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HIV/AIDS GENERAL STUDIES COMI

CONTRIBUTING TO THE MILLENNIUM DEVELOPMENT

Developed with grant support fro
The Association of African Univers
P. O. Box AN 5744,
Accra, Ghana.

E-mail: hivaids@aau.org, mmbilima@aau



Ayanlaja S. A and Olalubi A. O



CRAWFORD UNIVERSITY

HIV/AIDS
GENERAL STUDIES COMPENDIUM

by
Ayanlaja S. A.
and
Olalubi A. O.

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PREFACE

Human perception can lead to false understandings. However, when observing new patterns in the world, more often all we have are our perceptions. This is the case with our early thoughts about HIV/AIDS. Physicians and Scientists could not adequately define and describe AIDS because they did not know at what they were looking. This inability to see the "big picture" is best illustrated by the old South Asian fable about six blind men invited to examine an elephant. The first man, falling against the elephant's side, claimed it was a wall. The second, seizing a leg, declared the elephant a tree. Another, grasping a tusk, thought the elephant was a spear. The fourth man, grabbing the trunk, decided he was holding a hose pipe. The fifth, touching the ear, believed it to be a fan. The last blind man, holding the tail, proclaimed the elephant a horse whip.

So it was in the early 1980s with AIDS: the elephant was the disease, and the blind men were the scientists and doctors grappling with its emergence in an epidemic. Without a clear vision of AIDS, they were forced to treat the epidemic piecemeal-to try and explain each bit of knowledge as it came forth. Physicians were seeing patients whose immune systems were profoundly suppressed, but they had no idea what was causing this problem. Public health officers were charting the course of the AIDS epidemic without knowing its cause. Manufacturers were searching out new drug therapies, but they were unsure about what they were trying to eliminate. Philosophers nicknamed AIDS as American Invention to Discourage Sex. Physicians and scientists could not identify the causes of what was happening or completely describe all of the features of the disease. Physicians saw it as a medical problem, economists as a potential disaster to the health care system, entrepreneurs as a threat to the smooth operation of their businesses, politicians as another drain on public funds. Until 1984, there was no clear definition of AIDS. No test was available to confirm a diagnosis, and no cure was in sight. Most scientists agreed that a cure would follow only after they found a cause and understood the natural history of the disease.

Despite the early pessimism, scientists found the cause of AIDS in a shorter span of time than had been required for any previous infectious disease. However, advances in the field of Molecular biology has made possible the rapid identification of the cause of AIDS, but did not prepare enough the physicians, scientists, patients, and our society for the slow and ongoing progress made in combating AIDS. No one was prepared for what has followed.

In order for Nigeria to achieve the 6th goal of the Millenium Development Goals (MDGs) by 2015, the spread of HIV must be halted and the reversal process accelerated. In 2007 alone, 2.5 million adults and children were newly infected with HIV globally; 1.7 million (68%) of these were from Sub-Saharan Africa.

In Nigeria, the prevalence of HIV infection is currently put at 4.4%. More than half of the new cases of HIV infections occur among young people. The statistics also provides evidences that young people within the age bracket of 15-25 years are the high risk group. The reasons have been adduced to a number of factors which include lack of communication between parents and children about sex education; risky lifestyle choices such as sharing blood contaminated syringes / needles during injection; hair barbing (male) or fixing (female) as the case may be; infected blood transfusion and injectable drug users. Students also tend to give in easily to peer pressure, physical attractiveness etc. which affect their sexual behaviour.

With the conception of high prevalence of rate of HIV/AIDS among students of tertiary institutions in Nigeria, one is left wondering if the students are aware of the disease and if various campaigns on HIV/AIDS have any impact on them. Nigeria tertiary institutions present a situation whereby everybody is aware of the deadly virus HIV/AIDS but most do not have adequate information about various aspects of the disease and its impact. It is generally agreed that young people must be given opportunity to be involved in the response to the epidemic. However to achieve this they must have access to adequate and updated information. This compendium is intended to provide some basic vital information about Epidemiology, Prevention and Impact of HIV/AIDS to student of Crawford University. We believe that this brochure will educate people in the effective control of the spread of HIV and AIDS. It is hoped that this series of lectures will stimulate interest among our students and that the information provided will bring about holistic behavioral changes. This should also trigger institutional response to slow the progression of the scourge and encourage students to actively engage in the response to the epidemic within and outside the university community.

Prof. Olufemi Oludimu
Provost, Postgraduate College,
Crawford University,
Ogun State, Nigeria.

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Prof. Samson A. Ayanlaja
Vice Chancellor, Crawford University

Dr. Olalubi A. Oluwasogo
Project Coordinator

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ACHPR	African Charter on Human and People's Rights
ANC	Antenatal Clinic
ART	Antiretroviral Therapy
ARV	Antiretroviral Drug
AZT	Azidothymidine
CBOs	Community-Based Organizations
CD4	Cluster Designated 4
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women.
CHR	Centre for the Right to Health
CRC	Convention on the Rights of the Child
CSW	Commercial Sex Worker
DNA	Deoxyribonucleic Acids
ELISA	Enzyme Linked Immunosorbent Assay.
FBOs	Faith-Based Organizations
FCT	Federal Capital Territory
FGDs	Focus Group Discussions
FMOH	Federal Ministry of Health
GDP	Gross Domestic Product
GSM	Global System of Mobile Communication
GSP	General Studies Programme
HAART	Highly Active Antiretroviral Therapy
HEAP	HIV/AIDS Emergency Action Plan
HIV	Human Immune Deficiency Virus
HSV2	Herpes Simplex Virus type 2
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic Social and Cultural Rights
ILO	International Labour Organization
MA	Matric protein / Antigen
MSM	Men Having Sex with Men
NACA	National Agency for the Control of AIDS
NASBA	Nucleic Acid Sequence-Based Amplification Assay.
NASCP	National AIDS and STDs Control Programme
NC	Nucleocapsid
NEACA	National Expert Advisory Committee on AIDS
NGOs	Non Governmental Organizations
NIAID	National Institute of Allergy and Infectious Diseases
NNRTIs	Non-Nucleoside Reverse Transcriptase Inhibitors
NRTIs	Nucleoside / Nucleotide Reverse Transcriptase Inhibitors
OIs	Opportunistic infections
PABA	People affected by AIDS
PCA	Presidential Committee on AIDS
PI	Protease Inhibitor
PLWHA	People living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
RNA	Ribonucleic Acids
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SACA	State Action Committee on AIDS
SP	Spacer Peptide
STDs	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
UDHR	Universal Declaration of Human Rights
UNAIDS	Joint United Nations Programme on Acquired Immune Deficiency Syndrome
UNDP	United Nations Development Programme
VCCT	Voluntary Counseling and Confidential Testing
VL	Viral (RNA) Load
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

The HIV/AIDS pandemic is a major public health and development crisis. The pandemic has evolved into the greatest human tragedy over the last two decades since the first case was diagnosed. The World Bank reported in 1996 that in the ten Sub-Saharan countries with the most advanced HIV/AIDS epidemics, estimates indicate that per capita income growth will be slowed by an average of 0.3% a year between now and 2025. The epidemic is evolving in diverse patterns across countries and regions. In most countries, overall adult prevalence is below 1 percent, with the epidemic concentrated in sub-populations, notably injecting drug users, sex workers and men who have sex with men. In some countries, prevalence has risen to as high as 80 percent of some subpopulations. Ominously, in a growing number of countries, the epidemic is spreading among the general population. In Sub-Saharan Africa, adult prevalence is over 7 percent.

In Nigeria, the adult HIV prevalence has increased from 1.8% in 1991 to 4.5% in 1996 and 5.8% in 2001 Estimates indicate than more than 3.5 million Nigerians are infected. In 2005, however, the epidemic rate has dropped to about 3% resulting from active responses towards mitigating the effect of the virus and the disease. Like many other developing countries, Nigeria has passed through several phases in her response to the epidemic. In 1997, the government of the Federal Republic of Nigeria through the Federal Ministry of Health adopted the National Policy on HIV/AIDS and STI. Later in 2000, Presidential Committee on AIDS (PCA) and the National Action Committee on AIDS (NACA) were established. A three year HIV/AIDS Emergency Action Plan (HEAP) was formulated in 2001 which is now being implemented.

The overall goal of putting in place policy for HIV/AIDS is to control its spread in Nigeria, and to mitigate its impact to the point where it is no longer of public health, social and economic concerns. Nigerians will be able to achieve socially and economically productive lives free of the disease and its effects[6].

In recent decades, HIV/AIDS has become a topical issue in Nigeria. Ever since the first case of AIDS was registered in 1982, the epidemic has continued to be on increase. For instance, an estimated 5.1% - 5.4% of the population has been infected with HIV/AIDS by 1999[1] and by 2006, 6.1 millions of 140 million populations is living with HIV/AIDS. The situation becomes worrisome as the number of people with the disease is expected to grow significantly by the end of 2010[2]. Despite the pandemic nature of HIV/AIDS, it was not until 2000 that the Nigerian government recognized HIV/AIDS as a major health problem[3]. Unfortunately, this was not immediately matched with intensified campaign on HIV/AIDS by governments at all level. However, the recent happenings indicate government sudden interest in fighting the scourge. Government's mounted aggressive campaign in the media and posted billboards in cities and highways, sensitizing on the dangers of the disease, modes of transmission and prevention. There have also been responses from both nongovernmental and Christian organizations in this campaign. Despite these concerted efforts by government and non-governmental organizations to address the problem, it is disheartening to note that the rate of infection is still high.

In 2011, the Nigerian Health Minister acknowledged the extent of the challenge that Nigeria faces when he stated inter alia that " the HIV/AIDS epidemic in Nigeria remains a public health problem of enormous magnitude"[3]. It is because, Nigerian University students fall into the category of the sexually active teenagers/adults. This compendium comprises of series of lectures on HIV/AIDS as part of the

General Studies Courses (GST) aimed to increase students' level of awareness, more understanding of HIV/AIDS and sensitizing them to the stark realities of the scourge of the disease. Such GST lectures include

(1) History, Biology and Epidemiology of HIV/AIDS;
(2) HIV infection and Education
(3) Effect of HIV/AIDS on National Demography, Workforce and the Economy;
(4) Legal, Social, Gender and Ethical considerations on HIV/AIDS issues and
(5) HIV/AIDS and Vulnerable groups
(6) Diagnosis, Care and Management of HIV/AIDS,
(7) Prevention of HIV Infection. The lectures are also aimed at equipping students with the knowledge that will enable them to adopt positive holistic behavioral changes regarding HIV/AIDS issues and strategies for mitigating the epidemic.

Objectives

At the end of the lectures / courses students should be able to:

(1) Provide in-depth update information on HIV/AIDS issues.
(2) Identify factors that may predispose an individual to the spread of HIV/AIDS within and outside the university community.
(3) Discuss the impact of HIV/AIDS on individuals, families, community and the nation as a whole.
(4) Identify ways of combating the spread of HIV/AIDS among themselves
(5) Embrace voluntary HIV/AIDS counseling and testing within the campus.
(6) Understand, interact, tolerate, persons living with HIV and AIDS in the University.
(7) Figure out lasting solutions to the problem of HIV/AIDS among youth.

The University on the other hand should be able to:

(1) Establish guidelines for decision-making, coordination, and action on HIV and AIDS related matters.
(2) Provide a safe learning and working environment that will be stimulating, supportive and free from discrimination.
(3) Guarantee learning and employment by observing the legal rights of persons living with HIV/AIDS.
(4) Augment the community efforts in mitigating the impact of HIV and AIDS.

Definition of HIV and AIDS

The Human Immunodeficiency Virus (HIV) is the virus which causes the Acquired Immune Deficiency Syndrome (AIDS). The HIV destroys important cells which control and support the body defense against infections, thus slowly destroying the immune system. These are white cells with a cluster of differentiation 4 (CD_4) also called T-helper cells. Following infection with the virus, there is a lag period (which may be as long as 5 years) during which the immune cells are destroyed, leading to immune deficiency at which time the individual is said to have AIDS. The term AIDS is the final stage of the disease caused by HIV. It represents the advanced stage of HIV infection during which the infected individual's immune system is unable to fight off opportunistic infections. The body of an immune-deficient individual has difficulty to protect itself against many other infections and certain cancers. Such infections are caused by microbes like bacteria, which usually do not make healthy people sick.

The development and degree of immune deficiency can be monitored using various diagnostic tools such as counting the number of CD 4 per microlitre of blood and measuring the number of HIV RNA particles per micro litre of blood (viral load).With the current availability of effective highly active antiretroviral drugs to treat the condition, HIV infection is no longer viewed as a fatal disease, but rather, a manageable chronic illness[4].

The immune system does not break like an egg; it breaks down gradually over time. It gets

deficient, or less and less efficient, under the relentless attack by the multiplying numbers of viruses in the body. Syndrome refers to the group or collection of signs and symptoms (or indications) of diseases in a person who has AIDS, such as unusual weight loss (more than 10 percent of normal body weight), fever (stopping and starting or continuous), dry cough which hangs on, excessive tiredness, diarrhea for a long time (more than a month), swelling of the lymph nodes, respiratory tract infections including pneumonia, thrush, tuberculosis, night sweats, stroke[6].

Types of HIV

There are two-types of HIV: HIV-1 & HIV-2.

HIV-1 is the most common type with different subtypes A, C, D and E. These are common in Africa and Asia. Subtype B is more common in Europe and North America.

HIV-2 is mostly found in West Africa, it seems to be less aggressive than HIV-1. HIV-1 virus was discovered in 1979. It affects both young and old; adolescents, economically productive age group, sex workers, migrant workers like drivers, members of armed forces and police. It has affinity for T lymphocytes with a receptor called CD4; enters cells and multiply thereby destroying host cells and as well deplete immune cells. This virus is transmitted through body fluids such as blood and sexual fluids (*sperms and semen).* The 6 stages of HIV/AIDS developments are; HIV Infection, Window Period, Sero-conversion, Asymptomatic HIV Infection, Related Illnesses, and AIDS.

Symptoms - These include: unexplained weight loss, incessant coughing, persistent diarrhea, persistent fever, coated tongue, rashes and skin infections. Other symptoms in adults include anaemia, tuberculosis, thrush, constipation, heart burn, anorexia (appetite loss), nausea and vomiting[6].

Prevention - HIV prevention strategies include - abstinence from indiscriminate sex, not sharing sharp objects and avoiding transfusion of HIV-Infected blood.

Modes of Transmission

In order for HIV to be transmitted from one person to another, there must be an exit point for the virus to pass out of the infected person and an entry point into the body of the uninfected person.

HIV is transmitted through the following routes:

1. Unprotected sexual intercourse (heterosexual and homosexual) with an infected person.
2. Injection or transfusion of contaminated blood or blood products and through the sharing of unsterilized infected needles/other sharp objects. There may be occupational exposure whereby healthcare workers are exposed to injuries from needle sticks or other sharp objects[4]. HIV transmission through unsafe blood accounts for the second largest source of HIV infection in Nigeria[16]. Not all Nigerian hospitals have the technology to effectively screen blood and therefore there is a risk of using contaminated blood. The Nigerian Federal Ministry of Health have responded by backing legislation that requires hospitals to only use blood from the National Blood Transfusion Service, which has far more advanced blood-screening technology[17].



Figure 1:
Picture illustrating collection of blood sample from an individual

1. Because HIV is present in blood and semen and, in some cases, in very low levels in saliva or other body fluids, it is remotely possible that one could acquire HIV by methods other than anal or vaginal intercourse or sharing of contaminated needles. For example, any instrument coming in contact with blood or body fluid can be a potential source of HIV if very large numbers of viruses are present and if large amounts of fluid are transmitted, among other factors. Acupuncture needles are an example of such an instrument, as are tattoo needles, razors and implements used to puncture the ears during ear piercing; however, the risk of contracting HIV from these instruments is extraordinarily low because many concurrent factors, such as viral numbers, volume of fluid, health condition of the recipient and inoculation site must be taken into consideration.
2. From an infected mother to her child during pregnancy, childbirth or breast feeding. Each year around 75,000 babies in Nigeria are born with HIV[18]. It is estimated that 360,000 children are living with HIV in the country, most of who became infected from their mothers[19]. This has increased from 220,000 in 2007[11].
3. Less commonly, infection is also known to occur through artificial insemination, skin grafts and organ transplants[4].
4. For HIV transmission, ordinary social kissing is not considered a high-risk behavior, but the risk increases with open-mouthed, or "French," kissing. This is because of the considerable amounts of saliva exchanged. The risk increases still further if the uninfected has lesions or sores of the mouth (e.g., canker sores); it is important to note, however, the fragility of the virus argues against transmission by deep kissing. (Laboratory experiments indicated that HIV survives very poorly in saliva).
   In addition, the level of HIV in saliva is extremely low: In one research study, only 1 of 83 HIV-infected individuals had HIV in the saliva.

Other Predisposing Factors to HIV Infection

There are quite a number of factors which could predispose an individual to HIV infection.

Socio-Cultural factors: These are factors which influence people's behavior and attitude to practices which promote the transmission of HIV infection[20].

(1) **Sexual habits (Sexuality):** The rapid spread of HIV infection seen in the last 20 years has been attributed to changes in sexual behavior and attitudes permitting or condoning multiple sexual partners. The high rate of multiple sexual partnering seen in Africa, Asia & Latin America can be attributed to cultural norms which permit men to have several partners before and after marriage, in addition to patronizing commercial sex workers (CSWs). CSWs, most of who are infected, are the reservoirs of HIV infection and many of their clients become the bridge population to the general population, including their wives and children[20]. Early age of commencement of sexual intercourse, and peer pressure are contributing to the high rate of sexual mixing experienced worldwide i.e. young girls partnering with older men.



Figure 2:
Demonstration to promote retention of virginity in teenage girls

(2) **Social Practices:** In Africa (Nigeria inclusive), communal clashes, ethnic/tribal wars, civil and ethnic strife still occur. These events promote the transmission of HIV because: During wars and ethnic crisis, there is a higher risk. Soldiers and militias sexually assault and rape young women. There is increased poverty level. Young girls and women's inability to perform their normal duties from which they earn their living invariably exposes them to prostitution. It separates families thereby exposing members of the family to some of the vices mentioned earlier. Cultic practices such as initiation rituals, involving incisions and blood oaths predispose to HIV infection[20].

(3) **Stigmatization:** Cultural and social stigmatization with the resultant negative attitude towards groups with high rates of HIV infection contributes to the transmission of the virus. The fear of stigmatization forces those in the high risk group to hide their risk practices and infections. For instance, a homosexual may be forced into marriage and thus become a link between his homosexual and heterosexual partners. Stigmatization deters people from voluntary testing especially those at risk. This unfortunately hinders people from seeking early treatment and invariably prevents infected persons from protecting themselves and others, including their family members[20].



Figure 3: Charts illustrating stoppage of stigmatization against people living with HIV/AIDS

(4) **Migration / Mobility:** This usually occurs for economic reasons people leave their homes for other places to seek jobs or during the course of their work are separated from their spouses for a period of time. Highly mobile workers are usually not accompanied by their wives and are thus at risk of engaging in casual sexual intercourse. This increases the risk of exposure to the virus and infection of their wives when they return home.



Figure 4:
Picture demonstrating hand tattooing as cultural practice risk of contacting HIV/AIDS

The industries mostly affected are:

i. Transportation-Long distance drivers
ii. Oil and gas
iii. Construction
iv. Military and Other Uniform parastatals
v. Mining and Quarry

(5) **Cultural Practices**: Culture played a predominant role in Africa, Asia and Latin America as it is a determinant of the behavior and lifestyles people indulge in[20]. Cultural practices which promote HIV transmission include:

i. Female genital mutilation-using unsterilized knives / razor blades for several people.
ii. Male circumcision
iii. Tattooing

i. Ear and nose piercing
ii. Wife swapping
iii. Forced early marriage of young girls to older men in some parts of the country. The immature cervixes of these young women are more prone to infection than those of matured women.
iv. Widow inheritance
v. Double standards for males and females regarding sexual activity. Males are permitted to have multiple sexual partners while this is frowned upon for females.
vi. Gender related factors: There is a significant impact which gender roles and relations have on the HIV/AIDS epidemic throughout the world, especially in Africa. This is particularly observable among women who constitute the major vulnerable group to HIV because of the interrelationship between biological, cultural and socioeconomic factors[20].



Figure 5:
Picture illustrating ear and nose piercing as cultural practice risk of contacting HIV/AIDS

The gender imbalance of infection appears mostly among Africa's young women. Women between 15 and 24 years old are at least 3 times more likely to be infected than the young men. According to a WHO report in 2002, one in five women report sexual violence by an intimate partner. The abrasion caused by forced vaginal or anal penetration increases the risk of HIV transmission. Women may be left without any assets or prevented from using their property when their partner dies. The denial of these basic human rights and amenities increases women and girl's vulnerability to sexual exploitation, abuse and HIV infection.

How AIDS Is Not Transmitted

Epidemiologists have established that a multitude of common activities do not allow HIV to pass among individuals because such activities do not involve contact with blood or semen or involve maternal-fetal transfer. Most of these activities are listed under the broad category of casual contact. Social kissing is included here, as are shaking hands, hugging, and other forms of physical contact.HIV is not transmitted by contacting bodily secretions such as sweat, mucus (as in sneezing or coughing) or saliva (as in sharing eating utensils or a can of soda). One does not acquire HIV by using a telephone, sharing lecture rooms, coughing or sneezing, swimming pools and other facilities such as sanitary conveniences, toilet seat, or soap bar used by an AIDS patient. The virus, if once present, has probably disintegrated; even if it were still there, no opportunity exists for penetrating the recipient's bloodstream[5].

The Mosquito Connection

Throughout recorded history, mosquitoes and other arthropods have been responsible for spreading many epidemics. Plague was spread by fleas, typhus by lice, and malaria by mosquitoes. In addition, ticks transmit the agents of Lyme disease and Rocky Mountain spotted fever. In all of these instances, the disease organisms greatly increase their



Figure 6: PICTURE OF HOW HIV/AIDS IS NOT TRANSMITTED E.G KISSING

numbers within the arthropod and then exit from it efficiently. For malaria and yellow fever, the respective parasites (a protozoan and a virus) multiply in the mosquito and then concentrate in its salivary gland. When the mosquito takes its next blood meal, the parasites pass with its saliva into the victim's blood[5]. No such model exists for HIV/AIDS. Since AIDS has been known in the United States, researchers have not been able to locate multiplying HIV in mosquitoes or other arthropods, nor have they observed the viruses in a place where they could exit the arthropod host. Mosquitoes suck blood-they do not inject blood from one person into another. Additional evidence that no animal intermediate is involved in HIV transmission comes from Africa. It is well known that African children play outside in mosquito-infected areas. Children would constitute a large percentage of African AIDS cases if the disease were mosquito borne. Statistics show, however, that children represent a relatively small percentage of Africans with AIDS[5]. Many African children suffer from malaria, but comparatively few suffer from HIV/AIDS.

Scientists have shown that HIV can remain active within mosquitoes for a period of several hours after they have been fed blood with a high concentration of the virus. This observation, however, does not support the notion that mosquitoes transmit HIV in nature because the virus neither multiplies within a mosquito nor concentrates at a point where it can leave the mosquito. Although these activities occur with many microbial agents, they do not appear to do so for HIV. Barring some fundamental biochemical change in the virus or the mosquito, an HIV-mosquito connection is unlikely to emerge in future years[5].

Methods of eliminating HIV/AIDS infection:

a. Abstinence - 100% effective method,

b. HIV counseling and testing,

c. Faithfulness and dedication to one's future partner/Faithfulness to partner if married

d. Desist from condom use as there are failure rates of condoms as they apply to preventing HIV and other diseases.

Justification

In South Africa, the HIV infection rate among university graduates was between 22% -33% in 2005. Among postgraduate students, the estimate was 11% rising to 21% in 2005. It is estimated that 17-20 staff members die from HIV/AIDS every year in the Copperbelt University of Zambia. One staff or student dies every month in the Kenyatta University, Kenya. In the University of Natal it is estimated that 33% of nurses who graduated three years previously had died[6].

Higher Education Institutions in Nigeria provide a special environment for HIV/AIDS because of easy interaction among the active 19-24 age group. Relationships are not stable (many options at school and at home) [6]. In addition, studies have shown that up to half of new students are sexually active. The frequency of students' sexual activity has also been shown to increase over their course of studies at the university; although, no local data on prevalence rates among Nigerian students is available yet[6]. Iincreasing early teenage pregnancies coupled with increasing rate of sexually transmitted diseases (STD) are strong indications that the likelihood of contracting HIV/AIDS within the University community is not farfetched[6].

In Nigeria, the student population is composed mainly of those in the age bracket of 20 -30 years. Those in this age bracket are more sexually active and are vulnerable to HIV/AIDS infection. This is why awareness programmes are often developed and intensified on Nigeria campuses. Several methods have been used to sensitize Nigerian students on the existence of HIV/AIDS scourge. These methods as documented by Onyene et al (2010) include, one on one interaction; focus group discussion (FGD); use of GSM monitor; use of bills; semesterly symposia; administrative nurturance elements; curricula based activities and sex education programmes.

CHAPTER TWO

ORIGIN, HISTORY AND BIOLOGY OF HIV/AIDS

The Origin of HIV

If we assume that HIV existed somewhere in the world prior to its appearance in humans, then the next logical question is, "Where?" During the mid 1980s, Max Essex of Harvard's School of Public Health was among the first to provide evidence that HIV originated in African primates such as monkeys, baboons, and chimpanzees. Essex's research resulted in recovery of a virus called the simian immunodeficiency virus (SIV) from African green monkeys. This virus had enough biochemical similarities to HIV to support the notion that the two viruses are related. Essex and his group theorized that SIV may have crossed the species barrier to humans through a primate bite or scratch[5].

Further evidence for a primate-human transmission was offered by evidence that HIV-2 crossed the species barrier to humans from the sooty mangabey, a type of monkey belonging to the species *Cercocebus atys*. This link was established in the early 1990s by Vanessa Hirsh, a primate researcher at the National Institute of Allergy and Infectious Diseases. Hirsh demonstrated that the SIVsm, the SIV strain from the sooty mangabey, has genes nearly identical to those of HIV-2. Research performed by British scientists indicated that SIVsm from the sooty mangabey monkey may have caused six HIV-2 epidemics, which blended together to give the impression of a single West African epidemic[5].

The result of Essex and Hirsh was expanded and further developed by a host of other scientists, notably the group led by Beatrice Hahn of the University of Alabama at Birmingham. In 1999, Hahn and her coworkers pieced together what was hailed as the best case yet for connecting human HIV to chimpanzees. Their research indicates that different subspecies of chimpazees harbor different strains of HIV-like viruses and that one particular subspecies is the probable source of the HIV-1 (the "original" HIV) that is causing the current pandemic. Before Hahn's work, scientist had identified only three chimpanzees infected with SIVs. The strains of SIV in these animals were designated SIVcpz. Then Hahn's group identified a fourth chimpanzee infected with a strain of SIVcpz. The researchers began an exhaustive and systematic study to examine these SIV strains carefully and the four animals from which they came. The study focused on the nuclei acid of the virus, one of its major chemical components and the substance of which its genes are made. Using sophisticated genetic analyses, Hahn's group compared the nucleic acid content (the genes) of the four SIVcpz strains with that of various samples of HIV obtained from humans[5].

The results of the research were the key to the origin of HIV: Three of the four SIVcpz strains were found to be closely related (i.e., 70% to 90% genetically identical) to HIV particles isolated from humans. All the three strains came from the chimpanzee *Pan troglodytes troglodytes*[5]. Significantly, the natural range of the chimpanzee *Pan troglodytes troglodytes* coincides precisely with regions of West Africa where the AIDS epidemic has existed for the longest period of time.

The fourth SIVcpz strain had nucleic acid content (genes) much less similar to that of HIV; importantly, it came from the chimpanzee *Pan troglodytes schweinfurthii* normally found in far-distant East Africa. Hahn's group concluded that chimpanzees living in Gabon, Cameroon, and nearly regions of West Africa were the source of HIV-1 in humans. They surmised that once the virus made its way into humans, it mutated into the existing strains scientists now recognize, while adapting naturally to its new host[5].

Hahn's research has several key implications, not the least of which is that it apparently resolves the question of HIV's origin. Moreover,

the three SIV strains found in *Pan troglodytes troglodytes* are the presumed forerunners of the three groups of HIV-1 now known to exist. This finding indicates that chimpanzees have been the starting point for at least three independent crossings to humans. It is reasonable to believe that these cross-species transmissions occurred when humans who hunted and butchered chimpanzees for meat were exposed to their blood via a wound or scratch. Moreover, additional transmissions may have occurred and may still be occurring because the hunting and killing of chimpanzees continues in western equatorial Africa.



Figure 7:
Picture of an African Chimpanzees suggesting possible link to human HIV

The Jump to Humans

Scientists now generally agree that a strain of SIV made the crossing from chimpanzees to humans and later evolved to the current strains of HIV. Exactly when the crossing occurred is uncertain, but an estimate appears to be provided by analysis of the HIV obtained from the oldest documented case of infection. The analysis shows that the passage to humans probably occurred during the late 1940s or early 1950s.

The research leading to this conclusion was performed by Toufo Zhu of the University of Washington and David Ho of New York's Aaron Diamond AIDS Research Centre. The scientists began with the insight that about 1% of HIV's genetic material mutates each year. Then they analyzed HIV fragments obtained from the blood of a Bantu man who lived in what is now Kinshasa in the Democratic Republic of the Congo. The blood had been drawn in 1959, shortly before the man died[5].

Although evidence of HIV had been observed in the man's blood in 1986 by Max Essex, the methods for studying HIV's genetic material were not then sophisticated enough to gain much information; but in 1998, Zhu and Ho used state- of- the- art technology to multiply the genetic material of HIV available in the blood many millions of times, thus yielding a sufficient supply to work with. Then, using extensive databases and advanced computers, they compared the genetic material from the 1959 HIV to genetic material from current strains of HIV as well as strains of HIV isolated during many intervening years. The comparisons yielded a "family tree" of HIV, showing the progression of changes occurring in its genetic material over a 39-year period. The data indicated that HIV probably entered the human population after World War II had ended. Comparing the 1959 virus with modern forms yield information on how extensively HIV has evolved over the decades and how much it can be expected to evolve in future years[5].

Historical Milestones on HIV/AIDS Issues

Recognition of an immune deficiency syndrome producing Kaposi's sarcoma and PCP in the United States of America (USA) in 1981 where most of those affected were homosexuals. In 1982 in the USA, there was an increase in the

number of pneumocystis carinii pneumonia disease identified among intravenous drug users[20]. In 1983, AIDS reported among hemophiliacs and infants of drug addicted mothers. HIV-1 was isolated almost simultaneously by three groups of scientists; Luc Montagnier's group at Pasteur Institute in Paris, Robert Gallo's group at the National Cancer Institute, and a group headed by Jay Levy at the University of California, Sanfrancisco[20].

In 1984, transfusion-associated AIDS reported; AIDS noted in homosexual population in Zaire. In 1985, diagnostics test to detect the virus became available. In 1986, HIV-2 was identified to affect mostly those from West Africa. In 1987, the reverse transcriptase inhibitor, zidovudine (azidothymidine; AZT) became the first drug to treat HIV-1 infection[20].In 1995-96, the first protease inhibitor became available. In 1996, combination antiretroviral therapy using reverse transcriptase inhibitor and protease inhibitors became the standard. In 1998, the first HIV vaccine trials were conducted in the United States[21].

The history of HIV in Nigeria

The first two cases of HIV and AIDS in Lagos, Nigeria were identified in 1985 and were reported at an international AIDS conference in 1986[8]. In 1987 the Nigerian health sector established the National AIDS Advisory Committee, which was shortly followed by the establishment of the National Expert Advisory Committee on AIDS (NEACA). At first the Nigerian government was slow to respond to the increasing rates of HIV transmission[9] and it was only in 1991 that the Federal Ministry of Health made their first attempt to assess Nigeria's AIDS situation. The results showed that around 1.8 percent of the population of Nigeria was infected with HIV. Subsequent surveillance reports revealed that during the 1990s HIV prevalence rose from 3.8% in 1993 to 4.5% in 1998[10].

When Olusegun Obasanjo became the president of Nigeria in 1999, HIV prevention, treatment and care became one of the government's primary concerns. The President's Committee on AIDS and the National Action Committee on AIDS (NACA) were created, and in 2001, the government set up a three-year HIV/AIDS Emergency Action Plan (HEAP). In the same year, Obasanjo hosted the Organization of African Unity's first African Summit on HIV/AIDS, Tuberculosis, and Other Related Infectious Diseases[8].

In 2005 a new framework was developed covering the period from 2005 to 2009. Despite increased efforts to control the epidemic, by 2006 it was estimated that just 10 percent of HIV-infected women and men were receiving antiretroviral therapy and only 7 percent of pregnant women were receiving treatment to reduce the risk of mother-to-child transmission of HIV[11].

In 2010 NACA launched its comprehensive National Strategic Framework to cover 2010 to 2015, which requires an estimated N756 billion (around USD 5 billion) to implement[12]. Some of the main aims included in the framework are to reach 80 percent of sexually active adults and 80 percent of most at-risk populations with HIV counselling and testing by 2015; ensure 80 percent of eligible adults and 100 percent of eligible children are receiving ART by 2015; and to improve access to quality care and support services to at least 50 percent of people living with HIV by 2015[13]. Despite being the largest oil producer in Africa and the 12th largest in the world[14], Nigeria is ranked 156 out of 187 on the United Nations Development Programme (UNDP) Human Poverty Index[15]. This poor development position has meant that Nigeria is faced with huge challenges in fighting its HIV and AIDS epidemic.

The Biology of HIV

HIV belongs to a class of viruses known as retroviruses. Retroviruses are viruses that contain RNA (ribonucleic acid) as their genetic material. After infecting a cell, HIV uses an

enzyme called reverse transcriptase to convert its RNA into DNA (deoxyribonucleic acid) and then proceeds to replicate itself using the cell's machinery.

Within the retrovirus family, HIV belongs to a subgroup known as lentiviruses, or "slow" viruses. Lentiviruses are known for having a long time period between initial

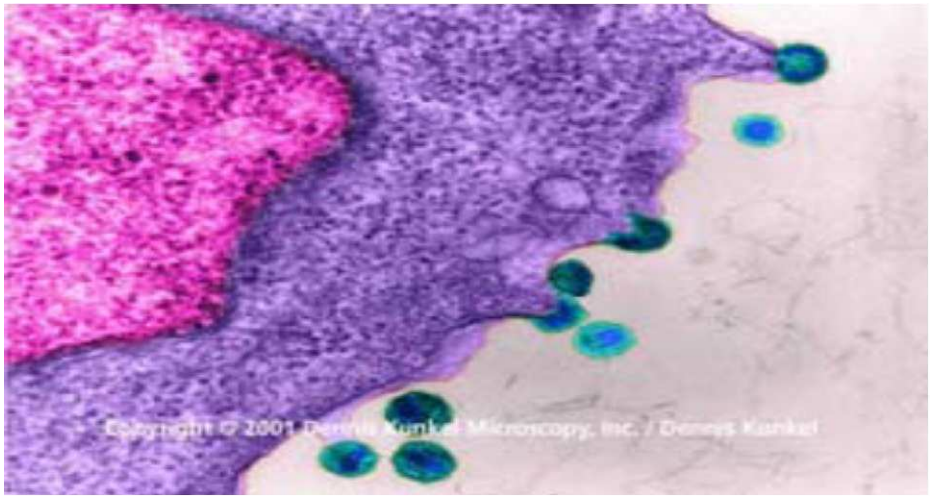


Figure 8: Diagram showing HIV budding from an infected cell. Source: NIAID 2009

Structure and Genome of HIV

HIV is different in structure from other retroviruses. It is around 120 nm in diameter (around 60 times smaller than a red blood cell) and roughly spherical. HIV-1 is composed of two copies of single-stranded RNA enclosed by a conical capsid comprising the viral protein p24, typical of lentiviruses (Figure 8&9). The RNA component is 9749 nucleotides long[22]. This is in turn surrounded by a plasma membrane of host-cell origin. The single-strand RNA is tightly bound to the nucleocapsid proteins, p6, p7 and enzymes that are indispensable for the development of the virion, such as reverse transcriptase and integrase. The nucleocapsid (p7 and p6) associates with the genomic RNA (one molecule per hexamer) and protects the RNA from digestion by nucleases. A matrix composed of an association of the viral protein p17 surrounds the capsid, ensuring the integrity of the virion particle. Also enclosed within the virion particle are Vif, Vpr, Nef, p7 and viral Protease (Figure 9). The envelope is formed when the capsid buds from the host cell, taking some of the host-cell membrane with it. The envelope includes the glycoproteins gp120 and gp41.

As a result of its role in virus-cell attachment, the structure of the virus envelope spike, consisting of gp120 and gp41, is of particular importance. It is hoped that determining the envelope spike's structure will contribute to scientific understanding of the virus and its replication cycle, and help in the creation of a cure[22]. The first model of its structure was compiled in 2006 using cryo-electron microscopy and suggested that three copies of gp120-gp41 heterodimers are thought to form a trimer as the envelope spike[23]. However, published shortly after was evidence for a single-stalk "mushroom" model, with a head consisting of a trimer gp120s and a gp41 stem, which appears as a compact structure with no obvious separation between the three monomers, anchoring it to the envelope [24].There are various possibilities as to the source of this difference, as it is unlikely that the viruses imaged by the two groups were structurally different[25]. More recently, further evidence backing up the heterodimer trimer-based

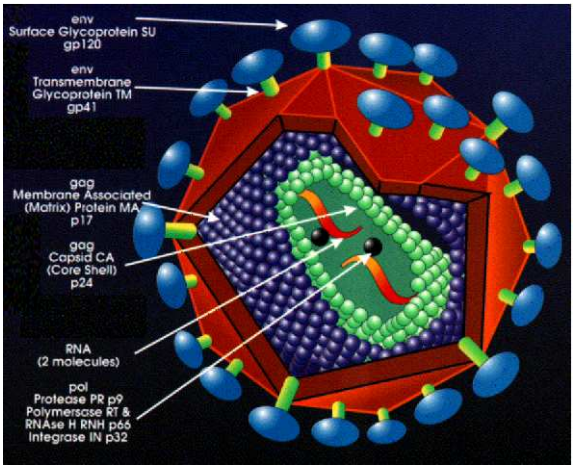


Figure 9: Schematic representation of the structure of HIV

HIV Genome organization

HIV has several major genes coding for structural proteins that are found in all retroviruses, and several nonstructural ("accessory") genes that are unique to HIV. The *gag* gene provides the basic physical infrastructure of the virus, and *pol* provides the basic mechanism by which retroviruses reproduce, while the others help HIV to enter the host cell and enhance its reproduction. Though they may be altered by mutation, all of these genes except *tev* exist in all known variants of HIV. Such variant includes *gag* (group-specific antigen) that codes for the Gag polyprotein, which is processed during maturation to matric protein (MA), capsid protein, p24; spacer peptide 1, p2 (SP1); nucleocapsid protein, p7; spacer peptide 2, p1 (SP2) and p6.

pol codes for viral enzymes reverse transcriptase, integrase, and HIV protease.

env (for envelope) codes for gp160, the precursor to gp120 and gp41, proteins embedded in the viral envelope which enable the virus to attach to and fuse with target cells. Transactivators include *tat*, *rev*, *vpr genes (figure 10).* Other regulators include *vif, nef, vpu genes. Tev gene* is only present in a few HIV-1 isolates. It is a fusion of parts of the *tat*, *env*, and *rev* genes, and codes for a protein with some of the properties of *tat*, but little or none of the properties of *rev*.

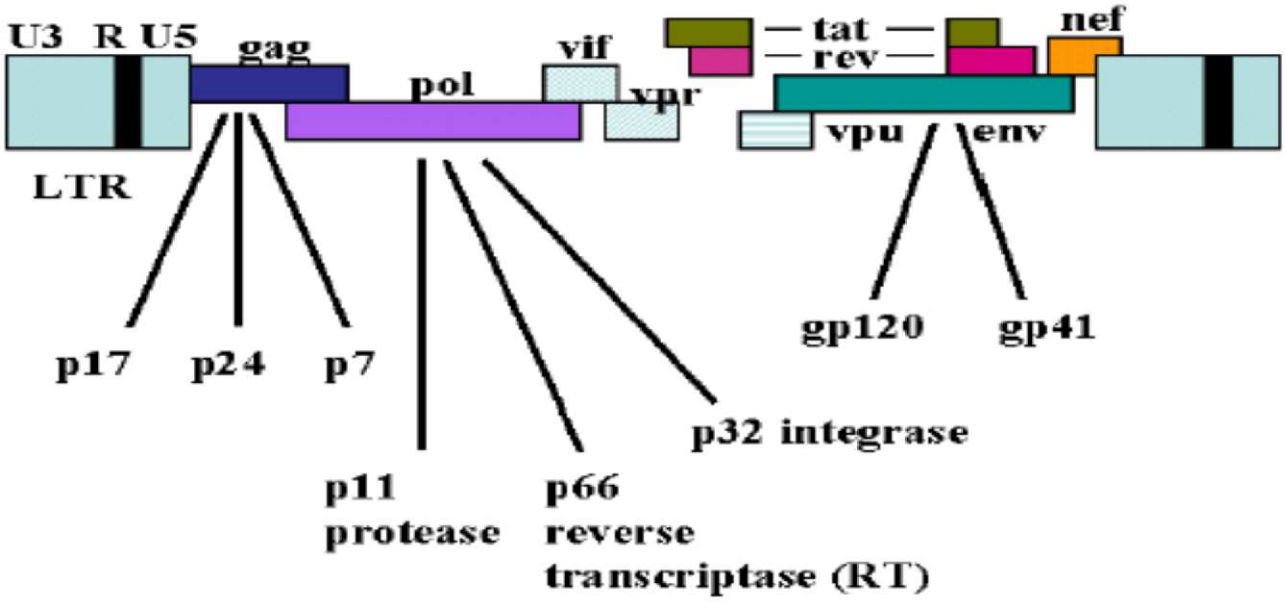


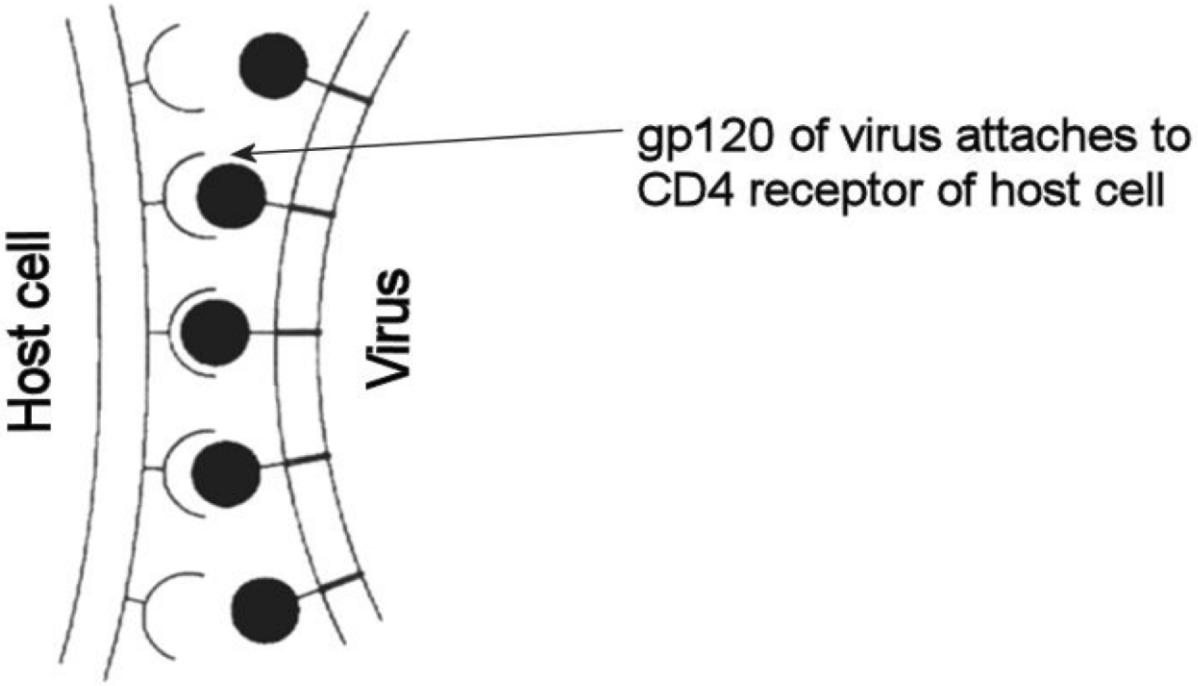
Figure 10: Diagram of the HIV genome

The HIV Life Cycle

To multiply in the body, HIV must enter a host cell and cause it to make many new HIV particles which are then released to infect new cells. A detailed understanding of the process is important if we are to discover ways of combating HIV infection in the future.

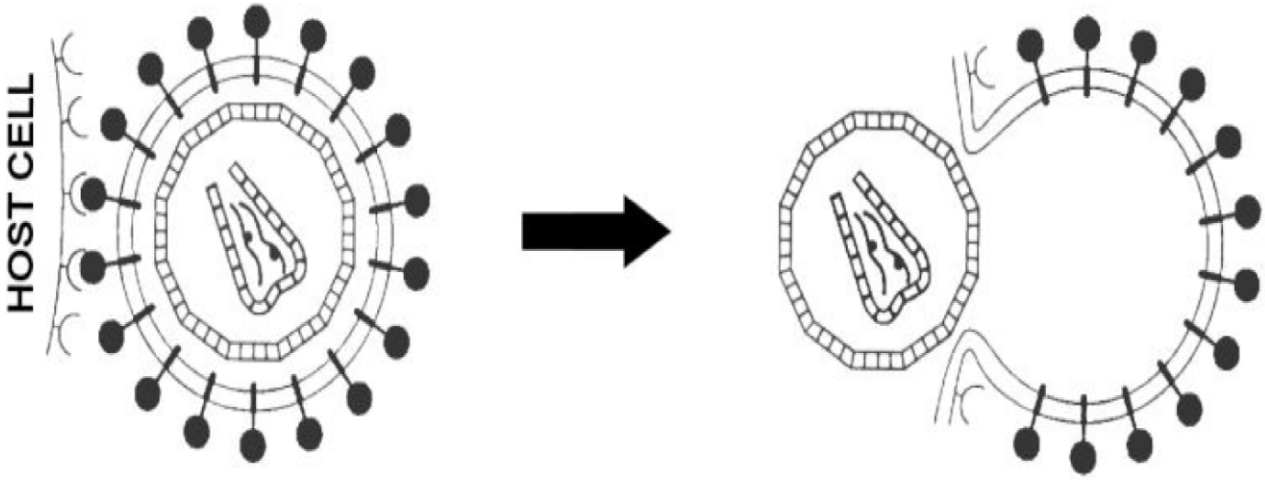
1. Attachment

HIV must attach to the correct host cell. In the membrane on the surface of an HIV particle are gp120 receptor molecules. These are specific shaped molecules made of protein and carbohydrate. They attach to a protein on a host cell called a CD_4 receptor which has a complementary shape to gp120. The main host cell with this receptor is a type of white blood cell called a T_4 lymphocyte (Figure 11).



2. Entry

As the virus attaches, the gp120 changes shape to enable the membrane around the virus to fuse with the membrane of the host cell. The contents of the HIV particle are released into the host cell, leaving the viral membrane behind (Figure 12).



3. Uncoating

The viral capsid breaks open to release the RNA and enzymes into the cytoplasm of the host cell.

4. Reverse transcription

The enzyme reverse transcriptase uses the host cell DNA nucleotides to build a DNA copy alongside the viral RNA to form a DNA/RNA hybrid molecule.

5. Separation

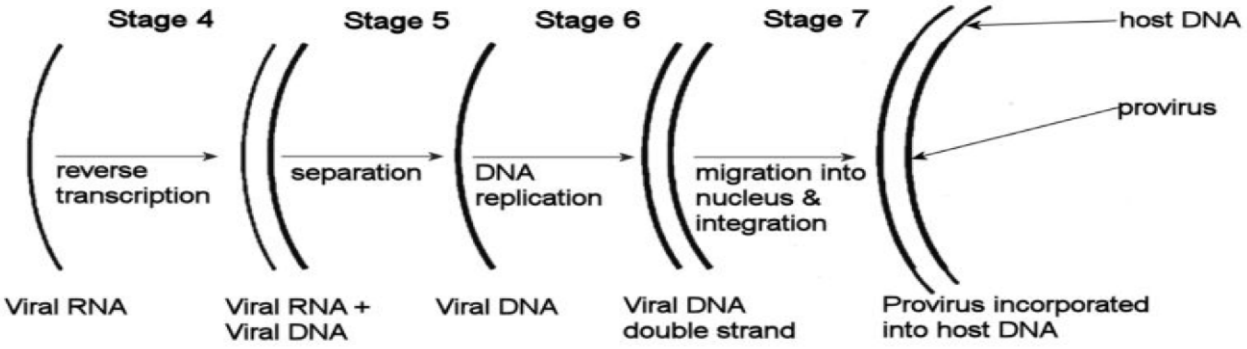
The DNA and RNA separate.

6. DNA replication

The DNA replicates to form a double-stranded viral DNA molecule.

7. Integration

Using the viral integrase enzyme, the double-stranded DNA molecule is inserted into the host cell DNA. This is called a provirus (Figure 13).



8. Dormancy

There may now be a long period, usually years with nothing further happening. Although the person is infected with HIV, there are few symptoms and they may well be unaware of their HIV+ status.

9. Activation and transcription

The viral DNA is somehow triggered to transcribe and produce viral RNA molecules. Some of these will be used to form new HIV particles whilst others are translated to produce viral proteins.

10. Translation

The RNA attaches to host cell ribosomes and is transcribed to make protein using host cell enzymes, ATP, tRNA and amino acids. These proteins include the enzymes integrase, protease and reverse transcriptase, the core and matrix proteins, the transmembrane proteins and control proteins. The core and matrix proteins are first made as one long protein molecule which is cut into 4 shorter molecules using the protease which entered with HIV. The same is true of the two transmembrane protein which are cut from one precursor molecule.

11. Glycosylation and glycoprotein integration

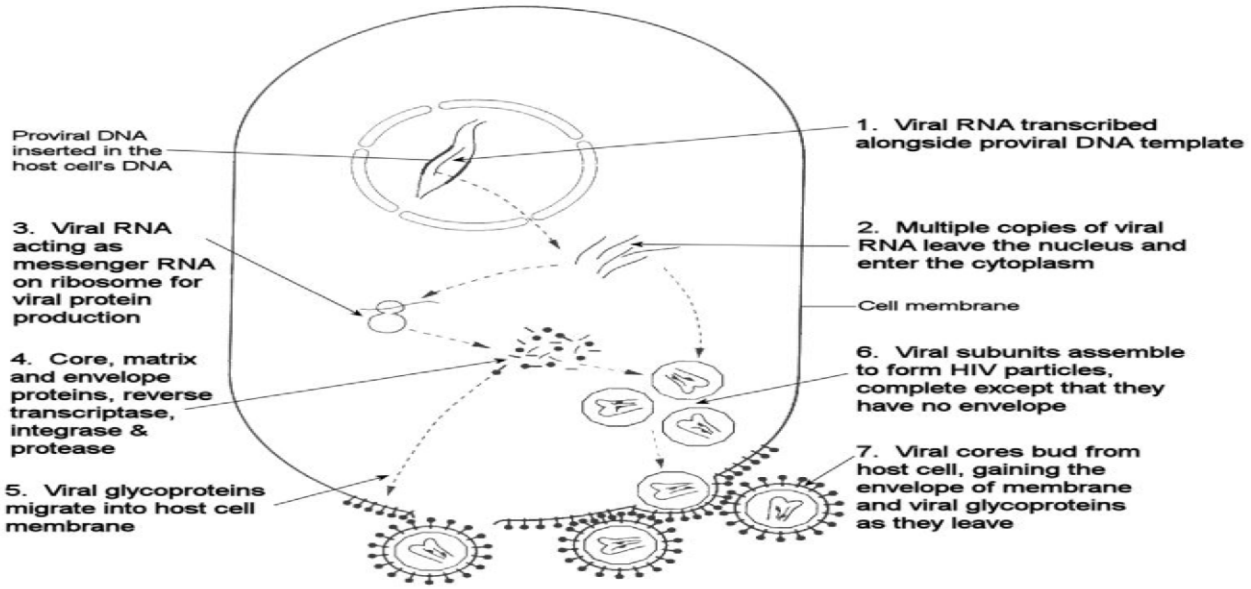
The transmembrane proteins have carbohydrate groups attached to form the completed transmembrane glycoproteins. These integrate into the host cell membrane.

12. Assembly

HIV particles are formed by a core and matrix arranging itself around viral RNA and enzymes.

13. Release

The HIV particles break out of the host cells, collecting a membrane with gp120 receptors in it as they leave. The particles will now attach to a new host cell. (Figure 14)



Epidemiology of HIV and AIDS

Globally, the pandemic of HIV and AIDS has continued to constitute serious health and socio economic challenges for more than two decades. In underdeveloped and developing countries, it has reversed many of the health and developmental gains over the past three decades as reflected by indices such as life expectancy at birth and infant mortality rate among others. The epidemic has also facilitated the re-emergence of disease conditions such as pulmonary tuberculosis and other opportunistic infections[19].

As at the end of 2009, about 33.3 million persons were estimated to be infected with HIV globally. Of these, 22.5 million (i.e. 68% of the global total) were in Sub-Saharan Africa, and about 2.98 million in Nigeria. Thus, Nigeria has the second highest number of people living with HIV in the world after South Africa[19].

Since the first case of AIDS in Nigeria was reported in 1986, the HIV and AIDS epidemics have continued to evolve. The first sentinel surveillance survey showed HIV prevalence rate of 1.8% in 1991. Subsequent sentinel surveys showed increasing prevalence rates of up to 5.8% in 2001 and then a decline to 4.4% in 2005. However, the 2008 prevalence of 4.6% showed a slight reversal in the downward trend, thereby generating some interest.

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The HIV epidemic, as monitored through prevalence rates, appears to show some consistency in the national trend; however, there has been wide variation across the States and sites with a number of consistent hot spots. HIV prevalence has consistently remained high in some States and low in others. While the prevalence has shown a consistent decline in some States, it has been fluctuating in others except one State with consistent rise. Since 2003, all the States in the country have had a generalized epidemic[19].

Estimates from the 2008 ANC survey showed that 2.87 million persons were living with HIV in Nigeria. The survey showed highest HIV prevalence among women aged 25-29 years (5.6%) followed closely by those aged 30-34 years (4.9%). Also, the survey showed highest prevalence among women with only secondary level education (5.8%). In 2007, the national population-based survey showed an overall HIV prevalence of 3.6% (4.0% among females and 3.2% males). Among the high risk groups, female sex workers constitute an important reservoir of HIV infection for continuous transmission to the general population. HIV prevalence among this group has remained high and on the increase from 17.5% among brothel based Female Sex Workers (FSW) in 1991 through 22.5% in 1993 (FMOH high risk survey) to 37.4% in 2007[19,27].

HIV Prevalence by Zone and National

The overcall HIV Prevalence for Nigeria was analyzed as well as for each of the six geo political zones, 36 state and FCT and 160 sentinel sites used in this survey[27]. The values on the prevalence are presented in the figure below

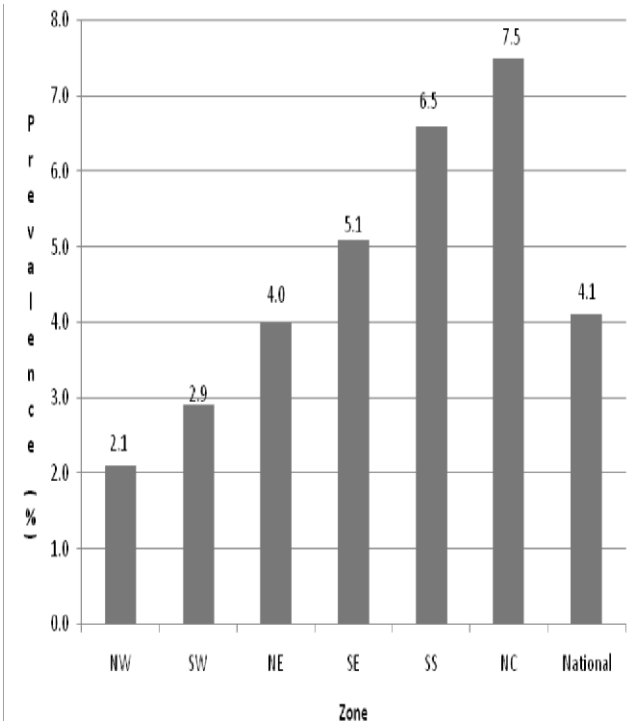


Figure 15: HIV Prevalence by Zone and National (HSS 2010)

The 2010 national HIV prevalence amongst pregnant women attending antenatal clinics in Nigeria was 4.1%. The study found that HIV prevalence was highest in NC Zone (7.5%) followed by SS Zone (6.5%). The NW Zone had the lowest prevalence of 2.1%.

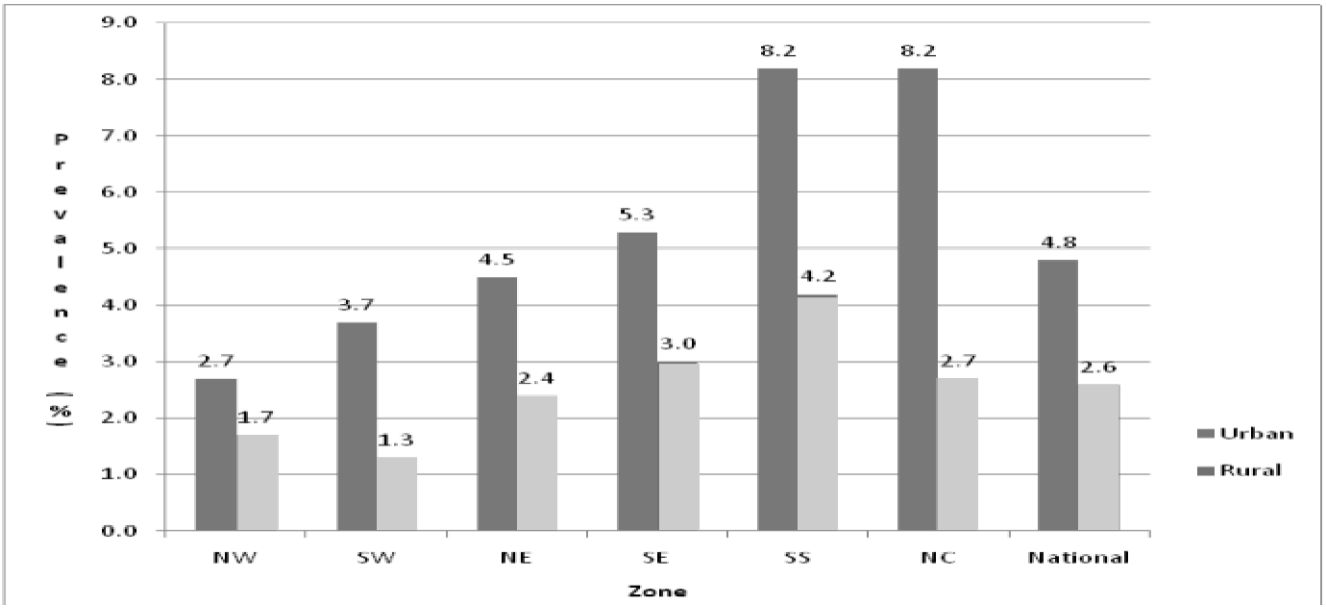
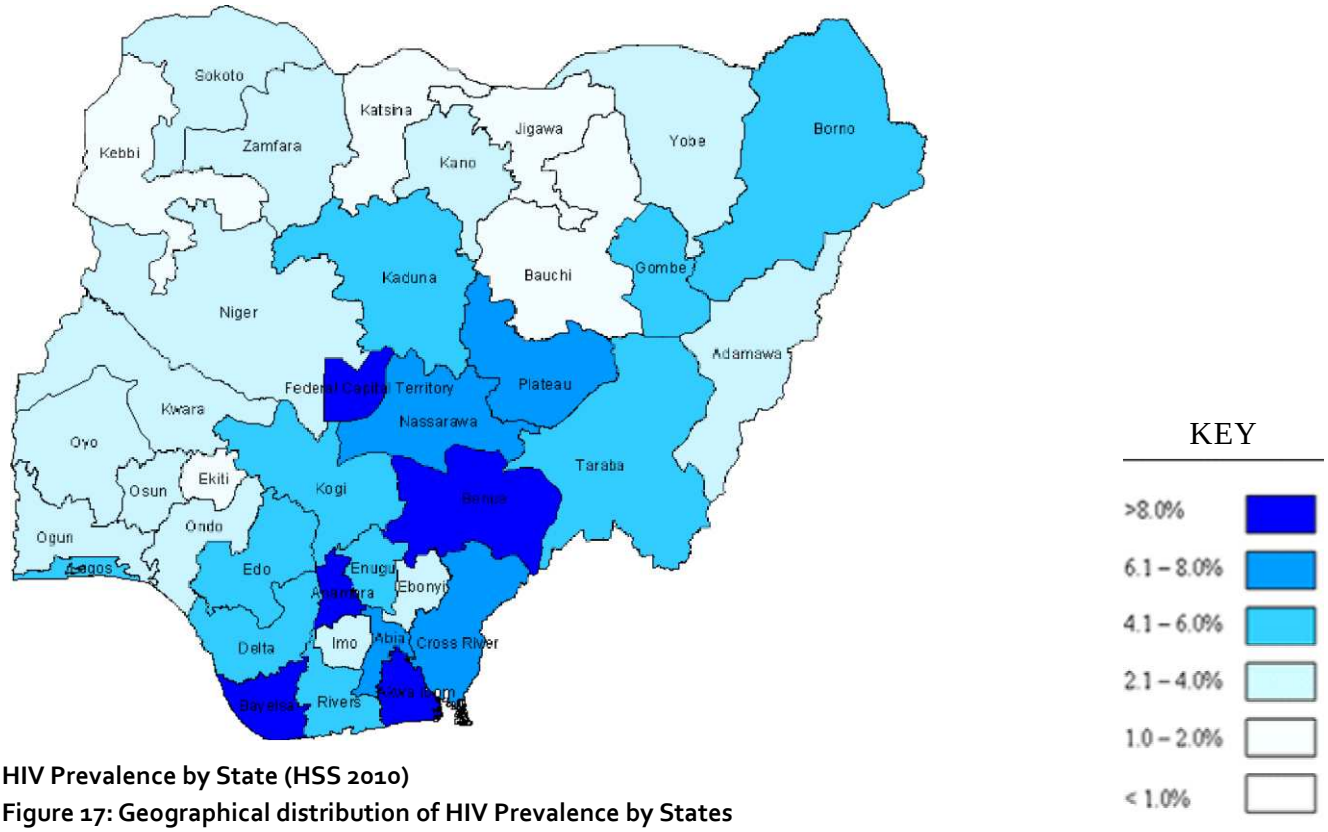


Figure 16: HIV Prevalence by Zone, Urban and Rural (HSS 2010)

The HIV prevalence by location in all the zones showed a similar pattern with South-South and North-Central Zones having the highest urban prevalence (8.2% each). North-West had the lowest urban prevalence of 2.7%. With respect to rural prevalence, the South-South had the highest (4.2%) while South-West had the lowest (1.3%)[27] (Figure 17)



HIV Prevalence by State (HSS 2010)

Figure 17: Geographical distribution of HIV Prevalence by States

The denser the blue colour for state and FCT, the higher the HIV prevalence[27]. State such as Benue, Akwa Ibom, Bayelsa and Anambra and the FCT had Prevalence greater than 8%. Kabbi, Ekiti, Jigawa, Katsina and Bauchi state had HIV Prevalence within the range of 1.0-2.0%.

Table 1: HIV Prevalence Trends by States from 1991 to 2010 (HSS 2010)

State	1991/92	1993/94	1995/96	1999	2001	2003	2005	2008	2010
Adamawa	0.3	1 .3	5. 3	5.0	4.5	7.6	4.2	6.8	3.8
Anambra	0.4	2 .4	5. 3	6.0	6.5	3.8	4.2	5.6	8.7
Benue	1.6	4.7	2. 3	16.8	13.5	9.3	10.0	10.6	12.7
Borno	4.4	6 .4	1. 0	4.5	4.5	3.2	3.6	2.0	5.6
Cross River	0.0	4 .1	1. 4	5.8	8.0	12.0	6.1	8.0	7.1
Delta	0.8	5.1	2.3	4.2	5.8	5.0	3.7	3.7	4.1
Edo	0.0	1 .8	3. 0	5.9	5.7	4.3	4.6	5.2	5.3
Enugu	1.3	3 .7	10. 2	4.7	5.2	4.9	6.5	5.8	5.1
Kaduna	0.9	4 .6	7. 5	11.6	5.6	6.0	5.6	7.0	5.1
Kano	0.0	0 .4	2.5	4.3	3.8	4.1	3.4	2.2	3.4
Kwara	0.4	2 .4	1.7	3.2	4.3	2.7	2.8	1.8	2.2
Lagos	1.9	6 .8	-- -	6.7	3.5	4.7	3.3	5.1	5.1
Osun	0.0	1 .4	1. 6	3.7	4.3	1.2	2.0	1.2	2.7
Oyo	0.1	0 .2	0. 4	3.5	4.2	3.9	1.8	2.2	3.0
Plateau	6.2	8 .2	11.0	6.1	8.5	6.3	4.9	2.6	7.7
Sokoto	1.8	1.6	-- -	2.7	2.8	4.5	3.2	6.0	3.3
Abia	N D	N D	ND	3.0	3.3	3.7	4.0	5.0	7.3
Zamfara	N D	N D	ND	2.7	3.5	3.3	3.0	2.1	2.1
F CT	N D	N D	ND	7.2	10.2	8.4	6.3	9.9	8.6
Yobe	N D	N D	ND	1.9	3.5	3.8	3.7	2.7	2.1
Taraba	N D	N D	6. 0	5.5	6.2	6.0	6.1	5.2	5.8

Rivers	N D	N D	1. 0	3.3	7.7	6.6	5.4	7.3	6.0
Akwa Ibom	N D	N D	ND	12.5	10.7	7.2	8.0	9.7	10.9
Bauchi	N D	N D	ND	3.0	6.8	4.8	3.4	3.1	2.0
Bayelsa	N D	N D	ND	4.3	7.2	4.0	3.8	7.2	9.1
Ebonyi	N D	N D	ND	9.3	6.2	4.5	4.5	2.8	3.3
Gombe	N D	N D	ND	4.7	8.2	6.8	4.9	4.0	4.2
Ekiti	N D	N D	ND	2.2	3.2	2.0	1.6	1.0	1.4
Imo	N D	N D	ND	7.8	4.3	3.1	3.9	4.6	3.0
Ondo	N D	N D	ND	2.9	6.7	2.3	3.2	2.4	2.3
Jigawa	N D	N D	1. 7	1.7	1.8	2.0	1.8	1.6	1.5
Katsina	N D	N D	ND	2.3	3.5	2.8	2.7	2.6	2.0
Kebbi	N D	N D	ND	3.7	4.0	2.5	4.0	2.9	1.0
Kogi	N D	N D	2. 3	5.2	5.7	5.7	5.5	5.1	5.8
Nasarawa	N D	N D	ND	10.8	8.1	6.5	6.7	10.0	7.5
Niger	N D	N D	ND	6.7	4.5	7.0	5.3	6.2	4.0
Ogun	N D	N D	0.1	2.5	3.5	1.5	3.6	1.7	3.1

ND: Not Done

HIV Prevalence by Marital Status

Table 2: HIV Prevalence by Marital Status (HSS 2010)

Marital Status	Number of clients	Number Positive	Prevalence (%)	Confidence Interval
Single	**1142**	**64**	**5.6**	**4.3-7.1**
Married	**34829**	**1701**	**4.9**	**4.7-5.1**
Others	**175**	**12**	**6.9**	**3.6-11.7**
Total	**36146**	**1777**	**4.9**	**4.7-5.1**

HIV prevalence was lower (4.9%) among married women than among women who were single (5.6%) while women who were divorced, separated or widowed recorded the highest prevalence (6.9%). However, these findings were not statistically significant (p>0.05). (Table 2)

HIV Prevalence by Educational Status

Educational Status	Number of clients	Number Positive	Prevalence (%)	Confidence Interval
None	4371	197	4.5	3.9-5.2
Qur'anic Only	4540	126	2.8	2.3-3.3
Primary	8077	501	6.2	5.7-6.8
Secondary	12248	744	6.1	5.7-6.5
Higher	6842	332	4.9	4.3-5.4
Total	36078	1900	5.3	5.0-5.5

Table 3: HIV Prevalence by Educational Status (HSS 2010)

Information on educational status was not available in 349 women. HIV prevalence by educational status was highest among women who had primary and secondary education i.e. 6.2% and 6.1% respectively; this is followed by those with a higher education (4.9%) and those with no education (4.5%) (Table 3).

National HIV Prevalence Trend from 1991-2010 (HSS 2010)

Trend analysis was conducted; the findings for the overall prevalence of HIV in Nigeria over the years for adult pregnant women aged 15- 49 years and the youths age 15- 24 years are presented. Also presented are the HIV prevalence trends for each state and FCT[27].

The trend of HIV prevalence among pregnant women attending antenatal clinics in Nigeria from 1991 to 2010 increased steadily from 1.8% in 1991 through 4.5% in 1995 and peaked at 5.8% in 2001. Thereafter, it declined to 4.4% in 2005 and stabilized between 4.4% (2005) and 4.1% in 2010.

CHAPTER THREE

HIV INFECTION AND EDUCATION

Investment in education is vital simply because it helps countries, like Nigeria, to achieve six of the eight-millennium development goals which are: (1) poverty reduction, (2) access to universal primary education, (3) gender equality, (4) reduced infant mortality, (5) improved maternal health, and (6) lower prevalence of HIV/AIDS. Making education available to both genders, boys and girls alike, has been proven to provide protection against HIV infection[7].

Evidence that education itself protects against HIV is strong. Data from the late 1980s and early 1990s, when the epidemic was just emerging, shows a positive correlation between the level of education and rates of infection. A study in Zimbabwe found a marked decline in HIV prevalence rates in 15-19 year old males and females with a medium to higher-level education, compared to increases among those with lower educational levels[7].

Effect of HIV on Education

HIV/AIDS is a major global constraint on the provision of "good-quality education".

The impact of AIDS on teaching staff is critical, e.g. the United Republic of Tanzania needs around 45,000 additional teachers to make up for those who have died or left the system because of AIDS. In South Africa, enrolment of school age children is falling. This is attributable to an increase of the proportion of vulnerability children, notably orphans and girls. There is a decline in the number of public school teachers and the number of people graduating from teacher training school[20].

The Impact of HIV/AIDS on Education: The fact that education is critical for positive economic development, emancipation and general well being cannot be underscored. However, since the scourge of HIV/AIDS, there has been a real threat to the education sector[29]. The relationship between HIV/AIDS and education is circular because as the epidemic gets worse, the education is circular because as the epidemic gets worse, the education is circular because as the epidemic gets worse, the education system is damaged which can lead to an increase in the incidence of the infection[29].

The impact of HIV/AIDS on education creates a host of problems that threaten to overwhelm the structure of educational organization, management and even provision. This is because providing education in an HIV infected population is different from that in the virus free population[29]. However, education is required to slow down the transmission of HIV and modify its impact in all facets of life. In the world of research, a global estimate of 36.5 million people of working age are reported to be infected by HIV and the global labour force to have lost 28 million workers due to AIDS since, the advent of the epidemic. Education is the most effective way of preventing HIV infection and also reducing discrimination against people living with HIV/AIDS both within and outside the workplace[29].

Impact of pupils and school enrolment

At the micro level, it has a long term effect of there being fewer pupils to educate since population is depleting by the day. It had been projected that in Botswana, Malawi, Zambia, Zimbabwe and other countries in sub-Saharan Africa by 2015, the population will be considerably smaller than if there had been no HIV/AIDS epidemic. This demographic development will also reduce the number of pupils of primary school age. There is also the decline in school attending by pupils because they have been orphaned so cannot afford the fees or might have been turned into



Figure 18: Picture depicting an in-house lecture with Crawford University Undergraduate Students in Nigeria

caregivers. For many African children, this inability to enroll in school is HIV/AIDS related[29].
The decline in school enrolment rate also has a negative impact as the epidemic because a good basic education is one of the most effective and cost effective means of preventing HIV[32]. In Swaziland and the Central African Republic, school enrolment fell by 25-30% at the beginning of the millennium due to HIV/AIDS scourge[31].

Impact on teachers and teaching
Teacher mortality: This index affects teaching. The World Bank (1992) projected that by 2010 and 2020, 14,460 and 20,200 teachers respectively would have died from HIV/AIDS in Tanzania. With such monumental losses, the education sector is disadvantaged in terms ratio of teachers to pupils. A study in South Africa reported that 21% of teachers aged 25-34 were living with HIV/AIDS. Another scenerio from Tanzania estimated the need for 45,000 teachers to make up for those that have died or resigned because of HIV/AIDS. Most of these according to the Tanzania's teachers union are experienced staff aged 41-50 years[33].

Teacher productivity: A study in Zambia indicated that reports from school authorities, parent teachers' association and communities complained of loss of teaching time due to illness of teachers. With the expected AIDS related sickness episodes, the involvement of sick teachers in school activities become progressively episodic. When a teacher falls ill, the class may either be taken by another teacher, combined with another class or even left untaught[29].

Teacher costs: The services of sick teachers cannot be terminated even when they are obviously non-productive. This implies a high salary cost plus the financial cost of replacement through short and long term ventures[29].

Teachers stress: Teachers also have to contend with the stress of the affliction among their student colleagues and family members. This affects them psychologically and may even affect their productivity. In Zambia, HIV/AIDS education and counseling have had to be incorporated into teacher training programmes to help prepare these teachers for such eventualities[29].

Impact on availability of resources for education: HIV/AIDS affects the availability of resources for education. UNDP posited that because of HIV/AIDS global economic growth is 1.4% lower than it would have been without the epidemic. Absenteeism due to illness, time off for funerals and a less experienced labour force will result in reduced productivity and consequently lower revenue generation. It has also led to increased spending on health care cost, burial expenses and training of replacement employees at the expense of educational needs. Donors see HIV/AIDS as causing a lot of human suffering, increasing poverty, reducing productivity and even reversing the development gains they have always promoted. They are therefore more interested in HIV/AIDS problems and how to cope with its impact. This therefore, leaves a comparatively less commitment to the educational sector[29].

Impact on content of education: The main impact of HIV/AIDS on education is of its incorporation into the curriculum. In Zambia, they are revising the school curriculum to address the attitude and behavior of youth through the inclusion of life skills and reproductive health programmes[29].The World Bank posited that HIV/AIDS education is likely to be a good investment in preventing HIV. It went ahead in 1999 to deal with the epidemic in sub-Saharan Africa by giving more prominence to the roles that can be played by education related interventions, e.g., educating girls, expanding gender initiatives, reducing poverty, strengthening capacity building, mainstreaming HIV/AIDS in all bank activities and redirecting ongoing project funds to HIV/AIDS activities[29].

Impact on potential clientele for education: There is a decrease in the number of children being born these days as a result of HIV/AIDS. While some are born HIV positive and so are likely to die before school age, other parents cannot afford to have any more children as a result of their status[29]. Another reason for this decline might be the presence of a widow or a widower. There is an increase in the number of children orphaned by the scourge. The economical and psychological burdens on the extended family usually pose a problem[29]. Many of these children have to work in order to support themselves or their siblings thus are unable to register in school or become care givers so that those already in school remain[29]. Some are traumatized by the pain of loss that they are unable to concentrate and learn while others are at risk of contracting HIV/AIDS through income generating practices like prostitution[29].

CHAPTER FOUR

EFFECT OF HIV/AIDS ON NATIONAL DEMOGRAPHY, WORKFORCE AND THE ECONOMY

HIV/AIDS causes enormous human suffering, social and cultural disruption, with huge economic costs. The effects pervade the industrial, agricultural, political and healthcare sectors and permeate through the society, affecting individuals, families and communities[20].

Effect on population and population structure

One vital effect of HIV/AIDS is in the area of population reduction. Many of those who contact it are young men and women within the productive sector of the society, thus making the population vulnerable. High rates of people contacting the virus will change the demographic structure of the society, especially among the adolescents and the working population. This becomes a great threat to the future population. In the most affected countries of sub-Saharan Africa, AIDS continues to slow or reverse improvement in life expectancy and distort the age-sex structure of the entire population. AIDS has reduced the life expectancy in several countries around the world. In Botswana, for example, without accounting for the impact of AIDS, life expectancy would have been 74 years in 2010; however, with AIDS, life expectancy has dropped to 27 years[20].

Demographic impact

We need to ask what demographic events measure and report? Most countries conduct censuses to measure key demographic indicators such as the number of people by age and gender. These and occasional household censuses are used to calculate other indicators such as total fertility rates, growth, age structure, dependency ratios, life expectancy and infant, child and maternal mortality rates. The major demographic processes, mortality and fertility, are affected by AIDS. Direct effects on mortality occur because AIDS causes the deaths of adults and children. The effects on fertility are indirect and less well understood. The accumulation of these direct and indirect effects causes changes in other demographic indicators[28].

The impact of HIV/AIDS on the work place and work force

Most of the people living with HIV/AIDS in Africa are between the ages of 15-49 which is the prime age of their working lives. In 2005, Frank studied that HIV/AIDS is one of the biggest causes of mortality in the workforce. Furthermore, the international labour organization estimated in 2005 that 2 million workers globally were unable to work due to HIV/AIDS and related illnesses[29]. This figure is expected to double to 4 million by 2015. The International Labour Organization (ILO) estimated that by 2010, the total force will be over 9% smaller in 35 countries of sub-Saharan Africa affected by the HIV/AIDS scourge with >20% losses of total labour supply in most of the affected countries. It also noted that by 2015 there will be further losses of up to 12% with labour supply of 30-40% smaller in countries with very high prevalence. This is expected to affect productivity on income in the economy[29]. In the African workplace, some major factors fueling the epidemic have been identified as follows:

*Access to reasonable levels of income in the midst of poverty.

Adults of working age whether or not they are formally considered labour force participants may have to drop economically productive activities to provide care for the sick. This indirect impact of care therefore, doubles the direct impact of the illness especially as it is reported for Africa, Asia, Latin America and the Caribbean[29]. Lisk posited that the effect of

HIV/AIDS on the labour force and on all persons of working age is measurable in their overall impact on economic growth and development. On the whole, there is decreased productivity due to followings:

Increased absenteeism: This includes absence of infected persons and care givers from work and also other employee absence to attend funerals of coworkers or relatives. A South African sugar company posited that HIV positive employees took a total of 55 days off as sick leave in the last 2 years of their lives[29]. East African businesses have reported absenteeism as accounting for 25-54% of company costs. In a study, out of 1000 companies in Southern Africa, 9% reported a significant negative impact due to AIDS.

Increased unskilled labour: Unskilled labour is increased by the number of children who are forced into labour as a result of parental or guardian incapacitation or loss due to HIV/AIDS. This ultimately threatens the goals of eliminating child labour and promoting sustainable development[29].

Loss of experienced and skilled labour: This results from untimely retirement due to ill health, employee death and hiring of ad-hoc staff to fill in the gap due to absenteeism. The epidemic is most prevalent among the 15-49 years age group which comprises a large number of the workforce. This further implies that the impact may be larger than the absolute number of AIDS that death indicates[29]. The epidemic therefore reduces the stock of skills and experience of the labour force which further threatens the goal of poverty reduction. It is estimated that the annual per capital growth in half of the countries in sub-Saharan Africa is falling by 0.5-1.2% as a direct result of AIDS. By 2010, per capital Gross Domestic Product (GDP) in some of the hardest hit countries is likely to drop by 8% and per capital consumption may even fall further[29].

Increased cost: The direct cost implication of this epidemic on the workplace include an increase in recruitment, training and retraining cost, death benefits, provision of medical assistance, life and safety insurance policy and it also shortens the accumulation period for retirement funds. For example, Gold field in South Africa reported in 2001 that HIV/AIDS accounted for 1/4 of total company medical costs, 3/4 of all company funeral costs and was responsible for all costs associated with death-in service benefits. Guinness Nigeria, supports the cost of treatment for a life time of its employees and dependants suffering from HIV/AIDS related illness. In fact, economists have shown that even where unemployment rates are high retirement and death of large skilled and unskilled workers will put an upward pressure on wages[29].

Impact on trade unionism: On the whole, HIV/AIDS can lead to the loss or incapability of key staff and activists. This can lead to poor organizing skills, defect in support to membership reduce membership, strength and consequently reduced financial strength[29].

Impact mitigation: The success of any impact mitigation rests on both management and employee representatives. They have the important role of identifying and addressing situations and practices that increase risks to individuals and consequently workplace. A milestone has been achieved by many companies. In Africa as reported by the Economic Commission for Africa (2004), the response to the competitive pressures of globalization has turned out to be a solution to the menace of the viral infection whereby workplaces have been cutting or limiting employee benefits, changing the structure of employment contracts, outsourcing unskilled jobs, carrying out selective retrenchment or non-voluntary medical retirements or mechanizing tasks that previously required human effort. Suffice to say there are innumerable strategies that can be put in place to strengthen the response as well as mitigate the impact of HIV/AIDS in education, the workforce and

workplace. Success can only be achieved if government makes the HIV/AIDS issue a problem to tackle and not to be avoided. In this wise, stimulating and supporting a broad multi-sectoral approach geared at mobilization, prevention, care and support will go a long way in mitigation[29]. For example, the Nigerian government has set up a National framework which provides opportunities for better programming and the establishment of stronger self coordinating coalitions by all stakeholders. In a similar way, his excellency Alhaji Aliu Mahama, former Vice President of Ghana said at the workplace, the problem should be faced squarely, candidly and with compassion by both employers and employees. Continuous education of the workforce on the disease is imperative and clear government policies are necessary to drive the workplace programmes (Economic Commission of Africa, 2004). For example in Swaziland, there is an anti-AIDS coalition which promotes voluntary counseling and testing[29] while in Botswana, workers of the Debswana diamond company are entitled to free HIV testing as well as free antiretroviral drugs[30].



Figure 19: Picture showing activities of the National Agency for the Control of HIV/AIDS (NACA) Abuja to strengthen the response as well as mitigate the impact of HIV/AIDS in the workforce and workplace.

CHAPTER FIVE

LEGAL, SOCIAL AND ETHICAL CONSIDERATIONS ON HIV/AIDS ISSUES

Spread of HIV is linked to certain patterns of human behaviour. Hence, it has both biological and socio-cultural determinants. Any attempt to control its spread must take into account the complex social, cultural, economic and environmental factors in which the disease is embedded[35].

In Nigeria, as in other parts of Africa, persons living with HIV/AIDS (PLWHAs) often experience discrimination and stigmatization by family or in the workplace, at school, and in other settings including prisons, and health care and religious institutions. They may also face discriminatory practice in other sectors, for example, in access to insurance policies and international travel[34]. Stigmatization and discrimination may also place the most vulnerable members of society, such as children, women, youth, refugees, and prisoners, at increased risk for contracting HIV/AIDS. These violations are often driven by fear due to lack of knowledge, prejudice, and a dangerously misguided and misinformed desire to protect public health. In fact, public health often provides an added and compelling justification for safeguarding universal human rights, despite the respect, protection, and fulfillment that they merit in their own right[34].

In the context of HIV/AIDS, an environment in which human rights are respected ensures that vulnerability to HIV/AIDS is reduced through information and empowerment, that those infected with and affected by HIV/AIDS live a life of dignity without discrimination, and the personal and societal impact of HIV infection is alleviated. In an environment that is filled with stigma and discriminatory attitudes and practices against PLWHAs, it is likely that PLWHAs will have difficulty accessing information, counseling, and support services that would prolong their lives[34]. They may also be reluctant to disclose their status or seek assistance for fear of repercussions. Indeed, stigma, discrimination, and lack of respect for human rights may also be powerful disincentives for people to find out their HIV status through available voluntary counseling and testing (VCT) services, thus increasing the likelihood that infected individuals will unwittingly spread HIV[34]. Stigma and discrimination may also lead to a dangerous complacency in individuals and groups who are not targeted and therefore assume they are not at risk. It also exacerbates existing forms of marginalization, which tends to deepen the already increased vulnerability to HIV infection of these marginalized groups and their ability to deal with the impact of the disease[34].

Human Rights

Human rights are inherent in man; they arise from the very nature of man as a social animal. Human rights constitute a body of unique virtues, which are highly cherished and valued from inception of time[34]. In a paper presented by Justice Izuako at a seminar titled "HIV/AIDS and Human Rights: The Role of the Judiciary," human rights were described in the words of former Indian Chief Judge, Justice B.N. Bhagwati, as not ephemeral, not alterable with time and space and circumstances. They are not the product of philosophical whim or political fashion.

They have their origin in the fact of the human condition, and because of this origin, they are fundamental and inalienable. More specifically, constitutions, conventions, or governments do not confer them. These are the instruments, the testaments of their recognition; they are important, sometimes essential elements of the machinery for the protection and enforcement of human rights, but they do not give rise to human rights. Human rights were born not of humans but with humans[34]. The concept of human rights is grounded in concepts of human dignity and equality, which can be found in most cultures, religions, and traditions that are today reflected in many legal systems. PLWHAs have the same fundamental social, cultural, civil, and political human rights as any other person by virtue of their humanity. These rights are universal, indivisible, interdependent, and interrelated[34].

The need to protect and promote the rights of PLWHAs is predicated on the standards contained in the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights (ratified by Nigeria in 1993),

and domesticated by means of the African Charter on Human and People's Rights (Ratification and Enforcement Act, Cap 10, LFN, 1990) and other international human rights instruments, such as International Labour Organization (ILO) instruments concerning discrimination in employment and occupation, termination of employment, protection of workers' privacy, and safety and health at work[34]. Many of these fundamental rights are enshrined in Chapter IV of the Federal Constitution of Nigeria 1999.

HIV/AIDS and Human Rights: The Role of Policy

Policy is a definite course or method of action selected in light of given conditions to guide and determine present and future decisions[34].

Human rights, ethics, and law are critical frameworks to elucidate, define, and regulate human behaviour. More particularly, human rights, ethics, and law regulate the relationship between governments and their citizens and the relationships between individuals, among groups, and within communities[34].

HIV/AIDS is a condition among human beings driven by human behaviour. It is affected by the nature of relationships between individuals, the nature of relationships among groups in society (particularly power relationships), and the nature of government response. Legislators can advance HIV/AIDS and human rights issues at local, regional, and national levels in several of their roles[34]:

- As political leaders, they can influence public opinion and increase public knowledge of relevant issues.
- As legislators, they vote on acts of parliament and can ensure that legislation protects human rights and advances effective prevention and care programmes.
- As advocates, they can mobilize the involvement of government, private sector, and civil society to discharge their societal responsibilities in responding appropriately to the epidemic.
- As resource mobilizes, they can allocate financial resources to support and enhance effective HIV/AIDS programmes that are consistent with human rights principles. Legislators can specifically assist with implementation of international guidelines by
- Educating their peers about the guidelines at national, provincial, and local levels to encourage promulgation, acceptance, and endorsement;
- Devising a strategy for disseminating the guidelines to key actors and developing action plans for monitoring and implementation of priority issues; and
- Participating in consultative review and reform of the law by drafting either government sponsored or private member's bills[34].



Figure 20: Campaign for right of workers and people living with HIV/AIDS

HIV/AIDS AND HUMAN RIGHTS IN CONTEXT

The Right to Privacy: In Nigeria, the right to privacy of PLWHAs is often violated when an HIV test is conducted without informing the patient or seeking his or her consent. This appears to be common practice in both private and public health care settings; pregnant women who attend antenatal clinics are often tested for HIV without being informed. Testing without consent also occurs in pre-employment screenings[34]. There are reports of physicians and hospitals in Nigeria having performed HIV antibody tests without obtaining specific informed consent, relying instead on the implied consent to treatment and blood tests that hospital patients typically provide. This is often called "routine" HIV antibody testingthat is, testing without the specific informed consent of the patient, followed often by rejection and other negative consequences. Below are excerpts taken from the experiences of PLWHAs as documented by the Centre for the Right to health[34].

Martha's story is not atypical: I have registered for antenatal in a private hospital near my house. I was told to do an HIV test as part of the routine test. I refused, and they bluntly told me they cannot take my delivery if I do not take the test. I went to a government health center. They filled out a form for blood test; I read it but there was nothing indicating HIV test so I went for the test. During my next visit, I was worried when the midwife told me that I have to go to the teaching hospital for special management. She would not explain why, rather she gave me a letter.

Out of curiosity I read it on my way home and learnt that I had tested HIV positive[34]. My world crashed on my face. I locked myself up and cried for weeks. At the teaching hospital, the nurses kept on passing the letter from one person to another and eventually asked me to return in four weeks time because the doctor who will attend to me is on leave[34]. By this time I was already seven and half months pregnant. I fell into labour before the appointment date and had to go to a traditional birth attendant, who took my delivery. I did not tell her my HIV status because I was scared she would refuse to attend to me, too. Respect for the privacy of PLWHAs and confidentiality of test results are crucial to the prevention of the HIV epidemic. Failure to respect the privacy of a patient who is HIV positive may result in a number of consequences[34]. Testing without informed consent damages the credibility of health services and may discourage those needing services from obtaining them. Mandatory testing can create a false sense of security, especially among people who are outside its scope and who use it as an excuse for not following more effective measures for protecting themselves and others from infection[34].

Privacy & The Media

The right to privacy is also violated in the media when information about the HIV/AIDS status of a PLWHA is circulated without first getting consent of the individual. An example is the case of a policewoman in Nigeria whose HIV status was revealed to the public by the media and resulted in her demotion. Although this decision is not binding in our courts, it is of persuasive authority in the absence of a direct judicial authority in Nigeria[34].

The Right to Health: PLHAs should not be intentionally deprived of their lives through the refusal of care. According to Art. 25 of the UDHR, everyone has the right to a standard of living adequate for the health and well being of himself and his family, including food, clothing, housing, medical care, and necessary social services. The right to health implies the right to the best form of physical and mental well being. It also means that access to medical treatment be made available to all regardless of one's health status[34].

The Right to Human Dignity: The right of a PLWHA to human dignity is violated where such a person is mistreated by a fellow human being simply because of his HIV/AIDS status. Thus, where a health worker refuses to treat a PLWHA, an employer denies him employment, or his movement is restricted, his right to human dignity is violated. In short, any act of discrimination against a PLWHA that relates to

his status is an infringement to his right to human dignity. Generally, a denial of access to HIV/AIDS information and education to PLWHAs infringes the right to human dignity[34].

The Right to Work: The right to work entails the right of every person to access to employment without any precondition except the necessary occupational qualifications. According to Art. 23 of the UDHR, "Everyone has the right to work, also to just and favourable conditions of work. The right is violated when an applicant or employee is required to undergo mandatory testing for HIV and is refused employment or dismissed or refused access to employee benefits or promotion on the grounds of a positive result. In Nigeria today, it is common for employers to deny employment to applicants who test positive for HIV/AIDS in pre-employment screenings. Similarly, employees have lost their jobs because they are found to be HIV positive. This is unlawful and unjustifiable[34].

The Right to Marry and Found a Family: Every individual has the right to decide whom he wants to marry and whether to raise a family. Art. 16 of the UDHR guarantee this right. S.37 of the Nigerian Constitution also recognizes this right. It would amount to a breach of this right if a law is made limiting the ability of an individual to exercise the right to marry[34]. Marriage in Nigeria can be customary, religious, or civil. Although there is no federal or state law making premarital HIV testing mandatory, there is a lot of concern with the position of many religious organizations and leaders that are espousing and practicing mandatory premarital HIV testing policies. For example, Rev. Akwashiki of the Assemblies of God mission in Abia State, Nigeria, in an interview with the CRH research team, stated we require an HIV free certificate to wed couples. If it is found that one is positive, we discontinue the marriage; you don't continue the marriage with somebody who already has a death sentence. I will advise couple to discontinue the relationship[34].

This trend is troubling, considering that religious leaders have powerful influence in shaping national policies. Premarital HIV testing has a benefit in helping couples make informed decisions; however, testing should be voluntary and their decision respected.

As practised, mandatory premarital testing in the face of intense stigma and discrimination would only serve to drive vulnerable people underground or force them to avoid religious weddings completely. This would be a sad loss considering that many Nigerians have a strong connection to their religious community[34]. It is also important to consider that many couples have already had sex with each other before considering or committing to marriage. Therefore, HIV prevention messages should focus on encouraging couples to get voluntary HIV tests before unprotected sex with each other[34].

The Right to Freedom from Discrimination: Art. 7 of the UDHR guarantees that no one must be discriminated against by virtue of his race, sex, religion, political belief, or other status. A similar provision is contained in Art. 2 of the ACHPR, which guarantees the right of equality of every person. S.42 of the Nigerian Constitution provides that every person is equal before the law and that no one should be discriminated against as a result of his birth / social status, sex, or religious background[34].

Discrimination is a serious psychological problem that affects the totality of a being. One of the greatest problems a PLWHA encounters in Nigeria today is stigma and discrimination, which is experienced in virtually every facet of human endeavour, such as in the hospital, workplace, accommodation, and home. Discrimination within the churches is often in the form of mandatory HIV testing before marriage and refusal to wed consenting adults because they are sero-discordant[34].

Gregory shared his experience where the priest bluntly refused to wed them because his bride tested positive. Gregory explained to the priest that he and his wife had been married for sometime in the customary way and had been living as man and wife for a while, and if he was meant to get the virus he would already have it[34].

Moreover, he did not think it made any sense to abandon her just because she tested HIV positive. The priest made them bring their parents before finally agreeing to wed them.

Although a valid marriage may be contracted under the Marriage Act either in a religious place of worship or registry, where a man has indicated his interest to be wedded in a religious place of worship, a refusal to wed him based on his HIV status contradicts S.42 of the Constitution, which forbids discrimination against fellow human beings[34]. Rev. Akwashiki said, "In the church, we send couples for marriage for an HIV test. However, we have not had any positive results[34]. We require HIV-free certificates from intending couples. It is for their benefit; many of them cannot cope with the crisis" Stigma and the resulting stress, isolation, and lack of social support have significant negative impacts on the health of people with HIV/AIDS[34].

Research has found that social support is associated with psychological well-being among people with HIV/AIDS. Those who feel stigmatized by HIV/AIDSboth those infected and those affected by the diseaseand lack the support they consider helpful are more likely to experience symptoms of depression[34]. There is also some evidence that stress has a negative effect on the human immune system and that social support (lacking among people who are isolated due to stigma) can moderate the effects of stress on the immune system[34]. For people living in smaller communities where it is hard to remain anonymous, the need for secrecy is often greater than in cities.

PLWHAs must sometimes go to great lengths to protect the confidentiality of their status[34].

The Right to Education/Information: Every individual is entitled to the right to be educated and to have access to information useful for his/her development in life[34]. Art. 26 of the UDHR provide that "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedom." Art. 8 of the ACHPR as well as Art. 13 of the ICESCR both guarantee the right to education and information. This right should not be seen as a privilege; rather, it is a right exercisable by all regardless of social or health status[34]. The Nigerian Constitution does not expressly provide for this right. However, the Constitution guarantees freedom of press and expression, which includes the right to be informed. Also, the ACHPR Ratification and Enforcement Act Cap. 10 Laws provide for this right. It is sad to note that despite this constitutional provision for the right to information, patients in hospitals are denied the right to know about the form of treatment they receive from health workers[34].

Drugs are prescribed without adequate and detailed information about them. It is even worse in the case of PLWHAs as HIV tests are conducted without the benefit of pre- and post-test counseling[34]. In most cases, HIV tests are conducted without consent of the patient. This is contrary to the Rules of Professional Conduct for Medical and Dental Practitioners in Nigeria. All these attitudes amount to a violation of rights of the patient[34].

Way-out of HIV/AIDS Social Challenges

- ✔ Health insurance schemes that include HIV/AIDS care and treatment.
- ✔ Planning and support for orphans and ulnerable children in household and communities.

(3) Human Rights and Legal Support

Services are needed that address stigma and discrimination in health facilities, in communities and in workplaces and to promote equal access to care. This type of support also includes:

- ✔ Rights to treatment and nformation.
- ✔ Confidentiality.
- ✔ Counseling against Gender-Based Violence.
- ✔ Lack of / Discrimination in Access to care
- ✔ Inheritance claims.
- ✔ Death certification.

CHAPTER SIX

HIV/AIDS AND VULNERABLE GROUPS

Prisoners

In regard to attitudes towards prisoners at the societal level, the emphasis is often on protecting the public from prisoners to the exclusion of concern about the rights and well-being of prisoners. Such attitudes may be expressed most crudely in sentiments about "locking them up and throwing away the key." They may be reflected in opinions that prisoners are receiving too many benefits and too few penalties. They can be implicit in discussion of problems with the correctional system that place most or all of the blame on the prisoner, without considering the relationship between prisoners and the correctional system or between the correctional system and society[34]. Attitudes of this sort have an impact on the lives of prisoners. Politicians are hesitant to initiate controversial programs such as needle exchange in prisons, despite their potential to protect prisoners from HIV infection, because the public could react negatively both to supplying prisoners with equipment to inject drugs and to the admission that drugs are available in prisons. Prison administrations and prison staff may view all aspects of inmates' lives through the lens of safety and security without giving due consideration to such things as inmates' right to confidentiality of medical information or right to health and health care[34].

The WHO Guidelines on HIV Infection and AIDS in Prisons, revised in 1993, state that

- All prisoners have the right to receive health care, including preventive measures, equivalent to that available in the community without discrimination, in particular with respect to their legal status or nationality[34];
- Preventive measures for HIV/AIDS in prisons should be complementary and compatible with those in the community and should be based on risk behaviours actually occurring in prisons, notably needle sharing among injecting drug users and unprotected sexual intercourse[34]; and
- Prison administrators have a responsibility to define and put in place policies and practices that will create a safer environment and diminish the risk of transmission of HIV to prisoners and staff alike[34].

Failure to provide accessible HIV testing; to protect the confidentiality of prisoners with HIV/AIDS; to provide a standard of HIV/AIDS care equal to that in the community; to provide a range of drug treatment programs comparable to those available in the community; to introduce measures that reduce the harms of injecting drugs (such as provision of bleach and sterile syringes); to make condoms and dental care easily and discreetly available to prisoners; and to provide education and information about HIV/AIDS, safer sex, and ways to reduce the harms of drug use would constitute discrimination in terms of the WHO Guidelines[34].

Disclosure of HIV status has significant consequences for inmates within the confines of prison. Some prisoners with HIV/AIDS choose to enter into protective custody; others remain in the general population. Reasons for choosing protective custody include stigma, discrimination, and risks to safety due to HIV status or being identified as transgender or gay. Peer-based outreach, education, and support programs incorporating face-to-face encounters with PLWHAs are essential to creating a more supportive and accepting environment for prisoners with HIV/AIDS[34].

Loss of liberty does not entail loss of human rights, including health. The often closed, overcrowded, violent, and unsafe environment in prisons creates a special responsibility for prison authorities to protect the health of prisoners[34]. Mandatory testing of prisoners is not a solution, as this violates their rights and merely creates

stigma and lack of confidentiality for HIV-positive prisoners without providing any protection for prisoners who are not infected. Adequate measures that are respectful of human rights include providing sufficient staffing resources to enable effective surveillance and appropriate disciplinary measures to protect prisoners from rape, sexual violence, and coercion[34]. As stated by UNAIDS to the U.N. Commission on Human Rights, "Prisoners are the community. They come from the community, they return to it. Protection of prisoners is protection of our communities". Services for prisoners as a captive population should be equivalent to the education, treatment, care, and support received by the general population[34]. This means providing access to HIV related prevention information and education, particularly ongoing peer programmes, voluntary (including anonymous) testing and counseling, and the actual means to implement them (condoms, dental dams, water-based lubricant, and bleach)[34]. Easy access to the means of prevention is critical, as merely making items like condoms available on request (particularly in a way that identifies prisoners, thereby revealing their engagement in illegal sexual behaviour) is not effective[34].



Figure 21: HIV/AIDS and prisoners in Nigeria

Women

According to UNAIDS, women account for about 50 percent of the total number of people said to be living with HIV/AIDS[34]. Of the over 24 million people said to have died of AIDS, about 60 percent of them are women (UNAIDS, 2000). It has been observed that many reasons account for this, and the situation is not different in Nigeria[34]. Apart from increased biological susceptibility to infection, women's subordinate status in Nigeria limits opportunities to be informed about HIV/AIDS, making them more vulnerable to infection and impairing their ability to deal with possible consequences of infection that require care and support (e.g., violence and abandonment by family). Violence

against women in all its forms during peacetime and in conflict situations increases their vulnerability to HIV infection[34]. Such violence includes, *inter alia*, sexual violence, rape (marital and other) and other forms of coerced sex, as well as traditional practices affecting the health of women and children. States have an obligation to protect women from sexual violence in both public and private life[34].

Systematic discrimination in all facets of life, but particularly, education, health care, and employment, disproportionately increases the risk of women becoming infected. Education and prevention programmes are hindered where women lack the skills to understand or the capacity to act upon the information contained in them. Women sometimes cannot negotiate safer sex or leave their partners because of social and legal norms and economic dependency[34]. Norms that promote motherhood as the ideal form of self-worth and identity for women increase vulnerability to HIV and constrain reproductive choices for HIV positive women. Double standards about chastity and fidelity mean that many monogamous married women have been powerless to avoid infection by their husbands[34].

Sexual and other violence directed at women (including within marriage), as well as traditional practices such as female circumcision and infibulations, are not legally prohibited in some states. Such acts, or even fear of the threat of violence, cause increased risks of HIV infection, as well as physical and emotional harm to women. HIV/AIDS prevention and care for women are often undermined by pervasive misconceptions about HIV transmission and epidemiology[34]. There is a tendency to stigmatize women as "vectors of disease," irrespective of the source of infection. As a consequence, women who are or are perceived to be HIV positive face violence and discrimination in both public and private life. Sex workers often face mandatory testing with no support for prevention activities to encourage or require their clients to wear condoms and with little or no access to health care services[34]. Many HIV/AIDS programmes targeting women are focused on pregnant women, but these programmes often emphasize coercive measures directed towards the risk of transmitting HIV to the foetus, such as mandatory pre- and postnatal testing followed by coerced abortion or sterilization. Such programmes seldom empower women to prevent perinatal transmission by prenatal prevention education and an available choice of health services, and they overlook the care needs of women[34].

Sex Workers

Sex workers live and work in an environment that stigmatizes and marginalizes them in many ways. Personal and public disapproval of sex work is expressed in the attitudes of communities, politicians, and service providers; in local bylaws and police surveillance; and in the criminal status of prostitution. Many sex workers are further marginalized by involvement with the street, poverty, race, alcohol, and drug use, and, as with bisexual or transgender sex workers, sexual identity[34]. Street prostitutes are often the most marginalized of sex workers. Street prostitution is illegal, whereas escort services are nota discriminatory feature of the law that has an adverse effect on poorer sex workers.

Street prostitutes are more vulnerable to harassment and are more likely than other types of sex workers to be arrested for soliciting and imprisoned[34]. The HIV epidemic has heightened and exposed the vulnerability of sex workers to discriminatory attitudes, attention, and regulation. Sex workers have been characterised as "vectors of transmission," a phrase that ignores the fact that many sex workers use condoms more consistently than other populations, that they frequently exercise more responsibility than their clients, and that they are generally at a higher risk of infection from their clients than vice versa. Research on sex workers has focused more on their working lives than their private lives, even though many sex workers may be more at risk in the latter than the former[34]. The criminalization of sex for money means that sex workers who are subject to abuse



Figure 22: HIV/AIDS and commercial sex workers in Nigeria

from their customers are less able to report their abusers. It also makes it difficult for them to insist on condom use with their customers, and thus increases their chances of becoming infected. In conversations with a number of women who were raped by their customers, without condoms, they said that because their work is illegal, they are not willing to prosecute these men. Instead, they maintain a "bad date" list and disseminate it to other sex workers.

CHAPTER SEVEN

DIAGNOSIS, CARE, AND MANAGEMENT OF HIV/AIDS

Diagnosis of HIV

Blood tests are the most common way to diagnose HIV. These tests look for antibodies to the virus that the body creates in an attempt to fight the virus. People exposed to the virus should get tested immediately, although it can take the body anywhere from six weeks to a year to develop antibodies to the virus. Follow-up tests may be needed depending on the initial time of exposure. Early testing is crucial. If you test positive for the virus, you and your doctor will discuss and develop a treatment plan that can help fight HIV and ward off complications. Early testing also can alert you to avoid high-risk behavior that can spread the virus to others. Most health care providers offer HIV testing, often with appropriate counseling. Anonymous and free testing also is available. During testing, your doctor will ask about your symptoms, medical history and risk factors, and perform a physical examination[5].

Tests for HIV and AIDS

The primary tests for diagnosing HIV and AIDs include:

ELISA Test: ELISA, which stands for enzyme-linked immunosorbent test/ assay, is used to detect HIV infection. If an ELISA test is positive, the Western blot test is usually administered to confirm the diagnosis. If an ELISA test is negative, but you think you may have HIV, you should be tested again in one to three months. ELISA is quite sensitive in chronic HIV infection, but because antibodies aren't produced immediately upon infection, you may test



Figure 23: Laboratory Diagnosis of HIV / AIDS with ELISA

Home Tests: The only home test approved by the U.S. Food and Drug Administration is called the Home Access Express Test, which is sold in pharmacies[5].It is required that a person obtain three drops of blood using an antiseptic wipe and lancet supplied in the kit. The individual blots the blood onto a test card, which is coded with a unique identification number. This card is then mailed to a laboratory for ELISA testing. The efficacy of the home test has been demonstrated in numerous research studies.

Saliva Tests: A cotton pad is used to obtain saliva from the inside of your cheek. The pad is placed in a vial and submitted to a laboratory for testing. Results are available in three days. Positive results should be confirmed with a blood test[5].

Viral Load Test: This test measures the amount of HIV in your blood. Generally, it's used to monitor treatment progress or detect early HIV infection. Three technologies measure HIV viral load in the blood: reverse transcription polymerase chain reaction (RT-PCR), branched DNA (bDNA) and nucleic acid sequence-based amplification assay (NASBA). The basic principles of these tests are similar. HIV is detected using DNA sequences that bind specifically to those in the virus. It is important to note that results may vary between tests[5].

Western Blot: This is a very sensitive blood test used to confirm a positive ELISA test result[5].

Cases of False Positives and Negatives: It is common knowledge that the antibody tests are not absolutely perfect. Since 1985, several cases of AIDS have been related to transfused blood previously tested negative for HIV antibodies. Moreover, several individuals who believed they had HIV infection on the basis of antibody tests were later found to have no trace of the virus when their tissues were examined. It is possible, therefore, that HIV antibody tests (ELISA and Western blot analysis) can give false-negative and false-positive results. A false-negative result is one that indicates HIV is absent when, in fact, it is present in the body. A false-positive result occurs when evidence indicates the presence of HIV in the body when, in fact, none is present.

Voluntary Counseling and Confidential Testing (VCCT)

This is a process by which an individual undergoes counseling, enabling him or her to make an informed decision about being tested for HIV. The choice must be entirely that of the individual. The client must be assured that the process is confidential. This is aimed at enabling the person to cope with stress and make personal decisions related to HIV/AIDS[20].

The need for testing and counseling

HIV testing and treatment should be done at health centers or other sites where a good counseling unit is available[20].

- A person must know that he/she has been infected, before he/she can receive any treatment or care.
- People who are HIV positive should receive counsel that will help prevent them from transmitting the virus.
- They need to know that it is not the end of life and that they can still live a healthy life.
- Adequate follow up counseling can help an HIV positive person to understand, cope with, and accept their HIV positive status.
- HIV infection affects all dimensions of a person's life: physical, psychological, social and spiritual.
- Eases acceptance of sero-status and coping.
- Facilitates behavioral change.
- Reduces mother-to- child transmission.
- Promotes early management of opportunistic infections and STIs
- Enables preventive therapy and contraceptive advice.
- Facilitates referral to social and peer support.
- Normalizes HIV/AIDS and reduces stigma.
- Promotes planning for future orphan care and will preparation.

The benefits of VCCT

(1) Motivation to initiate or maintain safer sexual behavior.

(2) Improved health through health

education and nutritional advice.

(3) Early access to care.

(4) Emotional support and better ability to cope with HIV related anxiety.

(5) Awareness about safer options for



Figure 24: Voluntary Counseling and Confidential Testing in Nigeria

Care and Support Services

Management of Opportunistic Infections and Other AIDS-Related Diseases

It is recommended that care should be sought in a hospital for proper diagnosis and appropriate treatment of opportunistic infections and AIDS-related diseases.

It is also imperative to mention that drugs prescribed should be used appropriately so as to prevent drug resistance by infectious agents.

Opportunistic infections caused by common microorganisms that usually should not cause problems in healthy individuals.

Adjunct Management

Those who are infected with HIV should ensure that they:

- Take adequate nutrition.
- Drink adequate fluids, especially water.
- Maintain good personal and environmental hygiene.
- Maintain a healthy lifestyle (No smoking, no alcohol, safe sexual practices, treatment of all STIs and other diseases).

Antiretroviral treatment

Presently, there is no cure for HIV / AIDS but HIV antiretroviral treatment can stop infected people from becoming ill for many years. Antiretroviral HIV drugs that are currently available can improve the quality of life of someone infected with HIV, helping them to stay well much longer than they otherwise would. The drugs slow down the replication of HIV within the body, but it must be remembered that they are treatment and not a cure.

The treatment consists of drugs which have to be taken every day for the rest of the individual's life. The drugs are often referred to as antiretroviral drugs. For antiretroviral treatment to be effective for a long time, it has been found



Figure 25: A DISPLAY OF ANTIRETROVIRAL DRUGS

that one needs to take more than one antiretroviral drug at a time. This is what is known as Combination Therapy. The term Highly Active Antiretroviral Therapy (HAART) is used to describe a combination of three or more antiretroviral drugs.

There are four groups of antiretroviral drugs. Each of these groups affects HIV in a different way.

1. Nucleoside / Nucleotide Reverse Transcriptase Inhibitors (NRTIs) : interfere with the action of an HIV protein called reverse transcriptase, which the virus needs to make new copies of itself. NRTIs are sometimes called the "backbone" of combination therapy because most regimens contain at least two of these drugs.

2. Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs): like the NRTIs, NNRTIs also stop HIV from replicating within cells by inhibiting the reverse transcriptase protein.

3. Protease Inhibitor (PI): Protease inhibitors inhibit protease, which is another protein involved in the HIV replication process.

4. Fusion and Entry inhibitors: Entry inhibitors prevent HIV from entering human cells. It is only use for people who have already tried other treatments.

When to start treatment:

There are certain tests that must be carried out that will help determine when to start treatment, namely the CD_4 test and the viral load test.

Comprehensive HIV/AIDS Prevention, Care and support for PLWHA:

People living with and families affected by HIV/AIDS require a wide range of services. Comprehensive HIV/AIDS care must include

clinical care for everyone, psychological support, socioeconomic support, involvement of PLWHA and their families and respect for human right and legal needs. This type of care must:

- Be holistic i.e. include medical, physical, psychological, social and spiritual components.
- Incorporate clinical management, direct patient care, education, prevention, counseling, palliative care and social support.
- Be continuous care between health facilities and homes over the course of the illness.



Figure 26: Picture of HIV/AIDS patients receiving care and support at Sango-Ota State Hospital, Nigeria

Aims of Comprehensive Care, Treatment and Support Programs

- To improve the quality of life of PLWHA.
- To provide support for PLWHA and their families.
- To mitigate the impact of HIV/AIDS on PLWHA, families and communities.

Components

The holistic, complete and multidisciplinary care and support is needed by the PLWHA and their families to address their multifaceted problems and needs from diagnosis to the end-of-life and into bereavement period. These are:

Medical and Nursing Care

PLWHA need medical and nursing care that will reduce HIV morbidity and mortality and optimize their quality of life. Such services include:

- Counseling and testing for appropriate diagnosis.
- Treatment and prevention of tuberculosis (TB) and opportunistic infections.
- Management of STIs and HIV-related illnesses.
- Provision and management with highly active antiretroviral therapy (HAART)
- Palliative remedies.
- Interventions to reduce mother-to-child transmission of HIV.
- Support systems such as functioning laboratories and drug management systems.
- Nutritional support.
- Health education measures.
- Adequate universal precautions in clinical settings.
- Post-exposure prophylaxis.



Figure 27: Picture emphasizing the role of nutrition in the management of HIV/AIDS

HIV/AIDS PREVENTION

In the absence of cure for HIV and AIDS, prevention is the only hope of reversing the epidemic and this will require intensifying the scale and scope of effective HIV-prevention measures. The strategies for preventing sexual transmission of HIV, and in particular the much-discussed "ABC" approach and other ways of effective HIV prevention are discussed in this chapter.

Preventive Strategies

Abstinence

Abstinence means avoiding sex. Globally, sex between men and women is by far the most common way of passing on HIV. Since the late 1980s it had been known that individuals could take action to either reduce or avoid altogether the risk of becoming infected with HIV through sexual transmission. In 8 out 10 cases, HIV is transmitted during sex between a man and a woman or between two men. Abstaining from sexual activities, including vaginal, anal, or oral sex, is the safest way to avoid HIV particularly for young people.

An Abstinence-based approach focuses on the teaching young people that abstaining from sex until marriage is the best means of ensuring that they avoid infection with HIV, other sexually transmitted infections and unintended pregnancy.

Advantages of Abstinence:

- Abstinence is free and available to everyone.
- It's extremely effective at preventing both pregnancy and infection.
- It can be started at any time in one's life.
- Abstinence may encourage people to build relationships in other ways.
- It may be the course of action, which one feels is right, and makes one feel good about oneself.

Be faithful to a single partner

The risk of getting HIV goes up with the number of sex partners one has. To "Be Faithful" as a means of AIDS prevention means to remain loyal to one's sexual partner. By doing so, one lowers the risk of exposure to HIV-infected individuals. By choosing to remain in a faithful, committed relationship each partner is choosing to be exclusive and only have sexual intercourse with one another. Thus, if one chooses to be sexually active, rather than to abstain from sex, being faithful to one's sexual partner is the next step in the ABC prevention plan as a way to reduce the risk of transmitting HIV.



Figure 28: The Wedding ring as a symbol of commitment to the marital vows

Correct and consistence use of condom

Those that cannot abstain from sex or be faithful to a single unaffected partner should use condoms. Condoms are the only form of prevention, which can help to stop the transmission of sexually transmitted infections (STIs) such as HIV and preventing pregnancy. However, it has been proven that condoms do not provide 100% protection against HIV, but using latex condoms the right way, all the time, can reduce the likelihood of HIV transmission.

What is generally called a "condom" is a sheath or covering which fits over a man's penis, and which is closed at one end. There is also a female condom, or vaginal sheath, which a woman can use and which fits inside her vagina.

Correct and consistence use of condom

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Figure 29: A demonstration of the rubber latex called CONDOM

What is generally called a "condom" is a sheath or covering which fits over a man's penis, and which is closed at one end. There is also a female condom, or vaginal sheath, which a woman can use and which fits inside her vagina. To protect oneself from HIV infection, one needs to:

- Use a new condom during every sexual intercourse. Never use the same condom twice. Family planning and sexual health clinics provide condoms free of charge. Condoms are available to buy from supermarkets and convenience stores. There are no age limitations on buying condoms.
- Use international standards organization (ISO) approved and non-expired condoms. A good condom must carry the expiration (Exp) and manufacture (MFG) date on the box.
- Store condoms properly as they are affected by both heat and light. So it is best not to use a condom that has been stored in the back pocket, wallet, or the glove compartment of the car. If a condom feels sticky or vey dry, it should not be used, as the packaging has probably been damaged.

Avoid joint use of sharp objects

Apart from sex, another major transmission route of HIV infection is through the reuse of needles; this usually occurs among drug users who share needles and in some health facilities where the same needle is used for many patients. Do not share blades, shaving clippers, syringes, needles or other sharp instruments. Since injecting drug users are often linked in tight networks and commonly share injecting equipment with other people without cleaning it, HIV can spread very rapidly in these populations.

For injection drug users who cannot or will not stop injecting drugs and health providers, the following steps may be taken to reduce health risks:

- Never reuse or "share" syringes, water, or drug preparation equipment.
- Only use syringes obtained from a reliable source (such as drug stores or
- Use a new, sterile syringe each time to prepare and inject drugs.
- If possible, use sterile water to prepare drugs; otherwise, use clean water from a reliable source (such as fresh tap water).
- Use a new or disinfected container (cooker) and a new filter (cotton) to prepare drugs.
- Clean the injection site with a new alcohol swab prior to injection.
- Safely dispose of syringes after one use.

For people that visit salons for barbing and plaiting of hair, the following precautions should always be taken:

- Have your personal clipper and blade that must not be shared with any other person.
- If you must use the barber's clipper, insist that the clipper should be probably sterilized.
- In a beauty saloon, personal /new needles and blades should be used for pedicure and shaping of eyebrows.

For Circumcision:

- Female circumcision must be totally

discouraged.

- Male circumcision must be done with a new/sterilized surgical blade, the health personnel during the circumcision must wear hand gloves.

Avoid getting in contact with infected blood or body fluid

Since the medium of transfer of HIV is blood and body fluid, taking the following steps can prevent getting in contact with infected blood:

- Refusing unscreened blood if there is need to undergo blood transfusion. It is your to ask the doctor or hospital staff if the blood has been screened.
- Avoiding oath taking which requires mixing of participants' blood.
- Avoiding sharing a toothbrush or chewing stick with others
- Covering cuts and abrasions when working in clinical conditions.
- Careful handling of accident victims. It is advisable for people offering rescue action to protect themselves from accidental cuts while helping.
- Avoiding dry sex because it increases the risk of HIV transmission. Friction can cause sores/laceration in the vaginal wall, hence increased risk.

Prevent occupational exposure

Health care workers are exposed to HIV infection in the work place. The main cause of infection in occupational settings is exposure to HIV-infected bloodn via a percutaneous injury (i.e. from needles, instruments, bites which break the skin, etc). the following universal infection control precautions are advised by the World Health Organization to help protect health care workers from blood-borne infections including HIV. (These measures should be applied to blood, semen, breast milk, vaginal secretions, human tissues and all other body fluids).

- Wash hands with soap and water before and after procedures.
- Use protective barriers such as gloves, gowns, aprons, masks, goggles for direct contact with blood and other body fluids.
- Disinfect instruments and other contaminated client care equipment.
- Handle soiled linen properly. (soiled linen should be handled as little as possible. Gloves and leak proof bags should be used if necessary. Cleaning should occur outside patient areas, using detergent and hot water).
- Use of new, single-use disposable injection equipment for all injections is highly recommended. Sterilizable injection should only be considered if single use equipment is not available and if the sterility can be documented with time, steam and temperature indicators.
- Discard contaminated sharp objects immediately and without recapping in puncture and liquid proof containers that are closed, sealed and destroyed before completely full.
- Document the quality of the sterilization for all medical equipment used for percutaneous procedures.
- Report any accidental exposure to blood/body fluids to the appropriate authority. Household bleach, diluted 1 part bleach to 6 parts of water inactivates HIV. This solution can be used for fluid spillages. 1 part bleach to 50 part water can be used for general purposes.

Avoid mother to child transmission

Mother to child transmission (MTCT) is when an HIV positive woman passes the virus to her baby. This can occur during pregnancy, labour and delivery, or breastfeeding. Without treatment, around 15-30% of babies born to HIV positive women will become infected with HIV during pregnancy and delivery. A further 5-20% will become infected through breastfeeding.

In 2005, around 700,000 children under 15 became infected with HIV, mainly through mother-to-child transmission. About 90% of these MTCT infections occurred in Africa where AIDS is beginning to reverse decades of steady progress in child survival.

To prevent mother-to-child transmission the following steps should be taken:

- Avoiding unwanted pregnancies among HIV positive women.
- Every pregnancy woman should go for a voluntary HIV test. Get screened as soon as you think you may be pregnant.

- Infected mothers should go for proper counseling and antiretroviral therapy. Transmission of HIV from a sero-positive mother to baby can be reduced by the use of antiretroviral drugs during pregnancy, labour and delivery and having the baby take these drugs for the first six weeks of life.
- Infected mothers should opt for a caesarean section in order to protect the baby from direct contact with her blood and other body fluids during delivery.
- Mothers with HIV are advised not to breastfeed but rather opt for breast milk substitutes (formula). Alternatively, confirmed HIV positive mother and child who are on combined antiretroviral may proceed on natural breast eeding. Complications following malnutrition may even be worse than HIV itself



Figure 30: An HIV/AIDS positive mother opting for breast milk substitutes (formula)

CHAPTER NINE

CONCLUSION

HIV/AIDS presents a challenge to all the human rights affirmed in several international and regional treaties of which Nigeria is a part, including the Universal Declaration of Human Rights (UDHR); International Covenant on Civil and Political Rights (ICCPR); International Covenant on Economic, Social and Cultural Rights (ICESCR); African Charter on Human and People's Rights (ACHPR); Convention on the Rights of the Child (CRC); and Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).

These rights include the right to life, privacy, marriage and founding a family, equal access to education, work, the highest attainable standard of physical and mental health, liberty and security of persons, sharing in scientific advancement and its benefits, freedom of association, freedom of opinion and expression, freely receiving and imparting information, participation in public and cultural life, freedom of movement, an adequate standard of living, social security, assistance and welfare, seeking and enjoying asylum, non-discrimination, equal protection and equality before the law, and being free from torture and cruel, inhumane, or degrading treatment or punishment34.

Policies and legislators are important starting points in preventing and redressing human right abuses related to HIV/AIDS. Unfortunately, in the face of a poorly understood threat like HIV/AIDS, there is a tendency to make polices based on the reactionary feelings and prejudices of a few founded on ignorance and fear. Sometimes even with the best of knowledge, ethical dilemmas exist that are not easily resolved. Therefore, the need for policies to be founded on sound scientific facts, ethical principles, international norms, and best practices from other jurisdictions cannot be overstated. This document attempted to present scientific, legal, and international norms associated with HIV/AIDS and human rights as they apply to the situation in Nigeria, with the hope those charged with the noble task of reforming the Nigerian HIV/AIDS policy will find it useful[34].

Crawford University HIV and AIDS Committee shall function in the following ways:

(1) Integrating HIV and AIDS issues into the academic programme through lectures, publications and campaigns.

(2) Integrating HIV and AIDS issues into orientation programmes for both staff and students

(3) Training and retraining of staff and students to ensure sustainability and continuity of the HIV and AIDS programme of the University.

(4) Promoting interactive seminar, workshop and conferences on HIV and AIDS to increase awareness and showcase research outputs.

There shall be consistent monitoring and evaluation of the impact of the training on the students, staff and the University Community in general.

MEMBERS OF THE HIV/AIDS AWARENESS COMMITTEE

Prof. S. A. Ayanlaja	-	***Vice Chancellor Crawford University, Nigeria***
Prof. B. Babalola	-	***The Dean, Student Affairs Division, Crawford University, Nigeria***
Prof. R. O. Okotore	-	***The Dean , CONAS Science***
	-	***Crawford University, Nigeria***
Prof. O. Oludimu	-	***Provost, Postgraduate College Crawford University, Nigeria***
Prof. O. Ojo	-	***The Dean, College of Business and Social Sciences, Crawford University, Nigeria***
Dr. A. O. Olalubi	-	***Project Director, Dept., of Biological Science, CONAS, Crawford University, Nigeria***
Dr. Gbolagunte	-	***Acting Head, Biochemistry Programme , CONAS, Crawford University, Nigeria***
Dr. (Mrs) Babalola	-	***Dept., of Microbiology, CONAS, Crawford University, Nigeria***
Dr. P. Imoyera	-	***Health Centre, Crawford University, Nigeria***
Mrs. R. M. Alabi	-	***Dept., of Microbiology, CONAS, Crawford University, Nigeria***
Mr. T. Adigun	-	***University Library, Crawford University, Nigeria***

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APPENDIX

HIV/AIDS IS REAL!!!
SPREAD THE MESSAGE AND NOT THE VIRUS!!

RUINED LIVES - A Confessional Statement

When I joined Moi University, Kenya in September 2001, I promised myself that "it's in Moi University I got it and its here I will leave it". I have indeed lived to keep my promise.

I was in form three when a student on his attachment in our school proposed for a relationship. He had all the qualities a woman would want in a man so I gave in. He told me all a form three girl would want to hear. In my innocence and naivety, I succumbed to his pressure to have sex with; consequently, I lost my virginity to him.

After his placement, he reported to college for his final year and we still had contacts. I visited him on a number of occasions, (I've even lost count of the number of times I visited him). He was my first and only love and I therefore hung on every word he told me. My boyfriend later graduated and we lost contact until last month (March) when his sister told me about his whereabouts (details of this later).

Before registration in the faculty of Law, in PSSP, I went for medical tests as is the requirement. I then opted for an HIV test, which unfortunately turned out to be +ve. It then dawned on me that I had traded the rest of my life for a university student who had deliberately and intentionally preyed on my innocence.

My first impulse was to take away my life, counseling sessions did not mean much to me and I quickly walked out of the session. I however did not confide my status to anyone until today.

The following day I went to a different health facility and the results were still +ve. Therefore there was no doubt that I had been infected by this teacher-student. Since as the sister said, he had passed away after 6 months of being bed-ridden, besides, I had never had any other sexual relationship with anybody -no blood transfusion and the last time I used a syringe was in 1989.

Now, since whoever infected me did not mind about my life, I will also infect as many as possible as long as they are university guys oblivious of my status. So guys, anyone of you out there who may have crossed my "path" should count himself unlucky and should quickly place an order for ART supply before it's too late!

I decided to spread the virus indiscriminately in the Campus, (and have no apologies), because its here I got it and I intend to leave it here. I've a well-documented report of all those guys who "crossed my path" since I joined this college. I will be posting their full names and registration numbers on the Students' Notice Board after the end of semester II Exams (August).

So far, I've had 124 students, yes one hundred and twenty four. Out of these, only 6, yes six used a condom. I still reiterate the fact that I owe nobody an apology and am still on a spreading spree till August. Otherwise, I wish you success in your end of First Semester exams as you wait for your slow and sure DEATH!

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