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A GUIDE FOR SERVICE PROVIDERS

U=U

A VERY IMPORTANT MESSAGE

U=U is shorthand for Undetectable equals Untransmittable. This is a simple but very important message, based on a solid foundation of scientific evidence, that someone with HIV who is taking antiretroviral treatment (ART) and who has maintained for at least six months an undetectable[1] level of the virus in their blood cannot transmit it to someone else sexually, with or without the use of a condom.

The U=U message was pioneered by a global community of people living with HIV, researchers, clinicians and community-based organizations under the auspices of the Prevention Access Campaign as a health equity initiative to end the dual epidemics of HIV and HIV-related stigma. It has been a game changer in the way organizations and people with HIV talk and think about viral undetectability and infectiousness, and it has changed what it means to live with HIV.

The U=U message has been successful in influencing public opinion: more people with HIV, along with their friends, families, and coworkers, now understand that people living with HIV can live long, healthy lives, can have HIV-negative children, and do not need to worry about passing on HIV to people they have sex with.

The clarity of this message makes it easier for service providers to promote the undeniable benefits of treatment. In turn, this will encourage more and more people with HIV to seek treatment, bringing the HIV community, across Canada and globally, one step closer to achieving the UNAIDS 90-90-90 targets[2] and to reducing the entirely unfair and outdated stigma still faced by many people living with HIV today.[3]

Although the health benefits of treatment will always be the primary purpose of antiretroviral therapy (ART), this guide provides the boards, executive directors, management, and frontline service providers of organizations across Canada with a summary and analysis of the secondary benefits of ART in terms of preventing HIV transmission to the sexual partners of people living with HIV and transforming what it means to live with HIV.

It is vital that these secondary benefits for people living with HIV and their sexual partners be fully understood and communicated to influence practice, to encourage health-seeking behaviours, and to challenge stigma.

The abundance of scientific evidence behind the message of U=U provides an opportunity for us all, whether or not we have HIV, to reflect on, celebrate, and embrace a new era in the HIV epidemic the likes of which we have not experienced since combination ART[4] was introduced in 1996. Over time, combination ART changed HIV from an almost certain death sentence into a chronic but manageable lifelong condition, and it allowed healthy HIV-negative babies to be born to people living with HIV. U=U provides us with one of the best opportunities we have to end the epidemic of new infections, to optimize the lives of people living with HIV, and to diminish HIV-related stigma and discrimination.

U=U builds on treatment as prevention.[5] U=U changes what it means to live with HIV. It opens up social, sexual, and reproductive choices that people with HIV, their sexual partners, and in some cases entire communities, never thought would be possible. It encourages people with HIV to start and stay on treatment to keep both themselves and their sexual partners healthy. It is an opportunity to transform how people living with HIV see themselves and how they are perceived by their families, by their friends, by their current and potential sexual partners, and by people in general.

While the U=U message is primarily focused on the individual, it provides those of us who work in the community with a new tool for advocacy. Much of the messaging from public health authorities, the media, and the HIV sector for the past 35 years contributed to an image of people with HIV as vectors of disease from whom the public had to be protected. Whether this effect was intentional or not, the messaging has had a detrimental impact on people living with HIV that has to change.

U=U can raise broader public awareness of the reality of HIV today, help reduce stigma toward people living with HIV, transform self-stigma, increase testing rates, motivate people to initiate treatment early, and improve treatment adherence. And it offers a strong public health argument for equitable provision of, and access to, testing, care, and treatment, leading to viral suppression. It also provides us with an opportunity to imagine the existence of a community where the principles of access and equity apply to everyone, whatever their HIV status, a community where the lives of all are equally valued.

1 Less than 200 copies per mililitre of blood. For the purposes of the U=U message, the term "undetectable" is used synonymously with "virally suppressed."

2 UNAIDS. 90-90-90: An ambitious treatment target to help end the AIDS epidemic. Geneva: Joint United Nations Programme on HIV/AIDS; 2014. Available from: http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf [accessed June 20, 2019].

3 U=U taking off in 2017 [editorial]. Lancet HIV 2017;4(11):PE475. Available from: https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(17)30183-2/fulltext?elsca1=etoc [accessed June 20, 2019].

4 Combination ART refers to the combinations of two or more classes of HIV drugs used to keep HIV infections under control. It is sometimes abbreviated as cART, or more commonly as ART, which is the abbreviation used in this guide.

5 The concept of using ART to prevent the transmission of HIV.

Key Messages

1. TREATMENT PROVIDES HEALTH BENEFITS

The first and most important goal of HIV treatment is to improve the health and well-being of all people living with HIV. Early diagnosis and early initiation of treatment play key roles in achieving this goal. However, treatment must be delivered with informed consent and without coercion, on an opt-in basis.

2. NO ONE MUST BE LEFT BEHIND

Supports must be in place to help those people living with HIV who may experience challenges to accessing and taking treatment as prescribed. We must address the barriers to achieving and maintaining an undetectable viral load that people may face. These barriers disproportionately affect many groups, including Indigenous, racialized, substance-using, and newcomer communities. No one must be left behind.

3. PEOPLE WITH AN UNDETECTABLE VIRAL LOAD CAN'T PASS HIV ON SEXUALLY

When a person achieves and maintains a viral load of less than 200 copies/ml of blood, they cannot transmit HIV sexually, regardless of whether or not they use a condom.

4. U=U HAS THE POTENTIAL TO CHANGE WHAT IT MEANS TO LIVE WITH HIV

The U=U message has the potential to change the way people with HIV, their friends, their families, and their coworkers think and talk about viral suppression and what it means to live with HIV.

> **"It's very, very clear that the risk is zero. If you are on suppressive antiretroviral treatment, you are sexually non-infectious."**
> ***- Dr Alison Rodger***
>
> Lead author of PARTNER study

5. HIV CARE SHOULD BE UNDERSTOOD HOLISTICALLY

HIV care should be understood holistically, as a tool to support physical, mental, emotional, and social well-being. It must also be culturally safe, committed to anti-oppression frameworks, trauma informed, and attentive to the specific needs of individuals and communities of people who live with or face systemic risk factors for HIV.

6. BARRIERS TO CARE AND TREATMENT NEED TO BE REMOVED

People living with HIV deserve universal access to HIV care and treatment. Barriers such as cost, immigration status, and geography must be addressed so that all people living with HIV have access to the treatment and care they need to experience optimal health.

7. U=U CAN HELP TO END HIV-RELATED STIGMA AND DISCRIMINATION

U=U is one of the best tools we have to dismantle HIV-related stigma and discrimination. There is no reason why people living with HIV should experience externally imposed stigma or self-stigma.

Recommendations for Service Providers

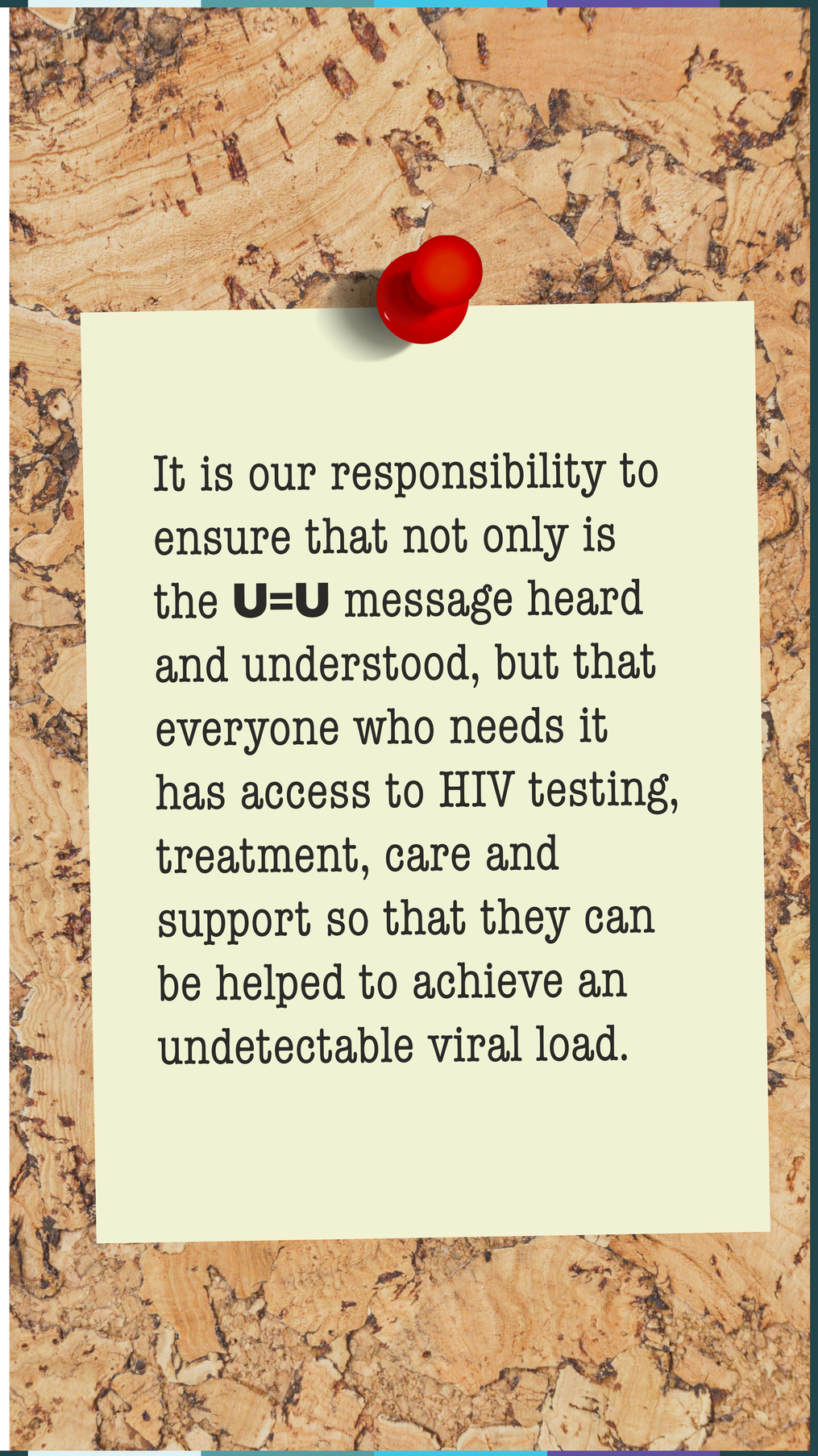
As individuals and organizations who are directly supporting people who live with or face risk factors for HIV, we are uniquely placed to bridge the gap between the science and community engagement on U=U.

As healthcare and service providers we are probably the first professionals to whom a newly diagnosed person will turn for advice about their new health status. It is essential that we integrate the language and knowledge associated with U=U into our practice and ensure that those who access our services understand what U=U means. Given the understandable fear, concern, and anxiety an individual may experience at the time of their diagnosis, the message of U=U will play an important role in affecting the person's sense of well-being and helping to set their expectations about what the future holds.

It is our responsibility to ensure not only that the U=U message is heard and understood but also that everyone who needs it has access to HIV testing, treatment, care, and support so that they can be helped to achieve an undetectable viral load.

U=U is, however, a message that comes with complexities. We must nurture and guide conversations about it without withholding information because of a fear that certain individuals or communities may not fully understand it or may misinterpret it, or because we believe they may have more important things to think about.[6] It is our job to communicate and facilitate engagement in this new landscape.

Therefore, we must embrace the science of U=U and celebrate the fact that *people who have an undetectable viral load cannot transmit HIV to their sexual partners*.



6 McCullagh J. No more excuses: people have the right to know about U=U [CATIE blog]. Toronto: CATIE; 2018. Available from: http://blog.catie.ca/2018/10/31/no-more-excuses-people-have-the-right-to-know-about-uu/ [accessed June 20, 2019].

WHAT IS UNDETECTABLE?

U=U

Undetectable viral load means that the level of HIV in a person's blood is so low that it does not show up in a viral load test. In Canada, undetectable usually means below 40 or 50 copies per millilitre of blood. HIV can still be hiding in the body (in what are known as reservoirs) but the amount of virus in circulating blood and sexual fluids such as semen, rectal fluid, and vaginal secretions is so low that it cannot be passed on to others during sex. When ART reduces a person's viral load to less than 200 copies per millilitre of blood, it is called viral suppression. Studies show (see the table) that when someone is virally suppressed they cannot pass on HIV to their sexual partners.

For the purposes of the U=U message, the term "undetectable" is used synonymously with "virally suppressed."

Key Selected Evidence

STUDY	STUDY DETAILS	RESULTS	DATE	AUTHORS
PARTNER[7]	Observational study in two phases: 1—heterosexual and gay male serodiscordant couples 2—gay male serodiscordant couples	Zero transmissions after ~36,000 condomless sex acts among heterosexual couples and 76,000 condomless sex acts among gay male couples, in both cases when viral load was undetectable (<200 copies/ml) and the partners did not take PrEP or PEP.	2016 (phase 1) 2019 (phase 2)	Rodger A et al
OPPOSITES ATTRACT[8]	Observational study in serodiscordant gay male couples.	Zero transmissions after >16,000 condomless sex acts when viral load was undetectable (<200 copies/ml).	2017	Bavinton BR et al
HPTN 052[9]	1,763 serodiscordant heterosexual couples randomized to immediate or deferred ART.	Zero transmissions when the viral load was undetectable. Infections occurred in people with detectable viral load; n = 27 in the deferred ART group and one early infection in the immediate ART group before viral load was undetectable.	2011	Cohen M et al
SWISS STATEMENT[10]	Expert opinion and evidence review of >20 smaller studies looking at the impact of ART on risk factors for HIV transmission.	Concluded that transmission would not occur with an undetectable viral load.	2008	Vernazza P et al

7 Rodger AJ, Cambiano V, Bruun T, *et al*. Risk of HIV transmission through condomless sex in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study. *The Lancet*. 2019 June:393(10189):2428-2438.

8 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 Aug;5(8):e438–e447.

9 Cohen MS, Chen YQ, McCauley M, *et al*. Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*. 2011 Aug 11;365(6):493–505.

10 Vernazza P, Hirschel B, Bernasconi E, Flepp M. Les personnes séropositives ne souffrant d'aucune autre MST et suivant un traitement antirétroviral efficace ne transmettent pas le VIH par voie sexuelle. *Bulletin des Médecins Suisses*. 2008;89(5):165-9.

Access to HIV testing and treatment

Research shows that initiating testing and treatment early can yield the best health outcomes for people living with HIV.[11] Whenever possible, we should encourage and facilitate access to testing, and if a person receives a positive test result we should encourage them to start treatment as soon as possible after diagnosis. It is important to acknowledge that informed consent must be obtained for testing and treatment and that these services must be offered without coercion on an opt-in basis.
We should ensure that the person living with HIV is both ready (feeling confident and capable of success) and prepared (in consultation with the person's healthcare and community care providers) for treatment.

Accessible, culturally safe, and sex-positive sexual health testing services facilitate early HIV diagnosis.[12] Universal coverage of HIV medication will not only improve the overall health of people living with HIV, it can also help to reduce stigma and discrimination.

U=U provides a platform for greater treatment access for all populations affected by HIV.

11 Hosein S. Treatment Update 210: detailed results from the START study. Toronto: CATIE; 2015. Available from: https://www.catie.ca/en/treatmentupdate/treatmentupdate-210/anti-hiv-therapy/detailed-results-start-study [accessed June 20, 2019].

12 Ontario Advisory Committee on HIV/AIDS. Focusing our efforts: changing the course of the HIV prevention, engagement and care cascade in Ontario. Toronto: Ontario Advisory Committee on HIV/AIDS; 2016. Available from: http://www.health.gov.on.ca/en/pro/programs/hivaids/docs/oach_strategy_2026.pdf [accessed June 20, 2019].

The third U=UNIVERSAL : *Viral load does not equal value* (V≠V)

There are legitimate concerns that the U=U message places inordinate focus on the issue of undetectability and does not address the fact that some people in Canada living with HIV do not have equitable access to ART and to quality, rights-based healthcare. Our collective celebration of U=U is undermined if access to testing, treatment, care, and support — and viral suppression — is not universal.

Approaches to our work with people who live with or face systemic risk factors for HIV should be intersectional. We need to think critically about the ways colonialism, race, class, gender, gender identity, sexual orientation, immigration status, incarceration history, and other factors may affect access to healthcare and experiences of stigma — regardless of moral or institutional judgment on behaviours. These factors must be considered when we discuss the impact of U=U on the individuals and communities with whom we work.

As service providers working with people who live with or face systemic risk factors for HIV, our work must always be about ensuring that everyone has equitable access to healthcare and supportive services. Access to HIV treatment and its desired outcome — an undetectable viral load — is a right, and lack of access to treatment is a violation of that right.

We must avoid creating two classes of people with HIV, those who have an undetectable viral load and those who do not. People living with HIV are more than their laboratory results, and their value is not dictated by their viral load.

Treatment is, first and foremost, a personal choice, and no one should be shamed for not being on treatment or for having any level of viral load, which may be their choice or due to circumstances not in their control.[13]

People living with HIV with a detectable viral load[14] are not a danger to others. There are highly effective HIV prevention options for safer sex available to them, including condoms, and pre-exposure prophylaxis (PrEP) for their HIV-negative partners, which can be used individually or in combination. Everyone living with HIV, regardless of viral load, has the right to full and healthy social, sexual, and reproductive lives.

U=U is a new tool for advocacy because its undoubted benefits make a compelling argument for ensuring access to testing, treatment, care, and support — and therefore, ultimately, viral suppression — for all, regardless of what barriers may exist.

We must avoid creating two classes of people with HIV; those who have an undetectable viral load and those who do not.

People living with HIV are more than their laboratory results, and value is not dictated by viral load.

13 Some people living with HIV in Canada may choose not to be treated or may not be ready to start treatment. Others may start treatment but have challenges with adherence for a variety of reasons, such as stigma, mental health issues, drug use issues, unstable housing, hostile environments, difficulty paying for medications, drug resistance, and/or intolerable side effects.

14 More than 200 copies/ml of blood.

U=U *and women** [15] *living with* HIV

There is mounting evidence that the rate of transmission of HIV through breastfeeding/chestfeeding for women who are on ART is extremely low. However, there are complex realities surrounding women's choices on infant feeding.*

The prevention of sexual transmission of HIV afforded by U=U covers women* as it does everyone else. If women* and/or their sexual partners have an undetectable viral load, then sexual intimacy can be enjoyed without fear of transmission.

However, because the current application of U=U is focused on the risk of sexual transmission, as service providers we need to consider the other ways that HIV is transmitted and that uniquely affect the lives of women*, many of which are linked to their sexual and reproductive health and rights.

Research evidence indicates that women* who are on ART before pregnancy and maintain an undetectable viral load throughout their pregnancy have healthy, HIV-negative babies.[16]

Another topic that we need to include in any conversation about the use of ART for the prevention of HIV transmission for women* is breastfeeding/chestfeeding.[17] There is mounting evidence that the rate of transmission of HIV through breastfeeding/chestfeeding for women* who are on ART is extremely low. Despite this, Canadian guidelines continue to recommend the use of formula instead of breastfeeding because of the small risk. However, there are complex realities surrounding women's choices on infant feeding.

Women* with HIV may ask their healthcare or service providers to support them in their decision to breastfeed/chestfeed their babies. Additionally, some women* with HIV who breastfeed/chestfeed may do so without telling their healthcare or service providers for fear of stigma, criminalization, and/or negative interactions with public health authorities and child protection services. It is therefore important that healthcare and service providers engage in conversations with women* to create a treatment plan that reduces risk and includes medical monitoring and consistent support based on the principles of informed consent and equitable access to the full range of information currently available.

15 This guide acknowledges the diversity of women living with HIV in Canada, which includes people who can get pregnant but who may not identify as women. This guide refers to "women with an asterisk" to reflect this diversity.

16 Arkell C. HIV treatment and an undetectable viral load to prevent HIV transmission. Toronto: CATIE; 2019. Available from: https://www.catie.ca/en/fact-sheets/transmission/hiv-viral-load-hiv-treatment-and-sexual-hiv-transmission [accessed June 20, 2019].

17 *Chestfeeding* is a term often used by transgender people who nurse their babies.

U=U and injection drug use

As is the case for all other groups, people who inject drugs will not transmit HIV through sexual activity if they have an undetectable viral load. However, while research suggests that having an undetectable viral load can help prevent HIV transmission through the sharing of injection drug use equipment, there is not sufficient evidence to say that there is no risk of transmission.[18]

Other sexually transmitted and bloodborne infections

HIV treatment, including when the viral load is undetectable, does not prevent people from getting or passing on other sexually transmitted and blood-borne infections (STBBIs). STBBIs can have a negative impact on a person's health; consequently, people should consider using a combination of sexual health strategies, including condom use, when they have sex. It is important to be aware of the possibility of STBBI transmission, but this must not detract from the message of U=U and the scientific evidence that underlies it.

18 Arkell C. HIV prevention for people who inject drugs: new biomedical approaches and time-honoured strategies. Toronto: CATIE; 2017. Available from: https://www.catie.ca/en/pif/spring-2017/hiv-prevention-people-who-inject-drugs-new-biomedical-approaches-and-time-honoured-s [accessed June 20, 2019].

U=U offers scientific evidence to reduce fears of transmission, to minimize the anxieties around having to disclose, and in some territories and provinces, to reduce the circumstances where people with HIV will face criminal prosecution for non-disclosure.

HIV *criminalization*

According to a Supreme Court of Canada decision in 2012, people living with HIV have a criminal law duty to disclose their HIV status to their sexual partners before sexual activity that poses "a realistic possibility of HIV transmission."[19] Based on the Supreme Court's decision, there is no realistic possibility of HIV transmission when a condom is used and the person has a viral load of under 1,500 copies/ml of blood at the time of the sexual activity. The law surrounding oral sex remains unclear.

Recently, however, the scientific evidence behind U=U has resulted in positive changes to criminal prosecution policy in the territories and some provinces. This document from the Canadian HIV/AIDS Legal Network provides an overview of the laws and policies governing HIV non-disclosure in Canada.[20]

U=U offers scientific evidence to reduce fears of transmission, to minimize the anxieties around having to disclose, and, in some territories and provinces, to reduce the number of circumstances where people with HIV will face criminal prosecution for non-disclosure. One of the most welcome events at AIDS 2018 was the publication of an expert consensus statement[21] on the science of HIV in criminal law authored by 20 of the world's leading scientists, including two Canadians.

Based on robust evidence, the statement counsels caution when prosecuting people for HIV transmission, exposure, and non-disclosure and encourages governments, law enforcement officers, and those working in the judicial system to carefully note advances in HIV science to ensure that current knowledge in this field informs the application of the law.

19 R. v. Mabior, 2012 SCC 47.

20 Canadian HIV/AIDS Legal Network. The criminalization of HIV non-dsclosure in Canada: current status and the need for change. Toronto: Canadian HIV/AIDS Legal Network; 2019. Available from: http://www.aidslaw.ca/site/the-criminalization-of-hiv-non-disclosure-in-canada-report/?lang=en [accessed June 20, 2019].

21 Barré-Sinoussi F, Abdool Karim SS, Albert J, *et al*. Expert consensus statement on the science of HIV in the context of the criminal law. *Journal of the International AIDS Society*. 2018;21(7):e25161. doi: https://doi.org/10.1002/jia2.25161

Challenging HIV-related stigma and discrimination

HIV stigma evolved from a mix of xenophobia and homophobia and has included profound fear, in the public mind, of sex workers, racialized people, and people who inject drugs. Dangerous misconceptions about HIV transmission risk have been perpetuated, and they have negative consequences for people who live with or who face systemic risk factors for HIV, including driving unjust criminal prosecutions.[22]

As service providers, we can use the U=U platform to provide assurance to people living with HIV regarding both their individual health and the health of their sexual partners. This encourages engagement across the HIV prevention, engagement, and care cascade.[23] People are more likely to get tested if the stigma is reduced, they are more likely to disclose their status if they are on effective ART with an undetectable viral load, they are more likely to start treatment early and remain adherent to their ART, and they are more likely to remain in care.[24]

People are more likely to get tested if the stigma is reduced, they are more likely to disclose their status if they are on effective ART with an undetectable viral load, they are more likely to start treatment early and remain adherent to their ART, and they are more likely to remain in care.

22 AVERT. HIV stigma and discrimination. Brighton, UK: AVERT; 2018. Available from: https://www.avert.org/professionals/hiv-social-issues/stigma-discrimination [accessed June 20, 2019]

23 The prevention, engagement, and care cascade reflects the different services someone with HIV needs to achieve optimal health outcomes, including HIV testing and diagnosis, linkage to appropriate medical care (and other health services), support while in care, access to HIV treatment, support on treatment, and the achievement of an undetectable viral load. CATIE. HIV in Canada: A primer for service providers. The HIV treatment cascade. Available from: https://www.catie.ca/en/hiv-canada/9/9-2/9-2-1/9-2-1-1) [accessed June 20, 2019].

24 UNAIDS. Confronting discrimination: overcoming HIV-related stigma and discrimination in health-care settings and beyond. Geneva: Joint United Nations Programme on HIV/AIDS; 2017. Available from: http://www.unaids.org/sites/default/files/media_asset/confronting-discrimination_en.pdf [accessed June 20, 2019].

Where can I find out more?

CATIE resources

CATIE statement on the use of antiretroviral treatment to maintain an undetectable viral load as a highly effective strategy to prevent the sexual transmission of HIV

HIV treatment and an undetectable viral load to prevent HIV transmission — Fact Sheet

Can't pass it on key messages series

The power of undetectable: what you need to know about HIV treatment as prevention — Client Resource

Couples HIV testing and counselling

Guidelines, position papers and consensus statements

Risk of sexual transmission of HIV from a person with HIV who has an undetectable viral load: Messaging primer & consensus statement – Prevention Access Campaign

A guide for clinicians to discuss U=U — Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine

Community consensus statement on access to HIV treatment and its use for prevention – AVAC, EATG, MSMGF, GNP+, HIV i-Base, the International HIV/AIDS Alliance, ITPC, NAM/aidsmap

Expert consensus: viral load and risk of HIV transmission – Institut National de Santé Publique du Quebec (INSPQ)

Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations – World Health Organization (WHO)

U=U position statement — Gay Men's Sexual Health Alliance of Ontario (GMSH)

Undetectable = Untransmittable: A community brief — International Council of AIDS Service Organizations (ICASO)

Living in the asterisk (*): What does U=U mean for women? — Women & HIV/AIDS Initiative (WHAI).

HIV disclosure

The criminalization of HIV non-disclosure in Canada: current status and the need for change (2019) — Canadian HIV/AIDS Legal Network

Expert consensus statement on the science of HIV in the context of criminal law (2018) — Journal of the International AIDS Society

Community consensus statement (2019) – Canadian Coalition to Reform Criminalization

Criminal justice system's response to non-disclosure of HIV (2017) — Department of Justice, Government of Canada

Sexual offences against adults (2017) — Ontario Crown Prosecution Manual

Sexual transmission, or realistic possibility of transmission, of HIV (2018) — British Columbia Prosecution Service Crown Counsel Policy Manual

HIV disclosure to sexual partners: Question and answers for newcomers (2015) — Canadian HIV/AIDS Legal Network

Now what? The possibilities of disclosure: a guide by HIV positive people for AIDS Service Organizations and their allies — Ontario AIDS Network, Positive Leadership Development Institute (PLDI)

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Prevention Access Campaign[25]
Gay Men's Sexual Health Alliance of Ontario (GMSH): *U=U Position Statement*[26]
International Council of AIDS Service Organizations (ICASO): *Undetectable=Untransmittable, A Community Brief*[27]

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25 https://www.preventionaccess.org

26 Gay Men's Sexual Health Alliance of Ontario. U=U position statement. Toronto: Gay Men's Sexual Health Alliance of Ontario; 2018. Available from: http://www.gmsh.ca/aids-service-organizations/publications-and-resources/gmsh-uu-position-statement-eng-.pdf [accessed June 20, 2019].

27 ICASO. Undetectable=Untransmittable, a community brief. Toronto: International Council of AIDS Service Organizations; 2017. Available from: http://icaso.org/undetectable-untransmittable-community-brief/ [accessed June 20, 2019].

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