

Success in Uganda:

An Overview of Uganda's
Campaign to Change Sexual
Behaviors and Decrease HIV
Prevalence, 1986-1995



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Introduction

Uganda is widely considered to be one of the world's earliest and greatest success stories in subduing a generalized HIV epidemic.¹⁻³ The first AIDS cases were identified in Uganda in 1982 among the fishermen and traders in the Rakai district on the shores of Lake Victoria.⁴ The number of HIV infections increased rapidly throughout the country and by 1988, Uganda had the highest rate of HIV infection in Africa. By 1992, HIV prevalence in major urban areas was as high as 30% among women receiving antenatal care (ANC) at sentinel surveillance sites (hereafter referred to as antenatal women).¹ Beginning in 1993 and depending upon the sentinel site, there was a rather consistent decline in HIV prevalence among these antenatal women, and by 2001, prevalence had declined by more than half in both urban and rural areas. According to the Uganda AIDS Commission, estimates of national prevalence in Uganda fell from 18% in 1992 to 6% in 2002.⁵ No other country has had such high rates of HIV infection followed by such large declines.

Given this success, it is important to understand 1) the behavioral changes and other factors that led to the decline in HIV prevalence and 2) the policies, interventions and other factors that led to the behavior changes.

This report is one of a family of reports based on a study of the success in Uganda. All are available at <http://www.etr.org/uganda>. The other reports include:

- 1) a three-page summary of the campaign to reduce HIV transmission in Uganda and its success,⁶
- 2) this more in-depth summary of the major findings that have policy implications for other countries with generalized epidemics,
- 3) an analysis of the evidence for behavior change,⁷
- 4) an analysis of Uganda's HIV prevention efforts and other factors that affected perceptions of HIV risk and helped to change sexual behavior,⁸ and
- 5) a detailed historical summary of events in Uganda that undoubtedly affected the epidemic.⁹

This summary is based on multiple kinds of evidence, including:

- HIV prevalence data in Kampala and other sentinel sites in Uganda
- Large behavior surveys conducted in 1988/9 and 1995
- Smaller, less representative surveys collected from other years
- Newspaper articles in major national papers
- Interviews with key informants in Uganda

- Focus group interviews with community members
- Reports written by other researchers and scholars
- Reports of shipments of condoms to Uganda

Each of these sources of evidence has limitations, but in combination they paint a rather consistent and compelling picture of what happened in Uganda to reduce HIV prevalence.

The story of events in Uganda is a complex one. Simply understanding the changes over time in HIV prevalence is a complex undertaking, let alone the behaviors that affected prevalence and the factors that affected those behaviors.

Some people may study these events and attribute the decline in prevalence to a single or very small number of factors. They probably oversimplify reality. Others may view some of the complexity of what happened in Uganda and conclude that nothing of importance to policy can be learned. That is also a mistake, for there is much to be learned from the success of Uganda that can be applied to AIDS prevention policies in other countries. It is likely that at least some of the policies and approaches implemented in Uganda can be implemented in other generalized AIDS epidemics and can help reduce HIV prevalence elsewhere.

This summary describes 1) the prevalence data for Kampala and Uganda more generally, 2) non-behavioral factors that affected prevalence, 3) changes in behavior that affected prevalence, 4) the factors that affected those changes in behavior and finally 5) implications for other countries.

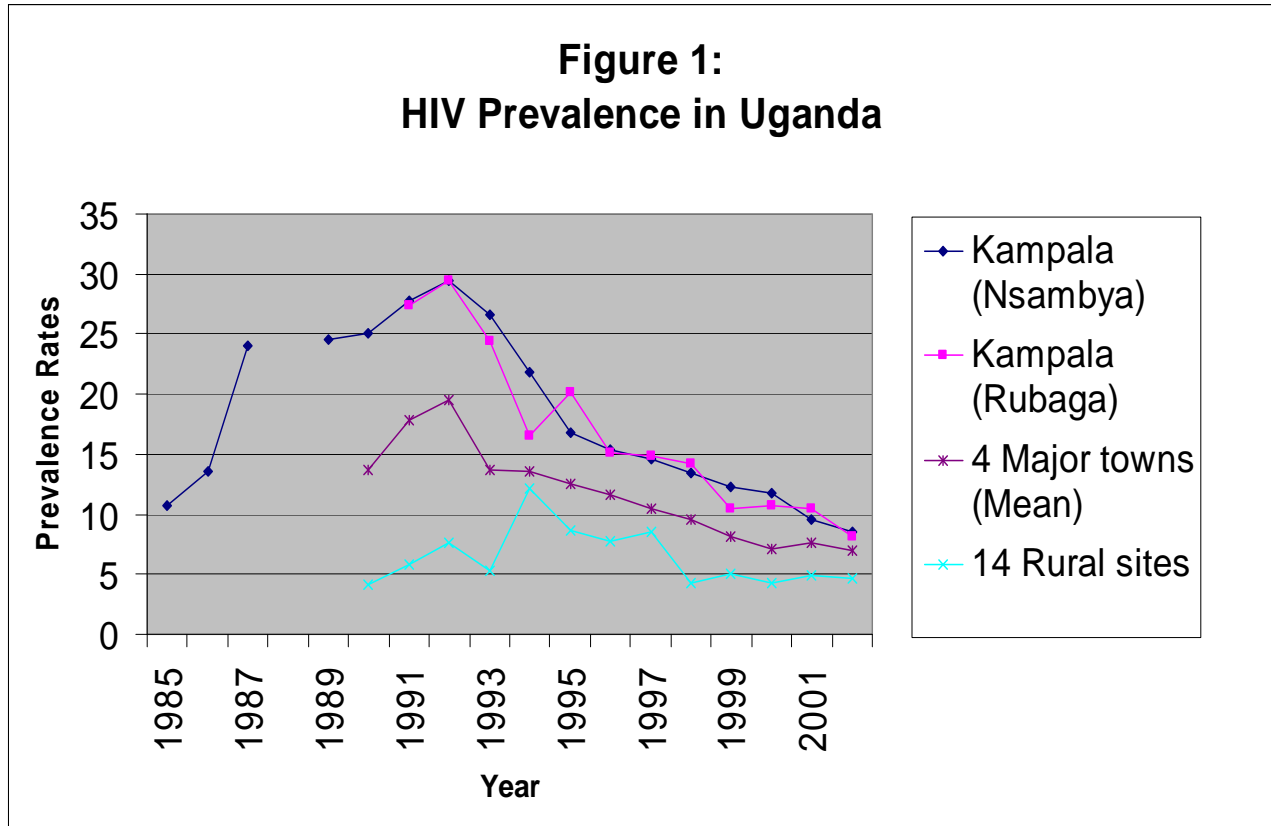
HIV Prevalence and Incidence in Uganda

Figure 1 provides the mean prevalence rates for two sentinel sites in Kampala (the capital of Uganda), four sites in major towns and 14 sites in rural areas.^{2, 10} All of these sentinel sites are clinics or hospitals that have used blood tests to determine the HIV prevalence of women obtaining antenatal care. They are located in the western, southern, and eastern parts of Uganda, but not the northern parts of Uganda. These rates are limited by several factors: they are based on women receiving antenatal care, not the general population; they are sometimes based on small sample sizes; data are missing for some years, especially among the rural sites, and are sometimes interpolated from adjacent years; and in rural sites, missing data for some years cause the median rate for each year to

Prevalence and Incidence

In epidemiology, the “prevalence” of a disease in a specified population at a particular point in time is the proportion of the population with that disease (that is, the total number of cases of the disease in the population at a given time divided by the number of individuals in the population). The “incidence” of a disease is the number of new cases within a specified time period (typically a year, when referring to HIV) divided by the number of individuals in the population. Because people in Uganda lived roughly 10 years (on average) after contracting HIV, *prevalence was greater than incidence and continued to increase even after incidence declined.*

be based on quite different sites. Despite the limitations, these data can provide an estimate of how prevalence changed over time in different parts of Uganda.



The data for Kampala indicate that prevalence increased very rapidly through 1987, continued to increase at a slower rate until it peaked in 1992, began to decrease rapidly in 1993 for several years, and finally continued to decline through 2002. In the four major towns, prevalence also increased on average through 1992 and then, as in Kampala, began a rapid decline in 1993 and continued to decline through 2000.

In the rural areas, the pattern is less clear, in part because the trend line is based on different sites and in part because prevalence began to decline in different sites at different times. However, in many rural sentinel sites, prevalence began to decline between 1992 and 1997. In Rakai, prevalence may have risen and declined earlier because of events beyond the scope of this summary.

Given these trend data for prevalence, it is desirable to estimate when incidence began to change. Given the limitations of the prevalence data and imprecisely known coefficients that need to be built into computer models of incidence and prevalence, alternative models of incidence fit the prevalence data reasonably well. Nearly all plausible models that are consistent with the prevalence data and that were conducted either for this project or by

others indicate that incidence in Kampala and the major towns peaked sometime between 1986 and 1989 and then began a continuous decline for several years.

However, the models of incidence that were conducted for this project and that fit the prevalence data especially well indicate that incidence in Kampala increased rapidly through 1987, declined somewhat each year between 1988 and 1992, declined more rapidly in 1993, and finally remained relatively low until 2002. These models of incidence and prevalence are also roughly consistent with prevalence data for 15- to 19-year-old antenatal women that more quickly reveal trends in changes in incidence than do prevalence data for older antenatal women and that show a decline in HIV rates beginning about 1992 or shortly thereafter. Finally, they are also consistent with declines in HIV prevalence measured by blood tests among those seeking voluntary HIV tests at AIDS Information Centers in Kampala.² Thus, the models for these declines are quite robust and the evidence is quite strong for declines during the period noted.

The models of incidence that *best fit* the prevalence data indicate that incidence in Kampala increased rapidly through 1987, declined somewhat each year between 1988 and 1992, declined more rapidly in 1993, and finally either remained relatively low or continued to decrease slowly until 2002.

Because prevalence data for the four major towns are not available prior to 1990, it is much less clear when incidence peaked. However, some plausible models conducted for this project indicate that in the four major towns, incidence remained high through 1991, began to decline a little in 1992 and then declined dramatically in 1993 and remained low. Other plausible models suggest that incidence could easily have peaked in earlier years (e.g., as early as 1989) and still reproduce the prevalence curve quite well, provided incidence remained quite high through 1992 and then declined markedly.

Unfortunately, the prevalence data for most rural sentinel sites are not sufficiently complete, especially in the earlier years, to attempt to model changes in incidence. Thus, it is difficult to determine when incidence began to decline in most rural sites.

Regardless of which models are used to estimate trends in incidence in the urban areas, it should be emphasized that incidence did not peak and then decline at the same time among all groups of people in any given district, nor among all districts at the same time. For example, incidence may have peaked and then declined first in those districts (e.g., Rakai) and in those urban areas (e.g., Jinja and Kampala) where AIDS first spread rapidly and where significant percentages of the population visibly contracted AIDS and died.

The Impact of Saturation and Differential Mortality on Prevalence Rates

In some epidemics, after incidence and prevalence rates increase rapidly, incidence may decline rapidly (and prevalence may later decline) because diseases typically first spread most rapidly among those people at greatest risk; after most of those people become infected, the number of new infections stabilizes or declines. Furthermore, as significant proportions of the people at highest risk begin to die, they constitute a smaller percentage of the overall population, thereby decreasing overall incidence rates among the overall population. All of this may occur even if people do not change their behavior. This pattern has been observed for HIV.¹¹

In Uganda, it was primarily sexual behavior that led to the rapid increases in HIV prevalence – and it was primarily reductions in sex and unprotected sex that then led to decreases in prevalence.

In Uganda, these dynamics undoubtedly reduced HIV prevalence rates over time in some areas, especially in those areas where prevalence became quite high *before* AIDS prevention efforts and substantial behavior change occurred. For example, in Kampala they may have made a substantial contribution to the stabilization and decline in incidence after 1987 and to the stabilization and decline in prevalence in the late 1980s and early 1990s.

Changes in Non-Sexual Behaviors and Practices that Affected Prevalence

Despite the potential importance of these dynamics leading toward equilibrium, in Uganda it was primarily sexual behavior that led to the rapid increases in HIV prevalence — and it was primarily reductions in sex and unprotected sex that then led to decreases in prevalence.¹² However, before discussing sexual behavior, other less important causes of infection should be briefly mentioned.

Until 1986, most blood for transfusions was not tested for HIV. Thus, contaminated blood made a small contribution to the increase in HIV prevalence. During 1987 and the early part of 1988, Uganda received both guidelines for screening blood and large numbers of blood testing kits, and then began screening blood, thereby providing safe blood at major hospitals. The safety of the blood supply improved first at major hospitals in urban areas and then at hospitals in other areas.

Similarly, hypodermic needles were sometimes insufficiently cleaned and reused until the late 1980s. According to President Museveni, unknown numbers of people may have become infected by unsterilized injections when they attended unlicensed clinics for treatment of sexually transmitted diseases (STD).¹³ However, policies were implemented in the late 1980s to reduce infection from shared needles.

Finally, there were other practices involving contamination through blood that may have contributed to the spread of HIV. For example, in some communities in Uganda, people used the same knife with multiple males during adolescent male circumcision ceremonies.

Similarly, people sometimes used the same body piercing or tattooing instruments with multiple people without proper sterilization between procedures. All of these practices were discouraged in the late 1980s.

Changes in Sexual Behavior that Affected HIV Prevalence

Despite the non-sexual behaviors that contributed to the spread of HIV, it was primarily sexual behavior (and changes in sexual behavior) that affected the course of the epidemic. Researchers estimated that 80% to 90% of the cases of HIV infection were caused by sexual transmission, and consequently reductions in these sexual behaviors were the primary causes of the decline in prevalence.

Three primary prevention behaviors are often recognized as being most important. These have been subsequently been labeled “ABC” (“A” for abstinence, “B” for “being faithful” to a single partner or having fewer sexual partners, and “C” for condom use). Initially, this acronym was not widely used in Uganda. Although abstinence itself was clear, the meaning of “A” was not always consistent. In different contexts, people sometimes defined abstinence as 1) delaying initiation of sex, 2) returning to abstinence for lengthy periods of time after previous sexual activity, 3) remaining abstinent until marriage, 4) abstaining from extramarital sex after marriage, and 5) completely abstaining from sex, even if married. In this report, “A” will refer to abstinence from sex for extended periods of time before marriage, which sometimes results in delayed initiation of sex and even abstinence until marriage. “B” will refer to having sex with only marital or long-term partners and having fewer or zero casual sexual partners. (Some Ugandan men have multiple wives, and remaining faithful to them is considered consistent with “B.”) Finally, “C” will refer to condom use, especially condom use with non-marital/non-cohabiting sexual partners.

In addition to these three primary sexual behaviors, a fourth behavior, the testing of and treatment for STDs has some importance, because it can reduce curable STD infections and open sores that may facilitate HIV transmission during sexual intercourse.

There is quite strong and consistent evidence that “A,” “B” and “C” all improved considerably and that all three reduced HIV prevalence in Uganda.

There is quite strong and consistent evidence that “A,” “B” and “C” all improved considerably and that all three reduced HIV prevalence in Uganda. Newspaper articles, survey data, focus group interviews with people in different communities, interviews with key informants and previous reports all indicate that there were substantial changes in “A,” “B” and “C” that contributed to reductions in HIV incidence.¹⁴ In

addition, data on the shipment of condoms to Uganda and best-fitting models of incidence also indicate that greater availability of condoms (and hence greater use of condoms) contributed to the marked declines in HIV incidence.¹⁴

Figure 2
A Chronology of HIV/AIDS and the Response in Uganda

- 
- 1982** First case of AIDS (called “Slim”) is reported in Rakai District.
- 1985** Experts confirm a new disease in the Rakai and Masaka districts, but do not know its modes of transmission or its cure. People in some Rakai and Masaka villages know numerous people who died of “Slim.”
- 1986** Experts learn that “Slim” is caused by AIDS and can be transmitted sexually. Ministry of Health acknowledges AIDS in Uganda and seeks international help. Blood testing machines are installed in some hospitals. Government launches “Zero Grazing” (fidelity) and “Love Carefully” messages and campaigns. Much discussion in Kampala focuses on AIDS; some reports of panic. Changes in sexual behavior (fewer sexual partners and greater condom use) observed in Rakai.
- 1987** Presidential rallies held in each district, exhorting behavior change (and sometimes criticizing condoms). First 5-year plan to address AIDS is launched; \$21 million pledged by donor agencies to implement plan. AIDS Control Program (ACP) established within Ministry of Health. Additional ministries (Defense, Education, Information and Broadcasting) enlisted. UNICEF initiates AIDS education in some schools. Faith communities and NGOs become involved. The AIDS Support Organization (TASO) formed to help people with AIDS. Major newspaper reports behavior change (e.g., less casual sex) in Kampala and elsewhere due to AIDS. HIV incidence in Kampala and major towns possibly peak during this year or following two years and then declines slowly.
- 1988** District health educators trained. Blood testing machines put in place in 28 screening centers. Radio stations begin playing a drum, signifying AIDS.
- 1989** Singer Philly Lutaaya becomes first public figure to announce he has AIDS; he dies in December. 400 Army commissioners trained in AIDS prevention. District Muslim leaders trained to educate all Muslims at religious gatherings about avoiding AIDS. 15 million condoms shipped to Uganda. 90,000 Ugandans estimated to have AIDS. Throughout Uganda, people have a high level of AIDS awareness. An estimated 10% of Ugandans have changed their sexual behavior or expect to do so, mostly by avoiding casual sex.
- 1990** First AIDS Information Center (AIC) established (for HIV counseling/testing). Uganda AIDS Commission and Task Force on AIDS draft second 5-year plan. First International Candlelight Memorial held to commemorate Ugandans who have died of AIDS. An estimated 12,000 people have died of AIDS in Uganda.
- 1991** Social mobilization to reduce the spread of HIV has been launched in 14 of the 33 health districts. Multi-sectoral approach launched with full-fledged programs in key sectors. SOMARC begins social marketing campaign to promote “Protector” condoms. 12 million condoms shipped. Religious groups oppose the promotion of condoms outside of marriage; “quiet promotion” continues.
- 1992** AIDS prevention programs for youth begin to include discussions, videos and presentations by people with AIDS. Islamic Medical Association of Uganda train imams. The Ministry of Health creates television dramas on AIDS. 10 million condoms shipped.
- 1993** Implementation of second 5-year plan begins with \$125.4 M from donors and \$37.5 M from Uganda. Church of Uganda forms Church Human Services AIDS Program (CHUSA). Ministry of Information launches “Straight Talk” campaign (print, radio, TV). AICs expand and add drama and music to testing portfolio. 22 million condoms shipped. 1,000 NGOs address AIDS. HIV prevalence in urban areas begins to decline markedly; incidence probably declines faster this year.
- 1994** “True Love Waits” campaign (focused on abstinence until marriage). Promotion of condoms expands. About 100,000 people die from AIDS each year.
- 1995** Reverend Gideon Byamugisha becomes first practicing priest to announce he is HIV-positive. Comparisons of 1989 and 1995 survey data reveal large changes in sexual behavior, mostly less casual sex outside of marriage; also greater condom use, especially in urban areas.

Evidence from newspaper articles and focus group interviews indicate that some people began to change their sexual behavior as early as 1987. Both the articles and the focus groups indicate that after the government launched its “Be Faithful” campaign in early 1987, people learned that AIDS (or “Slim,” as it was sometimes called) was transmitted sexually, that people could appear healthy for many years and still be infected, and that “being faithful” could reduce the chances of transmission. As a result, some people began to refrain from sex outside of marriage or long-term relationships.

In 1987, according to *The New Vision*, the nation’s leading English newspaper,

“The horror of Slim is forcing people to change social habits. It is in marital relationships where one can easily detect the most profound changes... A number of wives openly go so far as to confess that Slim has saved their marriages... In Bugolobi [a Kampala middle-class suburb], a young housewife with three children, declared with a gleam in her eye, “there has been a positive change in our marriage. My husband stays at home much more. And I encourage him to do so by enthusiastically keeping him informed of the latest gossip about Slim victims.” (*The New Vision*, Oct. 23, 1987, p. 10)

Other articles observed that “Slim” had ruined business for prostitutes and that fewer men enticed barmaids into quick liaisons. Yet another article noted evidence for an increase in condom use. In general, however, relatively few condoms were available or used at that time.

Nationwide surveys on sexual behavior provide much stronger evidence for change in sexual behavior than do the newspaper articles and focus groups. Demographic and Health Surveys (DHS) were conducted in 1989 among women and in 1995 and 2000/01 among both men and women.¹⁵ Thus, these surveys cover most of the period during which both incidence and prevalence began to decline. In addition, the quality of the sampling and the questionnaire design provide quite credible evidence about some behavior change. Unfortunately, these DHS surveys provided little data about sexual partners in 1989. In 1989 and 1995, the WHO Global Program on AIDS (GPA) also funded surveys among both men and women. These surveys provide additional data on sexual partners, but the quality of the samples and changes in the questionnaire greatly limit the validity of comparisons over time.

Abstaining from Sex

The DHS surveys demonstrate that abstinence did increase. More specifically, between 1988/9 and 1995, the number of women ages 15-54, regardless of marital status, who abstained from sex during the previous year increased slightly, from 18% to 23%.¹⁵ This small increase reflected the fact that most Ugandan women marry at an early age and have sex after marriage. Comparable data were not available for men.

Among never-married women, there were much larger changes, especially in urban areas. The percent of never-married 15- to 24-year-old women who had sex in the previous 12 months decreased significantly from 35% in 1988/9 to 22% in 1995.¹⁵

Extramarital Sex

Only the GPA surveys included questions about sex outside of marriage or about multiple partners in 1989. These results should be viewed particularly cautiously, because they may overstate actual behavioral change over time.

GPA survey data indicate that the percent of women engaging in extramarital sex was always quite low (about 6% or less) and remained stable during this period. For men, however, the GPA data suggest there were declines in extramarital sex from 23% in 1989 to 16% in 1995.¹⁵

Between 1989 and 1995, the percent of women both married and unmarried who had sex with a non-marital/non-cohabitating partner in the last 12 months decreased from 23% to 9%. Among men, the percent decreased from 41% to 21%.

Sex with Casual and Multiple Non-marital Non-cohabitating Partners

The WHO/GPA surveys indicate that there was a decline in the number of casual sexual partners among women and men between 1989 and 1995.¹⁵ Between 1989 and 1995, the percent of women — both married and unmarried — who had sex with a non-marital/non-cohabitating partner in the last 12 months decreased from 23% to 9%. Among men, the percent decreased from 41% to 21%. Similarly, between 1989 and 1995, the percent of all women who had one or more casual partners in the last year decreased from 16% to 6%, while the percent of men who had casual partners decreased from 35% to 15%. In addition, both *single* women and *single* men became much less likely to have sex with two or more sexual partners during the last year (from 22% to 17% among single women and from 54% to 33% among single men).

Condom Use

According to the DHS data, the percentage of sexually experienced women who had ever used a condom was very low (1%) in 1989. By 1995, it had increased to only 6%. Among men in 1995, it increased to only 16%. According to GPA data that weighed urban areas disproportionately, the percent of women who used a condom the last time they had sex increased from 7% to 20% between 1989 and 1995, while among men it increased from 15% to 30%.

Increases in reported condom use were greater among males, people in urban areas, young adults, and people with more education. For example, in urban areas in 1995, 62% of men used a condom the last time they had sex with a casual partner.

These results may give misleading impressions about the possible impact of condoms because most adults were married and most married couples rarely used condoms, if at all. More relevant to HIV transmission is the use of condoms with casual partners outside of marital/cohabiting relationships. According to GPA data, condom use was very low in 1989 even among those who engaged in casual sex.¹⁵ According to DHS data, the percent of women who used a condom at last

sex with a non-marital/non-cohabitating partner increased to 20% in 1995; among men, it increased to 36%. Increases in reported condom use were greater among males, people in

urban areas, young adults, and people with more education. For example, in urban areas in 1995, 62% of men used a condom the last time they had sex with a casual partner. A non-representative survey of men in Kampala indicated that two years earlier — in 1993 — 55% of men used condoms with non-marital/non-cohabiting partners the last time they had sex.¹⁶ Thus, condoms were used earlier and more commonly during casual sex in urban areas than in rural areas, but in both areas they increased with time.

Relatively few condoms were shipped annually to Uganda in the 1980s. However, as early as 1989, Uganda received nearly 15 million condoms and by 1993, Uganda received at least 20 million condoms annually, thereby making possible greater condom use, especially in urban areas. Thus, contrary to some previous reports, shipments of condoms to Uganda and greater use of condoms with non-marital/non-cohabiting partners did overlap with the marked declines in HIV incidence in 1993.

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Summary of Behavior Change

In sum, all women and men (regardless of marital status) became a little less likely to have sex at all during the previous year. Married women maintained low levels of extramarital sex, while married men became less likely to have extramarital sex. Married men and women became less likely to have one or more casual sexual relationships lasting less than a year; both single men and single women became more likely to be abstinent for a year and less likely to have sex with multiple sexual partners. In addition, men and women became much more likely to use condoms when they had sex with non-marital non-cohabiting partners.



These changes are supported by multiple kinds of data including newspaper articles, nationally representative surveys of behavior collected at different points in time, surveys asking how people changed their behavior in response to AIDS, interviews with key informants, interviews with focus groups, and shipments of condoms to Uganda.¹⁴ In addition, as will be seen below, these behavioral changes are consistent with the programmatic interventions that focused first on being faithful and later on using condoms. All of these sources paint a remarkably coherent picture of behavior change (Table 1).

Table 1:

Summary of Evidence for Changes in Behavior

Evidence	Strength of Evidence	Conclusions
Modeling of HIV incidence and prevalence	Strong for timing	<ol style="list-style-type: none"> 1. Suggest incidence peaked about 1987 in Kampala and began to decline 2. Suggest incidence declined rapidly about 1993 in Kampala
Reports of behavior change in newspaper articles	Strong for timing Very weak for representativeness	<ol style="list-style-type: none"> 1. Indicate behavior change began in 1987 in Kampala and some other places in Uganda 2. Suggest initial primary behavior change was greater faithfulness (fewer casual partners) and not greater condom use 3. Suggest greater condom use began to occur in early 1990s
DHS survey data	Very strong for representativeness	<ol style="list-style-type: none"> 1. Demonstrate small increase between 1988/89 and 1995 in all women who abstained from sex during the previous year 2. Demonstrate large increase between 1988/89 and 1995 in young single women who abstained from sex during previous year 3. Demonstrate large increase in condom use during sex with non-marital and non-cohabiting partners by 1995, especially in urban areas
GPA survey data	Moderately strong for representativeness	<ol style="list-style-type: none"> 1. Among all women, suggest large decrease between 1989 and 1995 in percent who had sex with non-marital or non-cohabiting partners 2. Among married women, suggest very low and stable percent who had extramarital sex 3. Among young women, suggest large decrease between 1989 and 1995 in percent who had premarital sex 4. Among single women, suggest decrease between 1989 and 1995 in percent who had two or more partners 5. Among single men, suggest large decrease between 1989 and 1995 in percent who had premarital sex 6. Among all men, suggest large decrease between 1989 and 1995 in percent who had sex with non-marital or non-cohabiting partners 7. Among married men, suggest large decrease between 1989 and 1995 in percent who had extramarital sex 8. Among young men, suggest decrease between 1989 and 1995 in percent who had premarital sex 9. Among single men, suggest decrease between 1989 and 1995 in percent who had two or more partners
Other surveys of sexual behavior	Weak for representativeness	<ol style="list-style-type: none"> 1. Suggest decrease in the number of sexual partners. 2. Suggest delay in the initiation of sex 3. Suggest increase in the use of condoms 4. Suggest moderately high level of condom use during casual sex in Kampala and other selected places by 1993
Surveys with questions about personal behavior change	Strong for representativeness Weak for validity	<ol style="list-style-type: none"> 1. Indicate large percent decrease in sex before or outside of marriage 2. Indicate small percent began using condoms

Evidence	Strength of Evidence	Conclusions
Interviews with key informants and focus groups in 2003	Modest for representativeness	<ol style="list-style-type: none"> 1. Suggest first there was a reduction in people having sex outside of marriage or cohabiting partners and a reduction in the number of sexual partners 2. Suggest second there was an increase in use of condoms
Reports of shipments of condoms to Uganda	Strong for timing Strong for validity of receipt Weak for actual condom use	<ol style="list-style-type: none"> 1. Demonstrate relatively few condoms in Uganda prior to 1989 2. Demonstrate the number of condoms received in Uganda grew roughly exponentially 3. Demonstrate that there was a substantial number of condoms in Uganda by 1993
Historical documents describing program efforts to address AIDS	Strong for timing Strong for validity	<ol style="list-style-type: none"> 1. Demonstrate that beginning about 1986 programmatic efforts focused primarily on being faithful and partner reduction 2. Demonstrate that beginning in the early 1990s condom promotion and provision encouraged condom use

Which changes in behavior had the greatest impact on declining prevalence: “A,” “B” or “C?” Young unmarried people became significantly more likely to completely abstain, to have fewer partners and to use condoms. Thus, changes in all three behaviors significantly contributed to reductions in HIV transmission among this group. However, the large majority of people in Uganda married early (e.g., 73% of young women by age 20)¹⁵ and married or cohabiting men and women continued to have sex. Thus, abstinence did not contribute significantly to their reduction of HIV incidence, compared to the contribution of reductions in extra-marital partners, numbers of sexual partners and greater condom use.

In terms of temporal order, the evidence suggests that improvements in abstinence and fewer partners took place first, followed by increases in condom use. This is because condoms were not promoted, widely available or widely used in the late 1980s, but became increasingly promoted, available and used in the early to mid-1990s.

Thus, an extremely important conclusion with policy implications is that it is possible to delay the initiation of sexual intercourse and increase abstinence prior to marriage, to reduce the number of sexual partners before or outside of marriage and to increase condom use among those who do have sex outside of marital or co-habiting relationships. All these behaviors can be achieved in sub-Saharan Africa and presumably elsewhere.

A second extremely important conclusion is that this combination of behavioral changes can be effective. People broke up sexual networks by having fewer sexual partners and then decreased their risk of STD transmission in their remaining casual partners through the use of condoms — a powerful combination. Modeling of the relationship between numbers of sexual partners and the size of sexual networks by Morris¹⁷ demonstrates that in general, even small decreases in the mean number of sexual partners can sometimes markedly reduce the size of sexual networks. The reductions in numbers of sexual partners in Uganda, as demonstrated by multiple kinds of data, certainly had the potential to shatter these sexual networks and thereby reduce the transmission of HIV. The much greater use of condoms in the remaining smaller sexual networks further reduced HIV

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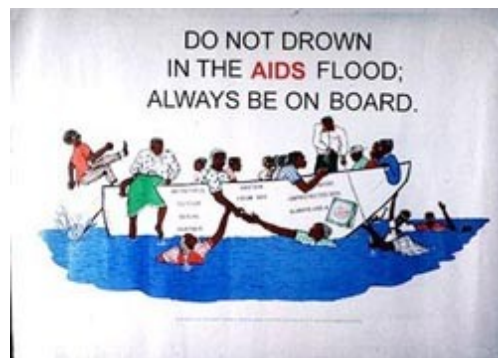
transmission. These were the primary factors causing the decline in HIV incidence and prevalence in Uganda.

The impact of these behavioral changes on HIV incidence was probably enhanced by three additional interrelated factors in Uganda. First, according to multiple sources, people in Uganda had sex with concurrent sexual partners. This increased the chances that a person recently infected by one partner would pass that infection on to a second partner

during the period of greater viral load and infectivity a few weeks after initial infection. The probability of people engaging in unprotected sex during this short period of high infectivity was reduced when people chose to have fewer sexual partners, were less likely to have concurrent partners, and used condoms more frequently.

Second, prior to changes in sexual behavior, the pattern of sexual partnerships created interconnected networks of sexual partnerships that allowed HIV to diffuse rapidly. However, the particular patterns of sexual networks that led to the rapid diffusion of HIV may have been more vulnerable to behavior change than other patterns of sexual partnerships. That is, reductions in number of sexual partners may have broken up these sexual networks into more disconnected sexual networks that would thwart diffusion, than if the sexual networks had been more robust with more interconnections.

Third, greater abstinence among single people, fewer sexual partners and greater condom use with non-marital/non-cohabiting sexual partners, as well as greatly improved health services and testing and treatment for STDs all contributed to a reduction in sexually transmitted disease other than HIV. Scattered newspaper reports indicated that some STD rates declined during the early 1990s and these declines may have helped reduce HIV transmission.



Factors that Led to Behavior Change

Among the primary factors that led to sexual behavior change were people's increasing awareness of AIDS and how it is transmitted, their fear of contracting AIDS, and their motivation to avoid it. However, several historical factors not related to AIDS also had an impact on sexual behavior, and these are briefly mentioned first.

Historical Factors Affecting Behavior

In Uganda, several groups of people were especially likely to be HIV-infected and to spread the disease. These included sex workers and bar maids, long distance truck drivers, businessmen (or more generally mobile men with money) and soldiers, among others.

While President Obote was in power and during the civil unrest in the early 1980s, truck drivers and other people were discouraged from moving or driving at night. Thus, truck drivers, traveling businessmen and other travelers spent each night in different towns, which increased their chances of having sex with bar maids or sex workers. When the war ended, truck drivers and other travelers became less likely to spend the night away from home while traveling.

Similarly, both during the war in the early 1980s and when the war ended in 1986, many soldiers moved around the country. Many of them fought in the southwestern part of Uganda, including at Katonga Bridge, the entry point into the Rakai and Masaka Districts where HIV prevalence was greatest. Regardless of whether soldiers engaged in coerced or voluntary sex with sex workers, barmaids, and women in the community, many soldiers became infected. As the fighting shifted to different parts of Uganda, the soldiers also mobilized to different parts of the country. Then, when the war ended, Obote's losing Uganda National Liberation Army (UNLA) dispersed into the population, while the winning National Resistance Army (NRA) was stationed in barracks in Kampala and elsewhere. The combination of the soldiers' high rates of infection, their geographic mobility and their multiple sexual partners contributed to the spread of HIV.

During the war, health services deteriorated and people had greater difficulty obtaining treatment for STDs. Thus, STDs that facilitate the transmission of HIV may have become more common during the war.

Following the end of the war, people celebrated. They celebrated not just the end of the war, but also the return of law, their increased security, and their greater freedom to be out at night. According to many respondents, during this period some people took advantage of a greater sense of freedom and safety to stay out at night, party and engage in a greater amount of unprotected sex. In addition, some people who were at higher risk of being infected (e.g., widows of men who may have died of AIDS in Rakai or Masaka) used their greater freedom to move to Kampala or other major towns, thereby spreading infection.

During the years after the war, the economy improved substantially. Suddenly, various needed commodities were more available and infrastructure gradually improved. In addition, the health care system improved, making treatment for STDs more available. These changes may have helped reduce HIV transmission.

Some of these historical factors and possibly others may have produced changes in behavior that in turn contributed to the rapid growth of incidence until 1986/7 and to lower levels of incidence in subsequent years.

AIDS-related Factors Affecting Behavior

Visibility

In Uganda, people saw first-hand that community members, friends, relatives and even family members were becoming sick with AIDS, growing thin and emaciated and then dying. In fact, the Ugandan word for AIDS was “Slim,” a label that accurately described its physical manifestations and indicated that Ugandans themselves recognized this disease was different from other diseases. People in the Rakai, Masaka and Kampala districts were especially likely to see others dying of AIDS. However, deaths were by no means limited to those areas. In 12 out of 22 sentinel surveillance sites, ANC prevalence exceeded 10% in the 1990s.² In addition, according to multiple reports, people in districts with lower ANC prevalence rates nevertheless observed additional deaths from AIDS, because some AIDS victims who lived in urban areas such as Kampala returned to their villages to be cared for and to die.

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In Rakai, Masaka, Kampala and elsewhere people lived in shock and fear as they saw others grow sick and die. Moreover, people who died were sometimes the more visible members of their communities. They included businessmen, government leaders, ranking military men, university professors, schoolteachers and others who tended to have more money or power (and were therefore more able to find women with whom to have sex). Thus, deaths were not by any means limited to the poor, who might have been less visible.

Political Focus and Response

However, what distinguishes Uganda from some other countries with high rates of AIDS is not that many people died, for many people have died in other countries as well. Instead, what distinguishes Uganda from other African countries — and what greatly contributed to behavior change and ultimately lowered HIV prevalence rates — was its response to AIDS.

While national governments and individuals throughout Africa denied the problem of AIDS, Uganda recognized, emphasized, and attacked the problem, rather than minimizing or ignoring it.

At *all* levels, people in Uganda acknowledged that AIDS was an important problem in their country and addressed that problem both comprehensively and intensely. While national governments and individuals throughout Africa denied the problem of AIDS, Uganda recognized, emphasized, and attacked the problem, rather than minimizing or ignoring it. In the words of various leaders, it launched a “war” against AIDS.

In Uganda, “addressing AIDS” primarily meant focusing on prevention. While Uganda’s leaders increasingly addressed the rights, health, and employment needs of people with AIDS (and, subsequently, their orphans), their greatest efforts were focused on prevention, especially in the early years of the epidemic when there were fewer people with AIDS and fewer orphans. Furthermore, while Uganda did take necessary steps to ensure a safe blood supply and improve clinical practices, most of its prevention efforts relied on health education strategies to change the sexual behaviors that placed people at risk of AIDS.

President Museveni, a rather charismatic leader, personally addressed AIDS explicitly. He strongly encouraged government and civil society to tackle AIDS. He appointed motivated and competent people to prevent the spread of AIDS and he delegated authority to them. In addition, he, himself, spoke forcefully about AIDS to the public. In speeches to communities, schools and other groups, he used stories and gave clear behavioral messages that people could understand and remember.

A Multi-sectoral Response

In response to the problem of AIDS and with President Museveni's encouragement, the government initiated many efforts to stop AIDS. These matured into a multi-sectoral approach to fight AIDS, with planned activities incorporated into nearly every branch of government.

In 1986, the 30-person National Committee for the Prevention of AIDS was formed. The following year the AIDS Control Program (ACP) began operations. In 1988 and 1989, with the help of the World Health Organization (WHO), Uganda developed an excellent plan to change sexual behavior and reduce HIV transmission and began implementing it in 1989. The efforts were very systematic. They involved every sector and nearly every group with an infrastructure — such as district health teams, the media, schools, faith communities, local councils, youth organizations, women's groups, non-governmental organizations (NGOs), prisons, and other groups. They also involved traditional healers. The ACP created a training structure (including trainers and trainers of trainers) so that all groups would be trained. It also began printing huge numbers of materials (e.g., training manuals, pamphlets, posters, and other educational materials).

Unlike some other countries whose governments may have either intentionally or unintentionally produced bureaucratic obstacles to civil society's active involvement in sexual behavior change, Uganda's government tried to minimize bureaucratic obstacles and instead actively encouraged the involvement of civil society.

In 1991 and 1992, the Uganda AIDS Commission was created. The ACP and UAC focused on the community level, emphasizing that AIDS prevention should not be the sole responsibility of the government or a few organizations, but instead needed to be the responsibility of neighborhood support systems, schools, religious associations, professional groups, family networks and other community groups. This became the multi-sectoral approach emphasized by both the ACP and UAC.

Thus, first the ACP and then the ACP and UAC together strongly encouraged and facilitated innumerable other groups outside of government to develop and implement their own approaches to stopping AIDS. Unlike some other countries whose governments may have either intentionally or unintentionally produced bureaucratic obstacles to civil society's

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active involvement in sexual behavior change, Uganda's government tried to minimize bureaucratic obstacles and instead actively encouraged the involvement of civil society.

As a result, beginning in the late 1980s and throughout the 1990s, the number of organizations addressing AIDS in Uganda grew exponentially. Whereas there were few, if any, organizations addressing AIDS in 1986, by 1993 more than 600 NGOs were registered to address AIDS in Uganda and *The New Vision* estimated that roughly 400 additional unregistered NGOs also addressed AIDS.^{1 18}

Finally, the government sought and obtained the involvement of international organizations and funding from international donors. International organizations provided funding, enhanced the scientific basis for work on AIDS in Uganda, provided commodities (e.g., blood tests, surgical gloves, syringes, and condoms) and expanded the variety of approaches to addressing AIDS.

When survey respondents were asked which groups informed them the most about AIDS, they most commonly mentioned the media, friends, school (if they were students) and their religious leaders, roughly in that order. Notably, people did not mention only one source; they tended to mention multiple sources, reflecting the multi-sectoral and comprehensive approach taken in Uganda.

Visible, Clear Messages about AIDS

The media focused intensely on AIDS and coverage on the radio, in the papers and on television was common. In addition, there were many posters, billboards signs, and plays and music performances about AIDS. Competitions were held in which the public competed for prizes by writing poems, songs, or plays about AIDS. The delivery of these messages and plays in multiple indigenous languages helped spread information.

Often during focus groups, when respondents mentioned the radio, they spontaneously described the drum that beat somberly multiple times per day on the radio, signifying the country was in crisis. Even though 15 years had passed, they quickly recalled it, reflecting the impact it had on them.

As early as 1987, health education programs in schools began to emphasize the risk of AIDS and methods of avoiding it. In addition to didactic material, subsequent school AIDS prevention programs included dramas, songs, and other activities designed to actively involve students. In addition, students were encouraged to take information home to their parents.

Given the emphasis on being faithful to avoid AIDS, the faith communities embraced the message and became very much involved. In Uganda, most people belonged to one of three religious organizations: the Roman Catholic Church, the Anglican Church (Church of Province of Uganda) and the Islamic Umma (or "community of Islam"). There were very few independent churches or sects in Uganda. When the three faith communities developed programs to encourage behavior change, they were able to act in an integrated fashion and to reach the large majority of Ugandans. At the local level, efforts varied, but in

some communities, pastors or Imams spoke about AIDS and faithfulness, both during their regular services and sometimes during or after funerals for people who had died of AIDS.

The UAC also involved traditional healers in its initiatives. While traditional healers mostly focused on providing herbs to alleviate the symptoms of AIDS, they also conveyed a prevention message.

Nearly all the organizations involved in AIDS prevention focused on clear and consistent messages. For the most part, especially during the earlier years, the messages were “be faithful,” “zero grazing,” and “love carefully.” These typically translated into the following: If you are married or in a long-term relationship, be faithful and do not have sex with others. If you are single, wait until marriage or have only one partner. If you must have sex outside of marriage or a long-term relationship, then always use a condom. When the social marketing of condoms began in 1991, the relative emphasis on condoms began to increase in the media, and during the latter part of the 1990s, there may have been more emphasis on condoms than on being faithful.

In the effort to change behavior, groups provided accurate information about AIDS and how it is transmitted. However, they did more than that. Through newspaper or radio stories, posters, pamphlets, fables, skits and other means, groups emphasized people’s susceptibility to contracting AIDS if they did not love carefully, the severity of the disease for individuals (the inevitable long-term sickness followed by death), the impact of AIDS on society (e.g., the creation of tens of thousands of orphans, the loss of skilled workers for the economy, and the overall negative impact on the economy and society), and their ability to defeat the disease by remaining abstinent or faithful or using condoms.

Condom Messages and Availability

Although condoms had been available in Uganda for family planning purposes during the 1980s, many people were uneducated about condoms and reluctant to use them. Ugandans had a variety of legitimate and illegitimate fears about condoms. For example, some people believed that if a condom came off during sex, it would remain lodged in the womb and might kill the woman. In addition, initially, there were relatively few condoms available and they were not promoted. However, it is also true that even in the late 1980s in urban areas, it was possible to purchase condoms and for a while the government provided free condoms to the military as part of soldiers’ medical kits.

Beginning in 1989, Uganda received millions of condoms from abroad. In 1991, the media began to dispel myths about condoms and to encourage their use. Condom advertisements appeared in *The New Vision*, but they created controversy and were then banned for several years. In an effort to avoid offending religious or other groups, the UAC pursued a policy of “quiet promotion.” However, the social marketing of condoms, the number of condoms shipped to Uganda and condom use in general all greatly increased. During the early to mid-1990s, faith communities that had initially opposed the promotion of condoms dropped their opposition as they continued to see so many people dying of AIDS and as they recognized that condoms could help reduce HIV transmission and deaths.

Social marketing efforts promoted condom brands with names like “Protector” and “Lifeguard” that strongly implied protection. However, there was common acknowledgement in the media that condoms were not 100% effective against HIV transmission and that only abstinence or faithfulness to an uninfected partner provided complete protection against HIV.

Other Messages about HIV/AIDS

In addition to these general “ABC” messages about sexual behavior, the government and other groups discouraged specific traditions that had facilitated the spread of HIV, such as wife sharing, widow inheritance, and circumcision ceremonies that involved using the same knife to circumcise multiple males or that involved sex.

In addition to all of these efforts focusing directly on prevention, the government, the AIDS Support Organization (TASO), and other groups encouraged people to be tested for HIV, to lead as healthful a life as possible if they were HIV-positive and to openly acknowledge their HIV status. Initially founded as early as 1987 and run by mostly HIV-positive adults, TASO provided support to people with AIDS, including information, counseling, support groups, some nutrition and limited health care. Within a few years, TASO opened multiple branches throughout Uganda.

Adults discussed AIDS with their children, other family members, friends and neighbors. Teachers talked about it; ministers talked about it; leaders talked about it; the media talked about it. Everyone talked about it.

The government, faith communities, TASO and some other organized groups tried to dispel myths that would lead to social and employment discrimination against people with HIV/AIDS. Messages included information to allay fears of living with people with AIDS and exhortations to preserve their employment opportunities and to generally accept and love them. These organizations often emphasized that people with AIDS were just like other people. In addition, prominent people, such as Philly Lutaaya, a very popular musician, publicly announced they were HIV-positive or had AIDS.

Despite these efforts, during the late 1980s and early 1990s, many people with AIDS continued to be stigmatized and many people remained fearful of revealing their HIV status. However, the stigma did gradually decline in communities; increasingly, people with AIDS and their families more openly acknowledged their HIV status.

As a result of all of the efforts described above, people talked much more openly, extensively and realistically about AIDS. AIDS became a frequent topic of conversation everywhere. Adults discussed AIDS with their children, other family members, friends and neighbors. Teachers talked about it; ministers talked about it; leaders talked about it; the media talked about it. Everyone talked about it.

In addition to these efforts to directly change people’s sexual behaviors, the government also tried to increase the status and rights of women. The government increased women’s level of education, increased their role in government, and tried to increase their employment opportunities. To a small extent, it increased enforcement of laws against

rape and sexual abuse, but rape, sexual abuse, and sex with underage children continued. All of these changes increased the ability of some women to refuse unwanted sex, but the success of these efforts to increase the rights of women and their impact on HIV prevalence should not be exaggerated.

Finally, the government also improved clinic services for the testing and treatment of STDs. During the 20 years of unrest in Uganda, the health system deteriorated considerably, but with the restoration of stability, the infrastructure of the health system was gradually restored, and the testing and treatment of STDs improved. As a result, during the early 1990s, the management of STDs had considerably improved and the prevalence of STDs had declined in some areas.¹⁹

It was not any single one or two of these elements alone that produced behavior change. Rather, it was the total comprehensive and intensive package that ultimately made a difference. This does not mean that all elements were equally important. The clear and consistent emphasis on behavior, such as being faithful, was a particularly critical element.

Conclusion

In sum, many people in Uganda experienced firsthand numerous other people suffering and dying from AIDS. As a result, nearly everyone (from individuals in their communities, to multiple organizations, to the President himself) acknowledged AIDS and talked about it. In addition, multiple groups provided accurate information about AIDS and clear and consistent messages about how to prevent AIDS.

Because of their own vision, as well as support from many international organizations, Ugandans ended up implementing most, if not all, of the important elements in public health initiatives to prevent disease transmission. Observers and researchers often view Uganda's AIDS success story from their own perspectives and elevate particular elements in the Uganda initiative that they believe made the greatest contribution to ultimate success. In reality, it was not any single one or two of these elements alone that produced behavior change. Rather, it was the total comprehensive and intensive package that ultimately made a difference. This does not mean that all elements were equally important. The clear and consistent emphasis on behavior, such as being faithful, was a particularly critical element.

As a result of this message and the comprehensive efforts to change behavior, people actually did change their behavior. First they began being more faithful to their marital or long-term partners or became more likely to remain abstinent if single. Then, the smaller number of people engaging in sex outside of marital/cohabiting relationships began using condoms more consistently. This was a powerful combination. As a result, HIV incidence and prevalence began to decline — and they did so in an unprecedented manner for a generalized epidemic.

These findings are consistent with some other analyses of declines in HIV prevalence in other generalized epidemics in sub-Saharan Africa (e.g., in Kenya and Zimbabwe), which

suggest that giving a strong emphasis to partner reduction, while also encouraging condom use (and abstinence) is much more effective than primarily promoting condom use (or abstinence).

Implications for Other Countries

Uganda's experience has several significant implications for AIDS policy in other countries with generalized epidemics. The Ugandan experience suggests that:

- Countries should acknowledge the problem of AIDS and attack it early, vigorously and comprehensively.
- Countries should strive to reduce sex outside of marriage or long-term cohabiting relationships, to increase abstinence among people not in such relationships, to reduce casual sex and the number of sexual partners, and to increase condom use with casual partners. It is possible to change these behaviors; it is possible to change sexual behavior among both youth and adults and among both single and married people. And, when all these behaviors are changed significantly and simultaneously among all these groups, HIV incidence and prevalence can decline quickly.
- There was no “silver bullet” — no single element of the Ugandan experience — that produced the behavior change and that, on its own, would change behavior elsewhere. Rather, the Ugandan experience suggests that the more elements and components of the Ugandan initiative that countries implement, the more likely they are to succeed in changing sexual risk behaviors.
- Both national and local leaders should address AIDS and provide leadership. In addition, all relevant sectors of the government and organizations and institutions in civil society also should address AIDS.
- Government and civil society should emphasize people's susceptibility to AIDS and the severity of AIDS, both for the individual and for society. They should also emphasize that abstinence and faithfulness to an uninfected partner are the safest approaches and that condoms, while imperfect, should always be used when having sex with other partners. Government and civil society should emphasize that avoiding sexual risk-taking is consistent with cultural values and strive to increase people's confidence in their ability to avoid sexual risk-taking. If condoms are not widely available, their availability should be increased. In addition, any specific traditions (such as widow inheritance) that facilitate the spread of HIV should be identified and specifically discouraged.
- Not all organizations need to address all behaviors proportionately; some organizations may wish to focus on those behaviors most consistent with their own values or mission. For example, faith communities may wish to focus more upon abstinence and faithfulness, while health clinics and drugstores may wish to focus

more on condoms. However, the overall message from all organizations should be reasonably balanced, and the message from one organization should not undercut the messages of others.

- Countries should encourage people to be tested for HIV and should encourage those who are HIV positive to lead as healthful a life as possible, obtain appropriate and available care, and openly acknowledge their HIV status so that others will be more aware of the widespread nature of HIV infection.
- Countries should encourage people at all levels to acknowledge and talk about HIV/AIDS.
- To the extent feasible, countries should try to improve the status and rights of women and increase women's ability to avoid unwanted sex by providing them with education, increasing their employment opportunities, increasing their role in government, and increasing enforcement of laws against sex with minors, sexual abuse and rape. Such efforts may have only limited short-term effects, but may also have other beneficial long-term effects.

If countries do all of these things, it is much more likely that they will help people remain faithful within marital or long-term relationships, reduce casual sexual relationships and increase condom use, thereby reducing HIV transmission. Uganda's success demonstrates that it can be done.

Acronyms

ACP	AIDS Control Program
AIC	AIDS Information Centers
AIDS	Auto-immune deficiency syndrome
ANC	Antenatal Care
CHUSA	Church Human Services AIDS Prevention Program
CMS	Commercial Marketing Strategies
DHS	Demographic and Health Surveys
DISH	Delivery of Improved Services for Health
EEC	European Economic Community
GPA	Global Program on AIDS
HIV	Human Immunodeficiency Virus
ICASA	International Conference on AIDS and Sexually Transmitted Diseases
MOH	Ministry of Health
NGOs	Non-governmental organizations
NOP	National Operational Plan
NRA	National Resistance Army
PLAs	People living with AIDS
PWAs	People with AIDS
RC	Resistance Committee
SOMARC	Social Marketing for Change
STD	Sexually transmitted disease
TASO	The AIDS Service Organization
THETA	Traditional & Modern Health Care Providers Together Against AIDS
UAC	Uganda AIDS Commission
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UNLA	Uganda National Liberation Army (UNLA)
USAID	United States Agency for International Development
WHO	World Health Organization

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