

17<sup>TH</sup> ANNUAL CONFERENCE OF THE  
BRITISH HIV ASSOCIATION (BHIVA)

British HIV Association  
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Pre exposure prophylaxis exposure for  
conception (PrEP-C) as a risk reduction  
strategy in HIV positive men and HIV  
negative women in the UK

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## Introduction

- Increasing number of requests to conceive naturally from HIV discordant couples (HIV positive male)
- Sperm washing safe but
  - expensive and inconvenient
  - Up to 30% of couples drop out before starting insemination <sup>1,2</sup>
  - 40% pregnancy rates
  - After assisted reproduction techniques completed but failed – natural attempts reported to be as high as 50% in one cohort

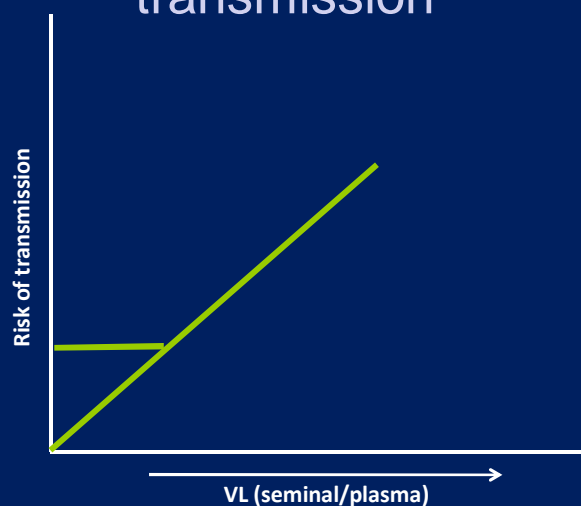
*1. Vernazza et al, 2006. 2. Semprini, et al, 1992.*

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## Viral load determines risk of transmission



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## Viral load determines risk of transmission

- WITS study: No transmissions if VL <1000 c/ml <sup>1</sup>
- Rakai study: No transmission if VL <400 c/ml <sup>2</sup>
- Multiple observational ARV studies on discordant couples show 80-100% reduction in transmission <sup>3-8</sup>

1. Garcia, et al. *N Engl J Med* 1999;341:394-402. 2. Quinn et al, *N England J Med* 2000;342:921-9.  
3. Melo, STD, 2008. 4. Castillo, *J AIDS*, 2005. 5. Kayintemba, *IAS* 2006. 6. Bunnett, *CROI* 2008.  
11. Sullivan, *CROI* 2009. 7. Reynolds, *CROI* 2009. 8. Del Romero, et al. *BMI* 2010;340:c2205

VL (seminal/plasma)

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## Swiss Statement

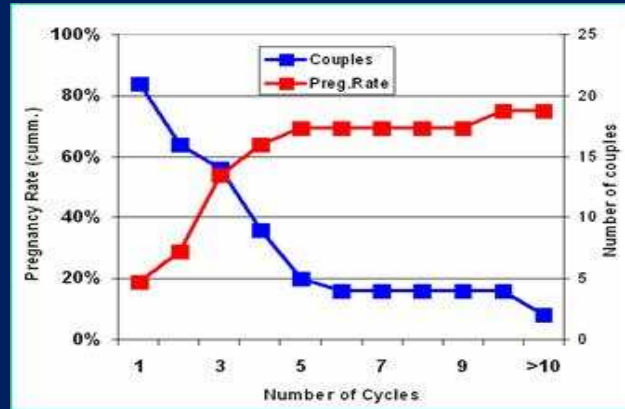
“An HIV infected individual without an additional STD and on antiretroviral therapy with completely suppressed viraemia is sexually non-infectious i.e. he/she does not pass on HIV through sexual contact”

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## PrEP-C with Tenofovir n=22



All women HIV negative 3/12 after last exposure  
Maximum attempts 12\*  
Fertility investigations after 6 attempts\*

Vernazza, et al. 4<sup>th</sup> IAS, 2007  
\* Personal communication from P Vernazza

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Pre exposure Prophylaxis for conception (PrEP-C) is the use of antiretroviral agents in HIV negative females having timed unprotected sex with their HIV positive male partners to conceive without HIV transmission

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## Preconception Service

- For several years we have run dedicated HIV preconception services (Brighton 2008, Birmingham 2009)
- HIV discordant (+/-) and concordant (+/+) couples wishing to conceive
- For couples locally and more recently referrals from distant sites
- Highly individualised service
  - Advice
  - Counselling
  - Ensuring an understanding of risk benefits to both parties
  - Options
  - Risk assessments
  - Recommendations

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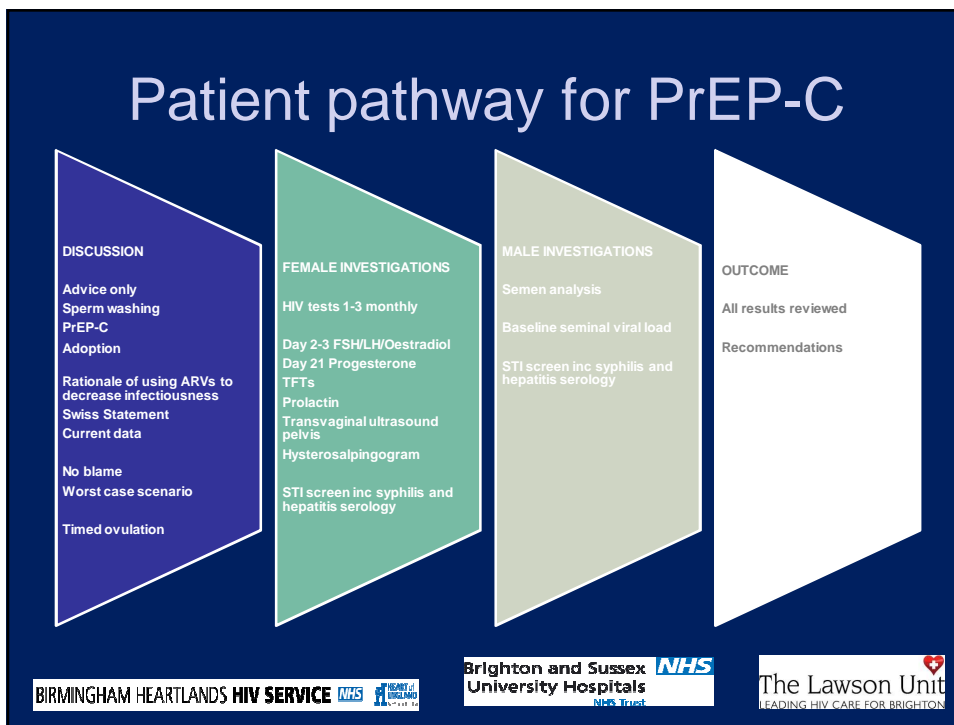
## Overview of the 2 preconception services

	Brighton & Sussex University Hospitals NHS Trust	Birmingham Heartlands HIV Service
Frequency of Clinics	Weekly clinic with one hour reserved for conception service	Specialty clinic once per month
Specialist Staff	1 HIV specialist	1-2 HIV specialists
	1 Infertility specialist	1 Infertility specialist
	1 HIV/Sexual Health nurse	1 HIV/Sexual Health CNS
	1 HIV Health Advisor	1 Fertility CNS
		1 HIV Health Advisor
	Hospital Ethics Committee, BSUH	
Funding	As part of local HIV Service agreements	As part of local HIV Service agreements
	Assisted conception regulations apply	Assisted conception regulations apply
Specialised Protocols	Extensive with signed consent	Extensive with signed consent

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## Why choose PrEP-C?

Reasons for	Reasons against
Ineligible for PCT funding	Co infection with Hepatitis
Unable to afford privately funded sperm washing	Detectable viral load in plasma or semen
Previous child	Sub fertility where natural conception cannot occur
More natural	High anxiety regarding HIV transmission
Less inconvenient	
Natural conception possible	

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## Preconception service outcomes

	Brighton & Sussex University Hospitals NHS Trust n=23	Birmingham Heartlands HIV Service n=19
Male +ve Female -ve	12	11
Male -ve , Female +ve	8	3
Male +ve , Female +ve	3	5
On ARVs	20	18
Female sub fertility	8	2
Male sub fertility	1	3
Advice only	2	1
Referral for sperm washing	4	0
Self Insemination	5	2
TOI	5	8
with follicular tracking	0	3
with ovarian stimulation	0	2
With PREP-C	3 (+ 2 waiting to start)	2

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## Methods

- Data were collected prospectively on demographics, CD4, HIV VL and ARVs
- Full history from both individuals
- Cycle length and ovulation were determined
- All couples utilised timed ovulatory intercourse (TOI) to reduce potential exposure to HIV

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## Protocol

Evidence based from human and animal models

- Prediction of ovulation
  - Urine LH surge
  - Follicle tracking
- 1-2 doses Tenofovir/Truvada 24-36hrs pre UPSI
- UPSI
- Tenofovir/Truvada 1-2 hrs post UPSI

## Results

n = 5 couples	
Male median age (range)	42 yrs (30-56)
Female median age (range)	34 yrs (28-43)
Median CD4	720 cells/mm <sup>3</sup>
Baseline plasma HIV RNA	<40 c/ml
Baseline seminal HIV RNA	<40 c/ml
Median duration of ARVs (range)	12 yrs (5-14)
Male ethnicity	White UK male 3/5 (60%)
Female ethnicity	White UK female 3/5 (80%)
STIs	none
Male sub fertility	1/5 minor oligospermia
Female sub fertility	0/5



## Pregnancy outcomes

Couples	n=5
Pregnancies	4
Live births	1
Ongoing pregnancy	1
Miscarriages	2 (6/40 and 10/40)
Number of attempts per pregnancy	3 (1-5)
Switch to sperm washing	1
PrEP-C discontinuations due to AEs	0
HIV transmissions	0

## Discussion

- No HIV transmissions
  - Small numbers
- Acceptable method of conception
- Belt and braces!
- Gives control to the HIV negative partner
- Cheaper than
  - Sperm washing
  - Cost of treating new HIV infection
- Time consuming
- No current or planned commissioning within PbR

## Conclusions

- This is the first UK data on successful PrEP-C
  - undertaken in 2 dedicated HIV preconception clinics
  - demonstrates PrEP-C to be a safe and effective method of reducing risk in HIV discordant couples
- Demand for its use is likely to increase
- There remains no published data
- Current PrEP trials will not address PrEP-C issues
- PrEP-C should be undertaken in collaboration with experienced centres
- Prospective collection of data essential to assess safety and efficacy on larger scale

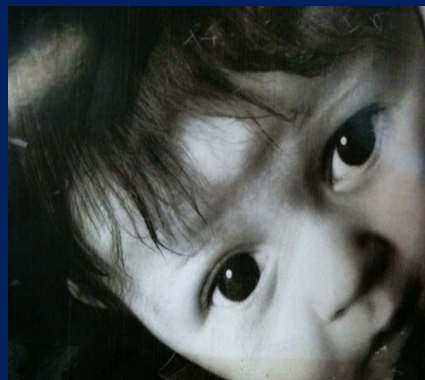
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