

**Research Supporting and Related to Undetectable = Untransmittable (U=U)**

**Research on Transmission and Underlying Science Proving U=U**

<b>Name of Study</b>	<b># of Condomless Sex Acts</b>	<b>Date</b>	<b>Link to Study</b>
HPTN 052	-  1,763 couples	August, 2016	Summary: <a href="http://www.aidsmap.com/news/jul-2011/treatment-prevention-hptn-052-study-shows-96-reduction-transmission-when-hiv-positive">http://www.aidsmap.com/news/jul-2011/treatment-prevention-hptn-052-study-shows-96-reduction-transmission-when-hiv-positive</a>  Study: <a href="https://www.nejm.org/doi/full/10.1056/NEJMoa1600693">https://www.nejm.org/doi/full/10.1056/NEJMoa1600693</a>
Opposites Attract	12,447 acts of condomless anal sex among 152 couples, zero linked transmissions when HIV+ partner was undetectable and HIV-partner not on PrEP.	July, 2018	Summary: <a href="#">No HIV transmissions from HIV-positive partner seen in Australian gay couples study</a>  Study: <a href="https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(18)30132-2/fulltext">https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(18)30132-2/fulltext</a>
PARTNER 1:	~58,000 condomless sex acts with zero transmissions when undetectable  888 couples	July, 2016	Summary: <a href="#">More confidence on zero risk: still no transmissions seen from people with an undetectable viral load in PARTNER study</a>  Study: <a href="#">Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy   HIV   JAMA</a>
PARTNER 2:	~77,000 condomless sex acts w/ zero transmissions when	May, 2019	Summary: <a href="#">Zero transmissions mean zero risk – PARTNER 2 study results announced</a>

	undetectable  Addtl 635 gay couples from PARTNER1		Study: <a href="https://www.thelancet.com/journals/lanet/article/PIIS0140-6736(19)30418-0/fulltext">https://www.thelancet.com/journals/lanet/article/PIIS0140-6736(19)30418-0/fulltext</a>
	Over 125,000 total condomless sex acts across studies		

### Research on U=U and surrounding attitudes

Name of Study	Date	Main Takeaways	Link to Study
U=U – A Destigmatizing Message Inconsistently Communicated by Clinicians to PLHIV (Abstract 223) José M. Zuniga, PhD, MPH President/CEO, IAPAC	June, 2018	<p>Overview:</p> <ul style="list-style-type: none"> <li>U=U is not consistently integrated into practice by clinicians (notably PCPs); HIV-positive patients with undetectable viral loads are thus not hearing message</li> <li>33% of providers are not sharing the information with their patients</li> <li>Education/support regarding science behind U=U and how to communicate message to HIV-positive patients with undetectable viral loads is needed</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Provider rationale for not sharing: <ul style="list-style-type: none"> <li>“U=U negates personal responsibility.” – “Patient abandons treatment but continues thinking U=U.”</li> <li>“Being undetectable reduces risk, but there is still a risk.”</li> <li>“Adherence is not 100%.”</li> </ul> </li> <li>Providers surveyed: 587</li> </ul>	<a href="#">U=U – A Destigmatizing Message Inconsistently Communicated by Clinicians to PLHIV</a>
NAM aidsmap: “Most UK clinic staff now tell people about U=U, but not always in the same way”	April, 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>In the UK, most clinic staff are now telling people about U=U, but are often doing so in inconsistent ways and at varying times.</li> <li>Some patients are also misunderstood</li> </ul>	<a href="#">Most UK clinic staff now tell people about U=U, but not</a>

		<p>or developed inaccurate beliefs, such as believing U=U applies to breastfeeding.</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>Some healthcare providers are waiting to tell someone about U=U until they have an undetectable viral load.</li> <li>Bloomsbury Clinic survey canvassed 81 patients and 31 healthcare workers</li> <li>BHIVA Study surveyed 270 providers</li> </ul>	<a href="#">always in the same way</a>
Understanding the perception and potential promise of U=U and TasP among sexual minority men (SMM) in the U.S., Rendina et al	June, 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>The vast majority of HIV+ sexual minority men said U=U made them feel better about their HIV status.</li> <li>Virtually no SMMLWH (sexual minority men living with HIV) had heard about TasP/U=U from their medical providers</li> <li>Compared to research in 2016, a greater proportion of HIV-negative and HIV-unknown men believed in U=U from 2017-18.</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Disbelief in U=U appears directly related to a lack of understanding of TasP with fewer than 1 in 5 HIV+ men and substantially fewer HIV- men believing a lack of risk during sex with an HIV+ and undetectable partner – it does not appear to be about the wording of U=U</li> <li>Among HIV+ men, fewer than half overall understood that TasP was associated with “essentially no risk” of transmission.</li> <li>Total surveyed: 111,747</li> </ul>	<a href="https://58b1608b-fe15-46bb-818a-cd15168c0910.filesusr.com/ugd/de0404_f6a6dc8f13234cf484a4ab8bbc16807af.pdf">https://58b1608b-fe15-46bb-818a-cd15168c0910.filesusr.com/ugd/de0404_f6a6dc8f13234cf484a4ab8bbc16807af.pdf</a>
North Carolina AIDS Action Network Public Opinion on HIV Policy in Seven Southern States	July, 2019	<p>Overview</p> <ul style="list-style-type: none"> <li>Only a small minority (12-18%) of residents across seven states in the Southern United States believes the statement “People living with HIV who regularly take their medication, and achieve viral suppression, cannot transmit HIV through sexual contact.”</li> <li>Total surveyed: 4,306</li> </ul>	<a href="#">Breaking Survey Data: Public Opinion on HIV Policy in Seven Southern States</a>

U=U in Practice: Results from a Midwest Provider Survey, MATEC and Minnesota Department of Health	September , 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>• Most providers had heard of U=U and self-reported that they discussed U=U with their patients; ½ thought there were potential clinical ramifications and ⅓ thought there were potential legal ramifications</li> <li>• ⅓ thought patients would be more likely to engage in sexual risk taking behaviors</li> <li>• Physicians are most comfortable discussing U=U in absence of condoms or PrEP, PAs and Nurses the least.</li> <li>• There is a need for education for providers around consistent messaging, especially among those who do not have a lot of experience or many HIV patients</li> <li>• The public health benefit, getting patients to be more adherent and retained in care, and that PLWH have the right to accurate information are the most convincing arguments for healthcare providers to discuss U=U</li> </ul>	<a href="#">U=U in Practice_Final.pptx</a>
“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.” Rendina et al.	December, 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>• Study of nearly 112,000 men who have sex with men in the United States has found increasing acceptance of the U=U message in this population.</li> <li>• Among those who agreed that U=U was “completely accurate,” only 31% and 39% believed transmission risk is zero when the insertive or receptive partner, respectively, has undetectable virus.</li> <li>• Individuals with lower perceived risk of HIV transmission through any form of condom-less anal sex were more likely to accept U=U</li> </ul>	<a href="https://aidsinfo.nih.gov/news/2724/gay-bisexual-men-increasingly-agree-hiv-undetectable-equals-untransmittable-80%9Cunde-tectable-equals-untransmittable-80%9D--">https://aidsinfo.nih.gov/news/2724/gay-bisexual-men-increasingly-agree-hiv-undetectable-equals-untransmittable-80%9Cunde-tectable-equals-untransmittable-80%9D--</a>
Merck and Prevention Access Campaign: “Owning HIV: Young Adults and the Fight Ahead”	December, 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>• Nationwide survey of millennials and Gen-Z individuals</li> <li>• Only 31% of HIV+ respondents (254/750) reported that “undetectable” meant that a person living with HIV cannot transmit the virus sexually.</li> <li>• Nearly 50% (412/846) of HIV-negative</li> </ul>	<a href="#">New Survey of Young Adults Uncovers Low Levels of Accurate Knowledge About HIV</a>

		<p>respondents believed the virus could be transmitted when someone is undetectable.</p> <ul style="list-style-type: none"> <li>28% of HIV-negative millennials said they have avoided hugging, talking to or being friends with someone with HIV</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Almost all respondents living with HIV (90%) agree that someone may avoid sharing their status because of the fear of losing friends or family, or experiencing mental, physical or emotional abuse</li> <li>41% of HIV-negative Gen Z respondents said they were either not at all informed or only somewhat informed about HIV, compared to 23% of HIV-negative millennials.</li> </ul>	
The Well Project, "Together We Are... Making an Impact: The Well Project Survey Report" Measuring Impact of U=U	December, 2019	<p>Overview:</p> <ul style="list-style-type: none"> <li>85% of women surveyed were either very familiar or extremely familiar with U=U</li> <li>78% were very confident or extremely confident in U=U</li> <li>72% said U=U had a significant or tremendously positive impact on their lives</li> <li>64% had not heard it from their healthcare providers</li> </ul> <p>239 total women surveyed</p>	<a href="https://www.thewellproject.org/news-press/well-project-user-survey-results-together-we-are">https://www.thewellproject.org/news-press/well-project-user-survey-results-together-we-are</a>
JIAS: "I just believe there is a risk" understanding of undetectable equals untransmissible (U=U) among health providers and HIV-negative partners in serodiscordant relationships in	March, 2020	<ul style="list-style-type: none"> <li>Despite awareness that effective ART use eliminates HIV transmission risk, there is both a lack of in-depth knowledge and conviction about the strategy among health providers and HIV-negative partners in serodiscordant relationships.</li> <li>New strategies that go beyond communicating the science of U = U to consider the local social and clinical environments could maximize the effectiveness of U = U.</li> </ul>	<a href="https://onlinelibrary.wiley.com/doi/full/10.1002/jia.2.25466">https://onlinelibrary.wiley.com/doi/full/10.1002/jia.2.25466</a>

Kenya		<ul style="list-style-type: none"> <li>Concerns that communicating the U=U message to ppl w//HIV would: <ul style="list-style-type: none"> <li>lead them to engage in multiple sexual relationships.</li> <li>being blamed if HIV transmission occurred</li> <li>Stop using condoms (risk compensation)</li> </ul> </li> </ul>	
Deutsche Aidshilfe More and more people know: HIV is not transmittable during treatment	June, 2020	<p>Overview:</p> <ul style="list-style-type: none"> <li>A representative survey commissioned by Deutsche Aidshilfe in April 2020 shows knowledge about the non-transmissibility of HIV during treatment has nearly doubled in Germany, from 10% in 2017 to 18% in 2020.</li> </ul>	<a href="#">More and more people know: HIV is not transmittable during treatment</a>
ViiV: Positive Perspectives Wave 2	July, 2020	<ul style="list-style-type: none"> <li>Those in the study who reported being informed of U=U by their health care provider (HCPs) (66%, 1,588/2,389) reported more favourable health outcomes - increased viral suppression, adherence, and treatment satisfaction - than those reporting they were not informed by their HCPs</li> <li>1/3 (34%, 801/ 2389) of PLWHIV were not being told about U=U by their healthcare provider, with men who have sex with women the least likely group to have been given this information</li> <li>1/3 women living with HIV (34%, 196/571) reported their HCPs had not told them about U=U and did not believe that maintaining effective treatment prevents transmission</li> </ul>	<a href="https://viivh.ealthcare.com/en-gb/our-stories/partnerships---key-populations/global-positive-perspectives-study-2-people-living-with-HIV">https://viivh.ealthcare.com/en-gb/our-stories/partnerships---key-populations/global-positive-perspectives-study-2-people-living-with-HIV</a>

## Research on Implementation of U=U and Population-Level Effects

Name of Study	Date	Main takeaways	Link to Study
CROI 2020: HIV incidence fell by three-quarters in Australian gay men, with strong association with treatment as prevention	March, 2020	<p>Overview</p> <ul style="list-style-type: none"> <li>Between 2012 and 2017, there had been major increases in treatment uptake for HIV-positive gay and bisexual men, with subsequent drops in viraemia.</li> <li>This decreased level of community viraemia was strongly associated with a reduction in the number of men diagnosed HIV positive in this period.</li> <li>A significant point is that this relationship existed prior to the introduction of PrEP in these Australian states.</li> <li>U=U is a public health strategy</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>The study took place in Australia's two most populous states, New South Wales and Victoria from 2012 to 2017.</li> <li>Data was taken from 67 sites including sexual health clinics, hospitals, general practices and community testing sites.</li> <li>The final longitudinal cohort consisted of a total of 115,982 gay and bisexual men (101,143 of these were HIV negative while 14, 839 were HIV positive).</li> </ul>	<a href="https://www.aidsmap.com/news/march-2020/hiv-incidence-fell-three-quarters-australian-gay-men-strong-association-treatment">https://www.aidsmap.com/news/march-2020/hiv-incidence-fell-three-quarters-australian-gay-men-strong-association-treatment</a>
CROI 2020: African studies show that lowering viral load in the community reduces HIV incidence, but is not enough to eliminate HIV	March, 2020	<p>Overview:</p> <ul style="list-style-type: none"> <li>Pooled data from over a quarter of a million people, taking part in four randomised studies of 'test and treat' in sub-Saharan Africa, confirm that reducing the proportion of people with HIV who are virally non-suppressed reduced the rate of new HIV infections in those communities.</li> <li>But while the scale-up of testing and treatment was impressive, it was still not enough to halt the epidemic</li> </ul>	<a href="https://www.aidsmap.com/news/march-2020/african-studies-show-lowering-viral-load-community-reduces-hiv-incidence-not-enough">https://www.aidsmap.com/news/march-2020/african-studies-show-lowering-viral-load-community-reduces-hiv-incidence-not-enough</a>
AIDS2020	July,	Overview:	<a href="https://www">https://www</a>

<p>Roundup: “Can U=U be used to reshape HIV programmes globally?”</p>	<p>2020</p>	<ul style="list-style-type: none"> <li>● Plenary: In Brazil, data shows that beyond groups directly affected by HIV, widespread awareness and acceptance of U=U remains limited in the country.</li> <li>● Oral abstract: In Vietnam, broad success of the K=K campaign was dependent on the following factors: <ul style="list-style-type: none"> <li>○ Government endorsement of the U=U message</li> <li>○ Community leadership</li> <li>○ City campaigns in the 2 largest cities in Vietnam</li> <li>○ Getting healthcare providers onboard</li> <li>○ Finding programme “champions”</li> <li>○ Creating a national campaign</li> <li>○ Evolution to an antiretroviral prevention framework and status-neutral services</li> </ul> </li> </ul>	<p><a href="https://aidsmap.com/news/jul-2020/can-u-u-be-used-reshape-hiv-programme-s-globally">.aidsmap.com/news/jul-2020/can-u-u-be-used-reshape-hiv-programme-s-globally</a></p>
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## Journal Articles on U=U



Article Title	Journal	Authors	Date	Link to Article
U=U Taking off in 2017	The Lancet	The Lancet Editorial Board	November, 2017	<a href="https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(17)30183-2/fulltext?elsca1=etoc">https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(17)30183-2/fulltext?elsca1=etoc</a>
For HIV, Treatment is Prevention	NIH Director's Blog	Dr. Francis Collins	January, 2019	<a href="https://directorsblog.nih.gov/2019/01/22/for-hiv-treatment-is-prevention/">https://directorsblog.nih.gov/2019/01/22/for-hiv-treatment-is-prevention/</a>
HIV Viral Load and Transmissibility of HIV Infection: Undetectable Equals Untransmittable	Journal of the American Medical Association (JAMA)	Robert W. Eisinger, PhD; Carl W. Dieffenbach, PhD; Anthony S. Fauci, MD	January, 2019	<a href="https://docs.wixstatic.com/ugd/de0404_377537114644443fa4c6836ac7cb29c0.pdf">https://docs.wixstatic.com/ugd/de0404_377537114644443fa4c6836ac7cb29c0.pdf</a>
Providers should discuss U=U with all patients living with HIV	The Lancet	Dr. Sarah K Calabrese, Dr. Kenneth H Mayer	February, 2019	<a href="https://58b1608b-fe15-46bb-818a-cd15168c0910.filesusr.com/ugd/de0404_6739336ddf8047799bda35e3f58aed77.pdf">https://58b1608b-fe15-46bb-818a-cd15168c0910.filesusr.com/ugd/de0404_6739336ddf8047799bda35e3f58aed77.pdf</a>
Stigma impedes HIV prevention by stifling patient-provider communication about U = U	Journal of the International AIDS Society	Dr. Sarah K Calabrese, Dr. Kenneth H Mayer	July, 2020	<a href="https://onlinelibrary.wiley.com/doi/full/10.1002/jia2.25559">https://onlinelibrary.wiley.com/doi/full/10.1002/jia2.25559</a>

### Upcoming Research on U=U:

#### Phoenix Positive Pathways Study:

- “The Arizona Department of Health Services identified where a large percentage of HIV+ clients have been lost to care. This study will assess whether a geo-mapped, targeted, social media campaign delivered to this area, combined with provider-delivered education and leave-behind materials at select clinics encourages PLWHIV to return to and remain in care. This educational campaign, “Undetectable = Untransmittable” or “U=U” seeks to normalize HIV and challenge stigma and discrimination.”

#### South African Study:

- NIH-funded study looking at how U=U can decrease stigma and increase adherence in a rural community
- Notes:
  - Jacob Boor, lead investigator, Boston University

#### Ontario HIV Trials Network:

- Study ongoing examining understanding, acceptance, and uptake of the U=U messaging among GBM in Ontario

#### Hunter College, New York:

- #UniquelyU: Ongoing studies done about U=U and surrounding attitudes by Jonathan Rendina at Hunter College, City University of New York