

UNDERSTANDING THE HIV AND AIDS PANDEMIC IN THE CHILDREN OF SUB-SAHARAN AFRICA

About 42 million out of the 6.5 billion people in the world are infected and living with the HIV virus. How is it then that today many people are still uninformed about this epidemic?

WHAT IS HIV AND AIDS?

HIV stands for Human Immunodeficiency Virus and is categorized as a retrovirus, which means it has an RNA genome which mixes with the DNA in a cell infecting the cell and allowing it to reproduce. The HIV virus is subcategorized as a Lentivirus, which means the virus is slow to cause harm to the body. The virus' cycle is quite simple yet when it replicates its genome is likely to have some alternations therefore genetic differences within the virus itself are common. This leads to the need of new medications which will have an effect on the new forms of the virus.

This retrovirus can not replicate outside a human cell. Surrounding its viral envelope there are 72 small spikes which attach to cells which contain the protein CD4 only, in this case the human white blood cells. When the virus attaches to the cell it deposits its RNA inside, where the HIV enzyme Reverse Transcriptase converts the RNA genome into an exact DNA copy that can then mix with the human cell's DNA. Inside the cell's nucleus the HIV enzyme Integrase combines the virus's DNA with the human DNA and forms the provirus or HIV DNA. Once the cell's DNA is infected the cell will keep reproducing as normal however it now reproduces the virus' proteins and enzymes which will form new viral cells. Outside the host cell the HIV enzyme protease matures the new cell which can go around and infect other healthy cells.

Because the HIV virus has such a rapid mutation and replicates at large quantities the body is not able to fight the virus. As time goes on the immune system deteriorates and the person gets sick more often; after the immune system's T-cell count has dropped past 200 the person is said to have AIDS. With AIDS the person is vulnerable to any sort of infection.

HIV is inside blood, sexual fluids, and breast milk. Transmission of the virus occurs when these fluids get in the person's bloodstream either through unprotected intercourse or oral sex, contact with an infected person's blood, through pregnancy and delivery, breastfeeding, or when injecting drugs when needles are shared.

STATISTICS

The continent of Africa contains 54 countries with around 797 million inhabitants and over 1000 languages. This same continent is responsible for 83 percent of the AIDS deaths worldwide, South Africa accounting for 240,000 deaths annually, the highest number out of all the countries in Africa. In these southern regions the number of adults infected can be as high as 36 percent of the population, a problem for the attempts to stop the virus from spreading.

The lower class youth is the most affected in Africa since their opportunities are limited. Currently around 2.3 million children are living with HIV in the world; over 80 percent of these children live in Africa. Statistics show that in 2005 about 570,000 children under 15 years of age died of AIDS-related causes and in return 540,000 got newly infected adding on to the 2 million already with the virus. Ironically, those 570,000 deaths represented 18 percent of the total amount of deaths that year, when children of that age account for less than 6 percent of the total number of infections. It is estimated that over 10 million people between the ages of 15 and 24 are infected. Most of these cases are recorded in the Sub-Saharan region of Africa, with the female percentage being higher than the male. A reason for this imbalance is the low status of women in their society, which makes them vulnerable to contracting the virus. Inequalities between the genders in these regions do not allow for young women to obtain the same benefits as men, including education and health care. Studies show that about 80 percent of the women aged 15 through 24 have a lack of knowledge regarding the fatal virus. Twenty-one countries in the Sub-Saharan region also show a great number of uninformed young women with more than 60 percent the population between 15 and 19 years of age having never heard of the virus or

with at least one misconception. Another ten countries have women aged 15 through 24 not aware that condom use decreases the risk of contracting the virus.

Lack of accurate information is also a problem for some males who believe that having sex with a virgin will cure their disease. This myth has caused many rapes of innocent girls throughout the affected countries and new infections.

In 2000, around 12 million children were left without parents due to the pandemic. It is estimated that by 2010 the numbers will nearly double. Those children who are fortunate enough to have a parent alive often drop out of school to care for them. With no education they will find other means for survival, whether it be working unskilled jobs, begging, or performing criminal activities. Others who have been completely orphaned are adopted by their relatives, usually their grandparents, and raised as best as possible given the conditions they have.

MOST COMMON WAYS OF TRANSMISSION

The most common ways children can contract HIV is before and after birth, the less common forms of infection occur from blood transfusions and sexual abuse.

Before birth the child is at risk of getting infected. Infection this way can occur when the mother's blood is passed on to the child while it is in the womb. During birth the child is also in danger of getting infected from the mother's blood and mucus tissues in which the virus is found. Medication can be given to the mother before delivery and to the infant immediately after birth in order to reduce this risk. After birth the child can become infected from the mother's breast milk. In poor countries, where baby formulas aren't found to replace their milk, mothers are forced to feed their children the infected breast milk.

Another method of infection is through blood transfusions. Although slight, there is a chance for a child to get infected from transfusion-blood. The chance may even be increased in these regions due to the poor health services.

Rape and sexual abuse from an infected person can also lead to transmission of the virus to the child. In the Sub-Saharan region this can be common due to the belief that sex with a virgin can cure the disease.

HIV/AIDS TREATMENT AND CARE

Being HIV positive does not always mean an immediate death. There are many medications that can slow the replication of the virus; however, since it is a virus there is no medication that can cure it. Treatment for HIV/AIDS patients was a problem due to the fact that high class people could access it but the low and middle class couldn't. Antiretroviral medications have now been accessible to people around the world living in poor countries. Therapy use has increased from 240,000 in 2001 to 1.3 million in 2005, as a result of the many countries involved in the "3 by 5" initiative to provide the treatment necessary to at least 3 million people by 2005. In Africa, for example, the amount of people under antiretroviral medications doubled by 2005. South Africa, the numbers grew from 5,000 in early 2004 to 190,000 by the end of 2005. HIV and AIDS education has also increased in many countries. In the sub-Saharan region, which accounts for 74 percent of worldwide victims, eight out of eleven countries show a decline in the amount of underage people sexually active and an increase in condom use. These medications, however, have only been available to 28 percent of the people in Sub-Saharan Africa, where the epidemic is most severe. In these regions education on HIV/AIDS is necessary in order for treatment to go to the needed. They need to be aware of their HIV status, know that there are medications, and willing to get the treatment they need. The cost for these treatments, the lack of medical facilities, as well as skilled people to perform treatments all impede the HIV/AIDS victims in these low class countries to access the medications.

There is a certain drug that helps delay the spread of HIV to AIDS and helps people live there lives in a more normal way and healthier. They are drugs called Antiretroviral drugs (ARVs), and distributing these drugs cost money and a lot of healthcare workers. ARVs help stop the reproduction of retroviruses, one of the most commonly known is HIV. There are six

most commonly known classifications of ARVs in development. The first three are already licensed but the other three are still in the process.

One of the ARVs that are already licensed is Reverse Transcriptase Inhibitors (RTIs), which target construction of viral DNA by stopping the activity of Reverse Transcriptase. There are two types of RTIs which have different purposes. One of them is called Nucleoside-Analogue RTI. These are brought into the viral DNA making the virus stop. While the other one, known as Non-Nucleoside-Analogue RTI stop the Reverse Transcriptase enzymes combining with the virus.

The second ARV that is also licensed is the Fusion Inhibitors. These block HIV from blending in with the cell's membrane and infecting it.

The third ARV, and the last one that is licensed, is the Protease Inhibitors. This one targets the virus and stops it from multiplying. It does this by restraining the activity of Protease. Protease is an enzyme used by HIV to separate the virus so it can not contaminate any protein.

The three that are still not licensed are: Entry Inhibitors, Maturation Inhibitors, and Integrase Inhibitors. These drugs are still not out because they are either under investigation or still are not commercially available.

Highly Active Antiretroviral Therapy (HAART) can slow down the process of HIV and delay its progression to AIDS in children. Children who receive therapy may be able to grow up to be teenagers and maybe older, and live a healthy life. Out of the 780,000 only 15% of the children living with HIV, living in either a low or middle class country, are receiving HAART. The children that do not receive treatment are at a higher risk of becoming ill and dying at a very young age.

The problem is not giving a child medication it is more complicated than that. First you have to find a child, test the child, and treat it. It is more difficult to treat a child with HIV than an adult with HIV. Children's bodies are constantly growing, undeveloped, and are more prone to become ill or infected. Children with HIV need to be monitored more often than adults, and if they don't take their medication around the same time everyday, then it will not work.

Another problem is that the majority of HIV positive people are adults so medical researches on ARVs are not generally focused on children. Researches show that 80% of HIV positive children would have lived at least another ten years if they had been able to access ARVs. Without the proper medications HIV positive children will die within the first two years of life and 80% will die by the age of five. Most children that receive ARVs will live anywhere pass 6 months to two years.

The majority of developing countries, such as Africa, can't receive these drugs because of their lack of resources; and this is horrible because the number of people with HIV/AIDS keeps on increasing.

Unfortunately, for most Africans that have HIV, ARVs are still not available for them. Less than one out of five million Africans receive ARVs, which is pretty sad because it shows the continuing failure of the world, even though there have been many advances throughout these recent years.

Botswana opened up the opportunity for ARVs to be distributed in Africa. He started the national treatment program in January 2002, and by January 2005 the program was providing treatment to the majority of the Africans in need.

Most African countries have begun to hand out ARVs but there is still not enough being distributed because there is such a large number of people infected with the disease.

Even though Southern Africa is the richest nation in Sub-Saharan Africa, the government should have helped to distribute ARVs to the infected Africans, but the government was too slow. Only 33% of the Africans in need are receiving ARVs. Hopefully as the years go by and the number of drugs to help stop or slow down the process of HIV/AIDS increases, the right medications can be given to every African in need.

In 2001, the UN Declaration of Commitment on HIV/AIDS recognized that it was necessary for there to be worldwide access to these treatments in order for there to be an effective global response. Since then much improvement has been made with the help of organizations and donors to provide treatment to those with the greatest necessities.

THE FUTURE IMPACT OF HIV/AIDS

Even though some people are trying to stop the spread of HIV/AIDS in the Sub-Saharan, studies show that there are no signs of stopping the affects of HIV and AIDS for years to come. This makes it obvious that we need to do as much as possible to help decrease the spread of this horrific disease. Thanks to some medication, millions of lives are being lengthen and hope is now becoming an option to the infected. Unluckily the majority of people still aren't receiving any medication. As more technological advances are being made, medications be available to at least half of the population infected with HIV/AIDS. As easy as this may sound, this will take a while and a lot of effort and money.

ORGANIZATIONS AND WHAT THEY ARE DOING

- Canadian International Development Agency (CIDA):

Africa and Middle East Overview CIDA coordinates health, education, peace-building and economic reform projects, all of which emphasize gender equality and environmental protection.

- International HIV/AIDS Alliance

Organization donates technical and financial support to HIV prevention, AIDS care, and orphans projects.

- PharmAccess International

Organization facilitates access to anti-AIDS medications and clinical care.

HOW STIGMA AND DISCRIMINATION AFFECT THE PANDEMIC

The impact that the HIV/AIDS virus has on people and society has a lot to do with fear. The disease has caused many actions of compassion and unity among the affected and their families while at the same time rejection and discrimination from others have led to a barrier in fighting the epidemic. The stigma in the society regarding HIV/AIDS is mostly because of the factors related to the virus including that it is ultimately fatal and nobody wants to contract it, the disease is already associated with homosexuality or prostitution which are already considered

shameful in some societies, some people also think that HIV patients are responsible for being infected, and finally religious beliefs which conclude that HIV victims should be punished because of moral fault. HIV/AIDS victims are stigmatized and discrimination in their societies. Some among their own families, others at their jobs, and yet even at medical facilities where some doctors or nurses may refuse to attend to them.

HIV-related stigma and discrimination remains an enormous barrier to the fight against AIDS. Fear of discrimination often prevents people from getting tested, seeking treatment and admitting HIV status publicly. However, coming out as HIV-positive can in many cases, have a negative effect on employment and housing opportunities, as well as social relationships. The only way to overcome this barrier of stigma and discrimination due to HIV/AIDS is for it to be tackled at both a community and national level. Many women who have given birth and are HIV positive, breastfeed their babies for the fear that if they use formula they will be discriminated against for having HIV. The vast majority of these children have become infected with HIV during pregnancy or through breastfeeding when they are babies, as a result of their mother being HIV positive.

THE LIVES OF ORPHANED CHILDREN

If children's parents die due to AIDS, the children either go live with another family member who will try to at least raise them or the eldest of the siblings becomes the head of the family. However, this means that they won't have enough money to pay school tuition and they will have to stop going to school and start working. In the case of the boys, they will most probably end up working on the fields of someone who owns a large farming land, on the other hand girls, will either take care of the house or will be forced by a family member to begin prostituting. If the girls are forced into prostitution they have an even higher risk of contracting HIV.

Children who are infected with HIV might not know that they are infected because if they contracted it from their mother while in her womb she might not have even known she had the

virus. Also girls that get raped don't know if the person who raped them had HIV or not. Another way of contracting the virus is that if a young girl is giving birth and has a hemorrhage the blood that is given to her as a transfusion might be infected with HIV, as a result of the hospitals not having the machines to test the blood and see if it has HIV or not.

PROBLEMS OF ORPHANS

Major problems of orphans born to HIV/AIDS infected parents are:

- Feeling of shame/rejection
- Feeling of inferiority
- Isolation/withdrawal
- Failure to take responsibility

Problems orphans face living with guardians or in extended families:

- Lack of educational opportunities
- Lack of moral support
- Exploitation of labor

HOSPITALS

Mulago Hospital is located in Kampala, Uganda and is the largest referral hospital in the country. This hospital sees more patients than any other hospital in the country. The Pediatric Infectious Diseases Clinic (PIDC) was established in 1988 as a weekly outpatient clinic providing care and support to Ugandan children infected with HIV/AIDS. Over the years, the urgent need for care and treatment services for children has grown, with Uganda now having an estimated 100,000 children living with HIV/AIDS in the country.

Services at the Pediatric Infectious Diseases Clinic include:

- On-site voluntary counseling and testing (VCT)

- Home based services: family VCT, patient follow up, adherence counseling, and health education
- Growth and development monitoring
- Childhood immunizations
- Basic care package includes: insecticide treated bed nets, clean water vessels, cotrimoxazole prophylaxis to patients and family members
- Nutritional support includes food supplements and micronutrients
- Caregivers' support groups
- Adolescent club and drama group
- Ongoing counseling to psychosocial support, disclosure, adherence and other issues
- Treatment and prophylaxis of opportunistic infections
- Tuberculosis screening and on-site treatment and
- Antiretroviral treatment and monitoring

St. Joseph's Center of Hope, located in Voi, Kenya, is a beautiful oasis in the middle of a semi-arid area in Kenya. Flowers welcome you to the center, as they line up on either side of the dirt road leading to the main house, where the sisters live and work. Sister Gen is the director of the center and works beside the 88 volunteer community workers, 3 nurses, 1 social worker, 1 nutritionist, 2 lab technicians and a visiting doctor. Of this group of people, four are counselors. They are working at capacity, attending 400 people.

Follow-up takes place, with on-going visits by counselors and community health workers, as well as nurses for those who are very ill. The patients are taught about proper nutrition, how to deal with the stigma associated with AIDS, and on how to take medication properly. Besides all its work, the center cares for over 300 orphans and they hold seminars for the community to talk about the care of HIV positive people, abstinence, and to address the issue of stigma.

CONCLUSION

The issue of HIV and AIDS is not just relevant to the Sub-Saharan region of Africa. This issue is world wide and pertains to every person on Earth. With about 40,000 new infections every year and about one million people currently living with HIV in the United States knowledge is essential for prevention. In the US alone half of the new infections that occur yearly include people 25 years of age or younger and half of the 5 million infections every year occur in people 15-24 shows that our youth is at great risk. We can see how education at a young age is a major part of preventing the virus from spreading not only in the Africa but in the US. Results from CDC's Youth Risk Behavioral Survey have calculated that about 47 percent of high school students have had sexual intercourse. Out of these students 7.4 percent had sexual intercourse before the age of 13. Sex isn't something the majority of the youth categorizes as sacred. Sex should not be thought of as a taboo anymore and people should come to the realization that the majority of students are engaged in it. It is very important for young people to see the diseases and risks you are exposed to by having sex. Contracting STD's and HIV is one of them. The mentality of humanity has to change in order for there to be some change. People need to recognize HIV and AIDS as a part of their community because it is not going to go away anytime soon. Discrimination and fear should be replaced by compassion and comprehension towards the victims, since it's not you the one that worries everyday about the time you have left to live. People should grasp the fact that HIV and AIDS aren't transmitted through hugs or handshakes and should think twice before acting ignorant. We should all join as a community and help the needed, most importantly the children of regions like Sub-Saharan Africa because that is the future we are seeing before our eyes. And the future that is also disappearing before us.