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Uganda's ABC Model Success with HIV Control Not Broadly Replicated In Southern Africa: A Case For An Equitable Distribution of HIV Resources.

Introduction

Africa is the world region that has been most affected by the Human Immunodeficiency Virus (HIV) – the virus that causes AIDS (Acquired Immune Deficiency Syndrome). Inhabited by just over 12% of the world's population, Africa is estimated to have more than 25.8 million (60%) of the AIDS infected population in the world.[1] 13.7 million of HIV positive people live in the South African sub-region., and over 2.8 million AIDS deaths occur there annually. In addition, around 6000 people are infected with HIV every day, and young people, under the age of 25 comprise 50% of all new infections worldwide.[2] As Rosenberg put it in the New York Times, "AIDS in Africa is doing more than killing millions every year; it is destroying what there is of Africa's economy. Throughout the continent, the disease has ravaged the young, urban and mobile. It has robbed schools of their teachers and hospitals of their doctors and nurses. AIDS takes the breadwinner, leaving millions of destitute elderly, and orphans, who will grow up without going to school and many end up living on the streets".[3] As Africa loses its productive citizenry, the nations themselves face economic collapse. Businesses are depleted by the need to cope with sick and dying employees. According to studies, the annual cost of AIDS per employee in several African countries (in the early to mid nineties) varied from US$17 to US$300.[4] Economists estimate that in the year 2010, the country of South Africa will be almost one-fifth poorer than it would have been had AIDS never existed.[5]

Meanwhile, with support from international donors, public health policy in many African countries has apportioned a great deal of resources to primarily biomedical-based interventions (i.e., Voluntary Counseling and Testing, condoms and treatment of Sexually transmitted infections),[6] yet without apparent impact on national HIV prevalence rates.[7]

Against this background, Uganda experienced a general decline in HIV seroprevalence from about 21.1% in 1987 to 6.1% in 2005,[8] among antenatal mothers at all urban sites throughout the country. Ironically, the strategy credited for bringing the HIV/AIDS epidemic under control in Uganda is the behavior change model - ABC.[9] ABC stands for "Abstinence, Be Faithful, or use Condoms," in that order of emphasis.[10] Although there is a complex set of factors, which could have affected the course of the epidemic in Uganda, and although it is difficult to account for all confounding variables in the HIV studies that support this claim,[11] there is agreement that the HIV prevalence rates in Uganda dramatically fell between the late eighties and the year 2002.[12] Other than the condom social marketing that started later in the mid nineties, no known biomedical interventions were available in Uganda during that time.[13] It is therefore safe to say that what led to this unique drop in HIV prevalence rates in Uganda was change in behavior. Many of the elements that account for Uganda's success with HIV appear to be absent or less significant in other African countries that have not yet experienced any significant seroprevalence declines, such as; Swaziland, Lesotho, South Africa, Botswana, and Malawi.[14] [15]

Impact of Uganda's ABC model on HIV control

Uganda has received significant international attention due to its HIV prevention success. The U.S. Census Bureau estimates that Uganda's national HIV prevalence for

all adults peaked at around 15% in the early 1990s and fell to about 4% by 2003.[16] Changes in sexual behavior included delayed sexual debut among adolescents, reductions in partner numbers, increased marital fidelity and increased condom use among casual partners. The most significant of these appears to be faithfulness or partner reduction behaviors by Ugandan men and women, whose reported casual sex encounters declined by well over 50% between 1989 and 1995.[17] This degree of national prevalence decline is unique worldwide and has been the subject of curiosity and controversy since the late-1990s and more recently has come under even more intense scientific scrutiny.[18 19 20 21] Rural areas had the same trend, with a decline from 14% to 5%. Furthermore, the prevalence of HIV among patients attending sexually transmitted infections (STI) clinics decreased from 45% in 1990 to about 19% in 2002.[22] Incidence rates in a general population cohort study in rural Masaka also showed a decline from 7.6 to 3.2 per 1000 persons per year of observation; and there has been a reported decline of over 60% of casual sex among 15–49 years.[23] In addition, the median age of sexual debut increased from 14 years to 17 years.[24] These figures provide ground to believe that significant behavior change occurred in Uganda.

Unpacking the ABC Model

Although each of the ABC components has a cultural-social comparative advantage with regard to the groups it targets, none of these strategies is sufficient on its own. Each has contributed to the larger success that is reflected in the form of demonstrable declines in HIV incidence and prevalence.

Abstinence (A)

The term abstinence can refer either to a situation in which a young person who has never had sex delays starting sexual activity (primary abstinence), or to a person who decides to

stop sexual activity after initiation (secondary abstinence).[25] While reliable data are unavailable to determine the impact of secondary abstinence on HIV transmission, there has been a strong focus on promoting primary abstinence for young people in Uganda. Examples include innovative means such as, a monthly sexual reproductive health newspaper (with print runs averaging 435,000 copies per month)[26] and youth interactive radio programs like those on 104.1 Power FM[27]- a local radio station in Kampala. Studies suggest that because of such initiatives, the average age of first sexual encounter in Uganda has risen from 14 to 17 years.[28] From the study on 'Evaluation of A Comprehensive School-Based AIDS Education Programme in Rural Masaka', Whitworth et al, "suggest that the protective value of primary abstinence in relation to HIV can last up until the age of 19".[29]

Studies on sexual partnership among unmarried youth by Stoneburner et al show the need for emphasizing Abstinence. This study demonstrated that in the age group of 13-19, the younger the age of first sexual encounter, the higher were the chances of contracting HIV. However, among 20–24 year olds, younger age at first sexual encounter was only associated with multiple casual sex partners and increased condom use, but not with HIV infection itself.[30] Therefore, for those aged 13 -19 years, early age of sexual debut is clearly a risk factor for HIV infection; and, by contrast, primary abstinence ("A") is useful and deserves emphasis.

Being faithful (B)

In its purest sense, the B of ABC entails practicing sex with just one partner, in a long term or lifelong relationship such as marriage and only after determining that none of partners in a polygamous relationship is HIV infected. In relation to the latter, the concept of ''zero grazing'' was developed - this is an agricultural term that is

immediately understood by anyone in this largely agrarian society. The term refers to feeding one's livestock exclusively within the paddock. The humorous double meaning that applies to HIV prevention maintains that one keeps to an exclusive and monogamous relationship, or ''within the paddock''.[31] There is strong evidence that a large portion of the Ugandan population has taken up the practice of zero grazing, a phenomenon that has been described as being ''equivalent to an 80% effective vaccine'' for HIV.[32]

Furthermore, the average fertility rate in Uganda is currently estimated at 6.9 children per woman, scarcely down from the seven children per woman that was reported in the late 1980s.[33] This is evidence that women today are engaging in a similar number of unprotected sexual contacts as they did 15 years ago or so. Despite this, however, HIV prevalence and incidence have demonstrably fallen over the same period, and especially so among young women.[34] According to Green, "the explanation lies in the suggestion that although these women are having roughly the same absolute number of sexual contacts as their older sisters and mothers used to, they may be having fewer sex partners - in other words, they are 'being faithful'".[35] This interpretation is supported by data from two cross sectional demographic and health surveys(DHS), conducted in 1989 and 1995, which showed a reduction of 60% in respondents who reported having had sex with a ''non-regular partner'' during the previous 12 months.[36] The trend continued, at least among unmarried women, until another survey, conducted in 2000.[37] Therefore, as *zero grazing* ('B') is a tried and tested strategy, which we ought to emphasize firmly if we are to have a comprehensive HIV prevention programme."[38]

Condoms(C)

When used consistently and correctly, the male condom is effective for the reduction of sexual transmission of HIV and of other sexually transmitted infections

(STIs).[39] [40] In Uganda, since the 1991 condom policy and strategy was enacted, regular condom use with noncohabiting partners rose from 5% in 1987 to over 60% in 2002,[41] and the procurement of condoms rose from 10 million in 1994 to 120 million in 2003.[42]

Average number of condoms per male 15-49 in African countries for which data are available
Source: DHS Studies

Country	Average annual condoms 1989–2000	Males 15–59 1995 (in thousands)	Average annual condoms per male 15-59	HIV Prevalence (%)
Benin	4,065,408	1,263	3	2
Botswana	2,436,232	356	7	36
Cameroon	10,378,900	3,280	3	8
Ghana	9,901,068	4,424	2	4
Kenya	42,391,034	6,666	6	14
Senegal	5,513,517	2,091	3	1
South Africa	76,284,892	11,645	7	20
Tanzania	27,217,215	7,603	4	16
Uganda	16,702,846	4,740	4	6
Zambia	12,131,695	2,280	5	20
Zimbabwe	29,149,405	2,826	10	25

Demographics and health surveys (DHS) carried out in different countries in Africa (See table above) show a correlation between condom distribution and increased HIV prevalence. However, there may not be any causal connection. This is probably due to inconsistent use, disinhibition, and a false sense of security, which long-term sexual partners tend to develop in each other over time.[43]However, the initial condom promotion messages in 1986 was low during this period, because of limited publicity, low availability of condoms, and the taboo – that; many people in Uganda believed that condoms encouraged promiscuity.[44] There was also considerable public resistance from some religious organizations, media groups, and political lobbies, who maintained that their moral values stood against the condom for personal, cultural, and ideological

reasons.[45] Furthermore, it was felt by some that message clarity was compromised if people were asked to ‘‘Love Faithfully’’ while at the same time they were being encouraged to use condoms.[46] It is therefore clear that national HIV prevalence began to fall in the late 1980s and early 1990s,[47]several years before condoms were available in large numbers; and this means that much of the credit for turning the tide goes to the ‘‘home grown’’, community derived solutions to the problem: A and B.[48]

Nonetheless, condoms are very effective among risky groups like commercial sex workers and couples with differing sero-status.[49] Therefore, regardless of the occasionally acrimonious arguments about the relative importance of condoms in Uganda, they ought to continue to constitute a synergistic component of the national HIV prevention strategy within the context of ARTs.[50]

Anti-retroviral therapies (ARTs)

There has been an enormous global push to increase access to ARTs for HIV patients from middle and low resource countries. The “3 by 5” strategy[51] was such an initiative by World Health Organization, WHO and UNAIDS to provide three million People living with HIV/AIDS (PLWHA) with ARTs by the year 2005. Although the project did not achieve its goal fully, the move has helped to increase supply of ARTs in Africa.[52] According to the UN-general secretary’s progress report on universal access of ARTs, “as of December 2006, an estimated 2.0 million people were receiving antiretroviral therapy in low and middle-income countries.” Although this represents only 28 per cent of the estimated 7.1 million people in need, the report continued, “It reflects an increase of 700,000 from the number of people estimated to be on antiretroviral therapy in December 2005. Nevertheless, the number of people dying from AIDS increased from 2.2 million in 2001 to 2.9 million in 2006. The increase in deaths is

largely the result of an increase in the number of people with advanced HIV infection in need of antiretroviral therapy, whose numbers are rising faster than the scale-up of retroviral therapy."[53]

The proposal to role out the distribution of free Highly Active antiretroviral treatments (HAARTs) to low resource countries comes at a time when Africa really needs it. However, ARTs have major accompanying challenges, as Acheng et al put it, "ARTs have many risks and challenges, which complicate their adoption by the wider African community." They add, "Risks and challenges fall in several categories. First, the case management of ART is complicated. The administration of ARV medications is complex, with potential for serious side effects, and requires a high level of patient-compliance to a life-long treatment. Secondly, it is relatively easy and common for the HIV virus to become resistant to ARV drugs if one does not assiduously follow up treatment. Thirdly, it is quite complicated to monitor the drugs and the whole treatment process, as this requires a series of laboratory and clinical tests. In addition, the complete set of ART services also requires extensive counseling before acceptance of treatment, during assessment of eligibility and at various points in the chronology of care. The lack of adequate medical infrastructure and human resources shortage could compromise the provision of ART in a safe and effective manner." What is more, there is a risk of those not infected feeling freer to engage in behavior that risks the transmission of HIV since they feel less threatened by it.[54] Finally, additional challenges in making access to ARVs a public health priority include logistical and regulatory issues related to procurement and importation of ARVs. Furthermore, there is potential for the development of parallel black market, the lack of a sufficient accreditation and quality assurance system, and the need to divert resources away from other life threatening and development programs.[55]

These complications mean that ARTs can work best for patients who have the means to access, pay for, and maintain the genuine treatment regimens, as well as a lifetime access to healthcare providers[56] for counseling and continual observation and care. Expecting that all HIV positive people or their countries will afford these multifarious regimens may prove to be egregious.

However, antiretroviral treatment (ART) programmes can achieve substantial reductions in levels of AIDS mortality and morbidity in the short to medium term. They should therefore continue to play a major role in the treatment of infected people despite the challenges they raise.

Lessons learned from other countries

Senegal

Like Uganda, Senegal was one of the first countries in Africa to acknowledge AIDS and to begin implementing significant AIDS prevention and control programs. According to UNAIDS, Senegal currently has one of the lowest HIV seroprevalence rates in sub-Saharan Africa. Data compiled by UNAIDS from antenatal clinics show that HIV infection rates were 1.1% in 1990, and only 0.4% by 1997. In Dakar, the major urban area in Senegal, HIV-1 prevalence among antenatal clinic women has been 1% or less for all years up to 1998. Prevalence rates range from zero to 0.8% outside Dakar.[57]

As in Uganda, we find evidence of primary behavioral change in Senegal, that is, partner reduction and rise in age of sexual debut.[58] For example, researchers compared two cross-sectional surveys using standardized questionnaires conducted in 1990-1992 and again in 1994. Even by 1994, "The proportion of men who declared casual sex partners in the past 12 months decreased from 39% to 21% (P = 0.01). Condom use

("ever used") was 3.6% in 1993, almost the same low level as Uganda at that time. In a 1997 UNAIDS survey of women in Dakar, where condom use might be expected to be the highest, 23% of women age 16-50 reported ever using a condom.[59] This was evidence that the drop in infection rates in 1997 was due to change in behaviors.

One may argue that sexual behavior in Senegal is conservative by general sub-Saharan African standards, therefore perhaps it is pre-existing norms and values rather than the impact of any interventions that have kept infection rates low. Furthermore, widespread male circumcision among Senegalese men certainly helps reduce heterosexual transmission of HIV. It may even be that the presence of HIV-2 limits the spread of HIV-1. However, these considerations fail to explain why HIV-1 infection rates have risen in countries neighboring Senegal, countries comparable with regard to the factors just mentioned, including religious profiles.[60] [61] They do not explain why Senegal is unique in West Africa.[62]

Both Senegal and Uganda stand out in Africa as countries where governments supported AIDS prevention efforts boldly and strongly, at a relatively early stage. This support has made a major difference and has allowed prevention programs to have maximum impact. Some authors say that behavioral change in Uganda followed by seroprevalence decline was caused by fear, or by simply seeing so much death.[63] This argument cannot, however be made in the case of Senegal, since HIV infection rates never exceeded about 1%, one of the lowest in sub-Saharan Africa

Jamaica

Many risk factors would predict relatively high HIV infection rates in Jamaica. Studies show; an early age of sexual debut (median age of 14 for boys and girls),[64] multiple sexual partners[65] and a robust sex industry linked with tourism. There is a

general lack of male circumcision, chancroid, age disparity between partners (a pattern of older men having transactional or coerced sex with younger girls) and relatively high levels of alcohol and drug use.[66] Furthermore, there are other HIV related factors such as poverty, labor emigration and male absenteeism, violence, homophobia, and major stigma associated with AIDS. Yet Jamaica has low HIV infection levels by regional standards: 1.6% or lower among the general population in 2000, down from 2% in 1996.[67]

This may be a result of programs of the STD-case-findings and syndromic management (resulting in declining infection rates of virtually all STDs); and behavioral change programs that have led to a substantial reduction in number of sexual partners, a slight rise in the median age of sexual debut, and—unlike Uganda - high rates of condom use.[68] There has also been emphasis on promotion of "fidelity" and "abstinence," as well as condoms and treatment of STDs. This has come from the national HIV/AIDS Control program, through its BCC (behavior change communications) program. Notable among the vehicles for BCC have been schools and FBOs (Faith Based Organizations). As in Uganda, Jamaica's BCC program has emphasized face-to-face approaches and the use of peer educators.[69]

Southern Africa

Southern Africa remains the epicentre of the global HIV epidemic. In several southern Africa countries - including South Africa, the epidemics do not yet show signs of abating.[70] Provision of antiretroviral therapy has expanded dramatically in the sub-Saharan Africa: more than one million people were receiving antiretroviral therapies by June 2006, a tenfold increase since December 2003.[71] A great deal of resources have gone into primarily biomedical-based interventions (i.e., VCT, STI treatment, condoms) in

South Africa, Botswana and other southern African countries, yet without apparent impact on national HIV infection rates. Treatment scale-up efforts have been especially strong of late in some countries, including Botswana, Kenya, Malawi, Namibia, Rwanda, South Africa, Uganda and Zambia. However, the sheer scale of need in this region means that a little less than one quarter (23%) of the estimated 4.6 million people in need of antiretroviral therapy in this region are receiving it.[72]

Meanwhile, the aggregate government expenditure on HIV in six southern African countries surveyed was nearly US $70 million annually - ranging from a high of US $33 million in South Africa to a low of US $0.8 million in Lesotho. When measured as a percentage of GDP, expenditure on HIV/AIDS was highest in Botswana.[73] Government spending per HIV-positive person in these six countries was more than three times higher than the average in the sub-Saharan region as a whole.[74] According to the Global Aids UNAIDS report (2006), In South Africa, some 5.5 million people, including two hundred forty thousand (240,000) children younger than 15 years, were living with HIV in 2005. The outbreak of extensively drug resistant tuberculosis in KwaZulu-Natal detected in early September has highlighted the lethal combination of HIV and TB in South Africa, where an estimated 60% of TB patients overall are also infected with HIV. Swaziland now has the highest adult HIV prevalence in the world: 33.4%. National adult HIV infection levels are high also in Botswana, Lesotho and Namibia (between 20-24%).[75] All this while the biggest part of the HIV control budget in this region goes to risk reduction strategies, i.e., ARTs and condoms.[76] [77]

Discussion

By concentrating the bulk[78] of national and global HIV control efforts to promoting expensive biomedical interventions that are out of reach for the majority of

African AIDS patients and their governments, many HIV positive people may be "disenfranchised". Those "disenfranchised"include people in poor countries, who lack economic power or the relevant means to participate fully in the current trend where many governments treat health care as a commodity distributed according to ability to pay, rather than as a social service to be distributed according to medical need.[79] Many Africans' social economic situations place them far from the norm to be viewed as being capable of participating in their health care choices like their wealthier counterparts in resource rich countries.[80] Characteristics that result in such a deprivation tend to aggravate the problem of health disparities (injustice) based on peoples' social economic classifications; and ultimately tilt the effects of our interventions towards being more burdensome, rather than beneficial to the society. Moreover, in the current global market-driven economic era, condom and drug companies lobby international donors and African governments to put more focus on risk reduction interventions, not so much for the benefit of suffering populations, but for the profit there is, for them, in implementing such policies.[81] Meanwhile, the hitherto sharp focus on the prevention needs of the uninfected population, as well as those who do not know that they are infected, is being lost.[82] What is more, the dramatic decrease in mortality and morbidity seen in resource-rich countries due to the introduction of antiretroviral therapies has not been experienced in developing countries.[83]

Is Uganda's Behavior Change model replicable in other countries?

The relationships between the large variety of HIV/AIDS interventions in Uganda, Senegal and Jamaica and the decline in incidence and prevalence of HIV/AIDS are complex and not yet completely understood. Changes in age of sexual debut, casual and commercial sex trends, partner reduction, and condom use all appear to have played

key roles in the decline. Although risk perception, and risk avoidance options can ultimately lead to reduced HIV incidence[84], there is a complex set of epidemiological, socio-cultural, political, and other elements, which could have affected the course of the epidemic in Uganda. What we know though is that, a high-level of political support fostered a multi-sectoral response, prioritizing HIV/AIDS and enlisting a wide variety of national participants in the "war" against HIV/AIDS.[85] In addition, behavior Change Communication (BCC) interventions reached not only the general population, but also key target groups (each country would have to identify the specific populations). In Uganda, such groups included, female sex workers and their clients, soldiers, fishermen, long-distance drivers, traders, bar girls, police, and students, without creating a highly stigmatizing climate. Furthermore, early and significant mobilization of Ugandan religious leaders and religious organizations resulted in their active participation in AIDS education and prevention activities.[86] Many of these elements - although reproducible, appear to be absent or less significant in other African countries that have not yet seen significant seroprevalence declines.

Equity in Resource allocation

The most important determinant of the reduction in HIV incidence in Uganda appears to be multi-sectoral networks between governments, faith based organizations, NGOs and the communities. These programs led to a decrease in multiple sexual partnerships in among all age groups.[87] It would therefore seem more beneficial that African governments put greater equity to resource allocation. Funding for programs promoting primary behavioral change such as delay of sexual debut and reduction of number of sex partners - and programs that promote and provide condoms and antiretroviral therapies ought to be comparable. There should also be more involvement

on the part of faith-based organizations,[88] and more AIDS prevention resources allocated to them - not because this is part of any political agenda, but because it works. FBOs operate among the people on the grass roots and they command a lot of respect among them in many African communities.[89] The 2007, World Health Organization(WHO) report on the role of religion, estimates that between 30% and 70% of the health infrastructure in Africa is currently owned by faith-based organizations. Experience in Uganda and in other countries that have achieved some demonstrable success suggests that a comprehensive behavior-change-based strategy, ideally involving high-level political commitment and a diverse spectrum of community-based participation, may be the most effective prevention approach. A recent report of seroprevalence and behavioral survey data among youth in Zambia[90] indicates that a Uganda-like success story may be in the making there too. This is evidence that what happened in Uganda can actually be reproduced in other African countries.

Conclusion

Since saving lives is the paramount goal of all HIV programmes, a successful HIV prevention program would utilize all approaches known to be effective, not implementing one or a few select actions in isolation. According to the joint United Nations program on AIDS (UNAIDS), these include, "promoting sexual abstinence, fidelity among married couples and consistent use of condoms. They also include, ensuring that injection drug users have access to clean needles and syringes as well as programmes supporting them to stop drug use. In addition, HIV-positive pregnant women ought to receive treatment to prevent HIV transmission to their unborn children".[91] Furthermore, interventions targeting care and treatment of the infected and affected as

well as the fight against stigma and defensive behavior ought to be continued in a multi-sectoral approach. The recent UN-secretary general's report (May 2007) reads, "In 2002, AIDS was the fourth leading cause of death globally. If the scaling up of AIDS treatment programmes consists solely of scaling up antiretroviral therapy without scaling up prevention, it is estimated that by 2030, AIDS will become the third leading cause of death. However, when combined with effective prevention programmes, it is estimated that the AIDS-related disease burden and mortality will be substantially reduced"[92]

Therefore, in order to achieve an even greater good, we should frame the goal to avoid HIV infection by choosing one or more of the risk avoidance options. The data cited would suggest that pervasive, fundamental changes in sexual behavior can take place, perhaps contrary to skeptism about the feasibility of such a change. The aim of African HIV control policy should be informed choice. Africans can understand complex messages and we should treat them as intelligent "Moral Agent", who we can hold responsible - credit or blame - for decisions or behavior. In all this, we need to remember that partner reduction (or behavior change) is good epidemiology, not good ideology.[93]

For more information

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