

The Opposites Attract Study: HIV Treatment as Prevention among Gay Male Serodiscordant Couples

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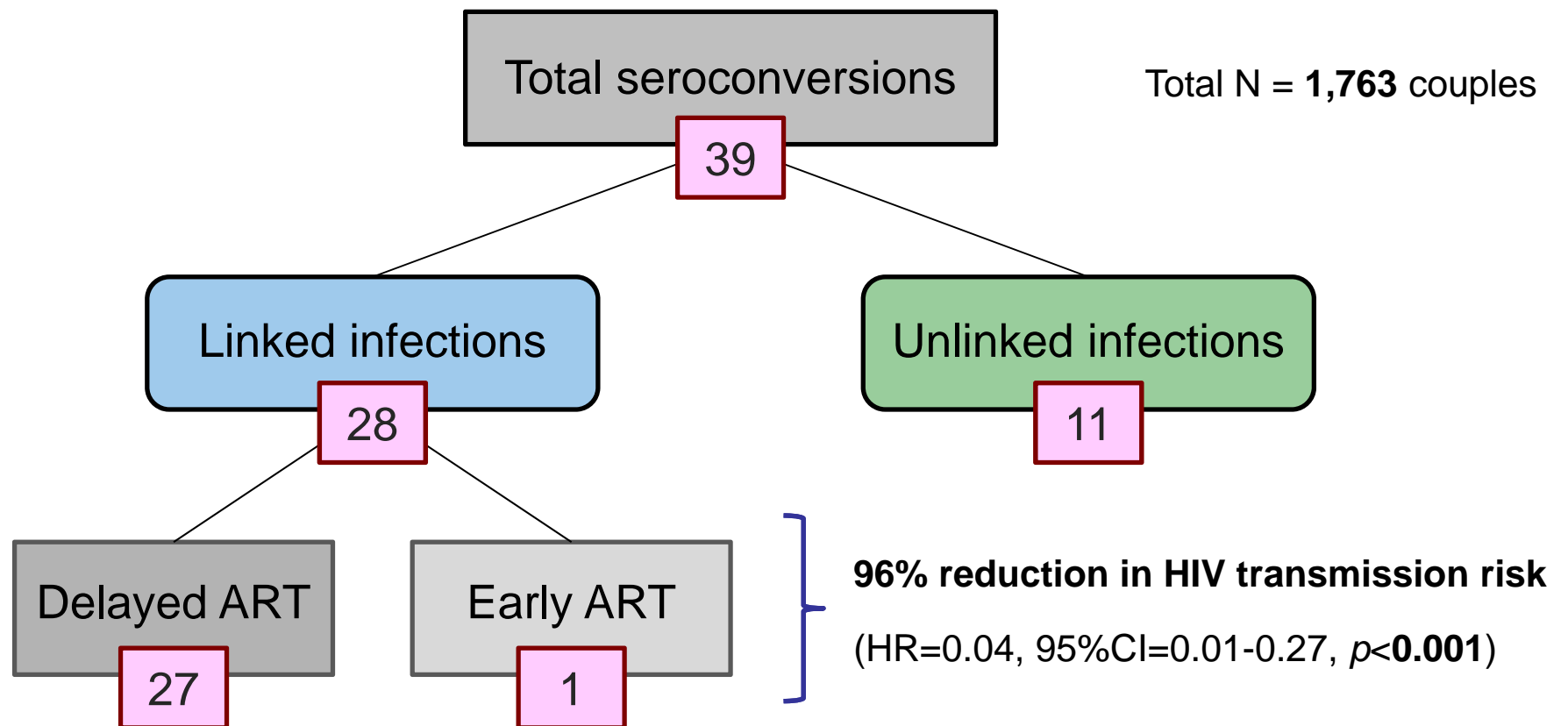
Kirby Institute Symposium

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Background

HIV 'Treatment as Prevention': HPTN 052



(Cohen et al., 2011, NEJM)

Background

HIV 'Treatment as Prevention' in homosexual men

- In developed countries, and many developing countries, male-to-male sex is the primary route of infection.
- Only 2% of couples in HPTN 052 were homosexual.
- The transmission risk in homosexual couples may be different:
 - Per-contact risk of HIV transmission is at least 10 times greater for anal sex than vaginal sex.

(Vittinghoff et al., 1999, Am J Epidemiol)

- Semen viral load versus blood viral load; and the impact of urethral STIs.

(Politch et al., 2012, AIDS)

Background

PARTNER Study in Europe

- 72 clinics throughout the UK and Europe
- Coordinated by UCL and the Copenhagen HIV Program
- **Projected sample size:** 1,666 couples who have had unprotected sex with each other in the last month (heterosexual & homosexual)
- **Primary Outcome:** HIV transmission in couples who have unprotected sex and where the HIV-positive partner has undetectable viral load

(Rodgers et al., 2012, BMC Public Health)

The Opposites Attract Study

Study Aims

1. Does HIV treatment/undetectable viral load reduce HIV transmission in anal sex?
2. Do STIs modify the relationship between viral load and HIV transmission?
3. How do gay men use viral load to negotiate UAI within serodiscordant relationships?
4. Is semen viral load related to transmission?
 - What is the correlation between viral load in blood and semen?

The Opposites Attract Study

Study Design

- Prospective longitudinal cohort study.
- Open enrolment (currently funded until December 2015).
- Unit of recruitment is a couple comprising two men in an ongoing sexual relationship where one is HIV-positive and the other HIV-negative at baseline.

The Opposites Attract Study

Study Design

- Participants attend at least 2 clinic visits per year:
 - Viral load and CD4 in HIV-Positive Partners
 - HIV antibody tests in HIV-Negative Partners
 - STI tests (gonorrhoea, chlamydia, syphilis) in both partners as indicated.
- Participants complete an online questionnaire after each clinic visit.

The Opposites Attract Study

Study Design

- Projected sample size: 240 couples followed-up for 3 years.
- Couples to be replaced if they break up or withdraw.
- Phylogenetic analysis to link HIV transmissions at the end of the study.
- Semen Sub-Study in Sydney only, for HIV-Positive Partners.

The Opposites Attract Study

Study Design

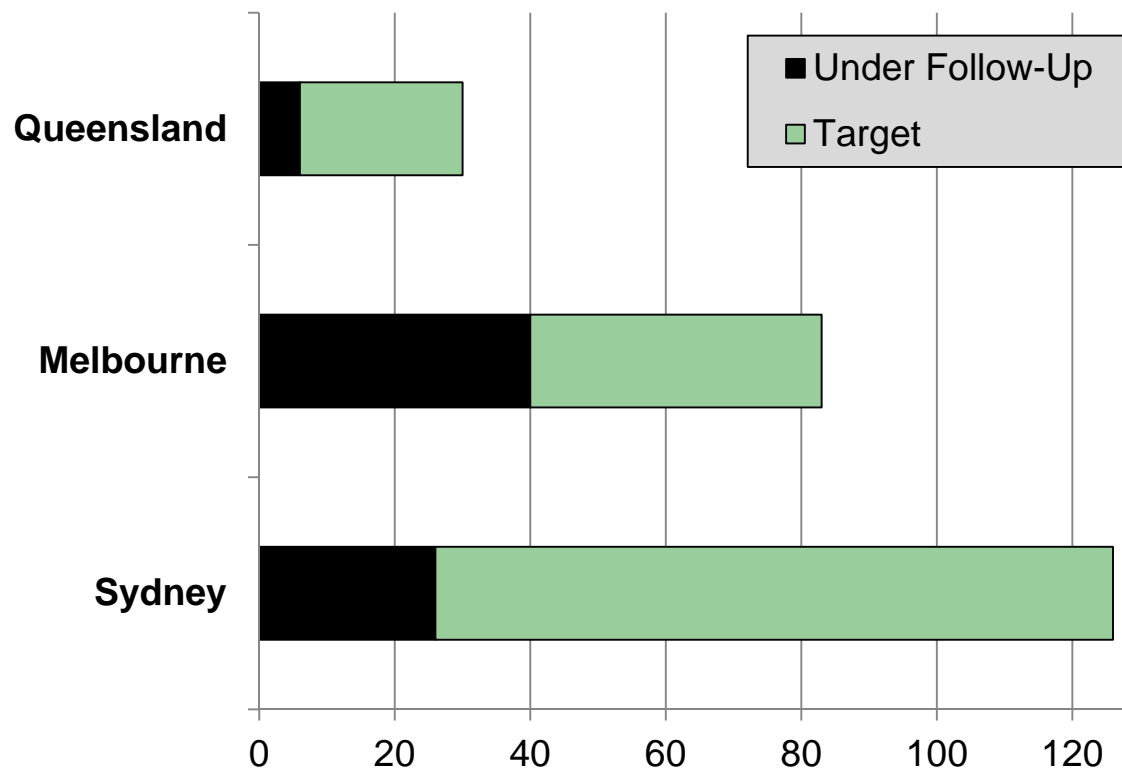
Opposites Attract	PARTNER
Homosexual couples	Heterosexual and homosexual couples
Detectable or undetectable viral load	Undetectable viral load
Protected and unprotected anal sex	Unprotected anal/vaginal sex
Detailed behavioural data	Brief behavioural data
Semen viral load (<i>subsample</i>)	Blood viral load only

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Progress Update

IN BRIEF

- 77** couples recruited
- 73** couples under follow-up
- 13** clinical sites open
- 3** more clinical sites to open



The Opposites Attract Study: Early Data (n=76)

Couple characteristics

- Median age of participants:
 - Positive Partner = 40.0 years
 - Negative Partner = 38.1 years
- Length of relationship:
 - Two-thirds first had anal sex with each other over one year ago; one-third less than one year ago.
- Sex and UAI with other partners:
 - Half of the couples had sex with partners outside the relationship.
 - One-quarter of the negative partners had UAI with other men.

The Opposites Attract Study: Early Data (n=76)

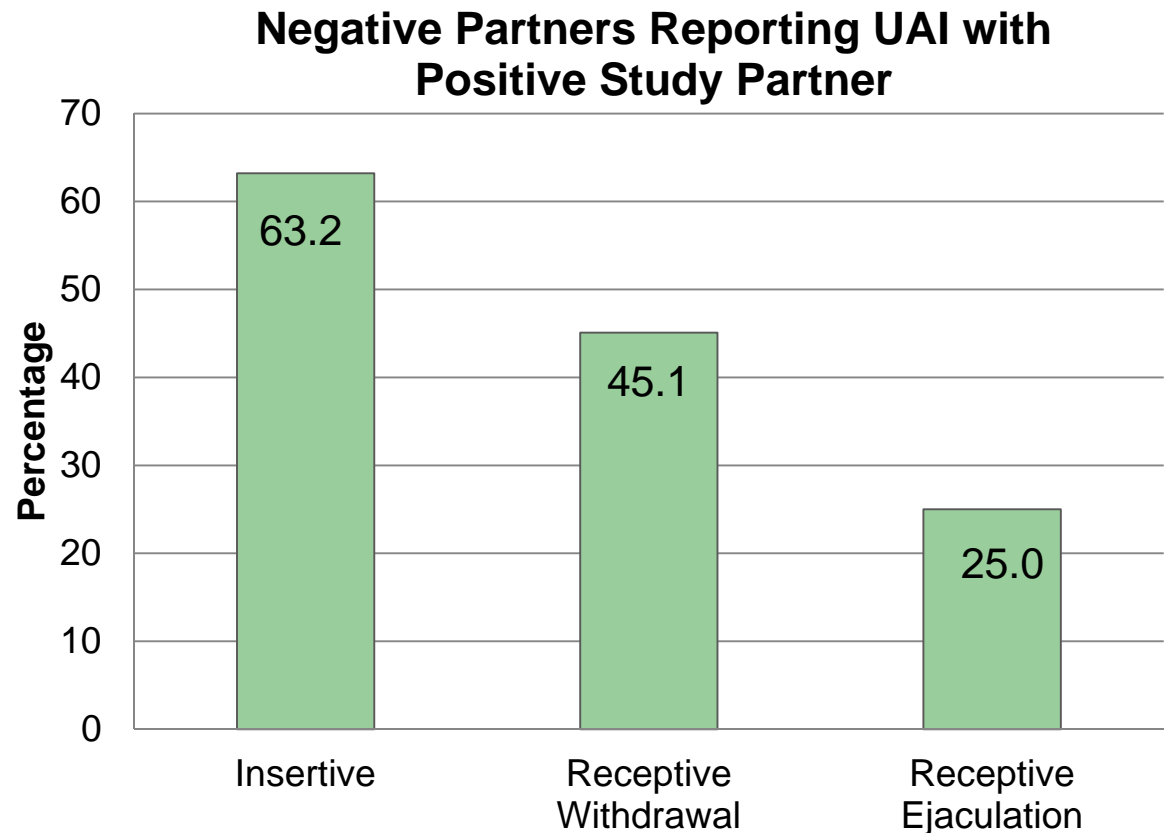
Antiretroviral treatment and viral load

	n	%
Positive Partners on ART	66	86.8
Positive Partners with Undetectable Viral Load	51/69	73.9
Positive Partners with viral copies <150/mL	57/69	82.6
Negative Partner – Perceived Viral Load of Positive Partner		
Undetectable	61	80.3
Detectable	11	14.5
Don't Know	4	5.3

The Opposites Attract Study: Early Data (n=76)

Unprotected anal intercourse (UAI) within the couple

- A total of **72.4%** (n=55) of Negative Partners reported any UAI with Positive Partner in the previous 3 months.

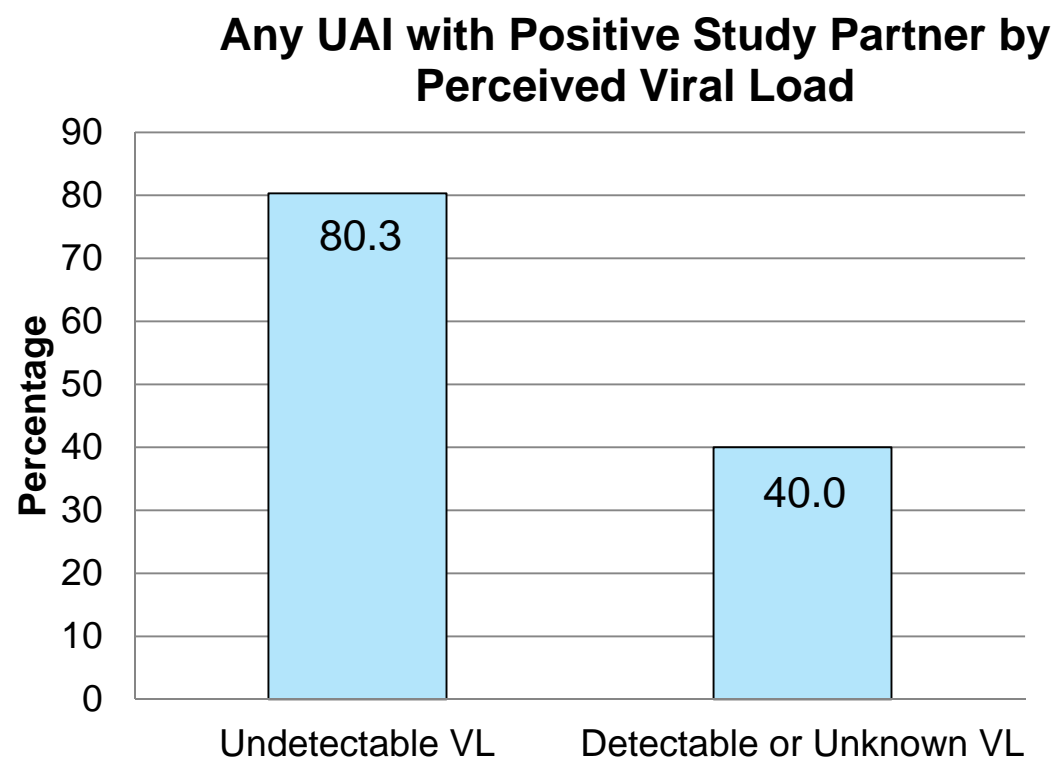


The Opposites Attract Study: Early Data (n=76)

UAI and perceived viral load

- Strong association between any UAI in the last 3 months and perceived viral load.

OR=**0.16**,
95%CI=0.05-0.55,
 $p=$ **0.003**



The Opposites Attract Study: Early Data (n=76)

Number of acts of UAI in previous 3 months and VL

	Perceived Undetectable VL		Perceived Detectable or Unknown VL	
	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>
Any UAI	8	22.4	0	10.2
Insertive UAI	4	14.1	0	3.3
Receptive UAI – withdrawal	1	4.7	0	2.7
Receptive UAI – ejaculation	0	4.1	0	4.2

Wilcoxon Ranksum Test: $z=2.55$; $p=0.011$

Conclusion

- The Opposites Attract Study continues to recruit.
- Early data from the study indicate:
 - UAI within these homosexual serodiscordant couples is common, and higher than found in other samples of gay men.
 - UAI is strongly associated with the Negative Partner's perception of his Positive Partner's HIV viral load.
 - There appears to be some evidence of strategic positioning in couples where the Positive Partner has undetectable viral load.

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All Study Participants

Study Investigators

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