



## Foreign Aid Initiatives and the HIV/AIDS Epidemic in Nigeria: Perspectives on Country Ownership and Humanistic Care

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author BNJ conceived the idea/topic designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author CAA reviewed and modified the write-up on the economic aspect of foreign aid funding. Authors DAD and DMU wrote part of the manuscript. Author KIB managed the political aspect of this work. Author MLPD co-ordinated the research process, editorial and manuscript review. All authors read and approved the final manuscript.*

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### **ABSTRACT**

With a prevalence rate of 3.1%, Nigeria has a generalized HIV/AIDS epidemic. Like much other developing countries, Nigeria has to collaborate with development partners to fight the HIV/AIDS scourge. This review assesses the impact of foreign aid initiatives on the fight against HIV/AIDS in Nigeria. It examines Nigeria's capacity and willingness to independently own a sustainable provision of HIV/AIDS care in the country. This paper assesses the outcomes of the HIV/AIDS scheme. Our review indicates that foreign aid initiatives were responsible for the rapid scale-up in HIV/AIDS services and improvement in morbidity and mortality rates. While foreign aids have

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contributed to the reversal of both prevalence and incidence rates of HIV, donor funded initiatives have overstretched the workforce and the health systems thus diverting healthcare emphases towards specific disease intervention programmes. Evaluation of outcomes measures has consistently excluded viral load assessment, antiretroviral resistant testing and the provision of salvage regimen. Nigeria's budgetary allocation to the health sector is still very low, consequently, government willingness and commitment to the fight against HIV/AIDS is grossly inadequate. The HIV/AIDS programme is still donors dependent and often seen as "donor-agency things". The global aid initiatives have recorded a milestone achievement in the fight against HIV infections in Nigeria. While much is needed from the donor agencies, Nigeria must ensure deliberate commitment towards an independent ownership of HIV/AIDS scheme in Nigeria.

*Keywords: Country ownership; foreign aid initiatives; humanistic care; HIV/AIDS; Nigeria.*

## 1. INTRODUCTION

Barely two decades after the first case of the human immunodeficiency virus (HIV) infection was identified in the United States of America, has the spread reached a pandemic dimension that attracts global concern. The distribution of the HIV infection has continuously skewed towards sub-Saharan Africa, this region accounts for 70% of global burden of HIV/AIDS [1,2]. Nigeria has the second highest number of people living with HIV/AIDS worldwide and accounts for 10% of global HIV/AIDS burden and 20% of HIV/AIDS burden in Africa [3,1]. Nigeria has an average HIV prevalence rate of 3.1%; a total of 16 States out of the 36 States of the Federation including the Federal Capital Territory (Abuja) had prevalence above 5% while state average values of 1-12.7% were recorded. Although, the prevalence was generally higher in urban areas, the highest site prevalence of 21.3% was reported on a rural settlement and 0.0% prevalence rates were recorded at four rural communities. The mutual interaction between HIV/AIDS and TB further complicates the epidemiology of both infections. Africa accounts for 24% of TB burden while Nigeria has a share of 10% worldwide. HIV/AIDS and TB infections rank as the first and the second leading cause of death respectively from an infectious disease perspective worldwide [4]. In 2011, 1.1 million (13%) of the 8.7 million people that developed TB worldwide was HIV-positive and 79% of these co-infected cohort were in the African region, while Nigeria has a share of 25% [4].

In response to the HIV pandemic, it became cleared that the developed world must make urgent concerted efforts to halt and reverse the trend of the infection worldwide largely because the scourge affects productivity particularly among those infected and their family members. Global health initiatives (GHI) such as the United

States President's Emergency Program for AIDS Relief (PEPFAR) and the Global Fund to fight AIDS, Tuberculosis and Malaria (GFTAM) etc became vital instruments for the provision of "universal access" to antiretroviral medicines.

Nigeria is recently rated as the strongest economy in Africa based on the output of goods and services; however, its indices based on per capita income and human development indicators are quite disturbing in spite of abundant natural and human endowments. Nigeria would have to collaborate with development agencies for the funding of most of its health intervention policies and programs if the country is to make substantial progress towards meeting health related Sustainable Development Goals (SDGs) by the year 2030. These foreign aid programs are often characterized by a mixture of altruism, hubris and self-interest [5]. With a population growth rate of 2.7% above the global average of 1.2, an average total fertility rate of 6.0. [6] combined with high HIV prevalence rates and the overwhelming impact of poverty implies that the country has a high risk of an epidemic explosion; "a country at a threshold". The dynamic of HIV epidemiology where migration influences the narrowing of differentials between urban-rural spread of HIV is already taking its course following the reversal of trends as the highest site prevalence was identified with a rural community in Nigeria.

This article evaluates the influence of foreign aid on the fight against HIV/AIDS in Nigeria and examines the effects of global aid initiatives on the health systems. The study assesses the role and the readiness of the government to independently ensure the ownership and provision of a continuous and sustainable HIV/AIDS care and support in Nigeria.

## 2. COUNTRY PROFILE

Nigeria has an estimated 182 million people [7]; it is the most populous country in Africa [8]. It is a country with a large multi-ethnic diversity; the population is relatively young, the median age is 18.7 years and about 45% of the population is under the age of 15 [9]. Unfortunately, Nigeria's health indicators compare with that of poor sub-Saharan African countries [6].

Life expectancy at birth (years): 54

Neonatal mortality rate (per 1000 live births): 39

Infant mortality rate (probability of dying by age 1 per 1000 live births): 78

Under-5 mortality rate (probability of dying by age 5 per 1000 live births): 124

Maternal mortality ratio (per 100,000 live births): 560

## 3. HIV/AIDS AS A DEVELOPMENT AND SECURITY THREAT

*"AIDS is not just a humanitarian crisis. It is a security crisis — because it threatens not just individual citizens, but the very institutions that define and defend the character of a society"* [10].

The emergence of foreign aid (global health initiatives) to fight HIV/AIDS was highly applauded worldwide. This concept was adopted as a strategy to achieve the declaration of universal access. However, skeptics argued that such donations were purportedly rendered in fear that the epidemic could undermine both international security and economic development [11]. The potential effect of the epidemic on security and development were affirmed by development and health economists, U. S. Central Intelligence Agency (CIA) and the U. S. Agency for International Development (USAID). These securities and development experts revealed that HIV/AIDS is a security threat; and a humanitarian emergency capable of truncating development, promoting crime and the child soldier phenomenon [11]. It is believed that the nexus of poverty, HIV/AIDS, and alienation from the developed world could foster terrorism. Thus individuals infected with the virus are seen as national threat; this is a repressive approach to the epidemic that is rooted in falsehood [11]. Conversely, McInnes and Rushton [12] opined that HIV/AIDS is a national security issue where

the referent object is not the individual but the state and/or the international community. Furthermore, Garrett [11] argued that AIDS-ravaged societies might revolt against perceived discontentment leading to violence with the wealthy nations for neglecting HIV-afflicted States. McGinnis and Sawyer [13] have similar opinion:

*"Under extreme conditions of deprivation, desperation, frustration, and anger, citizens result to violence as a form of protest and political contention, voicing their discontent with ineffective institutions and poor living conditions. Public order breaks down as military and police forces are unable to control civil unrest because of their extreme infection rates, thinned out ranks, inexperience, and understaffing. Domestic violence and civil unrest can easily escalate as warlords, criminal gangs, and strongmen enter the power vacuum created by institutional weakness".*

As part of its agreement with the U.S. PEPFAR, the government of Nigeria is to contribute at least 50% of its gross HIV/AIDS budgetary expenditure by 2015 [14]. What happen to the citizens in the event that the development/foreign partners fail to extend this partnership agreement? It is indeed a public health risk, a security and economic risk for a country to rely completely or partly on the developed world for its health. Do we expect the Western world to purchase public health for us to improve our life expectancy? What is the future of people infected with HIV/AIDS in Nigeria? It is high time the HIV/AIDS and to a larger extent the health issues in Nigeria were brought into the political discourse to achieve economic growth. The citizens are gradually beginning to know their rights. Failure to guarantee the provision of sustainable HIV/AIDS care based on the exemption policy might precipitate anarchy and violence that could undermine national security.

HIV/AIDS is an emerging security threat of the 21<sup>st</sup> century [15,16]. HIV is gradually shifting from a health issue to a development crisis [17]. It differs from other life-threatening illnesses because of its devastating impact on morbidity and mortality; more importantly, it selectively affects adult in their most sexually active ages, which correspond with their prime productive years [18]. As the prevalence of AIDS rises, it affects the macroeconomy in two ways: Rising morbidity and rising mortality rates. A rise in morbidity rates results from a negative labour

productivity and a positive health care expenditure while a rise in mortality causes a negative population growth and a shift in the age structure of the population towards the younger age and the aged [19].

#### 4. HIV/AIDS AND HUMAN RIGHTS

*“Humanity will not enjoy security without development, it will not enjoy development without security, and it will not enjoy either without respect for human right” [20].*

Human rights are inherent in man; they arise from the very nature of man as a social animal [21]. The protection and promotion of human rights is necessary to the protection for the inherent dignity of person infected with HIV and to the attainment of the desired public health goals of reducing and reversing the HIV/AIDS epidemics [22].

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 [21]. Human rights are not ephemeral, not alterable with time and space and circumstances; they are not the product of philosophical whim or political fashion [23]. The right to privacy of every citizen is enunciated in the Nigerian Constitution of 1999 in S.37. This right is also guaranteed under Article 17 of the International Covenant on Civil and Political Rights (ICCPR); Article 6 of the African Charter on Human and People’s Right (ACHPR); Article 12 of the UDHR and the International Covenant on Economic, Social and Cultural Rights (ICESCR) [21]. The Nigerian Constitution of 1999, S. 17 (3d) [24] as well as Article 25 of the UDHR guarantee everyone the right to social order-which include the right to access adequate medical and health facilities. Unfortunately PLWHA are often deliberately and out rightly violated [21]. Such deliberate violation could be in terms of omission where the vulnerable groups such as men that have sex with men (MSM) and sex workers are denied of health care services and provisions [1,25].

One of the barriers to reaching those who are infected with HIV/AIDS is stigma [26,27]. Stigma enhances secrecy and denial which are both facilitators of HIV transmission [28]. Stigma is not a singular concept expressed and experienced in a common way; it is a complex phenomenon expressed both subtly and overtly. Stigma is

subjectively experienced in multiple ways that are partially depended upon the nature of the stigmatizing condition and the social circumstances of the individual [29]. Stigmatizing and discriminatory attitudes against people living with HIV/AIDS are stronger than that of other diseases [29,30] and occurs within families and other social networks and is often institutionalized [1,31,32].

Stigma undermines ones identity and capacity to cope with the disease and drives HIV positive person out of public sights, while fear of enacted stigma termed discrimination limits the possibility of disclosure [33]. Furthermore, studies have shown that health care practitioners who are trained to render care to PLWHA are themselves prime agents of stigmatization and discrimination [1,21]. Nigeria is signatory to various international charters on human rights; however, the practical implementation of such agreements remains a great challenge. The Nigerian citizens are beginning to know their rights as enshrined in the Constitution and certain international charters. In the near future, both the government and the health care workers will be forced using the instrument of law or its obnoxious alternatives such as mass protest, to guarantee their right to equitable access to health care and essential medicines.

In Nigeria, litigations arising from infringement of the rights of PLWHA abound; in its ruling over the termination of appointment of a plaintiff on the bases of her HIV-positive status, the high court of Lagos, Nigeria, pronounced its judgment in favour of the plaintiff [34,21]. The judiciary and the civil society must work in concert to promote the health of the people through the use of legal instrument.

#### 4.1 Nigeria Health System

*“Patients don’t read guidelines, and guidelines don’t build health systems” [35].*

Nigeria has a well-designed national health policy. The national drug policy was designed to fit within the aims and objectives of the national health policy on the background of inadequacies of drug availability, supply and distribution. However, these policies and guidelines are often not in tandem with the realities and actual practice. While it is necessary to have good health and social policy frameworks and guidelines, the implementation of such policy and guidelines require strong political will and

commitment to equity and social justice. Nigeria's health system is characterized by complexities arising from the federal administrative structures and constitutional provision which classifies health on the concurrent legislative list resulting in parallel but overlapping responsibilities among the three tiers of government thus complicating policy making, regulation and provision of health care [8]. General government expenditure on health as a percentage of total government expenditure has been consistently low (6.7), below the African average of 9.7 and global value of 15.2 [6]. Worse still, portion of this meager budget is often diverted or misappropriated for selfish reasons [8]. Access to and use of quality health care services is also low [14].

#### **4.2 Budgetary Allocation to the Health System**

Nigeria's expenditure on health has often been below global standards; for instance, total expenditure on health as a percentage of gross domestic products for 2011 is 5.7% below African average of 6.2%, global average of 6.6% and the global peak of 14.1% [6]. Furthermore, per capita government expenditure on health at average exchange rate (US\$) is estimated as \$29 compared to African average of \$49, global average of \$472 and global peak of \$1782. Consequently, in 2010, 50-74% of HIV/AIDS expenditure in Nigeria was funded by the foreign and development agencies [2].

#### **4.3 Nigeria Drugs Situation**

In its 1988 evaluation of the world drug situation, WHO classified Nigeria among countries with low health care coverage and in the weakest categories in managing procurement, distribution, information and manpower for essential medicines. Consequently, only 30% of the population has access to essential medicines [36]. In a keynote address to the Pharmaceutical Society of Nigeria, Tayo, [37] examined the issue of access to medicine in Nigeria and expressed dissatisfaction. The researcher stated that Nigeria is well endowed with both human and natural resources and has no reason to be at this dismal position but for corruption and ineptitude of its leaders. Scarcities of resources to provide health care or to remove causes of disease are often man-made; they seldom happen in the circumstances beyond human control [38]. According to Calabresi and Bobbitt [39] "scarcity is not the result of any absolute lack of a

resource but rather of the decision by society that it is not prepared to forgo other goods and benefits of a number sufficient to remove the scarcity". Poor access to medicines is a major feature of most low and middle-income countries [40,41]. The drug distribution system in Nigeria has been taken over by charlatans who see drugs as commodities for commerce; consequently, the distribution system is chaotic and disorganized [42,43].

Any country that failed in its responsibility to ensure sustainable provision of essential medicines for its citizens is not likely to guarantee the provision of access to ART medicines. Innovative approaches to ensuring consistent and sustainable provision of essential medicines at country, regional and global level have been shown to reduce cost and improve access to medicines [44]. Pooled procurement of medicines explores this mechanism whereby purchasing is conducted by one procurement office on behalf of a group of facilities, countries or health systems. Such policy increases bargaining power and ensures maximum utilization of scarce resources. The Petroleum (Special) Trust Fund established in 1994 in Nigeria adopted this innovative mechanism to ensure nationwide sustainable access to medicines. The scheme recorded enormous improvement in the availability and affordability of medicines throughout the country [45]. While, this approach was laudably applauded; inefficient management of pooled seed stocks resulted in various form of wastages.

Access to medicine is a public health issue requiring global development policy concern. Today, human rights activist groups are enforcing the explicit reference to access to medicines as a fundamental human rights issue [37,46]. The global movement towards the campaign for access to HIV/AIDS medicines and the uprising against the protection of intellectual property for patented drugs especially ART by pharmaceutical companies has brought the issue of access to ART medicines on the international health agenda [37,47]. Access to essential medicines as an essential aspect of the fulfillment of the right to health could be enforced through the courts; this is especially becoming common to low and middle income countries such as Central and Latin America [48]. Human right treaties ratified by governments have fostered the inclusion of the provision of right to health in the constitution which provides the basis of litigations. In Argentina, the international

human right provision was invoked in the absence of a national constitutional framework for the right to health [48].

#### **4.4 Nigeria Antiretroviral Drugs Situation: Historical Background**

With an estimated 3.5 million people infected with HIV and a prevalence rate of 5% in 2002, Nigeria government initiated the commencement of a programme to provide ART to PLWHA at a subsidized rates for a targeted population of 10,000 adults and 5,000 children annually. At that time, the cost of providing the stavudine based HAART regimen to a patient per month was estimated at \$7.8-11.7 in public facilities while the cost in private facilities ranges from \$54.7-109.4. Two years later, the programme could not achieve its target of providing access to 20,000 HIV infected person; yet, about 64% of the meager supply has expired due to inadequacy of the management of essential medicines [49].

#### **4.5 Effects of Foreign Aid on the Fight against HIV/AIDS in Nigeria**

*“From its birth, the campaign against AIDS was much more than a battle against disease. It was a cry for human rights. It was a call for gender equality. It was a fight to end discrimination based on sexual orientation. And it was a demand for the equal treatment of all people”* [50].

The scale up of HIV care and treatment services has led to the dramatic expansion of access to ART for PLWHA worldwide [51]. As at 2003, almost all health facilities in Nigeria were without requisite capacity to initiate routine HIV/AIDS care and support programme; subsequent intervention by the federal government to improve access to ART medicines was grossly inadequate and characterized by gross inequities and social injustice [49].

The number of health facilities providing ART care and support in low and middle income countries has risen from 7700 in 2007 to a threefold increase at the end of 2010. Consequently, an estimated 6.65 million people within these regions were accessing ART compared to 400,000 in 2003 [40,52]. An assessment of the effects of PEPFAR foreign aid on the fight against HIV/AIDS in Nigeria revealed that during the fiscal year 2011, an estimated 414,000 people were receiving ART; while 1,618,300 HIV positive individuals were

undergoing care and support. HIV counseling and testing was done for over 2.3 million people [53].

#### **4.6 Impact of Foreign Aid on the Health System**

In less than two decades, approximately 100 global health initiatives (GHIs) have been established as a response to meeting the Millennium Development Goals (MDGs). These GHIs explore the public-private partnership mechanisms which mobilized funds channeled into government and the civil society organizations for specific diseases and targeted interventions [54,55,46]. While critiques argued that GHIs erode fragile health systems [55] and distorts the national policies of the recipient country [56]. GHIs have been shown to have positive interaction with robust health systems possibly due to the human resource capacity to absorb and adapt new programs [57,55,54].

#### **4.7 Health Services Delivery**

A review of progress made in the fight against HIV/AIDS from 2002-2010 in low-and middle income countries (LMIC) revealed some modest achievement. The percentage of pregnant women tested for HIV increased from 8% in 2005 to 35% in 2010. Furthermore, the number of facilities providing HIV/AIDS care and support programme in LMIC leaped at 7700 to 22400 in three years while the number of people receiving ART has witnessed a geometric achievement with 6,650,000 clients in 2010 compared to 300,000 in 2002 [46]. By the end of September, 2014, PEPFAR provided ART care and support for 7,745,437 people with Nigeria accounting for 610,599 people [52], compared to 13,644 people receiving HAART as at November 2003 [49]. This report further revealed that 140,000 new health workers in PEPFAR supported countries received various trainings on ART care [52].

##### **4.7.1 Human resource for health**

Inadequate trained health-care personnel at all levels of care in LMIC, and the cost of training and remuneration have persistently been the major obstacle to the provision of care [58]. Before the advent of GHIs for HIV care, most of the health centres in Nigeria lacked basic medical laboratories diagnostics, skills and competence for HIV/TB care [49]. Decentralization of access to ART using the task-shifting principles and the PHC models required that nurses and other health care workers are mobilized to handle roles that were hitherto

complete preserve of physicians in other to deal with the abysmal health worker shortages [58,44,59]. There is also a deliberate effort in the supply of laboratory diagnostics, training for medical staff and financing infrastructural development of healthcare institutions undertaken by development agencies in LMIC including Nigeria [60].

#### **4.7.2 Health information systems**

While GHIs advocate improvement in the availability and accuracy of data, they tend to focus disproportionately on two dimensions of information: coverage of specific services and surveillance for specific diseases [55]. Inter agencies harmonization of health information system with country based health management system has been a major set-back as GHIs often operate a stand-alone disease based information system [55]. Ogunbemi et al. assessed the Nigeria national HIV monitoring and evaluation system; these researchers reported that there were multiple reporting tools for the facility levels that led to a vertical reporting system which increases the burden of reporting to the lower level facilities [61]. This bottom-neck increases the pressure on fragile health systems, imposes pervasive incentive effect that encourages selective reporting that reflects expected results [62,63]. In spite of the shortcomings, GHIs have improved the availability and quality of data through training.

#### **4.7.3 Supply management systems: Antiretroviral medicine and laboratory diagnostic commodities**

It is a general knowledge that GHIs have contributed immensely to the provision of access to ART medicine in LMICs. GHIs employ efficient global standards pooled procurement mechanisms with improved distribution networks that promote availability of commodities. Furthermore, GHIs employ the exemption policy mechanism on ARTs and anti-tuberculosis medicines. The inventory control mechanisms under the GHIs ensure timely supply of commodities. Commodities are pooled based on innovative quantification procedures which enhance audit trail of commodities, accountability and reduction in the rate and extent of medicines expiration. Rapid scale-up of HIV services in Nigeria is grossly thwarted by procurement and logistic challenges [64].

Point of care diagnostics (POCD) is the mainstay for the rapid upsurge in HIV testing for sub-

Saharan Africa [65]. The decentralization of HIV health care to remote communities became easier through the use of simple, mobile rapid diagnostics chips [66,67,68]. These innovative laboratory techniques available as rapid, easy to use, affordable, cost-effective devices which offer comparative sensitivity and specificity are gradually replacing the regional based traditional but expensive laboratory techniques employed in HIV/TB care [69,70].

#### **4.7.4 Governance**

Governance is the most complex but critical function of the health system. It is one of the most difficult functions to measure because of the difficulties in definition and measurement [55]. Increase funding without effective monitoring framework of both country level and donor agencies will not achieve the anticipated outcomes. Interaction between donor agencies and health systems governance: coordination and planning structures; coordination and planning processes; and community participation must be seen to promote alignment which prevents duplication in planning for HIV/AIDS control between Country Co-ordination Mechanism (CCM) and national AIDS program [55,56].

#### **4.7.5 Financing**

Concern about the limited capacity of donor recipient countries to meet global funds conditions for performance-based disbursement and the delays in disbursement of funds impede rapid financing of health intervention [71]. Health care financing at country level has been incapacitated due to inadequate budgetary allocation. Inadequate coordination of funds exemplified by parallel fund inflows and ineffective control mechanisms to guarantee audit trail of inflows and outflows; lack of financial transparency, and inadequate political and financial commitment such as failure of government agencies to commit 1% of their budgetary allocation to HIV/AIDS as nationally approved [64]. Consequently, the HIV/AIDS national response is invariably donors driven and donor dependent [64]. This situation poses danger for sustainability.

#### **4.8 HIV/AIDS Outcomes**

##### **4.8.1 Morbidity: Opportunistic infections, adverse drug reactions, ART resistance**

The use of HAART in patients infected with HIV reduces morbidity and mortality and often results

in substantial immunological recovery [72]. Evaluation of treatment outcomes is of paramount importance; viral load, immunological and resistance testing is a critical aspect of care that must be provided to HIV positive patients on ART. While the national guidelines on the use of ART stipulate criteria for the initiation of ART, compliance to these guidelines and recommendations has been a great challenge. In Nairobi, Kenya, a study revealed that none of the 93 patients on HAART had a documented calculated creatinine clearance (CrCL) on which their ART dosing was based on [73]. Furthermore, 7.7% of the patients had CrCL <50 ml/min, reflecting the fraction of patients that require tenofovir dose adjustment. Tenofovir is a potent antiretroviral agent but has been associated with renal failure. Furthermore, recent study in Nigeria, found that none of the 312 patients on HAART who participated in a survey had documented CrCL, and viral load assessment [74]. These researchers opined that critical evaluation of care must not be based exclusively on physical evaluation or clients' perception concerning their health or wellness, though these parameters are necessary; therapeutic indicators must include routine virological, immunological and adverse drug reactions (ADRs) evaluations in order to prevent actual or potential drug therapy problems.

In North America, a retrospective evaluation of antiretroviral drug resistance to patients recently infected with HIV revealed a spectrum of varying forms of resistance. Over the five-year period,

1995-2000; the frequency of transmission of drug resistance increases significantly [75]. This is consistent with the findings of Gupta et al. [76] who reported a statistical increase in the prevalence of antiretroviral resistance over time since ART rollout in sub-Saharan Africa. Drug resistance mutations associated with non-nucleoside reverse transcriptase inhibitors (NNRTIs) were the commonest especially in the regions of East and South Africa probably, due to widespread use of NNRTIs as part of standard first-line ART as well as single-dose nevirapine for prevention of mother-to-child transmission (PMTCT) [77]. Resistance to antiretroviral therapy increases to 30% per year in East Africa and 14% per year in South Africa while West and Central Africa, Latin America and the Caribbean reported no variation over time [76]. Although, South Africa has incorporated routine viral load testing for its national ART program [77]; resistance testing, routine viral load assessment are not fully captured as a priority in developing countries due to cost implications. Thus, drug resistance will predictably emerge as another threat to antiretroviral treatment for developing countries [78].

Furthermore, resistance to antiretroviral therapy is increasingly seen among early diagnosed HIV-naïve patients including children on ART and HIV-naïve children. In Brazil, drug resistance was identified with 47 children in a hospital in Sao Paulo and more than 50% of them have already developed resistance before initiation of therapy [79].

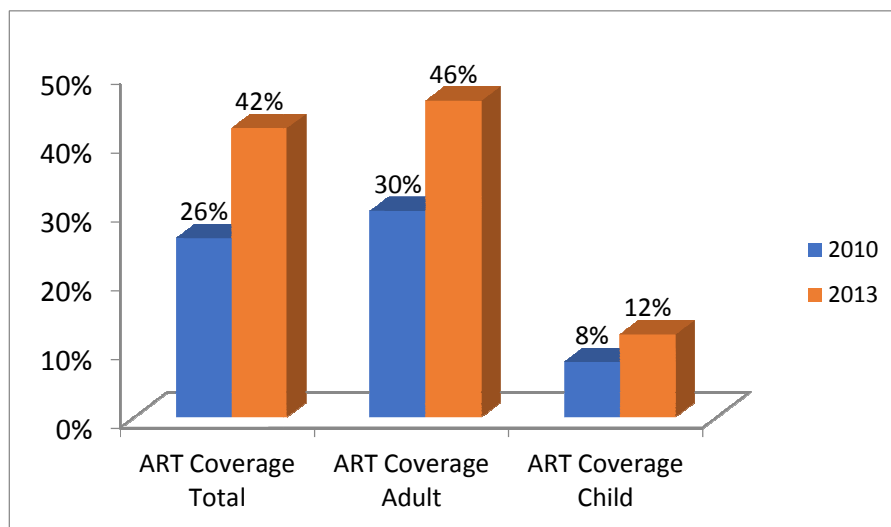


Fig. 1. ART Coverage: 2010 vs. 2013 (NACA, 2012)



Nigeria has a high burden of both HIV and TB infections with an average HIV/TB co-infection prevalence of 25% [80] above the global average of 13% [4]. While both diseases are among the leading causes of death from an infectious perspective, the mutual interaction between TB and HIV/AIDS worsens disease progression, increases the chances of TB re-infection [81] and complicates TB diagnosis. Furthermore, the emergence of multi-drug resistance TB (MDR-TB) and extensive drug resistance TB (EDR-TB) underscore the need for culture and drug sensitivity testing (DST) laboratory diagnostics. At present, Nigeria has only four functional laboratories for cultures and drug sensitivity testing for the country [80]. This is grossly inadequate for a country that prides itself as the most populous country in Africa as well as the most populous black nation in the world. Furthermore, Nigeria is one of the countries with the highest burden of both HIV and TB in the world; government must show commitment in eradicating HIV and TB.

**4.8.2 Mortality**

The advent of HAART and the subsequent introduction of the protease inhibitors have changed the mortality and morbidity that once mystified HIV/AIDS as “a death sentence” to what is now known as a chronic disease [72,82]. In 2010, a report indicated that about 3.1 million people in Nigeria were infected with HIV while an estimated 215,000 HIV related deaths was recorded [7]. The reduction in mortality rate has socio-economic implications as

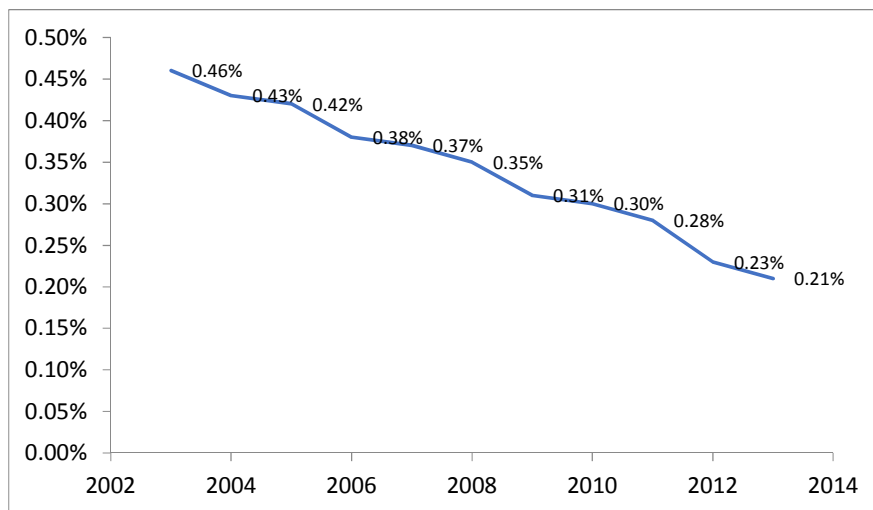
attendant consequences such as loss of “bread winners” and “orphaned children” have been minimized.

**4.8.3 HIV incidence**

Nigeria has witnessed a moderate decline of 54%, from 0.46% in 2003 to 0.21% in 2013 in the incidence rate of HIV. Within this period, the number of people with new infection declined from 348,564 to 220,394, which represent 37% reduction. Compared to the top ten countries worse infected with HIV in sub-Saharan Africa, Nigeria ranked the fifth in terms of decreasing numbers of new infection. If the declining trend as depicted in Fig. 2 is sustained, there is the tendency that the nation will turn to be one of the least infected nations not only in sub-Saharan Africa but in the continent and indeed in the world. This indeed is necessary as one of the steps in the nation’s quests towards achieving Sustainable Development Goal Three (3).

**4.8.4 HIV prevalence**

The estimated adult HIV prevalence in Nigeria has dropped from 3.70% in 2003 to 3.20% in 2013, a decline rate of 14%. The prevalence among pregnant women 15-24 years-old has witnessed 33.3% reduction in a period of ten years, from 6.0 in 2001 to 4.1 in 2010. This declining trend in the scourge which hitherto ravaged the productivity of the labour force in the country implies a healthier productive labour force which is capable of ensuring sustainable economic growth all things being equal.



**Fig. 2. Estimate incidence of HIV in Nigeria 2003-2013: A 54% reduction (NACA, 2010)**

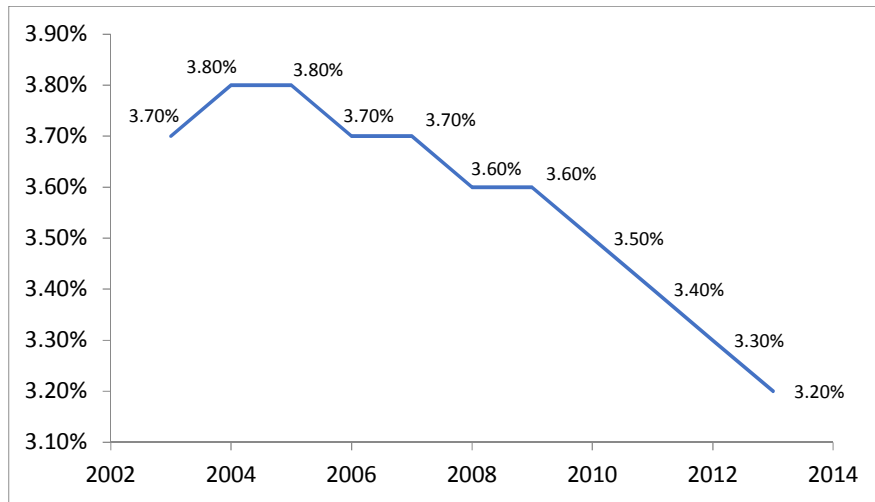


Fig. 3. Estimate adult HIV prevalence: 2003-2013 (NACA, 2010)

## 5. CONCLUSION

Global Health Initiatives has greatly improved the provision of access to antiretroviral medicines in Nigeria. While it can be argued that it has overstretched the health work force thus diverting health care services towards disease specific programmes, its impact on the country health systems is huge. Nigeria has recorded a downward trend in both the incidence and prevalence of HIV infection through the continuous support received from development partners. The morbidity and mortality due to HIV/AIDS have declined. However, the aspect of humanistic outcomes deserves critical concern. The programme often neglects some important outcome measures such as the percentage of clients that accessed viral load investigations at specified time frames, assessing the level of ART resistance and monitoring patients for emergence of ADRs. Government contribution to the health sector is very poor. Meanwhile, the HIV/AIDS programme is invariably donors driven and donor dependent. Thus, any sudden delay in foreign funding may have catastrophic effects on the health systems and the health of people living with HIV/AIDS.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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