



# **HIV Prevention in Serodiscordant Couples**

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# Background

- Sub-Saharan Africa
  - Three quarter of adults are in cohabiting relationships
  - Up to half of HIV-infected in stable relationships have an HIV negative partner
- Knowledge of HIV status is still low
  - 37.5% among males and 52.6% among females in 2012 in South Africa<sup>1</sup>

1. Shisana et al. (2014) *South African National HIV Prevalence, Incidence and Behaviour Survey, 2012*. Cape Town, HSRC Press.



Condoms



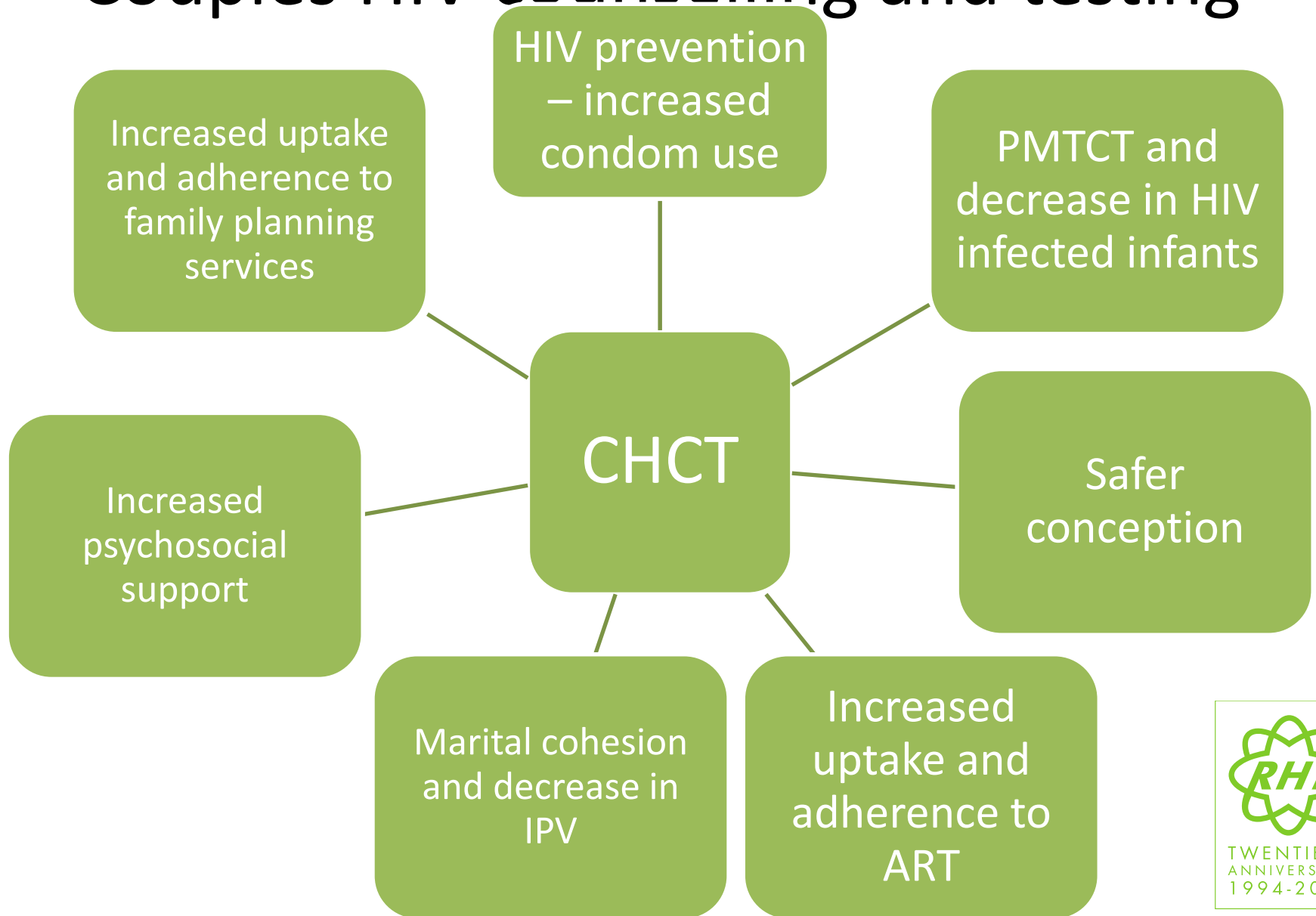
PrEP

MMC

ART



# Couples HIV counselling and testing



# Treatment as Prevention

- HPTN 052: Reduction in HIV transmission of **96%** in serodiscordant couples with early ART in the HIV-infected partner<sup>1</sup>
- Most effective single strategy in reducing HIV transmission risk
- ART is a recommended intervention for the HIV-infected partner regardless of CD4 count

1. N Engl J Med 2011; 365:493-505



# Does ART eliminate transmission risk?

- Review of studies in **virally suppressed** patients estimated the lifetime risk of HIV transmission to be approximately 1 in 204 to 1 in 50 (i.e. 2–5%; which is equivalent to 1% risk per 10 years of relationship and sexual activity).<sup>1</sup>
- Per-act risk of heterosexual HIV transmission <13:100 000<sup>2</sup>
- Small transmission risks per sex act translate into substantial cumulative probability of HIV transmission over time<sup>3</sup>

<b>With ART for positive partner</b>	<b>1 year transmission risk</b>	<b>10 year transmission risk</b>
<b>Heterosexual couples</b>	0,2%	2%
<b>Male couples</b>	3%	<b>25%</b>

1. Loutfy et al. (2013) Systematic Review of HIV Transmission between Heterosexual Serodiscordant Couples where the HIV-Positive Partner Is Fully Suppressed on Antiretroviral Therapy. PLoS ONE 8(2): e55747. doi:10.1371/journal.pone.0055747

2. Supervie et al. Clinical Infectious Diseases 2014;59(1):115–22

3. Lasry et al. AIDS 2014, 28:1521-1529



TWENTIETH  
ANNIVERSARY  
1994-2014

# Does ART eliminate transmission risk?

- HIV transmission in serodiscordant couples varies substantially
  - Type and frequency of sexual activity
- Trial studies may overestimate real life effectiveness of Treatment as Prevention
- Adherence to treatment and viral load of infected partner
  - Viral suppression 12months on ART in LMIC was 84%<sup>1</sup>
  - Of patients attending a safer conception service in South Africa only 47% were virally suppressed on treatment<sup>2</sup>

1. *Bulletin of the World Health Organization* 2013;91:377-385E

2. Schwartz et al. *AIDS* 2014, 28 (Suppl 3):S277–S285



# Condoms

- Consistent condom use reduces HIV transmission by 80% compared to non use

	<b>1 year transmission risk</b>	<b>10 year transmission risk</b>
<b>Heterosexual couples, condoms only</b>	1%	11%
<b>Heterosexual couples, condoms plus ART</b>	0,05%	0,5%
<b>Male couples, condoms only</b>	13%	76%
<b>Male couples, condoms plus ART</b>	1%	6%





# Male Medical Circumcision

- Reduces risk of HIV acquisition by 54% in the HIV-uninfected male partner
- Adds additional preventative benefit if the male partner is negative



# Pre Exposure Prophylaxis (PrEP)

- Daily use of ARVs in HIV-uninfected partner to prevent HIV transmission
- Daily, oral TDF 300mg + FTC 200mg (Truvada)
- Recommended for individuals at substantial risk of HIV acquisition
- Adherence is critical to PrEP efficacy
- Reduction in risk of HIV acquisition 44% (iPrEx), 63% (TDF2) and 75% (Partners PrEP)
- Futility in two other large trials
- Possible additional intervention for the uninfected partner

US Public Health Service. PreExposure Prophylaxis for the prevention of HIV infection in the United States 2014.  
WHO. Guidance on couples HIV testing and counselling including antiretroviral therapy for treatment and prevention of serodiscordant couples. April 2012



# Summary of HIV Prevention Options

<b>HIV-infected partner</b>	<b>HIV-uninfected partner</b>
STI diagnosis and treatment	STI diagnosis and treatment
Condoms	Condoms
Antiretroviral Therapy	Male Medical Circumcision (MMC)
	Pre Exposure Prophylaxis (PrEP)



# Conclusion

- HIV serodiscordancy is common
- Cumulative risk of HIV transmission over time
- HIV Prevention strategies are essential in this population
- Adherence to interventions is critical
- Combination of preventative strategies in consultation with the couple

