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PrEParing Providers: The Next Challenge in Implementing HIV Pre-Exposure Prophylaxis

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Nearly six years after its regulatory approval, pre-exposure prophylaxis (PrEP) has seismically shifted the field of HIV prevention in the United States (US). More than 120,000 Americans have been prescribed oral emtricitabine/tenofovir disoproxil fumarate (FTC/TDF) for PrEP,¹ and public health agencies, academia, and industry are all helping to get the word out to consumers and providers, alike. Mathematical models indicate that if National HIV/AIDS Strategy goals are achieved, PrEP could avert nearly 17,000 new infections over a 5-year period.² Among key populations, the impact may be even higher; coverage of 40% of at-risk men who have sex with men (MSM) has the potential to prevent up to a third of new infections in this group, over a decade.³ This is truly an exciting time to be working in HIV prevention.

Despite the PrEP's promise in combatting the HIV epidemic, we face multiple challenges in scaling up service delivery to reach the estimated 1.2 million Americans who have an indication for prophylactic FTC/TDF.⁴ From a consumer (i.e., patient) perspective, empirical evidence is accumulating for the existence of a PrEP “cascade” analogous to the HIV continuum of care,^{5,6} and disparities in uptake by sex, race, and ethnicity are also becoming apparent.^{1,7} To counter some of these issues, consumer-focused campaigns from public health agencies and the manufacturer of FTC/TDF have launched with the goal of fostering both peer-to-peer and patient-provider discussions about sexual health (and PrEP). Time will tell if these initiatives yield the intended effect, but the rapid pace of their deployment is a welcome development.

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Concurrent with these consumer-directed efforts, increasing attention has been paid to the other necessary component of PrEP initiation: healthcare providers. Cross-sectional surveys of licensed US practitioners from 2009 to 2015 demonstrate suboptimal awareness of PrEP over time, with fewer primary care providers considering themselves PrEP-aware compared with infectious disease and HIV specialists.⁸ Yet, even with this greater awareness of PrEP among HIV experts, comparatively few have written PrEP prescriptions.^{9–11} This discrepancy perhaps reflects the “purview paradox,” in which generalists believe specialists should “own” PrEP, and specialists point to family or internal medicine clinics as the best home for such services.^{12,13} Regardless of specialty type, PrEP-related knowledge appears to be significantly related to one’s prescribing practices,¹⁴ suggesting that informational campaigns are essential for expanding the number of clinicians offering PrEP. Therefore, from a provider focus, the challenge in 2018 is to determine how best to expand the number of PrEP-savvy clinicians who are willing and able to prescribe – thus alleviating the bottleneck created by having too few “gatekeepers” for PrEP delivery.

This question is close to the hearts of those of us who provide training on PrEP to clinicians, public health professionals, and other key stakeholders. When the US Public Health Service issued clinical practice guidelines for PrEP in 2014,¹⁵ guidance for scaling up service delivery was not included. In some ways, this made sense; a one-size-fits-all approach is unlikely to be workable in the US. Programmatic recommendations from major urban centers often feel more aspirational than instructional for providers working in less progressive, resource-limited jurisdictions, and local solutions to implementation are more likely to successfully leverage resources and systems that already exist. However, the absence of high-level guidance for how best to engage providers and what topics are of greatest importance has resulted in heterogeneity in the form and content of PrEP education being delivered. This is not necessarily a bad thing – but there is also significant variability in the quality of that content, as well.

This gray area for best practices in how to train PrEP providers is addressed thoughtfully by Wood and colleagues in this issue of *Sexually Transmitted Diseases*.¹⁶ In 2016, their team conducted an electronic survey of all licensed physicians and advanced practice providers in the state of Washington, ultimately collecting and analyzing data from 735 individuals. Among their findings, several specific results provide valuable insight as we consider how best to identify new PrEP providers and tailor educational messaging to fit their needs.

First, significant variation existed in PrEP awareness by practice type; obstetrician-gynecologists, emergency medicine, and urgent care providers were less familiar with PrEP as a prevention intervention. Given the significant role that these providers have in delivering healthcare to adolescents and young adults,^{17–19} this is clearly a major gap in our efforts to provide “on-ramps” for PrEP care. Young people aged 13–29 accounted for 41% of all new HIV diagnoses in the US in 2015,²⁰ so optimizing our coverage of access points for this key population is critical. These venues also represent special circumstances of the purview paradox. It seems unlikely that emergency department or urgent care personnel would be willing to initiate or manage PrEP, given the episodic nature of their practice paradigm, but even minimally educating these providers about PrEP is a realistic intervention with potentially great downstream benefits. Women’s health and family planning clinics are more

conducive to discussions about sexual health, and thus possibly represent an important option for young, sexually active women to access PrEP.²¹

In the present study, it is not clear what proportion of respondents served in student health centers. As with women's health and emergency service providers, campus health clinicians represent a uniquely positioned group of potential PrEP prescribers that could benefit from focused training efforts. In North Carolina, our AIDS Training and Education Center (NCATEC) has actively reached out to student health providers on PrEP and sexual health education. Through on-campus trainings and the subsequent availability of trainers to assist with clinical questions, NCATEC has successfully supported the launch of PrEP services at six institutions statewide, including three historically Black colleges and universities (HBCUs). Our HBCUs have experienced outbreaks of HIV in the past^{22,23} and following initial, appropriate skepticism, their campus health providers have been enthusiastic adopters of PrEP for their students.

The success of NCATEC's in-person approach to training, which in addition to student health centers has included private practices, health departments, community health centers, and disease intervention specialist units, makes the omission of any face-to-face training options in Wood, *et al.*'s study stand out. In their survey, the authors offered multiple options for educating providers: print materials on a variety of topics; a hypothetical online tool to access prescriber-facing PrEP resources; a webinar series; and interactive videoconferencing to mentor new providers. All of these are very reasonable options, and given the geographic distribution of practices across Washington in potential need of training, it makes sense to leverage technology and build upon successful telehealth models such as Project ECHO (Extension for Community Healthcare Outcomes). However, there is much to be gained from traveling to the practice settings themselves, when possible. Traveling around North Carolina has provided NCATEC's trainers with valuable insights into structural and built-environment barriers facing clients or patients. In some cases, we have been able to offer more specific, tailored recommendations and technical assistance for service implementation based on those observations. Anecdotally, physically going to the clinic or facility from our academic "ivory tower" has also helped trainees view us less as interlopers and more like the long-term, supportive partners in practice improvement that we actually wish to be.

Finally, respondents to the authors' survey described multiple areas of uncertainty about PrEP, including issues such as insurance and out-of-pocket costs, assessment of one's candidacy for PrEP, adherence, and the potential for antiretroviral drug resistance. These are essentially the same set of concerns expressed by providers in multiple other studies,²⁴ and they all have well-defined, evidence-based answers. It seems reasonable at this point in US PrEP implementation to accept that these questions are on providers' minds and to make sure that trainings and educational materials address each of them in a practical, understandable manner. We are also at a point where trainers can prioritize content for new providers in such a way that essential information (such as adherence counseling or navigation of drug access programs) is conveyed consistently and other topics (like drug resistance) receive coverage commensurate with their clinical relevance. In our experience, permitting trainees to contact trainers directly with subsequent clinical questions ("warm-

line” support) has enabled NCATEC’s trainers to more effectively focus on the essentials of PrEP during in-person sessions.

Without a doubt, needs assessments have an important role in the implementation of new programs in public health. Unfortunately, and far too often, results from these assessments are not translated into action in a timely, impactful way. To their great credit, Wood and colleagues have used their data to inform a statewide strategy for training and supporting new PrEP providers in Washington. Approaches such as theirs (and ours, in North Carolina) that leverage academic-public health partnerships can help open doors to new practices and ensure that a unified, authoritative, and evidence-based message reaches key stakeholders. There remains much to do in domestic PrEP implementation, but provider-focused efforts such as those in Washington provide a valuable and well-conceived model for others to follow, nationwide.

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References

1. Mera Giler, R., Magnuson, D., Trevor, H., Bush, S., Rawlings, K., McCallister, S. Changes in Truvada (TVD) for HIV pre-exposure prophylaxis (PrEP) utilization in the United States: 2012–2016 (Abstract WEPEC0919). 9th IAS Conference on HIV Science (IAS 2017); July 23–26, 2017, 2017; Paris, France.
2. Yaylali, E., Farnham, P., Jacobson, E., et al. Impact of improving HIV care and treatment and initiating PrEP in the US, 2015–2020 (Abstract 1051). Conference on Retroviruses and Opportunistic Infections (CROI); 2016; Boston, MA.
3. Jenness SM, Goodreau SM, Rosenberg E, et al. Impact of the Centers for Disease Control’s HIV preexposure prophylaxis guidelines for men who have sex with men in the United States. *J Infect Dis.* 2016; 214(12):1800–1807. [PubMed: 27418048]
4. Smith DK, Van Handel M, Wolitski RJ, et al. Vital signs: estimated percentages and numbers of adults with indications for preexposure prophylaxis to prevent HIV acquisition--United States, 2015. *MMWR Morb Mortal Wkly Rep.* 2015; 64(46):1291–1295. [PubMed: 26606148]
5. Kelley CF, Kahle E, Siegler A, et al. Applying a PrEP continuum of care for men who have sex with men in Atlanta, Georgia. *Clin Infect Dis.* 2015; 61(10):1590–1597. [PubMed: 26270691]
6. Volk JE, Marcus JL, Phengrasamy T, et al. No new HIV infections with increasing use of HIV preexposure prophylaxis in a clinical practice setting. *Clin Infect Dis.* 2015; 61(10):1601–1603. [PubMed: 26334052]
7. Smith, DK., Van Handel, M., Grey, JA. By race/ethnicity, Blacks have highest number needing PrEP in the United States, 2015 (Abstract #86). 25th Conference on Retroviruses and Opportunistic Infections (CROI 2018); March 4–7, 2018; Boston, MA.
8. Smith DK, Mendoza MC, Stryker JE, Rose CE. PrEP awareness and attitudes in a national survey of primary care clinicians in the United States, 2009–2015. *PloS one.* 2016; 11(6):e0156592. [PubMed: 27258374]
9. Tellalian D, Maznavi K, Bredeek UF, Hardy WD. Pre-exposure prophylaxis (PrEP) for HIV infection: results of a survey of HIV healthcare providers evaluating their knowledge, attitudes, and prescribing practices. *AIDS Patient Care STDS.* 2013; 27(10):553–559. [PubMed: 24053478]

10. Karris MY, Beekmann SE, Mehta SR, Anderson CM, Polgreen PM. Are we prepped for preexposure prophylaxis (PrEP)? Provider opinions on the real-world use of PrEP in the United States and Canada. *Clin Infect Dis*. 2014; 58(5):704–712. [PubMed: 24319083]
11. Petroll AE, Walsh JL, Owczarzak JL, McAuliffe TL, Bogart LM, Kelly JA. PrEP awareness, familiarity, comfort, and prescribing experience among US primary care providers and HIV specialists. *AIDS Behav*. 2017; 21(5):1256–1267. [PubMed: 27885552]
12. Krakower D, Ware N, Mitty JA, Maloney K, Mayer KH. HIV providers' perceived barriers and facilitators to implementing pre-exposure prophylaxis in care settings: a qualitative study. *AIDS Behav*. 2014; 18(9):1712–1721. [PubMed: 24965676]
13. Hoffman S, Guidry JA, Collier KL, et al. A clinical home for preexposure prophylaxis: diverse health care providers' perspectives on the “purview paradox”. *J Int Assoc Provid AIDS Care*. 2016; 15(1):59–65. [PubMed: 26293904]
14. Blumenthal J, Jain S, Krakower D, et al. Knowledge is power! Increased provider knowledge scores regarding pre-exposure prophylaxis (PrEP) are associated with higher rates of PrEP prescription and future intent to prescribe PrEP. *AIDS Behav*. 2015; 19(5):802–810. [PubMed: 25616837]
15. US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States - 2014: a clinical practice guideline. 2014. <http://stacks.cdc.gov/view/cdc/23109>
16. Wood BR, McMahan VM, Naismith K, Stockton JB, Delaney LA, Stekler JD. Knowledge, practices, and barriers to HIV pre-exposure prophylaxis (prep) prescribing among Washington state medical providers. *Sex Transm Dis*. 2018
17. Fortuna RJ, Robbins BW, Halterman JS. Ambulatory care among young adults in the United States. *Annals of internal medicine*. 2009; 151(6):379–385. [PubMed: 19755363]
18. Callahan ST, Cooper WO. Changes in ambulatory health care use during the transition to young adulthood. *J Adolesc Health*. 2010; 46(5):407–413. [PubMed: 20413075]
19. Lau JS, Adams SH, Irwin CE Jr, Ozer EM. Receipt of preventive health services in young adults. *J Adolesc Health*. 2013; 52(1):42–49. [PubMed: 23260833]
20. Centers for Disease Control and Prevention. HIV Surveillance Report, 2015. Vol. 27. Atlanta: US Department of Health and Human Services; 2016.
21. Seidman D, Carlson K, Weber S, Witt J, Kelly PJ. United States family planning providers' knowledge of and attitudes towards preexposure prophylaxis for HIV prevention: a national survey. *Contraception*. 2016; 93(5):463–469. [PubMed: 26772906]
22. Centers for Disease Control and Prevention. HIV transmission among black college student and non-student men who have sex with men--North Carolina, 2003. *MMWR Morb Mortal Wkly Rep*. 2004; 53(32):731–734. [PubMed: 15318156]
23. Hightow LB, MacDonald PD, Pilcher CD, et al. The unexpected movement of the HIV epidemic in the Southeastern United States: transmission among college students. *Journal of acquired immune deficiency syndromes (1999)*. 2005; 38(5):531–537. [PubMed: 15793362]
24. Silapaswan A, Krakower D, Mayer KH. Pre-exposure prophylaxis: a narrative review of provider behavior and interventions to increase PrEP implementation in primary care. *J Gen Intern Med*. 2017; 32(2):192–198. [PubMed: 27761767]