

# Will Eventual HIV Cure Impact HIV Prevention Behavior?

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## We sought to examine whether the availability of a future cure for HIV might impact HIV prevention behavior among HIV-negative persons

### Background and Purpose

- The majority of research on HIV cure attitudes and perceptions is among persons living with HIV (PLWH).
- If a cure for HIV becomes available in the future, an understanding of the attitudes of those living without HIV will be important:
  - Attitudes and perceptions of HIV-negative persons may exert influence on funding for cure research or implementation.
  - Among people at risk for HIV, availability of a cure may impact uptake of HIV prevention methods such as PrEP.
- The purpose of this analysis was to examine knowledge and attitudes about HIV cure in relation to HIV prevention among a sample of HIV-negative persons.

### Methods

- Data from a sample of persons  $\geq 18$  years of age were collected anonymously online via REDCap between 9/2017 and 7/2018. Only data from participants who self-reported being HIV-negative were analyzed.
- Participants were recruited through social media channels such as Facebook, social networks, word of mouth, and LGBT email lists. No incentive was given.
- The questionnaire was developed based on standard demographic and behavioral instruments, with several HIV cure questions adapted from those of prior research among PLWH populations (Arnold, 2015; Dubé 2017).
- Unadjusted and adjusted associations between participant characteristics and the primary outcome of interest ("If a cure were available for HIV, people will not use PrEP and other methods to stay HIV negative") were characterized using logistic regression, modeling agreement or strong agreement with the statement.
- To examine more subtle relationships, ordinal regression was used to evaluate associations with the full range of responses on a Likert scale.
- Confounders were identified using a bivariate screening procedure. The final model included only variables that, when excluded, resulted in a 10% change in model parameter estimates. A goodness-of-fit test was applied to the final model and considered to be appropriate if  $p > 0.20$ . Analyses were conducted in Stata version 13.0 (College Station, TX).
- An open-ended question, "Do you think your behavior (either HIV-related risk behavior, like using condoms, or your health-seeking behavior, like getting HIV tested) would change if a cure for HIV were available?" was included allowing for free response and thematic coding.
- All participants provided consent prior to participating in this study. Study procedures were approved by The George Washington University Institutional Review Board.

### Results

- Selected characteristics of the 135 participants are shown in Table 1.
- As shown in Table 2, persons who were Black/Asian/Latinx/multiracial/multiethnic [OR 6.29 (95% CI 2.20-17.99)] or  $\geq 45$  years of age [OR 4.78 (95% CI 1.53-14.90)] were more likely to perceive that HIV cure availability would be associated with non-use of PrEP and other prevention methods.
- Persons who were Black/Asian/Latinx/multiracial/multiethnic [OR 5.51 (95% CI 2.25-13.53)] and  $\geq 45$  years of age [OR 3.15 (95% CI 1.30-7.66)] demonstrated an increasing and ordered progression of agreement that HIV cure availability would be associated with non-use of PrEP and other prevention methods.
- Half of the participants provided a qualitative response to the question "Do you think your behavior (either HIV-related risk behavior, like using condoms, or your health-seeking behavior, like getting HIV tested) would change if a cure for HIV were available?" Selected responses are shown in Table 3.

### Conclusions

- The success of new health interventions depends on development of effective health communication strategies and this will be true for HIV cure as well.
- As new strategies towards HIV cure are developed, it is important to engage populations both with and without HIV in the process of developing health communication strategies.
- Engaging both PLWH and HIV-negative persons in HIV cure strategy development will prevent unintended consequences from being introduced into the HIV prevention domain through the availability of HIV cure while building awareness and acceptance of new HIV cure strategies in the future.

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**Table 1. Selected Characteristics of Participants (N=135)**

	%
Female gender identity	53
25 to 44 years old	56
Race/ethnicity*	
White	70
Black	26
Latinx	6
Other	9
Gay/bi/questioning/other sexual orientation	56
College degree or higher	88
The following applied to the participant*	
None of these apply to the participant	41
I have family or friends living with HIV	32
I work in the field of HIV	27
I feel I am at risk of HIV	19
My partner / spouse is living with HIV	2
What a cure for HIV means to me*	
Body completely eliminated of HIV	62
No risk of transmitting HIV to others	61
No more HIV treatment needed ever	56
No risk of opportunistic infections or other effects of HIV	49
Negative HIV test	36
No more HIV treatment needed temporarily	13
"If a cure were available for HIV, people will not use PrEP and other methods to stay HIV negative" (n=123)	
Strongly agree	7
Agree	20
Neutral/not sure	20
Strongly disagree	16
Disagree	37

\*Check all that apply

**Table 2. Characteristics Associated with Perceiving a Cure WILL Interfere with Use of HIV Prevention Methods including PrEP**

	Logistic Regression <sup>1</sup>		Ordinal Regression <sup>2</sup>	
	aOR	95% CI	aOR	95% CI
Female/transgender/nonbinary vs. Male	0.46	0.14-1.55	1.07	0.43-2.67
$\geq 45$ vs. $< 44$ years of age	<b>4.78**</b>	<b>1.53-14.91</b>	<b>3.15*</b>	<b>1.30-7.66</b>
Black/African-American/Asian/Latinx/multiracial/multiethnic vs. White	<b>6.29***</b>	<b>2.20-17.99</b>	<b>5.51***</b>	<b>2.25-13.53</b>
Gay/bi/questioning/other vs. Straight/heterosexual	2.24	0.69-7.26	1.76	0.72-4.30

\* $p < 0.05$  \*\* $p < 0.01$  \*\*\* $p < 0.001$  N=123

<sup>1</sup>Characteristics associated with responding Agree or Strongly Agree to sentence, "If a cure were available for HIV, people will not use PrEP and other methods to stay HIV negative"

<sup>2</sup>Increasing value indicates increasing agreement with sentence, "If a cure were available for HIV, people will not use PrEP and other methods to stay HIV negative" (1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree)

**Table 3. Selected Participant Responses to the Question, "Do you think your behavior would change if a cure for HIV were available?" (n=70)**

#### People Likely to Change – Increased Risk

It's possible. One of the main reasons I use condoms is to prevent HIV so if it were curable I could see myself being less likely to use it. Also would be less likely to be on PrEP if there were a cure.

Having a cure may mean people are less likely to use effective prevention methods. Yes, and that's fine.

#### People Not Likely to Change – No Increased Risk

Unlikely, we should always take every step possible reasonable to protect against any and all infections (due to the possibility of mutations creating resistant strains) No, it would be another tool in our 'belt' of treatment and prevention options, but I would not stop using condoms/recommending PrEP, etc.

Personally, mine would not. As prevention is always easier than treatment or curing, it's also cheaper.

#### Nuanced Responses

Not me personally, but definitely others

It depends on the cure. If the cure was readily available, had a 100% success rate, and wasn't time intensive, I'd definitely go off of PrEP. I'd still want to use condoms because of other STIs, though.

For me personally, no. But I can definitely see others who are not as well educated or informed to see an HIV cure as 'permission' to not have to wear a condom, etc.

