

Public Health Detailing to Promote HIV Pre- and Postexposure Prophylaxis Among Women's Healthcare Providers in New York City



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Introduction: Equitable access to HIV pre- and postexposure prophylaxis for women is essential to ending the HIV epidemic. Providers' lack of knowledge and comfort in discussing and prescribing pre-exposure prophylaxis to women persist as barriers.

Methods: From May to November 2019, the New York City Health Department conducted its first public health detailing campaigns among women's healthcare providers to promote pre- and postexposure prophylaxis and the associated best practices. Over 2 campaigns (10 weeks each), trained Health Department representatives visited providers for 1-on-1 visits at select practices to promote key messages. Representatives distributed an Action Kit that addressed knowledge gaps and practice needs on providing pre-exposure prophylaxis and postexposure prophylaxis to cisgender and transgender women. Providers completed an assessment at the beginning of initial and follow-up visits, used to compare responses across visits. Statistically significant changes were evaluated by generalized linear models of bivariate outcomes, adjusted for nonindependence of providers at the same practice.

Results: Representatives visited 1,348 providers specializing in primary care (47%), women's health (30%), adolescent health (7%), infectious disease (4%), and other (12%) at 860 sites; 1,097 providers received initial and follow-up visits. Provider report of ever prescribing pre-exposure prophylaxis increased by 12% ($n=119$ providers); increases were reported in measures of taking sexual history, asking about partners' HIV status, providing postexposure prophylaxis, recognizing pre-exposure prophylaxis's effectiveness, and discussing and referring for pre-exposure prophylaxis.

Conclusions: After public health detailing, women's healthcare providers report increased adoption of recommended practices that promote pre- and postexposure prophylaxis uptake and sexual wellness among women. Detailing may be adaptable to other regions and contexts to reach providers.

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INTRODUCTION

Among women, HIV diagnoses are on the decline in the U.S. and within New York City (NYC); however, cisgender and transgender women (referred to as women in the remaining part of this paper unless otherwise specified) continue to comprise approximately 20% of new diagnoses (18.4% among cisgender and 2.8% among transgender women), with Black and Latina women accounting for most diagnoses.¹ Interventions to reduce transmission in this

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population include pre-exposure prophylaxis (PrEP) with daily oral tenofovir–emtricitabine.^{2,3}

Unfortunately, PrEP remains underutilized among women for a variety of reasons.^{4,5} First, awareness of PrEP remains low in this population.^{6,7} A 2017 study in NYC among Black and Latina cisgender women in areas of high HIV diagnoses found awareness at 34%⁶; studies among transgender women found similarly low awareness.^{8,9} Comparatively, awareness among men who have sex with men was found to be 95% in 2016.¹⁰ Of the participants in the NYC women study who were aware of PrEP, 24% had already discussed PrEP with a provider, and nearly all (93%) stated that they would be comfortable doing so.⁶ Across several studies, women aware of PrEP describe it as acceptable.^{6,7,11} A study in a Philadelphia family planning clinic shows similarly encouraging results: 57% of surveyed cisgender women stated that they would take a medication to prevent HIV, and 64% felt comfortable discussing the subject with their doctor.¹² Available data show that women's lack of previous PrEP knowledge does not preclude willingness to have providers discuss PrEP with them.

Another important barrier to PrEP utilization is limited provider familiarity and promotion of this intervention. As an HIV prevention strategy requiring clinician evaluation and prescription, provider outreach is essential for increasing the uptake of PrEP among women. However, studies among providers describe limited knowledge and misinformation around PrEP^{13,14}; reluctance to screen for behaviors to assess HIV risk¹⁵; and concerns about patients' financial coverage,^{16,17} medication adherence, side effects, and compensatory behaviors (condom-less sex).^{18,19} In addition, provider bias may exist around PrEP as an option only for men who have sex with men. Provider training is needed to improve effective communication with patients; the Centers for Disease Control and Prevention recommends increasing clinicians' PrEP knowledge and clinical skills related to PrEP provision.²⁰

Public health detailing (detailing) is one effective model of provider communication that can be used to bridge this gap.^{21,22} It involves in-person visits to clinical practices to hold 1-on-1 conversations with prescribing providers and practice staff. During conversations, educators share key messages—short, actionable recommendations—and supporting materials to educate providers and motivate behavior change.^{21–23} Individual sessions and recommendations are tailored in accordance with providers' current practices to offer multiple avenues to adopt key messages, such as referring to another clinic if they cannot prescribe PrEP onsite. Findings from previous campaigns suggest that detailing can have an impact on prescribing patterns.^{24–26}

METHODS

Study Population

The PrEP and postexposure prophylaxis (PEP) for women campaign was built on the framework and best practices from past detailing campaigns at the NYC Health Department (HD), including those among infectious disease and primary care providers about PrEP and PEP.^{21,22} To adapt the campaign to better meet the needs of women patients and their providers, the NYC HD conducted literature reviews, key informant interviews, and focus groups with a diverse set of women's healthcare providers, identifying critical concerns, knowledge gaps, and practice needs. The resulting campaign and supporting patient and provider materials were targeted to healthcare providers serving women potentially impacted by HIV, with the objective to increase PrEP prescribing to women patients.

Visits were made to practices likely to see women at risk of HIV. Sites included practices receiving Title X funding, those with providers affiliated with the American College of Obstetricians and Gynecologists, university and adolescent health centers, and—from local public health surveillance—practices reporting HIV diagnoses among women from 2014 to 2016 and practices reporting sexually transmitted infections associated with HIV acquisition among women (primary or secondary syphilis, gonorrhea, or rectal chlamydia) in 2016. Practices were prioritized according to residence in top quartile ZIP codes of HIV diagnoses among women and in NYC HD designated high-need neighborhoods (South Bronx, East and Central Harlem, Central Brooklyn).²⁷

The campaign employed 5 representatives with experience in detailing and provider communication to conduct visits. Representatives participated in a 5-day training developed by the NYC HD on topics of HIV, PrEP and PEP clinical content, and framing of materials to support key messages. Campaign key messages were (1) take a thorough sexual history from women patients, (2) routinely screen and treat women for sexually transmitted infections, (3) discuss PrEP and PEP with women, and (4) prescribe PrEP and PEP to women according to clinical guidelines or refer them for PrEP and PEP services.

Representatives visited selected facilities to speak to all available staff about the campaign, with 1-on-1 presentations to providers (medical doctors, nurse practitioners, physician's assistants, certified midwives). Representatives met with providers for an initial visit and aimed to return for a follow-up visit 4–6 weeks later. Visits were not prescheduled; however, representatives may have aligned their attempts on learning a provider's schedule, particularly for follow-up visits. Visits averaged 10 minutes and included delivery of an assessment and discussion of key messages, Action Kit materials, and any voiced provider barriers.

The Action Kit ([Appendix Figure 1](#), available online)²⁸ included clinical tools, provider resources, and patient education materials to help providers adopt key behaviors and help patients make informed decisions about PrEP and PEP. The resources and packaging of the Action Kit utilized imagery that was informed by focus groups and community consultations with women and corresponded to a social marketing campaign designed in parallel to boost PrEP awareness among women across NYC. Throughout all the materials, language and images were inclusive and affirming across gender identities. Content specifically addressed questions posed by community members regarding HIV risk for women who have sex with women and PrEP effectiveness and safety for

transgender individuals. Existing provider materials on PrEP and PEP were updated with current medical knowledge on PrEP and PEP for cisgender and transgender women. In response to safety concerns, references and guidance were incorporated to address the use of PrEP and PEP alongside birth control, gender-affirming hormones, conception and pregnancy, breastfeeding, and menopause. To address concerns about payment and insurance coverage, payment resources were expanded, including templates of assistance forms in English and Spanish. Continuing education credit was offered for doctors and nurses upon review of materials and completion of an online quiz. The Action Kit was distributed during visits in hard copy and electronically by USB and online.²⁸

Measures

At the beginning of visits, before the introduction of the key messages or Action Kit, representatives administered a brief, 8-question assessment with providers in accordance with detailing best practices and to minimize reporting biases. The assessment included questions on providers' sexual history-taking practices, PrEP and PEP prescribing history, and PrEP effectiveness. It was used to measure beliefs and behaviors at baseline (before the initial visit) and after intervention (before the follow-up visit).

Outcome measures included the following self-reported provider behaviors with women patients: discussing sexual history with $\geq 75\%$, asking about partners' HIV status with $\geq 75\%$, ever providing nonoccupational PEP, ever discussing PrEP, ever referring patients to other providers for PrEP, ever prescribing PrEP, and belief of PrEP effectiveness. These metrics were chosen to correspond to the campaign messaging recommendations that a thorough sexual history be asked of all patients at least once a year, including asking patients about the HIV status of any partners; to correspond to the current literature around daily PrEP effectiveness; and with the aim to detect meaningful change aligned with the clinical recommendations.

Additional elements collected during the campaign included provider specialty (HIV/infectious disease, primary care, women's health, adolescent health, other) and practice location within priority neighborhoods of high HIV diagnoses among women.

Statistical Analysis

Assessment responses from the 2 back-to-back 10-week campaigns from May through November 2019 were aggregated into a single data set to collectively evaluate outcomes. Assessment measures are described as proportions of providers reporting outcomes of interest among providers who responded at both baseline and follow-up, matched across each time point. An additional analysis on PrEP prescribing was conducted to evaluate variation across provider specialties. Statistical significance of change in provider behavior over the course of the campaign was determined through generalized linear models of bivariate outcomes, with adjustment for nonindependence of providers by facility, to account for similar baseline beliefs and behaviors and the effect of providers' adopting behaviors collectively or as influenced by their immediate peers. Analyses were conducted using SAS, version 9.4.

Informed consent and IRB review were not required because this project was determined to be a nonresearch public health program evaluation by the NYC HD IRB.

RESULTS

The 5 representatives visited 860 NYC clinical practices during the 2 consecutive campaigns, engaging 1,939 staff members, including 1,348 providers who received at least 1 detailing visit, of which 74% ($n=1,097$) received a follow-up visit (Figure 1A).

Table 1 describes provider- and practice-level characteristics among all providers who received ≥ 1 visit ($n=1,348$), with stratifications of those receiving initial visit only ($n=251$) and those receiving both initial and follow-up visits ($n=1,097$). Providers assessed at initial and follow-up visits were evaluated for changes in outcome measures; among those providers, the median time between visits was 35 (IQR=27–43) days.

Among providers receiving ≥ 1 visit, provider types included primarily medical doctors and doctors of osteopathic medicine (80%), followed by nurse practitioners and physician assistants (17%), midwives (2%), and other unspecified training ($<1\%$). Providers were further categorized by specialty, including primary care (47%), women's health (30%), adolescent health (7%), HIV/infectious disease (4%), and other or unspecified (12%). Because of strategic site selection (Figure 1B), many providers (40%) were located in neighborhoods of higher HIV diagnosis rates among women (highest quartile) and of high or very high neighborhood poverty (44%). Less than half of providers reported past prescribing of PEP (48%) or PrEP (43%).

Figure 2 shows the outcome proportions among providers who were visited and who responded at baseline and follow-up. Corresponding to the first key message, 72% of providers reported baseline sexual history taking from $\geq 75\%$ of their women patients who were seen in the past 6 months, significantly increasing to 83% ($p<0.0001$) at follow-up. At baseline, 53% of providers reported asking about the HIV status of the patient's partner(s) for $\geq 50\%$ of their women patients in the past 6 months, significantly increasing to 66% ($p<0.0001$) at follow-up.

Compared with the previous 2 outcomes, questions about PEP and PrEP behaviors span providers' entire professional history; at baseline, 46% of providers reported ever having prescribed nonoccupational PEP to women patients, significantly increasing to 51% ($p<0.0001$) at follow-up. Nearly all providers answered that they believed daily PrEP to be highly effective for women, from 89% at baseline significantly increasing to 96% ($p<0.0001$) at follow-up. A substantial proportion of providers reported having ever previously discussed PrEP with women patients, 77% at baseline and significantly increasing to 89% ($p<0.0001$) at follow-up. At baseline, 46% of providers reported having referred

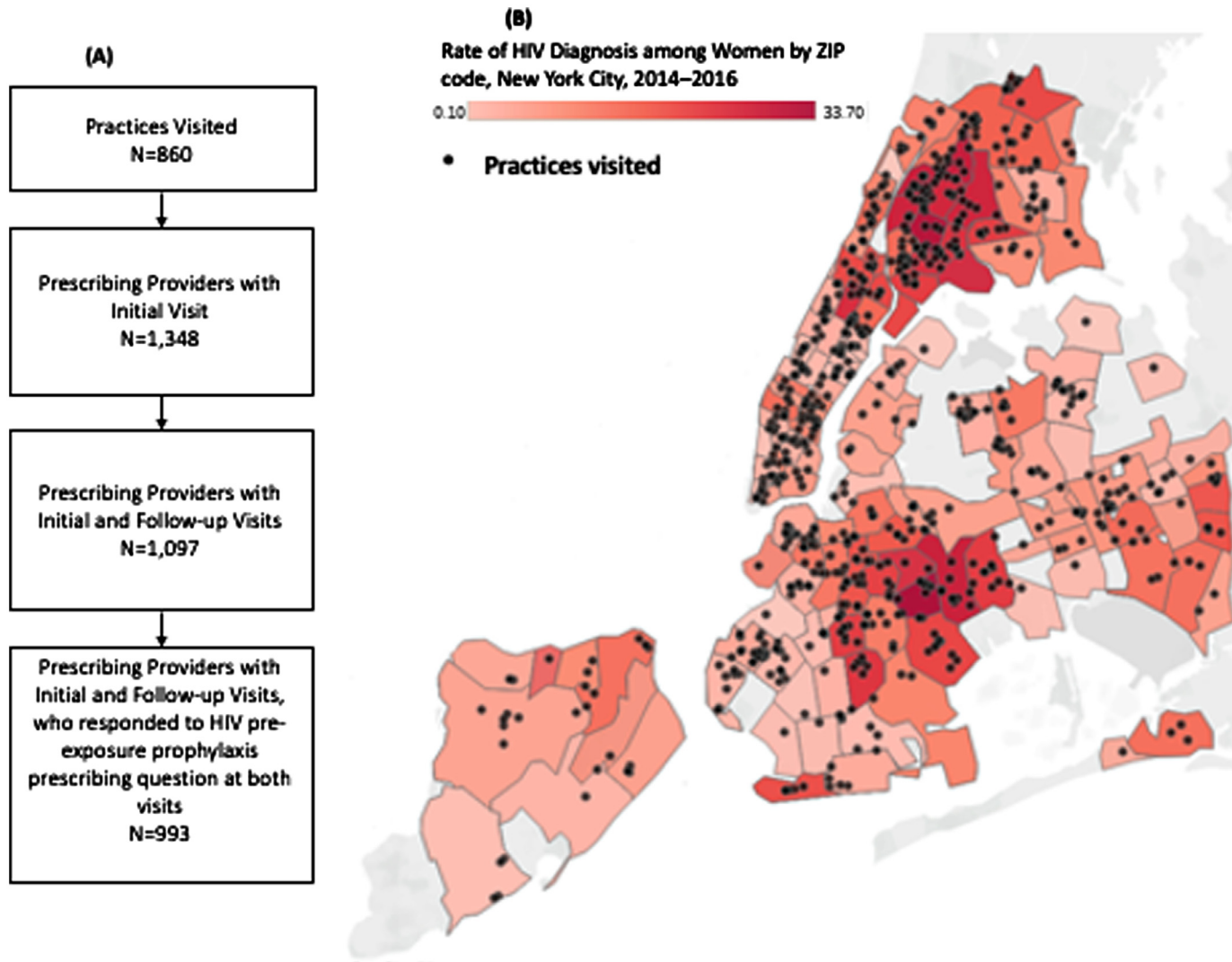


Figure 1. PrEP and PEP public health detailing campaign, NYC 2019. (A) Participation flow diagram. (B) Distribution of practices visited. NYC, New York City; PEP, postexposure prophylaxis; PrEP, pre-exposure prophylaxis.

Table 1. Provider Characteristics From PrEP and PEP Detailing Campaign at Initial Visit, New York City, 2019

| Characteristics | All providers, n (column %) | Providers with initial and follow-up visit, n (column %) | Providers with initial visit only, n (column %) |
|--|--------------------------------|--|---|
| Providers visited | 1,348 (100) | 1,097 (100) | 251 (100) |
| Provider-level characteristics | | | |
| Provider training | | | |
| MD/DO | 1,072 (80) | 867 (79) | 205 (82) |
| NP/PA | 234 (17) | 199 (18) | 35 (14) |
| Midwife | 25 (2) | 18 (2) | 7 (3) |
| Other | 17 (1) | 13 (1) | 4 (2) |
| Provider specialty | | | |
| Women's health | 405 (30) | 331 (30) | 74 (29) |
| Primary care | 634 (47) | 517 (47) | 117 (47) |
| HIV-infectious disease | 49 (4) | 37 (3) | 12 (5) |
| Adolescent health | 98 (7) | 87 (8) | 11 (4) |
| Other | 162 (12) | 125 (11) | 37 (15) |
| Ever prescribed PEP before the initial visit | | | |
| Yes | 607 (48) | 460 (46) | 109 (48) |
| No | 668 (52) | 532 (54) | 118 (52) |
| No data available | 73 (—) | 105 (—) | 23 (—) |
| Ever prescribed PrEP before the initial visit | | | |
| Yes | 550 (43) | 392 (39) | 110 (46) |
| No | 740 (57) | 601 (61) | 129 (54) |
| No data available | 58 (—) | 104 (—) | 12 (—) |
| Practice-level characteristics | | | |
| Neighborhood HIV diagnosis rate among women, by quartile (highest–lowest) ^a | | | |
| Quartile 1 (highest) | 536 (40) | 440 (40) | 96 (38) |
| Quartile 2 | 252 (19) | 205 (19) | 47 (19) |
| Quartile 3 | 339 (25) | 272 (25) | 67 (27) |
| Quartile 4 (lowest) | 221 (16) | 180 (16) | 41 (16) |
| Neighborhood-level poverty ^b | | | |
| Very high poverty | 339 (25) | 265 (24) | 74 (29) |
| High poverty | 250 (19) | 203 (19) | 47 (19) |
| Medium poverty | 571 (43) | 478 (44) | 93 (37) |
| Low poverty | 180 (13) | 143 (13) | 37 (15) |
| No data available | 8 (—) | 8 (—) | — |

Note: Column percentages were calculated among respondents with nonmissing values.

^aRate of new HIV diagnosis among women, by ZIP code, from 2014 to 2016.

^bNeighborhood poverty (based on census tract) defined as the percentage of residents with income below the FPL, per American Community Survey, 2017 (very high is >30% below FPL; low is <10% below FPL).

FPL, federal poverty level; MD/DO, medical doctor, doctor of osteopathic medicine; NP/PA, nurse practitioner, physician assistant; PEP, postexposure prophylaxis. PrEP, pre-exposure prophylaxis.

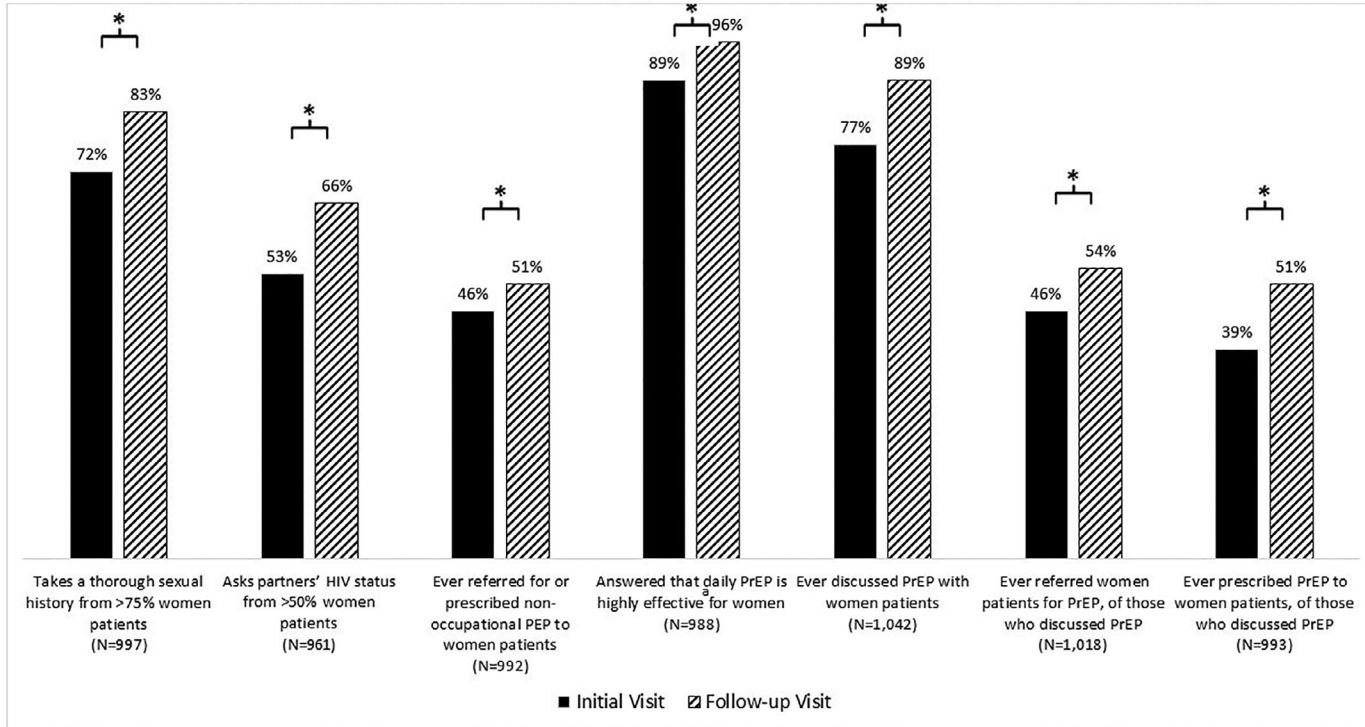
women patients to other providers for PrEP, significantly increasing to 54% ($p<0.0001$) at follow-up. Report of ever prescribing PrEP to women patients significantly increased from 39% at baseline to 51% ($p<0.0001$) at follow-up. A subgroup analysis of PrEP prescribing by provider specialty showed significant increases from baseline to follow-up for most evaluated groups (Figure 3): 44%–57% ($p<0.0001$) among primary care, 38%–52% ($p<0.0001$) among women's health, and 18%–24% ($p<0.0001$) among adolescent health

providers. No change was seen among HIV/infectious disease providers (79%–79%).

DISCUSSION

As one effort to promote HIV prevention strategies among women, the NYC HD conducted a large-scale public health detailing campaign focused on prescribing PrEP and PEP, ultimately reaching >800 practices and 1,300 women's health providers within a 6-month

Outcomes among Providers Reached by a Public Health Detailing Campaign, New York City, 2019



*Statistical significance of $p < 0.01$ as evaluated by generalized linear models of bivariate outcomes, adjusted for non-independence of providers co-located at the same practice

Figure 2. Outcomes among providers reached by a public health detailing campaign, New York City, 2019.

*Statistical significance of $p < 0.01$ as evaluated by generalized linear models of bivariate outcomes, adjusted for nonindependence of providers collocated at the same practice.

^aAs compared with Not at all, Slightly, and Moderately.

PEP, postexposure prophylaxis; PrEP, pre-exposure prophylaxis.

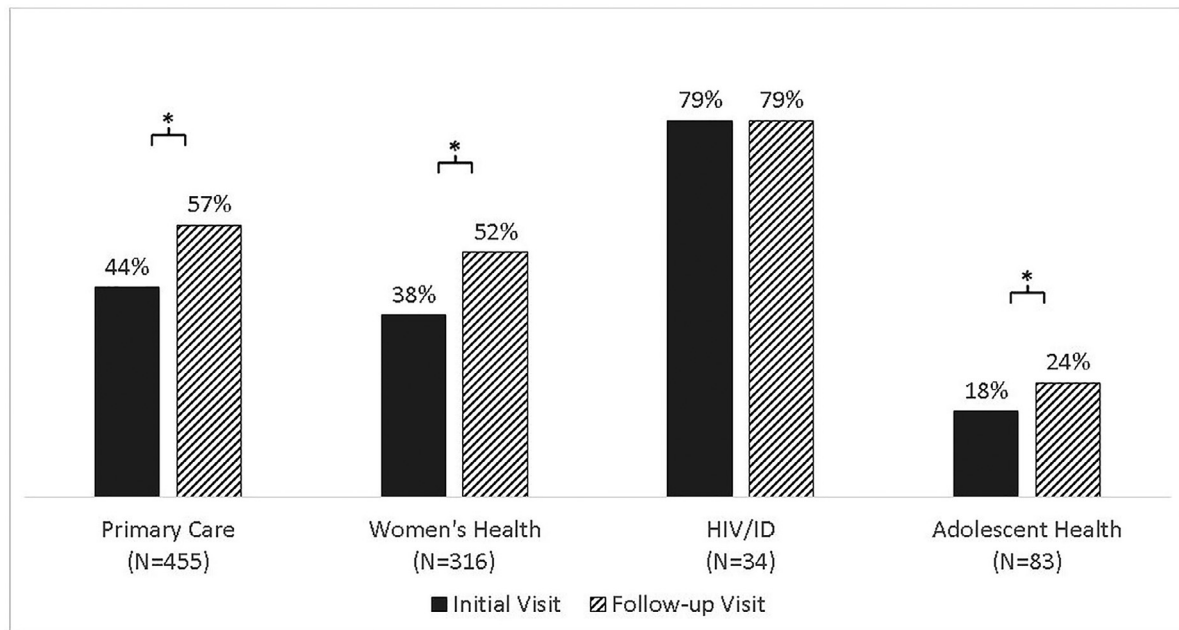


Figure 3. Reported ever prescribing HIV pre-exposure prophylaxis to women among detailed providers, by specialty, New York City, 2019.

*Statistical significance of $p < 0.01$ as evaluated by generalized linear models of bivariate outcomes, adjusted for nonindependence of providers colocated at the same practice.

ID, infectious disease.

period. Among providers with initial and follow-up visits, increases were reported in PrEP prescribing as well as in the recommended practices of sexual history taking, discussion of partners' HIV status, PEP prescribing, and PrEP discussion and referral over the weeks between visits.

This detailing campaign follows past jurisdictional provider-level interventions to improve PrEP and PEP prescribing^{25,26}; it is unique in targeting women's health providers and focusing on PrEP and PEP messaging for women patients. Echoed in existing literature,^{29–31} at baseline, less than half of providers reported having previous experience of prescribing PrEP to women, despite a high agreement with PrEP effectiveness and report of previous discussions of PrEP with women patients. Increases in PrEP prescribing at follow-up may have been due in part to the tailoring of messaging and materials to women patients, in concert with the implementation of best practices established by previous NYC HD public health detailing campaigns. Barriers in provider knowledge and experience with PrEP persist, along with discomfort in discussing sexual activities with patients, resulting in discomfort in prescribing PrEP.³¹ The Action Kit responded to such barriers by countering provider misinformation, facilitating patient screening, and supporting providers and practice staff in assisting patients with cost coverage and adherence counseling.

Prescribing of PrEP varied across provider specialty, with lower proportions of primary care and women's health providers reporting baseline experience with PrEP prescribing than the proportions of HIV/infectious disease providers. This purview paradox has been seen since PrEP's introduction: generalist providers may be less comfortable with prescribing PrEP, considering it a topic for infectious disease specialists, who are familiar with PrEP but less likely to see patients who may benefit most.^{30,32} After detailing, report of PrEP prescribing by primary care and women's health providers increased (13% and 14% absolute increases, respectively), suggesting that detailing was impactful in overcoming some barriers for these providers. The increase may have been achieved by the individualized nature of visits, where representatives structured discussions with providers according to their current practices and barriers, in combination with materials designed to demonstrate PrEP relevance for patients of all gender identities, screening tools to encourage easy incorporation of recommended practices, and educational resources to address common concerns and implementation needs after visits were concluded. Adolescent health providers reported the lowest levels of PrEP prescribing, potentially owing to misinformation about patient indication or concerns for confidentiality, payment ability, or adherence.^{33,34} Detailing may have addressed these barriers, with

resources highlighting 2018 Food and Drug Administration approval updates for adults³⁵ and 2017 New York State public health law changes on guardian notification and consent for PrEP use by minors.^{36,37} HIV/infectious disease providers reported high baseline PrEP prescribing to women patients, a finding consistent with pre-existing provider familiarity around HIV prevention predating the campaign,³² potentially related to the lack of change at follow-up. Previous campaigns in NYC observed a difference over the course of a campaign³⁶ among HIV/infectious disease providers, but report of ever prescribing PrEP was lower (23% at baseline to 40% at follow-up). In summary, detailing visits appear to be effective across most provider types when conducted with consideration to providers' entry point knowledge and practices.

In addition to prescribing PrEP, behaviors were recommended as a continuum for providers to expand patients' access to PrEP. There was a modest but significant increase in provider report of prescribing PEP to women, which is notable given the short window within which to identify eligible patients. In addition, of the providers reporting no previous PrEP prescribing at baseline, 79% report PrEP discussion with women patients at follow-up. Those outcomes, along with a significant increase of provider report of PrEP referral, suggest that detailing may increase behaviors associated with PrEP prescribing.

Limitations

These findings may be limited by several factors. First, provider participation at both initial and follow-up visits was voluntary, introducing the potential for selection bias. Provider approach and refusal were not collected, and therefore, the potential magnitude and direction of this effect were not evaluated. Second, outcomes were self-reported by providers and may be subject to social desirability and recall biases, which may overestimate proportions at both baseline and follow-up. No data were collected on linked prescription records to confirm prescribing practices. Representatives encouraged accurate provider reporting by assuring no resulting corrective actions by the NYC HD and emphasizing that findings would be presented deidentified, in aggregate. Third, because sites and providers were selected with the aim to visit those that would be most impactful in preventing HIV acquisition among women, findings may not be generalizable across all providers or outside of NYC. Fourth, sexual history outcomes were based on provider experience in the previous months; because baseline and follow-up data were separated by a median of 35 days, overlapping reporting periods exist, which may underestimate the proportions at follow-up. Finally, the campaign was focused on maximizing resources to

visit all possible selected providers; reports from providers not participating in detailing visits were unavailable. Increases in provider adoption of recommended practices around PrEP prescribing may be due to factors other than the detailing campaign. However, the short timeframe between initial and follow-up visits supports the limited potential for external causal factors.

This intervention is unique in its focus on women and their providers. Historically, provider-level interventions aimed at increasing PrEP and PEP prescribing have mainly centered on patients identifying as men who have sex with men. As evidenced in the authors' formative research, providers may be unaccustomed to considering PrEP as an option for women, be unfamiliar with prescribing PrEP to women, and lack knowledge around PrEP and women's health, resulting in inaccurately overestimating contraindications or intolerable side effects. HIV stigma and perception of individual risk differs among women compared with that among men^{30,38}; a judgmental or off-putting interaction with a provider may create an even greater psychosocial barrier to identifying and utilizing effective HIV prevention options.

CONCLUSIONS

By facilitating PrEP and PEP knowledge and prescribing among women's health providers, detailing may be one method to reduce the gender gap in PrEP awareness and use. Knowledgeable and willing providers can increase PrEP and PEP access by supporting patients who initiate requests and, importantly, introduce the option. Women may need to hear about PrEP multiple times and from multiple sources before deciding whether it is right for them³⁹; ensuring that a women's entire healthcare team reinforces key messages is one way to achieve that goal. Ultimately, whether to initiate and remain on PrEP is a patient's decision. Informed providers can enable their women patients to exercise agency regarding their PrEP and PEP needs and thereby support sexual health equity while working to end the HIV epidemic.

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SUPPLEMENTAL MATERIAL

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