HIV/AIDS INFORMATION ON GOVERNMENT HEALTH WEBSITES IN DEVELOPING COUNTRIES

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Advisor
This study is designed to answer the questions: Do government health websites in developing countries contain information about HIV/AIDS? Who is the HIV/AIDS information on government health websites aimed toward?

Six government websites were chosen and evaluated for the purposes of this study. A set of criteria was created to aid in the evaluation of the websites. It appears that developing countries do have information on HIV/AIDS on their government health sites. The extent of the content varies from country to country.

Headings:

AIDS (Disease) -- Developing countries

Developing Countries

HIV (Viruses) -- Developing countries

Information technology--Developing countries

Library Schools--Theses--University of North Carolina at Chapel Hill

Web sites--Evaluation
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Introduction

One of the leading causes of death in the world today is AIDS. This is particularly true in developing nations of the world. Developing nations are more susceptible to this disease because of a lack of information on what the disease is and how it is contracted. An article in the *Boston Globe* on June 16, 2002 predicted “the AIDS pandemic will rapidly worsen, with the number of cases possibly doubling in sub-Saharan Africa in five years, according to an analysis by US intelligence officials.” This prediction is startling when one considers that “in just two decades, AIDS has killed seven million farmers in Africa, cutting labour productivity on the continent by up to 50%. Also, the worst food shortages in a decade in Southern Africa are hitting countries with particularly high HIV prevalence” (UNAIDS). If the prediction stated above is correct, that the number of deaths caused by AIDS in sub-Saharan Africa will double within the next five years, and if fourteen million farmers die of AIDS in sub-Saharan Africa within the next five years, there will be serious economic consequences in this area of the world. If the loss of seven million farmers in that region has caused a 50% loss of labor, five years from now there may be a nearly 100% loss of labor in that region. Numbers like these indicate the critical need for information on HIV/AIDS to be disseminated to people in developing regions such as sub-Saharan Africa.

One of the major factors in lowering the rate of AIDS related mortalities in many nations has been government involvement in making information about the disease available to its citizens. In many cases governments are spending what little money they
have on things like defense or debt repayment. This leaves little or no funding for scientists and researchers in these countries to gather and disseminate information on the disease.

The Internet is increasingly becoming a critical source of information for people in developing countries. It is true that access to the Internet is much less available in developing countries, especially for the poor people living in them. In many areas telephone charges are so high that it is impossible for families in these areas to pay the costs on their own. It is also difficult for people to obtain the equipment they need to gain access to the Internet. At the same time, Internet capacities are being developed in these areas, many institutions, such as libraries or public telecenters, are allowing people even in the most rural areas to access the Internet.

There is no denying that the availability of this resource could be an invaluable source of information on the HIV/AIDS virus for people in developing areas. It is important to find out what governments are doing to educate their populations about HIV/AIDS. Through government health web sites people can be given the information about the virus that they need to prevent themselves and the people around them from contracting the virus. The intention of this paper is to answer the question, Do government health web sites in developing countries provide information about HIV/AIDS?

The purpose of my Master’s paper study is to find out whether government health web sites are providing information about HIV/AIDS, and if they are, to evaluate the information that they are providing through the web site. Some of the questions I hope to answer are: Does prevalence of HIV/AIDS affect the amount of information on the
websites? Does the economic situation affect the amount of information? Who is the intended audience for information on the websites?

Although I was not able to find evidence of a previous study similar to this one, I did find several studies done on how people living with HIV/AIDS use the Internet and also on efforts to prevent the spread of HIV/AIDS in developing countries.
Literature Review

To date, no studies have been done on the effect of HIV/AIDS information on government health web sites in developing countries. However, two areas that have been studied are relevant to this paper. One set of studies has to do with the effect of HIV/AIDS information on the Internet. The other set of studies has to do with HIV/AIDS prevention efforts in developing countries.

HIV/AIDS Information on the Internet

Several studies have been done on the use of the Internet for seeking health information and several specifically on the effects and usefulness of HIV/AIDS information on the Internet. The Internet can be a valuable source of information for somebody with HIV/AIDS. Not only does the Internet provide the most up to date information on the disease, but also it is easily accessible. Prior to the Internet, information on HIV/AIDS was changing almost daily but no one was getting the information until it was published in journals a few months to a year later. Today, with widespread use of the Internet, patients and their caregivers can access new information daily or weekly.

A study performed by Patricia Reeves (2001), and discussed in her article “How Individuals Coping with HIV/AIDS Use the Internet,” explains how people with HIV/AIDS use the Internet. Ten adults with HIV/AIDS were interviewed to find out how they used the Internet to deal with their disease. Reeves found that people with HIV/AIDS use the Internet for four main reasons. The first was to find information,
specifically the wide range of information available and the currency of the information available. The participants said that no other resource provides the wealth of information that is available on the Internet, nor does any other source allow for the acquisition of the most up to date information available.

The participants also used the Internet to form social connections with other people living with HIV/AIDS. This allowed them to talk to people who were living through the same situations. Some of the participants were not able to leave their homes and the Internet provided a way for them to socialize even though they were isolated.

Advocacy work is the third way that the participants used the Internet. Several of the participants said that they used the Internet to do advocacy work for HIV/AIDS patients like themselves, and to prevent discrimination. These participants said that doing advocacy work gave them a feeling of self-efficacy that had been taken away from them because they felt controlled by their disease. Escaping is the final way that the participants used the Internet. Some of them said that they liked to look at sites that were entertaining to them, or that they played games that kept their minds off their situation.

Another study on how people with HIV/AIDS use the Internet focused on the health aspects of Internet use. The study is discussed in the article “Internet Use Among People Living with HIV/AIDS: Association of Health Information, Health Behaviors and Health Status” by Seth C. Kalichman, et al. (2002). Participants in this study were 175 men and 84 women who had HIV/AIDS. The authors of the study looked at associations between Internet use and demographics, disease and treatment related knowledge, HIV treatment and treatment adherence, and personal health status.
Kalichman et al. found that people who used the Internet were more likely to answer questions related to HIV knowledge correctly than were non-users. They also found that Internet users more often adhered to their health treatments and had better health status than non-users.

Another study by Seth Kalichman and his team is described in the article “Closing the Digital Divide in HIV/AIDS Care: Development of a Theory-based Intervention to Increase Internet Access” (2002). This study describes the development of a pilot program to bridge the digital divide in AIDS care. The pilot program focused on building IT skills for people with HIV/AIDS who had rarely or never used computers, so they would be able to use the Internet to find information they need. They found that the intervention was successful in providing these people with the skills they needed to utilize the Internet as a resource. The participants felt more and more comfortable with the technology as time went on. Their feeling of self-efficacy grew the more they used the computers.

The article “A Web-Based Self-Monitoring System for People Living with HIV/AIDS” by E.J. Gomez, et al. (2002), describes a new system that is being developed that will allow people with HIV/AIDS to monitor their own health situation on the Internet. The system is called Seahorse II, and it has been implemented in some pilot programs over seas. The purpose of the system is to allow HIV/AIDS patients to enter information about themselves into the system, the system can then evaluate their situation and report back to them. The system will allow the user to be anonymous; users will never have to enter their name, address, telephone number, or any other contact information into the system. The patients would enter other personal data, clinical data,
life style data, and treatment data into the system. This data will be analyzed by the system and will allow the patients to evaluate how a treatment is working, when they should be taking medications, how their life style affects their treatment, and more. The users will also be able to communicate anonymously with experts including doctors, psychologists or social workers, depending on what type of question they ask.

The program has been successful in the four clinics around the world where it has been introduced. The users found the system helpful in keeping up with treatments and how they affect them, and they found the system easy to use. It is hoped that the system will improve the situation of the patients by allowing them to have their own clinical record and access to professional advice, which will save time and money. It is also hoped that medical providers will benefit through the information provided by patients.

**HIV/AIDS Prevention Efforts**

Studies on efforts to prevent the spread of HIV/AIDS in developing countries have focused on many aspects of prevention but none specifically study the Internet as a tool for prevention. There are studies that look at what has been done so far, the cost-effectiveness of interventions, a prediction of the effects of new interventions that can be implemented, a general view of the use of the Internet for disseminating health information in developing countries, and a look at the role of libraries in the prevention of HIV/AIDS.

In the article “Shadow on the Continent: Public Health and HIV/AIDS in Africa in the 21st Century,” approaches to prevention of the spread of HIV/AIDS in Africa are discussed. Kevin M. DeCock, et al. (2002) conclude that the strategies that have been used so far have been borrowed from industrialized countries and do not fit the needs of
the developing countries in Africa. They also believe that not enough money is being spent on prevention methods, specifically treatment of people who currently have HIV/AIDS. Several approaches are mentioned that the authors believe would improve the situation in Africa. The approaches mentioned are voluntary counseling, testing, partner notification, and advanced access to care. Some barriers to providing these services are discussed; stigmatization associated with the disease, failure to view HIV/AIDS as a public health and infectious disease issue, inadequate commitment to prevention, and poor resources and infrastructure.

Cost-effectiveness of prevention strategies is another issue. The article “Cost-effectiveness of HIV/AIDS Interventions in Africa: A Systematic Review of the Evidence” by Creese, et al. (2002) analyzes studies of the cost-effectiveness of interventions and presents the evidence. Measurements were cost per HIV infection prevented and cost per DALY (disability-adjusted life-years) gained. The prevention efforts discussed were condom distribution, blood safety, mother-to-child transmission, diagnosis, and voluntary counseling. The figures varied greatly because the authors looked at studies from 1988-2000. For example, the cost of condom distribution per infection prevented ranged from $11 to $2,000. For breastfeeding and formula-feeding interventions it ranged from $4,000 to $20,000. Home-based care per DALY gained ranged from $100 to $1,000. Although this study produced widely varying results, the information is still useful to organization and government planning intervention programs as they can see what the most cost-effective methods have been.

Discussions of prevention methods and their cost-effectiveness leads to the question presented in the article “Can We Reverse the HIV/AIDS Pandemic With an
Expanded Response?” by Stoner, et al., from the July 6, 2002 issue of *The Lancet*. The purpose of this study was to determine whether new efforts of prevention could reduce the spread of HIV/AIDS and whether it would be enough to reverse the epidemic. Below is a table of the activities proposed in the expanded response program:

Table 3. Prevention interventions and care and support activities of the expanded response programme

<table>
<thead>
<tr>
<th>Prevention interventions</th>
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</thead>
<tbody>
<tr>
<td>School-based AIDS education</td>
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<tr>
<td>Peer education for out-of-school youth</td>
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<tr>
<td>Outreach programmes for commercial sex workers and their clients</td>
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<tr>
<td>Public sector condom promotion and distribution</td>
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<tr>
<td>Condom social marketing</td>
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<tr>
<td>Treatment for sexually transmitted infections</td>
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<tr>
<td>Voluntary counselling and testing</td>
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<tr>
<td>Workplace prevention programmes</td>
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<tr>
<td>Prevention of mother-to-child transmission</td>
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<tr>
<td>Mass media campaigns</td>
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<tr>
<td>Harm reduction programmes</td>
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<tr>
<td>Outreach programmes for homosexual men</td>
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<tr>
<td>Care and support activities</td>
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<tr>
<td>Palliative care</td>
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<tr>
<td>Treatment of opportunistic infections</td>
</tr>
<tr>
<td>Diagnostic HIV-1 testing</td>
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<tr>
<td>Prophylaxis for opportunistic infections</td>
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<tr>
<td>Highly active antiretroviral treatment, treatment with three antiretroviral drugs</td>
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<tr>
<td>Laboratory testing to monitor effect of highly active antiretroviral treatment monitoring</td>
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<tr>
<td>Orphanage care</td>
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<tr>
<td>Community support for orphans</td>
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<tr>
<td>School fee support for orphans</td>
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</tbody>
</table>

Projections were made to determine the number of people who will be infected by 2010 by identifying high-risk groups. Prevalence in the high-risk groups was determined. Allowing for sexual mixing with high-risk populations increased prevalence in low-risk populations. Three models of estimating the effects of the interventions were used to come up with predictions. John Stover, et al. state that the estimated number of new
infections between 2002 and 2010 will be 45 million. They predict that by implementing the interventions proposed this number could be reduced to 29 million. Their conclusion is that “immediate implementation of a comprehensive set of interventions could avert a large number of future infections, and reverse the course of the AIDS epidemic”(76). However, they emphasize that for these interventions to be effective an improved infrastructure and government and societal acknowledgement of the problem will be necessary.

The Internet is a new tool that is being introduced in developing countries. Many people in developing countries do not have access to the Internet, and those who do have not had access for long. In her article, “Disseminating Health Information in Developing Countries: The Role of the Internet” Tessa Tan-Torres Edejer (2000) discusses the use of this new tool to provide health information to people who desperately need it. Edejer explains that the World Wide Web “enables information to be made available to multiple users the instant it is produced. Anyone can use it, whether an ordinary woman living in a village or a high ranking policymaker”(797). She also explains the significance of the interactivity enabled by the Internet; that allows users to get the exact information they are looking for and to produce it themselves. Edejer explains that, although the number of people in developing countries who have Internet access is low, new programs are being developed and implemented that are providing access to more people.

As with any search of health information on the Internet, accuracy is mentioned as an important factor for people in developing countries. One of the main problems mentioned is the lack of material being produced in developing countries. Most of the information available is produced in developed countries and pertains to people in those
countries. This means that most of the material is in English, a language that not
everybody understands. But Edejer looks into the future by explaining that the young
people in developing countries are the ones who will be utilizing the Internet for health
information now and in the future. Young people will be more apt to use the technology
and more open to information available through it. The conclusion is that in order for
people in developing countries to receive accurate medical information on the Internet
this information needs to be provided free or at a reduced cost. Developed countries can
assist with this by housing sites on their servers and by assisting in the evaluation of
information.

An interesting article titled “HIV/AIDS Pandemic…Are Libraries Doing
Enough?” discusses the role of libraries in helping to control the spread of HIV/AIDS.
Genevieve Hart (2000) evaluated materials in libraries in Swaziland and discovered that
the information on their shelves was out of date and therefore not useful. The libraries
had not been taking an active role in the communities to bring about awareness. One
suggestion of a way in which libraries can improve their role is to hold community
forums, where young people can discuss issues. An important point that is made is
“information is a process rather than a thing” (9). Librarians are not doing enough by just
having the information available, they must make the user understand what the
information means and how to use it. A positive aspect of having the library as a provider
of HIV/AIDS information is that there is no stigma attached with visiting the library, as
there is with a clinic. The clinics have been responsible for disseminating information
when the libraries are obviously a better setting for this task, according to Hart.
Methodology

In choosing a methodology to use for this paper I decided that content analysis was the most appropriate choice for evaluating the HIV/AIDS information on websites. The major task will be to choose and evaluate government health web sites from developing countries. This will require a set of criteria to use in evaluating the websites. For this purpose I have selected my own set of criteria, as published sources for criteria focus on evaluation of entire websites, not just the content on the websites. These criteria are bias, accuracy, currency, intended audience, usability, and usefulness of links.

Evidence of bias will be evaluated based on whether the content appears to have a hidden agenda, a narrow point of view, or if there is a conflict of interest involved. Accuracy can be judged based on whether the author gives supporting documentation for his/her ideas, if the cited documentation is credible, and if the information contradicts other reliable sources. Currency is an evaluation of whether the information given is up to date. Currency is especially important when dealing with health information. Intended audience is important because it will need to be determined whether the information is for the general public, health care providers, government officials, or others. Usability will focus on ease of use. Finally, useful links are important because any information that is not given on the website might be found through the links given.

I have chosen six countries whose websites I will evaluate. These countries are Cambodia, Costa Rica, India, South Africa, Thailand, and Uganda. My goal was to
choose countries with varying economic levels in various parts of the world and with various levels of urgency as far as the HIV/AIDS situation is concerned. The countries were chosen from the World Bank’s list of developing countries. The country list covers countries as wide ranging as Russia and Nigeria. One problem I had to face was finding countries with web sites that were available in English. Costa Rica is an exception. Their Ministry of Health web site is in Spanish but I felt that my Spanish ability would enable me to evaluate the content for the purposes of this study.

Once I had evaluated these web sites some conclusions will be drawn from the information found. I expected that there would be differences between the information provided by the more economically successful countries and the poorer countries. This is for somewhat obvious reasons. The richer countries have the ability to create more effective web sites and can employ people who are educated in the practice of making web sites. These countries also have access to more technological equipment than do the poorer countries. I also expected that cultural differences would influence the type of information that is available from government sites, although at what level this might occur was uncertain. The intention of the study is to create a better picture of what governments in developing countries are doing to provide HIV/AIDS information to their people. At the same time, I will be providing an insight into how technologically advanced these countries are. It is important to remember that the Internet has been introduced in these countries much more recently than it has in the U.S. and other “developed” nations. It will be interesting to see how much the governments of developing countries are taking advantage of this new emerging tool.
Country Information

(See Appendix 1 for further country information)

Cambodia

HIV was first detected in Cambodia in 1991, and the first AIDS case was officially diagnosed in 1994. Since then the epidemic has grown so quickly that Cambodia now has the fastest growing rate of HIV in Asia. There are three groups in five urban areas in Cambodia that have the highest prevalence of HIV infection, these are: women seeking reproductive health services (5%), male police and military personnel (13%) and female sex workers (41%). According to the 2000 Demographic and Health Survey there is a relatively high awareness of HIV/AIDS among women in Cambodia. However, 24 percent of women either have not heard of AIDS or do not know how its contraction can be avoided. Most women (66%) believe that condom use is one way of avoiding contraction of HIV. Young women also mentioned avoiding “injections, blades, transfusions, manicures/pedicures, and sex with a person who uses injectable drugs.”

The Demographic and Health Survey also asked questions related to HIV/AIDS related issues. From this survey it was learned that 63 percent of women believe that a healthy looking person can have AIDS. Most women also knew that mothers could give the virus to their babies during pregnancy, during delivery and by breastfeeding. Almost half of the women who took the survey said that they knew somebody who had AIDS or
who had died from AIDS. Seventy-six percent of women in the Phnom Penh region know someone who has AIDS or has died from AIDS.

According to the survey, even though women know about condoms and know that they are a good way of preventing contraction of HIV, 65 percent of women do not have access to them. Among the women who do know about condoms, only one percent reported that they had used one during their last sexual intercourse.

Costa Rica

HIV/AIDS was first detected in Costa Rica in 1983. Costa Rica has low levels of the disease, especially compared to the other countries in this study, but the levels of incidence have slightly increased between 1998 and 2000. Although almost ninety percent of AIDS cases have occurred in males, the level of females contracting the virus is increasing. In 1992 the male-to-female ratio of AIDS cases was 12.9:1, by 1999 this rate had fallen to 5.2:1. By the end of 1999 seventy-five percent of AIDS cases were in males.

Costa Rica is one of the few Central American countries where sexual interaction between men was the number one case of the spread of HIV/AIDS. In 2001 The Ministry of Health reported that 60.5% of HIV/AIDS cases are transmitted through men who have sex with men and 23.8% are transmitted through heterosexual contact; 3.4% are through blood and blood related products; 1.5% are from mother to child; and 1.1% are transmitted through intravenous drug use.

In the year 2000 the Costa Rican government spent $21.4 million on HIV/AIDS. Citizens of Costa Rica who have contracted the virus and their families have a right to treatment and support services. In 1998 a law was passed to protect people with
HIV/AIDS against discrimination. They have also started programs to strengthen sex education in schools.

India

At the end of 2001, an estimated 3.97 million people living in India had contracted the HIV virus. India has 20% of the world’s HIV/AIDS infected population. The number of people infected in India only represents .7% of the total population, which does not seem like it is a big problem, but the fact that there are so many people with the virus makes it harder to control. Some estimates of the number of HIV positive people in India are closer to five million. The actual numbers are hard to determine because, as Ratnathicam (2001) states in her article on the HIV/AIDS situation in India, “many doctors will not list AIDS as the cause of death due to the difficulties it poses for the family of the deceased” (256).

India’s National AIDS Control Organization (NACO) reports that 79% of HIV transmission is through sexual contact. Although heterosexual contact is considered to be the primary route of transmission, it is true that homosexuality is looked down upon in India’s society and therefore leads to a culture of silence about peoples’ true sexual preferences. This leads men to marriage with women, even when their true feelings are towards other men. Another problem in India are long-distance truck drivers who frequently have sexual contact with prostitutes and then return home to their villages and have relations with their wives. This not only causes the disease to spread from sex worker to sex worker, but to the people in the villages as well. Ratnathicam’s article reports that in 1993, at a truck stop outside Calcutta, 7% of the truck drivers were infected with HIV.
Stigma is a major problem in implementing programs to prevent transmission of HIV. HIV positive mothers are often afraid to take steps to prevent transmission of the virus to their babies because of fear that the community will notice the unusual practices. NACO stated that needle exchange programs that have been successful in other countries have not been implemented in India because of moral issues. Even medical professionals discriminate against HIV/AIDS patients because they are afraid of contracting the disease. In April of 1998 a man was burned in an Indian village because he was believed to be HIV positive. Many times families of HIV positive people reject them and they are often left to die alone. HIV positive individuals are also prohibited from marriage in India.

South Africa

South Africa has the highest number of HIV positive citizens in the world. Twenty percent of adults in South Africa are HIV positive. It is estimated that 1,700 people are newly infected with HIV every day. According to USAID, in 2005 the population of South Africa is expected to be 16% smaller than it would have been without AIDS and by 2015 population loss due to AIDS will total 4.4 million people. The United Nations Development Program has estimated that by 2010 the life expectancy will be about 45 years with AIDS, as compared to 70 without AIDS.

One problem in South Africa is the migrant labor system in the trucking and mining industries. This situation is similar to the one reported in India with long distance truck drivers. A survey conducted in one gold mining area reported that 60% of 88,000 miners had come from other areas of South Africa and other countries. One fifth of those miners were HIV positive and 75% of the sex workers who were servicing them were
HIV positive as well. These men will return to their homes and spread the disease in their own areas.

One complication in South Africa is the conflict over whether HIV causes AIDS. The president, Thabo Mbeki believes that HIV does not cause AIDS. This belief is causing conflict between the government and health professionals. The article “AIDS Campaigners to Take South Africa’s Health Ministry to Court” by Pat Sidley (2001) describes legal action that a group of 100 pediatricians, called the Treatment Action Campaign, has taken against the South African government as a response to a decision to refuse access to an antiretroviral drug that has been proven to prevent mother to child transmission of HIV in the public sector. Mark Heywood, a member of the group has stated that were the drug provided to HIV positive mothers, “20,000 transmissions could be prevented every year” (301).

Thailand

Thailand has one of the highest prevalence rates of HIV in Asia. The country is also known for its successful response in implementing prevention programs. The major problem contributing to the HIV epidemic in Thailand is its popular commercial sex industry. In 1996 it was estimated that 50% of female sex workers in Northern Thailand were infected with HIV. The men who use the services of commercial sex workers (CSWs) take the diseases that they contract home with them and contribute to the spread of HIV. Over 80% of transmissions of the disease occur through sexual contact. At the end of 2001 it was estimated that 670,000 adults and children were infected with HIV in Thailand.
In 1989 the government launched its National AIDS Program to prevent the disease from spreading. A national program called “100 Percent Condom Use” was implemented in 1992. This program requires that condoms are required to be worn during all sexual acts in brothels. The condom program, along with other efforts begun by The National AIDS Program, was successful in reducing the transmission of HIV. The actual numbers of Thai citizens with HIV has fallen, and they are no longer the country with the fastest growing rate of growth in HIV transmissions.

A major problem in reducing the transmission of HIV in Thailand is the commercial sex industry. This industry greatly increases the economy of the country because of foreign visitors who travel to the country explicitly to visit brothels. Another problem related to this is the fact that women in Thailand are judged based on how much money they bring home. Many women seek work as CSWs because it gives them economic wealth and respect. This cultural ideology must be changed so the women of Thailand will not feel the need to sell their bodies to gain respect.

**Uganda**

Uganda has been very successful in combating the spread of HIV/AIDS. It boasts the highest success rate in Africa. Uganda’s success was sparked by the leadership of their president Yoweri Museveni and by support from international and nongovernmental organizations. HIV prevalence in Uganda was reduced by 50% from 1992 to 1999. Despite its success, Uganda still had an estimated 600,000 citizens infected with HIV at the end of 2001. It is estimated that 80 to 90% of transmission occur through heterosexual contact.
The success in Uganda has been attributed to the great efforts by the government in cooperation with faith-based organizations, NGOs and community service organizations. The National AIDS Control Program was started in 1986, and the Ugandan AIDS Commission was formed in 1992. The purpose of the UAC was to coordinate a multisectoral response to improve planning amongst ministries throughout the nation. In 2002 the UAC formed a joint planning team comprised of representatives from different regions of the country to come up with an overall strategy for reducing the spread of HIV/AIDS.
Evaluation


Information on Cambodia’s National Institute of Public Health web site is minimal, including information on HIV/AIDS. What information is available is hidden within documents that are available on the site. The documents that contain information about HIV/AIDS are *The 1998 National Health Statistics – Department of Planning and Health Information* and *The 1997 National Health Statistics - Department of Planning and Health information, MOH (July 1998)*. The information available in these documents consists solely of tables that contain information about the HIV/AIDS situation in the country. The 1998 document has tables that represent data on the prevalence, distribution, and number of deaths due to HIV/AIDS. The 1997 document has tables representing prevalence, distribution by population, distribution by sex, distribution by age, and number of cases and deaths. This is the total of the information on HIV/AIDS available on the web site.


Information on Costa Rica’s Ministry of Health web site is available through a link located on the home page. This link pulls up a separate site focused on HIV/AIDS and STDs. This page is smaller than the original Ministry of Health web site and there is no option to make the page larger. Within the site is a drop down menu where the user can choose topics or questions that they would like information about. Each of these
options has information in paragraph format and pictures to accompany the information. There are arrows at the top of the page where the user can move forward within the document or backwards or choose another topic or question to view.

Many aspects of knowledge about HIV/AIDS are represented in these topics. These include: information on the virus itself, how bad the problem is, how it is transmitted, how to avoid transmission, how the virus works, sexuality, what happens when one gets an AIDS test, what is safe sex, correct condom use, and what someone with HIV/AIDS should do next.

India - http://mohfw.nic.in/

Information on HIV/AIDS is not easy to find through India’s Ministry of Health and Family Welfare website, but there is an abundance of it. First one must follow the link located on the home page to the Department of Health web site. Once one reaches this site the “NACO” link leads to the National AIDS Control Organization web site. NACO is a part of the Ministry of Health and Family Welfare of the government of India. The user would have to know what NACO is because there is no information about what it is next to the link.

Once the user does find the NACO web site there is an abundance of HIV/AIDS information. Available from this site is information on the government perspective on HIV/AIDS and information for the population concerning the disease. The government information is given in the form of information about NACO, speeches from the Prime Minister and the Minister of Health, and the location of state AIDS control offices.

Information about the disease is given through four links. The first link, “What is HIV/AIDS” gives information about the disease including what it is, how it is
transmitted, how to be tested, how to prevent it, symptoms, and diagnosis. It also includes a Frequently Asked Questions section. There is an “Ask the Doctor” link, which leads to a form that the user can fill out if they would like to ask a doctor a question about HIV/AIDS. Two links are given in the HIV/AIDS situation: one is “HIV/AIDS Indian Scenario” and the other is “HIV/AIDS Global Scenario.” Each of these links gives information about what is being done to combat the disease and what the prevalence is in each area covered.

At the bottom middle of the NACO home page links to news appear. Some of these links are a good source for health care providers but otherwise no information specifically for the providers appears on the web site. A “related links” link is provided at the bottom of the page. These links do not represent clinical information specifically but there could be useful information within those sites.

The NACO web site is well designed and easy to use. A site map is available, the last date updated is provided, contact information is easily accessible on the home page, and the layout is attractive but basic. The only problem could be the graphics that are on the home page. These could take time to download with a very slow computer, which might be a common situation in India, but they are not that sophisticated and should not be a big problem.


HIV/AIDS information is available through South Africa’s Department of Health web site through an “AIDS” link under the “Issues” heading located at the bottom of the home page. The “Latest News” site is the home page of the AIDS site. There are six links on the left side of the page that go to HIV/AIDS information. The first one is “Latest
“Newsletter” is the fourth link. This page has links to “HIV/AIDS TB Newsletters” dating back to 2001 and “Aids Today Metropolitan AIDS Research Communiqué – 2002.” The information contained in these newsletters is related to research findings and political issues involving HIV/AIDS, and could be helpful to people involved in the prevention of the spread of the disease and to health professionals.

“Reports and Documents” is the next link. Contained here are reports and documents that are related to new findings for treatment and political issues. They date back to 1999. The sixth link related to HIV/AIDS information is “Links.” This page gives links to other sites that are useful to people looking for information on HIV/AIDS. The links are split into categories titled “South Africa,” “General,” “Search,” “Europe,” “Asia-Pacific” and “North America & Canada.”

There is no information on this site for people in the population who may be looking for basic information on the disease. It is possible that this information could be found through the links located under the “Links” site, but it is not obvious to the user. The bulk of the information appears to be geared towards researchers and health professionals. However, the site is laid out in an easy to use manner. All of the content is accessible through the links located on the home page. There are not any graphics that would be particularly difficult to download. No information is given on when the site was
updated, but the main article on the home page is from the past week, so it must be fairly recent.


HIV/AIDS information is limited on Thailand’s Ministry of Public Health web site. No mention of the disease is given on the home page or under any of the links given at the top of the page. When the user follows the links at the top of the page each page that is retrieved has a “Latest News” section on the left hand side. At one time when I viewed the site there was an article titled “AIDS Drug Patent ‘Unlawful’,” which is a link to an article published in The Nation about a controversy involving a patent for an AIDS drug. This article is the only obvious information on the site. Under the link “Health Situation & Trend” there is a link to the “Thailand Health Profile, 1997-1998.” Within this document there are nine chapters. The seventh chapter entitled “Major Health Programs And Activities Implemented In Thailand” contains a small section under “Communicable Disease Control” showing what Thailand has been doing to combat HIV/AIDS. This site is well designed and easy to use but there is virtually no information on HIV/AIDS.


From the home page of Uganda’s Ministry of Health web site one can follow a link titled “AIDS Situational Summary.” The first page one comes across gives a description of how the information included in links given on the page was gathered. On the right side of the page there are links titled: “HIV Infection,” “AIDS Cases,” “Adult Cases,” “Pediatric Cases,” “Tuberculosis (TB),” “Behavioral Surveillance,” “More on HIV/AIDS in Uganda” and “Graphs and Tables.” The first six of these eight links go to
information at the bottom of the main page. Each heading only contains a brief summary of each area. The “More on HIV/AIDS in Uganda” link provides fourteen pages of graphs and tables. The “Graphs and Tables” link also leads to graphs and tables but they are different from the ones located in the former link.

In returning to the home page of the Ministry of Health there is further information to be found. On the left hand side of the page there are links to other areas of information. Under the link “Directorates and Departments” one can find a link to the “Uganda AIDS Commission” web site. This is a source for a wealth of information. The “Policies and Programs” link leads to information on prevalence and prevention efforts in Uganda. Under “Disease Surveillance” one can find a slide show that gives information about the AIDS situation in Uganda. In the “News Updates” as well as the “Publications” sections there are articles related to HIV/AIDS. The “Links” section provides a list of links specifically to HIV/AIDS related sites.

The “Uganda AIDS Commission” site is available from the Ministry of Health website. Although it is a “.org” site I will evaluate it for the purposes of this study because it is a government agency. This site is informative for people with all types of information needs. Information about the HIV/AIDS situation in Uganda is provided along with information on the programs within the Uganda AIDS Commission. Research Updates and National Updates on the situation are provided. The Research Updates section includes articles with the sources cited and information on how to contact the authors. Under “Practical Information” there is information on how to change behavior to prevent people from acquiring the virus, information specifically for women on how to avoid getting the disease, and information on how to avoid unsafe sex. More useful
information for the general population is given under “FAQs” where typical questions about HIV/AIDS are answered. The “Useful Links” section provides access to other websites, mostly in the United States, that have further information about HIV/AIDS. There are several links that would be of use to health care providers who need the most up to date information on treatment.

The site contains articles that are a couple of weeks old so the information on the site must be modified fairly often. The site is easy to use and the information contained in the site is easily accessible from the links on the home page. There are no graphics that would cause problems with viewing the site. One problem was that the pictures within the site did not appear on the screen, but this does not affect the content on the site.

Below is a chart that lists the criteria studied for each website and shows data for each of the criteria. Bias, accuracy, currency and links are all given yes or no answers to show whether these items exist on the website. Information type is listed as practical (for the general population), statistical (data for researchers) or clinical (for medical professionals). Usability is rated from one to five, one is the lowest ranking and five is the highest.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Cambodia</th>
<th>Costa Rica</th>
<th>India</th>
<th>South Africa</th>
<th>Thailand</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
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<td>Yes</td>
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<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<td>Statistical, Clinical</td>
<td>Statistical</td>
<td>All types</td>
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<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>4</td>
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<td>Links</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
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</table>

Breakdown of how each website ranked according to the criteria.
Discussion

The findings of this evaluation vary from country to country. Each country website that was studied did have some information on HIV/AIDS but the information varied in the amount and content. The fact that all of the country websites evaluated contained information on HIV/AIDS, even though they all varied in prevalence, economic status, and geographic location, shows that this is a worldwide problem acknowledged by most governments.

The result of the evaluations is surprising. The amount of information on HIV/AIDS on the government websites has no relationship to the prevalence levels of the disease in each country. South Africa has the highest rate of prevalence and there is a good amount of information on their website; however, Thailand has had an ongoing problem with HIV/AIDS in their country but they have very little information on their website. Cambodia does not have a very high rate of HIV/AIDS at this time, but the rate is the fastest growing in Asia and they have very little information on their website; whereas, Costa Rica which has a very low rate of prevalence compared to the other countries, has much more information on its website.

Economics seem to be a factor in determining the amount of HIV/AIDS information on government health websites. Although Uganda is probably the poorest country that I studied (considering GDP and population), they have the most information on their website. The other countries pretty much fall in line with having more information for a higher economy. Costa Rica is economically the most sound of all the
countries studied and they have a good amount of information on their website. India is also a fairly economically sound country compared to the others and they have a good bit of information as well. Thailand and Cambodia are not as economically stable as the other countries and they do not have much information on their websites.

Most of the information found on the websites is statistical. This information would be good for researchers, policy makers, and government officials. The statistical information covers the prevalence rates in the countries including specific regions of the country and prevalence rates all over the world. All six of the websites evaluated have some statistical information. Several sites (Costa Rica, India, and Uganda) have information for the general population on HIV/AIDS. These sites have information for people who might not know what the virus is, how it is contracted, how to be tested, how to prevent its contraction and more. None of the sites evaluated have specific information for health professionals. Some of them (India, South Africa and Uganda) have links to useful sites or information for health professionals.

There is some important information that is not available through these websites. Statistics about the situation are not present on the website for Costa Rica. It would be useful for researchers to be able to view these statistics. Clinical information for health care providers is not available on the sites for Cambodia, Thailand or Costa Rica. It could be argued that information for health care providers is more important than any of the other types because they need the information the most and they are more likely to have Internet access than the general population. As far as the information for the population, only half of the sites I looked at had this type of information. Perhaps this is true because many people do not have Internet access. It is possible that they have included links to this missing information.
Conclusion

Through the findings of this study one can conclude that providing information on HIV/AIDS on the Internet is not a priority in developing countries. It would be a good idea for developing countries to focus more on providing information on their websites. As was demonstrated through the studies on how people with HIV/AIDS use the Internet, it is an invaluable source. For example, Reeves’ study showed that people living with HIV/AIDS who use the Internet have an improved quality of life, physically and mentally. The Seahorse II software, discussed in the Gomez article, is an example of a beneficial tool that people living with HIV/AIDS can receive if they have access to the Internet. Providing information on the Internet would also be of great use to health care professionals. Health care professionals are often the source of information that is provided to people with HIV/AIDS and need to have the most up to date information.

The cost-effectiveness of the use of the Internet as an aid in preventing the transmission of HIV/AIDS is another incentive. The websites are already up and being paid for. The only cost necessary is hiring people to develop the content. In comparison with other strategies for getting information out to the population this is cheap. Mass media campaigns have been widely used, but these can be very expensive and require a lot of effort. Access would also be an economic aid to health care providers because they would not have to purchase as many books and materials to get the information they need.
The greatest barrier in providing HIV/AIDS information to people through government health websites is access. Many people in developing countries do not have access to the Internet. This could be the reason why there is not that much information on the sites already. But, as Edejer explains in her article on the Internet in developing countries, access is increasing in developing countries. She also says that the younger generation will be more open to using the Internet to find information because they will grow up with it. These are good reasons to go ahead and start developing the content on the websites now. Information on government websites will set the standard for other organizations that will include information on HIV/AIDS on their websites in the future.
Bibliography


<http://www.cia.gov/cia/publications/factbook/ >


## Appendix 1

<table>
<thead>
<tr>
<th>Information</th>
<th>Cambodia</th>
<th>Costa Rica</th>
<th>India</th>
<th>South Africa</th>
<th>Thailand</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>13,441,000</td>
<td>4,112,000</td>
<td>1,025,096,000</td>
<td>43,792,000</td>
<td>63,584,000</td>
<td>24,023,000</td>
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<td>Population (15-49)</td>
<td>6,314,000</td>
<td>2,204,000</td>
<td>533,580,000</td>
<td>23,666,000</td>
<td>36,636,000</td>
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<td>2.8</td>
<td>2.5</td>
<td>1.7</td>
<td>1.6</td>
<td>1.3</td>
<td>2.9</td>
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<td>% of Urban Population</td>
<td>16</td>
<td>48</td>
<td>28</td>
<td>50</td>
<td>22</td>
<td>14</td>
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<td>23</td>
<td>26</td>
<td>27</td>
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<td>4</td>
<td>9</td>
<td>11</td>
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<tr>
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<td>73</td>
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<td>340</td>
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<td>Life Expectancy Rate at Birth</td>
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<td>94.80%</td>
<td>52%</td>
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<td>65.50%</td>
<td>81.90%</td>
<td>96%</td>
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<td>Literacy (Female)</td>
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<td>81.70%</td>
<td>91.60%</td>
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<td>$16.1 billion</td>
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<td>GDP - per capita</td>
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<td>$6,700</td>
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<td>Population Below Poverty Line</td>
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<td>35%</td>
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<td>12.50%</td>
<td>55%</td>
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<td>Debt External</td>
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<td>267</td>
<td>20</td>
<td>230</td>
<td>112</td>
<td>18</td>
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<tr>
<td>% of Government Budget Spent on Health Care</td>
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<td>20.7</td>
<td>5.6</td>
<td>11.6</td>
<td>13.3</td>
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<td>450,000</td>
<td>27.7 million</td>
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<td>5.4 million</td>
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<td>Telephones - mobile cellular</td>
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<td>143,000</td>
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<td>116 million</td>
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<td>Radio Broadcast Stations (Total)</td>
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<td>112</td>
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<td>Internet Users</td>
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