



# HIV In South Africa: Turning the Tide of the Epidemic

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# Stellenbosch University



*Saldanha (Military Science)*  
426 students

*Bellville Park (Business School)*  
800 students

*Tygerberg (Health Sciences)*  
3 000 students

*Central Campus*  
20 000 students (incl. distance ed.)

Western Cape

# **The Faculty of Health Sciences Stellenbosch University**

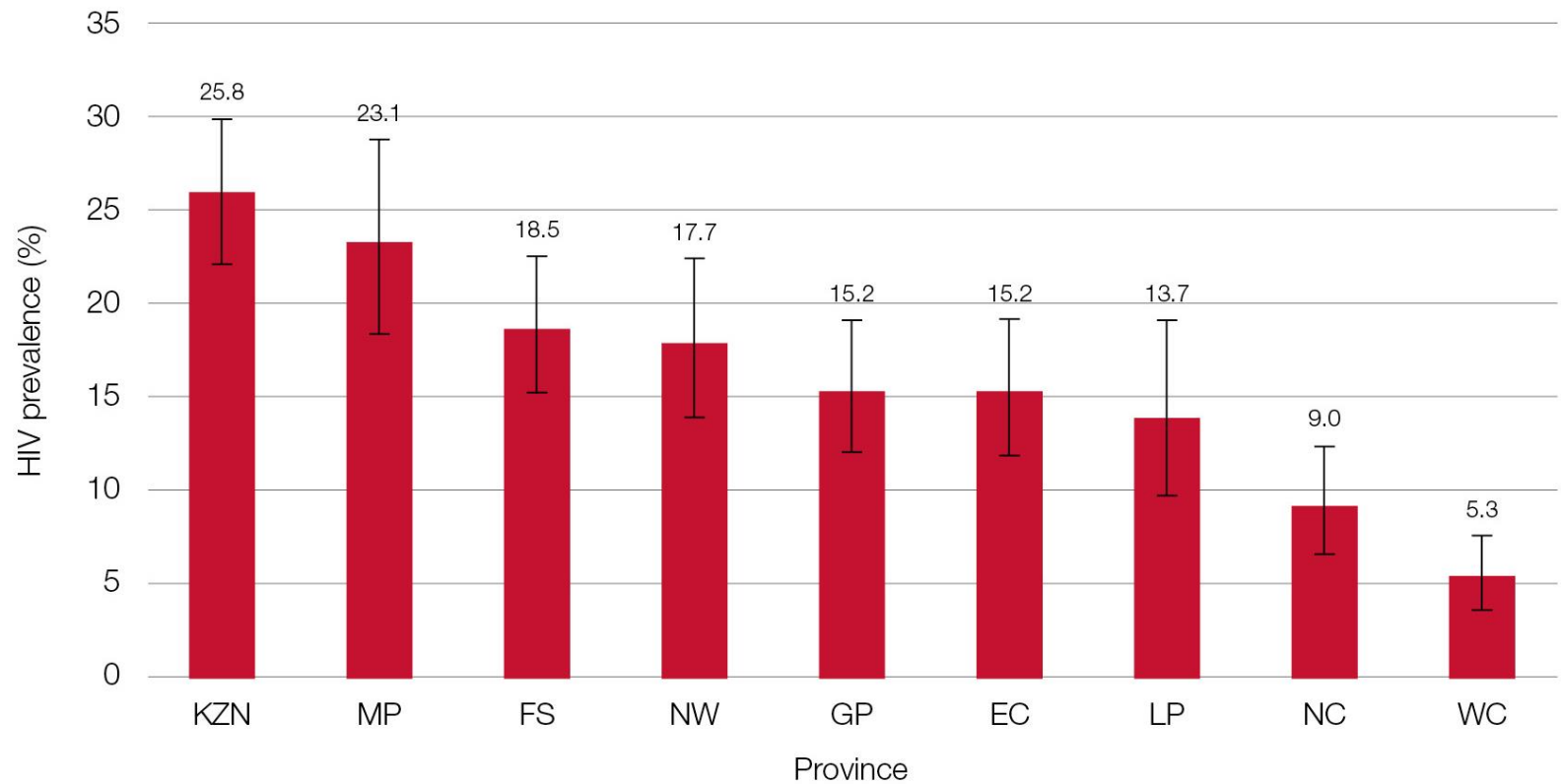




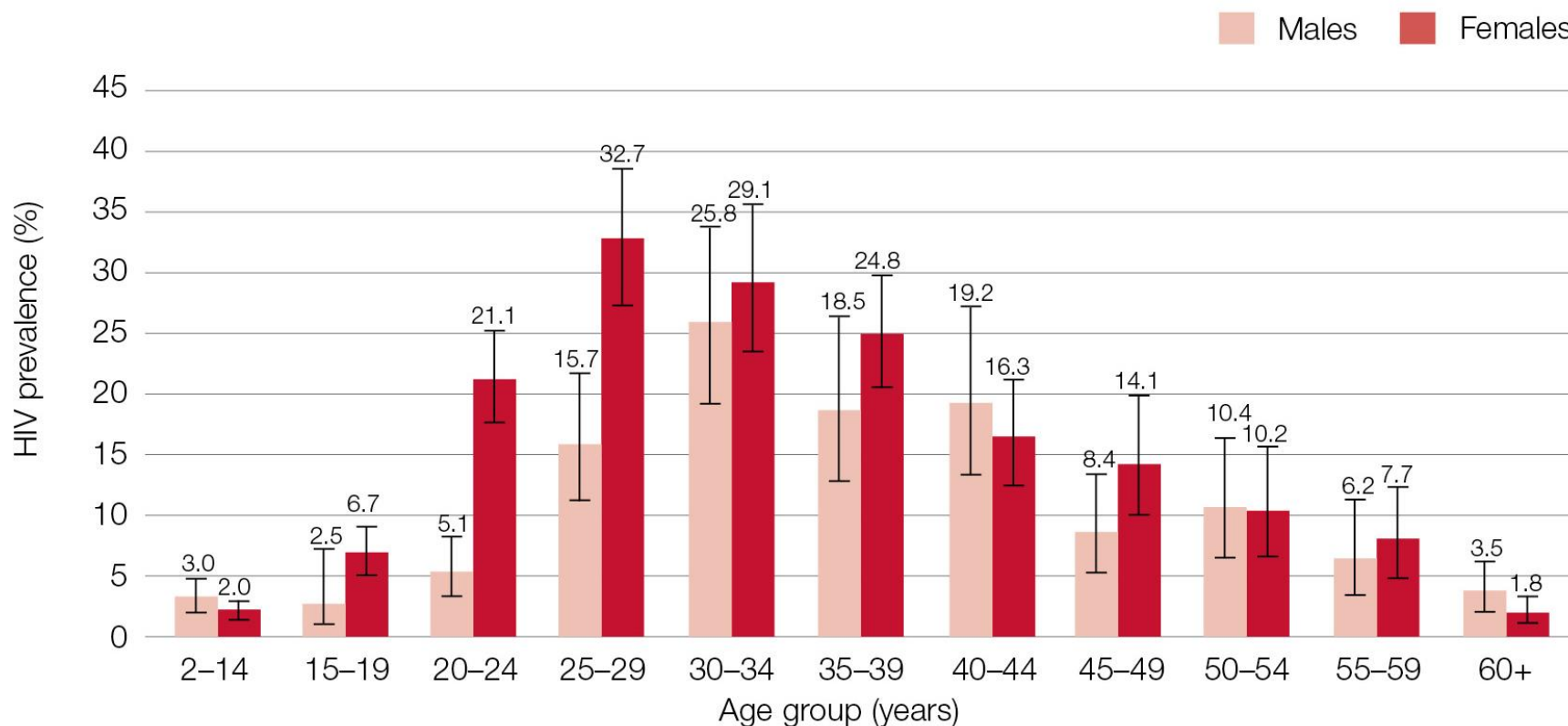
# HIV Prevalence

Year	HIV Prevalence (%)	95% CI
2002	11.4	10.0-12.7
2005	10.8	9.9-11.8
2008	<b>10.9</b>	10.0-11.9

# HIV prevalence among 15 - 49 year olds by province, South Africa 2008



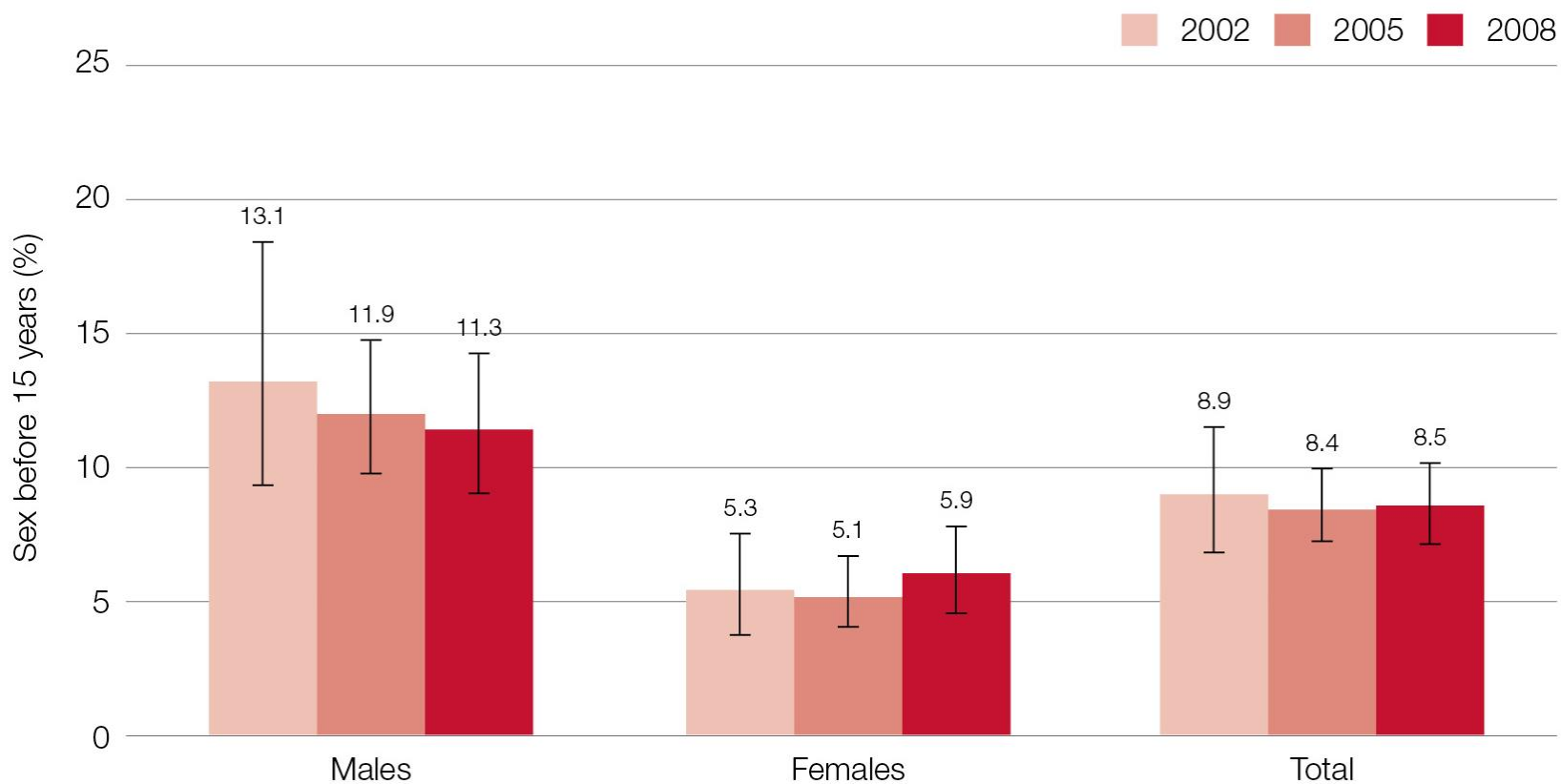
# HIV prevalence, by sex and age, South Africa, 2008



# HIV prevalence among the most-at-risk populations, South Africa 2008

Most-at -risk population	n	HIV + %	95% CI
African females 20-34	1395	32.7	29.7-36.0
African males 25- 49	944	23.7	20.1-27.7
Males 50 years and older	946	6.0	4.4-8.1
Men who have sex with men	86	9.9	4.6-20.2
People who are high-risk drinkers	965	13.9	10.4-18.2
Persons who use drugs for recreational purposes	490	10.8	7.2-15.8
People with disabilities	458	14.1	9.9-19.6

# Sexual debut by sex among 15-24 year olds, South Africa 2002, 2005 and 2008



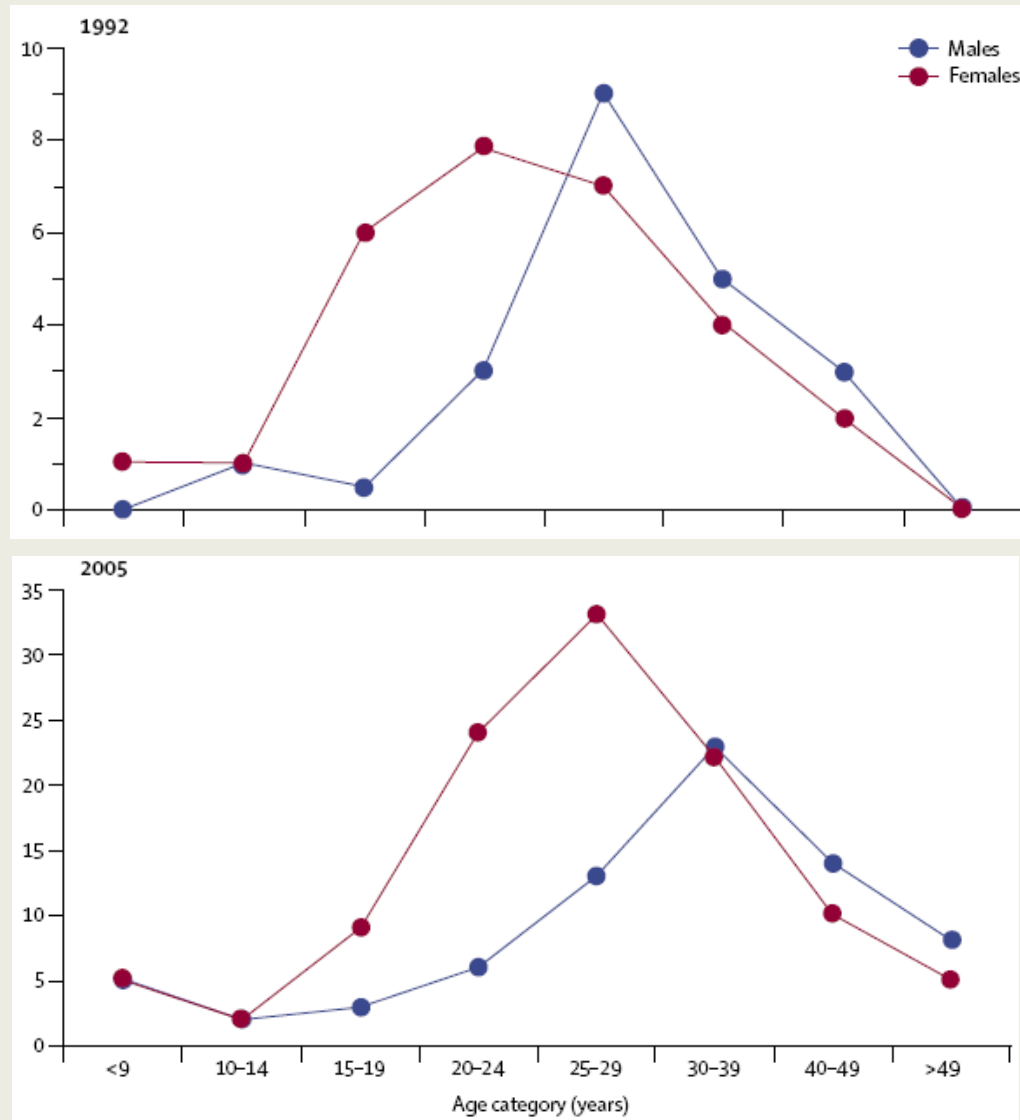


# Intergenerational sex among 15-19 year olds, South Africa 2005 and 2008

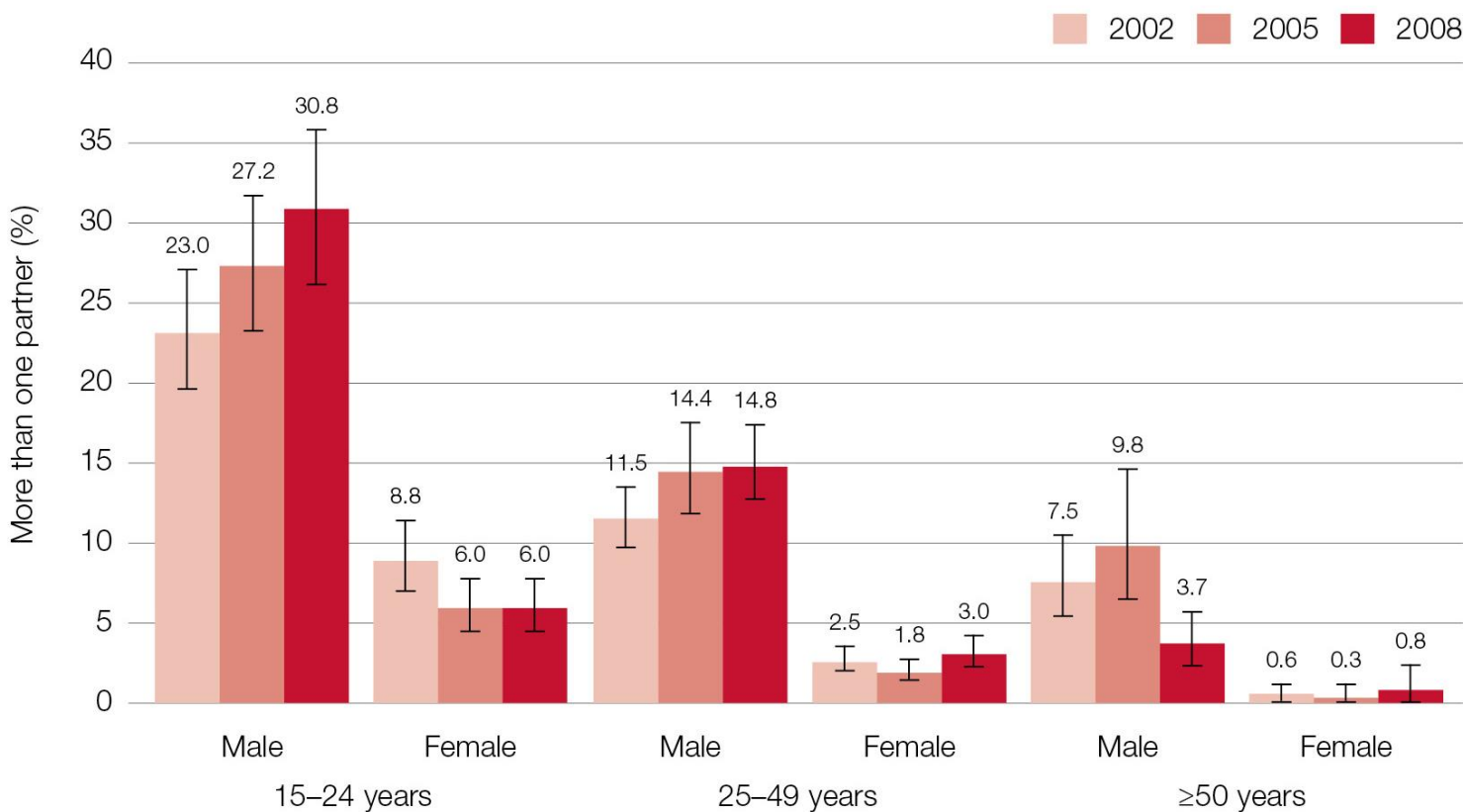
<b>2005</b>	<b>Within 5 years of own age (%)</b>	<b>Partner is 5+ years older (%)</b>
Male	98.0	2.0
Female	81.4	18.5
Total	90.4	9.6
<b>2008</b>		
Male	98.5	0.7
Female	72.4	27.6
Total	85.1	14.5

# Prime source of HIV infection: Inter-generational sex in young women

HIV prevalence (%)



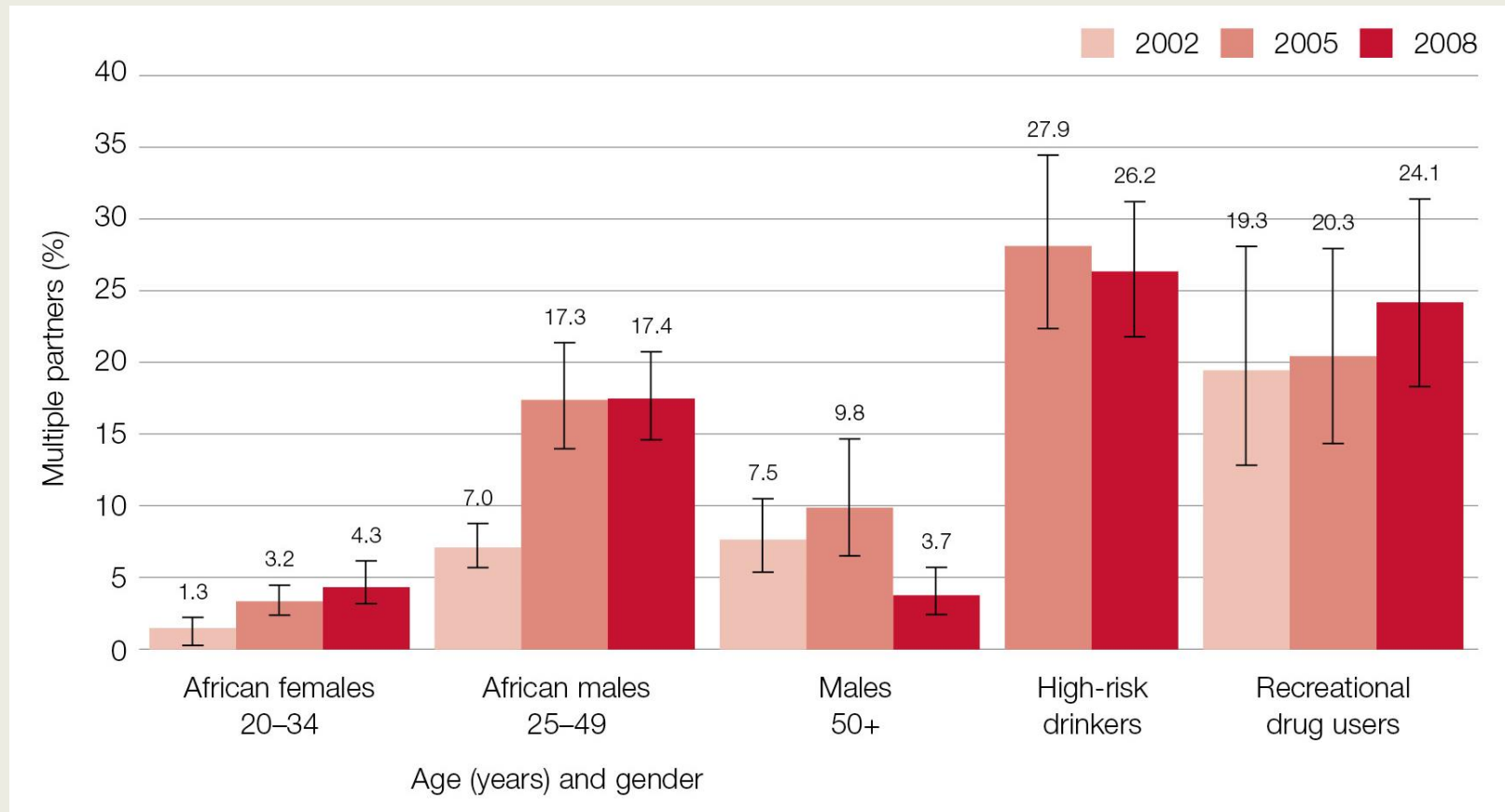
# Multiple sexual partners, South Africa 2002, 2005 and 2008



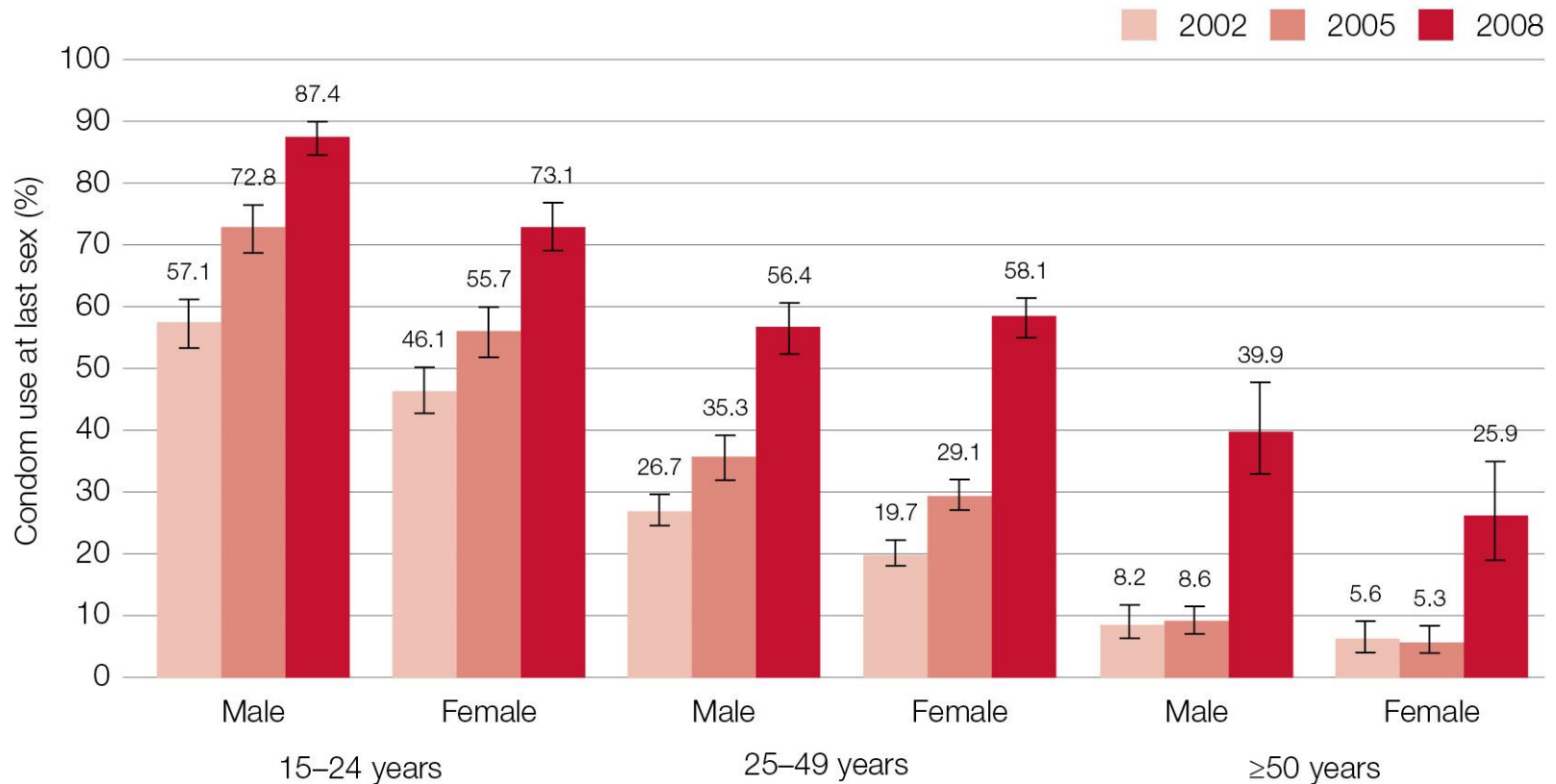
# Why Multiple Partners

- Change in values- normalization of multiple sexual partnerships
- Transactional reasons – exchanging of sex for resources – mainly young girls – driven by poverty / materialism
- Sugar daddies & mommies – prefer younger partners while they have partners their own age
- Married males who are unhappy at home – “strengthening their homes”
- Some males may prefer to have sex with other males but because of expectations from society hide their sexual preferences
- Power dynamics in relationships – men and women who have multiple partners because they can

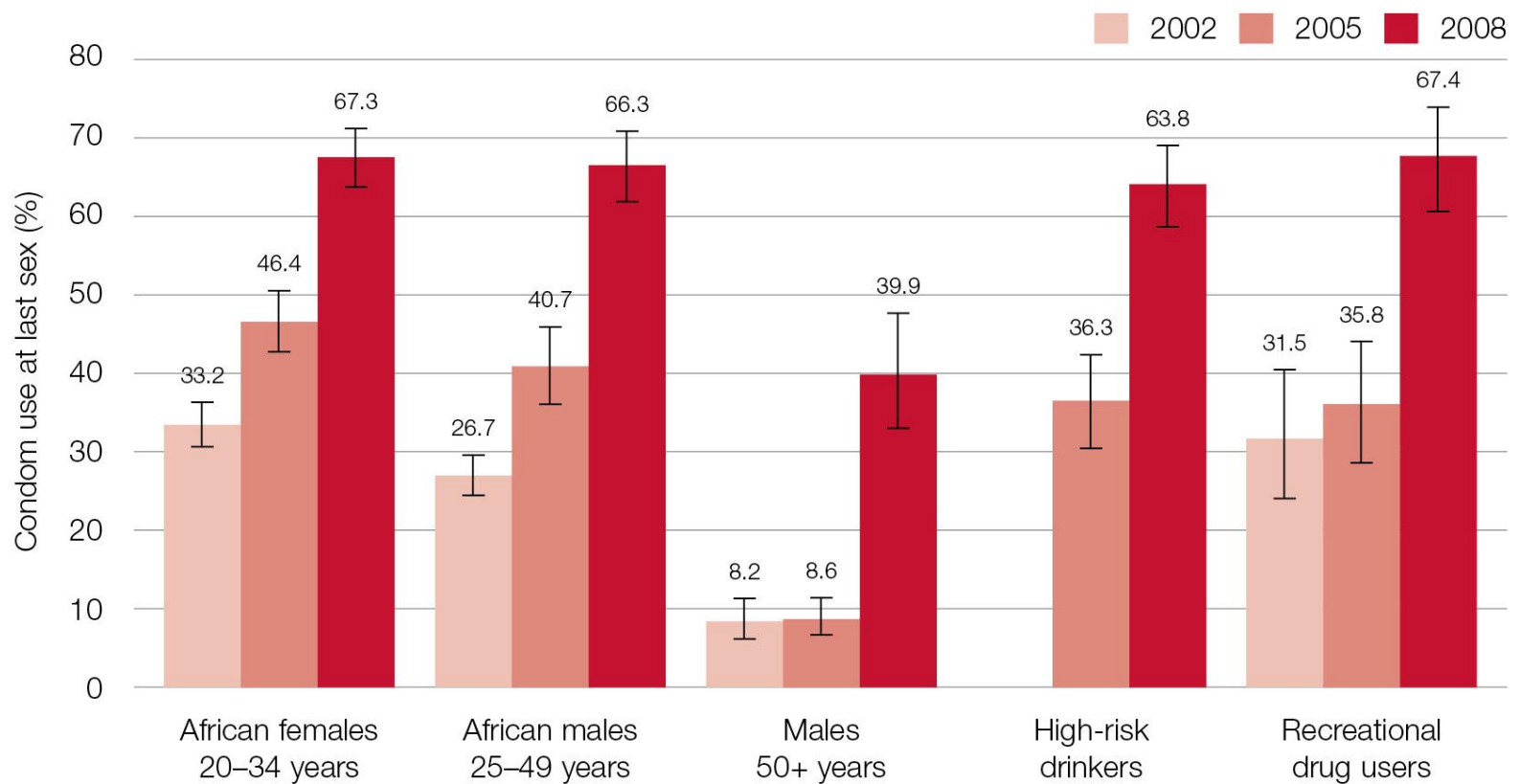
# Most-at-risk population with multiple sexual partners, South Africa 2002, 2005 and 2008



# Condom use by age group and sex, South Africa 2002, 2005 and 2008



# Condom use by most-at-risk populations at last sex, South Africa 2002, 2005 and 2008



# Respondents aged 15 years and older who ever had an HIV test, South Africa, 2002, 2005 and 2008

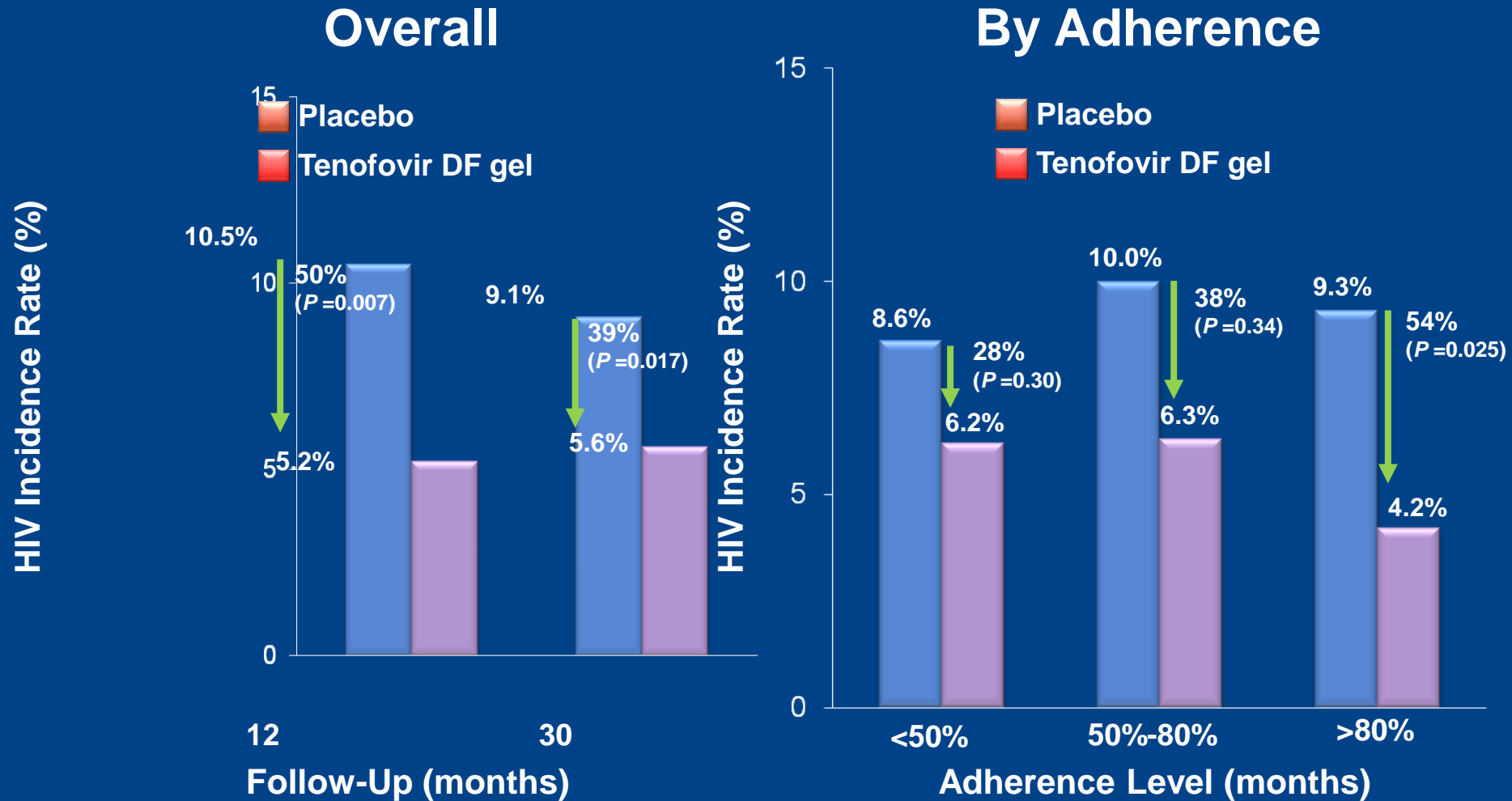
2002	Yes %
Male	21.4
Female	21.4
Total	21.4
2005	
Male	27.6
Female	32.9
Total	30.5
2008	
Male	43.0
Female	56.7
Total	50.8



# Previous HIV prevention does not address prime source of new HIV infections

- Existing proven HIV prevention strategies - ABCCC:
  - **A**bstinence
  - **B**ehaviour
  - **C**ondoms
  - **C**ounselling and Testing
  - **C**ircumcision
- None of these HIV prevention strategies address the vulnerability in young women

# CAPRISA 004 Results: HIV Incidence



# HPTN 052: HIV-1 Transmission

Cohen et al. NEJM 2011

Total HIV-1 Transmission Events: 39

Linked  
Transmissions: 28

Unlinked or TBD  
Transmissions: 11

Immediate  
Arm: 1

Delayed  
Arm: 27

$p < 0.001$

- 18/28 (64%) transmissions from infected participants with CD4 >350 cells/mm<sup>3</sup>, and VL >50,000 copies/ml at transmission
- 23/28 (82%) transmissions in sub-Saharan Africa
- 18/28 (64%) transmissions from female to male partners

# 96%

**Results of the HPTN052 trial announced on 12 May 2011 show that if an HIV-positive person adheres to an effective antiretroviral therapy regimen, the risk of transmitting the virus to their uninfected sexual partner can be reduced by 96%**

**UNAIDS 2011 *AIDS at 30*  
*SMARTER , FASTER , BETTER CAMPAIGN***

**“Treatment for prevention is a game changer”.**

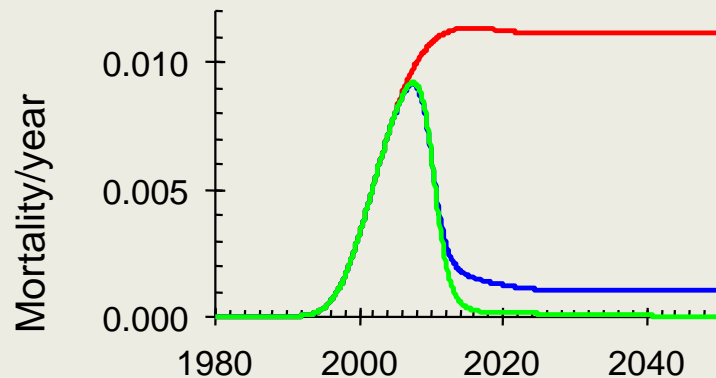
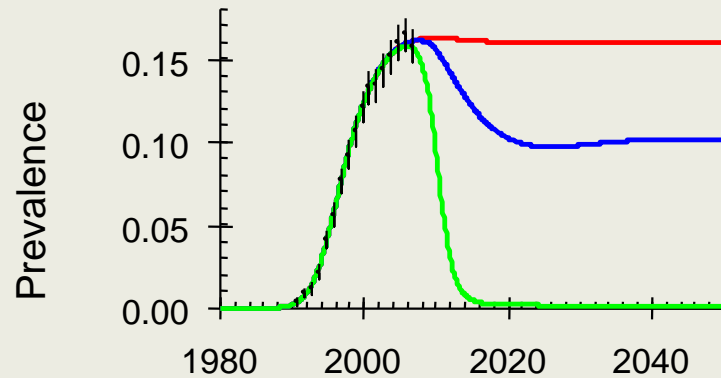
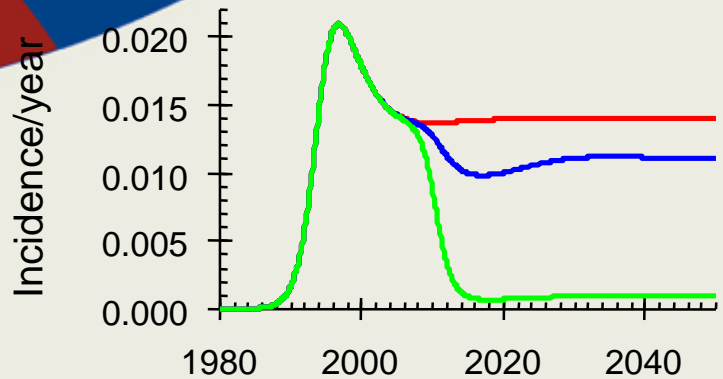
**Michel Sidibe  
Executive  
Director of  
UNAIDS**

# Test and Treat Strategy

- The Hypothesis:
  - By identifying most of the HIV-1 infected individuals in a population and providing them with effective antiretroviral therapy HIV-1 transmission will decrease substantially and over time the epidemic will extinguish

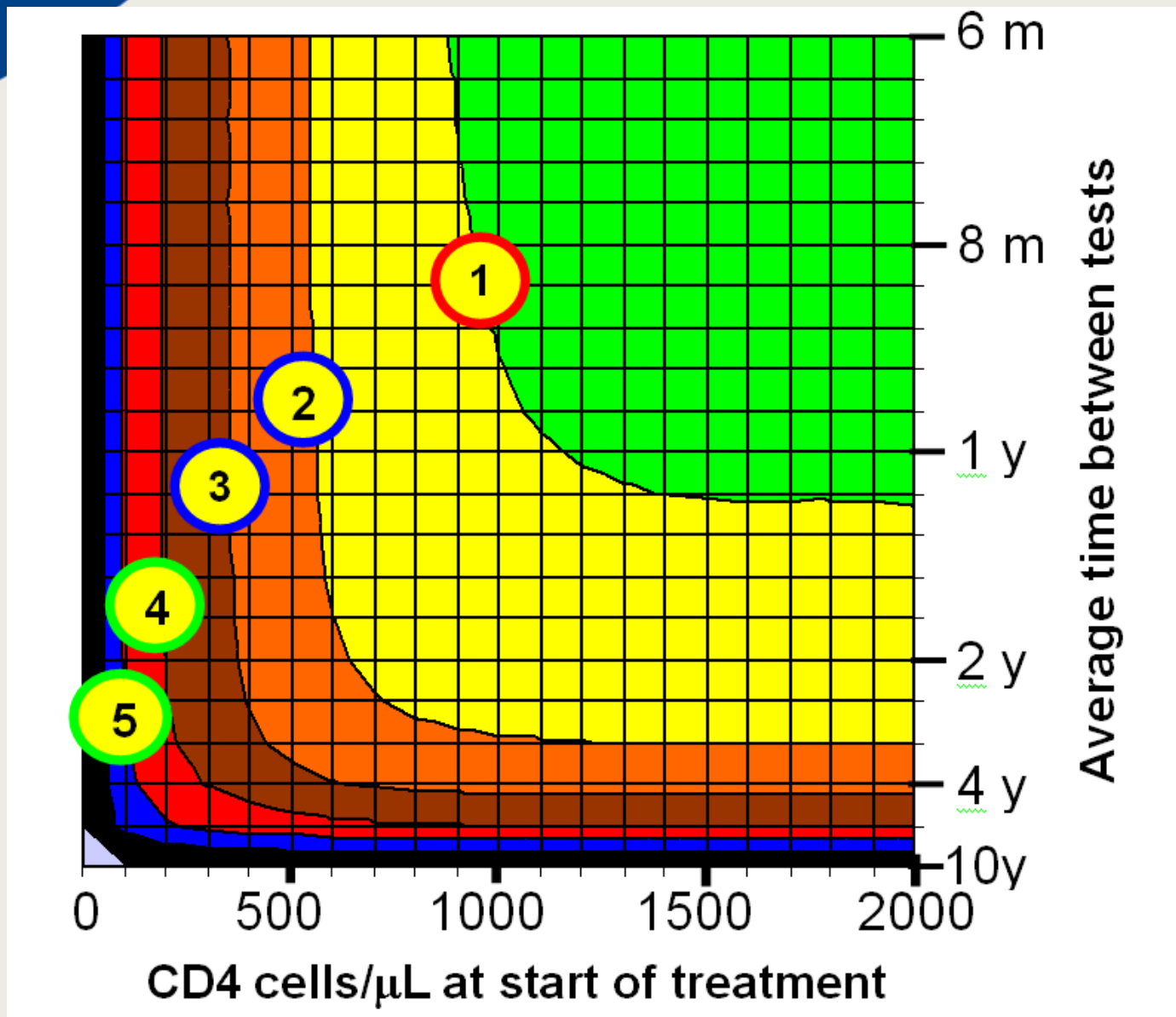
FIND->TEST->LINK->TREAT->RETAIN

# Test & Treat: A Model



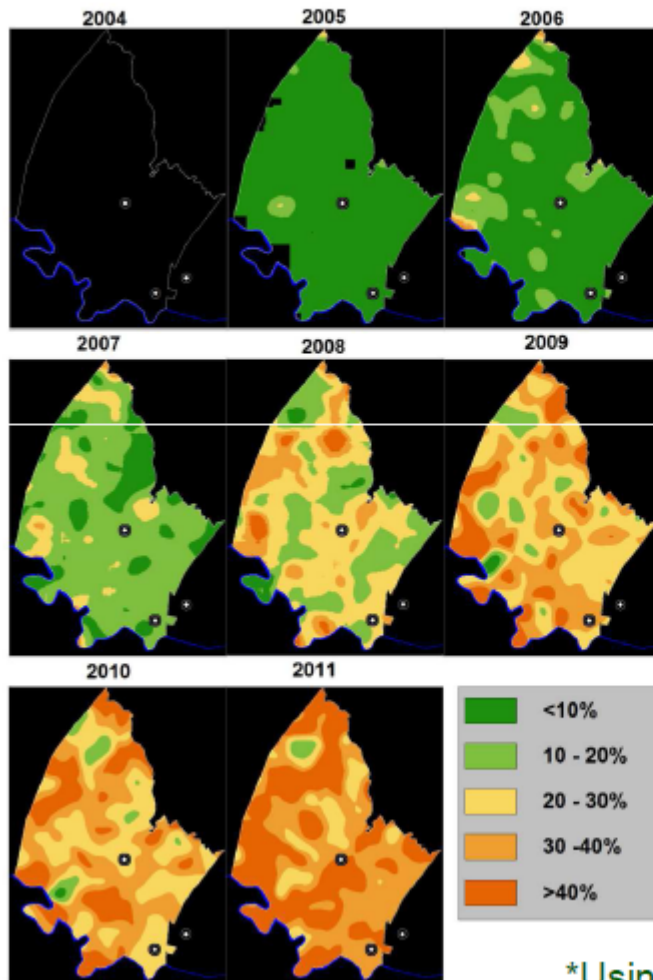
No ART  
Current  
Proposed

Granich R, et al. Lancet.  
2009;373(9657):48-57.



Secondary cases for each primary case,  $R_0$

# ART coverage 2004-2011

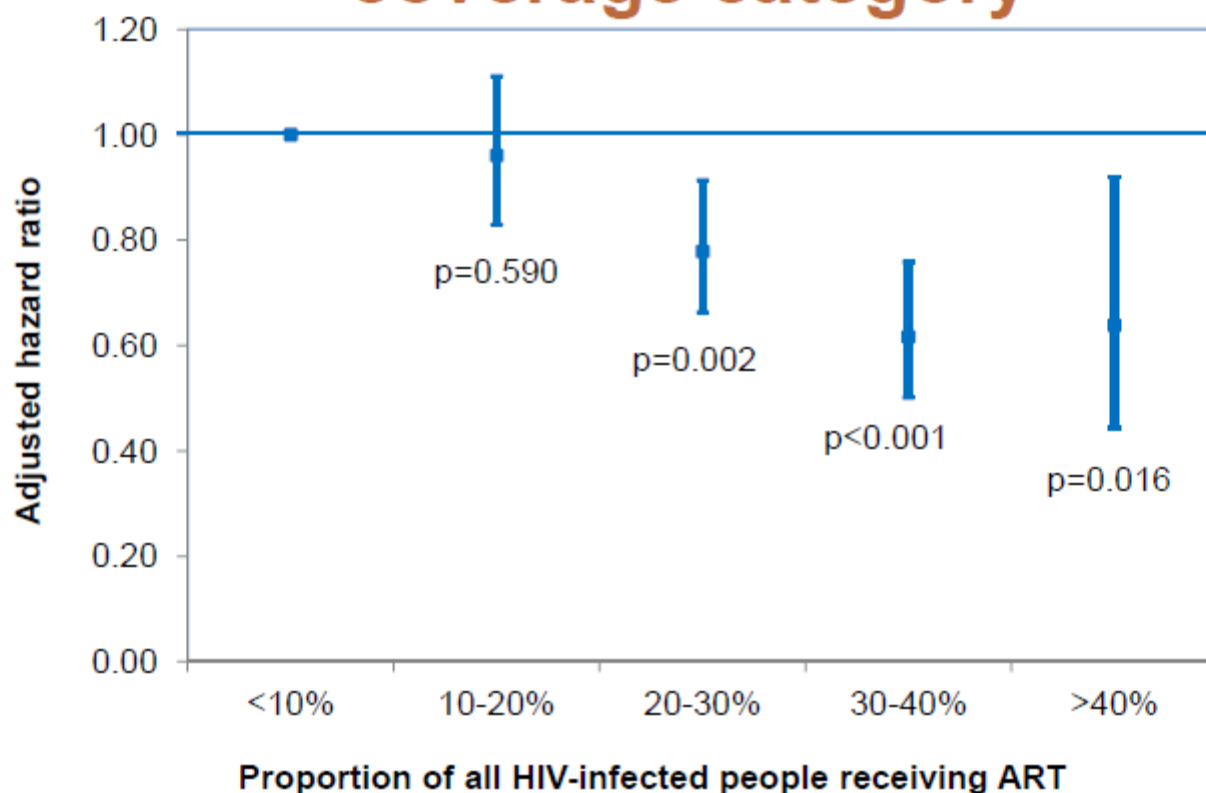


- **ART coverage** = proportion of the total HIV-infected population receiving ART
- **Patients on treatment:** Individual, geo-located DOH programme adult patients actively on treatment in June (2004-2011)
- **HIV-infected:** Individual, geo-located, HIV positive adults identified through population-based HIV surveillance data (2004-2011)

\*Using a standard Gaussian kernel of radius 3km



## Adjusted HIV acquisition hazard by ART coverage category



Adjusted for age, sex, community-level HIV prevalence, urban vs. rural locale, marital status, >1 partner in last 12 months, and household wealth index



Study

Effect size  
(CI)

Prime-boost Vaccine  
(Thai RV144)



**31% (1, 51)**

1% tenofovir gel  
(CAPRISA 004)



**39% (6, 60)**

TDF/FTC oral-PrEP  
(iPrEx, Grant et al 2010)



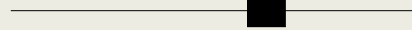
**44% (15, 63)**

Medical male circumcision  
(South Africa, Uganda, Kenya)



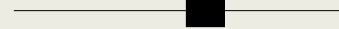
**57% (42, 68)**

TDF/FTC oral-PrEP  
(TDF2, CDC)



**63% (22, 83)**

TDF oral-PrEP  
(Partners PrEP)



**62% (34, 78)**

TDF/FTC oral-PrEP  
(Partners PrEP)



**73% (49, 85)**

Immediate ART for positive  
partners (HPTN052)



**96% (82, 99)**

0% 10 20 30 40 50 60 70 80 90 100% Efficacy

# Recommendations for the South African Epidemic

- Need for programmes to help people to have pregnancy without risking HIV
- Implement anti-multiple and intergenerational sexual partnerships campaigns that are community driven
- Address high sexual partner turnover and intergenerational sex by changing community norms

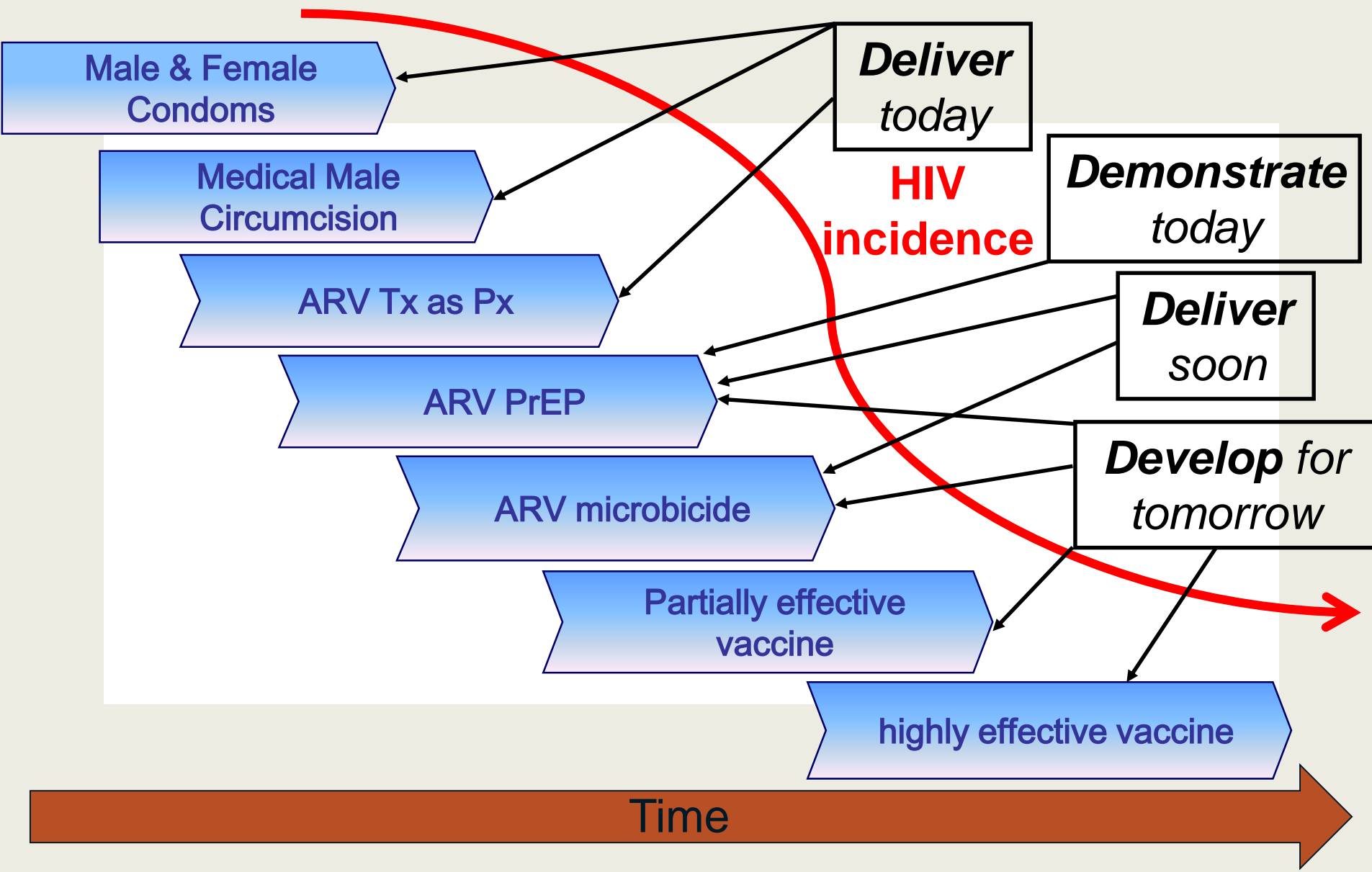


# Recommendations cont'd

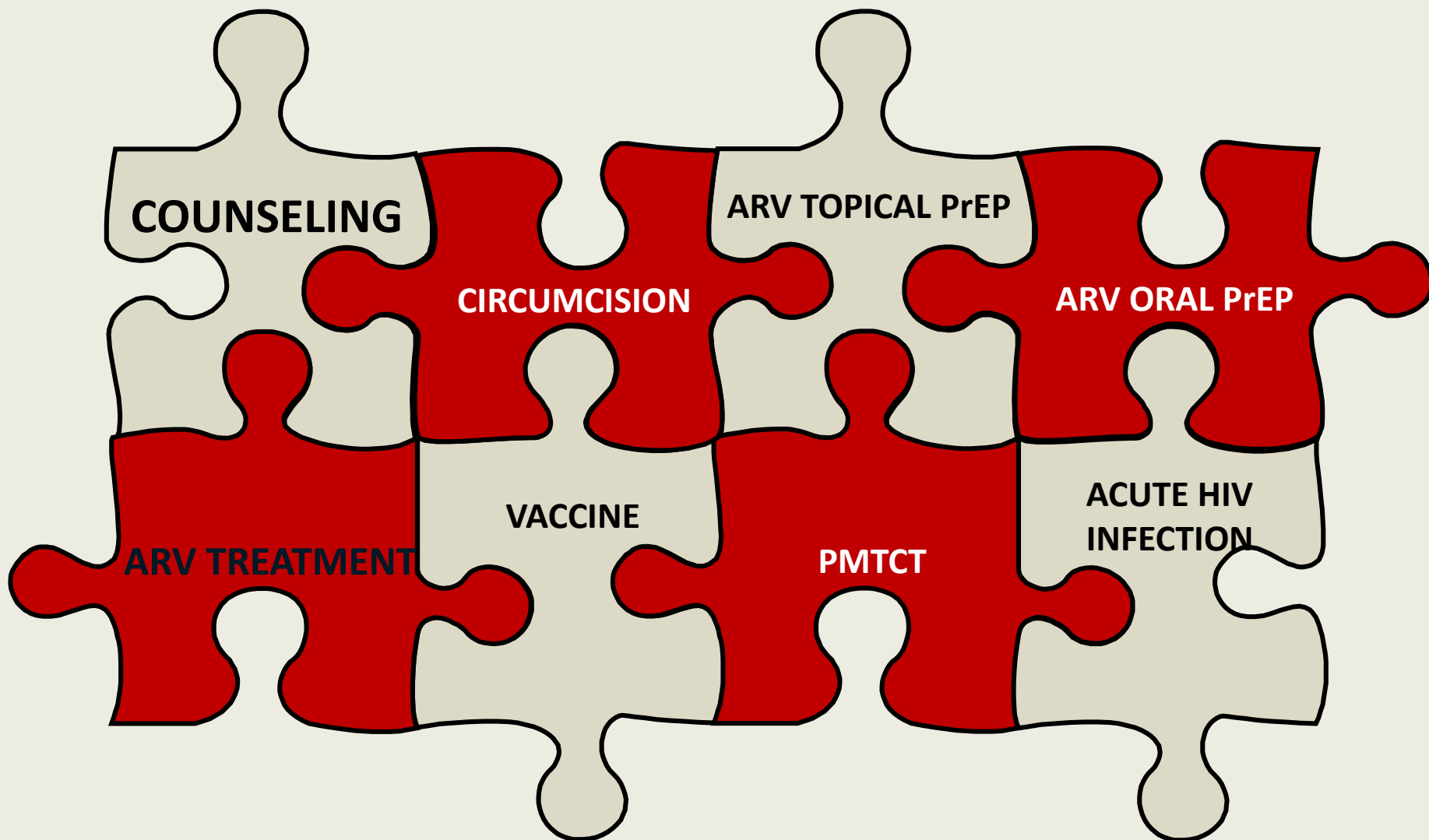
- Education about self perception of risk
- Scale-Up HIV Testing
- Addressing gender inequity and gender violence



# Pathway to Reversing the Epidemic



# HIV Prevention 2013



Thank you for your attention





# Thank You

