Viral load and transmission Does U=U?



Simon Collins HIV i-Base <u>www.i-Base.info</u>

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HIV transmission

Big changes in last few years: Treatment as Prevention (TasP) & PrEP

- Does U=U? Am I uninfectious?
- What does it mean to be undetectable?
 Your health now and in the future, your relationships, your Quality of life
- Evidence (vs stigma and fear)

Does U=U? Am I uninfectious?

- Easy vs complex answers?
- Residual prejudice/concern etc ?
- Limits of science?
- Legal issues: criminalisation and liability for health workers?
- Historical approach to condoms?
- Risk in life?
- Evidence: PARTNER and other studies

International AIDS Society



UNDETECTABLE

A PERSON LIVING WITH HIV WHO HAS AN UNDETECTABLE VIRAL LOAD DOES NOT TRANSMIT THE VIRUS TO THEIR PARTNERS.

The International AIDS Society is proud to endorse the U=U consensus statement of the Prevention Access Campaign.

www.preventionaccess.org/undetectable

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If your viral load is undetectable, it means you can't pass HIV to others. Treatment = Prevention! on.nyc.gov/ staysure #PlaySure #TasP





HIV treatments can make the virus undetectable, meaning it cannot be passed on

#TestWeekScot

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PEOPLE WITH HIV ON EFFECTIVE TREATMENT DO NOT SEXUALLY TRANSMIT HIV ACT UP UNDETECTABLE = UNTRANSMITTABLE

Les séropositifs sous traitement ont beaucoup de choses à nous transmettre. Mais pas le virus du sida.

> AID CS aides.org

www.preventionaccess.org/ undetectable

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Karim, prof de danse

1998 US guidelines - early ART^[1] 1998 ART stops mother to baby transmission ^[2] 2000 Rakai Study (Observational) [3] 2008 Swiss Statement: zero risk (Evidence review) [4] 2011 HPTN 052: 1 vs 27 (Randomised: low risk) [5] 2014 PARTNER: zero/44,000 (Observational: high risk) [6] 2016 PARTNER published – zero/58,000^[6] 2016 U=U + wide endorsements

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US DHHS guidelines (Dec 1998)

Expert opinion.

"Factors that would lead one to initiate early therapy include ... possibly decreasing the risk of viral transmission."

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Beckerman et al, IAS conference 1998, Abs 459.

Small observational study "Despite adherence problems ... the use of combination ART ... during pregnancy results not only in improved maternal health, but also in rates of transmission that approach zero"

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Rakai study: ~ 400 +ve/-ve couples in Uganda for 30 months: no infections when VL less than 400 c/mL.

Large observational study (Quinn et al, NEJM 2000)



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Swiss Statement (Vernazza et al, 2008)

Data review and expert opinion – driven by criminalisation in Switzerland. "similar to kissing" "an HIV positive person on effective HIV treatment (ART) cannot transmit HIV through sexual contact"

So long as:

- on ART and adherent
- undetectable VL
- no STIs
- risk <1 in 100,000 (<0.001%)

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Randomised studies = "Gold standard evidence"



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HPTN 052 (Cohen et al, 2011) Randomised ~ 1700 +ve/-ve couples to early ART vs waiting

all linked infections in couples waiting for ART (+ single case with detectable VL)
study stopped early
protection over 4 yrs





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Best evidence: PARTNER

- >800 couples not using condoms.
- Detailed sexual questionnaires.
- Already not using condoms (for years)
- One third were gay male couples.
- Calculated absolute real risks.
- STI were common in gay men.
- Undetectable = less than 200 copies/mL

PARTNER study



ZERO linked transmissions

Conclusions

- Zero transmissions without condoms when VL undetectable in all studies.
- No published case reports since Swiss Statement in 2008.
- PARTNER includes random blips between undetectable results.
- Includes VL >50 to 200 copies/mL.
- Includes STI 30% of gay couples.

Questions?



www.preventionaccess.org/undetectable

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Additional slides

Transmission....

Different types of evidence

- Expert opinion NOT evidence!
- Case reports small studies
- Systematic review comparing studies
- Observational data large cohorts when randomised studies are not possible
- Randomised clinical trials (RCTs)
 Double-blind, placebo controlled

HIV negative partners: Characteristics

	MSM couples (n=282)	Heterosexual couples (n=445)			
		M -ve (n=245)	W -ve (n=240)		
At study entry					
Age, median (IQR)	40 (32-47)	45 (37-50)	40 (34-46)		
Yrs CL sex, median (IQR)	1.5 (0.5-3.5)	2.7 (0.6-6.9)	3.5 (0.7-10.6)		
During follow up					
Years in the study, median (IQR)	1.1 (0.7-1.9)	1.5 (1.0-2.0)	1.5 (0.9-2.0)		
Diagnosed with STI, %	16%	5%	6%		
CL sex with other partners, %	34%	3%	4%		
CL sex acts/year, median (IQR)	43 (18-79)	37 (14-77)	38 (14-71)		
Estimated total number CL sex acts	16,400	14,000	14,000		



HIV positive partners: Characteristics

	MSM couples (n=282)	Heterosexual couples (n=445)			
		W +ve (n=245)	M +ve (n=240)		
At study entry					
Age, median (IQR)	42 (36-47)	40 (34-46)	45 (40-49)		
Years on ART, median (IQR)	5 (2-11)	7 (3-14)	10 (4-15)		
Self-reported adherence >=90%, %	97%	94%	94%		
Self report undetectable VL, %	94%	86%	85%		
CD4>350 cells/mm ³ , %	90%	88%	84%		
During follow-up					
Having missed ART for more than 4	2%	7%	4%		
consecutive days, %					
Diagnosed with STI, %	16%	4%	5%		

What does it mean to be undetectable?

- Your health now ?
- Your health in the future ?
- Partners and relationships ?
- Stigma and discrimination ?
- Legal issues?