in the District of Columbia (DC) were invited to participate in a cross-sectional online survey (August–September 2019). This survey was distributed using a Department of Health maintained email listing of licensed healthcare provided in DC. Participants were offered a gift card at completion of the survey. We assessed provider demographics, practices, and HIV knowledge. HIV knowledge was assessed with 18 questions (true/false, multiple choice) with 1 point assigned for each correct answer. This analysis is limited to primary care providers (PCPs).[5] This study was approved by the Georgetown University Medical Center Institutional Review Board.

4. Findings
Among the 15,003 individuals to whom the email was successfully delivered, 5308 opened the email, and 539 opened the survey link. Of the 436 participants who completed the survey, 118 identified as PCPs (Table 1). Sixty percent (n = 71) were female, 64% (n = 73) White, and the median age was 41 years (IQR 34, 53.75). The median number of years in practice was 11.5 (IQR 7, 24.75), and 44% (n = 52) practiced in an academic setting. Midwives asked about sex more often than other physician types versus those that did not. However, obstetricians-gynecologists asked about sex more often than other physician types were invited to participate in a cross-sectional online survey (August–September 2019). This survey was distributed using a Department of Health maintained email listing of licensed healthcare provided in DC. Participants were offered a gift card at completion of the survey. We assessed provider demographics, practices, and HIV knowledge. HIV knowledge was assessed with 18 questions (true/false, multiple choice) with 1 point assigned for each correct answer. This analysis is limited to primary care providers (PCPs).[5] This study was approved by the Georgetown University Medical Center Institutional Review Board.

4. Findings
Among the 15,003 individuals to whom the email was successfully delivered, 5308 opened the email, and 539 opened the survey link. Of the 436 participants who completed the survey, 118 identified as PCPs (Table 1). Sixty percent (n = 71) were female, 64% (n = 73) White, and the median age was 41 years (IQR 34, 53.75). The median number of years in practice was 11.5 (IQR 7, 24.75), and 44% (n = 52) practiced in an academic setting. Midwives asked about sex more often than other physician types versus those that did not. However, obstetricians-gynecologists asked about sex more often than other physician types were invited to participate in a cross-sectional online survey (August–September 2019). This survey was distributed using a Department of Health maintained email listing of licensed healthcare provided in DC. Participants were offered a gift card at completion of the survey. We assessed provider demographics, practices, and HIV knowledge. HIV knowledge was assessed with 18 questions (true/false, multiple choice) with 1 point assigned for each correct answer. This analysis is limited to primary care providers (PCPs).[5] This study was approved by the Georgetown University Medical Center Institutional Review Board.

4. Findings
Among the 15,003 individuals to whom the email was successfully delivered, 5308 opened the email, and 539 opened the survey link. Of the 436 participants who completed the survey, 118 identified as PCPs (Table 1). Sixty percent (n = 71) were female, 64% (n = 73) White, and the median age was 41 years (IQR 34, 53.75). The median number of years in practice was 11.5 (IQR 7, 24.75), and 44% (n = 52) practiced in an academic setting. Midwives asked about sex more often than other physician types versus those that did not. However, obstetricians-gynecologists asked about sex more often than other physician types were invited to participate in a cross-sectional online survey (August–September 2019). This survey was distributed using a Department of Health maintained email listing of licensed healthcare provided in DC. Participants were offered a gift card at completion of the survey. We assessed provider demographics, practices, and HIV knowledge. HIV knowledge was assessed with 18 questions (true/false, multiple choice) with 1 point assigned for each correct answer. This analysis is limited to primary care providers (PCPs).[5] This study was approved by the Georgetown University Medical Center Institutional Review Board.
with 80% asking about sex routinely versus 44% of other primary care physicians. Seventeen percent (n = 20) of respondents were uncomfortable talking with patients about their sex practices, and 26% (n = 30) were uncomfortable discussing injection drug use. Forty percent (n = 47) of PCPs would not ask about sexual activity or injection drug use given more time. Among those who did not routinely ask about sex and drug use 65% (n = 36/55) and 54% (n = 32/59) respectively would not ask given more time. Twenty-one percent (n = 25) noted providing HIV prevention service was not part of their clinical practice and that specialists trained in HIV prevention counseling were more appropriate for delivering HIV prevention services.

Eighty-three percent (n = 98/118) of respondents believed the primary care delivered interventions were the most effective way to reduce the risk of HIV acquisition. Among those with this belief, 54% (n = 20/37) and 51% (n = 26/51) of those that did not routinely ask about sex or drug use respectively would do so given more time. Seventy-nine percent (n = 77/98) of those that believed that primary care delivered interventions were the most effective way to reduce the risk of HIV acquisition reported that HIV prevention services were part of their clinical practice.

### 5. Discussion

DC has a high HIV prevalence of 1.7% and HIV incidence of 32.9 new cases per 100,000. Despite a historic routine

---

**Table 1**

| Provider specialty      | N = 118 (%) |
|-------------------------|-------------|
| Internal medicine       | 42 (35.6)   |
| Family medicine*       | 28 (23.7)   |
| Pediatrics**            | 33 (28.0)   |
| OB/GYN                  | 15 (12.7)   |
| Sex at birth            |             |
| Female                  | 71 (60.2)   |
| Male                    | 44 (37.3)   |
| Unknown                 | 3 (2.5)     |
| Provided care to PLWH   |             |
| Yes                     | 111 (94.1)  |
| No/Unknown              | 7 (5.9)     |
| Race                    |             |
| White                   | 75 (63.6)   |
| Asian                   | 25 (21.2)   |
| Black/AA                | 10 (8.5)    |
| Other/Unknown           | 8 (6.7)     |
| Ethnicity               |             |
| Hispanic                | 5 (4.2)     |
| Non-Hispanic            | 103 (87.3)  |
| Unknown                 | 10 (8.5)    |
| Sexual orientation      |             |
| Heterosexual            | 104 (88.1)  |
| LGB                     | 10 (8.4)    |
| Unknown                 | 4 (3.4)     |
| Median age (IQR), yrs   | 41 (34, 53.75) |
| Median yrs in practice (IQR) | 11.5 (7, 24.75) |
| Practice setting        |             |
| Academic                | 52 (44.1)   |
| Tertiary care (nonacademic) | 5 (4.2)   |
| Community care clinic   | 18 (15.3)   |
| Private                 | 26 (22.0)   |
| Other                   | 17 (14.4)   |
| Mean HIV knowledge (SD) | 15.8 (1.0)  |

**Table 2**

| Survey participant question responses. | Primary care N = 118 (%) |
|----------------------------------------|--------------------------|
| Would you like to spend more time on average per patient than currently spends with each patient? |
| Yes                                    | 85 (72)                  |
| No                                     | 27 (21)                  |
| About how often do you ask if patients are sexually active? |
| None or almost none of the time         | 8 (6.8)                  |
| 25% of the time                         | 14 (11.9)                |
| About half of the time                  | 21 (17.8)                |
| 75% of the time                         | 11 (9.3)                 |
| All or almost all the time              | 58 (49.2)                |
| About how often do you talk about safer sex with patients? |
| None or almost none of the time         | 15 (12.7)                |
| 25% of the time                         | 15 (12.7)                |
| About half of the time                  | 25 (21.2)                |
| 75% of the time                         | 23 (19.5)                |
| All or almost all the time              | 34 (28.8)                |
| I would ask about if my patients were sexually active if I had more time. |
| AGREE                                  | 65 (55.1)                |
| DISAGREE                               | 47 (39.8)                |
| I would talk about safe sex with my patients if I had more time. |
| AGREE                                  | 75 (63.6)                |
| DISAGREE                               | 37 (31.4)                |
| I would ask if patients are using injection drugs if I had more time. |
| AGREE                                  | 65 (55.1)                |
| DISAGREE                               | 47 (39.8)                |
| I feel comfortable talking with my patients about their risk of acquiring HIV. |
| AGREE                                  | 107 (90.7)               |
| DISAGREE                               | 5 (4.2)                  |
| I am not familiar talking with my patients about their sex practices. |
| AGREE                                  | 20 (16.9)                |
| DISAGREE                               | 92 (78.0)                |
| Talking about safer sex with my patients is not my responsibility. |
| AGREE                                  | 10 (5.4)                 |
| DISAGREE                               | 102 (86.4)               |
| I am comfortable talking with my patients about their injection drug use practices. |
| AGREE                                  | 82 (69.5)                |
| DISAGREE                               | 30 (25.4)                |
| Providing HIV prevention services is not part of my clinical practice. |
| AGREE                                  | 25 (21.2)                |
| DISAGREE                               | 87 (73.7)                |
| Specialists trained in HIV prevention counseling are more appropriate for delivering HIV prevention services than are primary care providers. |
| AGREE                                  | 25 (21.2)                |
| DISAGREE                               | 87 (73.7)                |
| Primary-care provider delivered interventions are the most effective way to reduce the risk of HIV acquisition. |
| AGREE                                  | 98 (83)                  |
| DISAGREE                               | 14 (12)                  |
requirement for HIV related continued medical education for licensure, provider’s sexual activity and drug use assessments were inconsistent, more than one-fifth of surveyed PCPs were not inclined to provide HIV prevention services, and almost as many reported discomfort with talking about sex and drug use. While, inadequate time has been cited as a barrier to the delivery of HIV prevention services during routine primary care, in our cohort 40% of PCPs were reluctant to routinely ask about sex or drug use even if given more time. If PCPs do not assess sex and drug use, implementation of HIV preventions at scale may remain limited. Further, we noted gaps in the delivery of services even among individuals who acknowledge the importance of primary care delivered interventions for HIV prevention.

As with any survey, findings can be skewed by the sample population. The respondents to our survey are similar in age to the overall DC physician workforce, but women were over represented in our sample as compared to the number of reported female physicians in the DC Physician Workforce Capacity Report. However, this survey was conducted in an area primed to care for persons with and at risk for HIV. We would expect in this population higher rates of completion of these routine health assessments and delivery of services. There may be additional and larger gaps in knowledge and willingness to incorporate behavioral assessments in other regions of the US. Our findings suggest that additional research is needed to understand impediments and incentivize participation in HIV prevention service delivery. This includes an exploration of why providers do not provide these services which was not elucidated in our survey. Expansion of HIV prevention healthcare delivery systems may require the engagement of non-physician and mid-level providers to meet national End the HIV Epidemic targets.

Acknowledgments

We thank Anjali Kikkisetti, BS, and Joanne Michelle Ocampo, MS who assisted with the implementation of the survey instrument. Additionally, Katherine G. Michel, PhD, MPH and Daniel Merenstein, MD critically reviewed the manuscript and contributed to the survey instrument design and implementation. Research reported in this publication was supported by the National Center For Advancing Translational Sciences of the National Institutes of Health under Award Number KL2TR001432 to A.B.S. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Author contributions

Conceptualization: Amanda Blair Spence, Seble Kassaye.
Data curation: Amanda Blair Spence, Cuiwei Wang.
Formal analysis: Cuiwei Wang.
Funding acquisition: Seble Kassaye.
Writing – original draft: Amanda Blair Spence.
Writing – review & editing: Amanda Blair Spence, Cuiwei Wang, Katherine G. Michel, Daniel Merenstein, Michael Kharfen, Lakshmi Goparaju, Seble Kassaye.

References

[1] Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2015–2019. HIV Surveillance Supplemental Rep 2021. 2021;21. Available at: http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html.
[2] Centers for disease control and prevention: US public health service: pre-exposure prophylaxis for the prevention of HIV infection in the United States—2021 Update: a clinical practice guideline. 2021. Available at: https://www.cdc.gov/hiv/pdf/draft/prep/cdc-hiv-prep-guidelines-2021.pdf.
[3] Centers for Disease Control and Prevention. Core indicators for monitoring the Ending the HIV Epidemic initiative (preliminary data): National HIV Surveillance System data reported through June 2021; and preexposure prophylaxis (PrEP) data reported through March 2021. 2021;2. Available at: http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html.
[4] US Preventive Services Task Force, Owens DK, Davidson KW, et al. Preexposure prophylaxis for the prevention of HIV infection: US preventive services task force recommendation statement. JAMA. 2019;321:2203–13.
[5] District of Columbia Department of Health, HIV/AIDS, Hepatitis, STI, & TB administration. Annual Epidemiology & Surveillance Report: Data Through December 2020. District of Columbia Department of Health, HIV/AIDS, Hepatitis, STI, & TB Administration 2021. 2022. Available at: https://dchealth.dc.gov/service/hiv-reports-and-publications.
[6] Government of the District of Columbia Department of Health-Board of Medicine. Physician & physician assistant workforce capacity report 3.0. 2015. Available at: https://doh.dc.gov/sites/default/files/dc/sites/doh/publication/attachments/DC%20Board%20of%20Medicine%20Physician%20and%20Assistant%20Workforce%20Capacity%20Report%203.0.0-2015%20dec12.pdf.
[7] Spence AB, Wang C, Michel K, et al. HIV related stigma among health-care providers: opportunities for education and training. J Int Assoc Provid AIDS Care. 2022;21:23259582221114797.