Changes in HIV/AIDS Epidemiology in Uganda; Are we winning the War?

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PLAIN LANGUAGE SUMMARY

Since 2001, the global incidence of HIV and AIDS related deaths have been declining. This has been attributed to increase access to antiretroviral therapy (ART) even in the resource limited settings (WHO 2011). However, Sub-Saharan Africa continues to carry the disproportionate share (68%) of the global HIV pandemic. East Africa has however reported a decline in the epidemic with Uganda reported as one of the success stories, with a decline in prevalence to a stable 6-7% over the last decade. The objective of this review is to evaluate efforts by various stakeholders towards mitigating the HIV pandemic in Uganda. Literature shows that there was a significant decline in the prevalence between the mid-1980s and 2000 and a slight increase over the last 13 years. The increased prevalence is mainly attributed to an excess of incidence (new infections) over AIDS related deaths. Increase in incidence can be attributed to increased high risk sexual behavior amongst Ugandans whereas decreased deaths can be attributed to increased survival rates associated with increased antiretroviral therapy (ART) access. A number of individuals and institutions have played a great role in reduction of the epidemic in the country. Special attention should be increased in mothers, children under15 years and other Most at Risk Populations (MARPs). All in all, the fight against the HIV/AIDS epidemic in Uganda is far from over.

BACKGROUND

The global incidence of HIV/AIDS continues to decline. WHO reported a significant reduction in the number of people with new infections by 12.9% and the number of people dying from AIDS related causes by 10% since 2001. The decline in number of new infections (incidence) and AIDS related deaths has been attributed to increased access to antiretroviral therapy (ART) especially in low and middle income countries such as Uganda from 400,000 people in 2003 to 6.65 million in 2010.

Despite the efforts, Sub-Saharan Africa has continued to carry the highest burden of this epidemic with 68% of People Living with HIV/AIDS (PLWHA) residing in this region which contributes about 12% of the global population. Countries in Southern Africa are the most affected globally with South Africa having as high as 5.6 million PLWHA, a number equal to the total number of PLWHA in the entire Asia in 2009. Despite this high burden, HIV incidence has declined in almost half of its countries by 25% between 2001 and 2009 with success stories in Zimbabwe having a national prevalence decline of over 13% over 10 years.

East Africa has too had a stable decline in epidemics where incidence in Tanzania slowed to about 0.34% between 2004 and 2008. Kenya’s dropped from about 14% in mid 1990s to 6% in 2006 hitherto. Uganda’s has been 3% between 2005 and 2009.

Uganda’s HIV prevalence which is 10th in ranking globally, now stands at 7.2-7.3% with women (8.3%) compared to men 6.1% and urban dwellers (8.7%) compared to rural 7.0%) aged 15-49 years most affected. There is also a reported increase in prevalence from 6.4% to the current 7.2%. This however should not undermine the efforts that saw the national prevalence fall from 29% in the mid-1980s to a stable 6-7% in 2010. Despite an increased prevalence, there has been reported a successful increase in access to ARVs by males, females and children between 2009 and 2010.

METHODS

The objective of this review is to evaluate efforts by various stakeholders towards mitigating the HIV pandemic in Uganda. Relevant literature was identified from policy documents and online articles. An electronic database search was done on August 20, 2013 on Google search engine, the CDC and WHO websites using search terms such as “changes in HIV/AIDS epidemiology in Uganda” along with key terms specific to the subtopics listed in this review.

English articles about Uganda’s HIV epidemiology were considered and bibliographies of relevant reviews were search to identify further information for this review. The global HIV/AIDS response progress report 2011 was also reviewed to identify more epidemiological data for the article.
MAIN RESULTS

Origin of HIV/AIDS in Uganda

HIV was proven to have originated from primates way before 1960\textsuperscript{1,2} from regions of the Democratic Republic of Congo (DRC). AIDS was first recognized among young homosexual men in USA with *Pneumocystis jiroveci* Pneumonia (PCP) in 1981\textsuperscript{3,4}. HIV was first isolated by French virologists in 1983\textsuperscript{5} but was later fully characterized in USA 1984\textsuperscript{6,7}. HIV was earlier referred to as Lymphoadenopathy Associated Virus, LAV\textsuperscript{13}. Human T-Lymphotropic Virus III (HTLV III)\textsuperscript{42}, and AIDS associated retrovirus (ARV)\textsuperscript{65} but was later designated Human Immunodeficiency Virus (HIV) in 1986\textsuperscript{46}.

In Uganda, AIDS was initially known as the ‘slim disease’ and it originated around the Lake Victoria basin from Tanzania. The epidemic later spread out along major highways and urban sexual networks in the country\textsuperscript{8}. In 1982 the first Ugandan case of AIDS was diagnosed as associated to HTLV III\textsuperscript{31} and the nation has ever since witnessed a significant decline\textsuperscript{17} from 29% to a steady 6-7% over the past decade.

**Trends of HIV epidemiology in Uganda**

HIV prevalence is beginning to rise again in a country once believed to be an HIV success story\textsuperscript{18}. However the highly successful fall in prevalence observed during the 1990s was statistically significant (p<0.01)\textsuperscript{18}. The factors influencing prevalence of any illness include the severity (the more severe, the shorter the period to death hence the prevalence is decreased) and duration (the longer the duration, the higher the prevalence) of illness and the number of new cases/incidence (increase in incidence increases prevalence)\textsuperscript{19}.

The earlier decrease in prevalence in Uganda from the mid-1980s up to 2000 can be attributed to the high case fatalitythat was associated with HIV/AIDS and decrease in the incidence (see table 1 below). The increase in prevalence after 2000 can be explained by increased number of new infections/incidence, increased diagnostic facilities (better reporting), and prolongation of life without cure (given the fact that the current HIV/AIDS medication treats and not cures the disease) and also given the fact that AIDS is a chronic disease (longer duration of disease). The increase in ART coverage in the country corresponds well with the decrease in AIDS associated deaths and also with increase in life expectancy to 55 years in 2012, nine years higher than the expectancy in 2000\textsuperscript{20}. ART has hence contributed to the recent increase in prevalence in Uganda.

The factors driving the recent trends in new infections are not apparently clear but can be partly explained by the increase in high risk sexual behavior\textsuperscript{18} such as decreased condom use, early age of first sexual contact (as young as 15 years)\textsuperscript{20} and Men who have sex with Men (MSM). The analysis of surveys conducted between 2000-2010\textsuperscript{1,18,21} reported a decreased condom use during high risk sex by young men. MSM are important contributors\textsuperscript{22} to the country’s epidemics with an HIV prevalence of 14%.

**Special populations affected by HIV/AIDS**

Most at Risk Populations (MARPs) include female populations, children, sero-discordant couples, Men who have sex with Men (MSM) and Injection Drug Users (IDUs).

HIV prevalence is always higher in women than men\textsuperscript{6} and this is consistent with the higher risk of male to female than male to male transmission of HIV\textsuperscript{23}. Female commercial sex workers are at great risk with HIV prevalence among female sex workers (FSWs)\textsuperscript{24} being 35%. Females are the mothers of this nation and a greater prevalence among this population poses a great threat to the next generation. Therefore great effort must be placed in Prevention of Mother to Child Transmission of HIV (PMTCT) as 20% of new infections in Uganda are a direct consequence of mother to child transmission (MTCT)\textsuperscript{25}. The Uganda AIDS Indicator Survey showed that only 65.2% women had knowledge of breastfeeding as a method of MTCT and that transmission can be reduced by taking drugs in pregnancy therefore more sensitization is required\textsuperscript{1}. However, success has been achieved amongst this population with a 96% attendance at antenatal clinics for HIV counseling and testing and with 86% HIV positive mothers receiving ARVs in 2011\textsuperscript{26}. The new policies hope to eliminate mother to child transmission (EMTCT) by 2015.

Children too are a special population affected by this pandemic. Out of the 150,000 new infections in 2011, children accounted for 20,600\textsuperscript{27} and in 2011 alone 62,000 Ugandans died of AIDS related causes leading to 1.1 million children to be orphaned\textsuperscript{6}. Therefore special efforts should be placed in PMTCT and treatment in the young people given that 190,000 children are living with HIV/AIDS.

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<tbody>
<tr>
<td>HIV Prevalence Ages 15-49 (%)</td>
<td>1.3\textsuperscript{*}</td>
<td>8.5\textsuperscript{*}</td>
<td>6.2\textsuperscript{*}</td>
<td>6.4\textsuperscript{*}</td>
<td>6.2\textsuperscript{*}</td>
<td>7.2\textsuperscript{*}</td>
</tr>
<tr>
<td>Number of PLWHA/millions</td>
<td>1.2\textsuperscript{*}</td>
<td>1.2\textsuperscript{*}</td>
<td>1.0\textsuperscript{*}</td>
<td>1.0\textsuperscript{*}</td>
<td>1.4\textsuperscript{*}</td>
<td>1.4</td>
</tr>
<tr>
<td>Number of children living with HIV/millions</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>0.190</td>
</tr>
<tr>
<td>Number of women living with HIV/millions</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>0.670</td>
</tr>
<tr>
<td>Number of people newly infected with HIV/millions</td>
<td>0.115\textsuperscript{*}</td>
<td>0.110\textsuperscript{*}</td>
<td>0.110\textsuperscript{*}</td>
<td>0.110\textsuperscript{*}</td>
<td>0.125\textsuperscript{*}</td>
<td>0.150</td>
</tr>
<tr>
<td>Number of people dying from AIDS related causes/million</td>
<td>0.080\textsuperscript{*}</td>
<td>0.110\textsuperscript{*}</td>
<td>0.10\textsuperscript{*}</td>
<td>0.080\textsuperscript{*}</td>
<td>0.070\textsuperscript{*}</td>
<td>0.062</td>
</tr>
<tr>
<td>ART Coverage</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>Ns</td>
<td>42\textsuperscript{*}</td>
<td>54\textsuperscript{*}</td>
</tr>
</tbody>
</table>


ns: not specified, PLWHA: People Living With HIV AIDS

Segawa et al, 2014

Narrative Review

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Outstanding Individuals and Organizations in the fight of the HIV epidemic in Uganda

Individual efforts of H.E President Yoweri Museveni and his wife Janet, the late Phillly Lutaaya, Prof. Francis Miatti, Dr. Sam Okware, Beatrice Were and Noerine Kaleeba. Others are Dr. Mariam Duggan, Dr. Elly Katabira, Dr. Anthony Lwegaba, late Dr. Lucille Teasdale, late Dr. Piero Corti of Lacor Hospital in Gulu, Dr. Kihumuro Apuli, late Bishop Misairi Kavuma, Major Rubaramira Kurasanga, Dr. Cathy Watson, Prof. Nelson Sewankambo, Rev. Gideon Byamugisha, Dr. Peter Mugyenyi25, Dr. Coutinho Alex, Dr. Mugerwa RD, Dr. Serwadda amongst many others others have seen the great decline in HIV prevalence in the country.

H.E President Yoweri Museveni was hailed as the African leader most willing to speak openly about the pandemic and his efforts set up the AIDS Control Program in the Ministry of Health and led to a decline in HIV prevalence during his regime. A truly patriotic Ugandan, Phillly Lutaaya, a musician helped increase awareness of the pandemic whereas Prof. Nelson Sewankambo, Dr. Mugerwa RD and Dr. Serwadda among many others. Thus, HIV/AIDS have set up the AIDS Control Programme in Uganda, a musician helped increase awareness of the pandemic whereas Prof. Nelson Sewankambo, Dr. Mugerwa RD and Dr. Serwadda among one of the greatest scientists in Africa who have written research papers on HIV/AIDS and have set up numerous institutions to curb the pandemic.

Organizations that have greatly helped in HIV epidemic include institutions like US government, Rakai Health Science Programme (RHSP), Mildmay Centre, the AIDS Information Centre, Uganda Blood Transmission Services, the STD/AIDS Control Programme, Uganda AIDS Commission, Kitovu Mobile Clinic25, The AIDS Support Organization (TASO), Medical Research Council (MRC), Joint Clinical Research Centre (JCRC), Uganda Virus Research Institute (UVRI) and Makerere University affiliated research Institutions like Makerere University Johns Hopkins Research Collaboration (MUJHU), Infectious Disease Institute (IDI), Makerere University Joint AIDS Program (MJAP), Makerere University Case Western Reserve University (MU-CWRU) research collaboration and Makerere University Walter Reed Project (MUWRP) that have provided Prevention, Care and Treatment (PCT) services to a multitude of Ugandans.

ART coverage in Uganda

Uganda has witnessed an increase in ART coverage of over 16% in the last 3 years and this has contributed to a substantial decline in AIDS related deaths in the country. The great contributions come from the Global Fund and PEPFAR (US Presidential Emergency Plan for AIDS Relief) and a small portion from the government. These ensure free antiretroviral supply in the country which now stands at 56%. However challenges have remained with a majority of people in need for ART not receiving it and 68% of children eligible for ART are not able to receive it. ART in general is associated with increased life expectancy and is partly responsible for the increase HIV prevalence in the country26,27.

AUTHORS’ CONCLUSION

The HIV/AIDS epidemic remains a real challenge to Uganda especially a country that has been successful in its fight against AIDS for a long time. To redeem our previous success, efforts should be increased especially to reduce the high incidence rates in high risk groups. This war against HIV/AIDS is far from being declared over.

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