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Uptake of Pre-exposure Prophylaxis (PrEP) in Young Men Who Have Sex with Men is Associated with Race, Sexual Risk Behavior and Network Size

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Division of Adolescent Medicine

Conflict of Interest Disclosure
Lisa Kuhns, PhD, MPH

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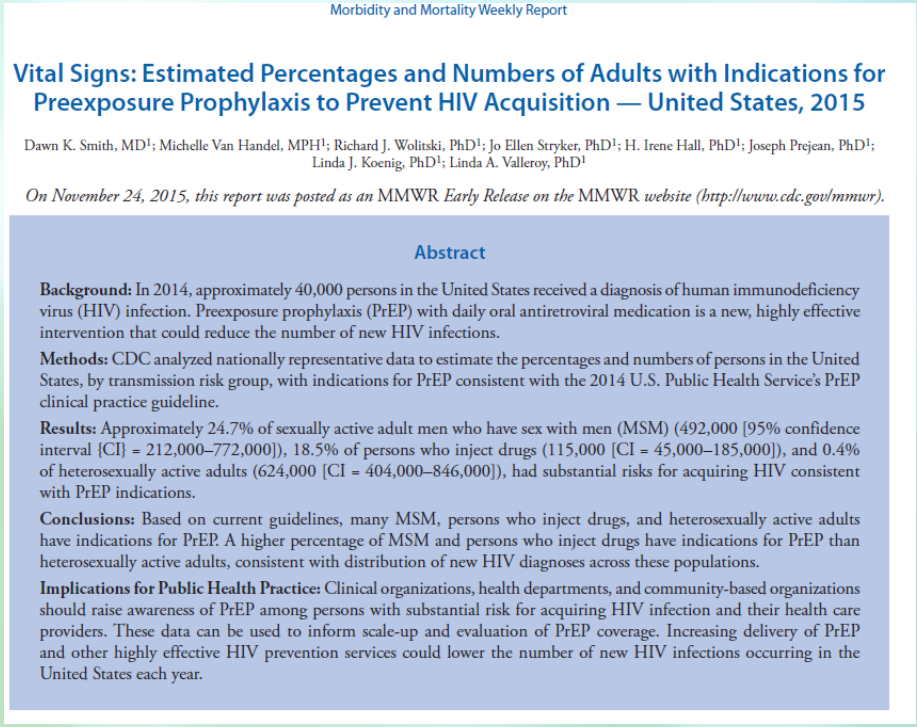
Purpose:

Describe self-reported uptake of PrEP among YMSM outside of a formal PrEP trial, as well as to describe potential correlates of uptake.

Background:

- Slow uptake of PrEP among men who have sex with men (MSM) in the US, despite high indication
- Some evidence of differential uptake by race (NY)
- Few studies of PrEP uptake among young MSM (YMSM): a group at increased risk of HIV infection.



Morbidity and Mortality Weekly Report

Vital Signs: Estimated Percentages and Numbers of Adults with Indications for Preexposure Prophylaxis to Prevent HIV Acquisition — United States, 2015

Dawn K. Smith, MD[1]; Michelle Van Handel, MPH[1]; Richard J. Wolitski, PhD[1]; Jo Ellen Stryker, PhD[1]; H. Irene Hall, PhD[1]; Joseph Prejean, PhD[1]; Linda J. Koenig, PhD[1]; Linda A. Valleroy, PhD[1]

On November 24, 2015, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

Abstract

Background: In 2014, approximately 40,000 persons in the United States received a diagnosis of human immunodeficiency virus (HIV) infection. Preexposure prophylaxis (PrEP) with daily oral antiretroviral medication is a new, highly effective intervention that could reduce the number of new HIV infections.

Methods: CDC analyzed nationally representative data to estimate the percentages and numbers of persons in the United States, by transmission risk group, with indications for PrEP consistent with the 2014 U.S. Public Health Service's PrEP clinical practice guideline.

Results: Approximately 24.7% of sexually active adult men who have sex with men (MSM) (492,000 [95% confidence interval {CI} = 212,000–772,000]), 18.5% of persons who inject drugs (115,000 [CI = 45,000–185,000]), and 0.4% of heterosexually active adults (624,000 [CI = 404,000–846,000]), had substantial risks for acquiring HIV consistent with PrEP indications.

Conclusions: Based on current guidelines, many MSM, persons who inject drugs, and heterosexually active adults have indications for PrEP. A higher percentage of MSM and persons who inject drugs have indications for PrEP than heterosexually active adults, consistent with distribution of new HIV diagnoses across these populations.

Implications for Public Health Practice: Clinical organizations, health departments, and community-based organizations should raise awareness of PrEP among persons with substantial risk for acquiring HIV infection and their health care providers. These data can be used to inform scale-up and evaluation of PrEP coverage. Increasing delivery of PrEP and other highly effective HIV prevention services could lower the number of new HIV infections occurring in the United States each year.

Methods:

- Data from on-going network study of YMSM, ages 16-29 (baseline, cross-sectional)
- YMAP: Young Men's Affiliation Project and HIV Risk and Prevention Venues (R01MH100021)
- MPIs: K. Fujimoto; J. Schneider

YMAP
YOUNG MEN'S AFFILIATION PROJECT

Methods:

•Participants recruited via respondent-driven sampling (RDS) at three sites in two cities (Chicago, Houston) from 2014-2016:

- In age range (16-29)
- Sexually active with other men
- No plans to move from the study area during the period of enrollment

•Participants completed HIV testing and survey interview via CAPI

•Correlates of PrEP uptake were assessed in multivariable logistic regression models, controlling for recruitment chain and RDS weight.

Methods:

Dependent variable: PrEP uptake

"*One way to fight HIV that is being tested is called PrEP, which stands for pre-exposure prophylaxis. PrEP is being tested as a way to fight HIV by giving HIV-negative people HIV drugs to keep them from getting HIV. The following questions are about your thoughts and opinions of this way of fighting HIV.*"

"Have you ever taken HIV medication before sex because you thought it would lower your chances of getting HIV (also known as PrEP)?"

Methods:

Independent variables:

- Socio-demographics: Age, race, education, employment status
- Health access: insurance status, city, year of enrollment
- Network: network size, gay community affiliation
- Risk: STD hx, condomless anal sex, HIV+ partner, group sex, HIV testing hx

Results:

Sample size:

N=553 total cases → Excluded:
n=156 HIV+
n=1 unknown HIV status
n=1 < age 18
n=1 missing DOB

↓

N=394 analytic sample

Results:

PrEP Uptake

- Ever taken PrEP: 48 (12.2%)
  - Of those:
    - Taken PrEP in last 6M: 42 (87.5%)
    - Currently taking PrEP: 37 (77.1%)

Table 1: Prevalence of PrEP Use by Sociodemographic Characteristics, N=394

	Total, N=394 n (col %)	Ever used PrEP, N=48 n (row %)	Never used PrEP, N=346 n (row %)	p-value[a]
Age, Median (IQR)	24 (22-26)	24 (22-26)	24 (22-27)	0.665
Race/Ethnicity				
White	95 (24.1)	28 (29.5)	67 (70.5)	<0.001
Black	193 (49.0)	9 (4.7)	184 (95.3)	
Hispanic	77 (19.5)	9 (11.7)	68 (88.3)	
Other	29 (7.4)	2 (6.9)	27 (93.1)	
Educational attainment				
< HS	34 (8.7)	2 (5.9)	32 (94.1)	0.272
HS or GED	91 (23.2)	9 (9.9)	82 (90.1)	
College	268 (68.2)	36 (13.4)	232 (86.6)	
Student (Full or part time)				
Yes	121 (30.7)	16 (13.2)	105 (86.8)	0.480
No	273 (69.3)	32 (11.7)	241 (88.3)	
Employed (Full or part time)				
Yes	264 (67.0)	36 (13.6)	228 (86.4)	0.402
No	130 (33.0)	12 (9.2)	118 (90.8)	

a. P-value by logistic regression on ever use of PrEP adjusted for clustering by recruitment chain and RDS weights
b. Gender was not examined in multivariable analysis due to small cell sizes for transgender and other categories.

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Table 2: Prevalence of PrEP Use by Health Access Characteristics, N=394

	Total, N=394 n (col %)	Ever used PrEP, N=48 n (row %)	Never used PrEP, N=346 n (row %)	p-value[a]
Health insurance				
Yes	287 (73.8)	45 (15.7)	242 (84.3)	0.048
No	102 (26.2)	3 (2.9)	99 (97.1)	
City				
Chicago	238 (60.4)	37 (15.6)	201 (84.4)	0.151
Houston	156 (39.6)	11 (7.1)	145 (92.9)	
Year of enrollment				
2014	21 (5.3)	3 (14.3)	18 (85.7)	0.564
2015	359 (91.1)	44 (12.3)	315 (87.7)	
2016	14 (3.6)	1 (7.1)	13 (92.9)	

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Table 4. Prevalence of PrEP Use by Social Network Characteristics, N=394

	Total, N=394 n (col %)	Ever used PrEP, N=48 n (row %)	Never used PrEP, N=346 n (row %)	p-value[a]
Network size				
0-5	85 (21.6)	5 (5.9)	80 (94.1)	0.002
6-14	85 (21.6)	9 (10.6)	76 (89.4)	
15-39	125 (31.7)	18 (14.4)	107 (85.6)	
>=40	99 (25.1)	16 (16.2)	83 (83.8)	
Median (IQR)	15 (6-40)	21 (10.5-50)	15 (6-30)	
Gay community affiliation				
Very much a part of	152 (38.7)	26 (17.1)	126 (82.9)	0.020
Somewhat a part of	181 (46.1)	19 (10.5)	162 (89.5)	
Not very much a part of	47 (12.0)	2 (4.3)	45 (95.7)	
Not at all a part of	13 (3.3)	1 (7.7)	12 (92.3)	

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Table 5: Prevalence of PrEP Use by Risk Characteristics, N=394

	Total, N=394 n (col %)	Ever used PrEP, N=48 n (row %)	Never used PrEP, N=346 n (row %)	p-value[a]
Any STD history				
Yes	84 (21.3)	17 (20.2)	67 (79.8)	0.024
No	310 (78.7)	31 (10.0)	279 (90.0)	
Any UAS				
Yes	284 (72.1)	41 (14.4)	103 (93.6)	0.012
No	110 (27.9)	7 (6.4)	243 (85.6)	
Any HIV positive partner				
Yes	58 (14.7)	15 (25.9)	43 (74.1)	0.002
No	336 (85.3)	33 (9.8)	303 (90.2)	
Any group sex				
Yes	136 (34.5)	31 (22.8)	105 (77.2)	<0.001
No	258 (65.5)	17 (6.6)	241 (83.4)	
HIV test ever				
Yes	374 (94.9)	47 (12.6)	327 (87.4)	0.436
No	20 (5.1)	1 (5.0)	19 (95.0)	
HIV test past 2 yrs				
Yes	350 (90.0)	45 (12.9)	305 (87.1)	0.187
No	39 (10.0)	1 (2.6)	38 (97.4)	

a. P-value by logistic regression on ever use of PrEP adjusted for clustering by recruitment chain and RDS weights

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a. P-value by logistic regression on ever use of PrEP adjusted for clustering by recruitment chain and RDS weights

Table 6: Multivariable logistic regression results

	Multivariable OR[a] (95% CI)	p-value
Age in years	0.93 (0.79-1.08)	0.321
Race/Ethnicity		
White	1.0 (ref)	--
Black	0.16 (0.06-0.43)	<0.001
Hispanic	0.56 (0.19-1.69)	0.294
Other	0.49 (0.08-3.17)	0.442
City		
Houston	1.0 (ref)	--
Chicago	2.41 (1.01-5.75)	0.048
Health insurance	4.55 (0.65-31.8)	0.122
Network size, median split (≥15 vs. <15)	2.29 (1.10-4.79)	0.029
Any HIV positive partner	4.71 (1.69-13.1)	0.004
Any group sex	3.37 (1.45-7.86)	0.006

a. Odds ratios generated from logistic regression on ever use of PrEP adjusted for clustering by recruitment chain and RDS weights. Odds ratios are adjusted for all variables for which estimates are presented. Age and health insurance status were retained in the model based on conceptual relevance despite lack of statistical significance.

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Limitations

- Sample: Urban and networked sample
- Self-reported PrEP use
- Cross-sectional analysis (confounding)

Conclusions

- Suggests PrEP uptake (ever) may be low among sexually active YMSM (12.2%)
  - Efforts needed to reach YMSM of color, particularly Black YMSM
  - Suggests those with greater risk are more likely to use PrEP (controlling for race and age)
  - Connectedness to other YMSM may be an important area of intervention to explore
  - There may be variation in PrEP uptake by urban area due to differences in access or other factors
- Further research is needed identify potential mechanisms of action and points of intervention.

Acknowledgements

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