Fighting HIV/AIDS: is success possible?

Sam Okware,1 Alex Opio,2 Joshua Musinguzi,3 & Paul Waibale3

Abstract The fight against HIV/AIDS poses enormous challenges worldwide, generating fears that success may be too difficult or even impossible to attain. Uganda has demonstrated that an early, consistent and multisectoral control strategy can reduce both the prevalence and the incidence of HIV infection. From only two AIDS cases in 1982, the epidemic in Uganda grew to a cumulative 2 million HIV infections by the end of 2000. The AIDS Control Programme established in 1987 in the Ministry of Health mounted a national response that expanded over time to reach other relevant sectors under the coordinating role of the Uganda AIDS Commission. The national response was to bring in new policies, expanded partnerships, increased institutional capacity for care and research, public health education for behaviour change, strengthened sexually transmitted disease (STD) management, improved blood transfusion services, care and support services for persons with HIV/AIDS, and a surveillance system to monitor the epidemic.

After a decade of fighting on these fronts, Uganda became, in October 1996, the first African nation to report declining trends in HIV infection. Further decline in prevalence has since been noted. The Medical Research Council (UK) and the Uganda Virus Research Institute have demonstrated declining HIV incidence rates in the general population in the Kyamulibwa in Masaka Districts. Repeat knowledge, attitudes, behaviour and practice studies have shown positive changes in the priority prevention indicators.

The data suggest that a comprehensive national response supported by strong political commitment may be responsible for the observed decline. Other countries in sub-Saharan Africa can achieve similar results by these means. Since success is possible, anything less is unacceptable.

Keywords Acquired immunodeficiency syndrome/prevention and control/epidemiology/therapy; HIV infections/prevention and control/epidemiology/therapy; National health programs; Health care reform; Knowledge, attitudes, practice; Behavior therapy; Intersectoral cooperation; Sentinel surveillance; Uganda (source: MeSH).

Mots clés SIDA/prévention et contrôle/épidémiologie/thérapeutique; HIV, Infection/prévention et contrôle/épidémiologie/thérapeutique; Programme national santé; Réforme domaine santé; Connaissance, attitude, pratique; Thérapie comportementale; Coopération intersectorielle; Surveillance par système sentinel; Ouganda (source: INSERM).

Palabras clave Síndrome de inmunodeficiencia adquirida/prevención y control/epidemiología/terapia; Infecciones por VIH/prevención y control/epidemiología/terapia; Programas nacionales de salud; Reforma en atención de la salud; Conocimientos, actitudes y práctica; Terapia conductista; Cooperación intersectorial; Vigilancia de guardia; Uganda (fuente: BIREME).


Introduction

Uganda, with a population of approximately 22 million people in 2001, was one of the first developing countries to encounter HIV/AIDS. The epidemic developed silently and took advantage of the disarray in the country’s health services, which had suffered years of turmoil and insecurity. Access to health care was only 50% and access to safe water and sanitation was less than 30%. The health services had limited drugs and supplies, and the blood transfusion services were virtually non-existent. In these circumstances the HIV/AIDS emergency came not just as an additional burden but as a severe affliction. The early years of the epidemic were characterized at first by mystery and rumour, followed by the discovery first that it was a disease, then that it was an epidemic, and then that it was an unprecedented tragedy. HIV/AIDS and its consequences have by now had a direct impact on at least one in every ten households in the country. As the epidemic gathered momentum, so too did the efforts to control it.

History of HIV/AIDS in Uganda

The first cases of “slim disease” were reported in 1982 by health workers working in Rakai District located at the shores of Lake Victoria in South
Western Uganda (1). The following year, 17 more cases were reported. The people affected had peculiar characteristics: wasting, persistent fever, STDs, and tuberculosis. They were small traders engaged in smuggling goods across Lake Victoria. It was seen as a new disease that affected adults who travelled extensively. The popular belief was that it was caused by witchcraft. As the epidemic evolved, long distance truck drivers and prostitutes were observed to be high-risk groups, likely to be acquiring the disease by heterosexual contact (2). The spread was facilitated by ignorance and unfavourable cultural practices.

A very rapid increase in infection, morbidity and death followed soon throughout the country (3). In the early years, the burden of AIDS doubled every six months, causing extreme concern. A National AIDS Control Programme was launched in 1987 to fight HIV/AIDS through dissemination of basic information, revitalization of blood transfusion services, and epidemiological surveillance. In spite of these measures, HIV prevalence rates in women receiving antenatal services had climbed to 30% in urban areas and to 3% in rural areas by 1992 (4).

National response

Enabling policies

To mount a sustained response, a high profile political effort was made to create an environment in which the need for openness about HIV/AIDS was recognized. Responsibility for bringing this about was decentralized to the sectoral, district and community levels, through legislative, administrative and political directives. The Uganda AIDS Commission (UAC) was established in 1992 to coordinate a multisectoral national response (5). The UAC ensures that all relevant sectors are actively involved in the fight against AIDS through proper coordination, joint planning within a comprehensive national framework, information sharing and joint monitoring.

The current health policy reforms have decentralized AIDS control to districts, sub-districts and communities. They also promote partnerships between political, religious, and educational institutions, nongovernmental organizations, and communities, including people living with HIV/AIDS. The HIV/AIDS agenda ranks high in the government development programmes because of the far-reaching socioeconomic and political effects of this disease on society. HIV/AIDS is progressively being mainstreamed in the Poverty Eradication Action Plan, which provides support for universal primary education, primary health care, road maintenance, and poverty alleviation (6). The plan’s funds are disbursed as conditional grants directly to the districts and local levels for specified activities. These reforms have widened access to information, resources, services, and facilities even in remote rural areas.

Institutional capacity building

Institutions have been set up or strengthened at the national level to provide services, conduct research, and act as training centres for staff. Capacity has been strengthened at the Uganda Virus Research Institute for laboratory monitoring of HIV infection, antiretroviral drug use, and surveillance. The National Blood Transfusion Services have been restructured placing a strong emphasis on the regional blood banks and the use of a risk self-assessment tool by donors. In addition to comprehensive management of HIV/AIDS patients (including antiretroviral therapy), capacity for vaccine evaluation studies has been built up at the Joint Clinical Research Centre. Mildmay Uganda has been established as a service and training centre for the comprehensive management of HIV/AIDS with a strong component of paediatric management. Most of these institutions are now referral centres for specialized care, research, and laboratory diagnosis at national and international levels. AIDS Control Programmes have been established in the Ministry of Health and other relevant sectors to plan and implement HIV/AIDS control efforts.

Private for-profit and not-for-profit organizations have been supported to develop their capacities in various areas of HIV/AIDS prevention and control. For example, the AIDS Support Organization is a centre of excellence in community care for people with AIDS. Similarly, the AIDS Information Centre is globally known for offering integrated HIV counselling and testing services of high quality. The Uganda Network of AIDS Service Organizations, an umbrella body for nongovernmental organizations working in this area, has been formed to monitor and ensure the quality of HIV/AIDS control efforts.

Public education for behaviour change

Raising awareness was the mainstay of our initial programme. At first, we focused on instilling fear in the population, but it soon became apparent that many people were insensitive and refractory to calls for behaviour change. Fear could only be effective for a short time. Widening the range of prevention options to include condom use as well as avoidance of casual sexual contacts helped our programmes to gain wider acceptance.

Political influence based on the local council system at all administrative levels was enlisted for the cause of HIV/AIDS control through the mass media and folk media (7). Government and political personnel conducted mass campaigns with support from community resource people and networks of people with HIV/AIDS. This was the beginning of a multisectoral response at the community level.

A new body of health educators was formed at the national, district and county levels to promote awareness and safe sexual practices including use of condoms. A similar and parallel network was established in schools to promote peer influence skills in the prevention and control of HIV/AIDS.
This strategy is likely to yield significant gains following increased primary school enrolment to about 7 million children, almost a third of the total population. In addition, the education of girls, emphasized by the universal primary education policy, is likely to yield significant benefits in view of the report of the Uganda Demographic Health Survey, which showed that the basic primary education of girls was associated with a 20% reduction in child mortality (8).

**STD management**
Promotion of early and appropriate STD care has been part of the social mobilization campaign. The programme continues to procure condoms, as well as drugs for early syndromic management of STDs countrywide.

**Blood transfusion services**
The national and regional blood banks have been strengthened and currently provide at least 70% of the national requirements, up from just below 25% in 1986. Improvement in client recruitment has reduced wastage due to HIV and hepatitis B from 14% to 3%.

**Care and support for people with HIV/AIDS**
The estimated cumulative number of people living with HIV/AIDS in Uganda as of December 2000 was 1 107 644 (9). Because of the stigma associated with AIDS, in conjunction with poverty, many HIV symptomatic patients remain in the community without appropriate care. The government has therefore strengthened the capacity for comprehensive AIDS case management at all levels of the health care system, including the community, to bring care to the sick where they are. This was done by providing appropriate training for health workers and making available the drugs and other supplies needed. A three-tier counselling service has been established to provide psychological support to persons with HIV/AIDS and their families.

Drugs for opportunistic infections are available to patients free of charge at all levels. The joint Ministry of Health/UNAIDS drug access initiative is supplying drugs for management of opportunistic infections and antiretroviral therapy to more than 3000 clients. The initiative has demonstrated that it is possible to manage antiretroviral therapy safely in low-resource settings.

In view of the substantially reduced drug cost offered by nevirapine for preventing HIV transmission from mother to child, the government is considering expanding the use of this treatment countrywide. Thirty of the 56 districts now provide antiretroviral therapy to more than 3000 clients. The initiative has demonstrated that it is possible to manage antiretroviral therapy safely in low-resource settings.

**Surveillance systems for HIV/AIDS**
Effective control and prevention of the AIDS epidemic depends to a significant extent on the collection of reliable data on the magnitude, trends, and distribution of HIV infection and AIDS disease. These provide the basis on which to design and implement effective interventions. The STD/AIDS Control Programme uses both passive and active surveillance systems to generate data for programme planning (10). Passive surveillance entails collection of data on AIDS cases through a formal reporting system. Patients who meet the WHO clinical case definition for AIDS in Africa (11) are reported to the control programme by means of a special form. The definition of AIDS, based on clinical criteria alone, was developed for use in countries where diagnostic facilities are limited.

Active surveillance in Uganda has been conducted through sentinel sites where serial collection of HIV prevalence data over time and geography in selected groups of the population has made it possible to monitor trends in HIV infection (12). Pregnant women attending antenatal clinics and patients seeking STD care are the populations we have used for sentinel surveillance. Pregnant women are a group that reflects HIV prevalence in the sexually active population, while STD patients reflect HIV prevalence in people with behaviour that puts them at high risk for HIV transmission. The HIV sero-status in both populations is established by anonymous unlinked procedures.

The 20 sentinel surveillance sites were selected to represent the regions in the country while taking into consideration the attendance rates at the site, commitment and willingness of staff, and the availability of syphilis screening facilities. Four times a year, 250–400 clients are recruited for tests in each site over a 6–8 week period. The sera are transported to the central public health laboratory at the Uganda Virus Research Institute where it is tested on ELISA. Ten per cent of the samples from each site are subjected to quality control procedures.

A general population cohort residing in a cluster of 15 neighbouring villages has been kept under epidemiological surveillance for HIV infection through an annual census and sero-survey since 1989 by the British Medical Research Council and the Uganda Virus Research Institute (13). Every year village maps and census lists are updated. Continuous village-based birth and death registration supplements the census data. The sero-surveys involve face-to-face interviews, phlebotomy in the respondent’s home and treatment for minor ailments. This incidence study continues to yield useful data for mapping out progress and the epidemiology of HIV/AIDS.

Behavioural surveillance through population-based knowledge, attitudes, behaviour, and practice studies (KABP) repeated every three years has been conducted in each of 12 districts. This provides information on the priority prevention indicators. HIV serology is not included in these studies, whose major focus is to establish trends of behaviour in the population and to supplement the findings from the sentinel surveillance system.
Surveillance results

HIV sentinel surveillance

Antenatal screening. HIV prevalence rates in pregnant women have continued to decline at both rural and urban sentinel surveillance sites in the country as shown in Table 1. For example, rates at Nsambya urban hospital declined by nearly 50% from 29.5% in 1992 to 11.8% in 2000 (Fig. 1), and those at Mutolere rural hospital fell from 4.1% in 1990 to 2.1% in 2000 (Fig. 2). The decline is most marked in the age group 15–19 years (Fig. 1).

Table 1. HIV infection rates (%) at selected antenatal sentinel sites in Uganda

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<td>22.0</td>
<td>19.8</td>
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<td>16.3</td>
<td>13.2</td>
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<td>7.6</td>
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<td>Soroti</td>
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<td>Mutolere</td>
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<td>4.1</td>
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<td>Arua</td>
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<td>4.4</td>
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Source: ref. 4.

Fig. 1. Declining HIV infection rates at antenatal clinics at Nsambya urban hospital in Uganda

Source: ref. 4.
**STD patient screening.** In the STD sentinel population at Old Mulago urban hospital, the HIV prevalence rates declined from 44.2% in 1989 to 29.4% in 1998, and 20.5% in 2000 (Fig. 3).

**HIV incidence rates**

The general population cohort study of nearly 17,000 consenting residents in 5000 households in Kyamulibwa has demonstrated a reduction in incidence and prevalence in young men and women over an 11-year period (13). As shown in Table 2, incidence overall has fallen from 7.6/1000 per year of observation in 1990 to 3.2/1000 per year of observation in 1998. There is a more prominent decline among males than females.

The MRC report of May 2000 has shown, for the first time, that the HIV incidence might be declining for adults of all ages in this rural population (14). However, the decline once again is most pronounced in the young age groups.

**Behavioural surveillance**

Repeat population-based KABP studies provide encouraging results on the priority prevention indicators and on selected key behaviours (14-15). For example, knowledge of at least 2 prevention practices in the districts surveyed has consistently been above 70% since 1997 (see Table 3). Condom use with non-regular sexual partners has increased for all the districts over the years.

Table 4 shows the trend in key behavioural parameters over the years. The age at which sexual debut takes place rose from 14 years in 1989 to above 15 years in 1997. The rise has been maintained during subsequent surveys in 1999 and 2000. The percentage of respondents using condoms at last sex with a regular partner has shot up between 1997 and 1999 for all the districts surveyed.

**Discussion**

The reduction in new HIV infections seen in Uganda may originate from either changes in the human body and behaviour or from the HIV becoming less virulent. Although HIV continues to mutate to viable and non-viable forms, there is insufficient data to indicate whether it is becoming non-virulent. It seems more likely that the risk-reduction behaviour arising from Uganda’s national response to HIV/AIDS is responsible for the reduction in new infections.

The natural history of the HIV/AIDS epidemic affects prevalence data predominantly and may account for some of the observed decline. However, the decline in incidence rates as well, particularly in the younger age groups, suggests that the large amount of prevention options available as part of the national response are having an effect. It is worth noting, however, that a long-standing HIV/AIDS epidemic may stimulate risk-reduction behaviour among survi-
Table 3. Comparison of population-based KABP findings for the districts of Mbarara, Mpigi, Masindi and Pallisa between 1996 and 2000

<table>
<thead>
<tr>
<th>Prevention Indicator (PI)</th>
<th>Mbarara</th>
<th>Mpigi</th>
<th>Masindi</th>
<th>Pallisa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of preventive practices (PI 1)</td>
<td>1997 1999 1996 1999</td>
<td>1997 2000 1997 2000</td>
<td>77.9 78.7 84.8 81.1</td>
<td>74.8 82.2 84.6 76.7</td>
</tr>
<tr>
<td>Reported non-regular sexual partners (PI 4)</td>
<td>1997 1999 1996 1999</td>
<td>1997 2000 1997 2000</td>
<td>6.6 8.7 7.3 8.6</td>
<td>6.3 5.2 4.6 4.0</td>
</tr>
<tr>
<td>Reported condom use with non-regular partners (PI 5)</td>
<td>1997 1999 1996 1999</td>
<td>1997 2000 1997 2000</td>
<td>31.9 48.0 54.8 71.2</td>
<td>41.5 50.8 30.7 53.3</td>
</tr>
</tbody>
</table>

Source: ref. 9.

Table 4. Comparison of key behavioural parameters between 1996 and 2000 for selected districts

<table>
<thead>
<tr>
<th>Key parameters</th>
<th>Mbarara</th>
<th>Mpigi</th>
<th>Masindi</th>
<th>Pallisa</th>
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<tr>
<td>Number of respondents</td>
<td>97 99 96 99</td>
<td>97 00 97 00</td>
<td>1233 1354 1129 1416</td>
<td>1606 1314 1695 1218</td>
</tr>
<tr>
<td>Mean age of respondents (years)</td>
<td>29.3 28.3 28.7 27.1</td>
<td>29.3 28.6 29.2 29.6</td>
<td>99.5 99.2 99.1 99.6</td>
<td>97.9 98.6 99.4 97.8</td>
</tr>
<tr>
<td>Awareness on HIV/AIDS (%)</td>
<td>17.4 17.5 16.1 16.6</td>
<td>16.1 16.3 15.5 15.6</td>
<td>19.9 20.2 18.9 19.3</td>
<td>19.3 19.2 18.3 18.4</td>
</tr>
<tr>
<td>Age at marriage (years)</td>
<td>4.3 8.7 16.2 10.4</td>
<td>4.2 3.0 2.3 1.9</td>
<td>13.6 14.5 30.9 33.9</td>
<td>13.4 22.7 9.4 8.5</td>
</tr>
<tr>
<td>Married with regular partner (%)</td>
<td>3.5 7.8 6.7 7.9</td>
<td>4.3 4.4 3.2 4.7</td>
<td>26.3 47.8 14.2 60.0</td>
<td>27.0 57.7 18.1 51.9</td>
</tr>
<tr>
<td>Condom use at last sex with regular partner (%)</td>
<td>50.5 63.4 66.2 79.6</td>
<td>50.0 62.4 34.3 50.5</td>
<td>77.0 83.0 88.1 91.4</td>
<td>65.8 66.3 59.1 64.1</td>
</tr>
<tr>
<td>Knowledge of condom source (%) of respondents</td>
<td>88.3 91.1 94.4 93.8</td>
<td>88.2 93.2 84.1 86.2</td>
<td>99.2 99.5 99.1 99.2</td>
<td>99.2 99.5 99.1 99.2</td>
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</table>

Source: ref. 9.

The HIV/AIDS epidemic may have spread at about the same time in the sub-Saharan countries, but there are between-country variations in the trend of HIV rates, and in some countries the rates are still rising. Late recognition of the HIV/AIDS epidemic by governments, and the absence or weakness of control programmes that lack political commitment at all levels, could explain the differences.

We have shown in Uganda that HIV/AIDS control efforts need to be multisectoral and mainstreamed in the overall national development programme. This lays the ground for improvement of infrastructure and institutions that benefit the general population including persons with HIV/AIDS. An example of such a programme is the Poverty Eradication Action Programme that provides funds directly to districts and lower levels for development activities.

Our national response has been dynamic and responsive to current information and best practices. Flexibility has been exercised in the development of HIV/AIDS control plans, to allow new interventions and strategies to be incorporated as they emerge. All this requires a well-developed surveillance strategy that feeds into the planning process.

It has proved possible to increase the coverage of services by decentralizing HIV/AIDS control efforts to the districts and communities, and expanding partnerships beyond the traditional health care systems. The efforts of private-for-profit and not-for-profit organizations have been harnessed and supported. Governments must build bridges with communities to foster positive societal values that mitigate the effect of HIV/AIDS on individuals, families and dependants.

As we approach the end of the second decade of HIV/AIDS control, Uganda and indeed all African governments must avoid complacency and continue with frequent and targeted HIV/AIDS prevention and control messages. Instilling fear can be counter-productive and should be replaced with positive messages of hope that something can still be done. A mixed media campaign that draws on the influence of elders and cultural leaders to minimize cultural bottlenecks should be employed most of the time. Affirmative action to improve and increase literacy among girls should be promoted by governments as a means of reducing crude child mortality and morbidity (9). Gender inequalities have to be considered and minimized in the early planning stages of government programmes.

Respect for the integrity and rights of those affected and infected must be central in all national responses. Without this, control efforts tend to run into insurmountable difficulties. Persons with HIV/AIDS should continue to be actively involved in community-based initiatives. A continuum of care services must be developed, to promote care at all levels for persons with HIV/AIDS.

Finally, we should remain receptive to newer strategies such as vaccine developments as they emerge. Local HIV variants have to be used in the development of new technologies if they are to work here. This, however, must always be done in conformity with globally accepted ethical standards.

**Conclusion**

Uganda’s experience suggests that a multipronged prevention and control strategy can significantly...
influence behaviour and dent prevalence as well as incidence rates. Early recognition of the problem is necessary, and it must be followed by the construction of comprehensive strategic frameworks for intervention. Mechanisms for the coordination of a multisectoral joint plan must be an integral part of the national HIV/AIDS policy of each country. By working together, we can make a difference now and for the future.

Conflicts of interest: none declared.

Résumé
Lutte contre le VIH/SIDA: la réussite est-elle possible?
Dans le monde entier, la lutte contre le VIH/SIDA pose d’énormes problèmes qui font craindre que la réussite ne soit trop difficile ou même impossible. L’Ouganda a démontré qu’une stratégie de lutte précoce, régulière et multisectorielle pouvait réduire à la fois la prévalence et l’incidence des infections à VIH. De deux cas seulement de SIDA en 1982, l’épidémie d’infections à VIH a atteint dans ce pays un total cumulé de 2 millions de cas à la fin 2000. Le programme de lutte contre le SIDA établi en 1987 par le Ministre de la Santé a été peu à peu élargi à d’autres secteurs, sous la coordination de la commission SIDA de l’Ouganda. La riposte nationale consistait à adopter de nouvelles politiques, à étendre les partenariats, à renforcer la capacité des institutions de soins et de recherche, à favoriser l’éducation du public en vue de modifier les comportements, à renforcer la prise en charge des maladies sexuellement transmissibles (MST), à améliorer les services de transfusion sanguine, à offrir des services de soins et d’appui aux personnes atteintes de VIH/SIDA et à créer un système de surveillance pour suivre l’évolution de l’épidémie.

Après une décennie de lutte sur tous ces fronts, l’Ouganda a été en octobre 1996 la première nation africaine à rapporter une tendance à la baisse des infections à VIH. Une nouvelle baisse de la prévalence a été notée depuis. Le Medical Research Council du Royaume-Uni et l’Institut ougandais de recherche sur les virus ont mis en évidence une baisse des taux d’incidence du VIH dans la population générale des districts de Kyamulibwa et de Masaka. Des études répétées sur les connaissances, attitudes, comportements et pratiques ont montré des modifications positives des indicateurs de prévention prioritaires.

Les données laissent à penser qu’une riposte nationale multisectorielle soutenue par un fort engagement politique a pu conduire à la baisse observée. D’autres pays d’Afrique subsaharienne peuvent atteindre des résultats similaires par ces mêmes moyens. Comme la réussite est possible, tout résultat qui ne serait qu’insuffisant est inacceptable.

Resumen
¿Es posible ganar la batalla contra el VIH/SIDA?
La lucha contra el SIDA plantea numerosos retos en todo el mundo, lo que hace temer a muchos que sea muy difícil, si no imposible, ganar esa batalla. Uganda ha demostrado que una estrategia de lucha precoz, coherente y multisectorial permite reducir tanto la prevalencia como la incidencia de la infección por el VIH. A partir de sólo dos casos de SIDA en 1982, la epidemia de Uganda se propagó hasta dar lugar a 2 millones de casos acumulados de infección por el VIH a finales de 2000. El Programa de Lucha contra el SIDA establecido en 1987 en el Ministerio de Salud articuló una respuesta nacional que se extendió con el tiempo a otros sectores de interés bajo la coordinación de la Comisión de Uganda para el SIDA. La respuesta nacional consistió en introducir nuevas políticas, alianzas más amplias, una mayor capacidad institucional de atención e investigación, educación en materia de salud pública para propiciar cambios de comportamiento, una gestión reforzada de las enfermedades de transmisión sexual (ETS), mejoras en los servicios de transfusión sanguínea, servicios de atención y apoyo para las personas con VIH/SIDA, y un sistema de vigilancia para controlar la evolución de la epidemia.

Tras una década de lucha en esos frentes, Uganda se convirtió en octubre de 1996 en el primer país africano que informó de una tendencia a la baja de los casos de infección por el VIH, y desde entonces la prevalencia ha seguido disminuyendo. El Medical Research Council del Reino Unido y el Instituto de Investigaciones Virologicas de Uganda han puesto de relieve una disminución de la incidencia de infección por el VIH en la población general en los distritos de Kyamulibwa y Masaka. Otros estudios repetidos posteriores sobre los conocimientos, actitudes, comportamientos y prácticas han revelado cambios positivos en los principales indicadores de prevención.

Los datos llevan a pensar que la respuesta nacional integrada aquí descrita, unida al resuelto compromiso político conseguido en su apoyo, está en el origen de la disminución observada. Otros países del África subsahariana podrían lograr resultados similares con ese tipo de medidas. A la vista del éxito cosechado, resulta inaceptable no adoptar como mínimo tales medidas.
References