



INTERNATIONAL  
**HIV TREATMENT  
AS PREVENTION**  
WORKSHOP

**From Evidence to Action: The 2<sup>nd</sup> International HIV Treatment as Prevention  
Workshop**

April 22-25, 2012

[www.treatmentaspreventionworkshop.org](http://www.treatmentaspreventionworkshop.org)

***Julio Montaner MD, DSc(hon), FRCPC, FCCP, FRSC, OBC***

*Director, BC-Centre for Excellence in HIV/AIDS, Providence Health Care*

*Professor of Medicine and Head, Division of AIDS, University of British Columbia*

*Past-President, International AIDS Society*



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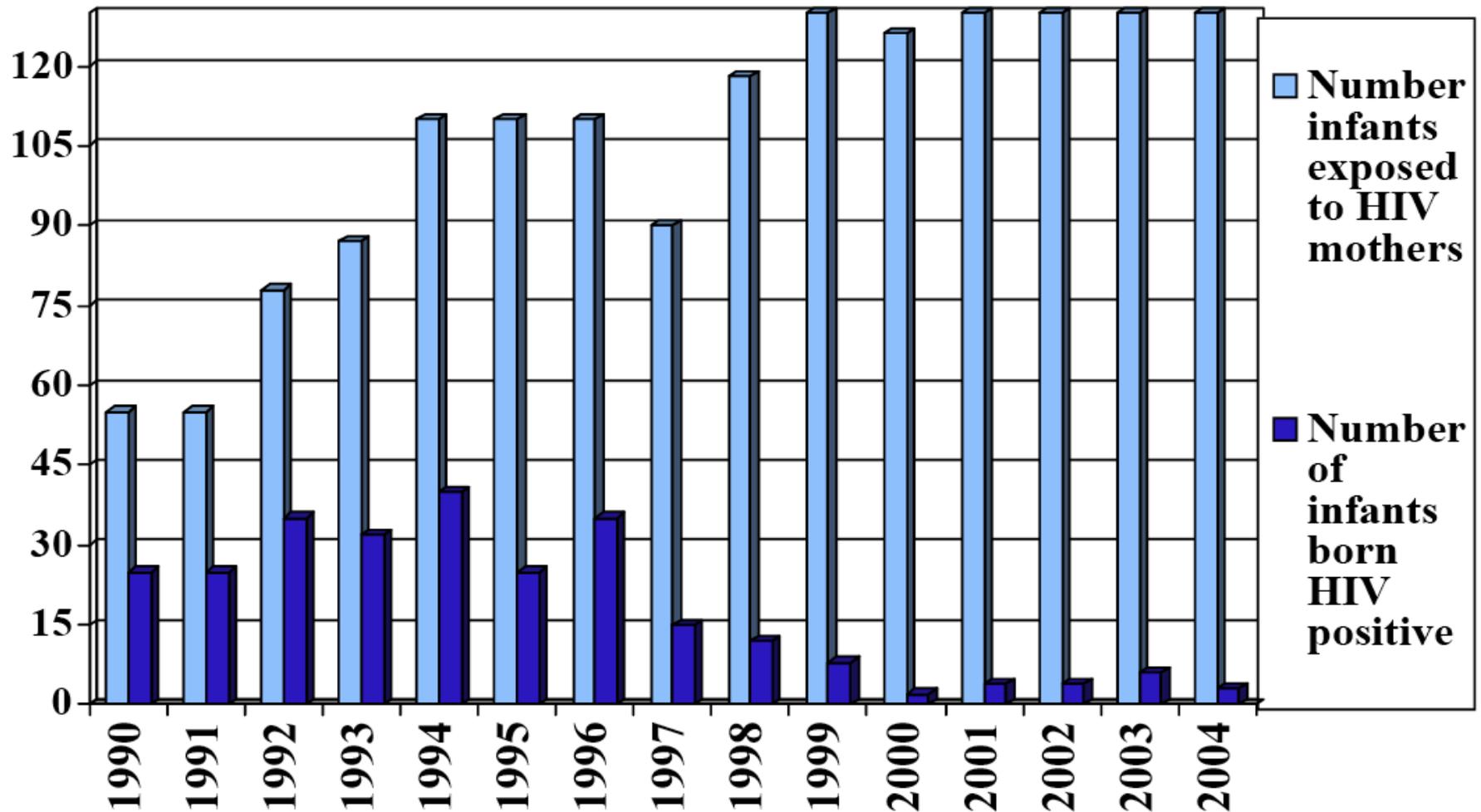
Zunyou Wu



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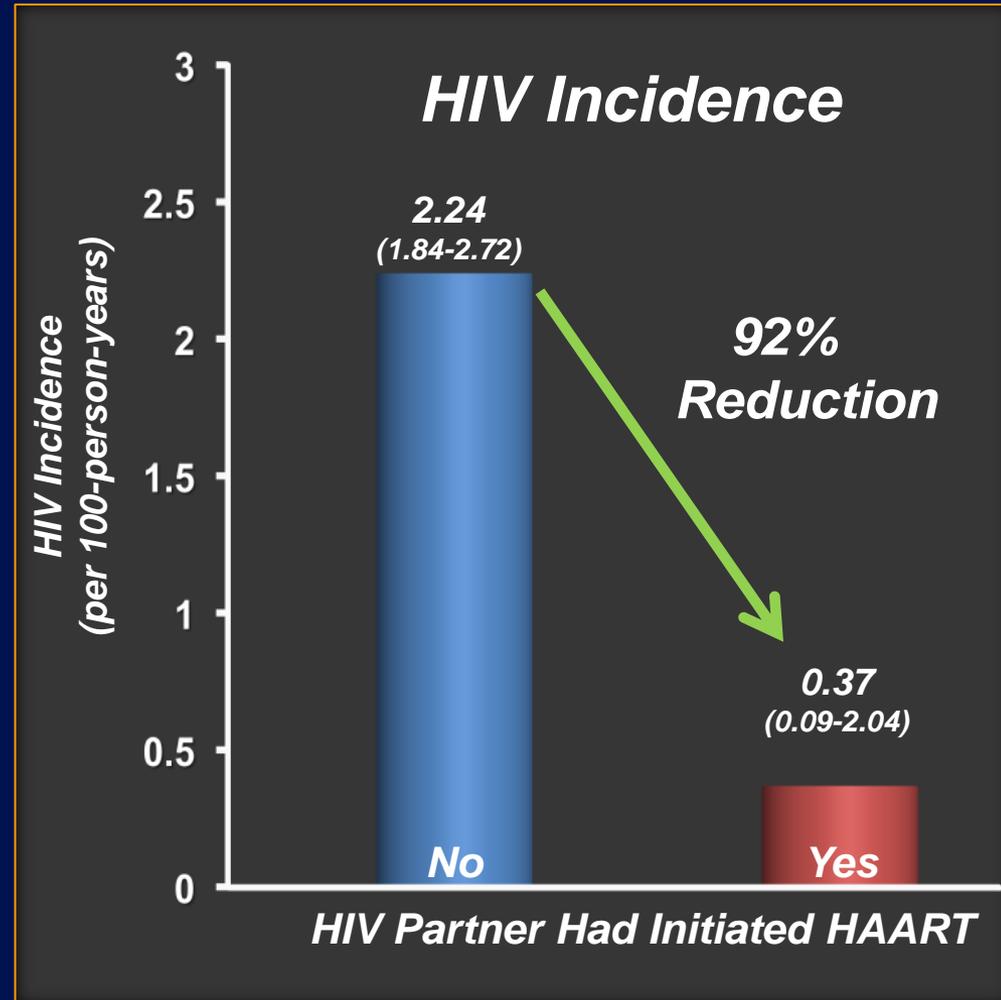
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# Canada: Infants Exposed to HIV and Born HIV Positive



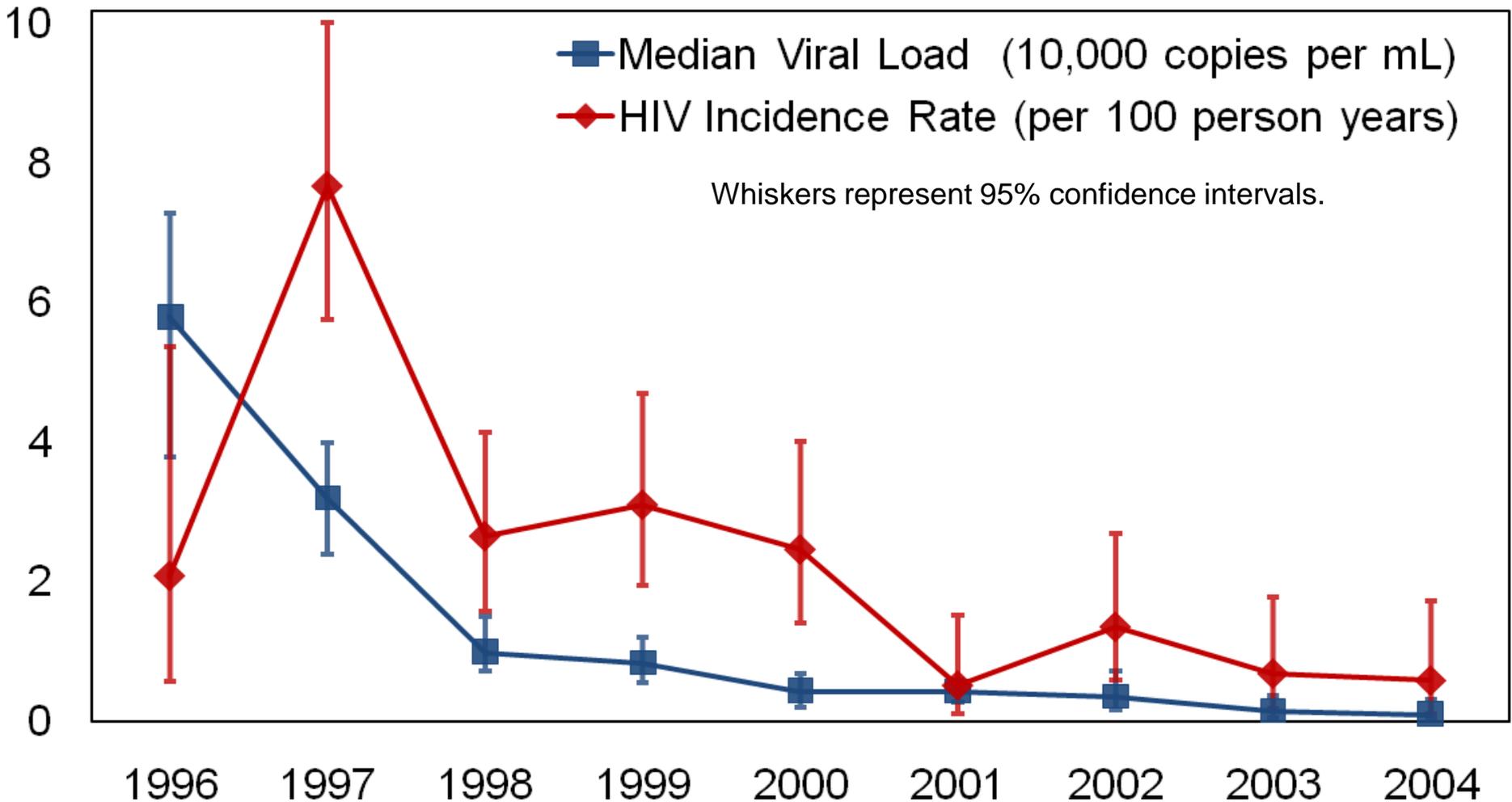
# Partners for the Prevention of HSV/HIV Transmission Study: Discordant Couples

- **Prospective cohort analysis** (n=3408 heterosexual HIV discordant couples)
- 7 African countries
- **349 HIV+ initiated HAART**
- **103 Linked HIV transmissions**  
**Only 1 while on HAART.**  
**Adjusted incidence rate ratio 0.08% (0.00-0.57; P=0.004)**
- **Sexual risk behaviors decreased after HAART 6.2% vs 3.7% (P=0.03)**
- **No change in sexual frequency**

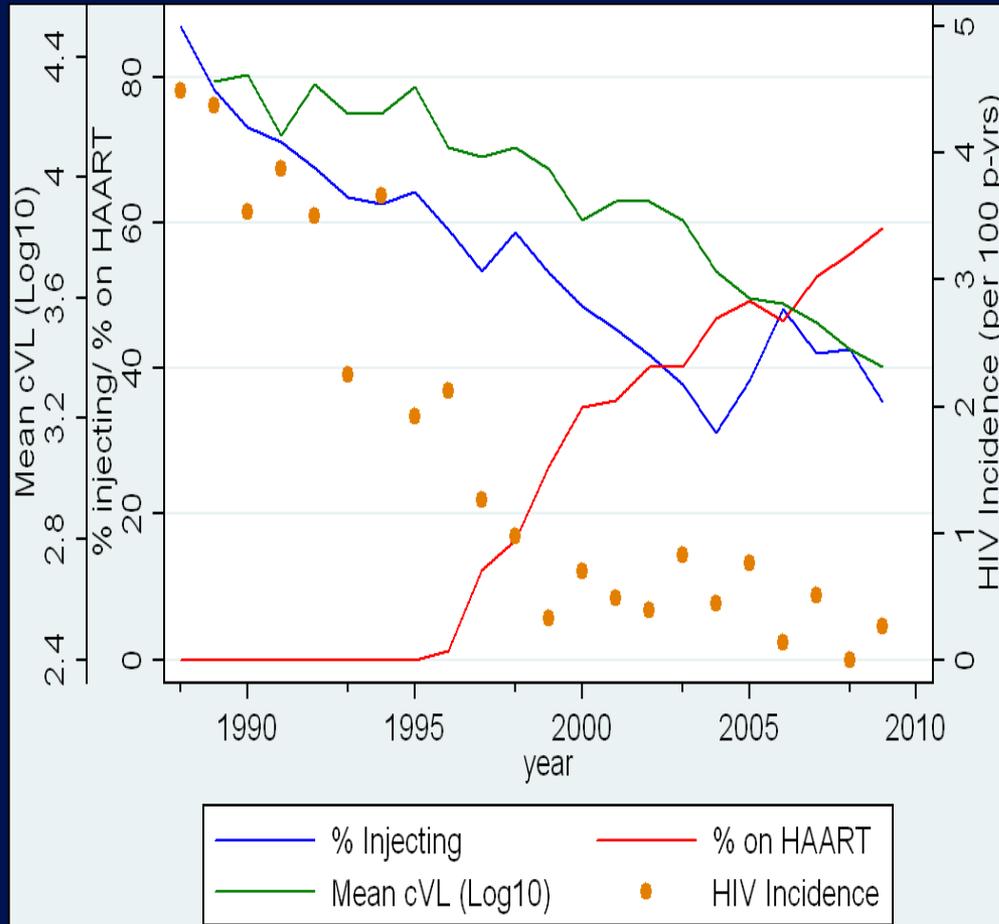


# Longitudinal community plasma HIV-1 RNA concentrations and incidence of HIV-1 among injecting drug users: prospective cohort study

BMJ | 16 MAY 2009 | VOLUME 338

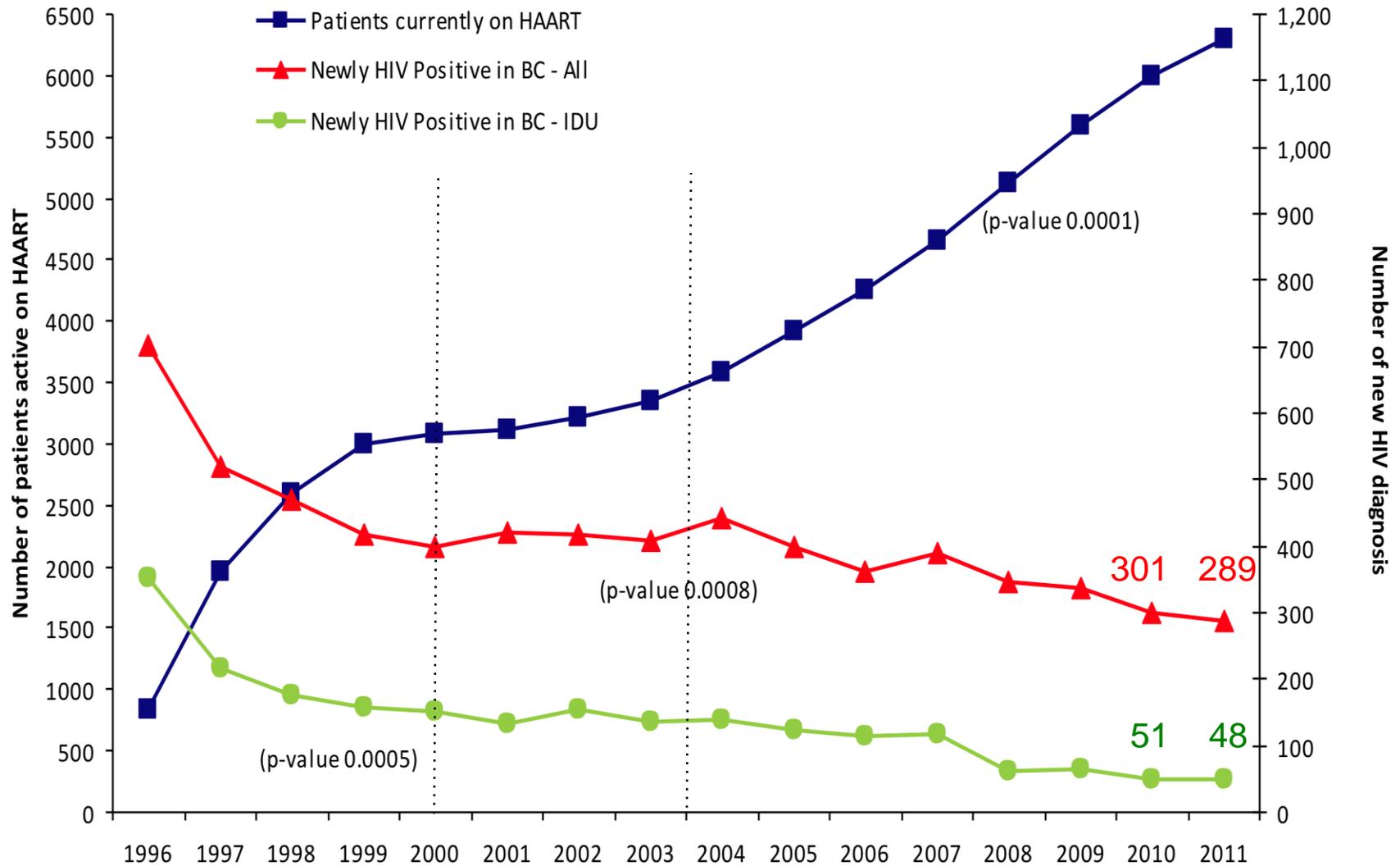


# HAART Reduces HIV incidence in IDUs

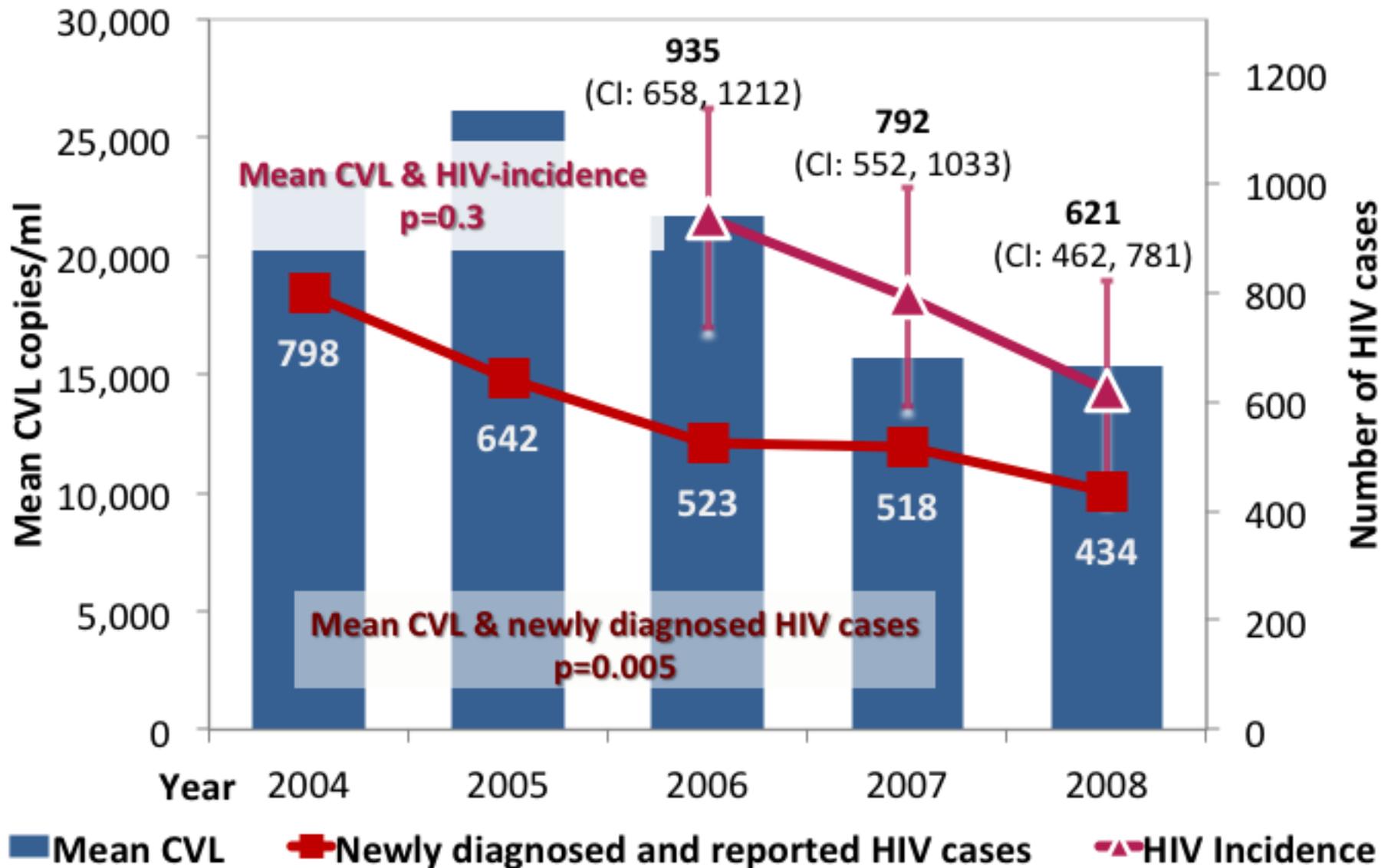


- From 1997, HIV incidence decreased by 74% for each log decline in community HIV viral load
- In a separate model, HIV incidence decreased by 5% for each 1% increase in HAART coverage

# Increasing HAART Coverage within Evolving Guidelines in BC - Impact on New Diagnoses



# Mean CVL and New HIV Infections, 2004-08



# **Combination HIV Prevention**

**Education**

**Condoms**

**STI treatment**

**Testing/  
counseling**

**Treatment as  
prevention**

**PMTCT**

**Drug/alcohol  
treatment**

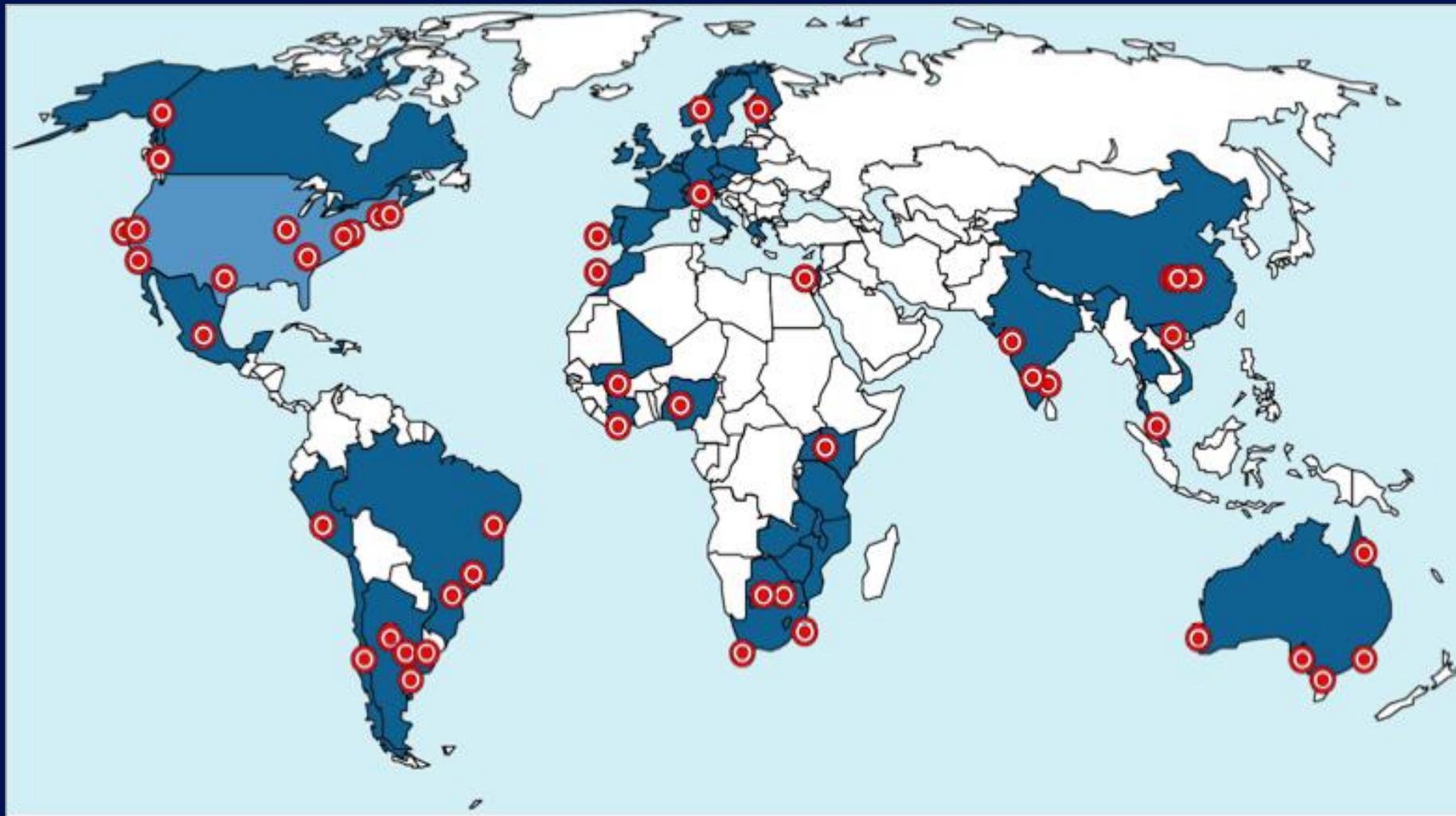
**Male  
circumcision**

**Microbicides**

**PrEP**

**Harm reduction**

# More evidence on the way: TasP Relevant Studies



# Gupta, Granich et al: Timeline for Selected TasP studies

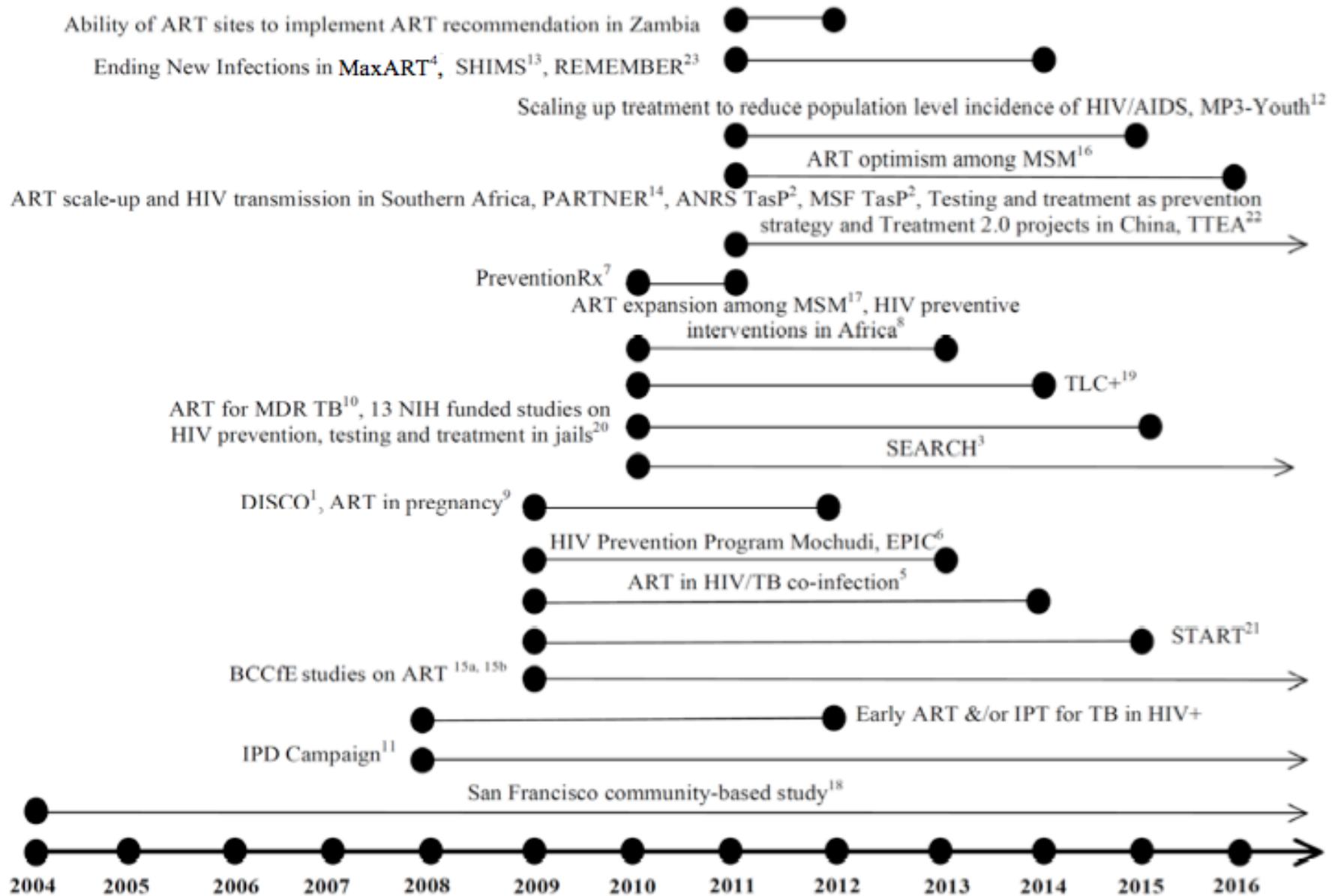
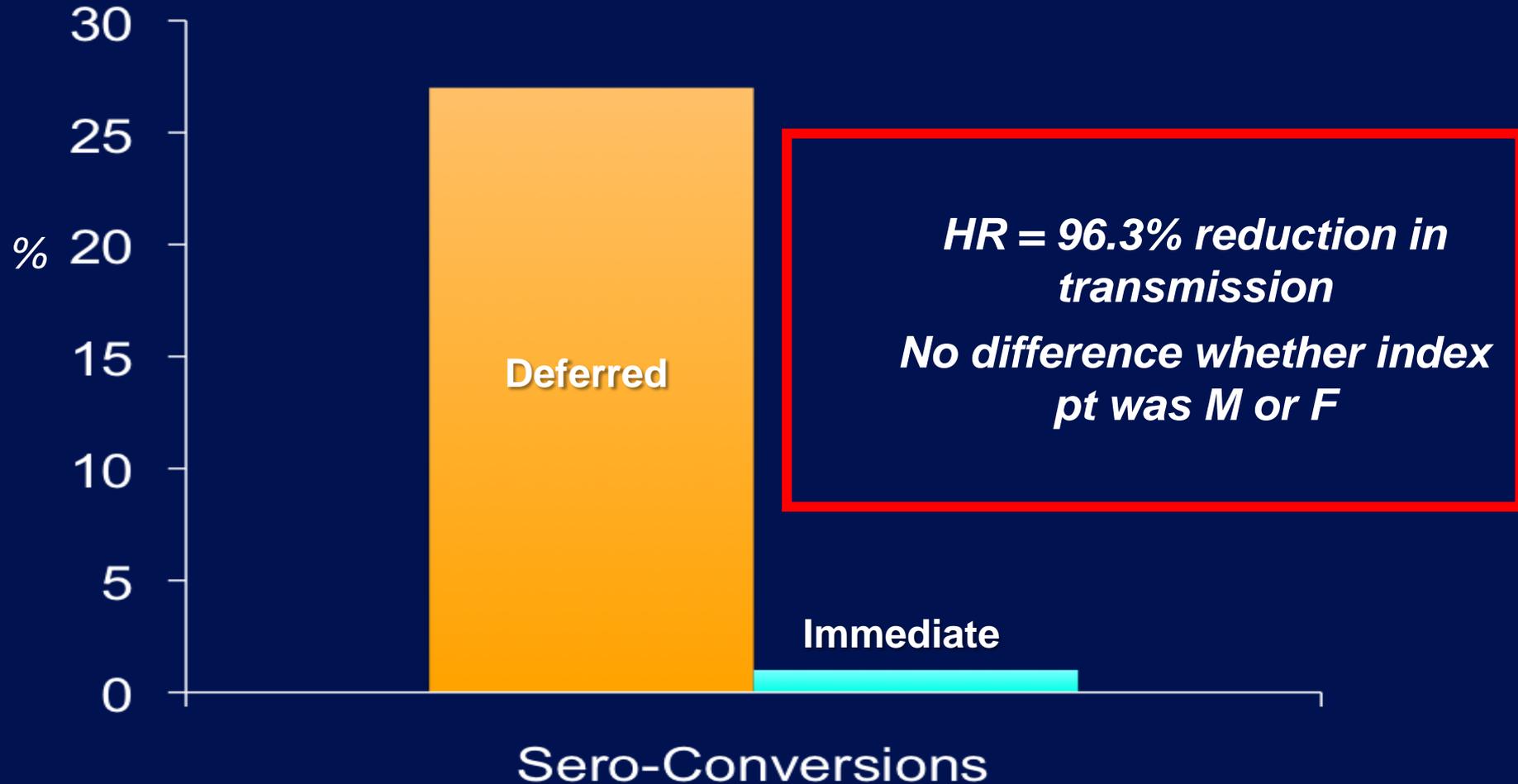
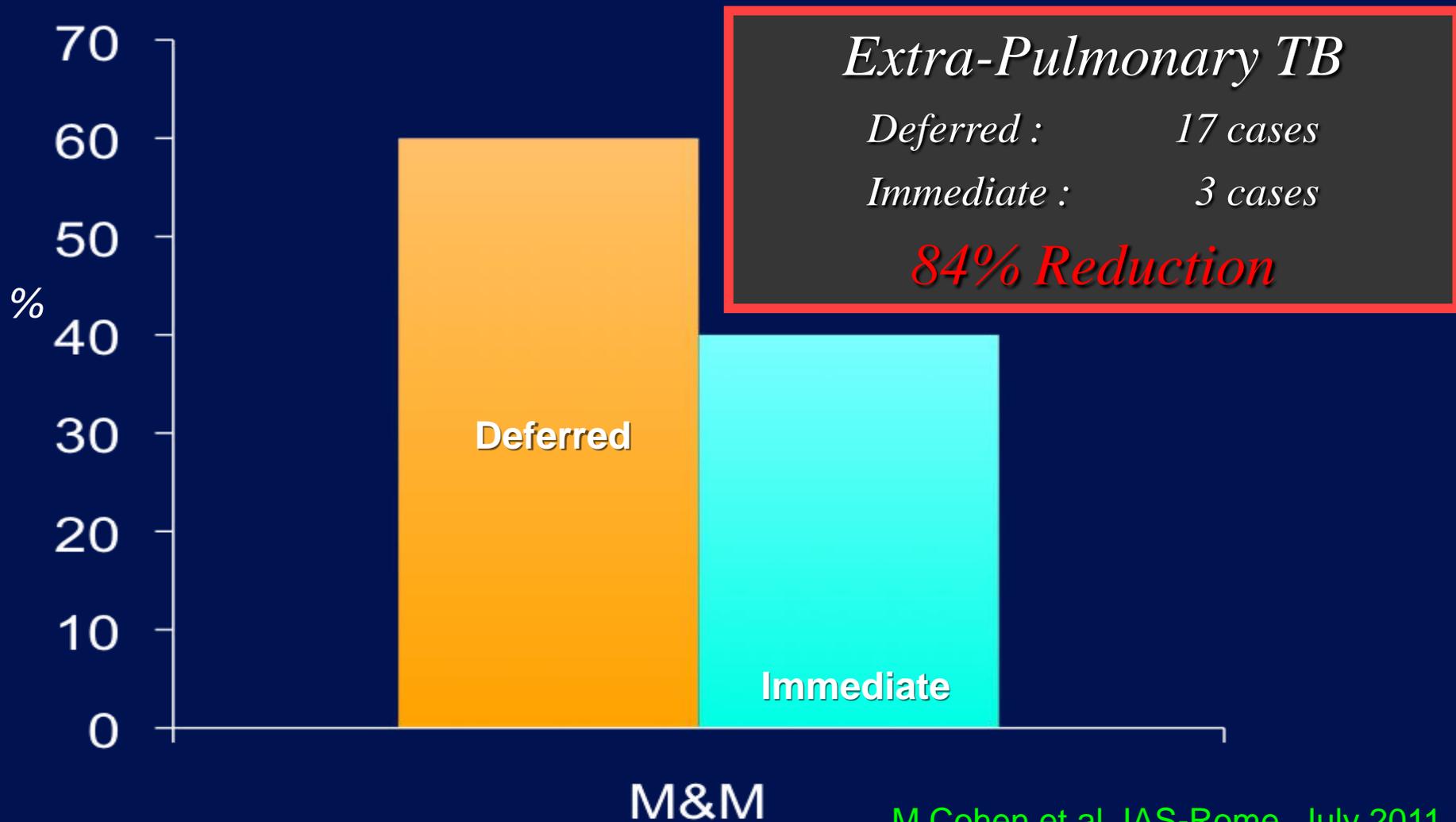


Figure includes studies with an available timeline—others not listed.

# HPTN 052: Immediate vs Delayed ART in Sero-discordant Couples



# HPTN 052: Immediate vs Delayed ART in Sero-discordant Couples



The  
Economist

JUNE 4TH - 30TH 2011

Economist.com

The trap for Turkey

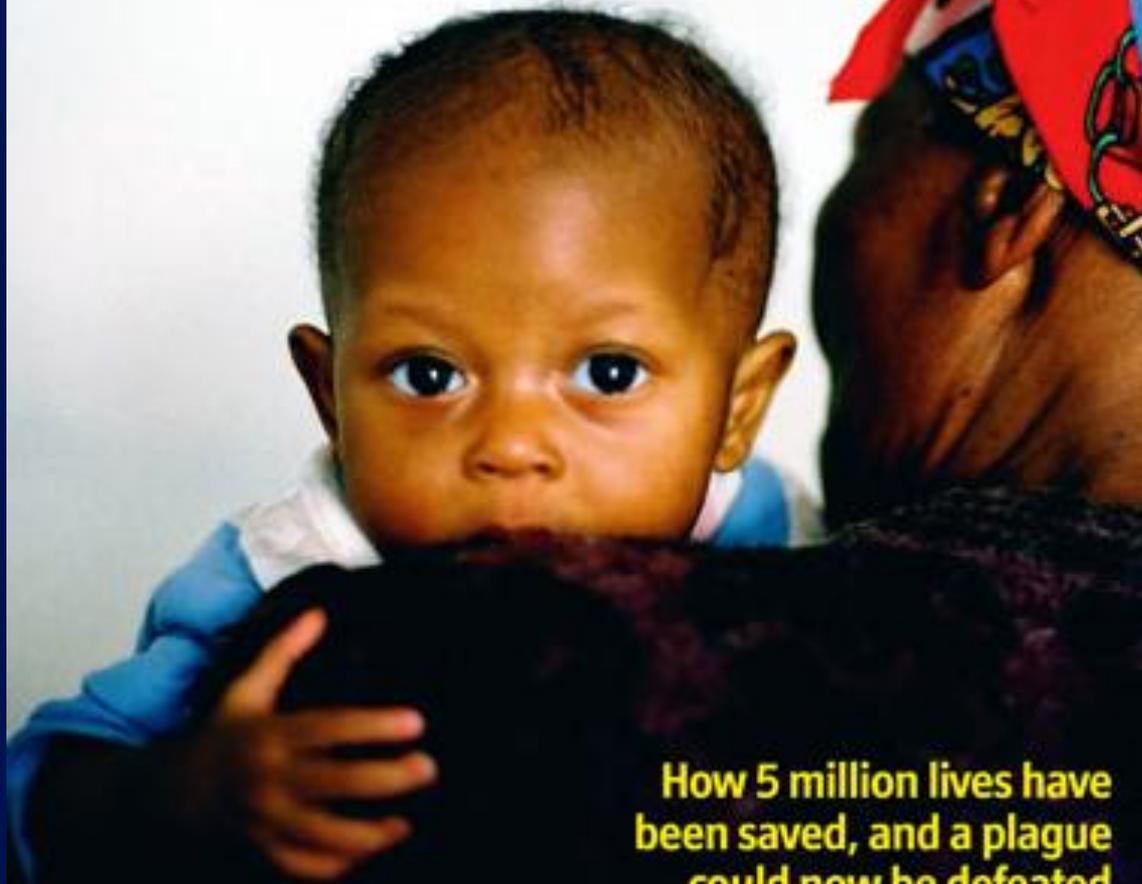
Wall Street's plumbing problem

Lady Gaga, Mother Teresa and profits

Brazil's boiling economy

The farce that is FIFA

# The end of AIDS?



How 5 million lives have  
been saved, and a plague  
could now be defeated

# Aids - is the end really in sight?

US Secretary of State Hillary Clinton has offered to lead the end-stage of the battle against Aids - but will the money be forthcoming to finish the job and deliver an "Aids-free generation"?



**Three Key Pillars:**

**MC  
MTCT  
TasP**

*The Guardian, UK  
Nov 8<sup>th</sup> 2011*

US secretary of state Hillary Clinton has urged the United States and other nations to increase their funding for HIV/Aids prevention and treatment. Photograph: Win McNamee/Getty Images



*Few could have imagined that we'd be talking about the real possibility of an AIDS-free generation. But that's what we're talking about...make no mistake, we are going to win this fight.*

*President Obama, December 1, 2011*

*By the end of 2013, PEPFAR will directly support more than 6 M people on HAART– 2M more than previously targeted.*

*Ambassador Eric Goosby, TasP Workshop 2012*

# BREAKTHROUGH OF THE YEAR

## HIV Treatment as Prevention

On 1 December, George Washington University in Washington, D.C., hosted “The Beginning of the End of AIDS,” a splashy World AIDS Day event that featured three U.S. presidents, business magnates, and rock stars. The catalyst that brought them together was something Anthony Fauci, the top U.S. government HIV/AIDS scientist, told the crowd even 1 year ago would have seemed “wishful thinking”: a clinical trial dubbed HPTN 052 and its “astounding” result.

HIV/AIDS researchers have long debated whether antiretroviral drugs (ARVs)

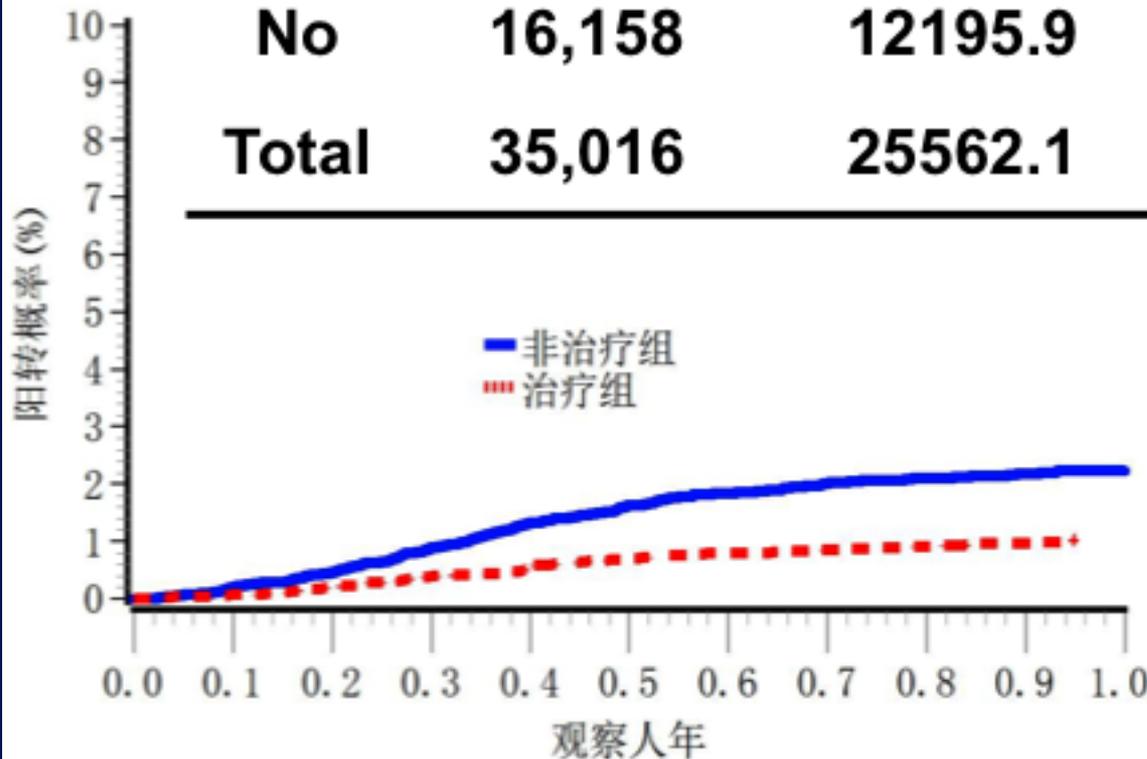
The researchers planned to compare the groups until 2015. But on 28 April, an independent monitoring board that periodically releases data stunned Cohen and his colleagues when it recommended that the trial be made public as soon as possible. Of the 28 people who become infected with HIV that genetically matched their long-term partners, only 12 in the early treatment group—which received 41% fewer serious health problems associated with HIV. The remaining 16 infected people in the delayed arm of the study were offered ARVs immediately.

The HPTN 052 results and



# Treatment Discordant Couples in 2011

ART	No. couples	Person-year observed	No. HIV new infections	(%)
Yes	18,371	13366.2	151	1.13
No	16,158	12195.9	305	2.50
Total	35,016	25562.1	456	1.78

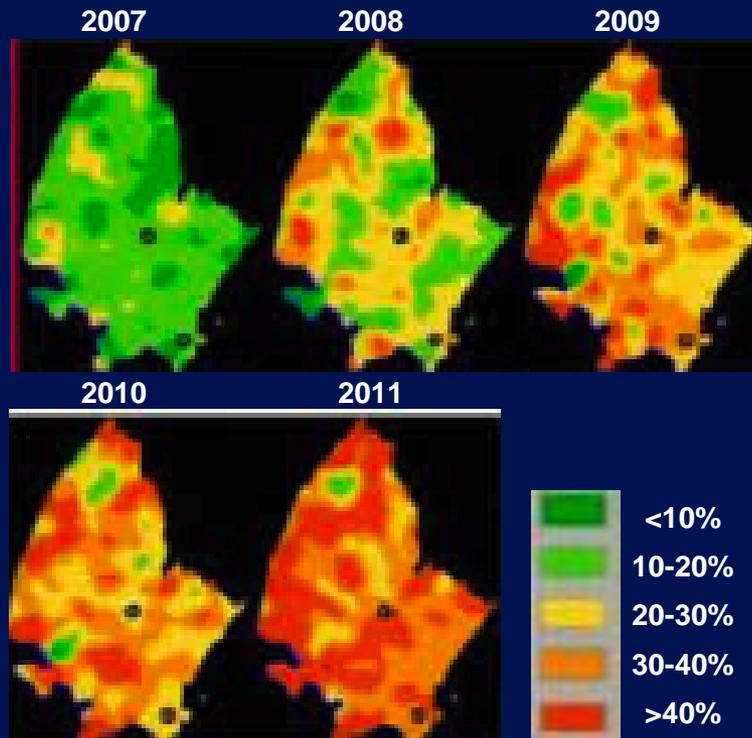


**ART reduce  
55%  
transmission in  
2011**

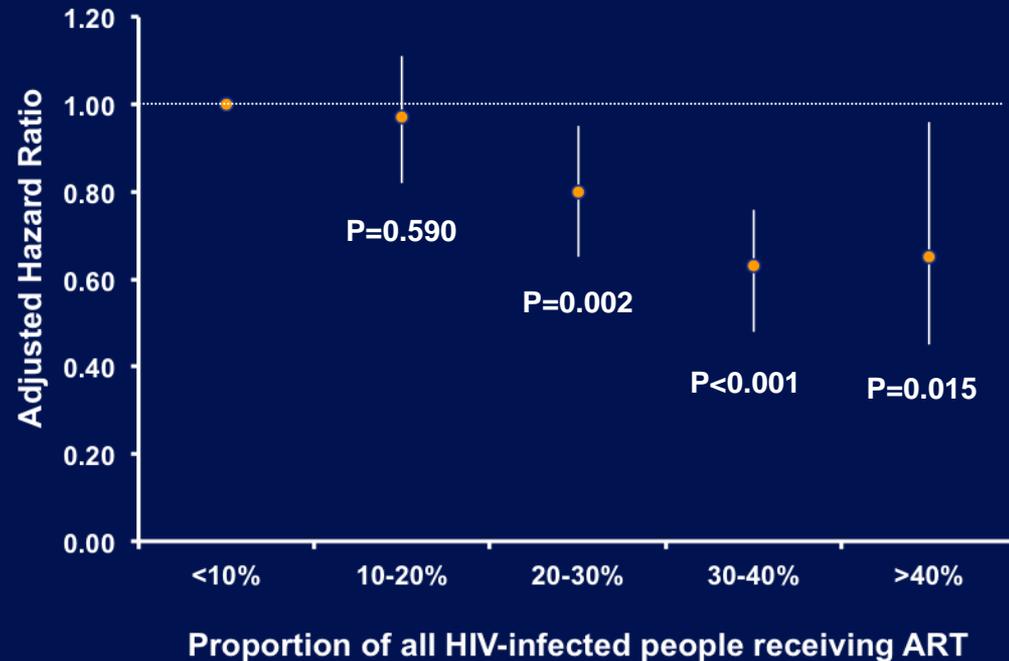
# Treatment as Prevention: Effect of ART Coverage on HIV Incidence in Rural South Africa

- Annual population based HIV surveillance in rural KwaZulu-Natal 2004 to 2011
- 1395 HIV seroconversions among 16,588 HIV negative adults  $\geq 15$  years of age

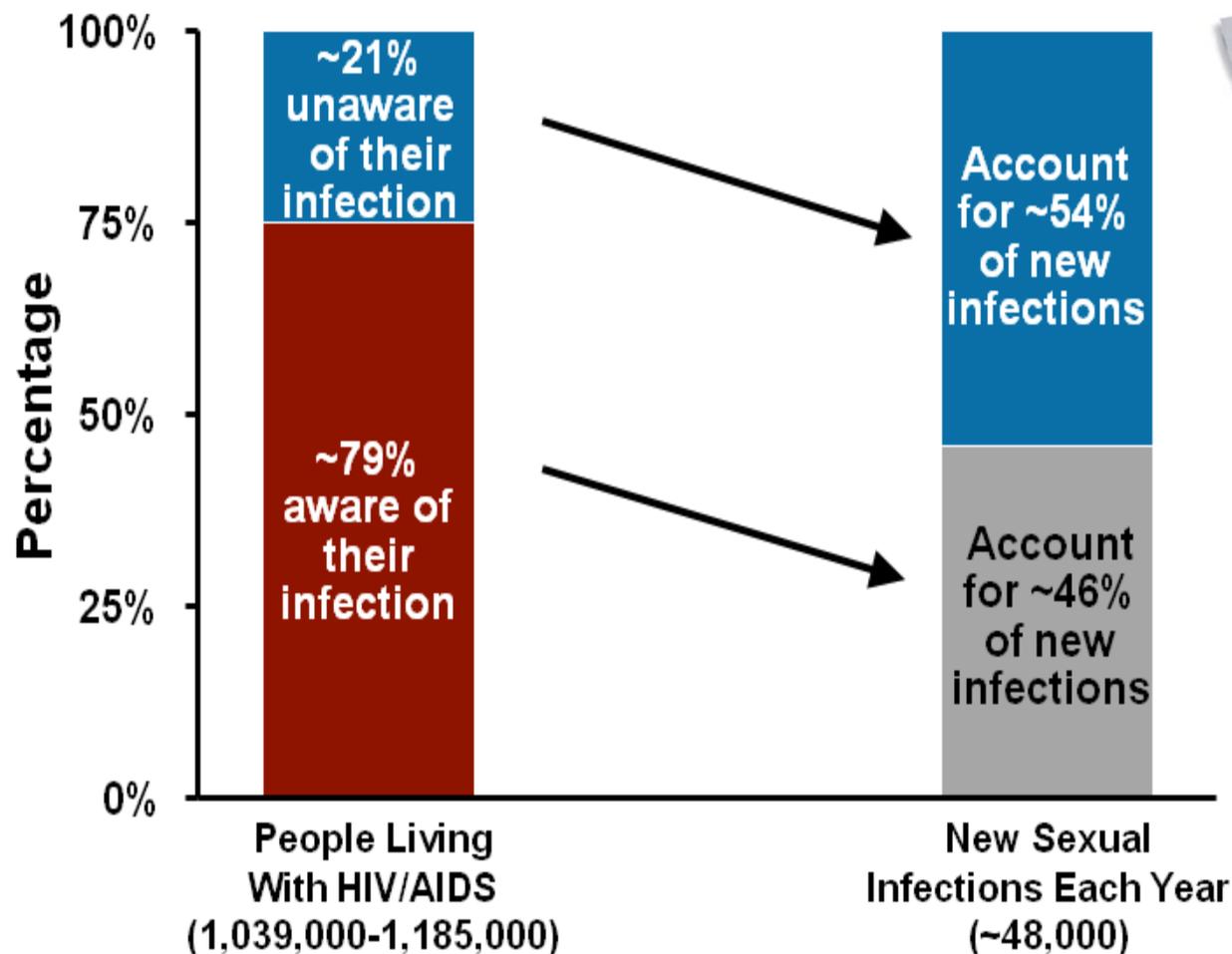
### Spatial Estimates of Proportion of HIV Patients on ART



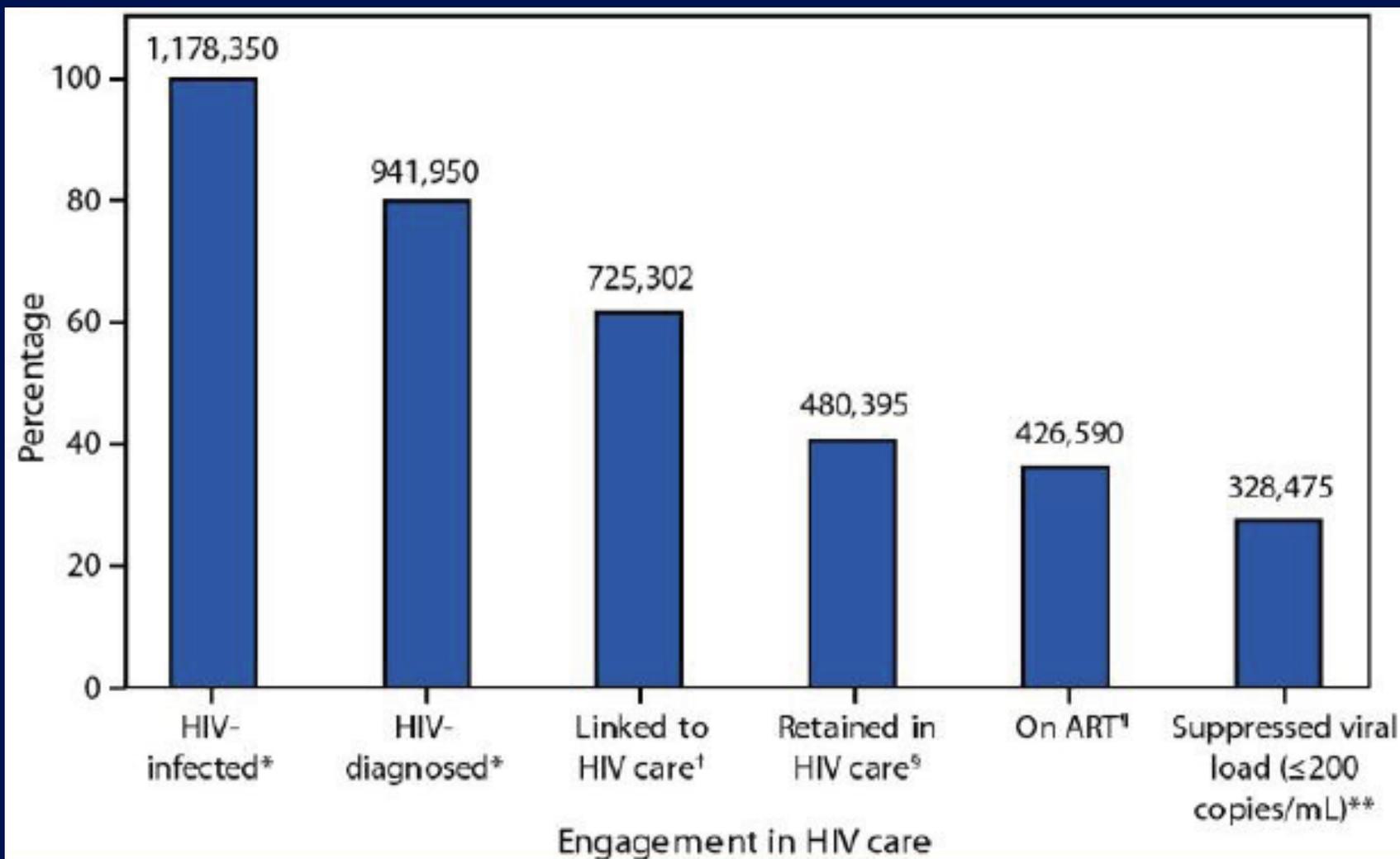
### Adjusted HIV Infection Rate by ARV Coverage Category



# Majority of HIV Transmissions From People Unaware of Their Infection



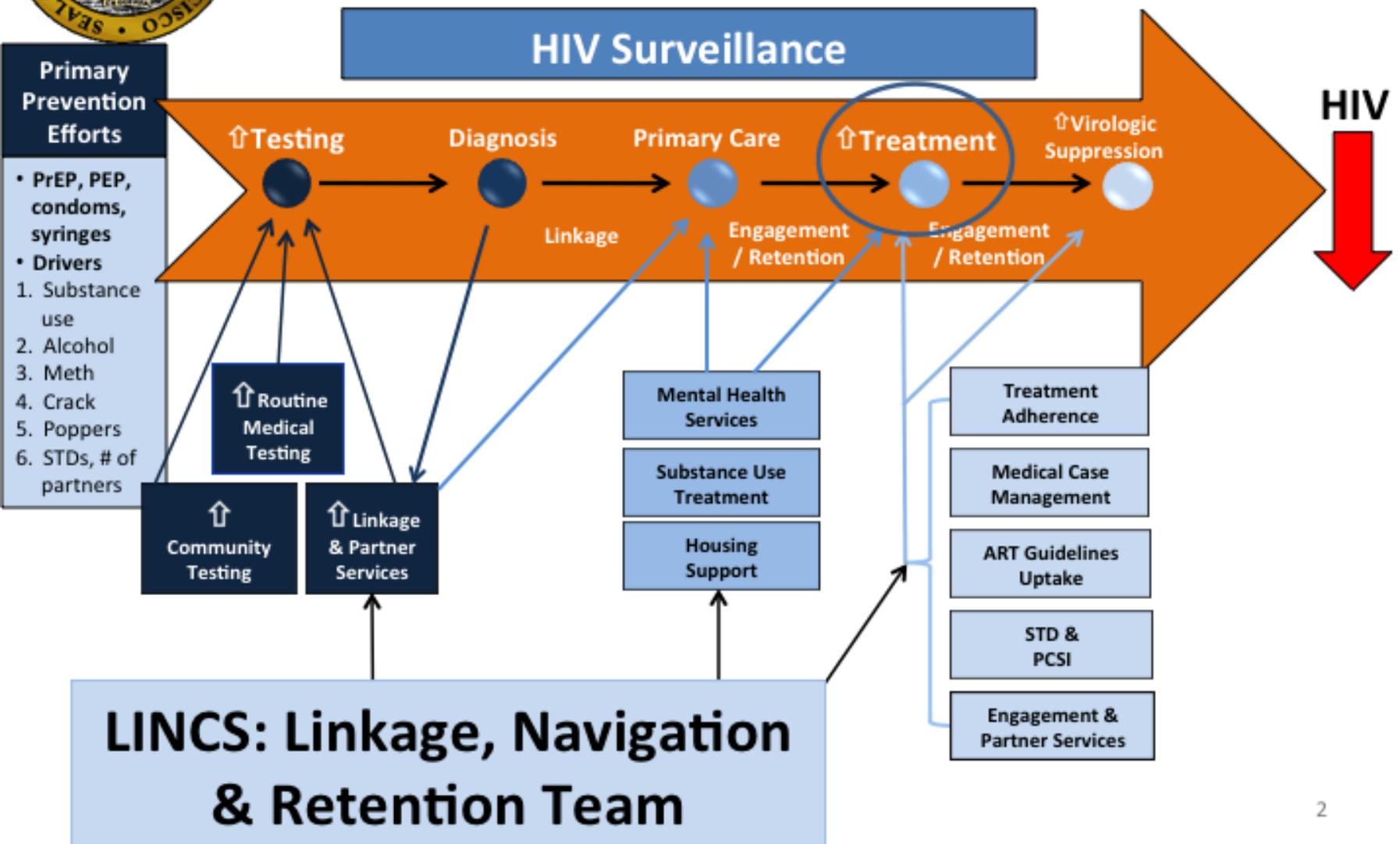
# Spectrum of Engagement in care - USA



Source: MMWR © 2011 Centers for Disease Control and Prevention (CDC)



# SAN FRANCISCO'S APPROACH TO MAXIMIZING THE CONTINUUM OF PREVENTION, CARE AND TREATMENT



# IAS-USA Guidelines: When to Start

CD4+ Cell Count	Recommendation
▪ < 350 cells/mm <sup>3</sup>	▪ Start ART (AI)
▪ 350-500 cells/mm <sup>3</sup>	▪ Start ART (All)
▪ > 500 cells/mm <sup>3</sup>	▪ Start ART (BIII)

## Clinical Conditions Favoring Initiation of Therapy Regardless of CD4+ Cell Count

- History of AIDS-defining illness (AI)
- Pregnancy (AI)
- HIV-associated nephropathy (All)
- HBV co-infection (All)
- Patients at risk of transmitting HIV to sexual partners (AI, heterosexuals; AIII, others)
- HCV co-infection\* (BII)
- Patients > 50 years of age (BIII)

***Offer ART to all HIV infected patients unless patient is elite controller or has stable CD4+ count and low HIV-1 RNA in absence of ART.***

# DHHS, 2012: When to Start

ART recommended for all HIV-infected patients

*strength* of recommendation varies according to CD4+ cell count

CD4+ Cell Count	Recommendation
▪ < 350 cells/mm <sup>3</sup>	▪ Start ART (AI)
▪ 350-500 cells/mm <sup>3</sup>	▪ Start ART (AII)
▪ > 500 cells/mm <sup>3</sup>	▪ Start ART (BIII)

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- History of AIDS-defining illness (AI)
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- HCV co-infection\* (BII)
- Patients > 50 years of age (BIII)

\*Including those with high CD4 count and/or with cirrhosis. If CD4 > 500/mm<sup>3</sup> may elect to defer ART until after HCV therapy

• *Rating of Recommendations: A = Strong; B = Moderate; C = Optional*

• *Rating of Evidence: I = data from RCTs; II = data from well-designed nonrandomized trials or cohort studies with long-term clinical outcomes; III = expert opinion*

# WHO Guidance on couples HIV testing and counselling, including antiretroviral therapy for treatment and prevention in serodiscordant couples

## RECOMMENDATIONS

1. Couples and partners should be offered voluntary HIV testing and counselling with support for mutual disclosure. *Strong recommendation, low-quality evidence.*
2. Couples and partners in antenatal care settings should be offered voluntary HIV testing and counselling with support for mutual disclosure. *Strong recommendation, low-quality evidence.*
3. Couples and partner voluntary HIV testing and counselling with support for mutual disclosure should be offered to individuals with known HIV status and their partners. *Strong recommendation, low-quality evidence for all people with HIV in all epidemic settings / Conditional recommendation, low-quality evidence for HIV-negative people depending on country-specific HIV prevalence.*
4. People with HIV in serodiscordant couples and who are started on antiretroviral therapy (ART) for their own health should be advised that ART is also recommended to reduce HIV transmission to the uninfected partner. *Strong recommendation, high-quality evidence.*
5. HIV-positive partners with >350 CD4 cells/ $\mu$ L in serodiscordant couples should be offered ART to reduce HIV transmission to uninfected partners. *Strong recommendation, high-quality evidence.*

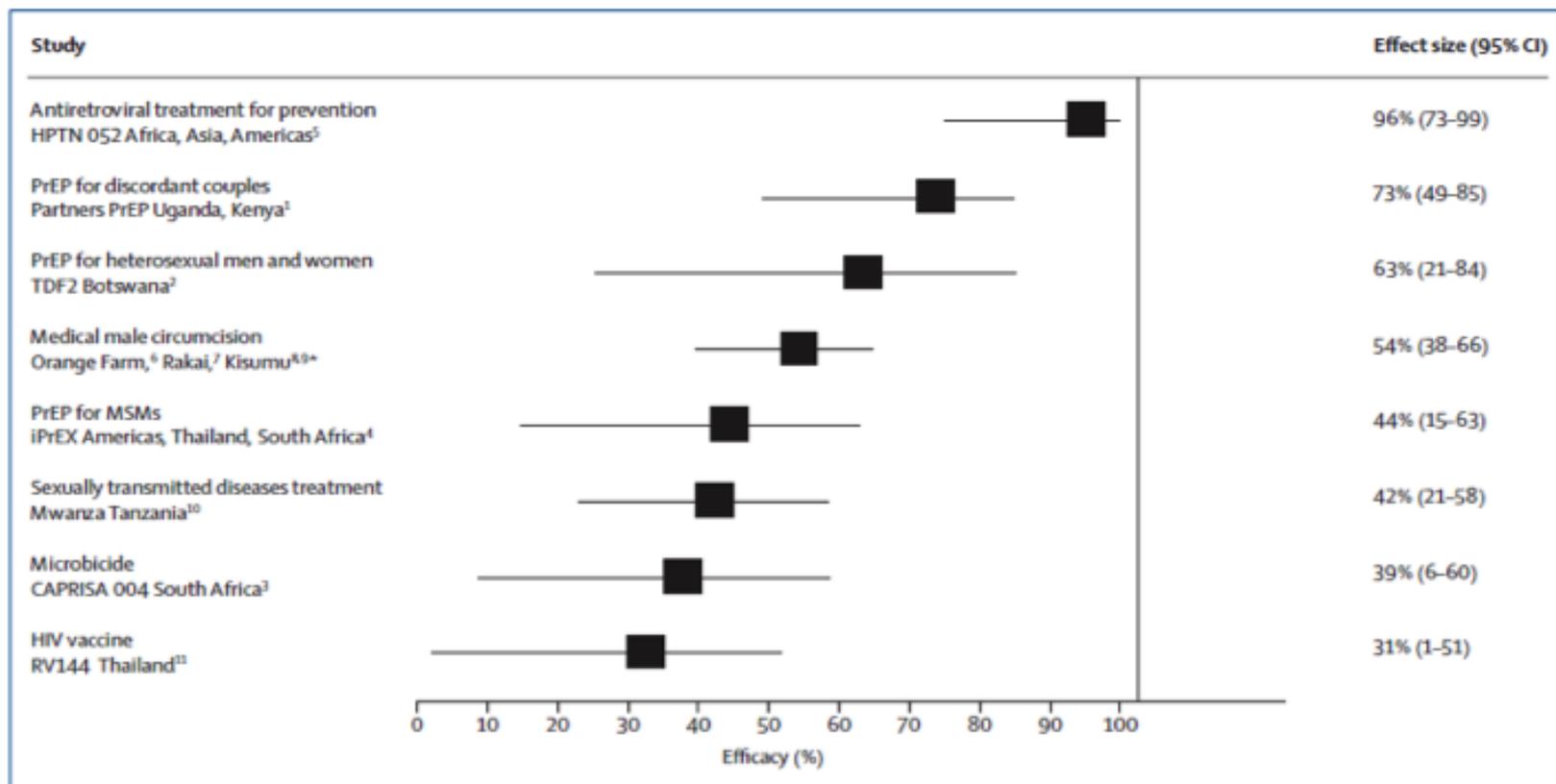
**5. HIV-Positive partners with >350 CD4 cells/ $\mu$ L in serodiscordant couples should be offered ART to reduce HIV transmission to uninfected partners.**

*Strong recommendation, high quality evidence.*

Released April 18<sup>th</sup> 2012 at

<http://www.who.int/hiv/pub/guidelines/9789241501972/en/index.html>

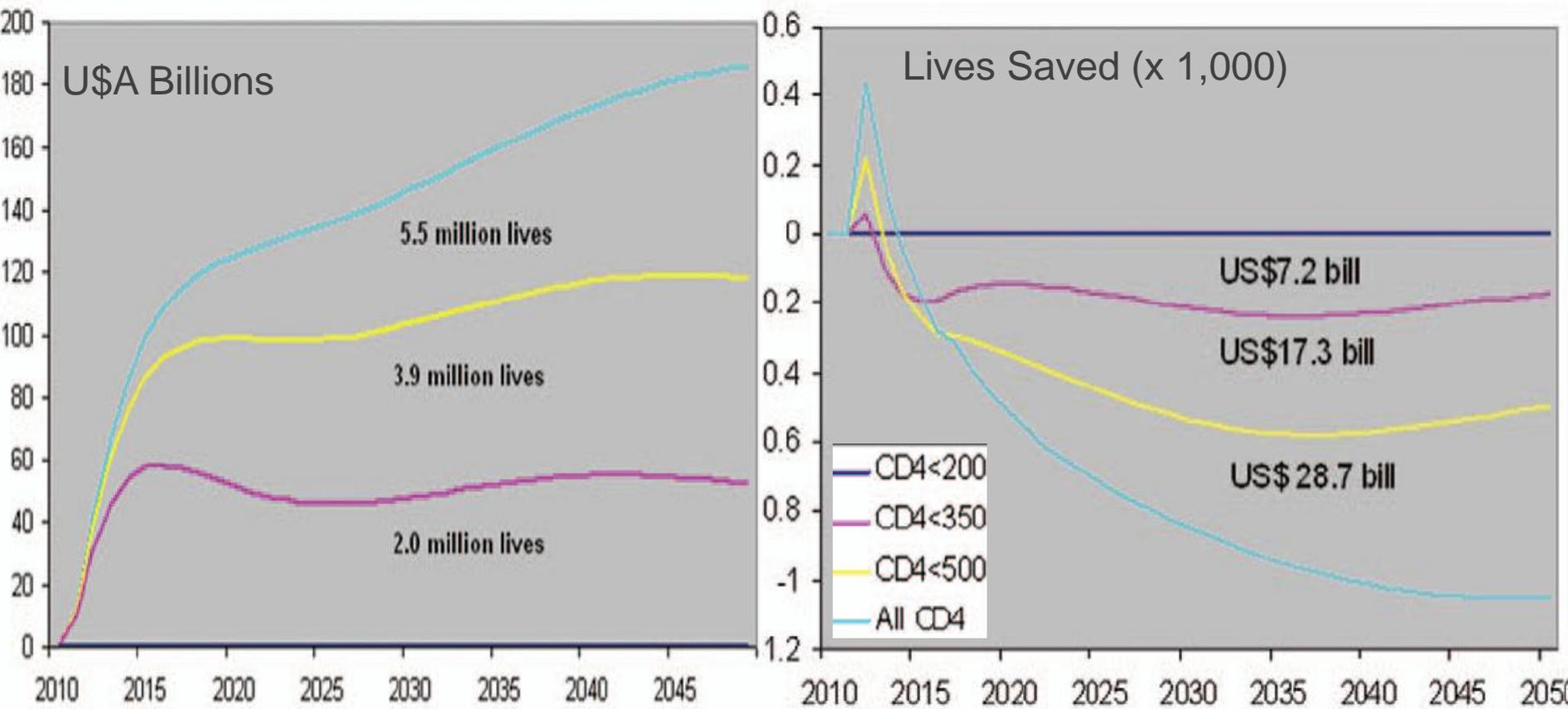
# Antiretroviral prophylaxis: a defining moment in HIV control



**Figure: HIV prevention technologies shown to be effective in reducing HIV incidence in randomised controlled trials<sup>1–11</sup>**

PrEP=Pre-exposure prophylaxis. \*Meta-analysis of circumcision trials.

# Expanding ART for Treatment and Prevention of HIV in South Africa: Estimated Cost and Cost-Effectiveness 2011-2050



### TasP Works, So Let's Start Planning for Implementation

**Jose M Zuniga, Other, 10:01AM May 2, 2012**

The workshop's bottom-line messages:

- TasP works in combination with other prevention interventions
- Additional research is needed, without which some will have grounds to dispute TasP
- While research continues, planning for TasP implementation must start now
- HIV testing uptake and linkages to TasP and treatment as treatment must improve
- The health workforce requires training and support to implement TasP
- TasP must count on community acceptance and requires community ownership
- HIV-positive patients require treatment literacy and should not be coerced into treatment without truly informed consent

In less than three months, 30,000-plus global AIDS warriors will gather in Washington, DC, for the XIX International AIDS Conference. Several TasP studies will report out at this year's conference – which will infuse the conference with the same spirit of optimism that permeated Vancouver almost two decades ago. Our challenge is to turn optimism into action!

# ***“The Environment and Disease: Association or Causation: A Case for Action”***



*All Scientific work is incomplete – whether it be observational or experimental. All scientific work is liable to be upset or modified by advancing knowledge. That does not confer upon us a freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand at a given time.*

*Austin Bradford Hill (1897-1991) British epidemiologist best known for his research with Richard Doll, which linked smoking with lung cancer. He was also widely acknowledged as the world’s leading medical statistician and a pioneer in the use of RCTs.*