



test & treat
to end aids

Test & Treat Now

A Special Briefing for U.S. Senators, Congressional Members and Staff

STOPPING THE SPREAD OF HIV/AIDS THROUGH TEST-AND-TREAT

Featuring Brian Williams, Ph.D.

Senior Technical Adviser, Test & Treat to End AIDS

Senior Fellow, South African Centre for Epidemiological Modelling and Analysis

June 19, 2012
9:00 a.m. to 10:30 a.m.

U.S. Capitol Visitor Center
First and East Capitol Streets, Washington, D.C.
Room SVC 214

Hosted by U.S. Senator Mark Udall

What is Test-and-Treat?

Test-and-treat is the cornerstone of a new strategic approach to eliminating HIV/AIDS that involves voluntary testing and immediately providing ART to those testing positive regardless of their CD4 or viral level counts. As recognized by leading experts, test-and-treat is currently the most effective strategy to end more than 30 years of death, disability and social upheaval caused by HIV/AIDS around the globe.

This may sound improbable if not impossible, especially since hopes have been dashed repeatedly since HIV/AIDS was identified in 1981. Some 60 million people have been infected, 30 million have died and hundreds of billions of dollars have been spent on HIV/AIDS since the beginning of the epidemic. Science has failed to find a cure or vaccine for the disease, and none is anticipated in the near future. Effective behavioral and preventive interventions have been hard to come by.

Despite hundreds of billions of dollars of investment in research, education, prevention, treatment and care, much of it funded by the United States, nearly 3 million people each year are newly infected globally.

Clearly, we are not halting the epidemic. A new strategy is needed.



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Test-and-Treat Can Stop the HIV/AIDS Epidemic

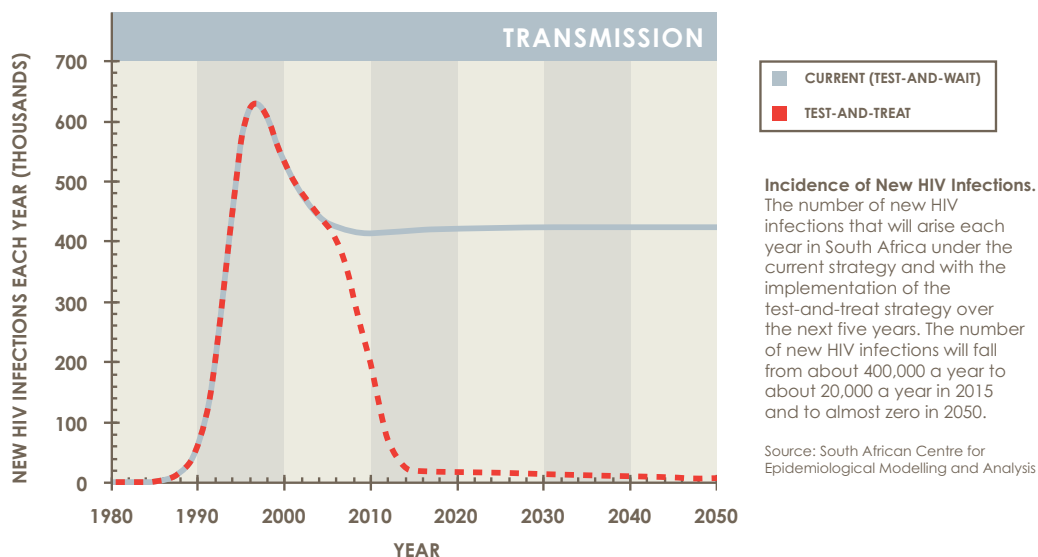
Typically, a person who is HIV-positive does not begin antiretroviral therapy (ART) until his or her immune system breaks down — a strategy known as “test-and-wait.” During that interval before treatment, the person is able to transmit the virus unless other preventive measures are taken.

Test-and-treat, on the other hand, expands voluntary testing for HIV and provides *immediate* ART to all people who test positive for the virus. The strategy is based on a growing body of scientific evidence that shows ART not only *prevents* HIV/AIDS, it *prevents* the transmission of the virus among sexual partners.

The most exciting evidence of test-and-treat’s prevention potential is the National Institutes of Health’s study HPTN 052, winner of *Science* magazine’s 2011 Breakthrough of the Year honors. The study showed that ART was preventing transmission of HIV — so clearly (reducing the chances of infecting others by 96 percent) that researchers offered immediate drug therapy to all participants in the study.

In a November 2011 speech to the National Institutes of Health, Secretary of State Hillary Clinton endorsed test-and-treat as part of a larger prevention package and suggested it could help bring about “an AIDS-free generation.” She pledged \$110 million total from PEPFAR to scale up “combination prevention” efforts including test-and-treat, voluntary medical male circumcision, condom use and prevention of mother-to-child transmission.

In the Nov. 26, 2008, online edition of the British medical journal *The Lancet*, Senior Technical Adviser Brian Williams, Ph.D., and four other distinguished researchers authored a mathematical look at the strategy of universal voluntary testing for HIV and immediate treatment with ART in South Africa. The paper concluded that the approach could “greatly accelerate” progress to “an elimination phase” for HIV.



UNAIDS and the World Health Organization (WHO) have agreed that universal access to ART for those in need should be the goal. And the number of people receiving treatment has increased in recent years as a result of substantial reductions in the price of the drugs and generous financial support from a variety of donors including, most importantly, the U.S. government. Still, expanding availability of ART to everyone living with HIV is no cheap or easy task. An estimated 34 million people around the world have HIV. About 7 million receive ART now. Test & Treat to End AIDS (TTEA) estimates that reaching most of the others would cost an additional \$28 billion over five years.

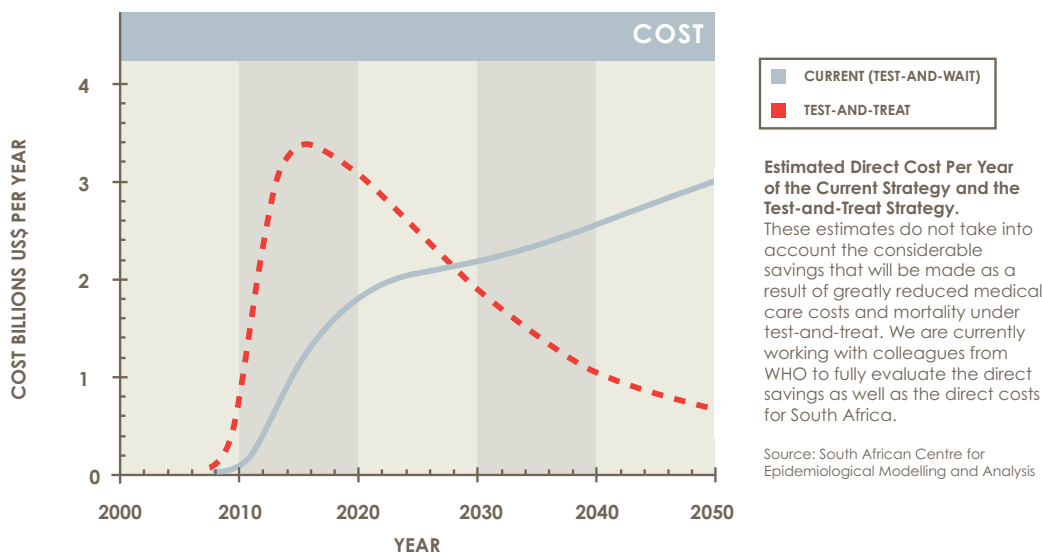
In a difficult economy, that's a staggering number and a herculean task. The United States cannot take on this challenge alone. Countries heavily affected by HIV must also embrace the strategy and fund its scale-up.

But pouring billions of dollars into fighting the epidemic without the prospect of winning is untenable. Some \$27 billion was spent in 2011 alone. Plus there is the incalculable cost of lives and livelihoods lost, children orphaned, health care systems overwhelmed and social fabrics torn.

Test-and-Treat Saves Money in Addition to Lives

Beyond the obvious health benefits, expanding access to ART carries economic and social benefits, according to multiple studies. Research completed recently by the Harvard School of Public Health, the Global Fund to Fight AIDS and four other organizations found that while maintaining the 3.5 million people in low- and middle-income countries in treatment programs co-funded by the Global Fund would cost \$14.2 billion from 2011 to 2020, that cost was offset by a return of \$12 billion to \$34 billion in averted orphan care, increased labor productivity and deferred medical costs.¹ The investment would also save 18.5 million life-years. These results suggest that in addition to the large health gains generated, the economic benefit of treatment will substantially offset, and likely exceed, program costs within 10 years of investment. If implemented correctly, test-and-treat would also dramatically shrink the cost of combating and treating the disease over time, allowing governments, nongovernmental organizations and other donors to eventually reappropriate their funds to other important causes.

In addition, an April 2012 study by the African Development Bank found that Botswana, Lesotho and Swaziland, countries with high adult HIV/AIDS prevalence rates, could reduce the debt burden in each country by 5 percent, 1 percent and 13 percent of gross domestic product, respectively, by 2020 with effective intervention such as scaling up access to ART.²



¹Resch S., E. Korenromp, J. Stover, M. Blakley, C. Krubiner, et al. 2011. "Economic Returns to Investment in AIDS Treatment in Low and Middle Income Countries." *PLoS ONE* 6(10): e25310. Available at www.plosone.org/article/info:doi/10.1371/journal.pone.0025310.

²Anyanwu, J., Y. Gasse Siliadin, E. Okonkwo. 2012. *Role of Fiscal Policy in Tackling the HIV/AIDS Epidemic in Southern Africa*. Working Paper Series No. 148, African Development Bank.

³Shepard, D., W. Zeng, P. Amico, A.K. Rwiyeke, C. Avila-Figueroa. 2012. "Controlled Study of Funding for Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome as Resource Capacity Building in the Health System in Rwanda." *American Journal of Tropical Medicine and Hygiene* 86(5): 902-907.

⁴Assefa, Y., D. Jerene, S. Lulseged, G. Ooms, W. Van Damme. 2009. "Rapid Scale-Up of Antiretroviral Treatment in Ethiopia: Successes and System-Wide Effects." *PLoS Med* 6(4): e1000056. doi:10.1371/journal.pmed.1000056.

Expanding treatment also has positive effects on the overall health care systems of affected countries. A six-year study at Brandeis University released in May 2012 looked at Rwandan clinics with and without AIDS services and concluded there was no evidence AIDS funding took away resources from other health concerns — and indeed that AIDS services had positive spinoffs due to Rwanda's concerted efforts to integrate AIDS services in the larger health system.³ Separately, an Ethiopian study found that greater AIDS spending accompanied a nationwide decline in mortality rates, improved prenatal care and higher immunization rates.⁴

The Way Forward

Test-and-treat is an opportunity to reverse the seemingly unending cycle of illness and death and finally stop HIV/AIDS. Test-and-treat could well be the exit strategy for funders — governments, foundations and corporations — that have poured hundreds of billions of dollars globally into defeating HIV/AIDS.

HIV/AIDS has exacted a huge human toll in the past three decades. With proper support and sufficient funding, a scale-up of test-and-treat can:

- Stop the cycle of disease, disability and death.
- Re-energize economies as people are healthier and return to gainful employment.
- Allow a new generation to grow up and thrive.
- Keep families intact.
- Reduce the financial burden of HIV on companies operating in affected countries.
- Reduce the need for funding from the U.S. government.
- Provide an exit strategy for international funders.

We have the scientific evidence that we need. The results from the National Institutes of Health's HPTN 052 study have given us definitive proof that the test-and-treat strategy works. Immediate and sustained treatment of people who are infected with HIV is the most effective epidemiological tool we currently have to stop transmission of HIV. Let's not miss this opportunity to change the course of history — to stop the transmission of the virus, to save millions of lives and to eradicate the disease.

About Dr. Brian Williams

Brian Williams is a senior technical adviser to Test & Treat to End AIDS, an international consortium, and among the first scientists to identify and endorse test-and-treat's potential. Dr. Williams was a lead author on two key scientific papers that demonstrated how test-and-treat could wind down the AIDS epidemic. He is also the founder of the South African Centre for Epidemiological Modelling and Analysis, based in South Africa, which is a key center of research and expertise in the fight against many global epidemics.


Dr. Williams, a South African who earned his doctoral degree in physics at Cambridge University, has worked on health issues ranging from HIV in the gold mining industry to silicosis during his long and successful career. He recently retired from the World Health Organization, based in Geneva, Switzerland, where he concentrated on tuberculosis and HIV issues, and continues to consult on key public health issues.


About TTEA

Test & Treat to End AIDS (TTEA) is an international consortium of nongovernmental organizations, research institutions and people living with HIV/AIDS that advocates for an aggressive approach to ending HIV/AIDS. Formed in 2010, TTEA believes strongly that test-and-treat, which provides immediate and sustained drug treatment for people who are HIV-positive irrespective of their CD4 or viral load counts, is the most effective strategy for stopping the epidemic.

Appendix A

PowerPoint Presentation Slides from Dr. Brian Williams' Special Briefing for U.S. Senators, Congressional Members and Staff entitled "Stopping the Spread of HIV/AIDS through Test-and-Treat," June 19, 2012, U.S. Capitol Visitor Center, Washington, D.C.





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STOPPING HIV

Brian Williams, Ph.D. | June 19, 2012
U.S. Capitol Visitor Center, SVC 214 | Washington, D.C.

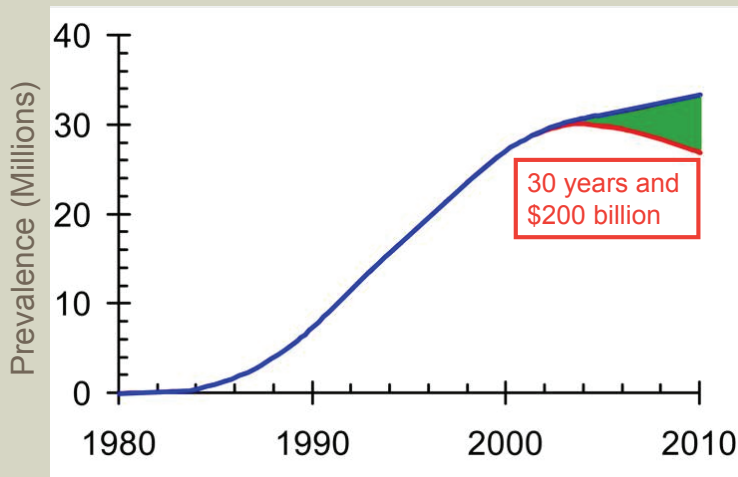


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WHAT WE HAVE TO DO TO STOP AIDS

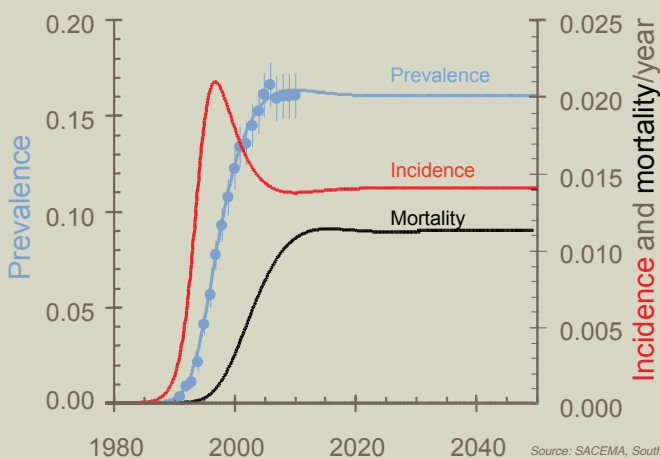
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HIV marches on: What have we achieved?



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The epidemic of HIV in South Africa



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THE MAGNITUDE OF THE CONTROL PROBLEM

Each person with HIV infects, on average, 7 other people. Therefore, to stop AIDS we need to reduce transmission by 7 times or about 85%.

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TOOLS THAT WORK

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1. Male circumcision



Open access, freely available online PLOS MEDICINE 2005

Randomized, Controlled Intervention Trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial

Bertran Auvert^{1,2,3,4*}, Dirk Taljaard⁵, Emmanuel Lagarde^{2,4}, Joëlle Sobngwi-Tambekou², Rémi Sitta^{2,4}, Adrian Puren⁶

1 Hôpital Ambroise-Paré, Assistance Publique—Hôpitaux de Paris, Boulogne, France, 2 INSERM U 687, Saint-Maurice, France, 3 University Versailles Saint-Quentin, Versailles, France, 4 IFR 69, Villejuif, France, 5 Progressus, Johannesburg, South Africa, 6 National Institute for Communicable Disease, Johannesburg, South Africa

Reduction in transmission: **60%**

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2. Vaginal microbicides



Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women

Quarraisha Abdool Karim,^{1,2,*†} Salim S. Abdool Karim,^{1,2,3*} Janet A. Frohlich,¹ Anne C. Grobler,¹ Cheryl Baxter,¹ Leila E. Mansoor,¹ Ayesha B. M. Kharsany,¹ Sengeziwe Sibeko,¹ Koleka P. Mlisana,¹ Zaheen Omar,¹ Tanuja N. Gengiah,¹ Silvia Maarschalk,¹ Natasha Arulappan,¹ Mukelisiwe Mlotshwa,¹ Lynn Morris,⁴ Douglas Taylor,⁵ on behalf of the CAPRISA 004 Trial Group†

3 SEPTEMBER 2010 VOL 329 SCIENCE www.sciencemag.org

Reduction in transmission: **54%**

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3. Pre-exposure prophylaxis (PREP)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men

Robert M. Grant, M.D., M.P.H., Javier R. Lama, M.D., M.P.H., David N. Burns, M.D., M.P.H., and David V. Glidden, Ph.D., for the iPrEx Study Team*

N Engl J Med 2010 **363**:2587-2599

Reduction in transmission: **73%**

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4. Antiretroviral therapy (ART)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Prevention of HIV-1 Infection with Early Antiretroviral Therapy

Myron S. Cohen, M.D., Ying Q. Chen, Ph.D., Marybeth McCauley, M.P.H., Theresa Gamble, Ph.D., Mina C. Hosseinipour, M.D.,

CONCLUSIONS
The early initiation of antiretroviral therapy reduced rates of sexual transmission of HIV-1 and clinical events, indicating both personal and public health benefits from such therapy.

Reduction in transmission: **96%**

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Secretary of State Hillary Clinton



“ [Creating an AIDS-free generation] would have been unimaginable just a few years ago. Yet today, it is possible because of scientific advances. ... We know the route we need to take ... [focusing on] ending mother-to-child transmission, expanding voluntary medical male circumcision and scaling up treatment for people living with HIV/AIDS.”

*Speaking at the National Institutes of Health,
November 8, 2011*

Jon Cohen

“ HPTN 052 has made imaginations race ... and a growing number of HIV/AIDS experts are insisting that the irresponsible and appalling thing to do is nothing.”

Science (2011) 334:1628

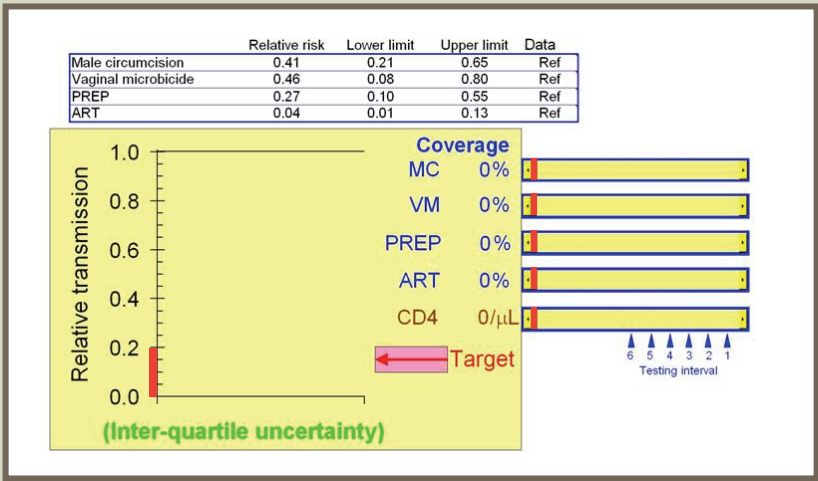
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EXPLORING THE IMPACT OF COMBINATION PREVENTION ON HIV TRANSMISSION

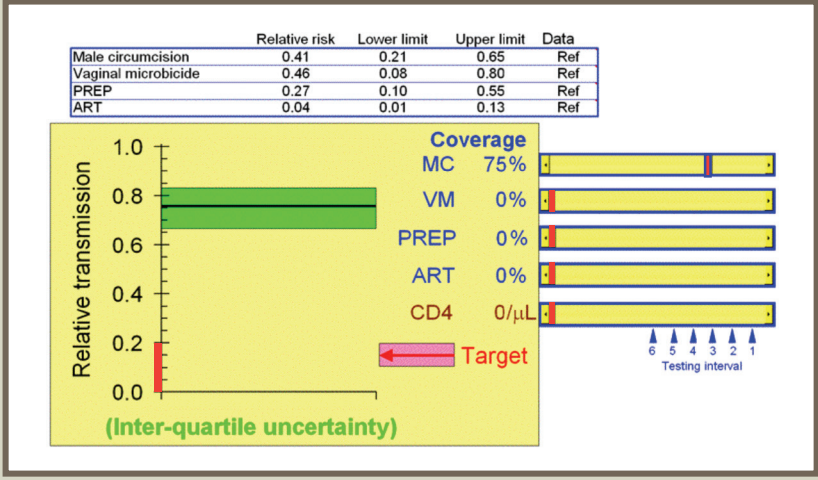
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Impact of prevention methods on HIV transmission



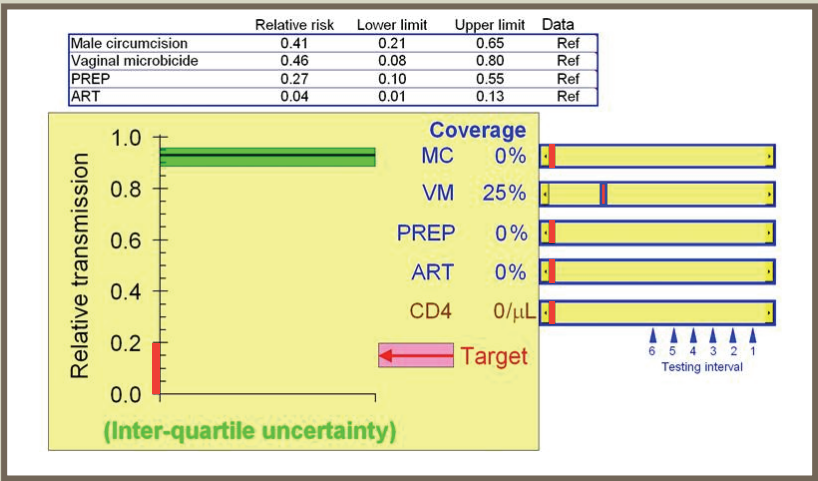
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Impact of male circumcision on HIV transmission



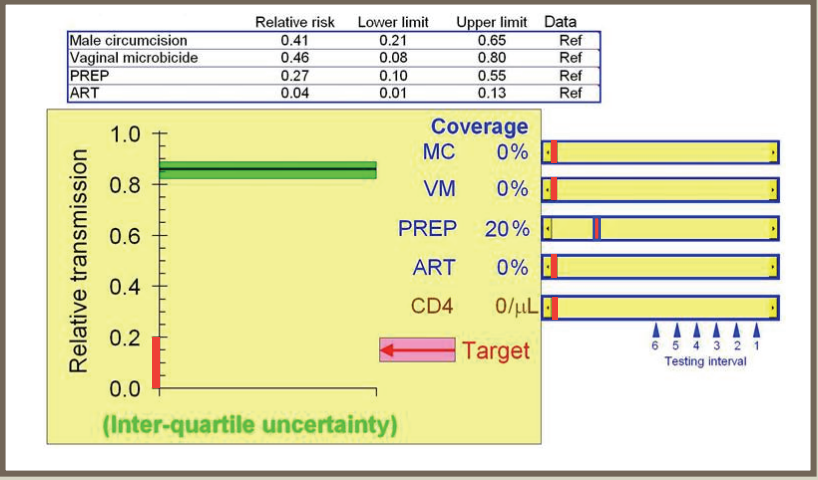
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Impact of vaginal microbicide on HIV transmission



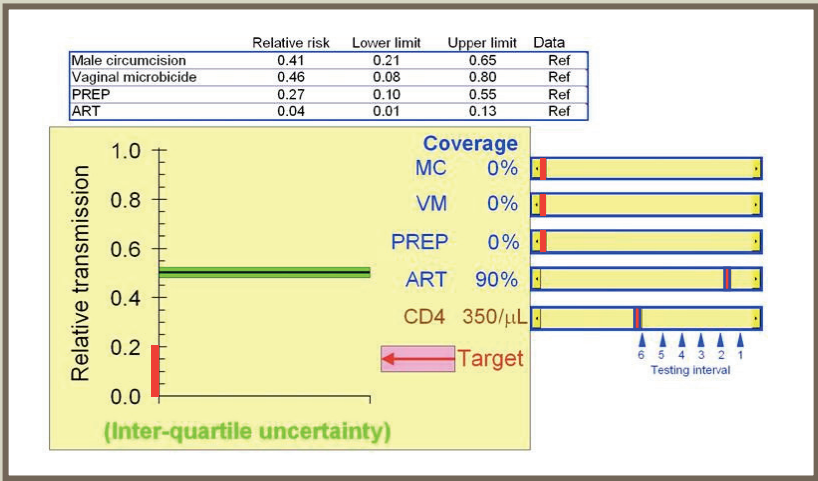
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Impact of PREP on HIV transmission



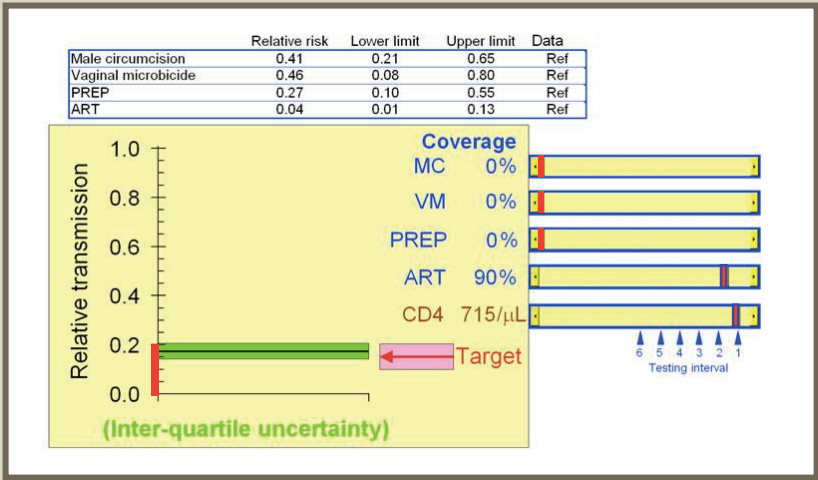
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Impact of ART (test-and-wait) on HIV transmission



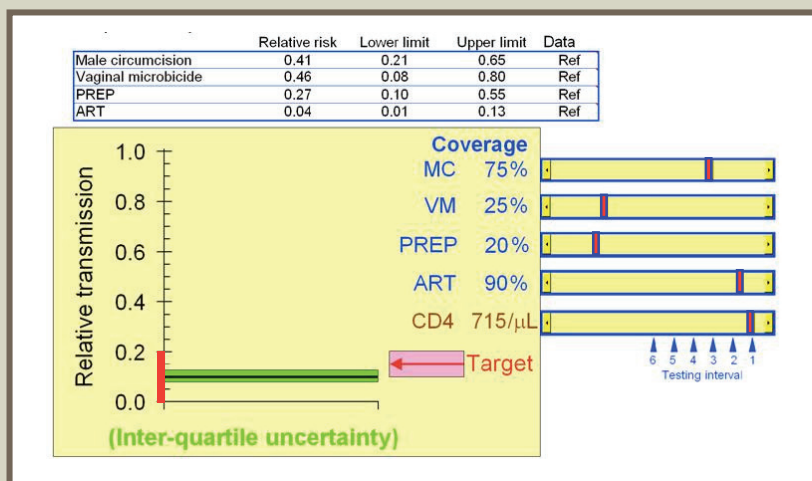
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Impact of ART (test-and-treat) on HIV transmission



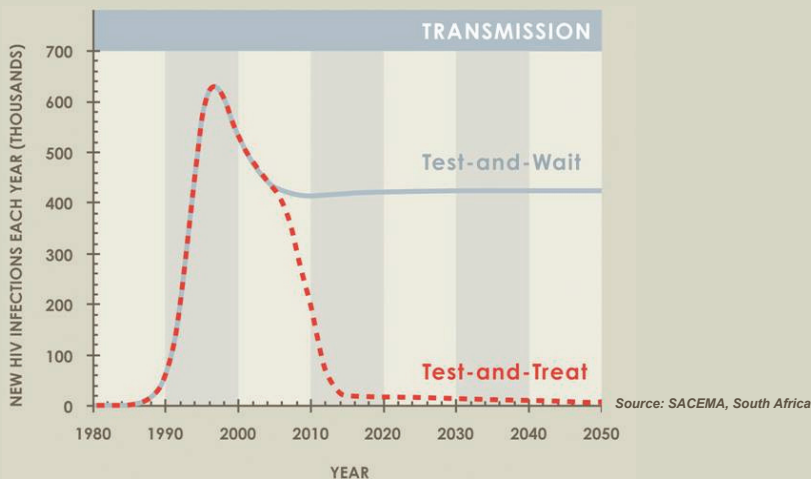
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Impact of combination prevention methods on HIV transmission



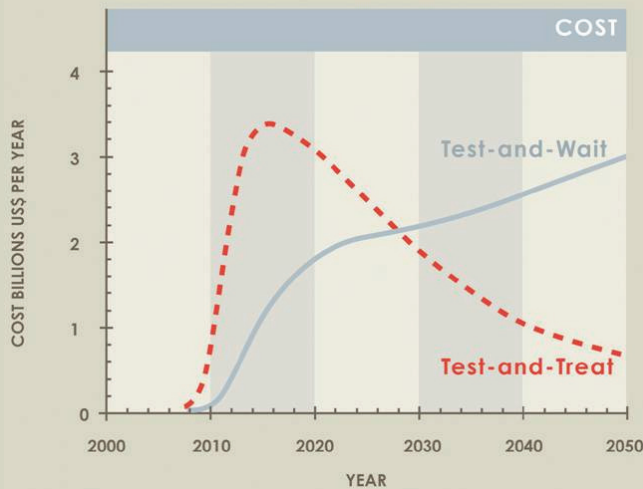
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HIV incidence in South Africa: Test-and-wait vs. test-and-treat



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Show me the money: What will it cost?



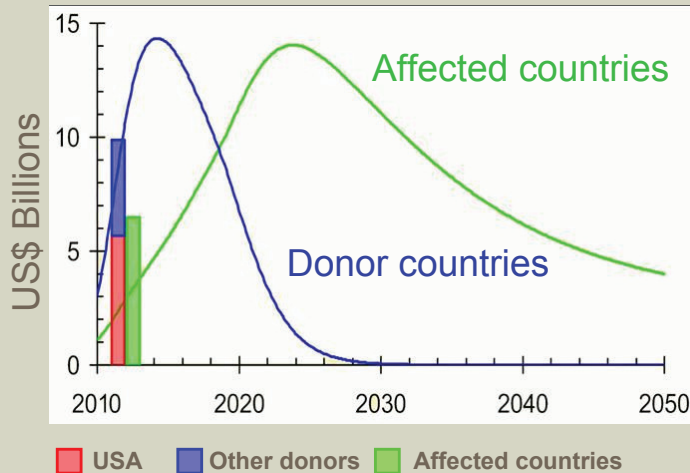
Estimated Direct Cost Per Year of the Current Strategy and the Test-and-Treat Strategy.

These estimates do not take into account the considerable savings that will be made as a result of greatly reduced medical care costs and mortality under test-and-treat. We are currently working with colleagues from WHO to fully evaluate the direct and indirect costs as well as savings and benefits generated by test-and-treat.

Source: SACEMA, South Africa

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Current funding from donors and affected countries



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Global fund projections

- Need \$14.2 billion from 2011 to 2020.
- This is expected to save 18.5 million life-years and **return \$12 billion to \$34 billion** through **increased labor productivity, averted orphan care** and **deferred medical treatment** for opportunistic infections and end-of-life care.
- The monetary benefits range from 81% to 287% of program costs over the same period.
- **The economic benefits of treatment will offset and probably exceed program costs within 10 years.**

Source: Resch et al. PLOS (2011)

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FROM THEORY TO PRACTICE OPERATIONAL RESEARCH NEEDS

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FUND, IMPLEMENT and EVALUATE

Test-and-treat as a strategy
to stop AIDS in three or more
PEPFAR countries

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Proposal

Carry out proof-of-concept studies to
determine if the test-and-treat strategy will:

- Significantly reduce HIV transmission rates at both the individual and community levels
- Significantly reduce pandemic costs
- Save lives
- Strength local health care systems
- Provide donors with an exit strategy from having to fund HIV/AIDS indefinitely

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The variables

Acceptability

- Will people agree to be tested?
- Will people take the drugs?
- Can stigma be reduced?

Compliance

- Will people comply?
- Is there good viral load suppression?

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The variables (continued)

Impact

- Does it prevent residual transmission?
- Can we manage drug resistance?
- Will viral rebound be a problem?
- Will it reduce community viral load?
- Will it reduce the incidence of TB?

Cost-effectiveness

- Upfront cost v. cost savings?
- Financial exit strategy?

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The road ahead



Science

- Funding
- Scale-up implementation research

Politics

- National governments
- Global funders
- Global NGOs

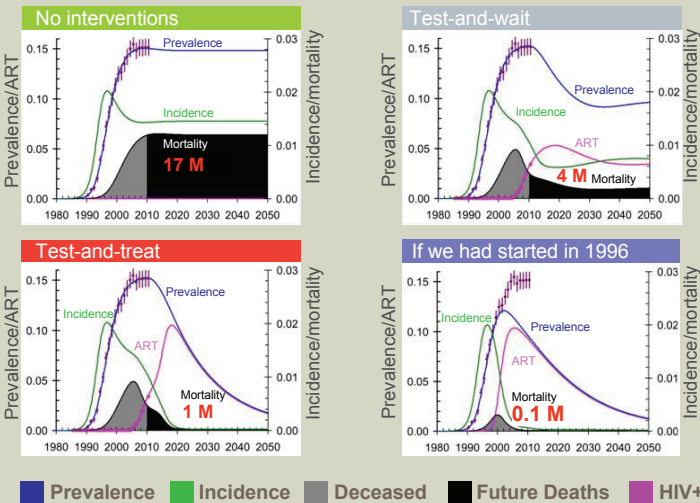
Social marketing

- Promote understanding
- Create demand



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Deaths due to managing HIV/AIDS in South Africa: Actual and potential



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WE HAVE THE
POTENTIAL TOOLS
TO **END HIV/AIDS**.

ALL WE NEED IS
THE **WILL** AND THE
INVESTMENT.



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Notes

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For more information about test-and-treat, please contact:

www.TTEA.info

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Phone: 303.825.0888 x 3 (within the U.S.)

00.1.303.825.0888 x 3 (outside the U.S.)

Email: vic@lundyfoundation.org

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for their support in the fight to end HIV/AIDS.



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