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Accuracy of HIV Risk-Related Information and Inclusion of Undetectable = Untransmittable, Pre-Exposure Prophylaxis, and Post-Exposure Prophylaxis on US Health Department Websites

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To the Editor:

Despite growing awareness surrounding the Undetectable = Untransmittable (U = U) message, misunderstanding and disbelief persist.[1] U = U refers to the scientific conclusion that people living with HIV (PLHIV) who maintain an undetectable viral load cannot sexually transmit the virus.[2–4] A grassroots movement to spread awareness about this finding was launched in 2016 and coined the term U = U.[5] Although U = U awareness is high in some communities,[1,6] it is lacking in others. For example, 65% of a sample of low-income Black and Latinx heterosexually active adults surveyed in 2019 were unaware of U = U.[7]

Further, U = U awareness has not translated to understanding of and belief in the U = U concept. In a study with >100,000 US sexual minority men conducted in 2017–2018, only 22% believed that the U = U message was completely accurate, and <15% perceived HIV transmission risk to be zero during anal sex with a partner whose viral load is undetectable.[1]

Effective dissemination of the U = U message is critical. The message is revolutionary given its potential to reduce stigma against PLHIV, enhance well-being among PLHIV, increase demand for HIV testing and antiretroviral therapy, and motivate antiretroviral therapy adherence.[8,9] Increased testing and treatment could reduce sexual transmission of HIV, in line with public health goals to end the HIV epidemic.

State health department websites serve as a free and trusted resource for health professionals and community members to access health information. Therefore, they offer an ideal platform for disseminating the U = U message. In this study, we systematically analyzed the availability and accuracy of HIV risk-related information on state health department websites in the United States and their inclusion of U = U among website content. We also analyzed the inclusion of pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) for comparison.

We conducted a content analysis to systematically analyze all 50 state and DC health departments. Two coders (Y.E. and M.A.Z.) initially identified health department websites through an Internet browser search for the jurisdiction and ''health department.'' For each site, coders utilized two navigation pathways to identify content: the website search bar and the menu options from the homepage. All websites contained both.

The following terms were searched in the search bar: ''Undetectable = Untransmittable,'' ''Undetectable = Untransmissible,'' ''U = U,'' ''Treatment as Prevention,'' and ''TasP.'' Review of search bar search results was limited to the first 50 listed. When navigating through the menu on the homepage, coders followed menu options related to HIV risk, prevention, and treatment.

We developed an initial coding framework based on the study objectives and preliminary review of several state websites, and we refined the framework through an iterative process. In February of 2022, the two coders applied the final framework to code the U = U and HIV risk-related information available on each of the health department websites. Both coders independently coded content from all sites, and discrepancies were reconciled through discussion.

U = U information accuracy was evaluated based on the following four criteria: (1) indicated zero transmission risk; (2) applied to sexual transmission specifically, meaning that it could not be misinterpreted as applying to injection or other risks; (3) referred to a person whose viral load was undetectable or suppressed; and (4) mentioned that viral

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suppression needed to be sustained across time (e.g., specifying 6+ months, ''durably'' suppressed, or ''ongoing'' viral suppression). The presence of inaccurate or confusing information was also coded, including the use of misleading or ambiguous language to describe risk (e.g., ''virtually no risk,'' ''minimal risk,'' or ''effectively no risk'').

The presence of web links to external sites (e.g., Centers for Disease Control and Prevention) and downloadable resources for information about U = U were also coded. In addition, the presence of information about PrEP and PEP, other forms of biomedical HIV prevention, was coded for comparison.

Table 1 summarizes content analysis findings. Across the 50 state and DC health department websites, 64.7% of the sites mentioned U = U by name on internal web pages, whereas 90.2% mentioned PrEP and 82.4% mentioned PEP. The percentage of sites that met each of the information accuracy criteria was 52.9% for zero transmission risk (Criterion 1), 56.9% for sexual transmission (Criterion 2), 58.8% for undetectable/suppressed viral load (Criterion 3), and 47.1% for suppression sustained across time (Criterion 4).

The percentage of sites that met all four accuracy criteria was 35.3%. Some sites (33.3%) used misleading or ambiguous language when describing U = U and sexual transmission risk. Most sites (82.4%) provided links to external sites or downloadable resources for information about U = U (even if they did not mention U = U by name on internal web pages).

Knowledge of U = U could lower rates of HIV sexual transmission and enhance the well-being of PLHIV. Our study found that state health department websites mentioned U = U less commonly than other forms of biomedical prevention (PrEP and PEP), and nearly two thirds did not fully and accurately describe U = U. Further, on some sites, information about U = U was primarily accessed through search bar navigation, requiring pre-existing familiarity with the term. To support public health goals to end the HIV epidemic, further efforts are needed to keep health department websites updated with accurate and accessible information related to U = U and HIV transmission risk.

Table 1. HIV Risk-Related Information and Inclusion of Biomedical Prevention on Health Department Websites in 50 States and Washington, DC

Content	*Websites n (%)*
Undetectable = Untransmittable (U = U)[a]	33 (64.7)
Pre-exposure prophylaxis	46 (90.2)
Post-exposure prophylaxis	42 (82.4)
U = U/HIV risk information accuracy	
1. Indicated zero transmission risk	27 (52.9)
2. Applied to sexual transmission specifically	29 (56.9)
3. Referred to person with undetectable viral load	30 (58.8)
4. Mentioned viral suppression needs to be sustained over time	24 (47.1)
All four accuracy criteria met	18 (35.3)
Misleading or ambiguous description of U = U or HIV transmission risk	17 (33.3)
Web link(s) to 1+ external website(s) or resources for information about U = U	42 (82.4)

[a]Explicitly used the language ''Undetectable = Untransmittable'' or ''U = U.''

This study had limitations. Each of the health department websites that we coded was identified through an initial browser search for the jurisdiction and ''health department,'' and we restricted the website content reviewed to the first 50 results returned from search bar searches and to the pages to which we were led when using the homepage menu. It is possible that other website content related to HIV risk, U = U, PrEP, or PEP that was not readily accessible on the primary health department website for a given jurisdiction or through these website navigation methods was not captured; however, it is likely that such content would similarly elude others seeking information on this topic. In addition, study results reflect website content from early 2022, and it is possible the websites have been updated since our analysis.

As state health department websites serve as a resource for health professionals and community members, information accuracy is crucial. Such websites may be particularly valuable for individuals who do not have access to a health care provider or do not feel comfortable discussing HIV or sexual behavior with their health care provider. Likewise, health care providers may not routinely broach the concept of U = U. Sexual minority men living with HIV have reported ''statements made by health organizations'' and ''websites'' to be among the sources from which they saw or heard about the U = U message, suggesting that health department websites may play a key role in disseminating the U = U message.[10]

Further efforts are needed to ensure that state health department websites are accurate and have a clear navigation pathway to inform health professionals and consumers about the latest HIV science. In addition, given that awareness about HIV risk and biomedical prevention (U = U, PrEP, and PEP) does not equate to belief in or use of biomedical prevention methods,[1,11,12] further work is needed to determine how health department websites can help to bridge these gaps.

References

1. Rendina HJ, Cienfuegos-Szalay J, Talan A, et al. Growing acceptability of undetectable = untransmittable but widespread misunderstanding of transmission risk: Findings from a very large sample of sexual minority men in the United States. J Acquir Immune Defic Syndr 2020;83(3): 215–222; doi: 10.1097/QAI.0000000000002239.
2. Rodger AJ, Cambiano V, Bruun T, et al. Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): Final results of a multicentre, prospective, observational study. Lancet 2019; 393(10189):2428–2438; doi: 10.1016/S0140-6736(19) 30418-0.
3. Cohen MS, Chen YQ, McCauley M, et al. Antiretroviral therapy for the prevention of HIV-1 transmission. N Engl J Med 2016;375:830–839; doi: 10.1056/NEJMoa1600693.
4. Bavinton BR, Pinto AN, Phanuphak N, et al. Viral suppression and HIV transmission in serodiscordant male couples: An international, prospective, observational, cohort study. Lancet HIV 2018; 5:e438–47; doi: 10.1016/S2352-3018(18)30132-2.

5. Undetectable = Untransmittable. Prevention Access Campaign—The Revolution in Living and Loving with HIV. Available from: https://preventionaccess.org/ [Last accessed: December 26, 2022].
6. Carneiro PB, Westmoreland DA, Patel VV, et al. Awareness and acceptability of Undetectable = Untransmittable among a US national sample of HIV-negative sexual and gender minorities. AIDS Behav 2021;25:634–644; doi: 10.1007/s10461-020-02990-3.
7. Rivera AV, Carrillo SA, Braunstein SL. Prevalence of U = U awareness and its association with anticipated HIV stigma among low-income heterosexually active Black and Latino adults in New York City, 2019. AIDS Patient Care STDS 2021;35(9):370–376; doi: 10.1089/apc.2021.0070.
8. Beyrer C, Adimora AA, Hodder SL, et al. Call to action: How can the US ending the HIV epidemic initiative succeed? Lancet 2021;397(10279):1151–1156; doi: 10.1016/S0140-6736(21)00390-1.
9. Okoli C, Van de Velde N, Richman B, et al. Undetectable equals untransmittable (U = U): Awareness and associations with health outcomes among people living with HIV in 25 countries. Sex Transm Infect 2021;97:18–26; doi: 10.1136/sextrans-2020-054551.
10. Rendina HJ, Talan AJ, Cienfuegos-Szalay J, et al. Treatment is more than prevention: Perceived personal and social benefits of *Undetectable = Untransmittable* messaging among sexual minority men living with HIV. AIDS Patient Care STDS 2020;34(10):444–451; doi: 10.1089/apc.2020.0137.
11. Hughto JMW, Fernández Y, Restar A, et al. High awareness but low uptake of pre-exposure prophylaxis in a community sample of trans masculine adults in Massachusetts. AIDS Patient Care STDs 2022;36(7):249–253; doi: 10.1089/apc.2022.0080.
12. MacGibbon J, Bavinton BR, Broady TR, et al. Familiarity with, perceived accuracy of, and willingness to rely on Undetectable = Untransmittable (U = U) among gay and bisexual men in Australia: Results of a national cross-sectional survey. Sex Health 2023;20(3):211–222; doi: 10.1071/SH23050.

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