



Undetectable Equals Untransmittable" (U=U) knowledge and practices by HIV and PrEP status among gay, bisexual, queer and trans men and Two-Spirit and non-binary people across Canada, 2015-2021

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Background

Following the endorsement by several community agencies, Canada officially endorsed "Undetectable equals Untransmittable" (U=U) in 2018, but few longitudinal impacts metrics exist.

Objective

We sought to examine population-level trends of U=U-related knowledge and sexual behaviour among gay, bisexual, trans, Two-Spirit, and queer men and non-binary people (GBT2Q) across Canada, by HIV and pre-exposure prophylaxis (PrEP) status.

Methods

- Data are from **community-based repeated cross-sectional bilingual (English/French) surveys**:
 - 2015, 2019, 2020, 2021 (online)
 - 2018 (pride festivals in-person)
 - Not a longitudinal "within-person" cohort design
- Online recruitment used advertisements on sociosexual websites/apps, and community-based organizations' social media and email lists.
- Eligible participants** were at least 15 years old, lived in Canada, and either identified as non-heterosexual or reported recent sex with a man. Women were ineligible.
- Temporal trends** were evaluated using separate multivariate logistic regressions by HIV/PrEP status, with survey year (continuous) as the primary explanatory variable, and controlling for age, education, ethnoracial identity, sex/gender identity (cisgender man, transgender man, non-binary), and number of recent sexual partners (for behavioural outcomes).
- Adjusted odds ratios (AOR)** with 95% confidence intervals are shown.



Demographics

- Ethnoracial identities:**
- 3% African, Caribbean or Black,
 - 5% Indigenous,
 - 13% another person of colour,
 - 78% white
- Gender identities:**
- 92% cisgender man,
 - 4% transgender men, and
 - 4% non-binary participants
- Geography**
- 7% live in rural/remote area
- Education**
- 37% high school or less education

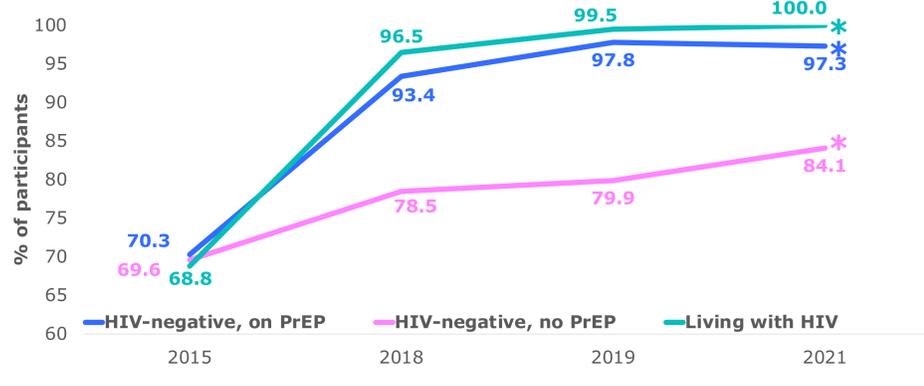
HIV and PrEP Status

- The pooled sample included **24,160 responses**
- 8.6%** living with HIV
- 14.4%** HIV-negative PrEP users
- 77.1%** HIV-negative non-PrEP users

Temporal Trends of U=U Knowledge

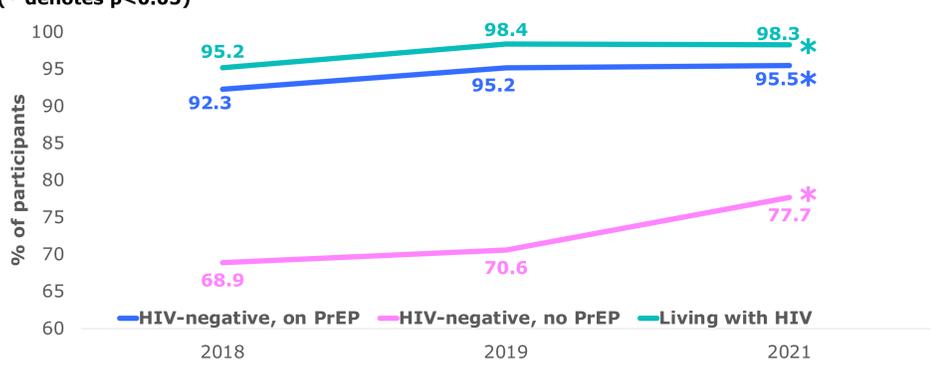
Knowledge that HIV medications effectively suppress viral load increased from 2015-2021 for those living with HIV (68.8%-100%, AOR=3.43 [2.69-4.37]), PrEP users (70.3%-97.3%, AOR=1.77 [1.56-1.99]), and non-PrEP users (69.6%-84.1%, AOR=1.26 [1.22-1.27]).

Figure 1. % who knew that medications, taken daily by someone living with HIV, can make their HIV viral load undetectable (* denotes p<0.05)



Knowledge of the U=U scientific consensus on sexual transmission increased from 2018-2021 for those living with HIV (95.2%-98.3%, AOR=1.61 [1.04-2.47]), PrEP users (92.3%-95.5%, AOR=1.20 [1.02-1.42]), and non-PrEP users (68.9%-77.7%, AOR=1.25 [1.19-1.30]).

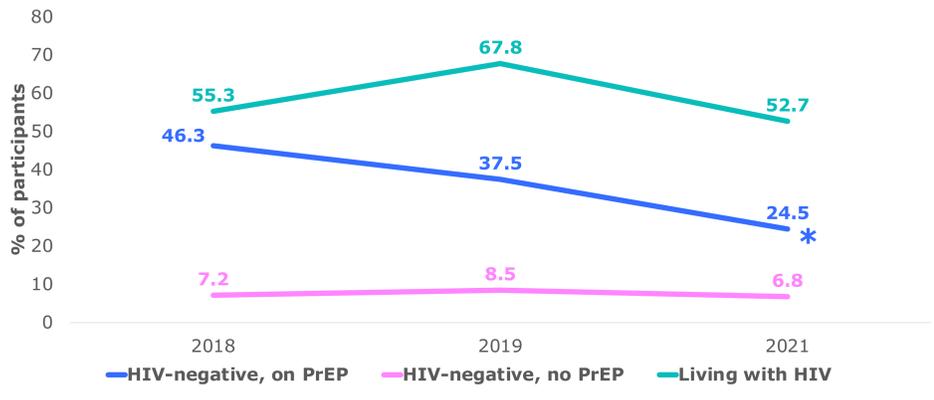
Figure 2. % who knew the scientific consensus that "Undetectable = Untransmittable" (* denotes p<0.05)



Temporal Trend of Recent Sex Partners

Reporting recent anal sex with an undetectable partner decreased from 2018-2021 for PrEP users (46.3%-24.5%, AOR=0.73 [0.66-0.78]) after additionally controlling for number of recent sex partners to account for COVID-19 impacts on sexual behaviour. There was no statistically significant change for those living with HIV (55.3%-52.7%, AOR=0.90 [0.79-1.01]) and non-PrEP users (7.2%-6.8%, AOR=0.97 [0.88-1.03]).

Figure 3. % who had any anal sex with an undetectable partner living with HIV in the past six months (* denotes p<0.05)



U=U Impacts on GBT2Q Living with HIV

In 2021, participants living with HIV reported whether the U=U campaign had impacted their life in the following ways:

Table 1. The Ways U=U Impacted Participants' Lives (2021)

Decreased...	Increased...
<ul style="list-style-type: none"> Feelings of shame (40%) Stigma (38%) Rejection by sexual partners (29%) Access to sexual partners (14%) Quality of sex life (12%) Social well-being (10%) Mental well-being (10%) Pressure to get/maintain undetectable viral load (3%) Pressure to take medication (2%) 	<ul style="list-style-type: none"> Mental well-being (33%) Quality of sex life (31%) Social well-being (28%) Access to sexual partners (28%) Pressure to get/maintain undetectable viral load (18%) Pressure to take medication (17%) Rejection from sexual partners (7%) Stigma (7%) Feelings of shame (6%)

Improved by ~30% (Mental well-being, Social well-being, Sexual well-being)

Reduced by ~40% (Stigma, Rejection, Shame)

cbrc www.cbrc.net * Data from Sex Now 2021

Strengths & Limitations

- Repeated cross-sectional design vs. prospective cohort**
- Better for measuring changes in knowledge
 - Assumptions of independence
- Untangling the impacts of COVID-19**
- Shifts in sexual behaviour, but also need for and access to PrEP
 - Changes in sampling frame and willingness to participate
- Evolution of Sex Now**
- Changes in study description and eligibility
 - Online versus in-person recruited samples
 - Better inclusion of trans men, and Two-Spirit and non-binary people

Conclusions

Self-reported impacts of U=U for GBT2Q living with HIV are mixed

- Conversations are siloed by HIV status
- Is U=U being discussed during HIV testing?
- How are HIV care provider talking about U=U?
- Need for a universal community campaign**
- Is PrEP and U=U impacting sexual mixing and conversations about HIV between partners?

While U=U knowledge increased over time among GBT2Q, behavioural uptake remains incommensurate

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