Comparing Two mHealth Technologies to Support PrEP Use among MSM and Transgender People in the US

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Albert Y Liu[1,2], Dave V Glidden[2], Juwann Moss[1], Cat-Dancing Alleyne[1], Janie Vinson[1], Janet Myers[2], Kim Koester[2], Stefani Butts[3], Rikki Montoya[4], Tommy Sanchez[5], Jorge Roman[4], Maria Rybicki-Newman[5], Susanne Doblecki-Lewis[3], Hyman Scott[1,2,4], Susan Buchbinder[1,2] ‖ [1]San Francisco Department of Public Health, San Francisco, CA, USA; [2]University of California San Francisco, San Francisco, CA, USA; [3]University of Miami, Miami, FL, USA; [4]San Francisco AIDS Foundation, San Francisco, CA, USA; [5]Whitman Walker Health, Washington DC, USA

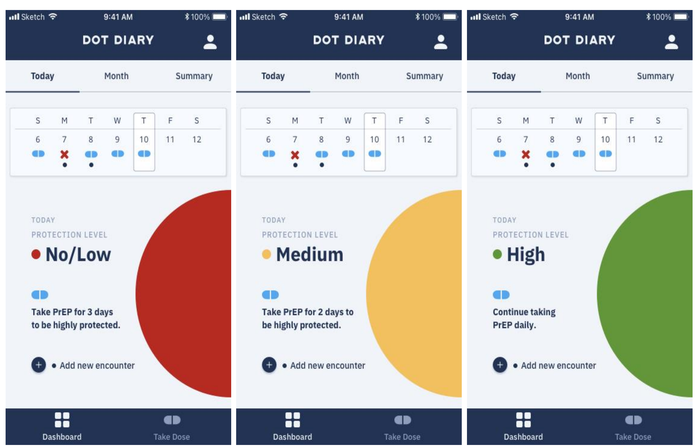
BACKGROUND

- PrEP adherence and persistence are suboptimal in real-world settings, with half to two thirds of PrEP users discontinuing within 6 months.
- We describe results of a comparative effectiveness trial of two mobile health technologies to support PrEP use among MSM and transgender people in the US.

METHODS

- HIV-uninfected MSM and trans people were enrolled across 3 real-world PrEP delivery sites (a sexual health clinic in San Francisco, a municipal STD clinic in Miami, and an LGBT health center in Washington DC).
- Participants were randomized 1:1 to receive **PrEPmate**, a bidirectional texting platform using personalized communication through weekly check-in messages or **DOT Diary**, a mobile app promoting self-management of PrEP use through a pill-taking/sexual diary with feedback on PrEP protection levels (Figure 1).
- **PrEP persistence** was measured as having sufficient PrEP medication prescribed through 6 and 12 mo., and **PrEP adherence** was measured by self-report at 6 and 12 mo. and having protective tenofovir diphosphate (TFV-DP) levels consistent with ≥4 doses/week in dried blood spots collected at 6 and 12 mo. **Patient engagement** was measured using the 13-item Patient Activation Measure.
- Effects of treatment assignment on PrEP outcomes were assessed using mixed effects logistic models.

Figure 1: DOT Diary Screenshots



Both a mobile app (DOT Diary) and an interactive SMS platform (PrEPmate) can support PrEP adherence and persistence in real-world clinical settings.

RESULTS

- From July 2021 to Jan 2024, we enrolled 298 participants into the study.
- Among 234 DBS samples tested (185 ppts) across timepoints, **protective TFV-DP levels** were observed in 92/114 (81%) samples in the DOT Diary arm and 90/120 (75%) samples in the PrEPmate arm (p=0.34).
- Among ppts with DBS testing, 139 (75%) were on daily TDF/FTC and 46 (25%) were on daily TAF/FTC
- **Patient engagement** was high in >90% of ppts and similar between DOT Diary and PrEPmate at 6 months (p=0.79) and 12 months (p=0.21).

Table 1. Baseline Sociodemographics

Characteristic	DOT Diary N=145	PrEPmate N=153	Total N=298
Age, Median (IQR)	32 (27-37)	29 (26-35)	30 (26-37)
Race			
Black	15%	18%	16%
Asian/Pacific Islander	11%	10%	11%
White	49%	48%	48%
Other	29%	21%	25%
Hispanic ethnicity	58%	51%	54%
Gender			
Cisgender male	92%	88%	90%
Trans/GNB/GNC/GQ	8%	12%	10%
Has health insurance	59%	71%	65%
Has PCP	54%	53%	53%
Food insecurity	36%	37%	36%
Limited/marginal health literacy	35%	33%	34%
Median # sex partners, last 3 months	4	5	5
STI diagnosis, past year	29%	33%	31%
Heavy alcohol use	37%	40%	38%

Figure 2. PrEP persistence at 6 and 12 months, based on prescribed pills (enough supply for at least 4 pills/week)

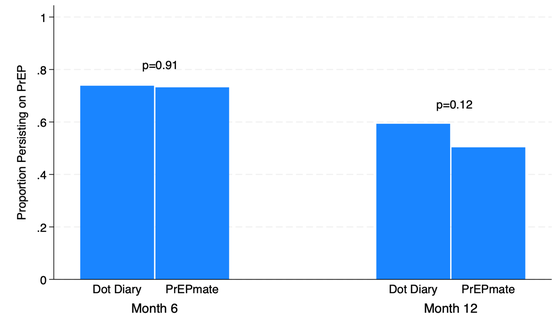


Figure 3. Self-reported adherence at 6 and 12 months, by arm

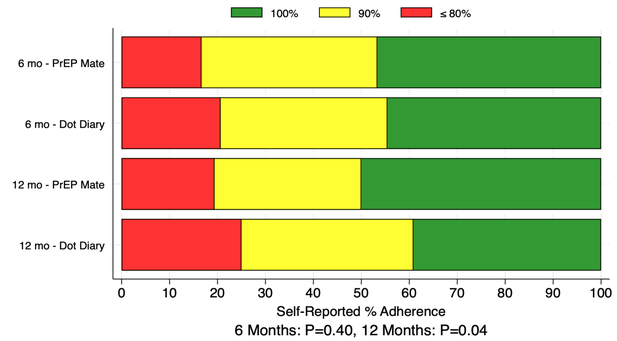


Table 2. Acceptability of DOT Diary and PrEPmate

Acceptability measure	DOT Diary	PrEPmate	P value
SUS score Median (IQR)	63 (44-88) "Okay"	70 (38-81) "Good"	0.81
Would use in the future	60%	62%	0.89
Recommend to a friend	66%	72%	0.45

DOT Diary user: Yeah, this is a really useful app, and I would like to actually use it more consistently. Because I do think it is a great way to document both my PrEP usage and my encounter dates

PrEPmate user: I think having that open line of communication is really helpful…I think, yeah, it's just kind of helped me feel a bit more connected to my clinic and not feel like I'm just a number walking in and out of the door.

CONCLUSIONS

- In this demographically diverse, sexually active cohort, over three-quarters of participants were persistent on PrEP at 6 months and over half at 12 months, with similar rates across arms.
- Self-reported adherence was high in both groups, and the proportion of samples tested with protective TFV-DP were similar across arms.
- These data provide evidence for these tools to support PrEP use in real-world settings.

Albert Liu, MD, MPH
SF Dept of Public Health, Bridge HIV
25 Van Ness Avenue, Suite 100
San Francisco, CA 94102
albert.liu@sfdph.org