American Journal of
Preventive Medicine

SPECIAL ARTICLE

Academic Detailing to Increase Prescribing of HIV Pre-exposure Prophylaxis

Douglas S. Krakower, MD,[1,2,3] Gary M. Naja-Riese, MSW, MPH,[4] Zoe R. Edelstein, PhD, MS,[5] Anisha D. Gandhi, PhD, MPH,[5] Amanda Wahnich, MPH,[5] Michael A. Fischer, MD, MS[6]

Although HIV pre-exposure prophylaxis can decrease new cases of HIV by up to 99%, many patients who could benefit from pre-exposure prophylaxis never receive prescriptions for it. Because pre-exposure prophylaxis is indicated for patients who do not have an infectious disease, increasing pre-exposure prophylaxis prescribing by primary care and generalist clinicians represents a key element of the Ending the HIV Epidemic in the U.S. initiative. This review provides an overview of academic detailing and how it is currently being used to increase pre-exposure prophylaxis prescribing. Academic detailing is outreach education that engages with clinicians in 1-to-1 or small group interactions focused on identifying and addressing an individual clinician's needs to increase their use of evidence-based practices. Academic detailing has been proven in multiple previous research studies, and the principles required for successful implementation include interactivity, clinical relevance of content, and focus on defined behavior change objectives. Clinician barriers to pre-exposure prophylaxis prescribing may occur in the domains of knowledge, attitudes, or behavior, and academic detailing has the potential to address all of these areas. State and local health departments have developed academic detailing programs focused on pre-exposure prophylaxis prescribing and other elements of HIV prevention—sometimes describing the approach as public health detailing. Few studies of academic detailing for pre-exposure prophylaxis have been published to date; rigorous evaluation of HIV-specific adaptations and innovations of the approach would represent an important contribution. In the setting of the COVID-19 pandemic, interest in virtual delivery of academic detailing has grown, which could inform efforts to implement academic detailing in rural communities and other underserved areas. Increasing this capacity could make an important contribution to Ending the HIV Epidemic in the U.S. and other HIV prevention efforts.

Am J Prev Med 2021;61(5S1):S87–S97.

INTRODUCTION

Pre-exposure prophylaxis (PrEP) decreases HIV incidence by up to 99% when medication adherence is high,[1–7] and HIV incidence is decreasing in regions where PrEP uptake is highest.[8] The U.S. Preventive Services Task Force issued a Grade A rating for PrEP, its highest rating, indicating a substantial net benefit for HIV prevention.[9] Thus, PrEP is a potent tool to curtail the HIV epidemic, and its scale-up is a critical goal of the federal Ending the HIV Epidemic in the U.S. (EHE) initiative.[10] The Centers for Disease Control and Prevention (CDC) estimates that 1.1 million individuals in the U.S. have indications for PrEP, but only 7% received a prescription for PrEP in 2016.[11,12] For PrEP

From the [1]Division of Infectious Diseases, Beth Israel Deaconess Medical Center, Beth Israel Lahey Health, Boston, Massachusetts; [2]The Fenway Institute, Boston, Massachusetts; [3]Department of Population Medicine, Harvard Medical School, Boston, Massachusetts; [4]San Francisco Department of Public Health, Population Health Division, Center for Learning and Innovation, San Francisco, California; [5]Prevention Program, Bureau of HIV, New York City Department of Health and Mental Hygiene, New York, New York; and [6]National Resource Center for Academic Detailing, Division of Pharmacoepidemiology and Pharmacoeconomics, Brigham and Women's Hospital, Boston, Massachusetts

Address correspondence to: Michael A. Fischer, MD, MS, Division of Pharmacoepidemiology and Pharmacoeconomics, Brigham and Women's Hospital, 1620 Tremont Street, Suite 3030, Boston MA 02120. E-mail: mfischer@bwh.harvard.edu.

This article is part of a supplement entitled The Evidence Base for Initial Intervention Strategies for Ending the HIV Epidemic in the U.S., which is sponsored by the U.S. Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services (HHS).

0749-3797/$36.00

https://doi.org/10.1016/j.amepre.2021.05.030

prescribing to increase and the goals of EHE to be achieved, many more clinicians will need to adopt PrEP prescribing as a routine part of practice. New adoption will be especially important for primary care and other generalist physicians because, by definition, most patients who could benefit from PrEP do not have a diagnosis that would warrant referral to an infectious disease specialist.

The goal of this paper is to describe how academic detailing, an evidence-based outreach education strategy to disseminate information to clinicians and support the implementation of best practices, can apply to PrEP prescribing, including a review of existing research and ongoing initiatives and suggested areas for future work and evidence development. It begins with a summary of recent evidence indicating the need for greater engagement by generalist clinicians to increase the uptake of PrEP. This is followed by an overview of academic detailing, including its origins, conceptual framework, and the evidence base supporting its effectiveness. The next section explains how increasing PrEP use fits into the academic detailing model, followed by a review of existing programs and the relatively limited published evidence to date. The conclusion builds on those points to identify opportunities and potential future directions for this work that could achieve a larger and more sustained impact on PrEP prescribing.

NEED FOR GENERALIST CLINICIAN ENGAGEMENT TO INCREASE PRE-EXPOSURE PROPHYLAXIS PRESCRIBING

Up to 71% of people newly diagnosed with HIV in the U.S. have had recent encounters with healthcare providers,[13–16] suggesting frequently missed opportunities to provide PrEP.[17] However, in a multicity survey of providers, only 28% of providers felt familiar with prescribing PrEP, and only 17% had prescribed it.[18] Patterns of PrEP prescribing have shown similar population disparities to those seen in other elements of health care, with lower PrEP prescribing rates among patients from racial and ethnic minority groups.[19,20] Additional provider surveys have corroborated that most primary care providers have had limited engagement with PrEP.[18,21–24]

In contrast to specialized HIV centers, primary care clinics have the volume, geographic coverage, infrastructure, and preventive health experience to reach large numbers of patients without HIV who may benefit from PrEP.[25] Thus, there is a critical need for interventions to increase primary care and other generalist providers' knowledge about PrEP, their capacity to identify patients who could benefit from PrEP, and their means to prescribe PrEP safely and effectively.

ACADEMIC DETAILING

Academic detailing originally developed from the insight that passively delivered continuing medical education has limited impact on clinical decision making,[26,27] whereas the direct outreach of pharmaceutical representatives (detailers) can be far more effective.[28,29] The approach was originally proven in a 1983 RCT by Avorn and Soumerai,[30] which enrolled primary care physicians in 4 states. The intervention group received direct 1-to-1 educational sessions from clinical pharmacists trained in both social marketing and the specific clinical evidence for the study conditions, including overprescribing of antibiotics and painkillers. The control group received mailed handouts summarizing the evidence for the study conditions. The intervention group reduced inappropriate prescribing of targeted drugs by 14% ($p<0.05$) compared with controls, with no evidence of unintended switching to problematic alternatives.

Follow-up studies showed that academic detailing could be effective in other clinical settings, including nursing homes[31] and inpatient care.[32] A 2007 Cochrane review included 69 studies and concluded that the literature proved the efficacy of this approach.[33] A review of the effectiveness of guideline implementation strategies found that academic detailing visits were more effective than simple provision of educational materials or audit and feedback,[34] and a 2009 systematic review of interventions to improve prescribing found that audit and feedback and academic detailing visits were the 2 types of interventions that most consistently showed a positive impact on clinical performance.[35] A 2017 National Heart, Lung, and Blood Institute report identified academic detailing as effective for improving processes of care, clinical outcomes, and cost-effectiveness outcomes.[36]

The effectiveness of academic detailing depends heavily on how well it is implemented. The Cochrane review noted that some researchers referred to their interventions as academic detailing but did not actually apply the principles of social marketing,[33] which are characterized by an adaptation of the persuasive communication techniques used in marketing in support of interventions to stimulate beneficial actions.[37–39] The principles of academic detailing (Table 1[40]), as defined in the original work, include encouraging clinician participation through interactive dialog; developing clinically relevant programs; defining behavior change objectives; establishing credibility; using concise, visually engaging, and clinically relevant educational materials;

Table 1. Principles of Academic Detailing[40]

Encouraging clinician participation through interactive dialog
Developing clinically relevant programs
Defining behavior-change objectives
Establishing credibility
Using concise, visually engaging, and clinically relevant educational materials
Repeating key messages
Providing reinforcement through subsequent visits

repeating key messages; and ideally, providing reinforcement through subsequent visits.[40] Less successful approaches that diverge from these principles have included didactive and noninteractive presentation of materials, excessive emphasis on cost rather than on clinical priorities, and the use of clinician data in a punitive manner.

After the publication of the initial studies of academic detailing, the approach was implemented in several locations, including a national program in Australia, the Kaiser Permanente system in Northern California, and several Canadian provinces. Smaller programs were developed in multiple U.S. sites, but overall, uptake was relatively slow. Over the past 15 years, interest in academic detailing as a public health strategy has grown. In 2010, the National Resource Center for Academic Detailing (NaRCAD) (www.narcad.org) was created with initial funding from the Agency for Healthcare Research and Quality. NaRCAD has created a training curriculum in the principles and techniques of academic detailing; details on specific initiatives focused on PrEP are discussed in the final section of this paper.

Implementation of academic detailing requires an initial development of key messages and a series of action-oriented, evidence-based statements specifying the recommendations made to frontline clinicians. Each key message recommends a specific action by the clinician. Academic detailers promote key messages by presenting the features (supporting clinical evidence) and benefits (how applying that evidence helps patients) most relevant to the clinician's practice. Preparation of a topic also entails anticipating likely barriers that clinicians may raise for each message and the strategies that may help academic detailers overcome these barriers and gain commitment from clinicians. Supporting materials are used to supplement the interaction, fostering engagement and conversation, allowing the intervention to work across diverse learning styles, and providing a resource that can be left behind for reinforcement at the end of a visit.

Training in academic detailing focuses on learning the 6 elements of a visit (Figure 1) and the communication techniques to deliver all the components effectively. Most trainees come from health professional backgrounds, with pharmacists as the largest single group, reflecting the approach's origins and its frequent use for prescribing topics.[39] Many programs have successfully trained and deployed academic detailers who do not have clinical backgrounds, including medical or dental students, public health workers, or other nonclinical staff. In these circumstances, the quality of the training and the provision of support from clinical experts for complex questions are critical.

Identification of relevant clinicians to receive academic detailing may be done by the sponsoring organization or may be the responsibility of individual

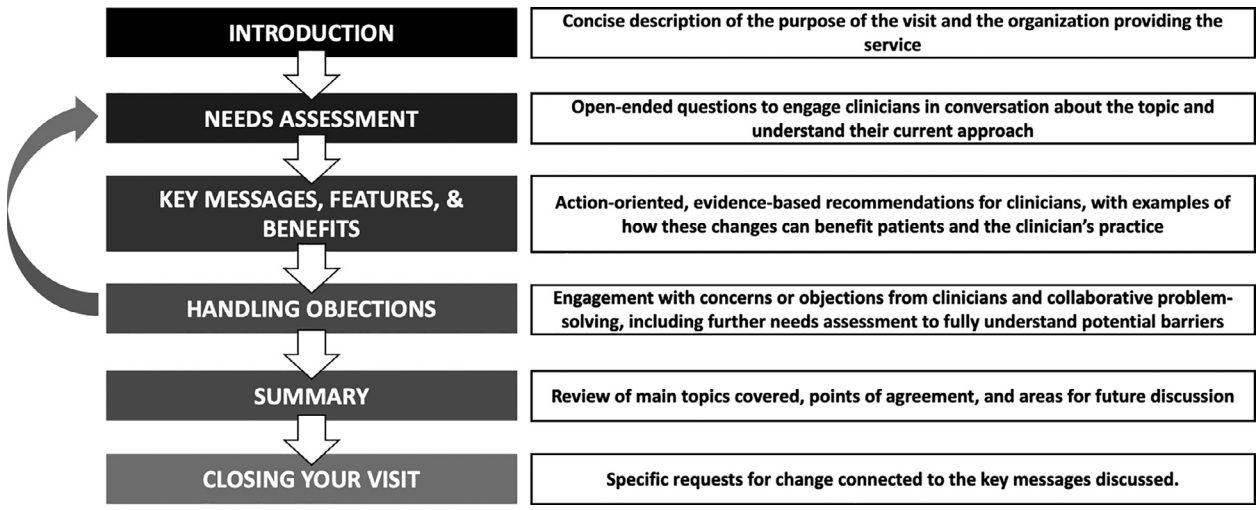

Figure 1. The structure of an academic detailing visit.

academic detailers. Given the time pressures faced by most frontline clinicians in the current era, gaining access to academic detailing visits can be a significant challenge, and the difficulty has increased in the setting of the coronavirus disease 2019 (COVID-19) pandemic. In general, once a first visit is conducted and clinicians understand the role of an academic detailer as a supportive educator who is neither promoting a specific product nor conducting a punitive review of practice, scheduling of follow-up visits becomes far easier, and a longitudinal relationship can be developed on the basis of trust and usefulness.

APPLICATION OF ACADEMIC DETAILING MODEL TO PRE-EXPOSURE PROPHYLAXIS PRESCRIBING

The academic detailing model, with engaged 1-to-1 interactions, provides a venue that is well suited for addressing the barriers that limit the uptake of PrEP prescribing by generalist clinicians. The framework proposed by Cabana et al.[41] (Figure 2) classifies the barriers to the adoption of new practices in terms of knowledge, attitude, and behaviors. This conceptual model applies well to the challenges to clinician adoption of PrEP prescribing, which may encompass all 3 of the elements illustrated in the figure.

Knowledge Barriers

Many clinicians have difficulty in identifying people who may benefit from PrEP because they do not routinely conduct HIV risk assessments owing to lack of training, discomfort eliciting sexual and substance use histories, and time constraints.[42–45] In addition, many providers have limited knowledge of the indications and procedures for providing PrEP.[22,46] Some providers also inaccurately assume that only a few of their patients have indications for PrEP, which may decrease their investment in PrEP screening or education.[47] A public health detailing program delivered to >2,000 providers in New York City (NYC) to prepare them to screen for and prescribe PrEP more frequently, which included tools to address patient and structural barriers to PrEP (e.g., patient materials, guidance on financial support), showed changes in provider knowledge and behaviors between initial and follow-up visits (4–6 weeks apart) and was concurrent with a population-level increase in PrEP use in observational analyses.[48–50]

Attitude Barriers and Stigma

Stigma can act as a barrier to HIV testing, care, and prevention services,[51,52] including access to PrEP.[53–59] Intersectional stigma, the convergence of multiple

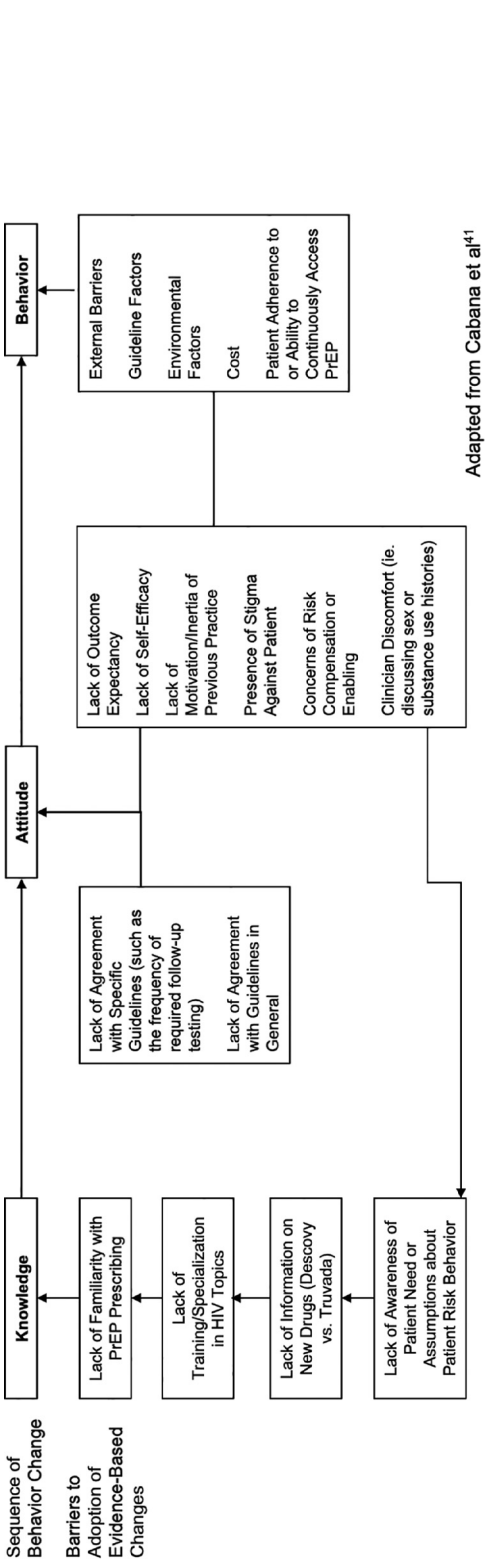

Figure 2. Barriers to clinicians' adoption of HIV prevention practices.
rEP, pre-exposure prophylaxis.

stigmatized identities within a person or group, is a major barrier to PrEP[60] because clinicians may harbor and enact biased beliefs about their clients, their clients' behavior, or who deserves PrEP on the basis of race/ethnicity, sexual orientation or gender identity, social class, or other factors. Clinicians' hesitation to prescribe PrEP may also be driven by concerns that users will reduce their condom use, referred to as risk compensation.[61–64] PrEP prevents virtually all new HIV infections when taken with high adherence for the duration of possible HIV exposure, even when rates of condom use are low.[5] Notably, some evidence suggests that providers are more likely to assume that risk compensation will occur for Black than for white patients, leading to lower willingness to prescribe PrEP to Black patients. This bias can exacerbate inequities in HIV because Black populations experience disproportionately high rates of HIV infections due to longstanding race-based inequities that affect health and healthcare access but still face greater challenges to accessing PrEP.[11,19,20,65] In 1 chart review study conducted in the Veterans Health Administration, stigmatizing attitudes among providers were found to be a key barrier to PrEP delivery, resulting in delays of PrEP prescriptions of up to 16 months.[66]

Behavioral Barriers

Even when issues of clinician knowledge and potential stigma are addressed, clinicians need guidance and self-efficacy on how to navigate multiple and evolving practical barriers to prescribing PrEP. Barriers include financial and insurance considerations (which may vary by state or insurance provider and over time),[67] providing effective patient-centered counseling about adherence and persistence despite time constraints, and engaging patients in shared decision making about choosing from among expanding PrEP options beyond daily oral tenofovir disoproxil fumarate with emtricitabine.[68] These include the recent approval of daily oral tenofovir alafenamide with emtricitabine as PrEP for men who have sex with men and transgender women,[69,70] studies showing the efficacy of event-driven tenofovir disoproxil fumarate with emtricitabine PrEP for men who have sex with men,[71,72] and trials that have recently proved the high efficacy of long-acting injectable cabotegravir as PrEP for both men and women.[73,74] Clinicians and their office staff have also struggled with implementing systems for follow-up testing, counseling, and quarterly monitoring of oral PrEP patients and are likely to benefit from updated best practices and tools to accomplish these tasks.[75] The mechanics of PrEP delivery will have new challenges with the expected rollout of injectable cabotegravir, which will require bimonthly injections administered by clinicians.

A clinician's barriers to PrEP prescribing may be in ≥1 of these domains. Because of this variability, passive learning interventions such as lectures or webinars may not address the true impediments for a given clinician. The structure of an academic detailing visit, with the focus on open-ended needs assessment, allows the detailer to identify specific topics for an individualized conversation. For clinicians with knowledge barriers, the detailer can review the evidence for PrEP, going into as much detail as required and providing access to further resources when needed. The 1-to-1 format allows for questions and teach-back approaches to ensure that the data have been communicated clearly. When attitudinal barriers are identified, the detailer can provide information on health inequities and engage with the clinician's professionalism and commitment to equity to spark discussion and introspection. Attitudinal barriers or stigma may arise from other members of the clinical team in addition to potential PrEP prescribers. Academic detailers can engage with those other team members when feasible or support prescribers in training clinic staff to reduce stigma. If the barriers are more behavioral and require specific practical interventions, the detailer can connect the clinician with complementary resources that are tailored to the local environment. These additional resources may be as simple as links to external resources such as patient support programs or may require more complex follow-up steps such as providing additional training for office staff on specific protocols. Financial barriers can be especially significant, and specific local resources that clinicians and clinic staff can use to help patients afford PrEP prescriptions should be identified and incorporated into PrEP-focused academic detailing.

ONGOING PRE-EXPOSURE PROPHYLAXIS AND HIV ACADEMIC DETAILING INITIATIVES

In light of the need to increase the number of clinicians prescribing PrEP, several organizations have implemented academic detailing programs focused on PrEP and other elements of HIV care. The NYC Department of Health and Mental Hygiene (NYC DOHMH) began conducting public health detailing in 2003[76] and has implemented initiatives focused on HIV testing[76] and PrEP prescribing in recent years, among many other topics.[77] NYC DOHMH launched their public health detailing program on PrEP and related best practices in 2014 aiming to reach high-priority primary care and infectious disease providers in NYC on the basis of HIV and sexually transmitted infection (STI) surveillance data.[78] Key messages addressed taking sexual history, screening and treating STIs, discussing PrEP with

patients, and providing PrEP to those who would benefit. Most recently, NYC DOHMH launched a PrEP public health detailing campaign aimed at reaching women's healthcare providers.[79] The San Francisco Department of Public Health (DPH) has created an HIV-specific academic detailing program starting in 2016, with a significant focus on PrEP for underserved populations and additional coverage of other HIV topics. Several other organizations have implemented programs; these are listed at www.narcad.org/the-detailing-directory.html.

Seeking to support smaller public health departments in implementing PrEP-focused academic detailing, in 2018, NaRCAD, NYC DOHMH, and the San Francisco DPH collaborated to convene the national Public Health Detailing Institute for High-Impact HIV Prevention.[80] Supported through capacity-building assistance funds from CDC, this annual event provides training for personnel from city or state health departments on the techniques of academic detailing and the practical elements of developing a program.[81] The third annual Institute took place in March 2020 in California, and the fourth Institute, which took place in March 2021, was conducted virtually because of the COVID-19 pandemic. Other capacity-building efforts supported by CDC include the development of learning communities for public health departments using academic detailing as part of their HIV prevention work.

Existing academic detailing programs for PrEP have developed key messages using the principles described previously, focusing on clear and specific actions to recommend to clinicians. Figure 3 shows the key messages from a PrEP-focused academic detailing campaign implemented by the Colorado DPH. Each key message recommends a concrete action step (e.g., take a thorough sexual history, test for HIV, follow-up with testing), and the document in which the key messages are presented provides supporting evidence that allows the academic detailer to present the features and benefits associated with each key message.

The key messages in Figure 3 reflect those used by the PrEP-focused academic detailing campaigns described in the preceding 2 paragraphs. The sequence of messages guides clinicians through the process of prescribing PrEP, beginning with taking a sexual health history and testing for STIs, then offering PrEP to patients when indicated, and following up with monitoring and testing for HIV and STI. This structure allows an academic detailer to work collaboratively with a clinician to identify areas for beneficial change. Even clinicians who have already incorporated sexual health histories, STI testing, and offers of PrEP into their practice may be uncertain about the details of monitoring patients who are using PrEP. In these cases, an academic detailer will use the needs assessment (Figure 1) to identify this challenge and will focus their visit on the fifth key message to provide the clinician with the information and support they need to improve. The specific key messages and evidence presented may differ to reflect the patient populations served in a given region or the specific gaps in HIV care that the academic detailing intervention seeks to address. Similarly, the additional information provided by the academic detailers about other resources for patients or clinicians will vary on the basis of local factors and which resources are available.

FUTURE PATHWAYS AND PRIORITIES

Although the preceding sections provide the conceptual framework supporting the use of academic detailing to increase PrEP prescribing, research evaluations have been relatively limited to date. One recent paper provided a qualitative evaluation of PrEP-focused academic detailing interventions in New England and NYC, identifying several specific challenges but without quantitative assessment of impact.[82] Some publications have explored academic detailing for other elements of HIV care, including HIV testing[76,83–85] and the treatment of opioid use disorder[86,87] and cardiovascular conditions[88] among people living with HIV. Although academic detailing itself already has a substantial evidence base, applying the approach to PrEP prescribing can require some adaptation of the model. Studies documenting the adaptations used and the associated impact on clinician prescribing decisions would provide important data for organizations seeking to implement this model. Outcomes assessed should include the initial adoption of PrEP prescribing by clinicians, the sustainability of this behavior change over time, and the extent to which clinicians are able to help patients remain adherent to PrEP over the longer term.

One challenge for EHE will be increasing PrEP prescribing in regions with relatively fewer patients who could benefit from PrEP, especially if these regions are rural and thus require significant time for travel by academic detailers. In the general literature on academic detailing, interest in virtual academic detailing as an approach to enhance the reach of the intervention has been described,[89–92] including in response to the COVID-19 pandemic,[93] but this adaptation has not been rigorously evaluated. NaRCAD has initiated an e-Detailing toolkit collecting current practices (https://www.narcad.org/e-detailing.html), but formally testing this approach would provide important insights for engaging clinicians outside of major urban centers even after COVID-19 pandemic–related travel restrictions are lifted.

Clinician stigma represents a significant barrier to PrEP prescribing, and this may be exacerbated in

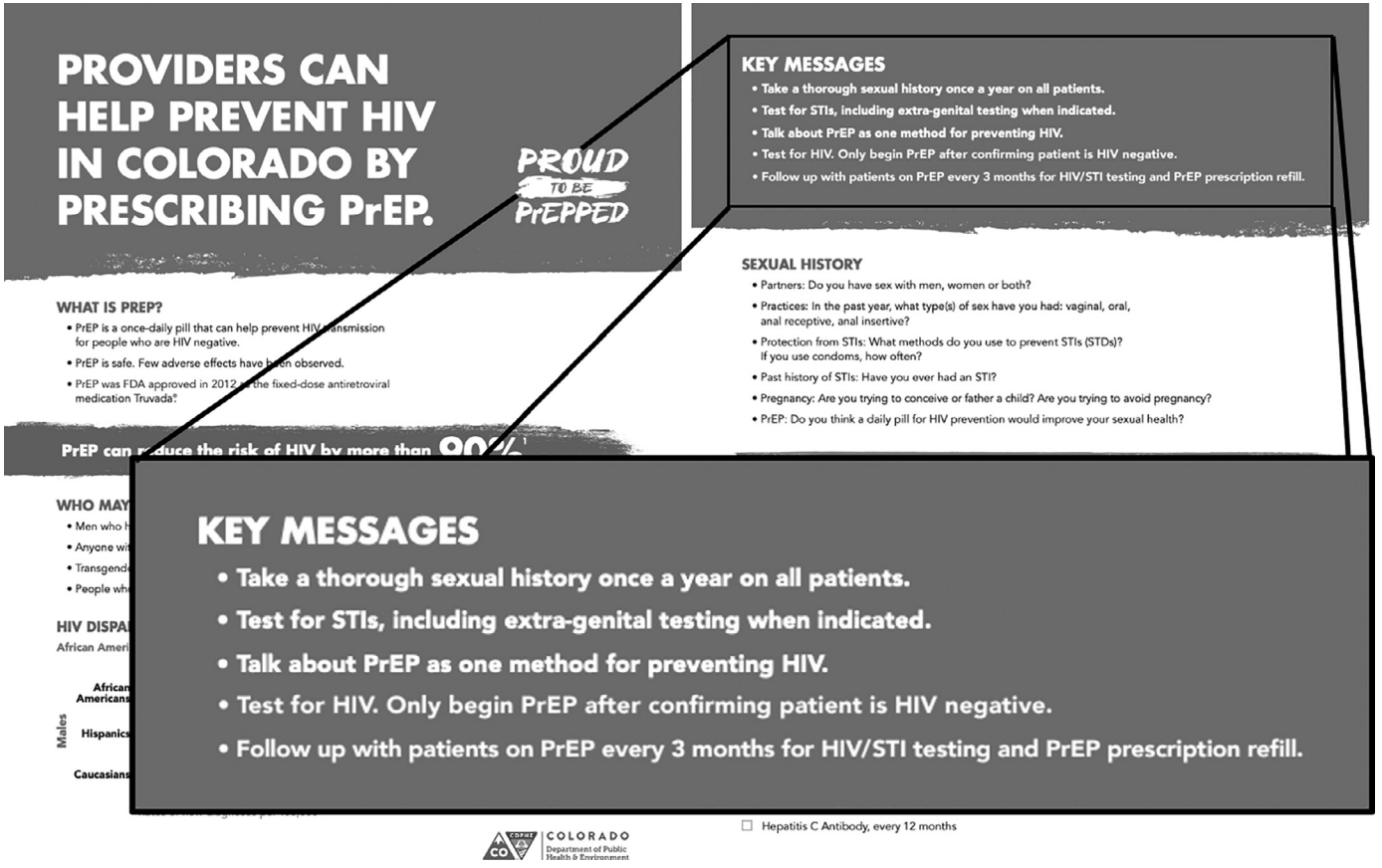

Figure 3. Key messages for PrEP academic detailing in Colorado.
FDA, Food and Drug Administration; PrEP, pre-exposure prophylaxis; STD, sexually transmitted disease; STI, sexually transmitted infection.

culturally conservative regions with the greatest unmet need for PrEP, such as the Southeastern region of the U. S. As described in a preceding section, academic detailing offers an opportunity to engage with clinicians in individualized interactions, ideally with detailers from trusted healthcare or public health institutions, which may allow for discussion of difficult topics. Developing specific techniques to help clinicians recognize stigmatizing attitudes they may hold and use academic detailing to help reduce the impact of stigma on clinical care could enhance EHE efforts. Successful academic detailing interventions to increase prescribing of medications for opioid use disorder, another highly stigmatized condition, have included key messages to address and mitigate clinician stigma.[94] Taking lessons from this work and testing similar approaches in PrEP-focused academic detailing should be an important priority.

CONCLUSIONS

For EHE efforts to reach their maximum potential, primary care clinicians who have not typically seen themselves as providing HIV-related care must be informed about standards of care in HIV prevention and especially about PrEP. With new forms and regimens of PrEP emerging, active educational approaches will be required to give these clinicians the information, support, and self-efficacy they need. Academic detailing represents a proven approach for the type of active outreach education that can meet this need. Developing strategies to increase the uptake of academic detailing for PrEP prescribing while also performing a rigorous evaluation of adaptations and innovations to the approach can complement the many other current initiatives focused on EHE.

ACKNOWLEDGMENTS

DSK has participated in HIV prevention research at Fenway Health funded by Gilead Sciences and Merck and has received funds for developing medical education content from Medscape, MED-IQ, DKBmed, and UpToDate, Inc. MAF serves as a clinical consultant for Alosa Health, an educational nonprofit that provides academic detailing services, and directs the National Resource Center for Academic Detailing, a program within the Division of Pharmacoepidemiology and Pharmacoeconomics. National Resource Center for Academic Detailing is funded by grants from the Agency for Healthcare Research and Quality (R18HS026177 and R13HS026829) and by contracts from the Centers for Disease Control and Prevention and the National Association of County and City Health Officials. No other financial disclosures were reported.

SUPPLEMENT NOTE

This article is part of a supplement entitled The Evidence Base for Initial Intervention Strategies for Ending the HIV Epidemic in the U.S., which is sponsored by the U.S. Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services (HHS). The findings and conclusions in this article are those of the author(s) and do not necessarily represent the official position of CDC or HHS.

REFERENCES

1. Grant RM, Lama JR, Anderson PL, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med.* 2010;363(27):2587–2599. https://doi.org/10.1056/NEJMoa1011205.
2. Baeten JM, Donnell D, Ndase P, et al. Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *N Engl J Med.* 2012;367(5):399–410. https://doi.org/10.1056/NEJMoa1108524.
3. Thigpen MC, Kebaabetswe PM, Paxton LA, et al. Antiretroviral preexposure prophylaxis for heterosexual HIV transmission in Botswana. *N Engl J Med.* 2012;367(5):423–434. https://doi.org/10.1056/NEJMoa1110711.
4. McCormack S, Dunn DT, Desai M, et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *Lancet.* 2016;387(10013):53–60. https://doi.org/10.1016/S0140-6736(15)00056-2.
5. 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. https://doi.org/10.1093/cid/civ778.
6. Marcus JL, Hurley LB, Nguyen DP, Silverberg MJ, Volk JE. Redefining human immunodeficiency virus (HIV) preexposure prophylaxis failures. *Clin Infect Dis.* 2017;65(10):1768–1769. https://doi.org/10.1093/cid/cix593.
7. Choopanya K, Martin M, Suntharasamai P, et al. Antiretroviral prophylaxis for HIV infection in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomised, double-blind, placebo-controlled phase 3 trial. *Lancet.* 2013;381(9883):2083–2090. https://doi.org/10.1016/S0140-6736(13)61127-7.
8. Grulich AE, Guy R, Amin J, et al. Population-level effectiveness of rapid, targeted, high-coverage roll-out of HIV pre-exposure prophylaxis in men who have sex with men: the EPIC-NSW prospective cohort study. *Lancet HIV.* 2018;5(11):e629–e637. https://doi.org/10.1016/S2352-3018(18)30215-7.
9. Preventive Services Task Force US, Owens DK, Davidson KW, et al. Preexposure prophylaxis for the prevention of HIV infection: U.S. Preventive Services Task Force recommendation statement. *JAMA.* 2019;321(22):2203–2213. https://doi.org/10.1001/jama.2019.6390.
10. Fauci AS, Redfield RR, Sigounas G, Weahkee MD, Giroir BP. Ending the HIV epidemic: a plan for the United States. *JAMA.* 2019;321(9):844–845. https://doi.org/10.1001/jama.2019.1343.
11. Huang YA, Zhu W, Smith DK, Harris N, Hoover KW. HIV preexposure prophylaxis, by race and ethnicity - United States, 2014-2016. *MMWR Morb Mortal Wkly Rep.* 2018;67(41):1147–1150. https://doi.org/10.15585/mmwr.mm6741a3.
12. Smith DK, Van Handel M, Grey J. Estimates of adults with indications for HIV pre-exposure prophylaxis by jurisdiction, transmission risk group, and race/ethnicity, United States, 2015. *Ann Epidemiol.* 2018;28(12):850–857.e9. https://doi.org/10.1016/j.annepidem.2018.05.003.
13. Nakao JH, Wiener DE, Newman DH, Sharp VL, Egan DJ. Falling through the cracks? Missed opportunities for earlier HIV diagnosis in a New York City Hospital. *Int J STD AIDS.* 2014;25(12):887–893. https://doi.org/10.1177/0956462414523944.

14. Liggett A, Futterman D, Umanski GI, Selwyn PA. Missing the mark: ongoing missed opportunities for HIV diagnosis at an urban medical center despite universal screening recommendations. *Fam Pract.* 2016;33(6):644–648. https://doi.org/10.1093/fampra/cmw075.
15. Chin T, Hicks C, Samsa G, McKellar M. Diagnosing HIV infection in primary care settings: missed opportunities. *AIDS Patient Care STDS.* 2013;27(7):392–397. https://doi.org/10.1089/apc.2013.0099.
16. Smith DK, Chang MH, Duffus WA, Okoye S, Weissman S. Missed opportunities to prescribe preexposure prophylaxis in South Carolina, 2013-2016. *Clin Infect Dis.* 2019;68(1):37–42. https://doi.org/10.1093/cid/ciy441.
17. Klein D, Hurley LB, Merrill D, Quesenberry CP Jr. Consortium for HIV/AIDS Interregional Research. Review of medical encounters in the 5 years before a diagnosis of HIV-1 infection: implications for early detection. *J Acquir Immune Defic Syndr.* 2003;32(2):143–152. https://doi.org/10.1097/00126334-200302010-00005.
18. Petroll AE, Walsh JL, Owczarzak JL, McAuliffe TL, Bogart LM, Kelly JA. PrEP awareness, familiarity, comfort, and prescribing experience among U.S. primary care providers and HIV specialists. *AIDS Behav.* 2017;21(5):1256–1267. https://doi.org/10.1007/s10461-016-1625-1.
19. Finlayson T, Cha S, Xia M, et al. Changes in HIV preexposure prophylaxis awareness and use among men who have sex with men −20 urban areas, 2014 and 2017. *MMWR Morb Mortal Wkly Rep.* 2019;68(27):597–603. https://doi.org/10.15585/mmwr.mm6827a1.
20. Kanny D, Jeffries WL 4th, Chapin-Bardales J, et al. Racial/ethnic disparities in HIV preexposure prophylaxis among men who have sex with men -23 urban areas, 2017. *MMWR Morb Mortal Wkly Rep.* 2019;68(37):801–806. https://doi.org/10.15585/mmwr.mm6837a2.
21. Krakower DS, Oldenburg CE, Mitty JA, et al. Knowledge, beliefs and practices regarding antiretroviral medications for HIV prevention: results from a survey of healthcare providers in New England. *PLoS One.* 2015;10(7):e0132398. https://doi.org/10.1371/journal.pone.0132398.
22. 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. https://doi.org/10.1007/s10461-015-0996-z.
23. Mayer KH, Chan PA, R Patel R, Flash CA, Krakower DS. Evolving models and ongoing challenges for HIV preexposure prophylaxis implementation in the United States. *J Acquir Immune Defic Syndr.* 2018;77(2):119–127. https://doi.org/10.1097/QAI.0000000000001579.
24. 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. https://doi.org/10.1016/j.contraception.2015.12.018.
25. Siegler AJ, Bratcher A, Weiss KM, Mouhanna F, Ahlschlager L, Sullivan PS. Location location location: an exploration of disparities in access to publicly listed pre-exposure prophylaxis clinics in the United States. *Ann Epidemiol.* 2018;28(12):858–864. https://doi.org/10.1016/j.annepidem.2018.05.006.
26. Fletcher SW, Hager M, Russell S. Continuing education in the health professions: improving healthcare through lifelong learning. *J Contin Educ Nurs.* 2008;39(3):112–117 https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.183.5180&rep=rep1&type=pdf. Accessed April 27, 2021.
27. Davis D, O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA.* 1999;282(9):867–874. https://doi.org/10.1001/jama.282.9.867.
28. Campbell EG, Gruen RL, Mountford J, Miller LG, Cleary PD, Blumenthal D. A national survey of physician-industry relationships. *N Engl J Med.* 2007;356(17):1742–1750. https://doi.org/10.1056/NEJMsa064508.
29. Steinman MA, Bero LA, Chren MM, Landefeld CS. Narrative review: the promotion of gabapentin: an analysis of internal industry documents. *Ann Intern Med.* 2006;145(4):284–293. https://doi.org/10.7326/0003-4819-145-4-200608150-00008.
30. Avorn J, Soumerai SB. Improving drug-therapy decisions through educational outreach. A randomized controlled trial of academically based "detailing. *N Engl J Med.* 1983;308(24):1457–1463. https://doi.org/10.1056/NEJM198306163082406.
31. Avorn J, Soumerai SB, Everitt DE, et al. A randomized trial of a program to reduce the use of psychoactive drugs in nursing homes. *N Engl J Med.* 1992;327(3):168–173. https://doi.org/10.1056/NEJM199207163270306.
32. Soumerai SB, Salem-Schatz S, Avorn J, Casteris CS, Ross-Degnan D, Popovsky MA. A controlled trial of educational outreach to improve blood transfusion practice. *JAMA.* 1993;270(8):961–966. https://doi.org/10.1001/jama.1993.03510080065033.
33. O'Brien MA, Rogers S, Jamtvedt G, et al. Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev.* 2007;2007(4):CD000409. https://doi.org/10.1002/14651858.CD000409.pub2.
34. Grimshaw JM, Thomas RE, MacLennan G, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technol Assess.* 2004;8(6). iii−72. https://doi.org/10.3310/hta8060.
35. Ostini R, Hegney D, Jackson C, et al. Systematic review of interventions to improve prescribing. *Ann Pharmacother.* 2009;43(3):502–513. https://doi.org/10.1345/aph.1L488.
36. Chan WV, Pearson TA, Bennett GC, et al. ACC/AHA special report: clinical practice guideline implementation strategies: a summary of systematic reviews by the NHLBI Implementation Science Work Group: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol.* 2017;69(8):1076–1092. https://doi.org/10.1016/j.jacc.2016.11.004.
37. Evans WD. How social marketing works in health care [published correction appears in *BMJ.* 2006;333(7562):299]. *BMJ.* 2006;332(7551):1207–1210. https://doi.org/10.1136/bmj.332.7551.1207-a.
38. Grier S, Bryant CA. Social marketing in public health. *Annu Rev Public Health.* 2005;26:319–339. https://doi.org/10.1146/annurev.publhealth.26.021304.144610.
39. Kennedy AG, Regier L, Fischer MA. Educating community clinicians using principles of academic detailing in an evolving landscape. *Am J Health Syst Pharm.* 2021;78(1):80–86. https://doi.org/10.1093/ajhp/zxaa351.
40. Soumerai SB, Avorn J. Principles of educational outreach ('academic detailing') to improve clinical decision making. *JAMA.* 1990;263(4):549–556. https://doi.org/10.1001/jama.1990.03440040088034.
41. Cabana MD, Rand CS, Powe NR, et al. Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA.* 1999;282(15):1458–1465. https://doi.org/10.1001/jama.282.15.1458.
42. Epstein RM, Morse DS, Frankel RM, Frarey L, Anderson K, Beckman HB. Awkward moments in patient−physician communication about HIV risk. *Ann Intern Med.* 1998;128(6):435–442. https://doi.org/10.7326/0003-4819-128-6-199803150-00003.
43. Bernstein KT, Liu KL, Begier EM, Koblin B, Karpati A, Murrill C. Same-sex attraction disclosure to health care providers among New York City men who have sex with men: implications for HIV testing approaches. *Arch Intern Med.* 2008;168(13):1458–1464. https://doi.org/10.1001/archinte.168.13.1458.
44. Burke RC, Sepkowitz KA, Bernstein KT, et al. Why don't physicians test for HIV? A review of the U.S. literature. *AIDS.* 2007;21(12):1617–1624. https://doi.org/10.1097/QAD.0b013e32823f91ff.

45. Bull SS, Rietmeijer C, Fortenberry JD, et al. Practice patterns for the elicitation of sexual history, education, and counseling among providers of STD services: results from the gonorrhea community action project (GCAP). *Sex Transm Dis.* 1999;26(10):584–589. https://doi.org/10.1097/00007435-199911000-00008.
46. Krakower DS, Ware NC, Maloney KM, Wilson IB, Wong JB, Mayer KH. Differing experiences with pre-exposure prophylaxis in Boston among lesbian, gay, bisexual, and transgender specialists and generalists in primary care: implications for scale-up. *AIDS Patient Care STDS.* 2017;31(7):297–304. https://doi.org/10.1089/apc.2017.0031.
47. Wallert J, Tomasoni M, Madison G, Held C. Predicting two-year survival versus non-survival after first myocardial infarction using machine learning and Swedish national register data. *BMC Med Inform Decis Mak.* 2017;17(1):99. https://doi.org/10.1186/s12911-017-0500-y.
48. Salcuni P, Smolen J, Jain S, Myers J, Edelstein Z. Trends and associations with PrEP prescription among 602 New York City (NYC) ambulatory care practices, 2014—2016. *Open Forum Infect Dis.* 2017;4(suppl 1)):S21. https://doi.org/10.1093/ofid/ofx162.053.
49. Sullivan PS, SMith DK, Mera Giler R, et al. The impact of pre-exposure prophylaxis with TDF/FTC on HIV diagnoses, 2012-2016, United States. Paper presented at: 22nd International AIDS Conference; July 23—27, 2018; Amsterdam, The Netherlands. https://www.natap.org/2018/IAC/IAC_36.htm. Accessed April 27, 2021.
50. Edelstein Z. *Getting out of our comfort zone: detailing on PrEP & PEP in New York City*. New York, NY: New York City Department of Health and Mental Hygiene, Published November 7, 2017 https://www1.nyc.gov/assets/doh/downloads/pdf/dires/getting-out-of-our-comfort-zone.pdf. Accessed April 27, 2021.
51. Mahajan AP, Sayles JN, Patel VA, et al. Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. *AIDS.* 2008;22(suppl 2):S67–S79. https://doi.org/10.1097/01.aids.0000327438.13291.62.
52. Golub SA, Gamarel KE. The impact of anticipated HIV stigma on delays in HIV testing behaviors: findings from a community-based sample of men who have sex with men and transgender women in New York City. *AIDS Patient Care STDS.* 2013;27(11):621–627. https://doi.org/10.1089/apc.2013.0245.
53. Cahill S, Taylor SW, Elsesser SA, Mena L, Hickson D, Mayer KH. Stigma, medical mistrust, and perceived racism may affect PrEP awareness and uptake in black compared to white gay and bisexual men in Jackson, Mississippi and Boston, Massachusetts. *AIDS Care.* 2017;29(11):1351–1358. https://doi.org/10.1080/09540121.2017.1300633.
54. Golub SA. PrEP stigma: implicit and explicit drivers of disparity. *Curr HIV/AIDS Rep.* 2018;15(2):190–197. https://doi.org/10.1007/s11904-018-0385-0.
55. Franks J, Hirsch-Moverman Y, Loquere AS Jr, et al. Sex, PrEP, and stigma: experiences with HIV pre-exposure prophylaxis among New York City MSM participating in the HPTN 067/ADAPT Study. *AIDS Behav.* 2018;22(4):1139–1149. https://doi.org/10.1007/s10461-017-1964-6.
56. Peng P, Su S, Fairley CK, et al. A global estimate of the acceptability of pre-exposure prophylaxis for HIV among men who have sex with men: a systematic review and meta-analysis. *AIDS Behav.* 2018;22(4):1063–1074. https://doi.org/10.1007/s10461-017-1675-z.
57. Calabrese SK, Underhill K. How stigma surrounding the use of HIV preexposure prophylaxis undermines prevention and pleasure: a call to destigmatize "Truvada Whores. *Am J Public Health.* 2015;105(10):1960–1964. https://doi.org/10.2105/AJPH.2015.302816.
58. Schwartz J, Grimm J. Stigma communication surrounding PrEP: the experiences of a sample of men who have sex with men. *Health Commun.* 2019;34(1):84–90. https://doi.org/10.1080/10410236.2017.1384430.
59. Golub SA, Fikslin RA, Goldberg MH, Peña SM, Radix A. Predictors of PrEP uptake among patients with equivalent access. *AIDS Behav.* 2019;23(7):1917–1924. https://doi.org/10.1007/s10461-018-2376-y.
60. Turan JM, Elafros MA, Logie CH, et al. Challenges and opportunities in examining and addressing intersectional stigma and health. *BMC Med.* 2019;17(1):7. https://doi.org/10.1186/s12916-018-1246-9.
61. Marcus JL, Katz KA, Krakower DS, Calabrese SK. Risk compensation and clinical decision making - the case of HIV preexposure prophylaxis. *N Engl J Med.* 2019;380(6):510–512. https://doi.org/10.1056/NEJMp1810743.
62. Blackstock OJ, Moore BA, Berkenblit GV, et al. A cross-sectional online survey of HIV pre-exposure prophylaxis adoption among primary care physicians. *J Gen Intern Med.* 2017;32(1):62–70. https://doi.org/10.1007/s11606-016-3903-z.
63. Pleuhs B, Quinn KG, Walsh JL, Petroll AE, John SA. Health care provider barriers to HIV pre-exposure prophylaxis in the United States: a systematic review. *AIDS Patient Care STDS.* 2020;34(3):111–123. https://doi.org/10.1089/apc.2019.0189.
64. Calabrese SK, Earnshaw VA, Underhill K, et al. Prevention paradox: medical students are less inclined to prescribe HIV pre-exposure prophylaxis for patients in highest need. *J Int AIDS Soc.* 2018;21(6):e25147. https://doi.org/10.1002/jia2.25147.
65. Calabrese SK, Earnshaw VA, Underhill K, Hansen NB, Dovidio JF. The impact of patient race on clinical decisions related to prescribing HIV pre-exposure prophylaxis (PrEP): assumptions about sexual risk compensation and implications for access. *AIDS Behav.* 2014;18(2):226–240. https://doi.org/10.1007/s10461-013-0675-x.
66. Skolnik AA, Bokhour BG, Gifford AL, Wilson BM, Van Epps P. Roadblocks to PrEP: what medical records reveal about access to HIV preexposure prophylaxis. *J Gen Intern Med.* 2020;35(3):832–838. https://doi.org/10.1007/s11606-019-05475-9.
67. Wood BR, McMahan VM, Naismith K, Stockton JB, Delaney LA, Stekler JD. Knowledge, practices, and barriers to HIV preexposure prophylaxis prescribing among Washington State medical providers. *Sex Transm Dis.* 2018;45(7):452–458. https://doi.org/10.1097/OLQ.0000000000000781.
68. Centers for Disease Control and Prevention. U.S. Public Health Service: preexposure prophylaxis for the Prevention of HIV Infection in the United States—2017 Update: a clinical practice guideline. Atlanta, GA: Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf. Published March 2018. Accessed June 24, 2021.
69. Mayer KH, Molina JM, Thompson MA, et al. Emtricitabine and tenofovir alafenamide vs emtricitabine and tenofovir disoproxil fumarate for HIV pre-exposure prophylaxis (DISCOVER): primary results from a randomised, double-blind, multicentre, active-controlled, phase 3, non-inferiority trial. *Lancet.* 2020;396(10246):239–254. https://doi.org/10.1016/S0140-6736(20)31065-5.
70. Food and Drug Administration. FDA approves second drug to prevent HIV infection as part of ongoing efforts to end the HIV epidemic. Silver Spring, MD: Food and Drug Administration. https://www.fda.gov/news-events/press-announcements/fda-approves-second-drug-prevent-hiv-infection-part-ongoing-efforts-end-hiv-epidemic. Published October 3, 2019. Accessed June 24, 2021.
71. Molina JM, Capitant C, Spire B, et al. On-demand preexposure prophylaxis in men at high risk for HIV-1 infection. *N Engl J Med.* 2015;373(23):2237–2246. https://doi.org/10.1056/NEJMoa1506273.
72. Molina JM, Charreau I, Spire B, et al. Efficacy, safety, and effect on sexual behaviour of on-demand pre-exposure prophylaxis for HIV in men who have sex with men: an observational cohort study. *Lancet HIV.* 2017;4(9):e402–e410. https://doi.org/10.1016/S2352-3018(17)30089-9.
73. HIV Prevention Trials Network. HPTN 084 study demonstrates superiority of CAB LA to oral FTC/TDF for the prevention of HIV. Durham, NC: HIV Prevention Trials Network. https://www.hptn.org/news-and-events/press-releases/hptn-084-study-demonstrates-superiority-of-cab-la-to-oral-ftctdf-for. Published November 9, 2020. Accessed June 24, 2021.

74. HIV Prevention Trials Network. HPTN 083 study demonstrates superiority of cabotegravir for the prevention of HIV. Durham, NC: HIV Prevention Trials Network. https://www.hptn.org/news-and-events/press-releases/hptn-083-study-demonstrates-superiority-cabotegravir-prevention-hiv. Published July 7, 2020. Accessed June 24, 2021.
75. Laborde ND, Kinley PM, Spinelli M, et al. Understanding PrEP persistence: provider and patient perspectives. *AIDS Behav.* 2020;24(9):2509–2519. https://doi.org/10.1007/s10461-020-02807-3.
76. Dresser MG, Short L, Wedemeyer L, et al. Public health detailing of primary care providers: New York City's experience, 2003–2010. *Am J Prev Med.* 2012;42(6(suppl 2)):S122–S134. https://doi.org/10.1016/j.amepre.2012.03.014.
77. Kattan JA, Tuazon E, Paone D, et al. Public health detailing- a successful strategy to promote judicious opioid analgesic prescribing. *Am J Public Health.* 2016;106(8):1430–1438. https://doi.org/10.2105/AJPH.2016.303274.
78. Edelstein ZR, Salcuni PM, Restar A, Tsoi BW, Daskalakis DC, Myers JE. Early adopters and incident PrEP prescribers in a public health detailing campaign. Conference on Retroviruses and Opportunistic Infection; February 22–25, 2016; Boston, MA. https://www.croiconference.org/abstract/early-adopters-and-incident-prep-prescribing-detailing-campaign-2014-2015/. Accessed August 11, 2021
79. Wahnich A, Edelstein Z, Gandhi A, et al. *Biomedical Prevention for Women: Implementing Public Health Detailing to Promote PrEP and PEP for Women in NYC.* Orlando, FL: International Association of Providers of AIDS Care, 2021 https://www1.nyc.gov/assets/doh/downloads/pdf/dires/adherence-2020-detailing-for-women.pdf. Accessed April 27, 2021.
80. Public Health Detailing Institute for high impact HIV prevention. getSFcba. February 20–22 https://getsfcba.org/events/public-health-detailing-institute-2019/. Accessed June 24, 2021.
81. Naja-Riese GD, Decker A, Fischer MA, Fuchs JD. Academic Detailing Institutes as a novel capacity building strategy for United States health departments seeking to expand PrEP prescribing. Paper presented at: 23rd International AIDS Conference; 6–10 July 2020; virtual. http://programme.aids2020.org/Abstract/Abstract/9287. Accessed April 27, 2021.
82. Ard KL, Walensky RP. Payments for preexposure prophylaxis in the United States: too much for too few. *Ann Intern Med.* 2020;173(10):844–845. https://doi.org/10.7326/M20-5643.
83. Goetz MB, Bowman C, Hoang T, et al. Implementing and evaluating a regional strategy to improve testing rates in VA patients at risk for HIV, utilizing the QUERI process as a guiding framework: QUERI Series. *Implement Sci.* 2008;3:16. https://doi.org/10.1186/1748-5908-3-16.
84. Lubelchek RJ, Hotton AL, Taussig D, Amarathithada D, Gonzalez M. Scaling up routine HIV testing at specialty clinics: assessing the effectiveness of an academic detailing approach. *J Acquir Immune Defic Syndr.* 2013;64(suppl 1):S14–S19. https://doi.org/10.1097/QAI.0b013e3182a90167.
85. Safi AG, Perin J, Mantsios A, Schumacher C, Chaulk CP, Jennings JM. Public health detailing to increase routine HIV screening in Baltimore, Maryland: satisfaction, feasibility, and effectiveness. *Public Health Rep.* 2017;132(6):609–616. https://doi.org/10.1177/0033354917732333.
86. Lira MC, Tsui JI, Liebschutz JM, et al. Study protocol for the targeting effective analgesia in clinics for HIV (TEACH) study - a cluster randomized controlled trial and parallel cohort to increase guideline concordant care for long-term opioid therapy among people living with HIV. *HIV Res Clin Pract.* 2019;20(2):48–63. https://doi.org/10.1080/15284336.2019.1627509.
87. Samet JH, Tsui JI, Cheng DM, et al. Improving the delivery of chronic opioid therapy among people living with HIV: a cluster randomized clinical trial. *Clin Infect Dis*. In press. Online July 22, 2020. https://doi.org/10.1093/cid/ciaa1025.
88. Williams SK, Johnson BA, Tobin JN, et al. Protocol paper: stepped wedge cluster randomized trial translating the ABCS into optimizing cardiovascular care for people living with HIV. *Prog Cardiovasc Dis.* 2020;63(2):125–133. https://doi.org/10.1016/j.pcad.2020.02.003.
89. Ho K, Nguyen A, Jarvis-Selinger S, Novak Lauscher H, Cressman C, Zibrik L. Technology-enabled academic detailing: computer-mediated education between pharmacists and physicians for evidence-based prescribing. *Int J Med Inform.* 2013;82(9):762–771. https://doi.org/10.1016/j.ijmedinf.2013.04.011.
90. Baldwin LM, Fischer MA, Powell J, et al. Virtual educational outreach intervention in primary care based on the principles of academic detailing. *J Contin Educ Health Prof.* 2018;38(4):269–275. https://doi.org/10.1097/CEH.0000000000000224.
91. Hartung DM, Hamer A, Middleton L, Haxby D, Fagnan LJ. A pilot study evaluating alternative approaches of academic detailing in rural family practice clinics. *BMC Fam Pract.* 2012;13(1):129. https://doi.org/10.1186/1471-2296-13-129.
92. Bones AA, Oliveira EJ, Cazella S, Stein A. Virtual academic detailing to improve quality of HIV health care. *Sex Transm Infect.* 2019;95(suppl 1):A132–A133 https://sti.bmj.com/content/95/Suppl_1/A132.3. Accessed August 11, 2021.
93. Hoffman JD, Shayegani R, Spoutz PM, et al. Virtual academic detailing (e-detailing): a vital tool during the COVID-19 pandemic. *J Am Pharm Assoc (2003).* 2020;60(6):e95–e99. https://doi.org/10.1016/j.japh.2020.06.028.
94. Wyse JJ, Gordon AJ, Dobscha SK, et al. Medications for opioid use disorder in the Department of Veterans Affairs (VA) health care system: historical perspective, lessons learned, and next steps. *Subst Abus.* 2018;39(2):139–144. https://doi.org/10.1080/08897077.2018.1452327.