



Published in final edited form as:

J Acquir Immune Defic Syndr. 2020 February 01; 83(2): e9–e12. doi:10.1097/QAI.0000000000002197.

Treatment as Prevention – Provider knowledge and counseling lag behind global campaigns

Sheri A Lippman^{1,2}, Rebecca West¹, F. Xavier Gómez-Olivé², Hannah H Leslie³, Rhian Twine², Ann Gottert⁴, Kathleen Kahn^{2,5}, Audrey Pettifor^{2,6}

¹Division of Prevention Science, University of California, San Francisco, San Francisco, CA, USA

²MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

³T.H. Chan School of Public Health, Harvard University, Somerville, MA, USA

⁴Population Council, New York, NY, USA

⁵Umeå Centre for Global Health Research, Division of Epidemiology and Global Health, Department of Public Health and Clinical Medicine, Umeå University, Umeå, Sweden

⁶Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC

Introduction:

In 2011 the landmark HIV Prevention Trials Network (HPTN) 052 trial found that early initiation of antiretroviral treatment (ART) in persons living with HIV (PLHIV) reduced viral transmission to uninfected partners by 96%.¹ Treatment as prevention (TasP), whereby HIV transmission is prevented by consistent use of HIV treatment and durable viral suppression, has ushered in a new era in worldwide HIV prevention.² The combined health benefits of averting new infections and preserving /improving health for PLHIV has translated into rapid scale-up in treatment access across the globe.³

Eight years after the publication of HPTN 052 results and three years after the launch of the Undetectable = Untransmittable (U=U) campaign,⁴ promotion of treatment as prevention has largely been adopted into global HIV discourse and policy. However, dissemination of information about TasP/U=U to communities in the most impacted areas of the world has been delayed, incomplete, or ineffective. For example, qualitative research we conducted in 2015 with rural South African men in Mpumalanga Province showed low awareness of the potential of treatment to reduce transmission to partners.⁵ Moreover, both PLHIV and those at risk of HIV believed this information would have played a significant role in their choices to get tested, initiate treatment, and disclose to their partners.⁵ The few other studies assessing TasP awareness in sub-Saharan Africa (SSA) have also found levels to be remarkably low.^{6,7}

Health providers are the primary gateway for delivering HIV prevention and treatment information. However, virtually no research has assessed provider knowledge, attitudes and

counseling practices related to TasP/U=U. Therefore, we asked health providers about TasP during a 2018 assessment of nine health facilities, conducted as part of a cluster-randomized trial underway in South Africa examining community mobilization around improving HIV care and treatment ().⁸ Interviews were designed to understand provider attitudes, beliefs, and counseling behaviors about the potential of ART to avert new infections.

Methods

Primary care facility assessments were undertaken in all nine public health facilities located within the Agincourt Health and socio-Demographic Surveillance System, a census area in northeast South Africa. We created rosters of all staff in each facility and then randomly selected a sample of 10 staff from each clinic, except for one that had only nine. Of 89 selected staff, 79 providers underwent structured interviews to understand practices related to HIV care provision, three failed to participate, and seven did not provide care and were excluded from this analysis. To assess providers' understanding of TasP, we asked them to agree or disagree with the statement: "Individuals who adhere to ART and are virally suppressed have a very low chance of transmitting HIV to their sex partner during unprotected sex". We also asked about the frequency (always, sometimes, never) with which providers told their clients that onward transmission was unlikely if virally suppressed. Finally, we included separate questions about whether providers counsel PLHIV who are virally suppressed that they do not need to use condoms with partners who are HIV-positive, HIV-negative, and unknown status. Questions were pilot tested for clarity at one facility prior to use.

We compared provider characteristics and counseling practices by knowledge of TasP, assessing associations using the F statistic (converted from the Chi squared statistic, corrected for survey design) for binary and categorical variables and linear regression for continuous variables. Analyses were clustered by facility and weighted based on sampling probability from the clinic roster. We also calculated the Intraclass Correlation (ICC) of responses by clinic using an unadjusted random intercept model to determine to what extent variance was due to within- vs. between-clinic differences. We presented assessment results at study clinics approximately six months after the interviews to seek feedback and interpretation of findings.

Results

Table 1 characterizes the 79 providers, most of whom (83%) were women. About half (48%) were professional nurses, followed by staff nurses (19%), home-based care (18%), and lay counselors (14%). On average, the providers had eight years of professional experience and five years in their current clinic.

Providers demonstrated inconsistent knowledge and infrequent counseling on the benefits of TasP. Fewer than half (42%) of providers indicated an awareness of the benefits of TasP. Male providers, and providers who had been at their current clinic longer, were slightly more likely to know about TasP ($p=0.06$ and $p=0.05$, respectively). Among the providers who knew of TasP, only 61% said they always shared this information with their HIV-positive

clients; 20% never shared TasP information with clients. The large majority of providers (78-79%) reported counseling virally suppressed patients to always use condoms, regardless of their partner's status. Less than 10% of providers who knew about TasP and 31% of providers who did not, reported telling virally suppressed clients that they did not need to use condoms with partner of any sero-status, indicating a lack of understanding of TasP among providers and that TasP knowledge had little impact on counseling behavior. The ICC for TasP knowledge/agreement was .076, indicating minimal clustering of responses by clinic.

During feedback meetings, three of nine clinic operational managers (who are also providers) stated no knowledge of TasP; providers in two clinics disputed the idea of counseling on TasP because of concerns around reduced condom use.

Discussion

Less than half of the providers we surveyed in rural South Africa in 2018 were knowledgeable about TasP, and even fewer understood the nuances of counseling around undetectable viral load and HIV transmission. Even those who agreed with TasP infrequently shared this information with patients. The findings indicate that Tasp/U=U messaging is not routinely reaching PLHIV and that providers themselves are not fully informed about the public health benefits of TasP. This is a small study with data collected from nine clinics in a single rural area of Mpumlanga; as such, findings cannot be generalized to other facilities and areas of the country. However, this is also among the first to inquire into provider knowledge and counseling behavior around TasP in a high prevalence region where inroads with U=U messaging could have large implications.

There is little published research on providers' attitudes towards TasP or U=U in low- and middle-income countries to date. Work in sub-Saharan Africa around safe conception in discordant couples has found that providers often have inadequate knowledge of discordance⁹ and/or may choose to withhold information about HIV transmission risks when virally suppressed due to concerns that clients would make poor choices if they had this information.^{9,10} Researchers have also reported that providers prioritize minimizing risk (e.g., condoms-only prevention messaging) and have a high degree of discomfort providing information about ART use for safer conception to clients living with HIV.^{11,12} Similarly, research on PrEP in SSA has found that providers are far more comfortable with condom promotion and have concerns around increases in risk behavior associated with reduced perceptions of transmissibility.^{13,14} Our findings that providers rarely counsel patients about TasP may be attributed to similar concerns about behavioral disinhibition, with some providers stating as much during feedback discussions.

Although providers may have doubts about engaging with TasP messaging, there are numerous reasons why patients should be informed about the clinical and public health benefits of viral suppression. Most importantly, individuals have the right to understand and be able to make informed decisions about their health and treatment choices. In addition, research has indicated that knowledge about TasP could encourage people to seek HIV testing and adhere to treatment, particularly to prevent transmission to their partners⁵

Understanding TasP can also address stigma, minimize fears about transmissibility to partners, and allow partners to have sexual relationships and achieve their fertility intentions free of the fear of onward transmission.^{15,16}

Ensuring widespread, accurate messaging about TasP/U=U may require multiple steps. First, language around TasP/U=U needs to be incorporated into relevant policy documents and training programs for providers. Current policy, including the South African HIV service delivery guidelines,¹⁷ more recent directives on Test and Treat,¹⁸ and the National Strategic Plan,¹⁹ have no guidance for counseling around TasP; treatment as prevention is mentioned only as a component of combination prevention and again in the glossary.¹⁹ Without specific guidance, simple messaging, and training, providers may not be aware of TasP or, as found in our data, not share TasP information even when they are aware. Second, providers need additional training on the topics of sero-discordance, safer contraception, and behavioral disinhibition in order to deter sharing obsolete prevention messages. Third, it is critical that viral load monitoring be conducted regularly and that results are returned promptly in order to inform HIV clinical management, ensuring that patients on treatment are, in fact, suppressed. TasP counseling requires a nuanced understanding of transmission dynamics and consistent clinical monitoring,¹⁶ a challenge in settings like South Africa with no linked national medical record system and high levels of labor migration. Finally, successful TasP/U=U messaging has often been led by civil society. While a small number of South African NGOs have signed on to the U=U consensus statement,²⁰ further advocacy and leadership in vocalizing patients' rights to TasP information and its potential for supporting HIV service uptake, could help stimulate government and provider attention.

Informing patients and communities about TasP can ultimately help South Africa and other highly impacted countries meet their HIV treatment targets and get closer to ending the epidemic. Moving forward we recommend more in-depth monitoring of TasP/U=U counseling behaviors among providers, not only through validating this tool or others, but through more detailed assessments of provider behaviors (e.g. direct observation or standardized patients). It may take time for providers to internalize new, evidence-informed messaging around TasP and this is unlikely to occur until national guidance and training programs provide direction and support to providers. Progress may also require civil society to champion this critical issue.

Acknowledgments

The authors declare no conflicts of interest. Data presented herein is supported by the United States National Institute of Mental Health (R01MH103198). Dr Leslie is also supported by Harvard University Center for AIDS Research (CFAR), an NIH funded program (P30 AI060354). The Agincourt longitudinal research platform is supported by the National Department of Science and Innovation, South African Medical Research Council and University of the Witwatersrand, as well as the Wellcome Trust, UK (grants 058893/Z/99/A; 069683/Z/02/Z; 085477/Z/08/Z; 085477/B/08/Z). The funding institutions have not participated in design or interpretation of findings. The contents are solely the responsibility of the authors and do not necessarily represent the views of the funders.

References:

1. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med.* 2011;365(6):493–505. [PubMed: 21767103]

2. Eaton JW, Johnson LF, Salomon JA, et al. HIV treatment as prevention: systematic comparison of mathematical models of the potential impact of antiretroviral therapy on HIV incidence in South Africa. *PLoS medicine*. 2012;9(7):e1001245. [PubMed: 22802730]
3. UNAIDS. Global AIDS Update 2016. Geneva: Joint United Nations Programme on HIV/AIDS; 31 5 2016.
4. The Lancet H. U=U taking off in 2017. *Lancet HIV*. 2017;4(11):e475. [PubMed: 29096785]
5. Mooney AC, Gottert A, Khoza N, et al. Men's Perceptions of Treatment as Prevention in South Africa: Implications for Engagement in HIV Care and Treatment. *AIDS Educ Prev*. 2017;29(3): 274–287. [PubMed: 28650225]
6. Bond V, Hoddinott G, Viljoen L, Simuyaba M, Musheke M, Seeley J. Good Health and Moral Responsibility: Key Concepts Underlying the Interpretation of Treatment as Prevention in South Africa and Zambia Before Rolling Out Universal HIV Testing and Treatment. *AIDS Patient Care STDS*. 2016;30(9):425–434. [PubMed: 27610464]
7. Derksen L, Muula A, Matengeni A, van Lettow M, Sodhi SD, van Oosterhout JJ. Reducing stigma and increasing HIV testing with a health information intervention: A cluster-randomized trial from Malawi. 8th International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention; 2015; Vancouver, British Columbia.
8. Lippman SA, Pettifor A, Rebombo D, et al. Evaluation of the Tsimba community mobilization intervention to improve engagement in HIV testing and care in South Africa: study protocol for a cluster randomized trial. *Implementation science : IS*. 2017;12(1):9. [PubMed: 28095904]
9. Greener R, Milford C, Bajunirwe F, et al. Healthcare providers' understanding of HIV serodiscordance in South Africa and Uganda: implications for HIV prevention in sub-Saharan Africa. *Afr J AIDS Res*. 2018;17(2):137–144. [PubMed: 29745290]
10. West N, Schwartz S, Phofa R, et al. "I don't know if this is right ... but this is what I'm offering": healthcare provider knowledge, practice, and attitudes towards safer conception for HIV-affected couples in the context of Southern African guidelines. *AIDS care*. 2016;28(3):390–396. [PubMed: 26445035]
11. Crankshaw TL, Mindry D, Munthre C, Letsoalo T, Maharaj P. Challenges with couples, serodiscordance and HIV disclosure: healthcare provider perspectives on delivering safer conception services for HIV-affected couples, South Africa. *J Int AIDS Soc*. 2014;17:18832. [PubMed: 24629843]
12. Matthews LT, Moore L, Milford C, et al. "If I don't use a condom ... I would be stressed in my heart that I've done something wrong": Routine Prevention Messages Preclude Safer Conception Counseling for HIV-Infected Men and Women in South Africa. *AIDS and behavior*. 2015;19(9): 1666–1675. [PubMed: 25711300]
13. Kambute I, Igiraneza G, Ogbuagu O. Perceptions of HIV transmission and pre-exposure prophylaxis among health care workers and community members in Rwanda. *PloS one*. 2018;13(11):e0207650. [PubMed: 30475841]
14. Pilgrim N, Jani N, Mathur S, et al. Provider perspectives on PrEP for adolescent girls and young women in Tanzania: The role of provider biases and quality of care. *PloS one*. 2018;13(4):e0196280. [PubMed: 29702659]
15. Calabrese SK, Mayer KH. Providers should discuss U=U with all patients living with HIV. *The lancet HIV*. 2019;6(4):e211–e213. [PubMed: 30772420]
16. Eisinger RW, Dieffenbach CW, Fauci AS. HIV Viral Load and Transmissibility of HIV Infection: Undetectable Equals Untransmittable. *Jama*. 2019;321(5):451–452. [PubMed: 30629090]
17. Department of Health Republic of South Africa. Adherence Guidelines for HIV, TB, and NCDs. Policy and service delivery guidelines for linkage to care, adherence to treatment and retention in care. Pretoria, South Africa. 2 2016 Available at: <https://www.nacosa.org.za/wp-content/uploads/2016/11/Integrated-Adherence-Guidelines-NDOH.pdf>.
18. Pillay Y, Pillay A. Implementation of the Universal Test and Treat Strategy for HIV Positive Patients and Differentiated Care for Stable Patients In: South African National Department of Health (NDoH), ed. 22 8 16 Circular. Available at: <https://sahivsoc.org/Files/22%208%2016%20Circular%20UTT%20%20%20Decongestion%20CCMT%20Directorate.pdf2016>.

19. South African National AIDS Council (SANAC). South Africa's National Strategic Plan for HIV, TB and STIs 2017-2022. Pretoria, South Africa 2017.
20. Prevention Access Campaign. Risk of Sexual Transmission of HIV from a Person Living with HIV who has an Undetectable Viral Load: Messaging Primer & Consensus Statement: <https://www.preventionaccess.org/consensus>, updated May 5, 2019.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1:

Provider characteristics and reported knowledge and counseling about TasP, 2018.

	N	All providers (N=79)	Providers who know about TasP (N=33)	Providers who don't know about TasP (N=46)	p-value
Sex	79	Weighted N (Column %)			0.06
Men		13 (17%)	7 (22%)	6 (13%)	
Women		66 (83%)	26 (78%)	40 (87%)	
Cadre^a	79				0.13
Professional Nurse		38 (48%)	12 (37%)	26 (57%)	
Staff Nurse		15 (19%)	10 (30%)	5 (11%)	
Lay Counselor		11 (14%)	8 (23%)	3 (7%)	
Home-Based Care		14 (18%)	4 (11%)	11 (24%)	
Other (Occupational Therapist, Pharmacist)		1 (1%)	0 (0%)	1 (2%)	
Years of professional experience, mean \pm SD^b	77	8.3 \pm 6.4	9 \pm 7.5	7.8 \pm 5.6	0.56
Years in clinic, mean \pm SD^b	76	5 \pm 3.5	6.4 \pm 3.7	4 \pm 3	0.05
How often do you tell your HIV-positive patients that if they adhere to ART and are virally suppressed they will have a very low chance of transmitting HIV to their partner?	79				0.13
Never		27 (35%)	7 (20%)	21 (45%)	
Sometimes		8 (10%)	6 (19%)	2 (4%)	
Always		43 (55%)	20 (61%)	23 (51%)	
Do you tell your HIV-positive patients that if they are virally suppressed they do not need to use a condom with a partner who is HIV-positive?	79				0.01
Yes		17 (22%)	2 (7%)	14 (31%)	
No		62 (78%)	31 (93%)	32 (69%)	
Do you tell your HIV-positive patients that if they are virally suppressed they do not need to use a condom with a partner who is HIV-negative?	79				0.06
Yes		17 (22%)	3 (9%)	14 (31%)	
No		62 (78%)	30 (91%)	32 (69%)	

	N	All providers (N=79)	Providers who know about TasP (N=33)	Providers who don't know about TasP (N=46)	p-value
Do you tell your HIV-positive patients that if they are virally suppressed they do not need to use a condom with a partner of unknown HIV status?	79				0.06
Yes		17 (22%)	3 (9%)	14 (31%)	
No		62 (78%)	36 (91%)	26 (69%)	

Note: Numbers are weighted based on sampling probability and may not sum to total due to rounding of weighted Ns.

^aThere are no doctors on staff in the primary clinics and community health centers; doctors make intermittent visits subject to transport availability;

^bTotal N reflects non-response on selected survey items.