CALIFORNIA HIV / AIDS POLICY RESEARCH CENTERS

Preferences for pharmacist-initiated PrEP implementation in California: Results of a discrete choice experiment

Pre-exposure prophylaxis (PrEP) is highly effective in preventing HIV and a critical component of a multi-pronged strategy to end the U.S. HIV epidemic.[1] However, PrEP has been underutilized among people who could benefit, in part due to access barriers to primary care and other healthcare settings in which PrEP is distributed. In 2019, California introduced Senate Bill 159 (SB 159), allowing trained pharmacists to initiate PrEP without an outside provider's prescription.[2] Under SB 159, pharmacist-initiated PrEP provision requires proof of a negative HIV test within the past seven days, an eligibility screening and counseling session, and is limited to 60 days of prophylaxis; continuation beyond 60 days must be through a primary care provider. Despite California's legislative efforts, relatively few pharmacies have implemented pharmacist-initiated PrEP since the practice was enabled in late 2020,[3,4] limiting pharmacists' potential role in expanding community access to HIV prevention. We conducted a discrete choice experiment among pharmacists in California to elucidate their preferences for pharmacist-initiated PrEP delivery and inform strategies to increase SB 159 implementation in pharmacies.

California Pharmacist Survey

From October–December 2022, we conducted a cross-sectional online survey of 919 pharmacists and pharmacy students in California to understand their perspectives on opportunities and challenges related to pharmacist provision of PrEP and post-exposure prophylaxis (PEP) under SB 159. Participants were recruited through the email listservs and social media accounts of two professional pharmacist organizations, at two large pharmacist conferences, and through other pharmacy groups on social media. Participants who opted to provide their email address could receive a $20 gift card and/or entry into weekly and grand prize drawings; otherwise, the survey was anonymous. The survey was administered in Qualtrics,[5] and we used a rigorous, multi-pronged data integrity assessment to exclude bots and other invalid responses.

A detailed report of the methods and findings of the California Pharmacist Survey (excluding the discrete choice experiment presented below) is available elsewhere.[4] Briefly, the mean age of participants was 39 years; 64% identified as female. Most (84%) participants were licensed practicing pharmacists, and 43% reported currently or most recently working in a community pharmacy. While 92% of participants had heard of PrEP/PEP and 96% felt that PrEP provision in pharmacies was important, only 11% reported that pharmacists at their pharmacy initiate PrEP as authorized by SB 159. Half (53%) classified allocating staff time for PrEP services as difficult given that only the medication, and not service provision, is covered by insurance. Among participants who indicated that their pharmacy was not currently providing PrEP, the main barriers to implementation reported were staff time constraints, lack of insurance coverage for services, and low perceived demand among clients. Finally, 42% believed that the 60-day PrEP provision limit does not provide enough time to ensure linkage to a primary care provider for PrEP continuation.

Summary of Findings

- In 2022, we conducted a discrete choice experiment of 876 pharmacists and pharmacy students to understand their preferences for the implementation of pharmacist-initiated PrEP provision under California's Senate Bill 159.
- Participants preferred implementation scenarios in which they play an active role in the PrEP provision process (e.g., rapid oral HIV testing at the pharmacy vs. testing at another facility, counseling conducted in a private room vs. on a tablet).
- Participants preferred scenarios in which pharmacists are hired specifically for PrEP services, rather than fitting these services into their current workflow, suggesting that integrating new services may require increased workforce capacity.
- Of the options presented, participants preferred the current 60-day dispensing period. However, the experiment did not include intermediate options between 60 and 180 days.
- Implementation models must also center the preferences of potential PrEP users, which may not align with those of pharmacists.

The Discrete Choice Experiment

Embedded in the survey was a discrete choice experiment (DCE), a methodological approach drawn from economics that may predict HIV-related healthcare behavior.[6,7] The DCE was used to elicit pharmacists' preferences for delivering PrEP in the pharmacy with the goal of providing guidance on how best to revise current policy to facilitate increased implementation of SB 159. To ensure that the results were policy-relevant, we engaged in a highly collaborative process with pharmacists and other stakeholders to iteratively design a set of implementation scenarios for pharmacist respondents to consider that varied on multiple PrEP delivery attributes. In the survey, participants were then tasked with choosing between these scenarios, enabling us to assess how differences in the levels of the attributes affect their decisions. This approach may offer more actionable information than standard survey questions by emulating real-world decision making in which implementation attributes do not occur in isolation.

Specifically, participants were presented with pairs of pharmacy-based PrEP implementation scenarios that varied on four attributes (i.e., HIV testing, how PrEP services fit into pharmacy workflow, screening/counseling procedures, and maximum dispensing period before referral), each with 3-4 possible levels (**Table 1**). Participants were asked to choose the scenario from each pair that they would prefer for implementation in their pharmacy (a "choice task"). Each participant was block randomized to receive four of sixteen possible choice tasks.[8] We followed an effects-coding approach and used McFadden's conditional logit choice model in Stata to identify the characteristics of implementation models that were most influential in shaping participants' choices.[9,10] This model estimated "preference weights" that represent the strength of participants' preference for scenarios with specific attribute levels (e.g., a tendency to choose scenarios with rapid oral HIV testing) compared to the mean effect of the given attribute across levels (e.g., mean effect of all the options for HIV testing). A positive preference weight for a given level of an attribute indicates that participants were more likely to choose scenarios with this level; the opposite is true for a negative preference weight.

Table 1. Pharmacist-initiated PrEP delivery attributes and levels in the discrete choice experiment.

Attributes	Attribute Levels
HIV testing for people seeking PrEP *(How the HIV testing required under SB 159 would be performed)*	• Client provides proof of recent negative test • Rapid fingerstick test at pharmacy • Rapid oral test at pharmacy • Testing at partner facility/lab
Fitting pharmacy-based PrEP into the workflow *(When and how PrEP services would be made available in the pharmacy)*	• Pharmacists hired specifically for PrEP service provision • Certain days/times dedicated for PrEP services • PrEP available at all times: fit PrEP services into current workflow
Where eligibility assessment and PrEP counseling are conducted *(How pharmacists would conduct the screening and counseling required under SB 159)*	• Online survey tool or over the phone • On tablet at pharmacy • Private room at pharmacy
Maximum dispensing time period before required referral for PrEP continuation *(Time until PrEP provision services must be transferred to a primary care provider)*	• Refer after 30 days • Refer after 60 days • Refer after 180 days • No maximum: dispense until referral is confirmed

Results

Overall, 876 of 919 (95%) survey participants completed at least one choice task within the DCE for a total of 3,481 completed choice tasks (mean: 3.8 per participant). Below we summarize the results for each attribute related to pharmacy-based PrEP delivery (**Figure 1**).

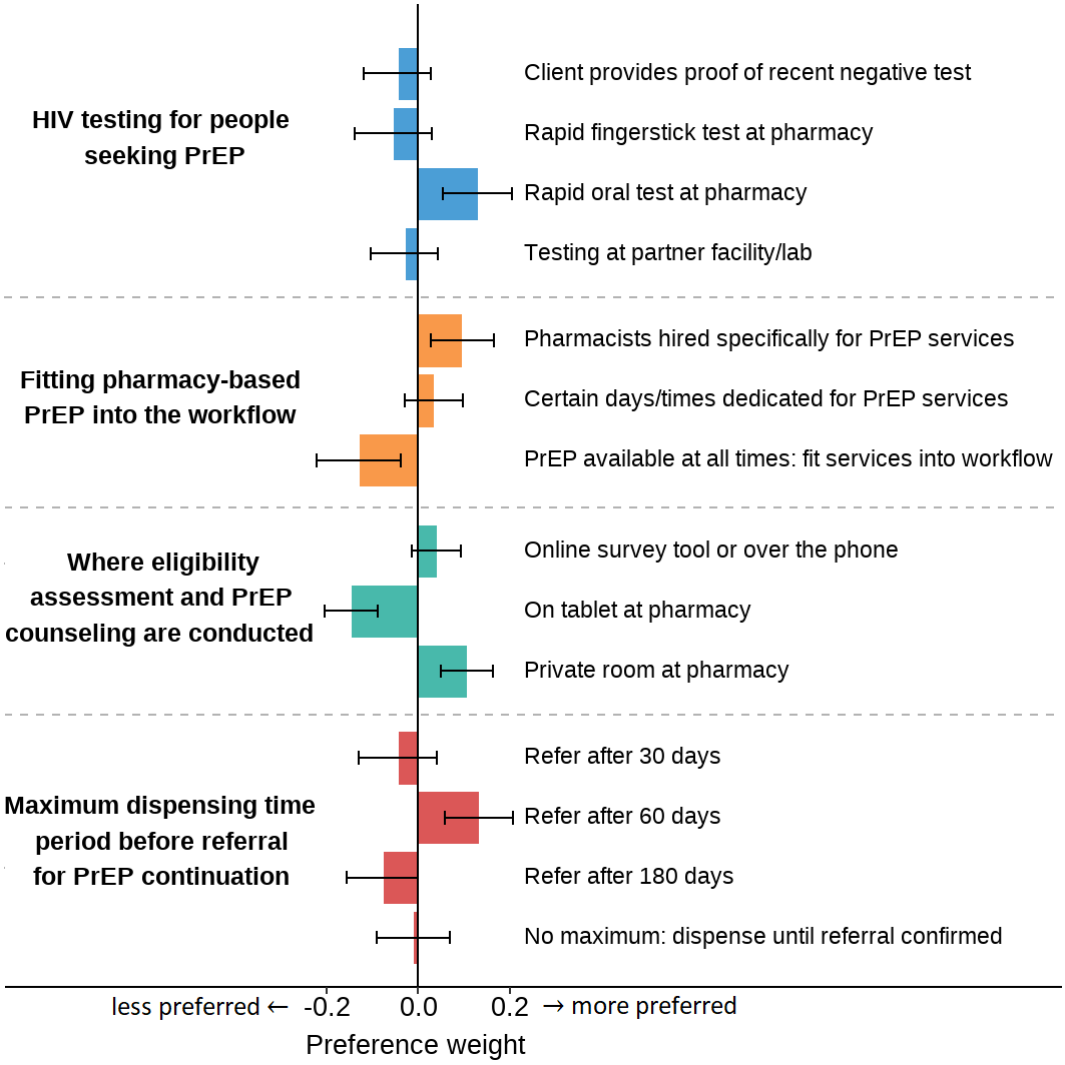
HIV testing for people seeking PrEP. Participants were asked to choose between implementation scenarios that varied on how the HIV testing required under SB 159 would be conducted (for example, whether the client would present to the pharmacy with proof of a negative test or whether a rapid HIV test would be conducted at the pharmacy). Rapid oral testing at the pharmacy was the only level of the HIV testing attribute with a significantly positive preference weight (0.13; 95% confidence interval [CI]: 0.05, 0.21), indicating that participants preferred scenarios with this level. None of the other HIV testing attribute levels (prior proof of a negative test, rapid fingerstick testing at the pharmacy, and testing at a partner facility or laboratory) had significantly positive or negative preference weights.

Incorporation into pharmacy workflow. The implementation scenarios that participants chose between also varied on how PrEP delivery would fit into the pharmacy workflow (i.e., when and how PrEP would be available). Participants significantly preferred scenarios in which pharmacists were hired specifically for PrEP service provision (0.10; 95% CI: 0.03, 0.17) and were less likely to choose scenarios in which PrEP services were fit into their current workflow (-0.13; 95% CI: -0.22, -0.04). Participants' choices did not indicate a preference for or against scenarios with certain days/times dedicated to PrEP services.

Location of eligibility assessment and counseling. Implementation scenarios varied on the location of eligibility and counseling, either via an online survey or tool over the phone, on a tablet computer at the pharmacy, or in a private room at the pharmacy. Participants significantly preferred scenarios in which assessment and counseling were conducted in a private room (0.11; 95% CI: 0.05, 0.16) and were less likely to choose scenarios in which assessment and counseling were conducted on a tablet in the pharmacy (-0.15; 95% CI: -0.20, -0.09). Participants' choices did not indicate a preference for or against scenarios that included use of an online or phone-based tool.

Limits on the PrEP dispensing period. Implementation scenarios varied on the maximum PrEP dispensing time period before referral to a primary care provider, with scenarios that required referral after 30, 60, or 180 days or had no maximum (i.e., allowed pharmacists to dispense until referral is confirmed). Participants' responses indicated a significant preference for a 60-day limit on dispensing before referral (0.13; 95% CI: 0.06, 0.21), which is the time period encoded in current policy. Participants were somewhat less likely to select scenarios that included a 180-day limit on dispensing (-0.08; 95% CI: -0.16, -0.00). The other dispensing time periods (a shorter 30-day limit or no maximum) were not associated with participants' choices.

Figure 1. Preferences for pharmacist-initiated PrEP delivery elicited via discrete choice experiment.



Discussion

New distribution channels are urgently needed to realize the benefits of PrEP for HIV prevention in California and globally. This study used a DCE methodological approach to quantitatively measure pharmacist preferences for pharmacist-initiated PrEP delivery. We found that pharmacists prefer implementation models in which they play an active role in the PrEP provision process. For example, participants preferred in-pharmacy rapid oral HIV testing to having the client provide proof of testing or visit a partnering facility for testing. We also found a preference for private rooms over tablet-based eligibility screening. This finding mirrors past research demonstrating the importance of private spaces and consultation rooms in pharmacy-based service provision,[11] including HIV point-of-care testing,[12] a feature which may have become more common since the COVID-19 pandemic and the pivotal role of pharmacies in vaccine distribution.

The DCE also revealed a preference for implementation models in which pharmacists are hired specifically for PrEP services over those in which new services are fit into the current workflow. This finding aligns with the implementation barriers identified elsewhere in the California Pharmacist Survey (that is, limited staff time) and underscores the importance of increasing workforce capacity to accommodate the time burden of PrEP service provision. Although not assessed in the present study, this approach may be especially salient in high-volume community pharmacies and/or specialty pharmacies located in areas of higher HIV burden that are best situated to reach populations at higher risk of HIV for whom clinic-based PrEP access has been limited.

Finally, participants in the DCE preferred the current 60-day PrEP referral period over an expanded 180-day period. Referral from pharmacists to primary healthcare providers for PrEP continuation represents an opportunity to strengthen the network of community PrEP providers but also poses risks for inadequate linkage and PrEP discontinuation. This observed preference could relate to perceived challenges in making successful referrals as the PrEP period lengthens, or it could in part reflect an anchoring effect (i.e., familiarity with the 60-day period encoded in current law). As there were no intermediate time periods (such as 90 or 120 days) offered as options in the DCE, we cannot disentangle whether the 60-day period was preferred because participants felt the 60-day period was sufficient for referral and/or because the 180-day period was perceived as too long. Notably, when asked earlier in the survey, 42% of participants disagreed that the 60-day PrEP provision period was enough to ensure referral to a primary care provider for PrEP continuation.[4] These DCE findings could be incorporated into future policy and/or pharmacy workflows to amplify the impact of SB 159 on increasing access to PrEP.

This study is strengthened by our large sample of pharmacists and pharmacy students from diverse pharmacy settings across the state (e.g., community, hospital, ambulatory). Although recruited as a convenience sample, the sociodemographic and geographic distribution of participants is similar to that of California pharmacists more broadly, strengthening confidence in the external validity of the sample.[4] Although pharmacists' stated preferences may not perfectly align with their preferences in practice, the rigorous DCE methodology used has shown strong predictive value for other real-world health choices.[13] Due to practical constraints, we were limited in the number of PrEP delivery attributes and levels within each attribute that were explored within the DCE. The four chosen attributes represent key features of implementation that were prioritized for study in close consultation with pharmacist collaborators, and the specific set of levels within each attribute were designed to provide a broad range of options. Still, these attributes and levels may oversimplify what can and does happen in pharmacies.

This study provides critical insight into pharmacists' perspectives on PrEP implementation. However, it is also essential to understand and center the perspectives of people who might seek PrEP at a pharmacy whose implementation preferences may not align with those reported by pharmacists. For example,

while we found that pharmacists prefer implementation models with hands-on service provision (e.g., eligibility assessment in-person rather than self-administered on a tablet), these same features may pose barriers to people seeking PrEP who may find a "hands-off" approach less stigmatizing and therefore more desirable. Further research is necessary to identify implementation models preferred by current and future PrEP users. Moreover, long-acting injectable PrEP is a promising alternative to daily oral PrEP that may be preferred by some users and well-suited for pharmacist delivery, given their current scope of practice and pharmacy infrastructure for vaccine distribution.[14] As this DCE focused on daily oral PrEP provision under SB 159, additional research is necessary to understand implementation barriers and preferences for long-acting injectable PrEP and other forthcoming modalities among both pharmacists and PrEP beneficiaries.[15]

In conclusion, participants in the California Pharmacist Survey were broadly supportive of pharmacist-initiated PrEP. They preferred implementation models with in-pharmacy rapid oral HIV testing, pharmacists newly hired for PrEP services, use of a private room for PrEP eligibility assessment and counseling, and a 60-day limit on dispensing before referral to a primary care provider.

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