FACTORS ASSOCIATED WITH PREP PERSISTENCE AND ADHERENCE AMONG MSM IN 4 U.S. CITIES

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Background

- Persistence and adherence to HIV pre-exposure prophylaxis (PrEP) are critical to achieving national HIV prevention goals.
- No gold standard for measuring PrEP persistence and adherence exists, yet biological testing for tenofovir (TFV), tenofovir diphosphate (TFV-DP), and emtricitabine (FTC) is best practice.
- Prescription-based studies have estimated that 26% of PrEP users do not persist by 6 months after initiation and 44% do not persist by 12 months (Huang et. al. 2020).
- Efficacy and efficiency of PrEP to reduce new HIV infections is improved with higher adherence (CDC 2019; Jenness et. al. 2016).
- Knowledge about persistence and adherence and associated factors among men who have sex with men (MSM) nationally are limited.

Methods



- 2017 National HIV Behavioral Surveillance
- Eligible MSM recruited via venue-based sampling in 4 U.S. cities:
  - Los Angeles, San Francisco, Philadelphia, and Washington DC
- Completed survey, HIV testing, and dried blood spot (DBS) collection
- DBS tested for TFV, FTC, and TFV-DP by liquid chromatography mass spectrometry
- Analyses were limited to HIV-negative MSM with CDC-based PrEP indications and who self-reported PrEP use in the past 12 months
- Poisson regression with robust standard errors accounting for clustering by venue recruitment event and adjusting for city was used to obtain prevalence ratios (PR) and 95% confidence intervals (CIs)

Persistence[1]	**Optimal or consistent adherence[2]**	**Optimal adherence[2]**
Self-reported PrEP use in the past 12 months and **had any detectable TFV, FTC, or TFV-DP in DBS**	Self-reported PrEP use in the past 1 month and **had detected TFV-DP at ≥700 fmol/punch in DBS** (consistent with 4-7 doses/week on average)	Self-reported PrEP use in the past 1 month and **had detected TFV-DP at ≥1250 fmol/punch in DBS** (consistent with 7 doses/week on average)

[1]Among participants who reported using PrEP in the past 12 months, consented to DBS storage, and had valid test results.

[2]Among those who reported PrEP use in past month, consented to DBS storage, and had valid TFV-DP results.

Results

Persistence was lower among MSM who were ***younger*** than 30, had ***less than college education***, had ***public insurance***, and had ***fewer than 10 sex partners***.

Adherence was lower among MSM who were ***younger*** than 40, ***black*** race/ethnicity, had ***high school education or less***, had ***fewer than 5 sex partners,*** and lived in ***Philadelphia.***

80% persistent on PrEP

80% optimally or consistently adherent to PrEP

66% optimally adherent to PrEP

	PrEP Persistence[1] (N=391)				PrEP Adherence[2] (N=302)							
					Optimal or consistent adherence (4-7 doses/week)				Optimal adherence (7 doses/week)			
	n	%	PR (95% CI)	p-value	n	%	PR (95% CI)	p-value	n	%	PR (95% CI)	p-value
Age (years)												
18-29	116	70	0.8 (0.7, 0.9)	**<0.01**	88	73	0.8 (0.7, 0.9)	**<0.01**	72	60	0.7 (0.6, 0.9)	**<0.01**
30-39	132	87	1.0 (0.9, 1.1)	0.83	100	80	0.8 (0.8, 0.9)	**<0.01**	78	62	0.7 (0.6, 0.9)	**<0.01**
≥40	63	86	Referent		55	96	Referent		50	88	Referent	
Race/ethnicity												
Black/African American	53	72	1.0 (0.8, 1.2)	0.75	33	58	0.7 (0.6, 0.9)	**0.01**	24	42	0.7 (0.5, 0.98)	**0.04**
Hispanic/Latino[3]	79	78	1.0 (0.8, 1.2)	0.96	61	79	0.9 (0.8, 1.0)	0.06	47	61	0.8 (0.6, 1.0)	0.05
White	136	85	Referent		109	87	Referent		95	76	Referent	
Other	42	78	1.1 (0.9, 1.3)	0.27	39	93	1.0 (0.9, 1.1)	0.37	33	79	1.0 (0.8, 1.2)	0.85
Education												
≤High school degree	40	67	0.8 (0.6, 0.9)	**0.01**	26	62	0.8 (0.6, 1.0)	**0.04**	19	45	0.7 (0.5, 0.95)	**0.02**
Some college	59	67	0.8 (0.7, 0.9)	**<0.01**	47	76	0.9 (0.8, 1.1)	0.23	37	60	0.9 (0.7, 1.1)	0.16
College degree or higher	212	87	Referent		170	86	Referent		144	73	Referent	
Health insurance												
No health insurance	21	68	0.8 (0.6, 1.0)	0.07	17	85	1.0 (0.9, 1.2)	0.63	12	60	0.9 (0.6, 1.3)	0.62
Public	61	69	0.8 (0.7, 0.97)	**0.02**	45	70	1.0 (0.8, 1.1)	0.71	37	58	1.0 (0.8, 1.2)	0.82
Private	223	84	Referent		175	83	Referent		146	69	Referent	
Other/multiple	5	83	1.0 (0.7, 1.4)	0.96	5	100	1.3 (1.1, 1.5)	**<0.01**	4	80	1.3 (0.3, 2.2)	0.41
Number of male sex partners, past 12 months												
1-4	41	58	0.7 (0.5, 0.8)	**<0.01**	29	66	0.8 (0.7, 1.0)	0.05	20	45	0.7 (0.5, 0.96)	**0.03**
5-9	53	73	0.8 (0.7, 0.97)	**0.02**	38	73	0.9 (0.8, 1.1)	0.38	33	63	1.0 (0.8, 1.3)	0.98
≥10	217	88	Referent		176	85	Referent		147	71	Referent	
City												
Los Angeles	74	81	1.0 (0.8, 1.1)	0.71	62	83	1.0 (0.8, 1.1)	0.58	54	72	1.0 (0.9, 1.2)	0.91
Philadelphia	34	68	0.8 (0.7, 1.0)	0.10	21	55	0.6 (0.5, 0.9)	**0.01**	13	34	0.5 (0.3, 0.9)	**<0.01**
San Francisco	122	82	Referent		106	87	Referent		87	71	Referent	
Washington DC	81	79	1.0 (0.8, 1.1)	0.23	54	81	0.9 (0.8, 1.1)	0.41	46	69	1.0 (0.8, 1.2)	0.71
Total[4]	311	80			243	80			200	66		

[1]Among participants who reported using PrEP in the past 12 months, consented to DBS storage, and had valid test results

[2]Among those who reported PrEP use in past 1 month, consented to DBS storage, and had valid TFV-DP results.

[3]Hispanic/Latinos can be of any race.

[4]Numbers may not sum to total due to missing values.

Conclusions

- Efforts to support PrEP persistence and adherence are needed for MSM.
  - While our results demonstrate higher persistence than the general population, one in five MSM discontinued PrEP in the past year.
  - Most MSM were at least optimally or consistently adherent to PrEP, though gaps remained and disparities by age, race/ethnicity, and city context were observed.
- Interventions should be tailored to and proven effective for improving persistence and adherence among MSM who are young, have less than college education, are black race/ethnicity, and have public insurance (e.g., Medicaid). Strategies may also require adaptation to city context.
- National surveillance for PrEP persistence and adherence in key populations could support monitoring improvements in continual, effective PrEP use over time.

Limitations

- NHBS is not a nationally representative sample and testing only took place in 4 NHBS cities; thus results may not be generalizable to all MSM.
- NHBS is a cross-sectional surveillance activity and is not designed to capture outcomes such as time to PrEP discontinuation.

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