Behavior Change among HIV-Negative Men who Have Sex with Men NOT Using PrEP in the US

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BACKGROUND

- Falling HIV incidence among US cisgender MSM, given PrEP and treatment-as-prevention (aka "U=U").
- But still >20k diagnoses among US CMSM each year
- Considerable effort to decrease economic, legal, social and political barriers to PrEP and treatment for CMSM
- Considerable previous research to document behavior change among CMSM on PrEP
- **Research gap**: behavioral change among HIV-negative US CMSM *not* using PrEP
- This population still includes the majority of CMSM
- **Hypothesis 1**: such men may see increasing rates of CAS either with partners believed to be on PrEP or suppressed (indirect protection), or more generally given changing norms around condom use
- **Hypothesis 2**: increases would be largest for young CMSM and vary by race/ethnicity.

METHODS

- Data: American Men's Internet Survey (2014-2019), limited to subsample enrolled in 2 consecutive years and reporting being HIV-negative and not using PrEP both years (n=2,365).
- Step 1: estimate proportion reporting CAS in each of their 2 survey years (w/ 1-sided McNemar test)
- Step 2: disaggregate by partner HIV status (unknown, positive, negative).
- Step 3: among respondents reporting 1+ CAS partners in year 1, measure changes in number of CAS partners in year 2 (w/ Wilcoxon signed rank test).

RESULTS

% of respondents reporting any CAS in last 12 mos:

- ↑ 2.2 pp overall
- ↑ 12.6 pp for 15-25 yo Hispanic respondents

Young (15-24 year-old) cisgender MSM (CMSM) not on PrEP saw a 5-percentage point (pp) year-on-year increase in condomless anal sex (CAS) during the period 2014-19. For young Hispanic CMSM, the figure was 13 pp. Most was with partners of perceived negative or unknown status, so not attributable to U=U.

Group	N (col. %)	% reporting CAS in last 12 mos.			McNemar test p-value
		Year 1	Year 2	Change	
All participants	2,365 (100%)	67.7%	69.9%	+ 2.2	0.008
Age					
15-24	556 (24%)	69.6%	74.6%	+ 5.0	0.007
≥25	1,809 (76%)	67.1%	68.4%	+ 1.3	0.105
Race/ethnicity					
Black (non-Hispanic)	123 (5%)	62.6%	65.9%	+ 3.3	0.262
Hispanic (any race)	273 (12%)	70.0%	75.1%	+ 5.1	0.038
White (non-Hispanic)	1,823 (78%)	67.5%	69.4%	+ 1.9	0.027
Another race (non-Hispanic)	123 (5%)	71.5%	67.5%	- 4.0	0.895
NCHS† county urbanicity					
Large metro – central	955 (40%)	65.9%	67.5%	+ 1.6	0.116
Large metro – fringe	485 (21%)	69.1%	71.8%	+ 2.7	0.116
Medium/small metro	732 (31%)	69.9%	72.0%	+ 2.1	0.109
Micropolitan/non-core	193 (8%)	64.8%	68.4%	+ 3.6	0.180
Sub-analyses					
Black (non-Hispanic), ages 15-24	37 (30%)‡	56.8%	59.5%	+ 2.7	0.500
Black (non-Hispanic), ages ≥25	86 (70%)‡	65.1%	68.6%	+ 3.5	0.291
Hispanic (any race), ages 15-24	117 (43%)‡	68.4%	81.2%	+ 12.8	0.003
Hispanic (any race), age ≥25	156 (57%)‡	71.2%	70.5%	- 0.7	0.649
White (non-Hispanic), ages 15-24	357 (20%)‡	71.4%	75.1%	+ 3.7	0.086
White (non-Hispanic), age ≥25	1,466 (80%)‡	66.5%	68.1%	+ 1.6	0.083
Another race (non-Hispanic), 15-24	39 (32%)‡	66.7%	61.5%	- 5.2	0.856
Another race (non-Hispanic), ≥25	84 (68%)‡	73.8%	70.2%	- 3.6	0.849

‡ Denominator for proportion is participants in that column group in the racial group of the corresponding sub-analysis

Add'l predictors not shown: lower education and income

Disaggregating by partner serostatus:

Partner status	PP increase in CAS in last 12 mos	Significant positive predictors include:
Perceived as HIV-negative	3.6%	Age 15-24, Hispanic ethnicity, White race
Known to be living with HIV	1.8%	Bachelor's degree or higher
Reported as unknown	0.4%	none

CAS partners (among those with >0)

Group	N	90th %iles		Wilcoxon signed rank test p-value
		Y1	Y2	
All participants	836	4	5	0.099
Age				
<25	200	3	4	0.001
>=25	636	5	5	0.559
Race/ethnicity				
Black (non-Hispanic)	41	3	2	0.980
Hispanic (any race)	84	5	6	0.027
White (non-Hispanic)	652	5	5	0.094
Another race (non-Hispanic)	47	4	5	0.694
NCHS† county urbanicity				
Large metro – central	358	4	4	0.371
Large metro – fringe	173	4	5	0.001
Medium/small metro	259	5	5	0.465
Micropolitan/non-core	46	5	4	0.891

Multivariate analyses (full results not shown) comparing respondents who are:

- 15-24 yo, Hispanic
- >24 yo, non-Hisp. White [ref. group]

} *not* on PrEP and *not* having CAS in 1st year

- OR = 2.91 (95% CI 1.42-6.03) for initiating CAS while remaining off PrEP

CONCLUSIONS

- Among HIV-neg. CMSM not on PrEP, younger and Hispanic males saw large year-on-year CAS increases
- Largest increases outside urban core
- Increases both in proportion having any CAS, and # of CAS partners among those who do
- Sig. increase for White CMSM, but small effect size
- U=U messaging not main driver, since mostly with partners believed to be HIV-neg.
- Only sig. predictor of increasing CAS with persons known to be living with HIV = college education (so U=U messaging uptake is limited)
- Full set of predictors for overall CAS initiation (incl. lower education and income) suggest imperfect ability to rely on indirect protection (partners on PrEP or suppressed)
- This signals need to increase HIV prevention messaging specifically for these populations
- Although efforts around PrEP are vital, it is also key to enhance counseling about risk among CMSM unable or unwilling to initiate PrEP, as other prevention measures may be getting less visible

ADDITIONAL KEY INFORMATION

Abbreviations. CAS = condomless anal sex; **CMSM** = cisgender men who have sex with men; **OR** = odds ratio; **pp** = percentage point, **PrEP** = pre-exposure prophylaxis, **U=U** = "undetectable =transmittable", **yo** = years old.

Status. Under review

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