

Can we treat our way out of the HIV epidemic?

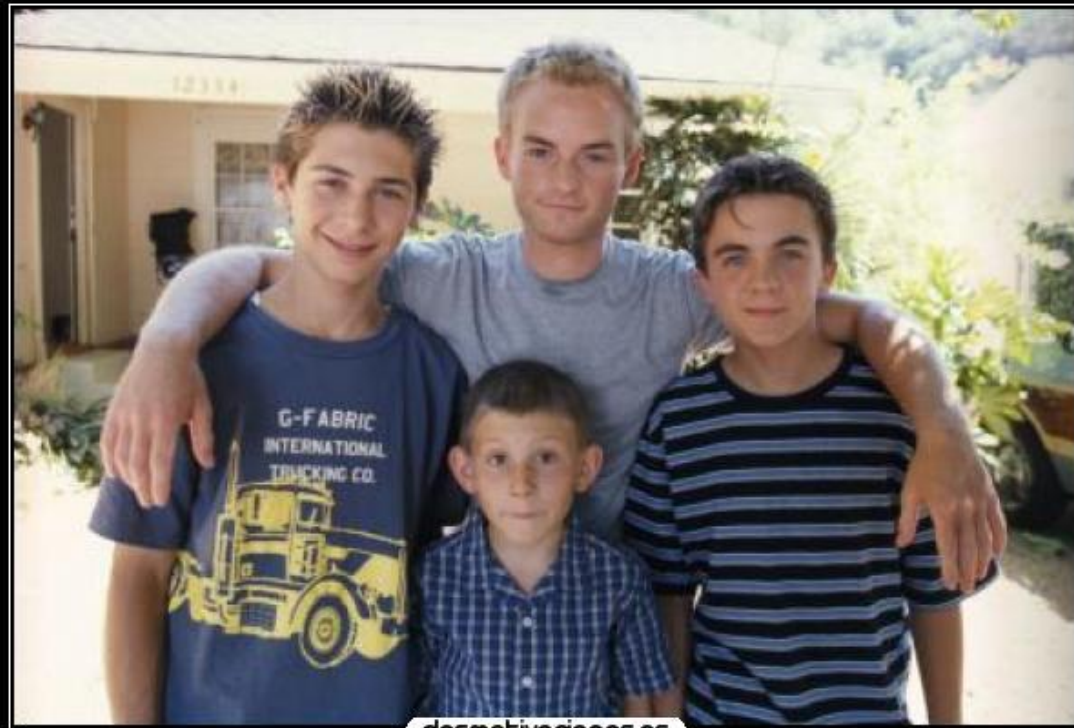
Richard E. Chaisson, MD

Center for AIDS Research
Center for TB Research
Johns Hopkins University



Schoolboy's (and politician's) tricks for evading the question

1. Could you repeat the question?

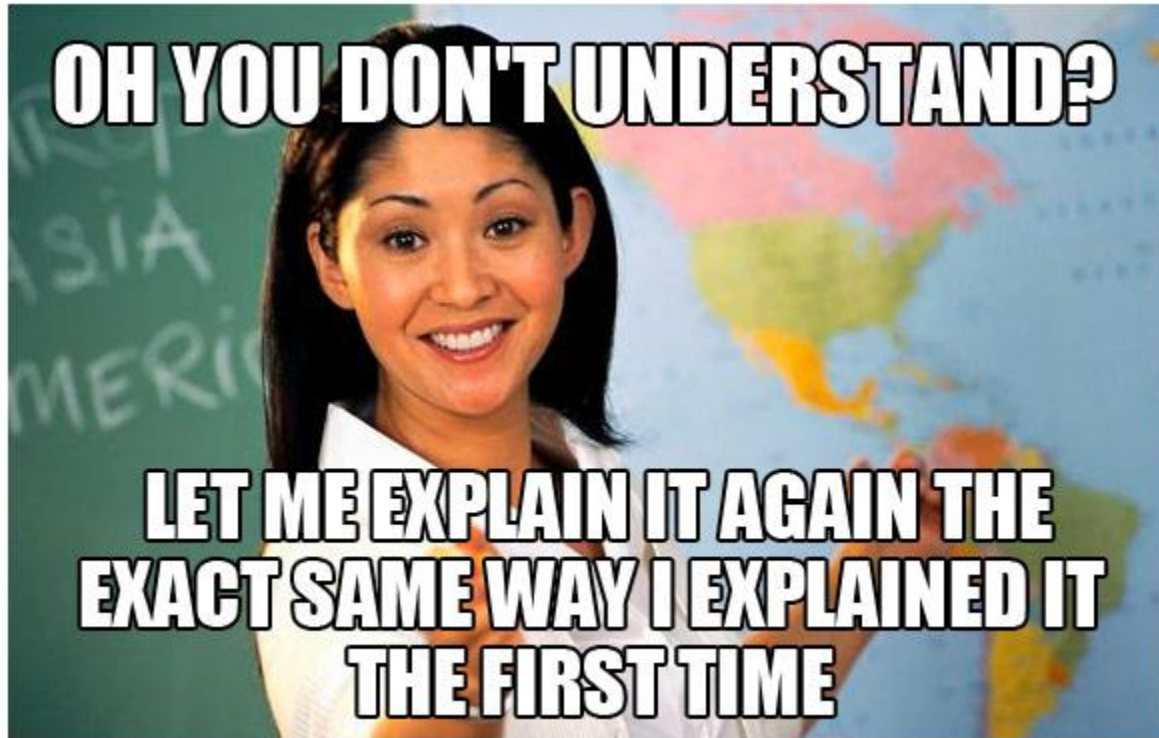


Yes, No, Maybe...

I don't know, can you repeat the question?

Schoolboy's (and politician's) tricks for evading the question

1. Could you repeat the question?
2. Could you explain that again?

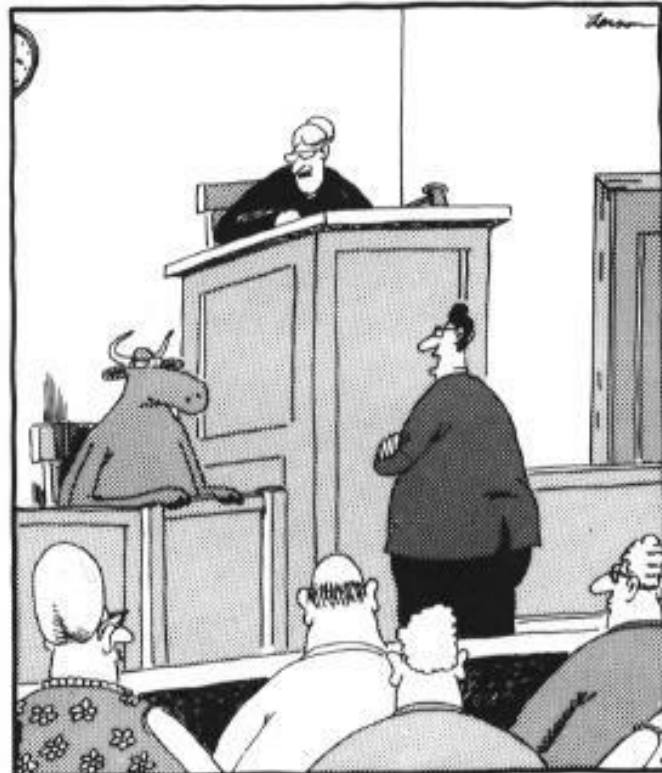


Schoolboy's (and politician's) tricks for evading the question

1. Could you repeat the question?
2. Could you explain that again?
3. Restate it as a question YOU want to answer!

Schoolboy's (and politician's) tricks for evading the question

1. Could you repeat the que
2. Could you explain that ag
3. Restate it as a question Y



“Look, we know how now, brown cow. What we really want to know is why – why now brown cow?”

Is treatment essential for the control of the HIV epidemic?

Richard E. Chaisson, MD

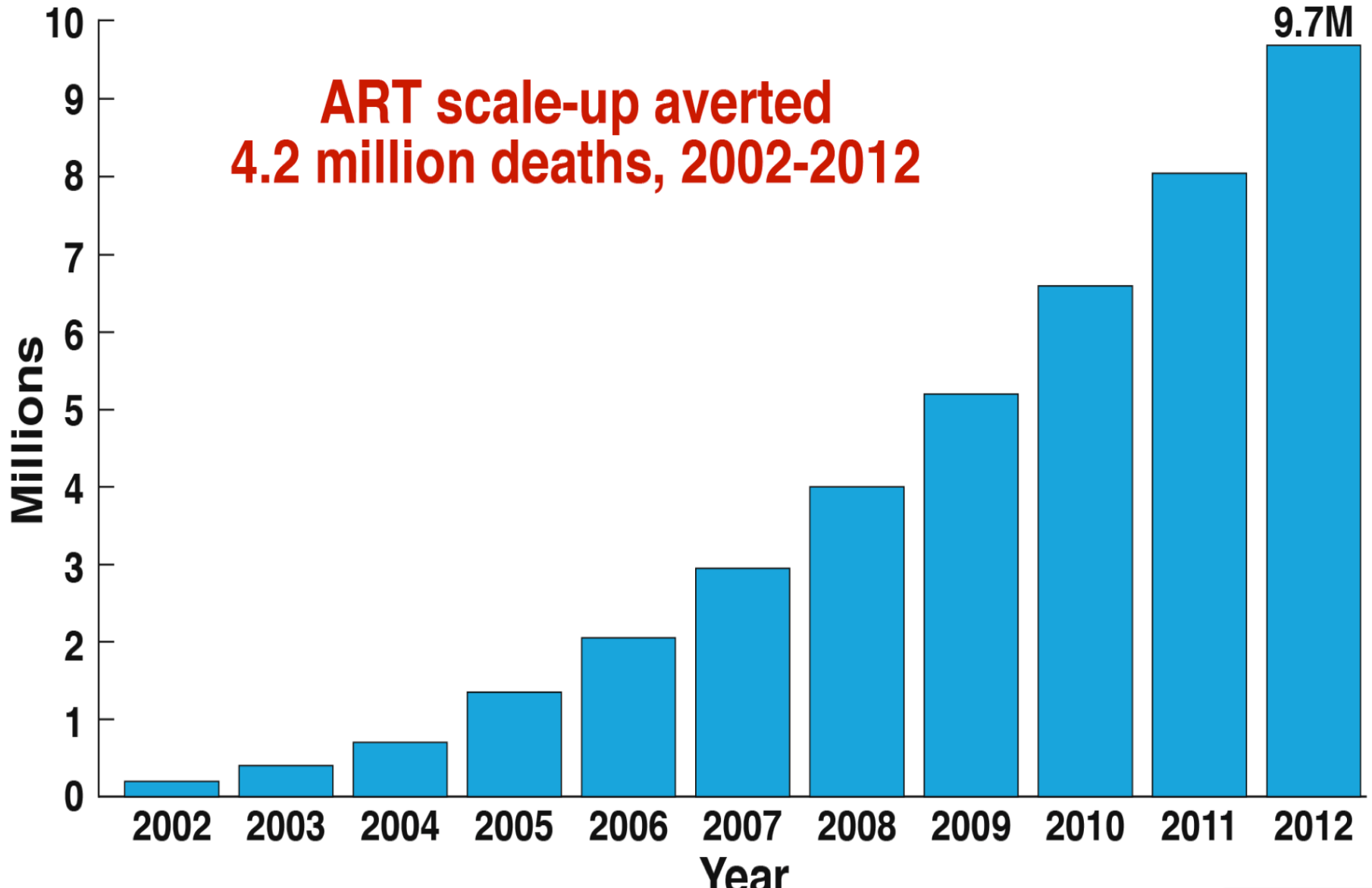
Center for AIDS Research
Center for TB Research
Johns Hopkins University



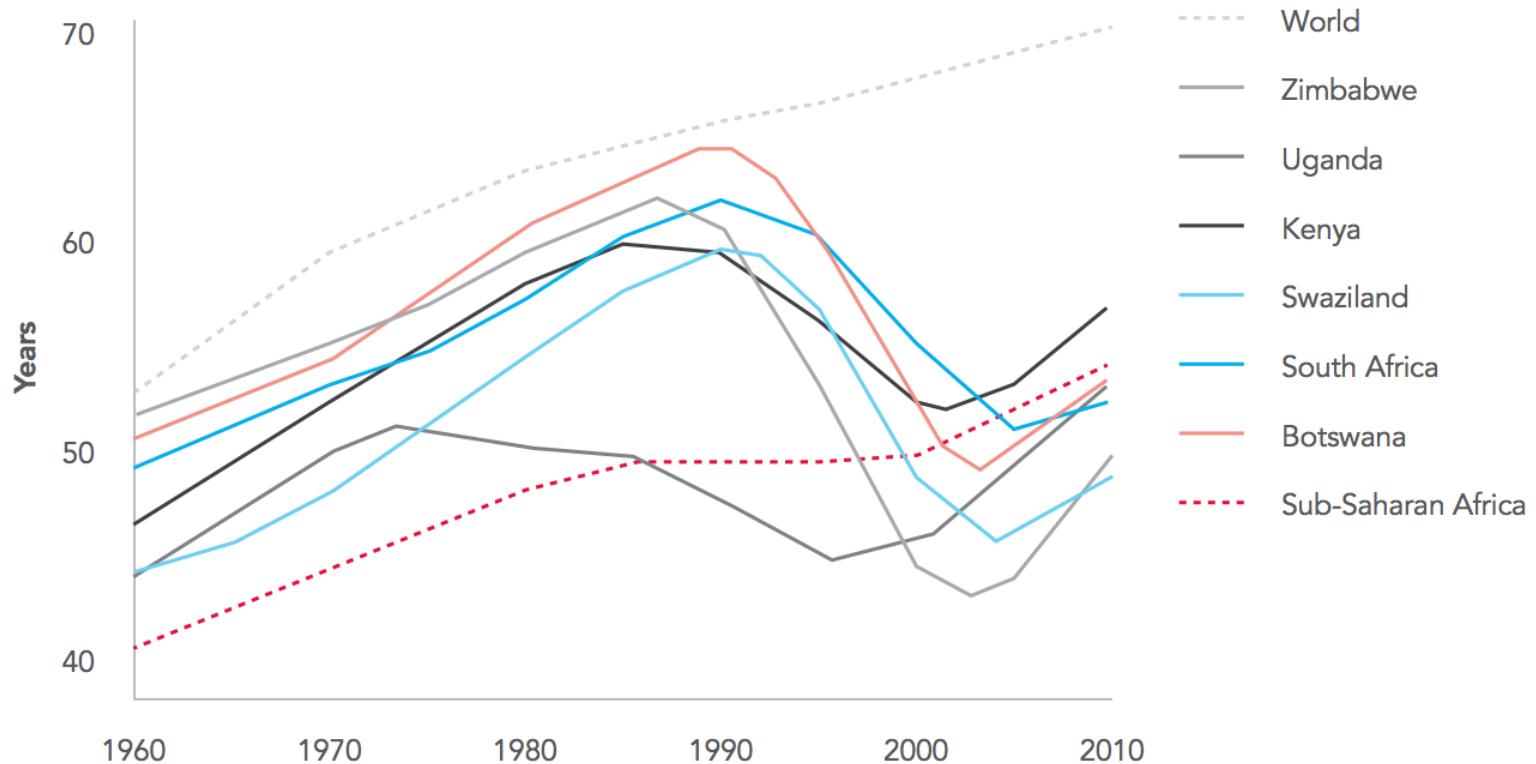
How do we use ART to control the HIV epidemic?

- ❖ Treatment as treatment
 - Treat to prevent disease/death
- ❖ Treatment as prevention
 - Prevent mother-to-child transmission
 - Prevent heterosexual transmission
 - Prevent male-to-male transmission
- ❖ Preventive treatment
 - Pre-exposure prophylaxis (PrEP)
 - Post-exposure prophylaxis (PEP)
- ❖ Combination prevention

Number of People Receiving Antiretrovirals in Low- and Middle-Income Countries



At the country-level, the HIV response is already having a dramatic impact on life expectancy



Source: World Bank life expectancy data

Antiretroviral Therapy as HIV Prevention

- **Prevention of mother-to-child transmission**
- **Post-exposure prophylaxis**
- **Pre-exposure prophylaxis**
- **Treatment of chronic infection**



AIDS Free Generation = Prevention of Mother to Child Transmission of HIV

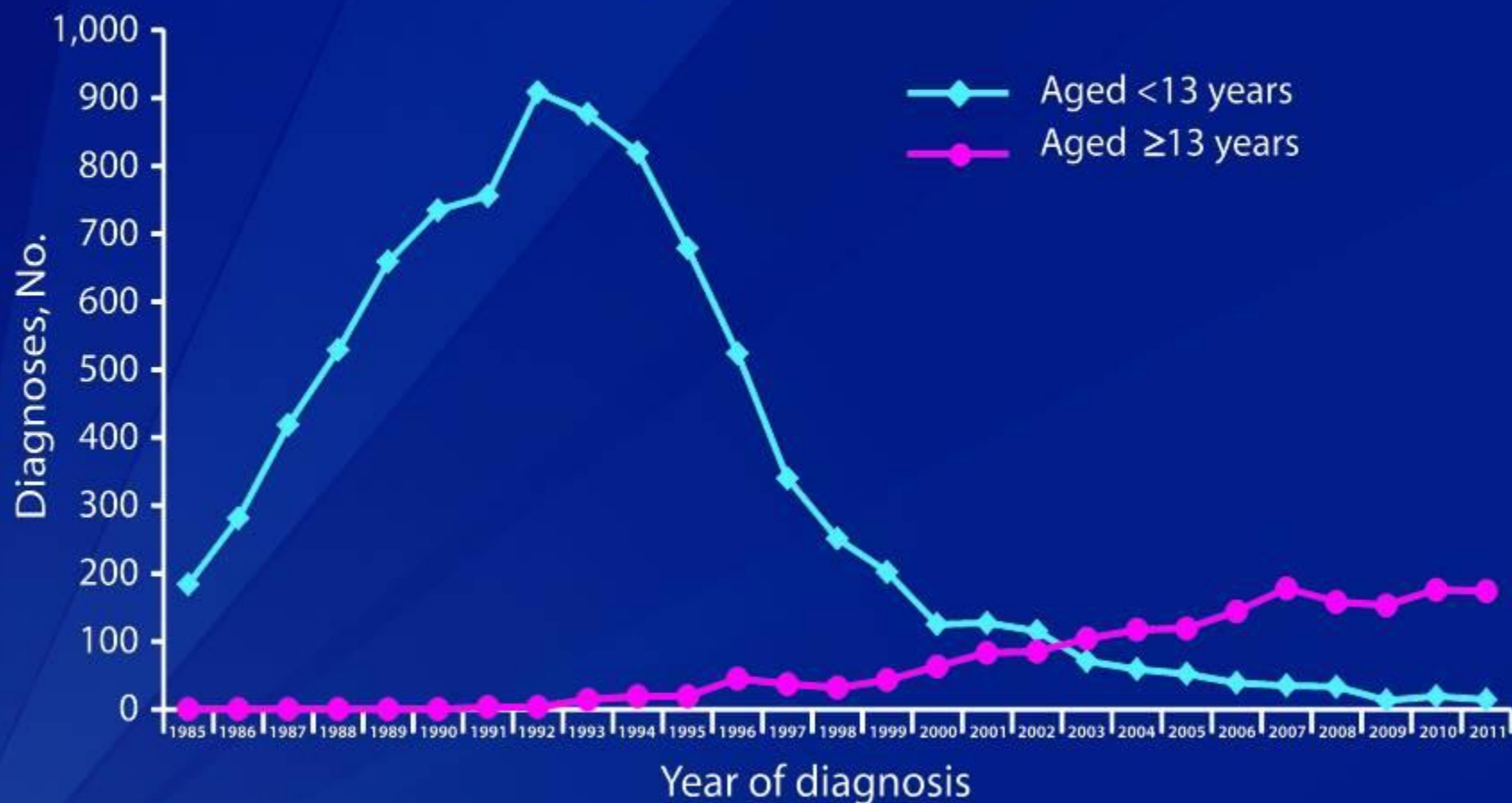


COUNTDOWN TO ZERO

Believe it.
.....
Do it.

GLOBAL PLAN TOWARDS THE ELIMINATION OF NEW HIV INFECTIONS
AMONG CHILDREN BY 2015 AND KEEPING THEIR MOTHERS ALIVE
.....
2011-2015

Stage 3 (AIDS) Classifications among Perinatally Infected Persons, 1985–2011—United States and 6 Dependent Areas

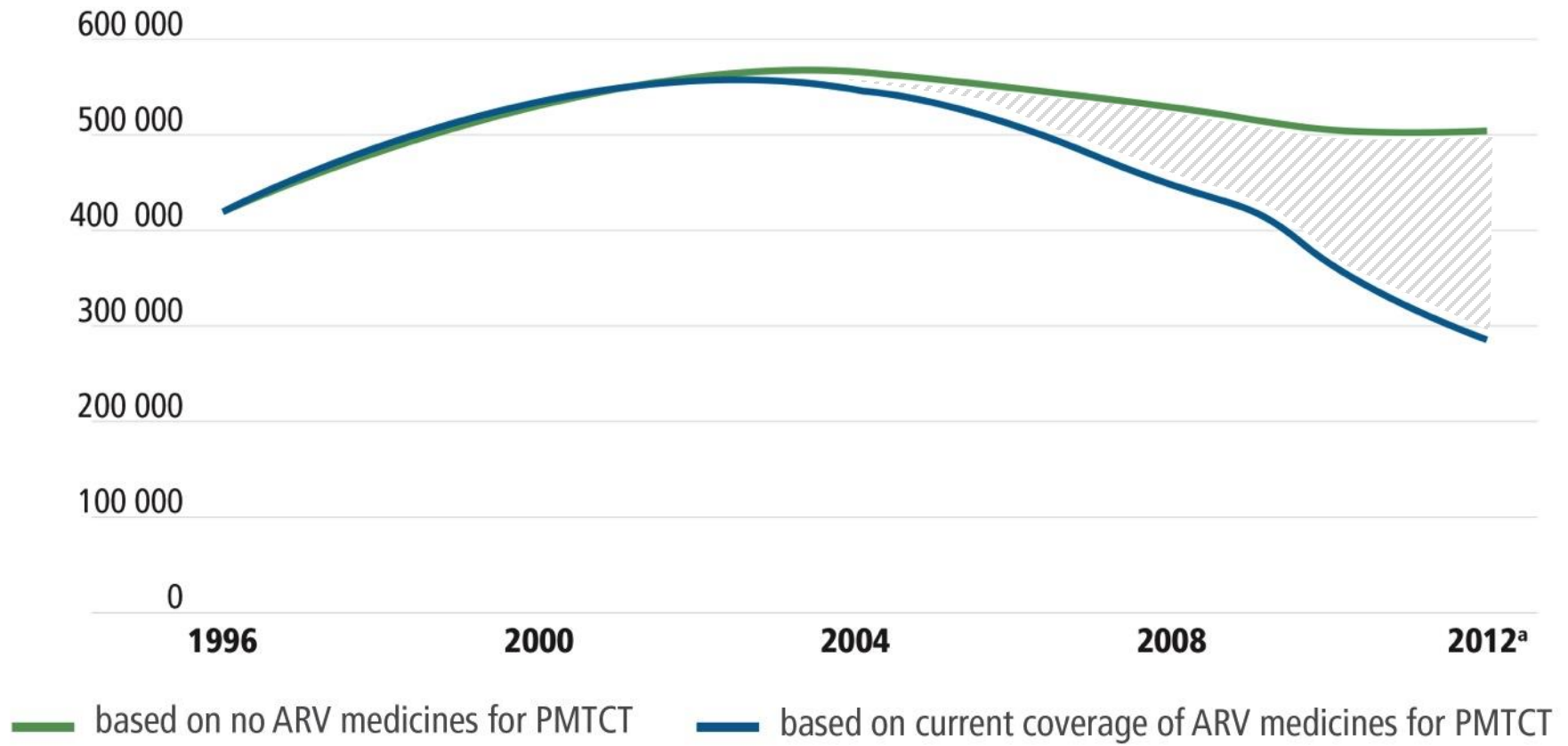


Note: All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

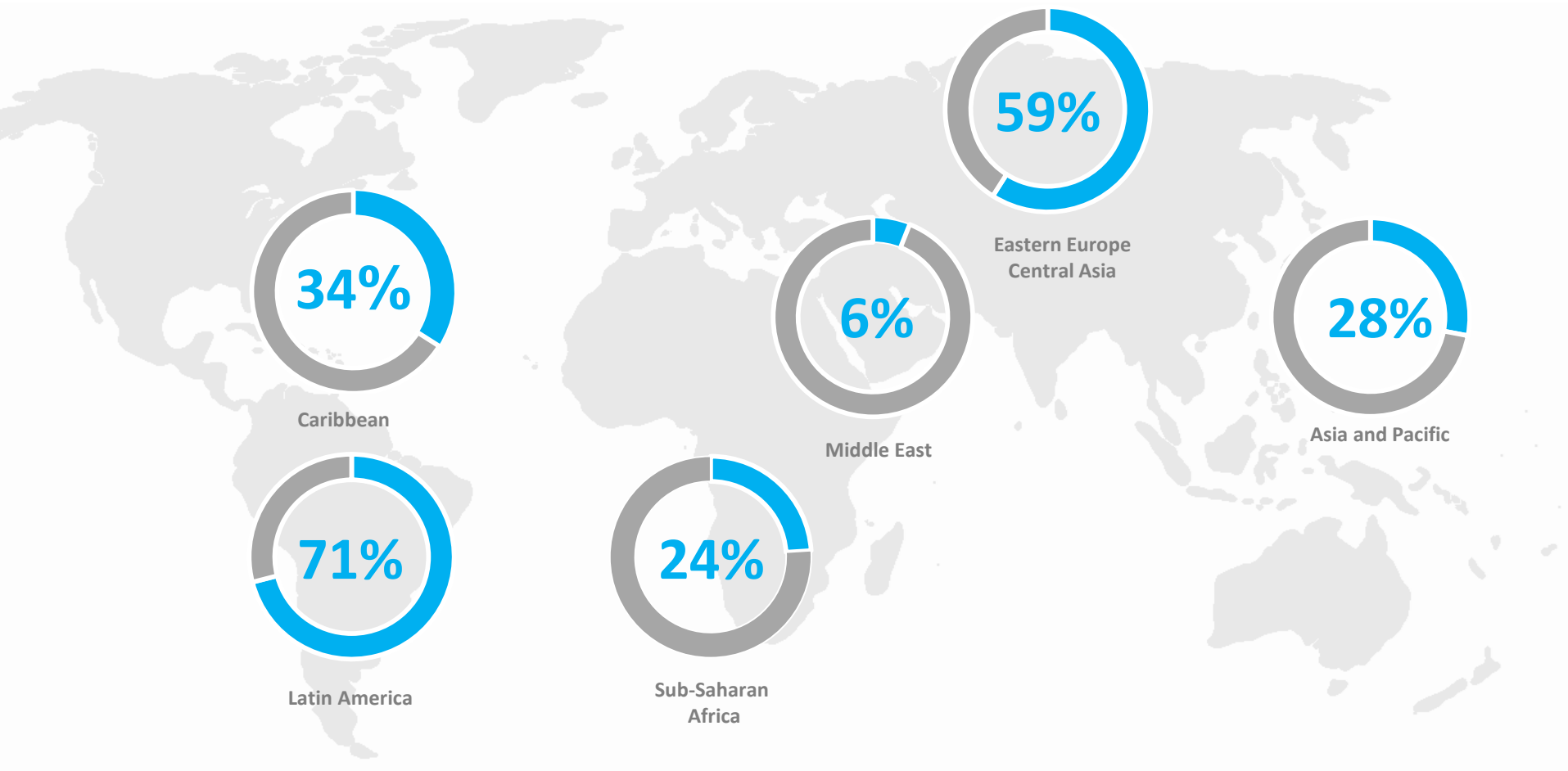


Impact: PMTCT averted more than 800 000 child infections

Number of children acquiring HIV infection in low- and middle-income countries, 1996–2012



Pediatric antiretroviral coverage varies by region





Preliminary MTCT Outcomes of Infants Born to HIV+ Women With TB and HIV+ Controls: Tshepiso Study

- HIV MTCT TB/HIV cases 2/64 (3.2%)
- HIV MTCT HIV+ controls 2/129 (1.5%)
- Overall rate of MTCT 4/193 (2.1%)



Antiretroviral Therapy as HIV Prevention

- Prevention of mother-to-child transmission
- Post-exposure prophylaxis
- Pre-exposure prophylaxis
- Treatment of chronic infection



Oral FTC/TDF PrEP Studies

Effect size
(95% CI)

**Truvada for HIV
discordant couples
(Partners PrEP)**

75% (55; 87)

**Truvada for young
Heterosexuals
(TDF-2)**

63% (22; 83)

**Truvada for MSM
(iPrEx)**

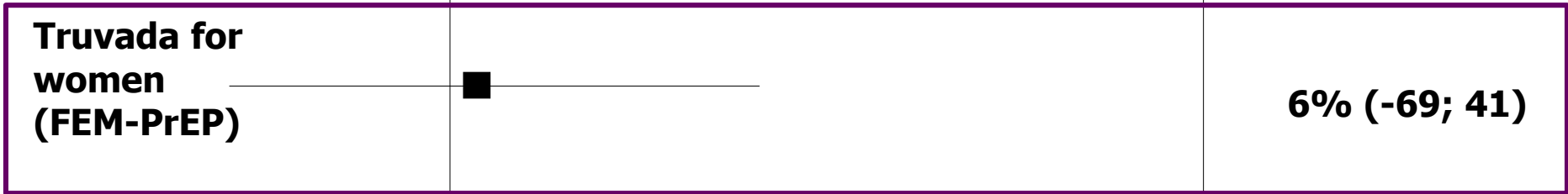
42% (15; 63)

**Truvada for
women
(FEM-PrEP)**

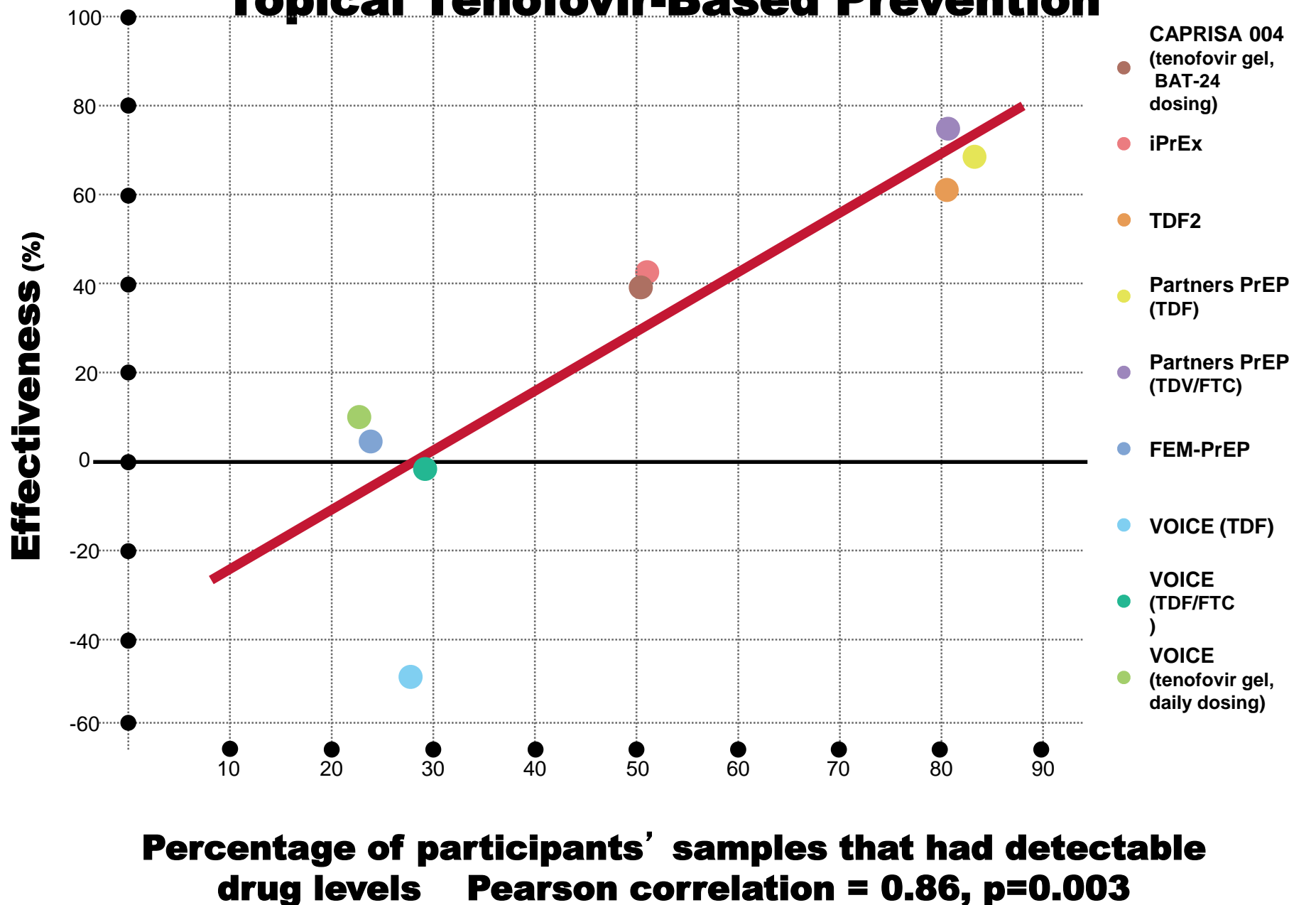
6% (-69; 41)

Efficacy

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



Effectiveness and Adherence in Trials of Oral and Topical Tenofovir-Based Prevention



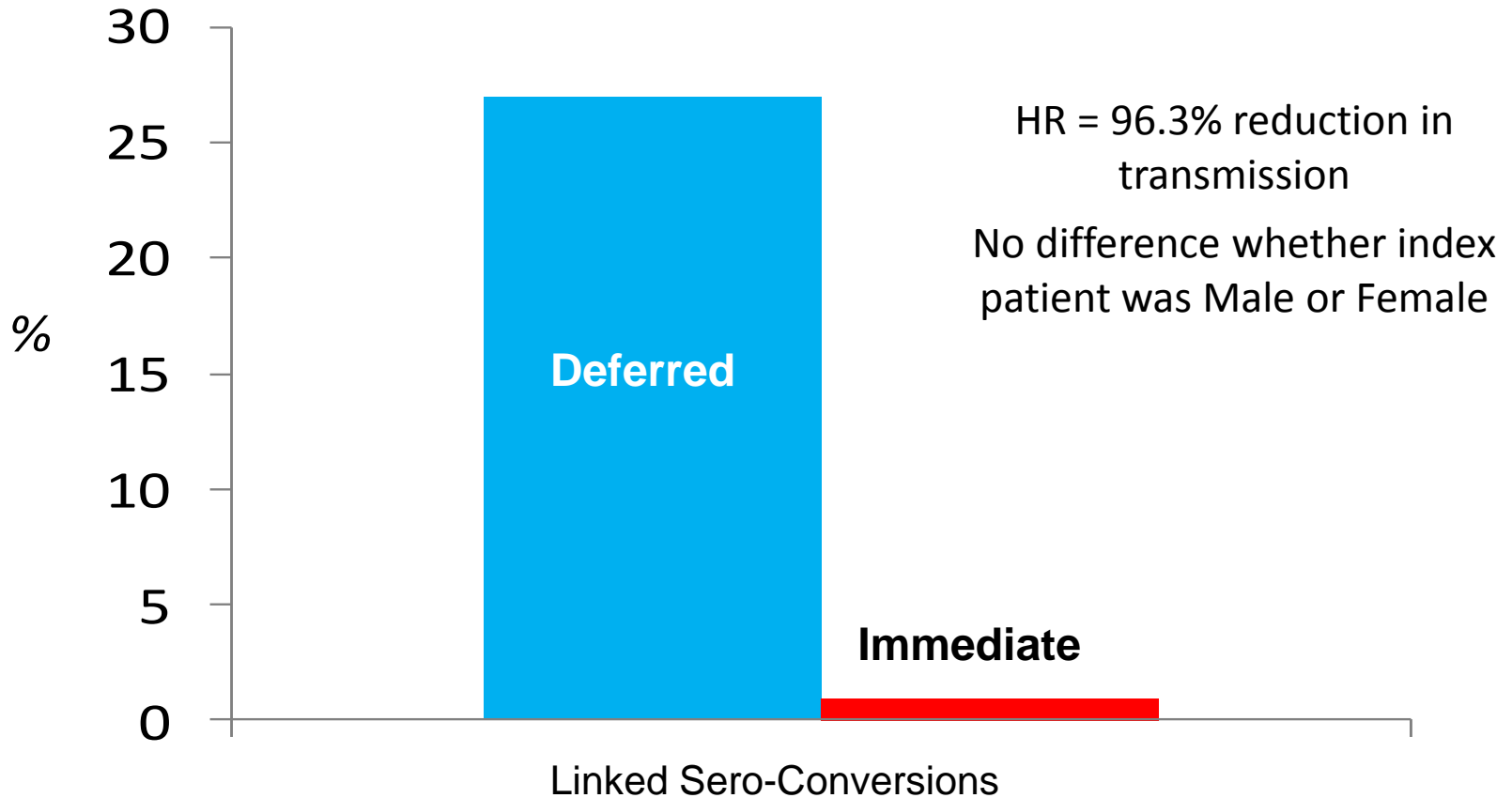
Antiretroviral Therapy as HIV Prevention

- Prevention of mother-to-child transmission
- Post-exposure prophylaxis
- Pre-exposure prophylaxis
- Treatment of chronic infection

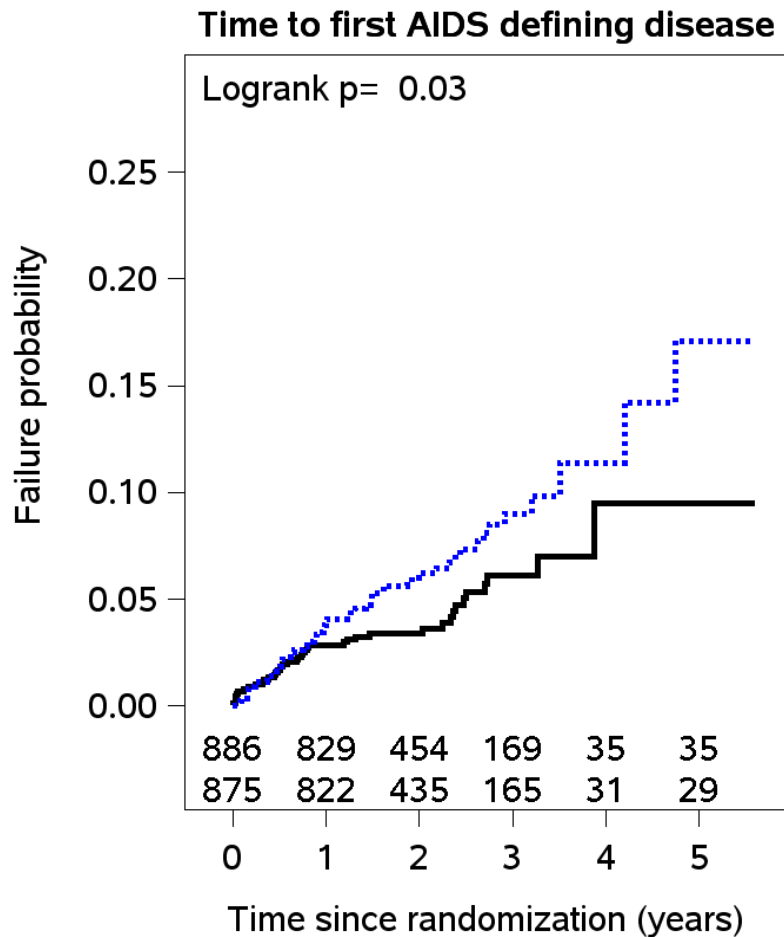


HPTN 052 trial: treatment as prevention

Immediate vs. Delayed ART in Sero-Discordant Couples

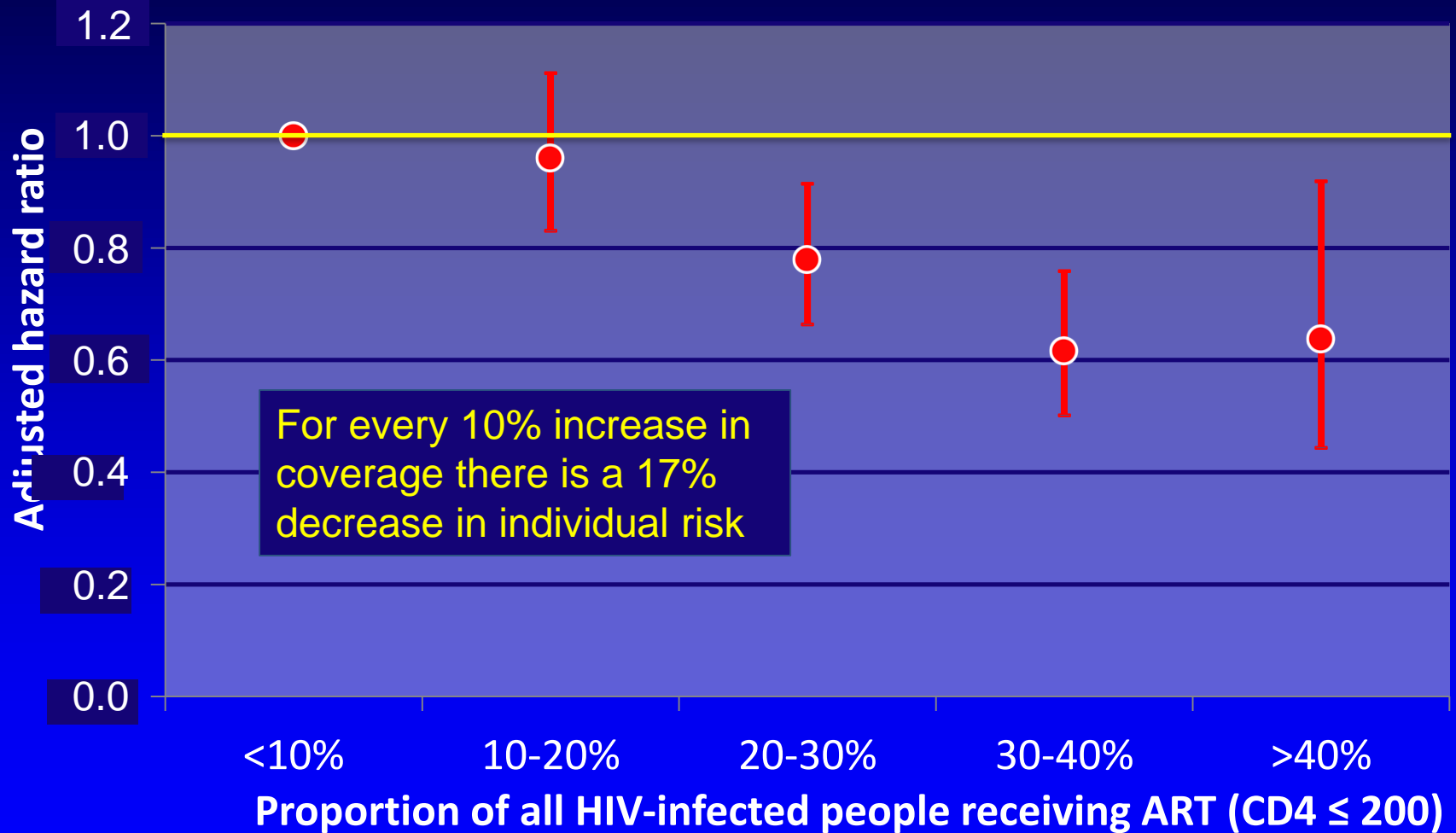


HPTN 052: clinical benefit for earlier ART



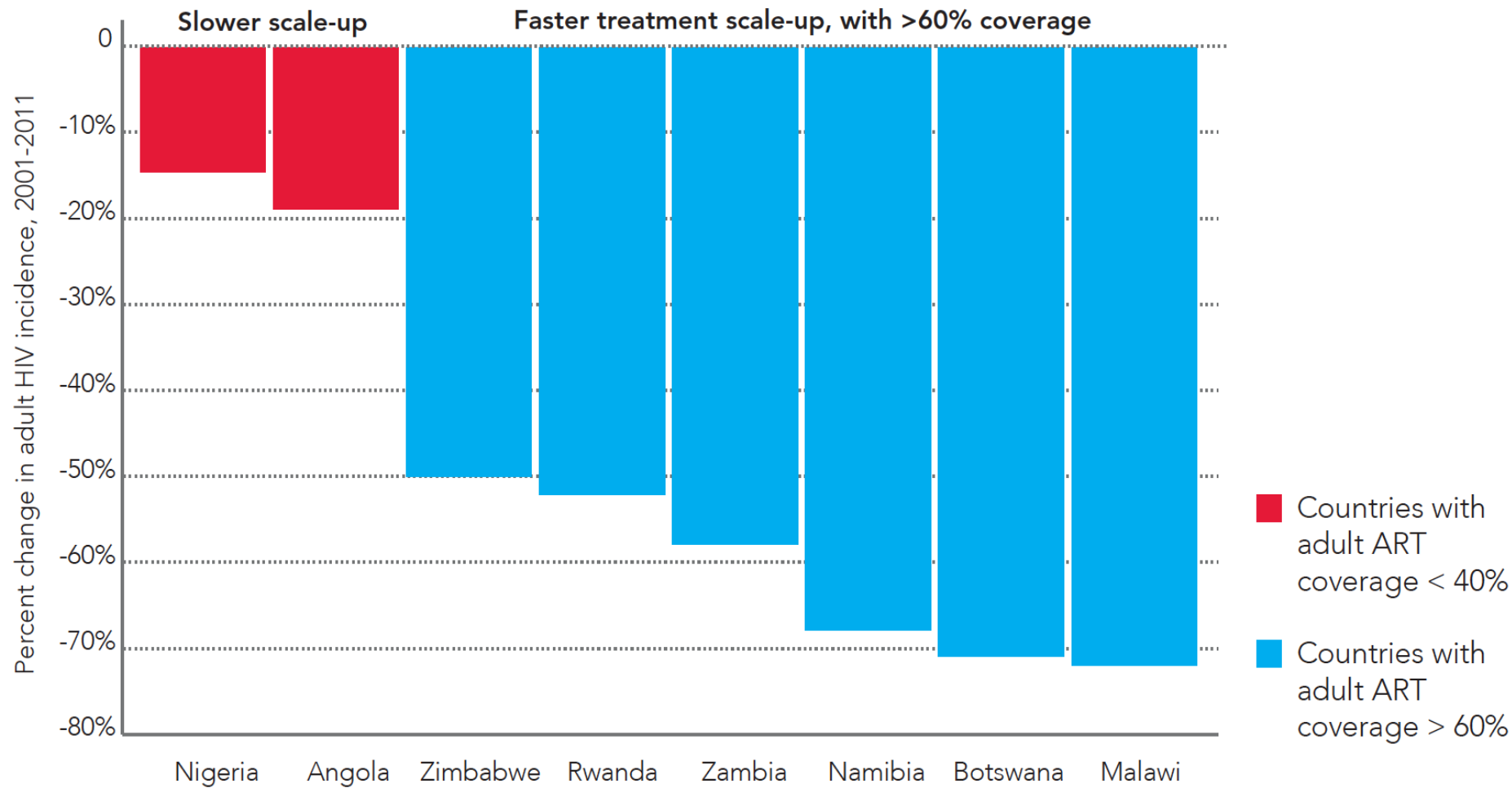
	Number of subjects experiencing ≥ 1 event	
	Delayed	Immediate
Tuberculosis	34 (4%)	17 (2%)
Serious bacterial infection	13 (1%)	20 (2%)
WHO Stage 4 event	19 (2%)	9 (1%)
Oesophageal candidiasis	2	2
Cervical carcinoma	2	0
Cryptococcosis	0	1
HIV-related encephalopathy	1	0
Herpes simplex, chronic	8	2
Kaposi's sarcoma	1	1
CNS Lymphoma	1	0
Pneumocystis pneumonia	1	0
Septicemia	0	1
HIV Wasting	2	0
Bacterial pneumonia	1	2

Effect of ART coverage on rate of new HIV infections in a rural South African population

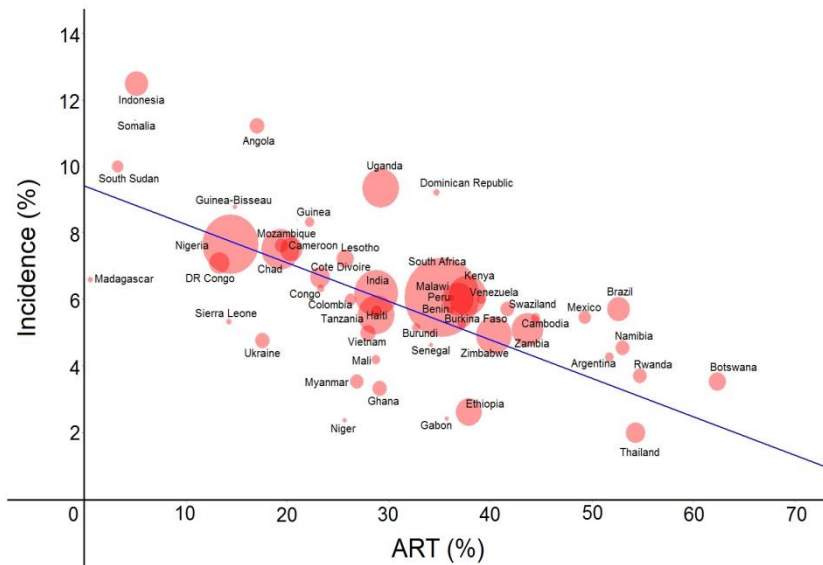


Source: Tanser F et al. Science, 2013

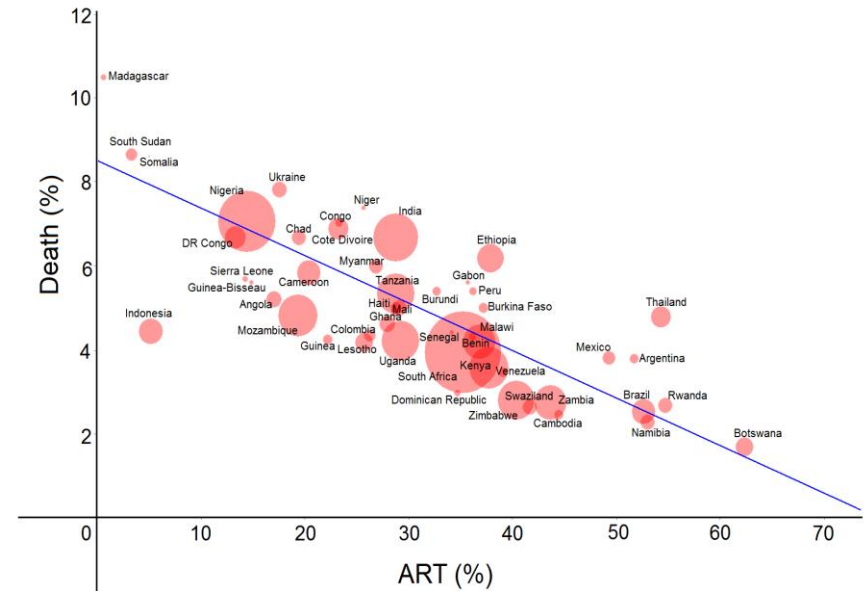
Countries that scaled up treatment faster have reduced incidence



HIV incidence vs. ART coverage in 51 countries, weighted by epidemic size (2012 data)



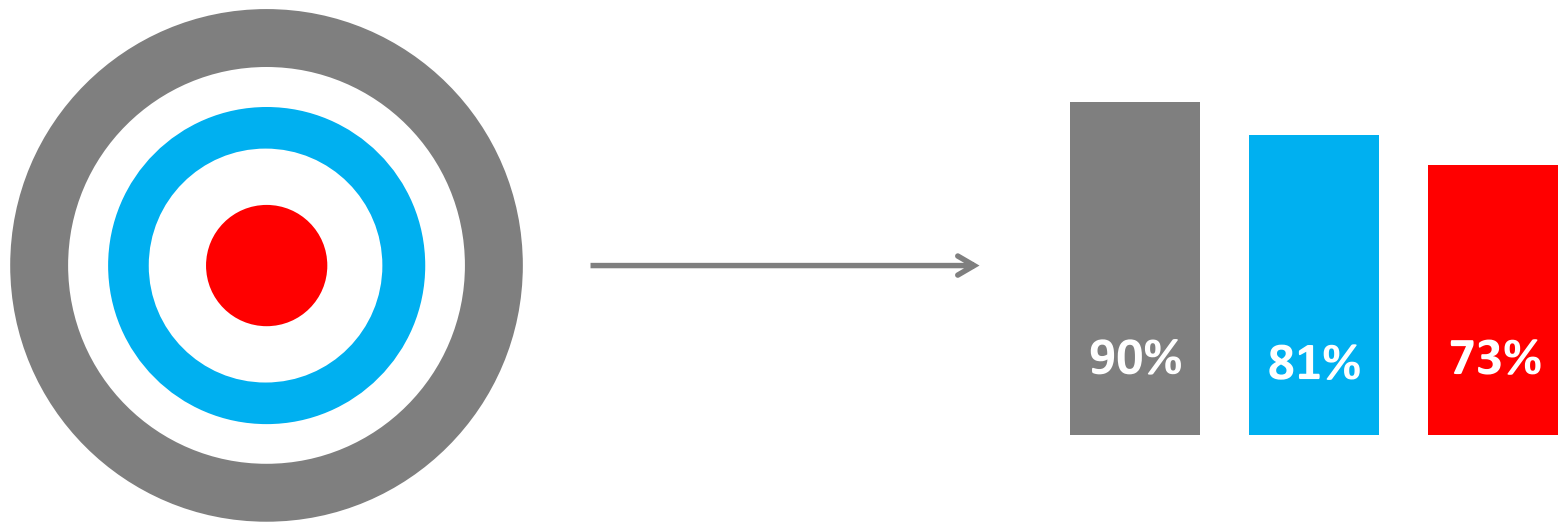
AIDS-related death rates vs. ART coverage in 51 countries, weighted by epidemic size (2012 data)



Source: Hill, Pozniak, Raymond, Heath and Ford, AIDS 2014.



The new treatment paradigm: 90-90-90



Single target → Cascade target

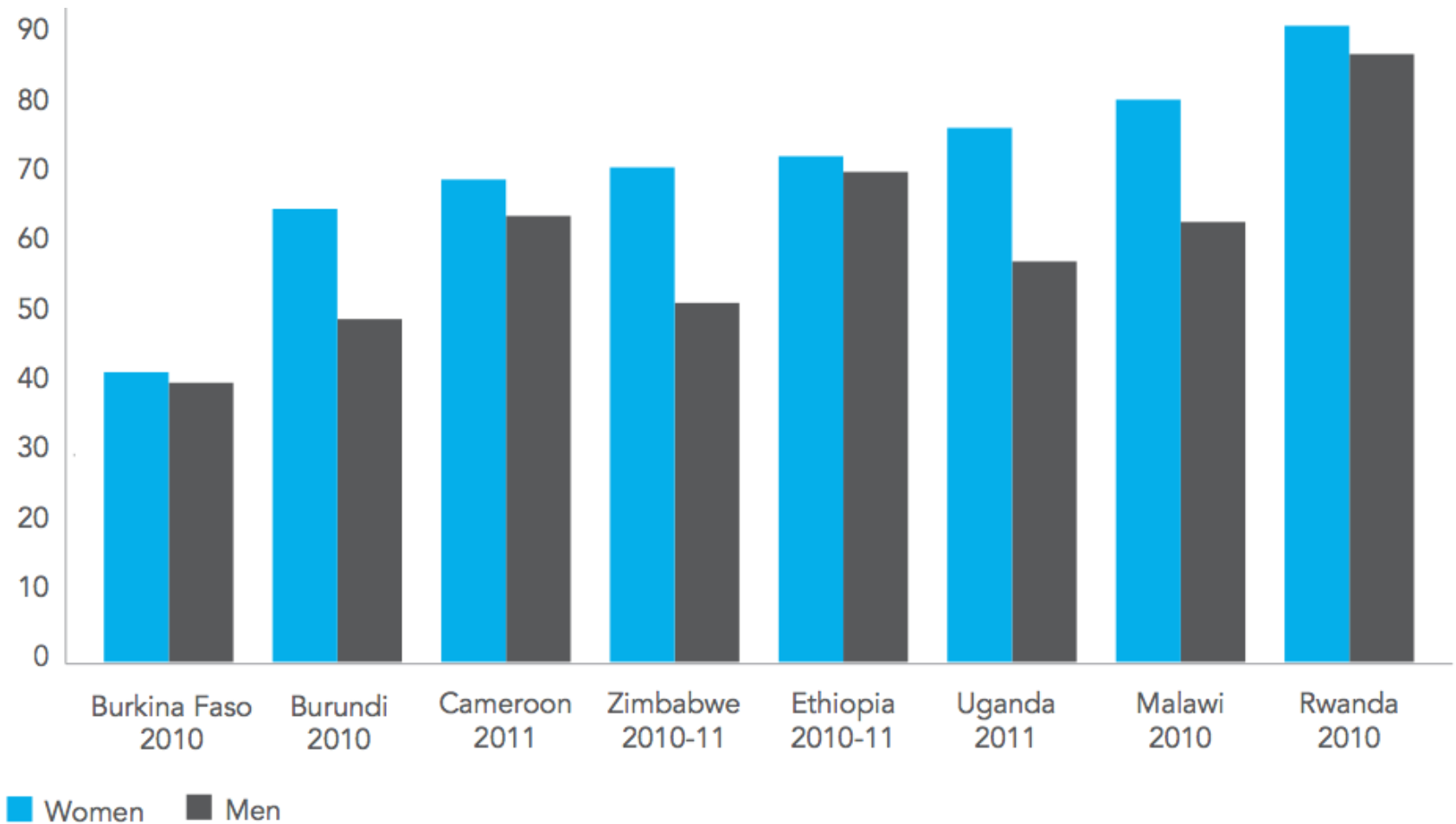
Death → Death and transmission

Number → Equity

Incremental funding → Frontload Investments

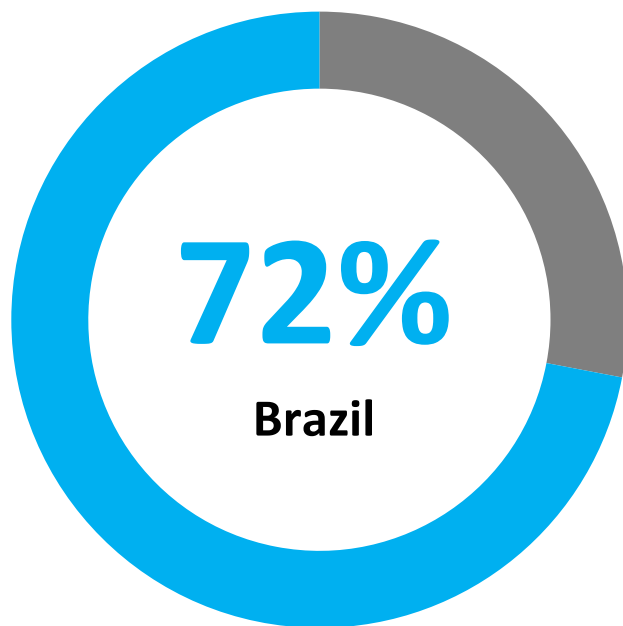
90%
of HIV+
people tested
is possible

HIV+ population tested at least once

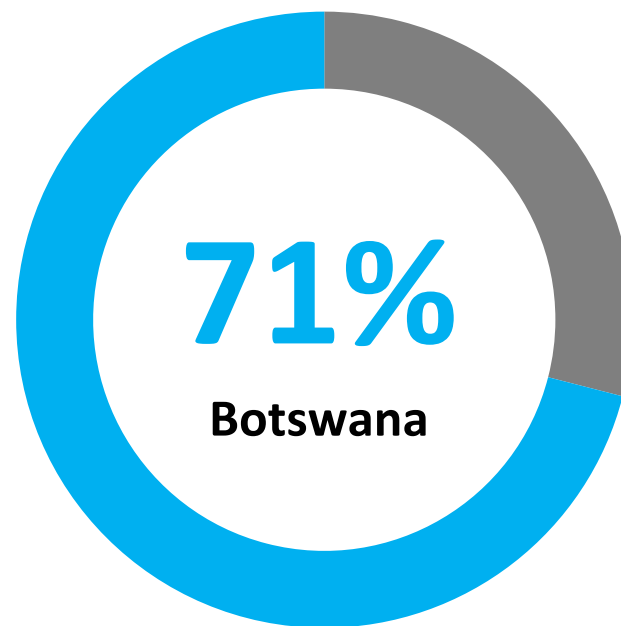


90%
of eligible people
on treatment
is possible

High coverage in several countries



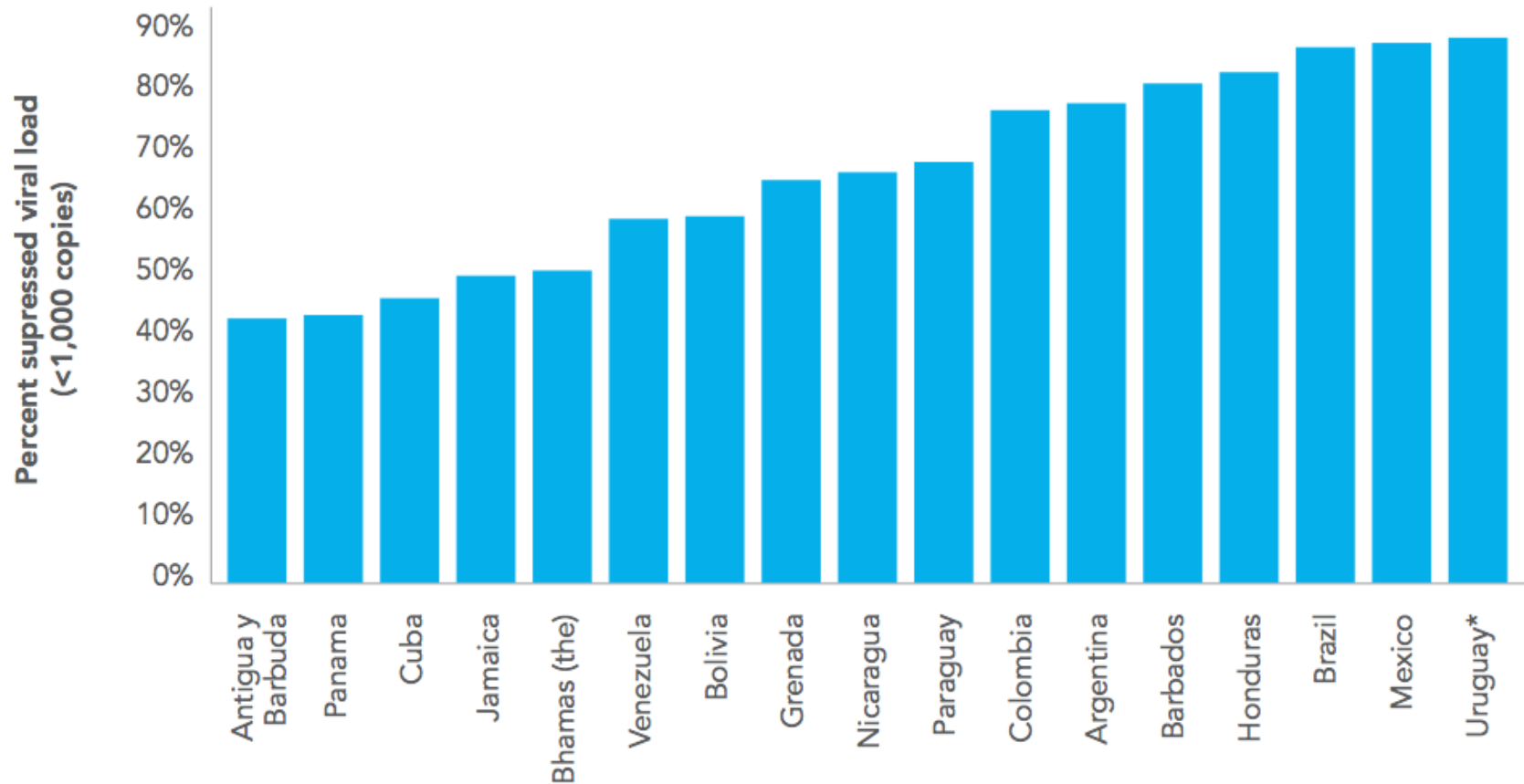
Brazil UNGASS Country Progress Report (2012)



UNAIDS Situation Room

90%
virally suppressed
is possible

Proportion of patients with **viral suppression** in Latin America and the Caribbean in 2013



Therefore, be it resolved:

- Is treatment essential for the control of the HIV epidemic?
 - Absolutely! ART is the key to pMTCT, PrEP can work and TasP has population-level impacts and is feasible.
- Can we treat our way out of the HIV epidemic?
 - We must treat our way out of the epidemic.

Special thanks to Tom Quinn and Julio Montaner