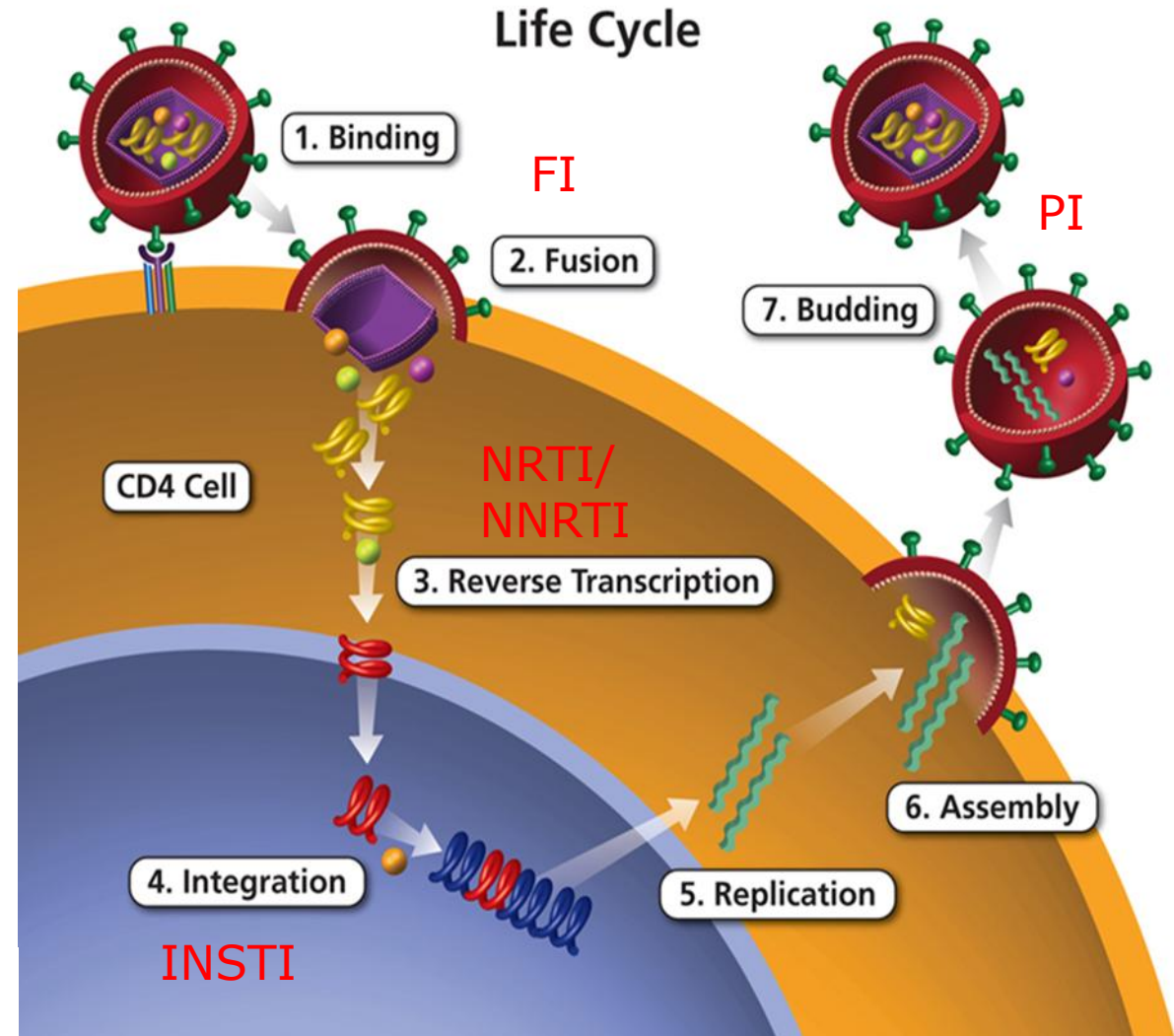


Understanding Treatment as Prevention: **Undetectable=Untransmittable.**

Dr. Mariana Ancona
Medical Coordinator
Matron Roberts Polyclinic II

ART Role in Achieving Undetectable Viral Loads

- Blocks the virus from multiplying
- Combines 2-4 drugs to prevent replication at different stages
- Adherence essential



AIDS Clinical Trials Group (ACTG) 076 Trial



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TOPI

ORIGINAL ARTICLE



Reduction of Maternal-Infant Transmission of Human Immunodeficiency Virus Type 1 with Zidovudine Treatment

Authors: Edward M. Connor, Rhoda S. Sperling, Richard Gelber, Pavel Kiselev, Gwendolyn Scott, Mary Jo O'Sullivan, Russell VanDyke, [+13](#), for the Pediatric AIDS Clinical Trials Group Protocol 076 Study Group* [Author Info & Affiliations](#)

Published November 3, 1994 | N Engl J Med 1994;331:1173-1180 | DOI: 10.1056/NEJM199411033311801

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ACTG 076 Trial

- April 1991 through 20 December 1993
- 477 Pregnant women
 - 14-34 weeks pregnant
 - CD4 < 200
 - No previous ART in current pregnancy
- 409 births resulting in 415 liveborn neonates
 - 363 with known HIV status at 18 months
 - 13/180 HIV + in zidovudine group
 - 40/183 HIV + in placebo group
- **67.5%** relative reduction in risk of HIV transmission

HIV Prevention Trials Network (HPTN) 052 Trial



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CURRENT ISSUE ▾

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ORIGINAL ARTICLE



Antiretroviral Therapy for the Prevention of HIV-1 Transmission

Authors: Myron S. Cohen, M.D., Ying Q. Chen, Ph.D., Marybeth McCauley, M.P.H., Theresa Gamble, Ph.D., Mina C. Hosseinipour, M.D., Nagalingeswaran Kumarasamy, M.B., B.S., James G. Hakim, M.D., [+29](#), for the HPTN 052 Study Team* [Author Info & Affiliations](#)

Published September 1, 2016 | N Engl J Med 2016;375:830-839 | DOI: 10.1056/NEJMoa1600693 | [VOL. 375 NO. 9](#)

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HPTN 052 Trial

- Studied effect of ART on HIV transmission
- Pilot April 2005, Full enrollment June 2007 - May 2010
- Multinational, randomized controlled clinical trial
- 13 sites, 9 countries (Asia, Africa, Americas)
- 1763 heterosexual serodifferent couples
 - 866 couples – early arm (CD4 350 – 550 cells/mL)
 - 877 couples – delayed arm (CD4 <250 cells/mL or AIDS defining illness)
- Interim Results April 2011

HPTN 052 Trial

Annual Review of Medicine
 Prevention of HIV
 Transmission and the
 HPTN 052 Study

Myron S. Cohen,^{1,2} Theresa Gamble,²
 and Marybeth McCauley²

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²Science Facilitation Department, HIV Prevention Trials Network (HPTN) Leadership and Operations Center, FHI 360, Durham, North Carolina 27701, USA; email: TGamble@fhi360.org, MMcCauley@fhi360.org

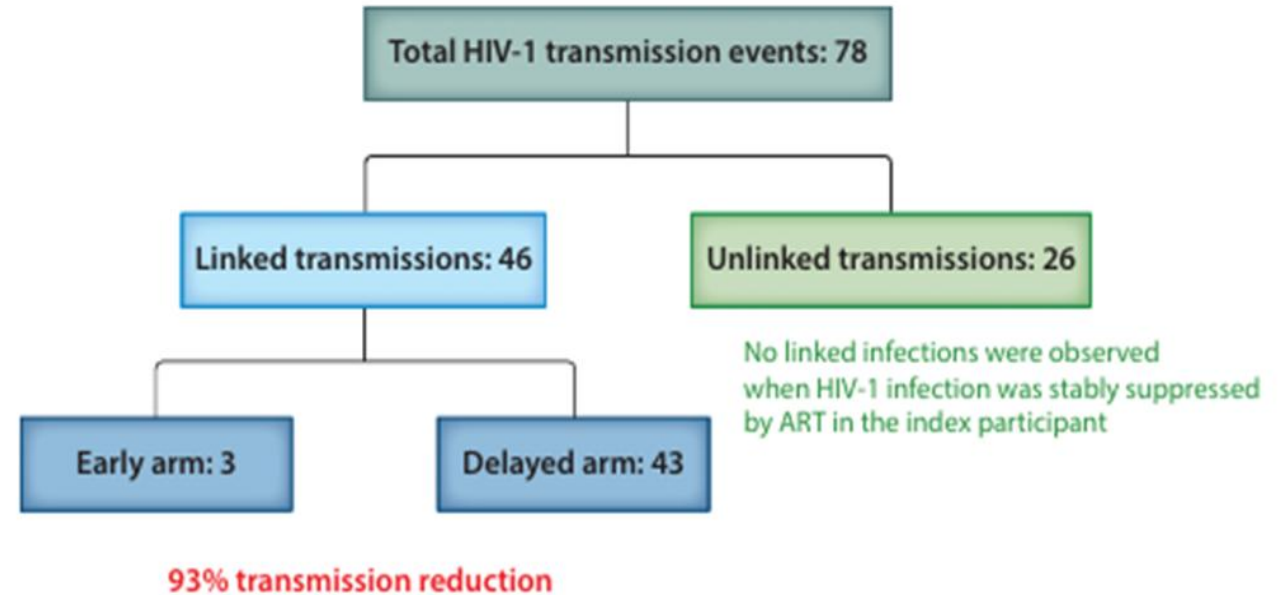


Figure 4

Final results of HPTN 052 with regard to HIV transmission events. A total of 78 HIV incident infections in HIV-negative partners were detected, but only 46 infections were linked by analysis of the virus to the HIV-infected partner. ART in combination with condoms, counseling, and treatment of sexually transmitted infections reduced the probability of HIV transmission (by intention-to-treat analysis) by 93% in the early arm of the study. Three HIV transmission events from people provided ART in the early arm of the study reflected failure of the drugs to suppress viral replication. No HIV transmissions were observed when viral replication was successfully prevented by ART. Abbreviations: ART, antiretroviral therapy; HPTN, HIV Prevention Trials Network.

PARTNER 1 & 2 Study



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Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study

[Prof Alison J Rodger, FRCP](#) ^a   · [Valentina Cambiano, PhD](#) ^a · [Tina Bruun, RN](#) ^b · [Prof Pietro Vernazza, MD](#) ^c · [Simon Collins](#) ^d · [Olaf Degen, MD](#) ^e · et al. [Show more](#)

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PARTNER 1 & 2 Study

- 75 sites in 14 European countries
- PARTNER1 (15/9/10 – 31/5/2014): MSM and heterosexual serodifferent couples
- PARTNER2 (extended to 30/4/18): only MSM serodifferent couples
- 972 MSM couples recruited
- Conditions: condomless sex reported, viral suppression (<200 copies/mL) in HIV + partner at last visit, no PrEP or PEP

PARTNER 1&2 Study

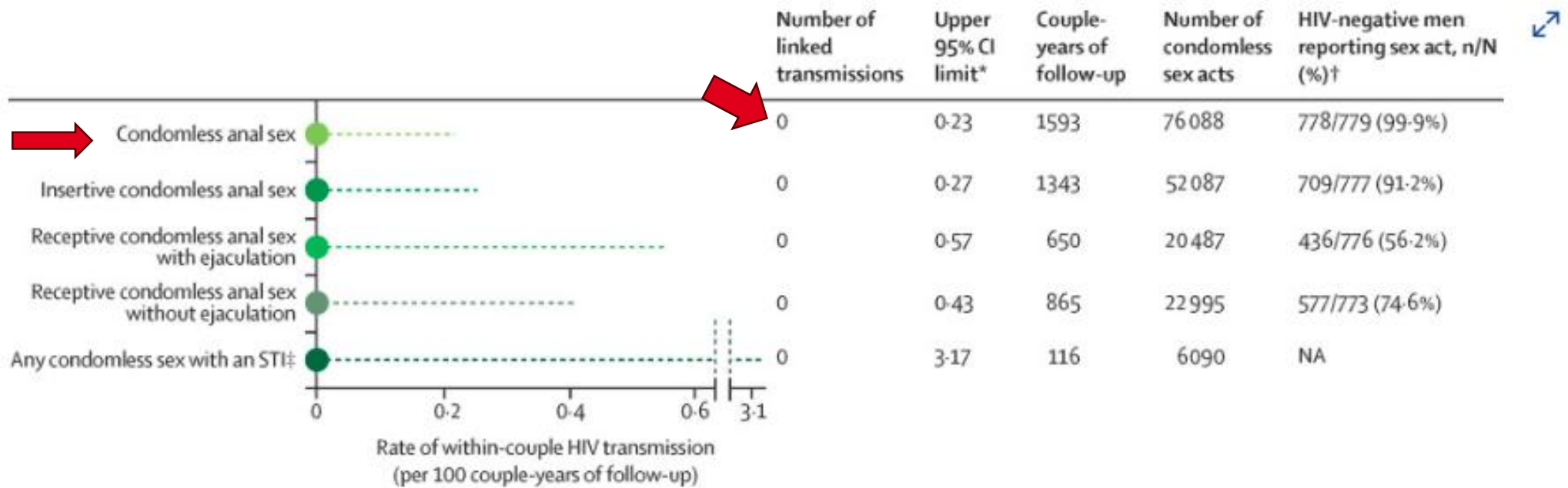


Figure 1 Rate of within-couple HIV transmission through condomless sex according to sexual behaviour reported by the HIV-negative partner

Rodger A, Cambiano V, Bruun T et al.

Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study

The Lancet, 2019; 393, 2428-2438

Take Home Messages

- Abundant Science Behind U=U
 - HPTN 052 & Partner 1&2: Immediate changes in public health policy (WHO)
 - Universal Test and Treat, Treatment as Prevention (TasP)
- TasP: Great Benefits to Persons Living with HIV
 - Reduction of AIDS defining illnesses
 - Reduction of renal, liver and cardiovascular disease including new onset DM
 - Reduction of non-AIDS malignancies
- Urgency: 95-95-95 goals