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Population-level Effectiveness of HIV PrEP among MSM and Transgender Persons with Bacterial STI

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Background

- HIV PrEP is highly efficacious, but its effectiveness may be limited by poor adherence or discontinuation
- Few studies have evaluated PrEP effectiveness outside of specific clinics or healthcare organizations.

Methods

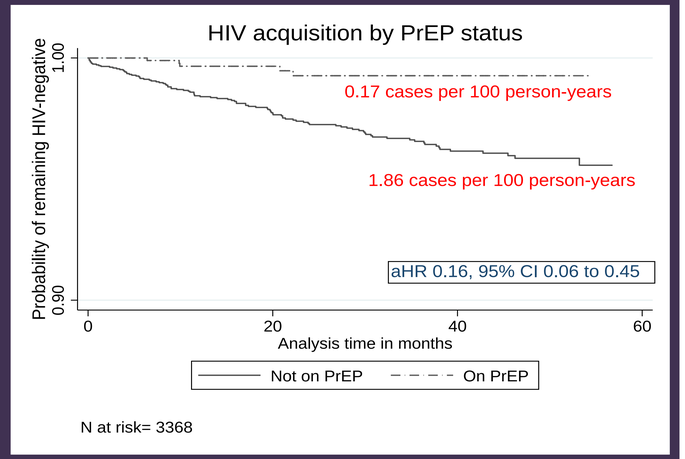
- Retrospective cohort study using King County, Washington data from January 1, 2014 to August 31, 2018 using Partners Services (PS) interviews, during which people with STI were asked about PrEP use
- Population: MSM and transgender persons who have sex with men (TGSM)
- PrEP use at the time of STI diagnosis (syphilis, gonorrhea, chlamydia) ascertained through PS interview
- STI cases matched to HIV surveillance to identify new HIV diagnoses after STI
- Assessed impact of PrEP use on subsequent risk for HIV using Cox Proportional Hazard regression adjusted for age, race/ethnicity, and bacterial STI
- MSM and TGSM without an HIV diagnosis were censored on August 31, 2018
- Reviewed HIV PS interview records for PrEP users who seroconverted to assess PrEP use at time of HIV diagnosis

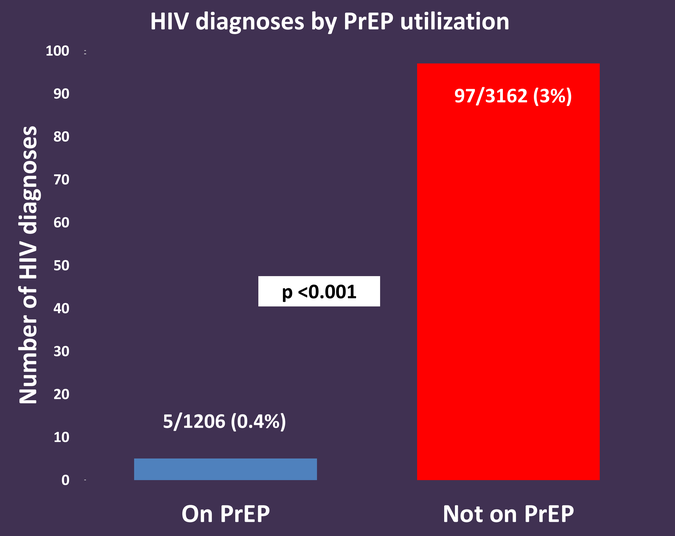
Results

Table 1. Characteristics of MSM and TGSM with STI at time of PS interview by PrEP status

Variables Total N=4368	Total N (%)	On PrEP (N=1206)	Not on PrEP (N=3162)	P-value
Age				
<20	162 (4)	15 (1)	147 (5)	
20-29	2027 (46)	441 (36)	1586 (50)	<0.001
30-39	1297 (30)	460 (39)	837 (26)	
40-49	519 (12)	183 (15)	336 (11)	
50+	363 (8)	107 (9)	256 (8)	
Race				
White	2959 (68)	897 (74)	2062 (65)	<0.001
Black	316 (7)	63 (5)	253 (8)	
AI/AN	37 (1)	9 (1)	28 (1)	
Asian	384 (9)	81 (7)	303 (10)	
NH/PI*	78 (1)	13 (1)	65 (2)	
Other	417 (10)	103 (9)	314 (10)	
Multiracial	177 (4)	40 (3)	137 (4)	
Ethnicity				
Latinx	803 (18)	214 (18)	589 (19)	0.66
Non-Latinx	3511 (81)	979 (81)	2532 (80)	
Missing	54 (1)	13 (1)	41 (1)	
Gender				
Cis male*	4330 (100)	1195 (100)	3135 (100)	0.98
Trans female	31 (<1)	9 (<1)	22 (<1)	
NB/GQ/Other	7 (<1)	2 (<1)	5 (<1)	
STD diagnosis				
Syphilis	667 (15)	223 (19)	444 (14)	<0.001
Gonorrhea	2675 (61)	790 (66)	1885 (60)	<0.001
Chlamydia	1608 (37)	385 (32)	1223 (39)	<0.001
Anal sex, past year				
Yes	3532 (81)	1010 (84)	2522 (80)	<0.001
No	139 (3)	9 (<1)	130 (4)	
Missing	697 (16)	187 (16)	510 (16)	
Meth use, past year				
Yes	180 (4)	49 (4)	131 (5)	
No	3771 (94)	1052 (94)	2719 (94)	0.90
Missing	63 (2)	19 (2)	44 (2)	

*NH/PI: Native Hawaiian/Pacific Islander, no transgender men





Summary

- The risk for HIV was 1.86 per 100 person-years in non-PrEP users compared to 0.17 per 100 person years in PrEP users
- PrEP use was associated with an 84% decrease in new HIV diagnoses
- All 5 PrEP users who seroconverted had discontinued PrEP

Conclusions

- PrEP is highly effective in the context of real-world adherence and discontinuation rates
- Our findings highlight PrEP discontinuation as a key challenge limiting the effectiveness of PrEP

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