# Association of PrEP Use and Past and Current STIs Among MSM in Washington, DC, 2017

Laura Marcela Torres,[1] Anya Agopian,[1] Anthony Rawls,[1] Jenevieve Opoku,[2] Manya Magnus,[1] Matthew Levy,[1] Michael Kharfen,[2] Irene Kuo[1]

[1] George Washington University Milken Institute School of Public Health, Washington, DC [2] District of Columbia Department of Health, Washington, DC

Contact: Irene Kuo, PhD, MPH
ikuo@gwu.edu

Poster ID: 0967

## Background

- Oral pre-exposure prophylaxis (PrEP) reduces HIV transmission
- In the DC area, from 2012—the year when Truvada was approved for PrEP—to 2016, there has been an increase of about 10% in reports of *C. trachomatis* and 18% in *N. gonorrheae* infections
- There has been growing interest about the potential association between PrEP and elevated sexually transmitted infections (STIs)
- It is unclear whether increased STI diagnoses are a result of surveillance bias from initial and regular STI testing among PrEP users, from an actual increase in risk while on PrEP, or from a temporary increase risk independently of PrEP use

**Objectives:**

- Examine the association between **recent PrEP use and self-reported past year bacterial STIs** among men who have sex with men (MSM) in the DC area
- Examine the association between **recent PrEP use and current reactive bacterial** STI test results among MSM in the DC area

## Methods

- We used cross-sectional data from the 2017 National HIV Behavioral Surveillance conducted in Washington, DC
- MSM aged 18+ recruited via venue-based sampling
- Standardized behavioral survey
- Voluntary HIV and pharyngeal and rectal Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (GC) testing

**Analytic sample (of MSM from NHBS):**

- MSM who were PrEP eligible *(self-reported HIV negative)*
- Consented to STI testing
- Answered the yes/no question about past year PrEP use
- Restricted analyses to those who reported condomless sex in the past 12 months *(condom use potential confounder)*

**Dependent variables:**

- Reactive bacterial oral and/or rectal STI (CT and/or GC) test results
- Self-reported diagnosis of CT and/or GC in the past 12 months

**Statistical methods:**

- Multivariable logistic regression was used to assess the associations between past year PrEP use and self-reported past year STIs and current reactive STI test results

## Results

**Preliminary findings:**

Table 1. Baseline characteristics of eligible participants

| N=275 | Non-PrEP Users N=162 | (%) | PrEP Users N=113 | (%) | p-value |
|---|---|---|---|---|---|
| **Race/Ethnicity** | | | | | **0.0001** |
| Black/ African-American | 79 | (48.8) | 25 | (22.1) | |
| Hispanic | 19 | (11.7) | 20 | (17.7) | |
| White, non-Hispanic | 46 | (28.4) | 53 | (46.9) | |
| Other | 18 | (11.1) | 15 | (13.3) | |
| **Education Level** | | | | | **0.001** |
| Less than High School/High School/ Equivalent | 26 | (16.1) | 6 | (5.3) | |
| Some college/Associate's/ Technical Degree | 43 | (26.5) | 19 | (16.8) | |
| Bachelor's Degree or Higher | 93 | (57.4) | 88 | (77.9) | |
| **Annual Income (n=273)** | | | | | **<.0001** |
| ≤$19,999 | 28 | (17.5) | 7 | (6.2) | |
| $20,000-$39,999 | 40 | (25.0) | 11 | (9.7) | |
| $40,000-$59,999 | 24 | (15.0) | 16 | (14.2) | |
| $60,000-$74,999 | 19 | (11.9) | 15 | (13.3) | |
| ≥ $75,000 | 49 | (30.6) | 64 | (56.6) | |
| **Health Insurance** | | | | | **0.05** |
| Uninsured | 28 | (17.3) | 10 | (8.9) | |
| Insured | 134 | (82.7) | 103 | (91.2) | |
| **No. Partners Past 12 Months** | | | | | **<.0001** |
| 1 – 2 | 42 | (25.9) | 8 | (7.08) | |
| 3 – 5 | 44 | (27.2) | 19 | (16.8) | |
| 6 – 10 | 35 | (21.6) | 17 | (15.0) | |
| 11 – 20 | 21 | (13.0) | 26 | (23.0) | |
| 21≥ | 20 | (12.4) | 43 | (38.1) | |
| **Laboratory diagnosed rectal and/or oral STI (n=275)** | | | | | **0.04** |
| Negative results | 147 | (90.7) | 93 | (82.3) | |
| Positive results | 15 | (9.3) | 20 | (17.7) | |
| **Laboratory diagnosed rectal STI (n=272)** | | | | | **0.01** |
| Negative results | 150 | (93.7) | 94 | (83.9) | |
| Positive results | 10 | (6.3) | 18 | (16.1) | |
| **Laboratory diagnosed oral STI (n=274)** | | | | | 0.98 |
| Negative results | 154 | (95.7) | 108 | (95.6) | |
| Positive results | 7 | (4.3) | 5 | (4.4) | |

## Results (cont'd)

Of 275 eligible participants:

- 41% used PrEP in the past year
- PrEP users were more likely to be white and have 20 or partners in the past year
- 25% self-reported a STI (GC and/or CT) in the past year, 13% had a current reactive STI test result, and 3% self-reported a STI and had a current reactive STI test result

Table 2. Unadjusted and adjusted prevalence odds ratios of past year PrEP use and current reactive bacterial STI test results and self-reported past year bacterial STI

| | Unadjusted uPOR 95% CI | ChiSq p-value | Adjusted aPOR 95%CI | ChiSq p-value |
|---|---|---|---|---|
| Self-reported STI in past year (GC and/or CT)* n=275 | | | | |
| PrEP use in the past 12 months (Ref. no PrEP use) | 3.81 (2.16-6.84) | <.0001 | 2.76 (1.43-5.42) | 0.003 |
| Lab diagnosed rectal and/or oral STI (GC and/or CT)** n=273 | | | | |
| PrEP use in the past 12 months (Ref. no PrEP use) | 2.11 (1.03-4.39) | 0.04 | 1.69 (0.69-4.3) | 0.26 |

*Adjusted for age, race, education, health insurance, and number of partners

**Adjusted for age, race, income, health insurance, and number of partners
Two observations omitted due to missing annual income responses

Self-report STI in past year and PrEP use in the past 12 months (adjusted model)

- Past year PrEP users were **nearly three times as likely** to self-report a STI in the past year compared to non-PrEP users

Current reactive bacterial STI results and PrEP use in the past 12 months (unadjusted and adjusted models)

- The association between past year PrEP use and having a reactive bacterial STI test result was positive in both the unadjusted and adjusted models. The association was significant in the unadjusted model but non-significant in the adjusted model.

## Limitations

- Cross-sectional data: Temporality of PrEP use and STI infection was not determined.
- Confounding by indication: The reason/s to use PrEP might also be associated with a risk of STI.
- Self-reported data: PrEP users might have better recall about condom use, STI diagnosis, and number of partners compared to non-PrEP users.

## Conclusions

- Recent PrEP use was associated with self-reported past year STIs but not with being currently infected.
- PrEP users regularly interface with the medical system, leading to more opportunities for screening, diagnosis, and treatment, which may have resulted in higher odds of past year STI, but lower prevalence of active STIs diagnosed at the time of the survey.
- Future studies should examine the association of PrEP use with STI diagnosis in conjunction with treatment and use of health services using a longitudinal design.

## Acknowledgements

We would like to acknowledge Avery Barber, James Peterson, Alan Greenberg, Monica Adams (CDC), NHBS interviewers, and NHBS study participants.

Funding for this project comes from the Public Health/Academic Partnership between DC DOH/HAHSTA and GWU Milken Institute School of Public Health, Contract Number POHC-2011-C-0073 and technical support from the District of Columbia Center for AIDS Research P30AI117970.