



Evidence That Demands Action

Comparing Risk Avoidance and Risk Reduction Strategies for HIV Prevention



Edward C. Green, PhD
Rand L. Stoneburner, MD and Daniel Low-Beer, PhD
Norman Hearst, MD, MPH and Sanny chen, MHS

Editors: Patricia Thickstun, PhD and Kate Hendricks, MD, MPH



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The Medical Institute for Sexual Health is a nonprofit medical, educational and policy-shaping organization founded in 1992 to confront the global epidemics of nonmarital pregnancy and sexually transmitted diseases, including HIV/AIDS, with incisive healthcare data to dramatically improve the welfare of individuals and society.

The Medical Institute • P.O. Box 162306 • Austin, Texas 78716 • (512) 328-6268
medinstitute@medinstitute.org • www.medinstitute.org

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Executive Summary

Evidence That Demands Action: Comparing Risk Avoidance and Risk Reduction Strategies for HIV Prevention

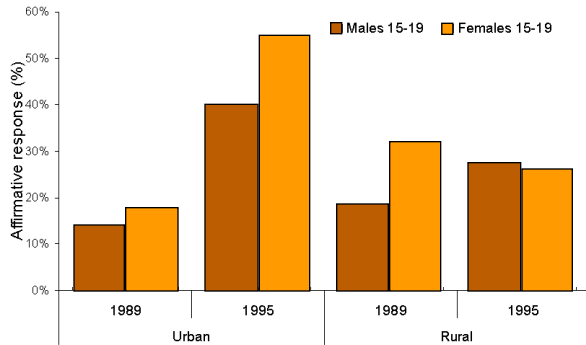
The Medical Institute for Sexual Health hosted a briefing for the Honorable Randall Tobias, Global AIDS Coordinator, Department of State, in Washington, DC on January 8, 2004. In this briefing, entitled “Scientific Evidence for ABC: Addressing the HIV/AIDS Pandemic,” three world-renowned AIDS researchers – Edward C. Green, PhD; Rand Stoneburner, MD, MPH; and Norman Hearst, MD, MPH – presented evidence on the effectiveness of several HIV prevention strategies, including the “**ABC**” model developed in Uganda. **ABC** stands for **A**bstain, **B**e faithful, or use **C**ondoms if **A** and **B** are not practiced. All three presenters compared the **ABC** intervention to those based on condom promotion and distribution. Their findings have been adapted for this scientific monograph published by The Medical Institute – *Evidence That Demands Action: Comparing Risk Avoidance and Risk Reduction Strategies for HIV Prevention*. This monograph provides compelling evidence for the value of HIV prevention strategies based primarily on risk avoidance and secondarily on risk reduction for the areas of the world most severely affected by the HIV pandemic.

Background

Sub-Saharan Africa, with only 10% of the world’s population, accounts for more than 50% of the world’s HIV-infected people. Of the 20 million people who have died from AIDS so far worldwide, more than 14 million were Africans. Of the 14 million AIDS orphans in the world, 12 million are Africans. Early in the African pandemic, Uganda’s epidemic was notably worse than that in most other countries. For instance, through mid-1987, when 41 African countries had reported a little over 4,500 AIDS cases to the World Health Organization – one-half were from either Uganda or Tanzania. By the mid- to late-1980s the picture in Uganda could hardly have appeared more bleak – 2/3 of female prostitutes, 2/3 of barmaids, 1/3 of truck drivers, 1/3 of male blood donors, and 1/6 of female blood donors in Uganda were HIV positive. To date, one million Ugandans have died of AIDS – leaving behind nearly 2 million orphans.

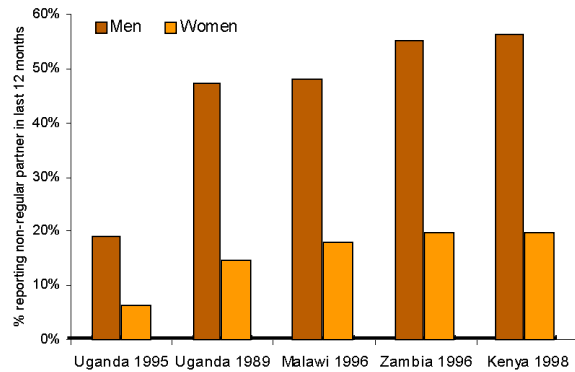
Then something unexpected and totally without precedent occurred. From the early to the late 1990s, HIV seroprevalence rates in Uganda dropped by two-thirds – from nearly 30% in 1990 to less than 10% in 1998 in pregnant women, from nearly 25% in 1990 to 14% in the mid-1990s in military conscripts, and from 22% in 1991 to 6% in 1999 in the general population. This dramatic decline occurred less than a decade after Uganda’s First Couple, President Yoweri and Janet Museveni, implemented and led a low cost **ABC** HIV/AIDS prevention program. This **risk avoidance** intervention encourages youth and adults to refrain from nonmarital sex. Information about HIV/AIDS prevention reaches individuals through community networks, and HIV/AIDS education begins early – starting in primary school. Faith-based organizations play an integral role in the national response by promoting abstinence and faithfulness. Stigma and discrimination are addressed through discussion about the HIV epidemic at and among all levels of government and society.

Figure 1: Abstinence in persons aged 15-19 years, Uganda, 1989 & 1995



Source: Ministries of Health Republic of Uganda, World Health Organization, Global Program on AIDS

Figure 2: Persons reporting casual sex – Uganda, Zambia, Malawi, and Kenya



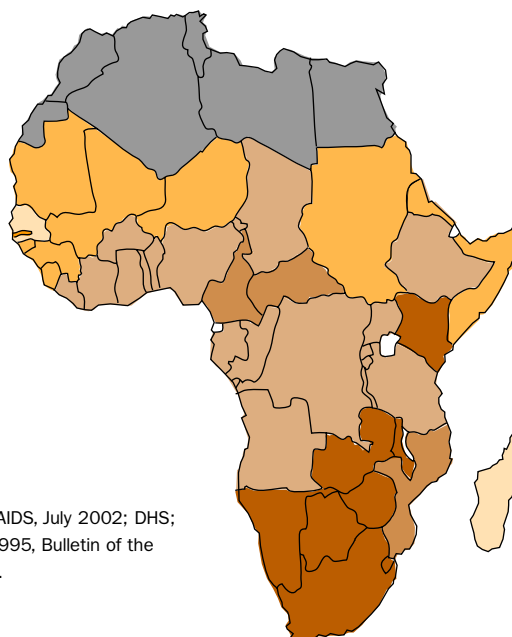
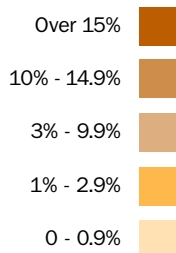
Source: Demographic and Health Surveys, (Macro) Calverton, MD

When encouraged (repeatedly) by their leaders to avoid risk through behavior change, Ugandans did so. The proportion of males aged 15–19 years in Uganda who were abstinent increased from 31% to 52% from 1989 through 1995 (**Figure 1**), and exceeded the proportion of abstinent young males in Malawi (32%), Zambia (43%), and Kenya (44%) for the mid-1990s (**Figure 2**). Although condom use with nonregular partners did increase in Uganda from 1989 to 1995, as of 1995 condom use was similar for both males and females in Uganda and the comparison countries of Malawi, Zambia, and Kenya.

In contrast, **risk reduction** strategies that were originally developed in the United States for HIV epidemics concentrated in homosexual males and injecting drug users focus primarily on condom promotion and distribution and/or needle exchange. Unfortunately, the risk reduction strategy of condom promotion has been adopted as the global standard and exported en bloc to developing countries. This strategy has had no appreciable impact on reducing HIV prevalence in Africa (**Figure 3**), where most HIV transmission occurs through heterosexual sex and where condom availability is limited.

Figure 3: HIV epidemic patterns in Africa.

Adult HIV prevalence 2002



Source: Report on the global HIV/AIDS epidemic. UNAIDS, July 2002; DHS; UN. Hill K, et al. Estimates of maternal mortality for 1995, Bulletin of the World Health Organization 79(3), WHO 2001:182-193.





Evidence that condoms can play a role in reducing but not eliminating the risk of HIV transmission in concentrated HIV epidemics comes from studies on prostitutes and their clients. While condom use in focal groups at high risk for HIV infection appears to be moderately effective, it is important that condom messages targeting generalized at-risk populations support rather than undermine risk avoidance strategies.

Partner reduction, rather than condom use, has had the most significant impact on reducing HIV prevalence in Africa. To date, **there are no clear examples of a country that has turned back a generalized epidemic primarily through condom promotion.** Research demonstrates that the Uganda **ABC** model, with more than 15 years of success, is the most effective, least expensive HIV/AIDS prevention strategy. The annual cost of the **ABC** program in Uganda was less than \$1 per person aged 15 and above. Had the **ABC** program been implemented throughout sub-Saharan Africa by 1996, today 6 million fewer persons would have been infected with HIV and 4 million fewer children would have been orphaned.

Summary of presentations

Dr. Edward C. Green, of the Harvard Center for Population and Development Studies, who serves on the President's Advisory Council for HIV/AIDS, presented "Moving Toward Evidence-Based AIDS Prevention." Dr. Green, whose research has focused on the impact of a broad-based strategy for HIV prevention in Africa, identified the two basic approaches to disease prevention – risk avoidance and risk reduction. Dr. Green describes these interventions: risk avoidance corresponds to the **A** and **B** in the **ABC** model; while risk reduction corresponds to the **C**. Although most HIV prevention methods developed for concentrated HIV epidemics have stressed risk reduction (condoms) to the exclusion of risk avoidance (abstinence and faithfulness), Dr. Green argues that higher rates of condom promotion and availability in Africa have not led to lower HIV prevalence rates. One explanation he presents is that condom promotion efforts may actually "backfire" and result in disinhibition. People who are "disinhibited" may feel safer than they should when using condoms, and therefore engage in riskier behaviors (such as having several sex partners) than they would were they using no "protection" (ie, condoms).

A notable exception to the almost exclusive risk reduction strategy for HIV prevention in Africa is the Ugandan **ABC** program, which has successfully combined risk avoidance with risk reduction interventions. While the standard "off the shelf" HIV prevention approach favors condoms over other interventions, programs developed *in Africa for Africans* emphasize **A** and **B**. According to Dr. Green, risk-avoidance measures developed locally are successful for two reasons: 1) because they are culturally and linguistically appropriate for each country, they are superior to imported programs that were developed elsewhere for focal epidemics, and 2) because they focus on behavior change, Dr. Green concluded that effective HIV prevention strategies for generalized HIV epidemics, such as those in Africa, must include elements of both risk avoidance and risk reduction. Risk avoidance being the dominant effort, it must never be undermined or obscured by risk reduction.

Dr. Rand L. Stoneburner, of the Cambridge University Health Population Evaluation Unit, gave a talk entitled "AIDS and Behavioral Risk in Uganda: Evidence for an Effective Social Vaccine and Challenges to its Replication." Dr. Stoneburner's research has focused on the decline in HIV prevalence in Uganda and how Uganda's success can be replicated in other African countries. He compared data on rates of primary

abstinence, number of sexual partners, and rates of casual sex for residents of Uganda, Kenya, Malawi, South Africa, and Zambia. In addition, Dr. Stoneburner examined patterns of communication and general knowledge regarding HIV and AIDS. When people in Uganda were asked if they personally knew someone with AIDS, approximately 90% responded affirmatively – compared to about 70% of people in the neighboring countries of Malawi, Kenya, and Zambia. In most countries, communication about AIDS occurs through channels such as pamphlets and brochures. In contrast to residents of neighboring countries, Ugandans mentioned personal networks as their primary source of AIDS information. This personalized perception of risk so prevalent in Uganda appears to be associated with the adoption of risk avoidance behaviors.

These data suggest that the approach taken in Uganda – an approach that couples open and frank discussion regarding AIDS at all levels of society with a strong risk avoidance message – is responsible for the widespread modifications in behavior and the dramatic decline in HIV prevalence. Dr. Stoneburner concludes that if Uganda's success is to be replicated, health professionals and policy makers must be willing to implement programs that incorporate a broad-based **ABC** strategy.

Dr. Norman Hearst, the Director of the International Program for AIDS Prevention Studies at the University of California San Francisco, gave a talk entitled “Condom Promotion for AIDS Prevention in the Developing World: Is it Working?” Dr. Hearst's research has focused on condom efficacy (how well condoms work in theory) vs. condom effectiveness (how well condoms typically work in practice, given the reality of inconsistent and incorrect usage) and implications for condom promotion in Africa. While condoms have high theoretical efficacy in preventing HIV transmission, their distribution does not appear to have been effective in African countries with generalized (ie, heterosexual) HIV epidemics. Dr. Hearst attributes this to inconsistent condom use. His evaluation of data from several African countries suggests that simply increasing the availability of condoms has not resulted in the expected decreases in HIV prevalence. In contrast, evaluation of data from Thailand and other countries shows that in high-risk situations, such as commercial sex worker encounters with clients, condom promotion and use may lead to declines in HIV transmission.

In many studies of the general population, HIV infection rates are higher for people who “sometimes” use condoms than for those who “never” use condoms. Thus people who use condoms only some of the time do not appear to be very well protected from infection with HIV. One possible explanation for this apparent contradiction is that, compared to consistent condom users, “sometimes” users in the general population may indulge in more high-risk behaviors (such as drug or alcohol use) or may have more casual partners – perhaps because they believe that “sometimes” using condoms will protect them. Dr. Hearst concluded that while condom promotion can be very effective when targeted to epidemics in specific high-risk groups, it is relatively ineffective for generalized epidemics, such as those in many African countries. He recommended that African countries consider adopting the successful **ABC** strategy, which emphasizes abstinence and fidelity to partners and indicates a minor role for condoms.



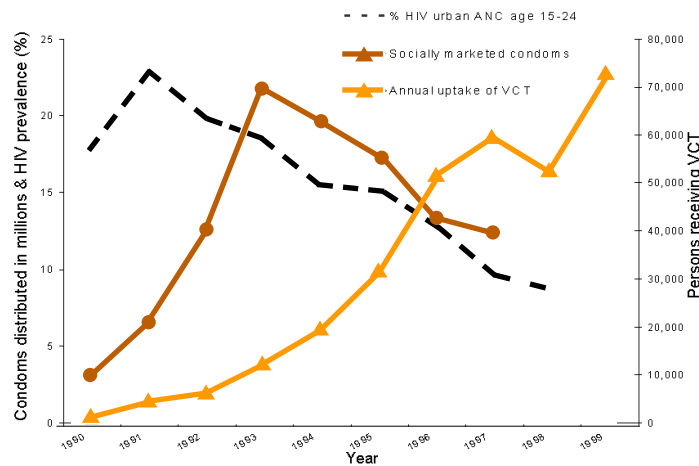


Conclusions

The President's Emergency Program for AIDS Relief (PEPFAR) is a bold and compassionate response to the global HIV pandemic. This initiative, announced in the 2003 State of the Union address (<http://www.whitehouse.gov/news/releases/2003/01/20030129-1.html>), capitalizes on recent advances in antiretroviral (ARV) treatment. Life-prolonging drugs will be provided to millions of HIV-infected people in Africa and the Caribbean. Funding has also been allocated for care and support of HIV-infected individuals and orphans and for voluntary counseling and testing (VCT) – the entry point to treatment.

Although many experts believe that behavior change will not occur unless people know their infection status, the majority of behavior change in Uganda occurred prior to widespread access to VCT and condom use. By 2000 (**Figure 4**), only 10% of Ugandans had been tested for HIV. Although there is no clear evidence that VCT leads to behavior change and HIV prevalence decline, such evidence does exist for the **ABC** approach. Similarly, the success of the Uganda **ABC** program occurred before any condom social marketing strategy was implemented.

Figure 9: HIV prevalence – pregnant women aged 15 – 19, and VCT and condom distribution, Uganda 1990 - 1999



Source: Ministry of Health Republic of Uganda

As compassionate and necessary as treatment is, prevention offers the only chance of halting this deadly epidemic. The evidence for risk avoidance is so compelling that it has been designated as a key element in PEPFAR, which will provide \$15 billion to fight AIDS over the next 5 years. Approaches that focus on behavior change, such as those that encourage abstinence and faithfulness, have a proven track record and will be expanded.

Recently many global and domestic AIDS experts have grown quite negative and defeatist about AIDS prevention, dismissing it as complicated and asserting that behavior is difficult to change. One reason for the experts' defeatist attitude may be that we have not been doing prevention the right way. Generalized epidemics have never in the past been ameliorated by the social marketing of condoms, and they are unlikely to yield to this strategy in the future. Likewise, if the counseling element of VCT is exclusively condom promotion, then VCT is unlikely to have the desired impact on HIV transmission. But if we do AIDS prevention right, if we base our policies on sound evidence of effectiveness and follow the Uganda ABC model, then we have every reason to expect that we can achieve Uganda-like results in the 14 countries targeted by PEPFAR. Effective prevention is needed **now more than ever** – and the proven prevention approach is **ABC**.

All truth passes through three stages.

First, it is ridiculed.

Second, it is violently opposed.

Third, it is accepted as being self-evident.

— Arthur Schopenhauer



Edward C. Green, PhD, is a Senior Research Scientist at the Harvard Center for Population and Development Studies and currently serves on both the Presidential Advisory Council for HIV/AIDS and the Advisory Council, Office of AIDS Research, Dept. of Health and Human Services. Dr. Green earned his PhD in Anthropology from the Catholic University of America. For the past 20 years, he has developed evaluated and implemented HIV/AIDS prevention programs in Africa, Asia, Latin America, and the Caribbean. Dr. Green has also been involved in the social marketing of contraceptives on a global scale (Social Marketing for Change, 1986-1989) and the community distribution of condoms in Nigeria (1985-89, under Pathfinder) and the Dominican Republic (PROFAMILIA, 1986-98).

Selected Testimony

"Fighting AIDS in Uganda: What Went Right?" Hearing before the Subcommittee on African Affairs of the Committee on Foreign Relations, US Senate, May 19, 2003

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Rand L. Stoneburner, MD, MPH, is an independent health consultant currently associated with the Health and Population Unit of Cambridge University, UK. An internationally recognized medical epidemiologist, Dr. Stoneburner has extensive experience in analyses and interpretation of population-based disease surveillance and demographic data and their application to health policy. With over twenty years experience in HIV/AIDS, Dr. Stoneburner has been associated with the US Centers for Disease Control and Prevention, the Department of Health of the City of New York, and the World Health Organization Global Programme on AIDS. After earning an MD from Tulane and an MPH from Harvard, Dr Stoneburner served as the Director of New York City's AIDS Program, where he created the Office of AIDS Research. While at WHO, he was responsible for HIV forecasting, and designed and implemented epidemiological research to improve methods of estimation and projection of AIDS epidemic impacts.

In 1995 Dr. Stoneburner began evaluating the determinants of apparent HIV declines in Uganda and their association with preventive interventions. From 1996 through 2000, Dr. Stoneburner, with support from Family Health International and the United States Agency for International Development, consulted on USAID/WHO projects involving HIV transmission dynamics and evaluation of HIV interventions. In these projects, attention was focused on understanding the determinants of the epidemiological and behavioral processes associated with the HIV prevention success in Uganda and relative prevention shortcomings in East and Southern Africa. Since 2001 Dr. Stoneburner has been based in South Africa, where he directs prevention research into communication and behavior change, and works with NGOs and national HIV prevention campaigns.

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Norman Hearst, MD, MPH, is a Professor of Family and Community Medicine and of Epidemiology and Biostatistics at the University of California, San Francisco (UCSF), School of Medicine. After receiving his MD degree from UCSF, he earned an MPH from the University of California at Berkeley. For the past fifteen years, Dr Hearst has been a faculty member at UCSF and worked extensively in the field of HIV/AIDS epidemiology and prevention. In addition to his faculty position, he has served on National Institutes of Health review panels, as a consultant on AIDS-related issues to organizations such as Joint United Nations Programme on HIV/AIDS, the World Health Organization, the United States Agency for International Development, and foreign governments. Actively involved in AIDS research for almost two decades, Dr. Hearst has published more than 60 peer-reviewed articles and made numerous presentations on HIV-related topics. Dr. Hearst has been involved in domestic and international projects promoting condoms as an AIDS control strategy in locations ranging from San Francisco to Uganda, Brazil, and the Philippines.

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