

HIV/AIDS and Education in Africa

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1. Introduction

HIV/AIDS, the fourth-leading cause of death among adults worldwide is estimated to have claimed 25 million lives since the beginning of the epidemic.^{1, 2[ⓧ]}

At the end of 2001, UNAIDS/WHO estimated that 40 million people were living with HIV, with 5.0 million of them infected in the year of the report. These statistics include children, parents, husbands, wives, and people in key roles like health-care workers, politicians, soldiers, and educators. AIDS killed 2.3 million Africans in 2001 and 28.1 million more of the continent's population is infected with HIV. The majority of new infections that occurred globally in 2001 happened in sub-Saharan Africa where many countries now join Botswana with prevalence rates exceeding 30% in pregnant women.

In addition to human suffering and loss of life, AIDS in Africa is reversing development and socio-economic gains. Life expectancy is dropping by decades, growth of already fragile economies decreases yearly, and governments experience increasing difficulty in the delivery of essential services including health-care, welfare, crime control, and national defense.

In the USA and Europe, highly active antiretroviral therapy (HAART) has commuted the death sentence of AIDS to the prolonged life span expected from a controllable, chronic disease. In the developing world, however, HAART is not readily available, nor are many other services and conditions that mitigate the ferocity of HIV, so the effect of HIV/AIDS is more severe.

[ⓧ] Superscript numbers are used to indicate most references that appear in a list at the end of this document. When referring to newspaper articles, publication details are provided in the text.

Public education efforts in many countries (notably Thailand, Cambodia and Uganda¹) have helped to stabilize or decrease the spread of HIV. Education is a key factor in promoting social and economical development of countries, alleviating poverty, and improving living standards of individuals. In this era of HIV/AIDS, a basic education has been proven to be effective in lowering infections,² just as education has also helped people understand how to care for those living with AIDS and to engage the numerous public policy and human relations issues that HIV brings into sharp relief.

HIV/AIDS presents challenges to every sector of African society. The education sector, however, merits the highest priority for urgent interventions for several reasons, a few of which are listed below (details may be found in reference 2).

- The worth of a basic education is undeniable as a general principal. Such education plays a critical role in HIV/AIDS prevention: a basic education ranks among the most effective and cost-effective means of preventing HIV according to a World Bank report² that advocates the vigorous pursuit of education for all (EFA). Schools and teachers can provide children with the knowledge, values, and skills with which to make healthy decisions, bring about healthy behaviour, and give the desire, if not the opportunity, to achieve economic independence. Schools also offer ready-made infrastructure and easy (cheap) access to some of the high-risk groups (teenagers, parents, teachers etc.). This facilitates the design and implementation of effective prevention strategies and AIDS education programs.
- Education is vital in reducing the special vulnerability of girls: Girls are extremely vulnerable to contracting HIV because of social, cultural, economic,

and physiological reasons.² The education of girls can assist in slowing the epidemic by contributing to female economic independence and improving the consciousness of girls especially on issues of self worth. Education can also provide information on family planning, work outside the home, and other options and life choices.

- The HIV epidemic is depriving some children of the benefits of education:
Children who are caring for sick or dying parents may not gain access to education, or may be forced to drop out, or may be unable to pay school fees. Caring for a relative may require staying home to do chores including “surrogate nursing.” Equally, parents who are ill with AIDS maybe unable to provide the emotional and “tutoring” support needed for their children’s success at school.
- AIDS is decreasing the number of children who are obtaining a basic education:
Absenteeism and decreased demand for education by children who have become orphans is another by-product of the HIV epidemic. When parents die, children, especially girls, are removed from school to attend to younger children and do other chores at home. Grandparents, if they are alive and inherit responsibility for the care of their grand children when the parents’ die, often cannot afford school fees. In this way, HIV exacerbates the effect poverty has on education. With children leaving school to care for sick or dying parents, the demand for education declines. When the young do not get an education, their economic prospects decline. This demonstrates just a part of how the HIV “domino effect” directly influences a nation’s future.

- HIV is limiting the supply of education: Africa is specifically experiencing increased mortality rates among teachers and administrators at all levels of education. To supply the demand for teachers, some education departments may cut costs in training, or may leave positions unfilled, or fill positions with teachers who are not optimally qualified. The deaths of staff also create ruptures in continuity that negatively effect educational outcomes. HIV/AIDS is thus negatively influencing both quality and quantity of teachers.
- Weakening the education sector also undermines the possibility of having that sector deliver necessary AIDS education: Education on HIV/AIDS is necessary not only to enhance prevention, but also to improve general health knowledge, and to combat the stigma and fear surrounding the disease. To the extent that AIDS is weakening the educational sector, per se, it is also limiting the opportunity that that sector has to provide vital HIV education, creating a “vicious circle.”
- AIDS is increasing education sector costs: With the effects of loss of productivity and human capital, as well as the effects of increased dropout rates, education budgets must absorb even higher costs, with no increase in productivity or improvement in outcomes. Teacher hiring and training costs needed to replace those who have died, as well as the payment of full salaries to teachers who are sick and absent, stress an already under-funded system.
- AIDS is creating a special crisis in tertiary level education: Many tertiary institutions report or predict severe HIV infection rates among students and staff.

A loss of large numbers of educated individuals to AIDS severely impacts the economic and intellectual capacity of a country. Development and progress continuously necessitate the need for skilled labor, so called “human capital.” Progress and advancement also require biotechnological competence and the ability to utilize the benefits of information technology. Losses in the development of these competencies, at the tertiary and graduate education level, add to the difficulties in the African tertiary education systems, systems that are already functioning under worsening socio-economic conditions. The losses coming from AIDS threaten to undermine whole systems of tertiary education, in teaching, research, and engagement with community and national projects of importance.

All of the above consequences of the HIV epidemic on education will be expanded on throughout this paper. Several additional reasons for why education should be given the highest of priorities in the context of the HIV epidemic can be found in reference 2.

Besides its influence on education, AIDS is shaking the very foundations of African progress and security. Peacekeeping during periods of armed conflict, maintaining national security, and lowering crime rates are all important state functions. These are now severely threatened, because many African armies and police forces are so severely affected by HIV/AIDS. The ministries of defense of several African countries have provided the UN with values of 20-40% infection rates among African soldiers. In some countries numbers as high as 60% were reported. Seventy five percent of police deaths in Kenya were linked to AIDS.⁵

The ideal of an African renaissance, adopted by the Southern African Development Community (SADC) and recently incorporated into the New Partnership for Africa's Development (NEPAD), strives among other things for decreases in the numbers of people living below the breadline (the African expression for what is termed "the poverty line" in the US). The continuous spread of HIV however, forces the question "how can we work towards the alleviation of poverty without the serious consideration of HIV/AIDS, especially if the economically active are increasingly becoming infected with the virus and eventually dying of AIDS?" The SADC region is home to less than 5% of the world's population yet has more than 50% of global HIV infections and is where 60% of all AIDS deaths have occurred.

Needless to say, because the dynamics of AIDS in Africa differ from that of the developed world, a different approach for dealing with the epidemic is required. Different patterns of viral transmission, higher rates of infection, different opportunistic infections, and higher frequencies of sexually transmitted infections (STI) are seen here.⁴ These differences, although acknowledged by many African governments, unfortunately did not always lead to sound interventions, but sometimes to the embracing of discredited, pernicious and dissident ideas, unethical practices, and unscientific experimentation.^{3, 4}

An AIDS vaccine will eliminate a variety of problems associated with HIV in Africa (and the world). This is why research in this direction should be promoted and supported. Governments that undermine scientists and the scientific method stifle the establishment of a research culture, indeed, the very research culture that could support and achieve the critical goal of developing an effective vaccine.

Africa needs the immediate implementation of effective HIV/AIDS prevention, care and support strategies based on a multi-sector approach. These must include national and international partnerships and foreign aid.

This paper will attempt to provide an overview of important aspects of HIV/AIDS in Africa along with commentary on the status of higher education, as well as its response to AIDS. This document draws on information in the many excellent reports and articles provided in the reference list to be found at the end of this document. Readers who wish to pursue topics in greater depth will find details on how to do so in this section.

2. An Overview of HIV/AIDS in Africa^{1,6-8}

Africa is home to 10% of the world's population and an estimated 85% of the total number of HIV infections worldwide.^{1, 8} AIDS has surpassed malaria as the leading cause of death here and kills more Africans than war.⁸

In Africa, HIV is spread primarily through heterosexual intercourse. Sub-Saharan Africa is the only region of the world where more women are infected than men, and young women (15-19 years) experience higher infection rates than men of the same age.⁸ The disease has created more than 13 million "AIDS orphans," children who face an increased risk of malnutrition and reduced prospects for education, if they themselves do not have their lives cut short by the disease.⁶

HIV/AIDS causes damage to families, societies and economies in Africa. Consider the following plausible scenario as a case in point (this is adapted from reference 8) that illustrates the effects of HIV on the family, the educational system, and the local economy:

In rural areas or farming communities, the father is typically the first to fall ill due to HIV-disease. When this occurs, farm tools and animals may be sold to afford necessities for his care. As the disease progresses, he will not be able to farm at all. The farmer's wife, while she's still healthy, will find herself devoting all her time to nursing her husband. Should the mother also become ill, as she probably will, her children, especially her girls, may have to be involved in the fulltime care of their parents. This is particularly true in areas where rural area clinics are already short-staffed because of AIDS. Lacking farm income, the family will be unable to pay school fees. Children will likely be kept out of school to perform added chores at home. The economic consequences of the disruption of rural life can lead to sharp declines in the production of maize, cotton, and other crops. (In Zimbabwe, for example, this decline in farm production has also been attributed to widespread illness and death from AIDS among peasant farmers and workers at small commercial farms.) When the parents eventually die, the grandparents, if they are alive, may have to raise the children on a meagre income. If faced with the choice, they will most likely elect to send the boys to school rather than girls. The children who do manage to attend school will be confronted by decreasing numbers of teachers.

Regional statistics^{1,7}

The disease has a different outcome in different parts of the African continent. Eastern and southern Africa is more severely affected than Western and northern Africa. An estimated 20-26% of adults were infected in the southern African countries of Botswana, Namibia, Zambia, and Zimbabwe, with 13% of adults infected in South Africa

by the end of 1997. Botswana now has an adult HIV prevalence of over 35%.¹ In West African Senegal, the 1997 adult infection rate was 2%⁷ while adult infection rates now exceed 5% in 5 other west African countries namely Cameroon, Cote d'Ivoire, Nigeria Togo and Burkina Faso.¹ Even though prevalence rates are low in northern Africa the visible trend is also towards increasing HIV infection rates.

Reference to statistics is unavoidable in any discussion on HIV/AIDS, if for no other reason than to highlight the continuous need for meaningful, way forward discourse on this devastating epidemic. The UNAIDS/WHO¹ and The Foundation for Democracy in Africa⁷ recorded the following information in 2000 and 2001 respectively regarding HIV/AIDS in Africa:

- In South Africa, Malawi, Mozambique, Rwanda, and Zambia, between 1 out of 7 and 1 out of 9 adults live with HIV infection.
- In the Central Africa Republic, Cote d'Ivoire, Djibouti, and Kenya, at least 1 in 10 adults is infected by HIV.
- In Botswana, Namibia, Swaziland and Zimbabwe, 1 out of 5 people between ages 14 to 49 is living with HIV or AIDS.
- In parts of South Africa, Swaziland and Botswana more than 30% of pregnant women attending antenatal clinics (ANC's) are infected with HIV.
- Without preventive therapy, up to one third of infected women's babies will become infected via peri-natal transmission or breastfeeding, and most of these children will die by the age of 8.

- ❑ In West Africa, at least 5 countries are experiencing serious epidemics with adult prevalence's exceeding 5%.
- ❑ In Zambia, teacher deaths are equivalent to about half the total number of new teachers the country manages to train.
- ❑ At least 10% of people aged 15-49 are infected in 16 African countries.

The statistics are provided here to give the reader an idea of the scope of the epidemic in different parts of Africa and changes noticed in a span of just two years. Overall, sub-Saharan Africa is presently suffering the most while serious epidemics are occurring in 5 West African countries. In East Africa, only Uganda has had tremendous results in decreasing infection rates. In north Africa, where infection rates are lowest, there's still a trend towards increases. Detailed statistics can be obtained in reference 1.

Statistics from East African tertiary institutions¹³

Reported infection and mortality rates in many higher education institutions in Africa are alarming. In Southern Africa, universities and governments estimate very high prevalence rates among students while not so much is reported about prevalence in faculty or staff. The opposite of this seems to be true in East Africa. At a workshop organized by AWSE/AAC&U/AAAS and IWISE in 2001, representatives from eight East African universities reported figures of 2-3 deaths per month among faculty and staff.¹³ Egerton University, Jomo Kenyatta University of Agriculture and Technology, Kenyatta University, Maseno University, Moi University, and University of Nairobi, all from Kenya, attended the workshop. In addition representatives from Makerere University from Uganda and Sokoine University of Agriculture from Tanzania were present. These representatives included not only professors and administrators, but in several cases students, who reported on a variety of student-led initiatives on their campuses. Several East African research institutes (Mikocheni Agricultural Research

Institute, Kawanda Agricultural Research Institute, and Kenya Forestry Research Institute) were also present.

The universities reported that statistics were more easily available for infection and death rates among faculty and staff than they were for students. This is probably because staff members tend to remain attached to the university after the onset of illness while students do not. Percentage estimates of HIV infection in staff infected range from 12 percent to over 50 percent (Maseno University reported a rate of 51.5 percent of staff members between the ages of 30 and 39, and 35 percent of those over 40. Of these, nearly three quarters were support staff, with some 17 percent being academic staff and the rest, about 9 percent, administrators). Many institutions reported an average death rate of about 2 staff members per month, with the University of Nairobi reporting an average death rate of 2 staff members per week.

All eight universities have reported involvement in the following types of activities in response to the HIV/AIDS crisis: awareness raising and prevention, care and treatment, and medical research. These institutions also established AIDS committees or units that organize seminars and workshops for HIV awareness programs, provide educational materials, provide counseling, and distribute condoms. Some institutions also offer voluntary HIV-antibody testing and medical advice. In addition to the efforts of these AIDS-specific committees, most universities also reported HIV-related educational programs in other departments. These included centers for women's studies and gender issues, as well as campus health departments.

Problems at the research institutes were similar to those experienced at universities. Staff at agricultural universities or research institutes includes professors,

administrative staff and, for example, field workers responsible for transferring tissue culture development from the laboratories to the fields. Disruptions, caused by the HIV epidemic's morbidity and mortality, in this "continuum of services" has severe consequences for countries relying on agriculture for their food supply and economic growth. AIDS is already being blamed for declines in agricultural output in Kenya and Zimbabwe.⁷⁻⁸ Detailed information about the workshop referred to above and issues discussed there can be obtained in reference 13.

Poverty and issues of governance

The severity of the African AIDS epidemic can be explained in part by the region's level of poverty and some of its cultural habits (explained elsewhere in this document). Poverty forces men into migrant labour where they spend several months away from their families and wives. While away, the men may engage in unprotected sex with prostitutes. Poverty forces many women to become commercial sex workers, obviously increasing their risk of infection. Migrant labourers, as well as long-distance taxi and truck drivers, literally transport the virus between rural and urban areas.

Another explanation for the devastation of AIDS in Africa lies in issues of governance. Many times national governments have failed to respond to the epidemic, or they respond at a snail's pace. These governments have also failed to secure international aid to assist with upgrading ill-equipped health care systems and have neglected to acquire medicines that could lead to long-term survival of infected individuals. Governmental decisions on HIV/AIDS issues are often based on other political considerations rather than the public's health. Further commentary on the record of African governments response to AIDS can be found in section 2.2.

“International aid”⁹⁻¹¹

Donor governments have some burden of responsibility, as well, since they have repeatedly used the Africa-AIDS problem as a platform for promoting their own agendas, instead of providing what a particular country needs. Citizens of a number of African countries are still being used for the testing of AIDS drugs. But few will ever benefit from the results of the research, because treatment is only offered until the efficacy of the drug is demonstrated. For the person in the double-blind trial that got the placebo, the chance for treatment is largely lost. US drug companies, and even the US-government (CDC and NIH), funded unethical research when they authorized the use of placebos in control groups to confirm that AZT lowered mother to child transmission of HIV in Uganda.⁹ This study has been likened to the infamous Tuskegee experiments in which black sharecroppers were denied effective treatment for syphilis.

The US watchdog organization, Public Citizen, identified what it said were 15 unethical US government-funded HIV studies in developing countries in 1997. Such research is not allowed in the USA or western parts of Europe. Because it can not be done domestically, many overseas pharmaceutical companies seek out Africa and other developing nations where willing subjects who do not have a good understanding of their rights are plenty, regulations few or not so strict, and where there are poorly paid doctors eager to recruit subjects for a handsome fee.¹⁰ Earlier this year, the World Medical Association started work on a revised version of the Helsinki agreement.⁹ This agreement contains guidelines (originally drawn up in the 1950s in the light of Nazi medical experimentation) on how doctors should treat patients involved in clinical trails. Critics of the new draft document believe that revisions could dilute and amend the document in

such a way as to assist multi-national companies needing quicker and cheaper ways to test their drugs to bypass regulations.

Other aspects of the bioethics involved in drug testing in the developing world by US pharmaceutical companies are considered in references 9, 10 and 11. These include the claim that expensive (and potentially high-profit) drugs are being developed for ailments and conditions experienced by Americans and Europeans. These drugs are being tested in Africa, where even if the tests proved successful, no African would ever likely benefit. This means that few drugs of value to the African continent are being tested here.

Multinationals have also vehemently opposed and resisted changes in patent laws, laws that presently allow for monopolies in pricing and production of anti-retrovirals. Up to now, the companies have been reluctant to make concessions for the kind of HIV/AIDS public health emergencies experienced in Africa. US drug companies only lowered HIV drug prices after 22 million deaths,⁸ but, for many, that was too little too late. For most, extreme poverty means they cannot afford even “cheaper prices.” Their only option is to turn to unheeding national governments.

Western aid agencies have been accused of using rules that work in San Francisco, Soho, and Sydney and trying to apply them directly to Africa. This means that even if pharmaceutical companies provide cheaper drugs, they may not have an impact. According to the article, “Africa is dying of this western madness,” some aid agencies require an individual one-hour counseling sessions prior to HIV-testing. In Botswana, where 1 in 3 people are believed to be HIV infected, this alone would require 300,000 man-hours (*The Times*, July 7, 2003). So, in reality, routine testing in hospitals does not happen. Another western aid-agency rule suggests that for patients to get anti-retroviral

drugs they must see a doctor four times a year for compliance assessment, blood tests, and more counseling. These kinds of requirements, though probably well-intentioned, are unrealistic in the African context because of issues relating to available trained manpower, distances people live from hospitals/clinics, costs of blood tests etc. Funding rules have to be modified to suit the realities faced by HIV-infected people in Africa.

2.1 Putting Things in Perspective ^{8, 14-15}

To assist the reader in understanding the severity of the African AIDS epidemic and its unusual characteristics, experts offer explanations ranging from medical or scientific, to one that emphasize cultural, economical, and social conditions. Each will be briefly discussed in the sections that follow.

Medical explanations: AIDS in many African countries is generally caused by a virus known to specialists as HIV-1 Subtype C, which may spread more easily through heterosexual contact than Subtype B, common in the United States. If this is true, then the entire sexually active population is more vulnerable to infection in Africa than in continents and countries where Subtype B is dominant. Also considered as a possible explanation for the difference between the prevalence of AIDS in western vs. southern and eastern Africa is the presence of HIV-2 in the former region, a virus generally considered less pathogenic than HIV-1.

At the Barcelona AIDS conference of July, 2002 much emphasis was placed on the high prevalence of genital ulcer disease in regions where the HIV epidemic was

severe. Genital ulcers caused by some bacterial (e.g., *Haemophilus ducreyi*) and viral (*Herpes simplex virus* type 2, HSV-2) STI's are efficient portals of entry for HIV. There is a compelling body of evidence showing that STI treatment and prevention are necessary components of HIV prevention strategies.

Cultural explanations: Cultural factors may also be playing a role in the African epidemic. Male circumcision, to pick just one example among many, is reportedly more common in West Africa than in eastern and southern Africa. Some scientists suggest that this fact helps to explain the comparatively lower rate of infection in this region (*Boston Globe*, November 5, 1999; *Sunday Times*, London, March 26, 2000). Female circumcision, on the other hand, has been identified as a factor contributing to the transmission of HIV/AIDS. Examples of other cultural habits that may impact on the spread of HIV/AIDS include: rituals of blood exchange in certain initiation ceremonies of young men; sexually inexperienced girls being encouraged to marry at a young age and to marry older men; the custom of wife inheritance; the fact that periods of long illness in men is viewed as a curse or a spell for which traditional healers recommend sex with a virgin as a cure; and, the belief that a man's achievements can be measured by the number of sexual partners and children he has.

Economic explanations: Poverty and HIV/AIDS are linked in a many ways. Poverty leads to prostitution as a means of obtaining an income. Poverty is linked to poor nutrition, that, in turn, results in weakened immune systems leaving food-deprived people susceptible to opportunistic infections, etc. Costs of providing treatment for people with

AIDS competes with already inadequate resources and drains scarce resources allocated to education, agriculture and other sectors important to a country's gross national product. A 1999 report from UNAIDS estimates that by 2005, AIDS treatment costs should account for more than one third of Ethiopia's government health spending, more than half of Kenya's, and nearly two thirds of Zimbabwe's.

The circumstances and situation of HIV/AIDS has prompted a serious consideration of the cancellation of African debt in favour of investment in the social and health sectors. That said, African governments who claim that the reason little is done to procure anti-retrovirals is because these drugs are too expensive, need to explain why they choose instead to spend millions of dollars on military equipment and armed conflict. According to Sheila Dinotshe Tlou in a paper entitled, "Women, the girl child and HIV/AIDS," presented at the 45th Session of the Commission on the Status of Women, one eighth of the military budget in most African countries would have been enough to supply free antiretroviral drugs to every one living with HIV/AIDS in 2001.

Social explanations, especially connected to the status of women: Another issue warranting considerable attention in understanding the epidemic in Africa is how the status of women impacts on the spread of HIV. Women, because of their social, cultural and sexual subordination, are disproportionately affected by the epidemic and require special consideration, especially when planning interventions. Even with the existence of the Convention on the Elimination of all forms of Discrimination against Women (CEDAW adopted by the UN in 1979), the legal systems and cultural norms in most

countries support and exacerbate gender inequality in a variety of ways. These include: giving men control over productive resources such as land, making wives subordinate to their husbands (through marriage laws), and making men principal beneficiaries of family property (through inheritance customs).

HIV infects people regardless of sex, race or social status, yet more women are infected than men in Africa.^{14,15} There's also a disparity in age with a higher prevalence in younger women. Young women in their teens and twenties have higher infection rates than females in other age groups. The fact of higher infection rates in women vs. men in Africa is attributed to a claim that women are more promiscuous. A more factual explanation is that women marry young (mostly while still in their teens) to older, more sexually experienced men who may expose their new wives to HIV/AIDS and other STI's. Abstinence for these child brides is not an option, nor is trying to negotiate or insist upon condom use. Both gestures could expose them to violence or rejection.

The disparity in the numbers of infected men and women in Africa shows that social inequalities facilitate the spread of the virus. Education is a very important part of this equation. The high illiteracy rates among women means that access to and understanding of written and validated HIV/AIDS information will be limited. Reports at the Barcelona conference indicated that knowledge of HIV/AIDS among young women in many African countries ranged from very little to absolutely nothing (see section 2.4).

To put it bluntly, there is a relationship between women's lack of power and their risk of HIV. Beyond the cultural practices and beliefs mentioned above, women and girls are at great risk of being raped and/or physically abused. These traumatic experiences

represent tragedies in and of themselves. They also carry with them sequelae, such as lowered self-esteem and a decreased sense of self worth that only further decreases the likelihood of the woman being in any way “in control” of her own person in negotiations about sexual activity.

The disproportionate infection rates between men and women can also be explained by simply considering just a few of the many “multiple roles” that women play in Africa. These include: wife, mother, care-giver, HIV-infected person (who is also a wife, mother, caregiver), and in some instances being all these things while also being a sex worker (often the only option a woman sees open to herself, given the poverty and other life-conditions). Hamblin and Reid¹⁴ discuss why unique interventions based on the special circumstances women face are needed. Reid and Bailey¹⁵ suggest the serious consideration of possible special anatomical (difference in development of mucosal membranes in younger vs. older women), immunological, and biological susceptibilities of young women to HIV infection.

This document cannot possibly do justice to a topic of the magnitude of “the effect of HIV/AIDS on woman and girls,” but the foregoing discussion and other issues highlighted throughout the paper are offered in an effort to call attention to this absolutely critical social explanation for Africa’s experience with AIDS.

2.2 African Leaders and AIDS⁸

A lot of criticism of the response of the African continent to HIV/AIDS is aimed at her leaders. Many believe that the spread of AIDS in Africa could have been slowed down if African leaders had been more engaged and outspoken earlier in the struggle

against the disease. In September 1999, the United Nations convened a major conference on AIDS in Africa in Lusaka, the capital of Zambia, but none of the fifteen invited African heads of state attended, including the host-country president, Frederick Chiluba, who sent his vice president to read his opening remarks.

President Yoweri Museveni of Uganda is a notable exception on this topic. He stands out as a pioneer, winning recognition for leading a successful campaign against AIDS in his country. On the other hand, former President Daniel Arap Moi of Kenya did not endorse the use of condoms as a preventive until December, 1999 (*Africa News Service*, December 23, 1999). The South African president, Thabo Mbeki, is perhaps most notorious for his support of dissident AIDS scientists who maintain that HIV is not the cause of AIDS. He has also questioned the effectiveness of AIDS medications used in preventing mother-to-child transmission of the disease.

In 2000 in Addis Ababa, Ethiopia, African leaders attending the 2nd African Development Forum when discussing the challenges of HIV/AIDS emphasized the crucial role of sustained social/national mobilization involving cross-sections of society with government spearheading the campaign (*Pan African News Agency*, December 7, 2000). At this meeting, President Festus Mogae of Botswana said an appeal must be made to partners in the developed world to convince pharmaceutical companies to make the cost of drugs affordable to Africans. President Kagame of Rwanda indicated that his government was at this stage providing anti-AIDS drugs to affected people at reduced prices. Many leaders emphasized negotiating reduced drug prices as a major requirement for their success in dealing with HIV, while others focused on calls for debt cancellation as their major concern. (This is a possible example where one agenda—debt cancellation,

albeit a plausible and desirable strategy for freeing up funds for other things like fighting AIDS—takes precedence over a more narrowly focused public health agenda.) One year later, at the UN General Assembly Special Session on AIDS, many African leaders reiterated their commitment to fight AIDS, while still highlighting the necessity of partnerships with developed countries and non-bureaucratic access to international funding sources to aid in their struggle. The problem with many meetings, special sessions, and forums is that they do not include provisions for effective follow up mechanisms or assurances that the governments, the UN, and other agencies will carry forward the declarations that are agreed on. These are just a few examples and a cursory discussion, indeed. But, for the most part, even today, Africa's leaders have yet to prove themselves able to provide consistently effective leadership as far as AIDS is concerned.

2.3 Science and Politics

Dr. Malegapuru Makgoba, president of the South African Medical Research Council (MRC), in his address to the NIH in Bethesda in May 2001 said,

Whenever politics take centre stage, manipulates science and scientific truths for its own ends, opts for bad scientific advice and erodes the independence and rigour of the scientific methods in any country, the consequences have been dire.⁴

History is littered with examples of situations where scientific fact and ethical standards have been manipulated to support a political goal. The Tuskegee experiments have been previously mentioned. In 1924, the United States Congress passed legislation

that decreased Jewish immigration from Poland on the wrong advice that “genetically inferior people, who would make bad American citizens, were more frequent in Southern and Eastern Europe than Northern Europe.”³ Troy Duster, in a 2001 SENCER backgrounder entitled “Some Social Implications of the Molecular Biological Revolution,” also alluded to a history of politically-charged public health decisions in the US, and pointed to possible future dilemmas following from political interpretations of the results of experiments in molecular biology.¹⁶

The South African government’s response to HIV/AIDS in 2000-01, based on advice from so-called AIDS dissidents, questioned the link between HIV and AIDS. This led to the initial refusal to provide treatments that lower the incidence of mother-to-child transmission. Today, access to these treatments is still delayed. Misrepresentation of scientific facts that have been sufficiently proven by carefully conducted experiments and the undermining of scientists and the scientific method, causes setbacks in public attitudes towards HIV/AIDS, and contributes to the spread and virulence of HIV. Beyond that, the misrepresentations also contribute to the erosion of scientific independence. (And this is of special consequence on a continent where the growth of a credible, durable, and high-quality scientific community is described as essential to the development of Africa and the well well-being of Africans.) The perils of spreading pseudo-science, the selection of only those portions of science that support a particular policy or behavior, and/or opting for advice without any scientific basis,^{3/4} all have extremely harmful consequences. Promoting distrust of science negatively impacts the morale of those infected with HIV as well as their families who need to rely on the best scientific advice they can get. The misuse of science is detrimental to education efforts

and undermines strategies needed to combat the disease. The delay and under-funding of research limits the availability of effective new prevention programs and treatments.

It seems necessary, if lamentable, to state the obvious: Science should be practiced by scientists. Governments should concern themselves with issues of governing. Whenever there's a need for an unavoidable meeting between science and politics, there should be careful and diligent consultation with a commitment from government to seek and be open to expert advice and not just the selection of what's acceptable or desired in support of previously decided policies. The African experience makes this painfully clear.

2.4 The Influence of the “Out of Africa” Mythology

Oftentimes opinions in the West about how Africans behave in new situations, what they believe, and whether they're capable of accepting and adopting change are based on myths and misunderstandings of African cultural practices. Africans, themselves, are also guilty of perpetrating and maintaining myths and misconceptions of HIV/AIDS.

African women are dangerously ignorant of HIV/AIDS. According to UNICEF, more than 70% of adolescent girls (aged 15-19) in Somalia and more than 40% in Guinea Bissau and Sierra Leon have never heard of AIDS, while in Kenya and Tanzania, more than 40% of girls in the same age group harbor misconceptions about how the virus is transmitted.¹ As mentioned earlier, one of the worst myths AIDS educators on the continent struggle against is the belief among some men that sex with a virgin can cure the disease. The origin of this myth (and many others) is unknown, but its impact has

been felt in southern Africa especially. It is easy to see how acting on this belief contributes to the spread of HIV and the exploitation and infection of young women.

These myths abound. They constitute what we might call a “civic epistemology of AIDS.” Many Africans ignorantly cling to the possibility that HIV was created by the developed world in a laboratory somewhere to minimize the number of poor people worldwide. This belief is often accompanied by a belief that there is a cure for AIDS that is being withheld. The point of raising the issue of beliefs here is to make a basic point that is all too often ignored: To successfully launch education efforts one has to be aware of existing mythologies in order to be able to directly address them.

The cultural attachment of Africans to traditional healers and their *muti* is often misunderstood. *Muti* is the Zulu word for a concoction of many substances including but not limited to herbs, hair, bones, eyes, and other body parts of animals and/or people, prepared under the guidance of the ancestral spirits.

There is an overlap, indeed, between these the work of traditional healers and the contemporary pharmacology. Existing over-the-counter and prescription treatments for many diseases have their origin in plant materials. Many of the world’s frequently prescribed drugs are derived from plants or are synthetic copies of plant chemicals. Tannins derived from Eland’s root, a Southern African plant, function as anti-diarrheals, anti-bacterials, and antifungals and have routinely been used by traditional healers to treat diarrhea. Cytosterols found in the African potato are presently being researched for use against prostate cancer because one of its compounds rooperol has been shown to be anti-mutagenic and cytotoxic for cancer cells. Extracts of Echinacea species are employed to stimulate the immune system and treat chronic inflammation. Many more examples²⁴ of

plant-derived medicines exist. Plants also suffer the attack of plant viruses and, in many cases, they routinely mount a successful resistance response. Therefore, the many scientists researching plant material for activity against HIV do not consider it far-fetched to anticipate eventual success.

Thus, Herbal *muti* may prove to be beneficial even to HIV infected people. African herbal medicine and *inyangas* (African herbalists) have been around for countless generations and will continue to be part of society in future. Many African governments, international aid organizations, and pharmaceutical companies have formed partnerships with traditional healers for the purpose of research, training, and to start documenting information on useful plant extracts and how they're prepared. This knowledge is traditionally passed on verbally from the *inyanga* to his/her students. These partnerships also have to address and find ways to deal with "bio-piracy" (the theft of intellectual property in traditional medicines by multinationals¹¹) and make sure that over-utilization does not lead to the total loss of a particular plant species. Medicines discovered with the help of *inyangas* have appeal because it can be argued that they have been tested for countless generations and developed with the interest of the patient at heart and not for the sole purpose of gaining a profit.

The unfair belief that the causes of African AIDS mortality and high infection rates are simply based on sexual behavior belies the influence of migrant labor (a colonial invention) and real African cultural practices, such as wife inheritance. Another first world myth is that Africans tend to be non-compliant when it comes to using HIV-disease treatment (taking treatment as prescribed according to dosage, time of day to take, etc.). There were never any studies done to conclusively prove this or that suggest that African

compliance is any worse than that among white gay men, to pick a sensitive example. Yet, there was no apparent discomfort by those in simply asserting what amounts to a cultural slur. And even if one could establish the “slur” as fact, there is a corollary tendency to assume that African and other cultural habits and practices are impossible to change. I would argue that it certainly is difficult to change long-standing practices and beliefs, but it is definitely not impossible to do so.

Consider that condom use is increasing in Africa (in Kampala, Uganda, 98% of sex workers surveyed in 2001 said they had used a condom the last time they had sex ¹). Originally, drinking tea was not part of our culture, but is now adopted tradition. If we do not believe in the power of education, utilizing novel and innovative strategies as required, and the ability of people to be ‘teachable,’ we may as well do what an ostrich does in times of trouble, hide our heads under the sand.

Even though there may be many examples of how ineffective the provision of information has been in changing behavior there are also examples of successes. Once again, Uganda, Thailand and Cambodia, for examples, have lowered HIV prevalence by relying heavily on information, education, and communication. I believe that if there is a pressing need, people can and eventually tend to rise to the occasion. This is one such occasion, and higher education in Africa must rise to it.

3. Education in Africa^{2,17,18}

Education is considered the single most important key to development and the alleviation of poverty on the African continent.^{2,15,16} Education has also always been

instrumental in increasing knowledge, and knowledge is a necessary, if insufficient, ingredient in changing attitudes and behavior.

Conditions Preceding the Advent of HIV/AIDS

In Africa, education had substantial problems before the advent of AIDS. Now, AIDS has simply made these problems worse.

At primary and secondary school levels, poorly trained teachers, lack of books and proper infrastructure, and high dropout rates among learners have always been problems. Poverty usually plays a role in everything in Africa, so also with education. The World Bank² reported that one in four children end up leaving school before having learned to read or write. The Bank also estimates that more than 113 million children are not in school in the poorest countries. Two thirds of those “missing” an education are girls.

African tertiary education has also been plagued by age-old problems that hinder progress. In particular, human resource shortages are acute. These shortages have been the result of the failure to attract adequately qualified individuals to low-paying positions, especially with inflexible bureaucratic personnel systems governing pay increases.¹⁷

Students are mostly ill-prepared for college. Weak secondary school training coupled with the absence of remedial or bridging programs and effective “tutoring” and other efficient study aids limit the likelihood of college success. Facilities have also been under-developed and, when in college, students often find themselves stuffed into overcrowded lecture halls, scrambling to find textbooks, and lacking modern library services. Lecturers sometimes teach at more than one institution, resulting in less

availability to students outside the classroom setting and reduced office hours for consultations.

Conditions Since the Advent of HIV/AIDS

Many of the above-cited problems are only exaggerated with the onset of the HIV epidemic. The school age population is smaller because of AIDS (for reasons cited earlier), but, as mentioned in a prior section, institutions are greatly stressed financially (paying for funerals and illnesses of workers). Deaths from AIDS are creating critical shortages in qualified personnel.

First, let's consider enrollments. The US Bureau of Census suggests that 6 out of the 26 countries worst affected by AIDS will show an actual reduction in school-age population by 2015. Swaziland school enrolment has dropped to 36% due to AIDS, with girls most affected¹. Free primary schooling in Malawi and South Africa¹ has been lauded as a step in the right direction to assist girls with getting an education. Yet, these gains have been curtailed by AIDS. Lower enrollment and higher dropout rates will increasingly become a factor at secondary and tertiary education levels. Children who leave school because of loss of support (financial and emotional because of sick and dying parents) do not return to complete their schooling, at any level.

The picture becomes even bleaker when one considers the effects of HIV on school personnel. In a report launched at the AIDS conference in Barcelona, the World Bank estimated that, in countries with high infection rates, teachers are dying more rapidly than replacements can be trained. In Ivory Coast, five teachers reportedly die from AIDS during each week of the school year. According to USAID, the Ministry of Education in Zambia found that 1,300 teachers had died in 1999, mostly from AIDS, and

that only 700 new teachers were trained that year. AIDS is believed to be responsible for high rates of absenteeism and labor turnover in Eastern and Southern Africa, and the resulting increased costs are believed to discourage foreign investment. Universities, notably in Botswana and Kenya, report and anticipate further extensive losses in student, faculty and staff numbers.

The World Bank's document, *Education and HIV/AIDS a window of hope*, (reference 2) provides promising input and useful way-forward suggestions for education sector decision makers. Suggestions involve the pursuit of education for all (EFA), strategic planning (predicting/projecting future education sector needs), school-based prevention programs, skills-based health education, peer education and focus on the youth, support for orphans and out-of-school youth, multimedia campaigns and forming partnerships across sectors (private, communities, NGOs) within a country and internationally to ensure the success of the suggested approaches. It remains to be seen how many of these initiatives can become reality.

4. Teaching at Tertiary Institutions in Africa Before and After the Advent of AIDS¹⁷

One of the issues this paper seeks to address is how tertiary institutions (what in the US is called "higher education") can address the complex and enormous challenge of giving curricular attention to HIV. To understand the challenge, it is useful to give some

background on the higher education systems on the African continent, with special reference to the pedagogical traditions.

Teaching styles: Though notable exceptions exist, most faculty members maintain very traditional teaching styles, often those in vogue in the countries that held colonial power over a given African state. Traditional or formal teaching means one-speaker addresses several learners. The interruption of the lecturer for the purpose of asking questions is not encouraged. These teaching styles promote passive absorption of information. They are still widely accepted and widely employed. This means that there usually is no promotion of active intellectual engagement between student and professor.

Curricular structure: Most African tertiary institutions lack what in the US is called a general education component. That is, a set of common courses or learning opportunities—an architecture that can support broad educational goals. This lack of common courses for undergraduate students makes it difficult, for example, to introduce a general HIV-course that would be compulsory for everyone. Typically, students register for a qualification in one faculty and are not allowed to take courses (for credit) in other faculties. Science students are only allowed to attend science courses. An art student would not be allowed to attend science courses. Undergraduate science education at tertiary level overemphasizes “theory.” This isn’t necessarily because it is believed to be the best pedagogical practice. Rather, it derives from both tradition and scarcity. Where a practical, “hands-on” laboratory or field experience or demonstration would be pedagogically recommended, oftentimes such learning is not possible because of large class sizes, absence of personnel, or absence of equipment.

It is not surprising that against this backdrop of teaching and curricular traditions, the study of HIV has not become a feature in the experience of many African college students. For this to happen, some other critical changes need to happen as well.

It's now necessary to change traditional teaching styles, because innovative ways to address issues that have been usually viewed as personal, private and highly confidential must be discovered to educate the emerging elites and to halt the progress of HIV/AIDS. Teaching on HIV/AIDS also requires aspects of continued education (now formally only required for health care workers) for other disciplines, as well. HIV is a changing phenomenon. Thus, up-to-date factual information and knowledge is needed to enable graduates to function in their various roles in the economy and, as citizens, to be capable of making sound judgments on policies and programs. This continuing education will also be needed to refute misinformation, understand and deal with myths and folklore surrounding the disease.

The advent of outcomes based education (OBE) in some African countries promotes the revision of course content and teaching styles while also allowing for the incorporation of other learning tools. Methods of teaching and learning that are encouraged include group discussions, role play and simulation, visual aids, learning aids, learning through games and plays, and most recently, story telling, which can be easily adopted because it is already a traditional aspect of African culture. Most of these approaches, however, are not simply incorporated into the teaching of science.

OBE tries to capture international trends and tendencies in higher education where there appears to be a paradigm shift in the academic world, with specific emphasis placed on relevant, market-related, and applicable training. Universities now face new

conditions that require for more systemic reform. These include: the digital revolution, which allows information to be stored, manipulated and transferred increasingly more cheaply and ubiquitously, the changing “image” of students who are now viewed as clients of the university and thus can “demand” quality, service, and other changes, and also the influence of more foreign universities that operating in some African countries and bring with them “new ways” of doing things. (For example, the University of Monash, one of the top Australian universities, opened a campus in South Africa in 2000.) Another factor leading to institutional change is the intense competition that exists among universities to recruit top students, especially on post-graduate level. Since the advent of OBE requires revision of past teaching styles, course content and so on, it allows room to incorporate the ideas and values of SENCER.

SENCER and tertiary education in Africa: Even without OBE however, SENCER approaches can be easily incorporated in Africa because the ideals of civic engagement, active pedagogies and even service-based learning, along with goals for improved learning, better information retention by students, and improved science learning are essentially universal. The SENCER concept, as described in reference 13, is to “teach science through the lens or doorway of a compelling social issue.” The SENCER approach requires students to engage in serious scientific reasoning, inquiry, observation, and measurement, and to connect scientific knowledge to public decision-making, policy development, and effective citizenship.

HIV/AIDS is a profoundly critical social and scientific issue in Africa. It demands the attention and energies of the whole education sector. SENCER shows how

studying AIDS also allows room for improving science education. Incorporating SENCER ideals in one of my existing courses, the Virology Module of a microbiology course for undergraduates, was particularly easy at my institution, Rand Afrikaans University (RAU). Using team teaching, lecturers from the sociology department provided lectures on social issues and AIDS. In return, lecturers from the biochemistry departments provided introductory lectures on the biology of HIV/AIDS for a course on the social aspects of HIV/AIDS. Team teaching has special appeal because it means more information is provided to students without meaning more work for lecturers. It also breaks down the barriers among faculties. Students were also encouraged to engage civically by discussing with HIV/AIDS NGOs the kinds of assistance these organizations need from universities. They developed plans for collaborations and considered possible solutions to problems the NGOs identified.

Using SENCER tools for designing whole new courses (as opposed to modules within existing courses) will not be as easy. University systems in Africa tend to be very rigid. Beyond that, to the extent that a new course is truly new, it is not that simple to just “plug in” a lecturer, as one might be able to do in a traditional course. So, ironically, HIV, which is responsible for some of the staff shortages and needs for staff replacements, frustrates the very reform that needs to be made. There is room for encouragement, however. By demonstrating the values of SENCER to individual faculty members, a group can eventually convince administrators to allow curriculum changes. The progress in Kenya and Tanzania that has followed the AWSE/AAAS/AACU conference and the gains made subsequent to attendance by the African teams at SSI 2002 is encouraging testimony. The general impetus for reform, plus the urgency of

dealing with HIV/AIDS, and the need for curricular change to support the inclusion of the study of HIV makes this a most auspicious time to incorporate the SENCER ideals.

Human sensitivity: Beyond changing teaching styles and developing new curricular frameworks, the incorporation of HIV issues within courses will require increased faculty sensitivity. A change in attitude becomes a very important requirement for faculty teaching in an environment where the prevalence of HIV is as high as it is in Africa. A sensitivity towards the conditions under which the student has to function is essential. This includes the need for lecturers to consider the possibility that students, even if they are not infected themselves, are very likely to be affected by AIDS. They may be either living with and/or caring for an infected partner, parent or sibling. Faculty who want to help will find themselves paying attention to patterns of absenteeism in order to recognize the need for intervention, especially since issues of stigma may keep students from disclosing their conditions and asking for help, just as issues of confidentiality demand that suspicions of infection be handled with special care.

African universities are still struggling to put structures in place that assist staff and students in dealing with infection of either themselves or family members. Introducing HIV in the curriculum will mean that it is even more likely that students will come to rely on their professors for help. Thus, what I have called “increased sensitivity” means that faculty will need to be prepared to offer the help that is needed.

Issues of institutional leadership, government, and institutional autonomy: In many African countries, the autonomy of institutions and scientists is undermined by government¹⁷. Some institutions are directly accountable to government-appointed leadership, such as deans and vice chancellors, but also sometimes even department

heads. In fact, scientists have on occasion been removed from office after criticizing governments or their leadership.^{4, 17} Again, the World Bank cites the need for improved governance as one of the five critical needs for higher education in emerging economies (improved science education and general education are also mentioned).

Governments in Africa (as suggested by the task force on higher education and society)¹⁷ need to develop new ways of achieving necessary accountability, while preserving some autonomy and academic freedom.

5. The Response of African Higher Education to HIV/AIDS

The response of Higher Education to HIV/AIDS in Africa has been discussed thoroughly by several authors, such as Kelly¹² and Chetty,²³ who, mostly concluded that interventions were infrequent and disorganized, with few institutions having policies and frameworks concerning AIDS currently in place. These conclusions, published in 2001, did not consider education, counseling, and health care activities in which individual faculty members and departments were involved. Rather, the institutional, “group” response was primarily reviewed.

Now, just year later, most, if not all institutions have policies, strategic plans and entire committees or departments dedicated specifically to HIV/AIDS issues, as explained for East Africa in a prior section of this paper. Curriculum reform is also receiving increased attention, the focus being to incorporate HIV/AIDS in undergraduate coursework.

One similarity between US and African college students is that university first year students bring with them the complex legacy of HIV education efforts, which range

from “abstinence only” messages given in some high schools and churches to informal knowledge transmitted by peers and television.¹⁹ African first year university students will be faced with myths and HIV folklore, alongside mixed messages on safer sex practices from governments and authorities. They will also experience difficulty in understanding the role of their cultural beliefs and practices in all this. For this reason some southern African institutions have conducted surveys on perceptions and prevalence (sometimes involving voluntary testing) of HIV/AIDS on different campuses, to further encourage and design interventions.^{21,22} At the Rand Afrikaans University in Gauteng Province South Africa, the prevalence rate was lower than expected, 1.1% of the 1300 students who participated in the study tested HIV positive. Another South African university reported 20% of their students were HIV positive,²² this number is closer to what the country’s official estimates anticipate to be true. These and other related studies have led to the design of more structured and specific interventions, the range and scale of which improves yearly. Many institutions are now establishing campus health services where before there were none; they are launching increased and continuous intervention programs where before there were isolated programs, events, and guest speakers. The involvement of students as peer counselors is being encouraged.

6. Conclusion

After more than two decades of AIDS, the pandemic in Africa is still spiraling out of control. Because of AIDS, non-scientists now require more current and immediately applicable scientific knowledge than ever before. For example, they need a basic understanding of immune system functioning in order to understand the significance of

an “HIV test” (as a test for antibodies and not for detecting the virus directly) and to comprehend how anti-retroviral therapy works and why its not a sufficient cure. On a practical level, they need to understand why, for example, an HIV- infected individual should not eat raw meat.

HIV is an enormous and enormously complex issue, so is education. This paper is intended to provide an overview of both issues and to suggest what is happening at the important intersection between HIV and education. Education, I believe, is both, at present, yet another tragic victim of the AIDS pandemic, but education is also key to overcoming HIV. The impact of the epidemic on the African education sector, especially given the role education can play in lowering infections, has been the focus of this paper. Indeed, it is hard to overestimate the damage that HIV is doing. But, there is room for encouragement. The HIV/AIDS global crisis requires the integration of HIV/AIDS into science curricula at all levels. The flip-side is that HIV/AIDS is giving us impetus and allowing us room to change. We can, if we work at it, improve science education and teach our students the necessity of civic engagement. The challenge certainly is great but so are the potential benefits if we succeed. We know how serious the consequences will be if we do not.

7. Footnotes^x

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8. Update, 2003

This paper, originally prepared as a draft for discussion at the SENCER Summer Institute in 2002, highlights why education should be prioritized by those with the mandate of designing HIV/AIDS interventions in any country on the African continent. It also provided an overview of AIDS related statistics, reviewed some explanations for the uniqueness of the disease in Africa, and noted efforts being made by education specialists and interested parties to deal with the realities of the epidemic. In addition my paper offers commentary on a variety of factors that are contributing to my continent's shortcomings in its struggle with AIDS. These included: the approaches of some the

continent's leaders, the rules governing assistance of international aid organizations, the questionable ethical practices and inadequate response of multinational drug companies, and the mixed messages of leaders of the developed world.

Today, one year later, HIV still features in all major meetings of politicians, educators, policy makers and aid agencies in Africa. Even when the discourse starts on a topic other than the HIV pandemic, the discussion eventually leads to it because HIV/AIDS impacts every aspect of life on the African continent. This situation will persist until all the policies, strategies and action plans floating around have a visible affect in slowing down new infections and/or improving how those already infected are treated.

Promising recent events include, but are not limited to, a meeting of the African first ladies who met on the sidelines of the African Union (AU) summit held in Maputo in July where they strengthened their commitment to making a tangible difference on the problem of HIV/AIDS. The first lady of Gabon, Edith Lucie Bongo, told reporters that her group, in partnership with the Coca Cola African Foundation, would be producing a booklet and documentary on HIV/AIDS (*News24^a*, Africa News July 12, 2003). At this same meeting the IMF called for more help from developed countries, especially because updated statistics suggest more than 30 million Africans presently infected, with 2.4 million AIDS deaths thus far. To demonstrate the continual increase in infection rates, 20-40% of adults are believed to be infected by HIV in the southern part of the continent, especially in South Africa.

As if in answer to this call for aid, President Bush of the USA pledged to help Africa defeat HIV/AIDS during his visit to Botswana in July (*The Guardian & The Financial*

Times July 11, 2003). President Bush offered no details on how this was to be accomplished. This, along with the fact that the US “AIDS czar” is Randal Tobias, former boss of the American Pharmaceutical giant Eli Lilly, leads to some skepticism, much speculation, and many questions. Some critics believe that this means cash will go to US drug companies to pay for expensive drugs rather than for cheaper generics from generic companies in the developing world. Either way, the money will probably come with strings attached.

On the education front, the Association for the Development of Education in Africa (ADEA) recently held a conference on secondary education in Africa in (June 9-13) in Uganda. The World Bank’s Human Development Department (of the African Region), the World Bank Institute, the ADEA and the Academy for Educational Development (AED) jointly organized this conference for policy makers and educators. Some of the goals were to highlight international trends in secondary education reform; to share and discuss best practices in secondary education reform; and to develop action plans to increase access to secondary education all of which invariably impact HIV/AIDS.

Other noteworthy events include a plea by UNICEF that HIV positive schoolteachers be given priority for anti-retroviral drugs (*The East African Standard*, Kenya July, 1st, 2003). In Windhoek (Namibia), the first congress (under the auspices of Lironga Eparu) of people living with HIV/AIDS drove the deputy minister of Health Richard Kamwi to tears with their emotional request for treatment (*The Namibian*, July 7, 2003). In the Western Cape province in South Africa, 8.5 million ZAR (~ 1.1 million USD) will reportedly be spent to decrease the stigma surrounding HIV/AIDS in schools (*Eastern Cape News* South Africa, June 26, 2003). Also, in South Africa many universities

^a The url for News 24 is <http://www.news24.com.news24/Africanews>

(University of Pretoria, Fort Hare, RAU) now boast voluntary counseling and testing (VCT) centers that are also providing services to the surrounding communities.

Much work remains to be done on the core ideas brought to this discussion by SENCER, namely that inclusion of study of HIV in the curriculum will have multiple education and health benefits. The preliminary reports coming from the AWSE-inspired collaborations are most encouraging. These include the development and refinement of several courses at participating institutions and the formation of global SENCER partnerships to sustain innovation. Much remains to be accomplished.

These few examples indicate promising action being taken by individuals, organizations, and partnerships. It appears that if one group sets a good, workable example, others will follow suit. The work of individuals and individual groups still stand out more than that of collaborations between governments (international and national), aid agencies, and other shareholders. A lot more needs to be done and one year is too short a time period in which to expect much, but it certainly looks like there is new momentum. This is good news, indeed, on a subject where such news has been much too scarce.

9. List of Abbreviations

AAAS	American Association for the Advancement of Science
AAC&U	Association of American Colleges and Universities
AIDS	Acquired immune deficiency syndrome
ANC	Ante Natal Clinic
AU	African Union
AWSE	African Women in Science and Engineering
CDC	United States Centers for Disease Control and Prevention
EFA	Education for all
HAART	Highly active antiretroviral therapy
HIV	Human immunodeficiency virus
HSV-2	Herpes Simplex virus type 2
IMF	International Monetary Fund
IWISE	International Women in Science and Engineering
NGO	Nongovernmental organization
NIH	National Institute of Health (United States)
MRC	Medical research council (of South Africa)
OBE	Outcomes Based Education
RAU	Rand Afrikaans University (South Africa)
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization