



# Halting the Scourge of HIV in Nigeria by Adopting World Health Organization Guidelines for Preventing New Infections (Policy Brief Paper)

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**Abstract:** Nigeria bears 10% of global HIV burden and contributes 32% to global unmet-need for Prevention of Mother to Child transmission of HIV (PMTCT), which together with heterosexual transmission are the epidemic's key drivers as PMTCT clinics show approximately 45% serodiscordance rates among couples. WHO recommends accelerated Anti-retroviral Therapy initiation for all persons living with HIV (PLHIV) for improved quality-of-life and preventing new vertical and horizontal infections, using same drug – Emtricitabine, Tenofovir and Efavirenz (once daily Atripla). The policy paper seeks to make a case that the National PMTCT task team and the Federal Ministry of health of Nigeria, should make a policy change, and shift from the current Option B PMTCT option. The option provides Antiretroviral drugs (ARVs) to pregnant HIV positive women who do for PMTCT, but discontinue them after cessation of breast-feeding, when the viral load is above 500cells/mm<sup>3</sup>. It proposes that the country should rather adopt the test and treat all policy for all HIV infected persons. The methodology entails the search and use of literature to demonstrate the multiple advantages of early commencement of treatment for all new of HIV infections, considering this has been shown to reduce morbidity and mortality. The results indicate that test and treat all for life, is now less complex as same drug regimen are used in PMTCT and other non PMTCT adult infections. Studies also show that virologic suppression (undetectable) leads to prevention of new HIV transmission (untransmittable), and this applies to different modes of HIV transmission. The brief concludes by proposing that the Federal Ministry of Health, the National AIDS Control agency, and all actors in Nigeria's HIV terrains should adopt the WHO test and treat guidelines. This remains a critical step for the elimination of Paediatric HIV infections.

**Keywords:** Undetectable, Untransmittable, Policy, PMTCT, HIV Transmission, Atripla

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## 1. Introduction

Nigeria needs global best-practices to mitigate its current HIV scourge.

The policy Audience is the Nigerian National Task Team (NTT) on HIV

The NTT is resident in the Federal Ministry of Health and

led by the Honorable Minister of Health. It is constituted all HIV stakeholders who double as the policy-makers. The Government provided leadership and coordination through the National; STI/AIDS Control Program (NASCP) and the National Agency for the control of AIDS (NACA). The

Global Fund and Presidents emergency Plan for AIDS relief (PEPFAR) provide funding through the national coordinating mechanism and the Center for Disease Control and Prevention respectively. Members of the Academic community drawn from Nigeria Universities and Institutes of Research drive research and use evidence to inform policy and HIV treatment Guidelines review, The Multilateral and development agencies provide Technical Support, International Non-Governmental-Organizations implement the HIV programs, provide systems strengthening and services consisting care, treatment and prevention at hospitals. Persons living with HIV (Patients) are beneficiaries and represent the interest of their members to make their inputs into their care.

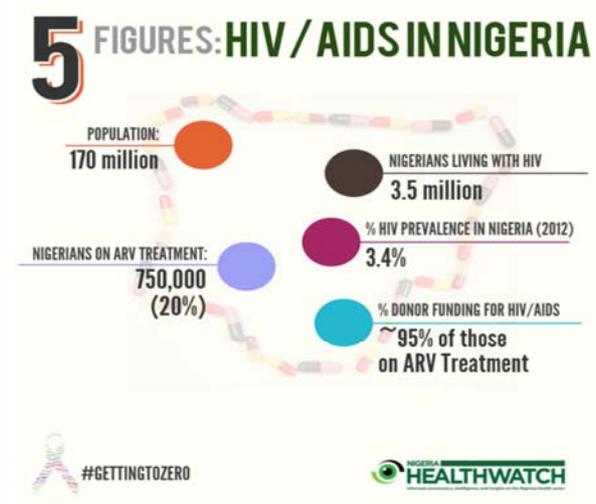


Figure 1. HIV/AIDS Data in Nigeria.

## 2. Methods

### 2.1. Literature Review of Nigeria's HIV Crises

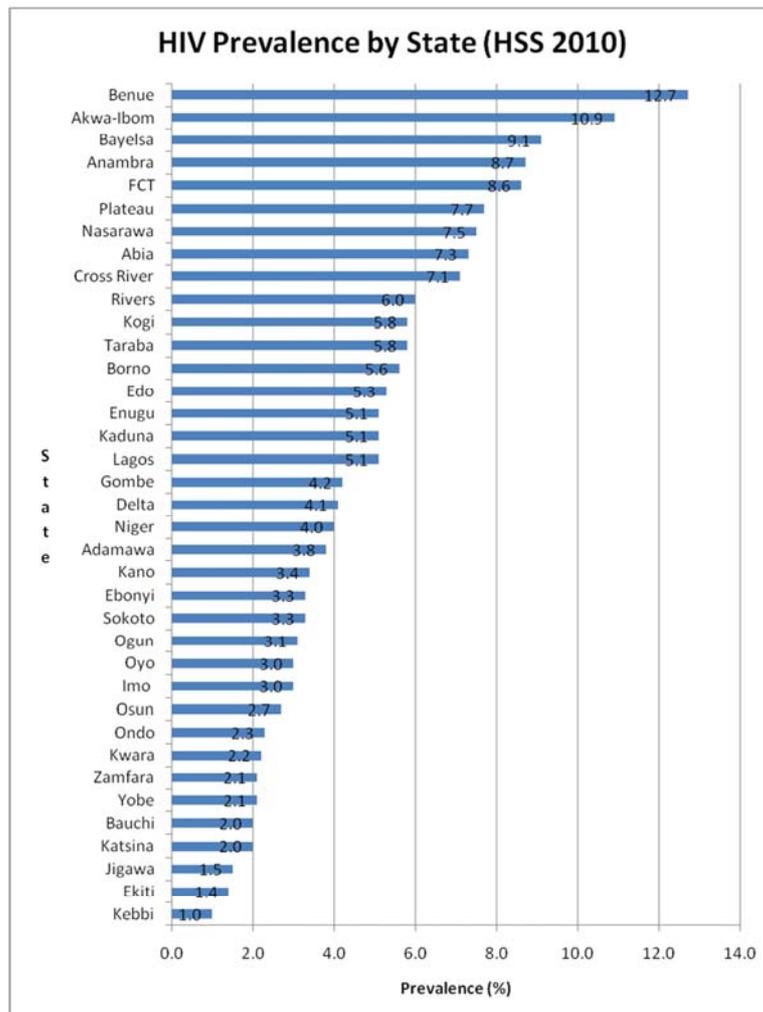


Figure 2. Nigeria's HIV Prevalence by state.

### Annual Number Of AIDS-related deaths in Nigeria, 1990-2013

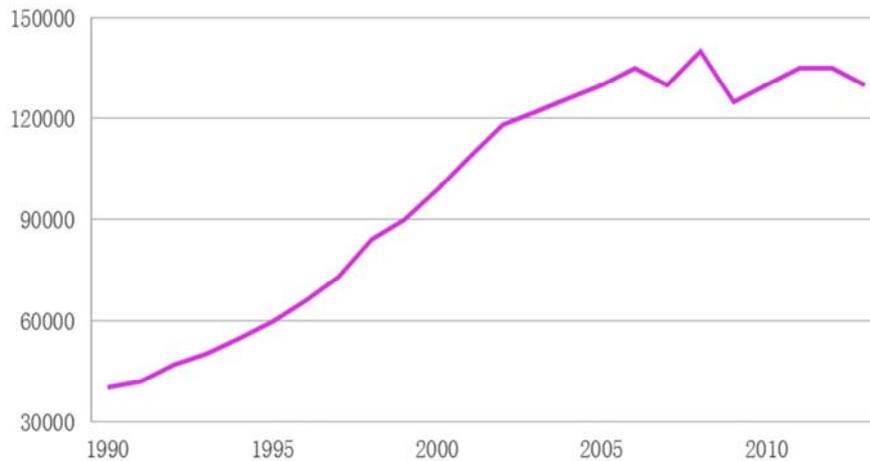


Figure 3. Annual Number Of AIDS-related deaths in Nigeria, 1990-2013.

Nigeria's HIV prevalence of 3.4% is home to 3.5 million PLHIVs, with approximately 54% between 15 and 64 years old. It has 22% national PMTCT coverage rates and officially no Pre-exposure prophylaxis in spite of serodiscordance rates reaching 45% among PLHIVs and their partners [1]. These constitutes huge gaps for the two epidemic key drivers - Mother-to-child transmission with 25-35% transmission risk and heterosexual transmission with 34.6% new infections occurring among couples engaging in 'low-risk' sex. In 2015, 227,000 new infections were reported with approximately 180,000 AIDS deaths and interventions remain low despite expansion of HIV/AIDS services [1, 2]. The means that the optimal timing for intervention is now

The US President's Emergency-Plan-for-AIDS-Relief (PEPFAR), major funders of Nigeria HIV program, has shifted from emergency response to sustainable, country-owned responses with Nigeria's grant terminating August 2017. Data shows that 750,000 (20%) PLHIVs receive ART while 2.4 Million have no access [3]. Nigeria was advised to generate in-country HIV funds and disease mitigation and prevention strategies. Nigeria's President's Comprehensive-plan-for-HIV-response has been inaugurated to address the gaps.

Nigeria HIV burden occurs from new infections through MTCT and heterosexual transmission. Accelerated ART Initiation is effective for preventing new infections and improve quality of life for PLHIVs [4]. Using cost-effective and community-based scale-up strategies to provide ART alongside Pre-exposure prophylaxis can halt the HIV scourge [5, 6].

#### 2.2. Evidence for Early ART

Studies document 96% transmission reduction in persons starting ART at CD4 <550 cells/mm<sup>3</sup> versus those commencing later. These expanded ART gains together with country experiences, community consultations and impact

modelling informed the 2016 WHO guidelines [7].

In HIV Serodiscordant relationships, 20-40% of transmissions occur early in infection; and providing ART to both positive and negative partners, with good adherence, protect negative partners from infection in over 90% cases [6]. MTCT is demonstrably lower among women commencing lifetime ART before pregnancy, compared to those starting during pregnancy/delivery [7, 8].

Nigeria lags one step behind adoption of international recommendations; proffering the 'public health approach' based upon narratives of equity and constrained financial/human resources. Nigerian guidelines thus prioritize ART for the 'sickest of the sick', in spite of new evidence [1]. Thus increased morbidity and mortality of advanced disease burden health systems, deplete family and community resources and increase Nigeria's orphans/vulnerable children and increase new infections.

### 3. Results

#### 3.1. Early ART for Prevention of Mother to Child Transmission (PMTCT)

WHO recommends lifelong Accelerated ART initiation for all women - pregnant, postpartum and breastfeeding to reduce maternal viral load [6, 7]. This causes near MTCT elimination, improving maternal/child survival rates. Many countries, including South Africa, have adopted this, while Nigeria's guidelines recommend that pregnant female PLHIVs receive ART for PMTCT and discontinue after breastfeeding cessation if CD4 >500 cells. This predisposes to drug resistance and high loss-to-follow-up rates. Studies show lower MTCT risk with pre-pregnancy ART commencement (0.4%) versus those commencing in pregnancy/delivery (2.0%) [7].

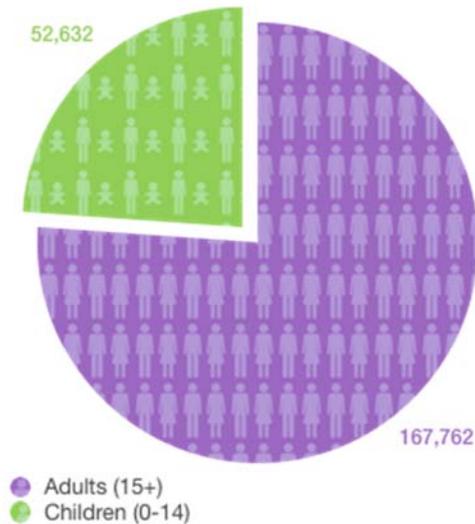


Figure 4. Nigeria: New HIV Infections by age and sex (UNAIDS 2015).

### 3.2. Early ART for Treatment-as-Prevention (TasP)

WHO recommends Accelerated ART initiation in all adult, adolescent and child PLHIV at point of diagnosis irrespective of CD4 count/disease stage, emphasizing time reduction between diagnosis and ART initiation for treating and preventing new infections for all [7, 8].

This has been shown to improve quality of life and productivity for PLHIVs and restore lifespan to near normal.

Nigeria guidelines, targeting 'the sickest of the sick', allows for newly diagnosed PLHIVs to commence ARVs only in advanced disease (WHO Stages 3 and 4) or CD4 below 500cells/mm<sup>3</sup>, which have demonstrable poor long-term outcomes and survival rates with high infectivity risks [7, 8].

### 3.3. Early ART as Pre-Exposure Prophylaxis (PrEP)

WHO upholds ART provision as PrEP to HIV-negative partners of PLHIVs and populations who record HIV incidence above 3/100 person-years, in the absence of PrEP. Uninfected partners should receive PrEP until infected partners receive ART for 6months for viral suppression and minimizing transmission (PrEP as a bridge to ART). Truvada® has proved efficacious, improves quality of life and is licensed for use [7, 8]. Nigeria's guidelines do not include PrEP even with high serodiscordance rates that are shown to disrupt stable relationships [1].

### 3.4. Summary of Policy, Debates and Evidence

Country programming experience, community consultations and impact modelling informed the 2015 World Health organization (WHO) HIV guidelines. Increased access to ART in resource-poor settings has resulted in significant decreases in new infections, illness and death, contributing to the health and welfare of families and communities. It cited the *HIV Prevention Trials Network 052* clinical trial, which observed a 96% transmission reduction in persons starting ART with CD4 <550 cells/mm<sup>3</sup> versus those that waited. The potential gains from

expanded ART have never been clearer. Multiple studies show that, in HIV Serodiscordant relationships, 20–40% of transmission may occur in the first several months of infection, due to high viral load and transmissibility. Providing Antiretroviral drugs (ARVs) to both the positive and negative partner, with good adherence, protects the negative partner from HIV acquisition in over 90% cases. Mother-to-child transmission of HIV has demonstrated to be lower among women commencing lifetime ART before pregnancy (Option B+) compared to those starting ART during pregnancy/delivery (Option B). Conversely, Nigeria usually lags one-step behind the adoption of internationally recommendations for HIV prevention, with preference for utilizing the 'public health approach' based upon narratives of equity and availability of financial and human resources [1]. Therefore, guidelines are designed to prioritize for the 'sickest of the sick', in spite of evidence that these are more cost effective strategies. The same health providers in the same health facilities using the existing systems for HIV care can implement these in country. Conversely, HIV/AIDS also increase the burden on the Nigerian health systems as morbidity and mortality at advanced disease are higher, increasing strain on family and community resources and increasing Nigeria's numbers of orphans and vulnerable children [1].

Nigeria's guidelines currently do not contain Pre Exposure Prophylaxis (PrEP) for negative partners of PLHIVs, and recommend ART for pregnant PLHIVs with early disease, because of PMTCT (Option B).

## 4. Discussions

### 4.1. Barriers to ART Access

Studies suggest that the barriers to HIV/AIDS treatment in Nigeria are health systems related including inadequate human resources for health and logistics [9]. Patient related factors include poverty, logistics challenges, advanced disease and community-related barriers including stigma [1, 9].

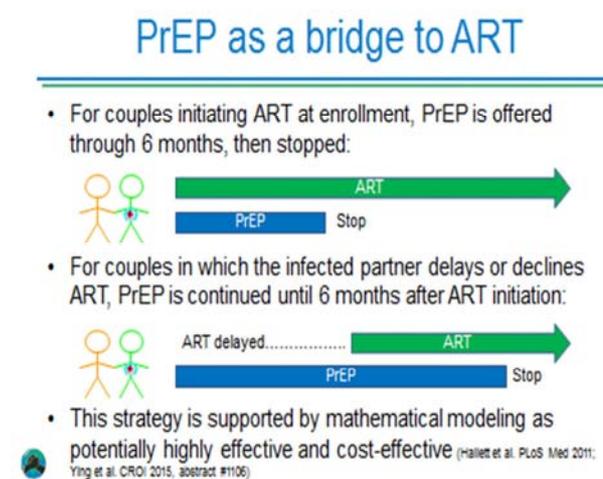


Figure 5. PrEP as a bridge to ART.

#### 4.2. South Africa's WHO Guidelines Implementation [11]

South Africa, with HIV prevalence of 10.2% had cited cost constraints as reasons for placing only 680,000 PLHIVs on ART in 2008. In 2014, they adopted WHO guidelines and now provide ART to 3.4 Million people. The MTCT rates dropped from 8% in 2008 to 2% in 2015, new paediatric HIV infections dropped by 84% and AIDS-related pediatric deaths dropped by 90% [11]. The country has one the largest domestic investments in AIDS, supporting 80% of the country's AIDS program from public funds. ART expansion costs below US\$200 per DALY (Disability Adjusted Life years) averted over 40 years. PLHIVs starting ART at 20 years have improved life expectancy close to 80 years (80% increase) [11]. Life expectancy at birth has increased from 57.1 years in 2009 to 61.3 years in 2012, and approximately 1.6 million AIDS deaths have been averted since 2005. However, South Africa is developing a workplace anti-stigma policy because PLHIVs suffer social isolation, discrimination and employment termination/refusal even when healthy [11].

#### 4.3. Quality of Life with Early ART

A study using WHO Quality-of-Life-Questionnaire-for-HIV instrument found that participants with AIDS had significantly lower QOL, while those with CD4 count  $\geq 350$  cells/mm<sup>3</sup> and those on ART had better QOL scores in physical, psychological and level of independence domains

[7].

Quality-Adjusted-Life Years (QALY) are reduced in severe illnesses but improve with universal ART. Net-cost per QALY gained is determined by comparison with the country's annual gross domestic product (GDP) per capita and universal ART interventions scoring below annual GDP per capita are cost-effective [7].

#### 4.4. Cost Benefit Analysis of Early ART [12]

The net benefits of HIV prevention programs are the costs avoided and reduced minus the costs of the program itself. A case-study of Zambian workplace program estimated ART-based HIV prevention and PLHIV treatment was 2,461,701 USD in one year. Calculated aggregate savings from ARV treatment and new infections was 7,599,373 (USD) and Net benefits were 5,137,672 USD (saving 47 USD per employee) [12].

Increased productive man-hours and less episodes of ill-health among PLHIVs demonstrate cost-effectiveness of ART.

The benefit per HIV infection averted is approximately seven Disability adjusted-Life years (DALYs). Averted morbidities including HIV-related opportunistic infections decrease disease costs [12]. Averted HIV infection is the prevention effect of starting ART at high CD4 and prime motivation for WHO recommendations.

**Table 1.** WHO 2016 HIV Guidelines versus Nigeria 2014 HIV Guidelines.

WHO Guidelines	Nigerian Guidelines
Recommends early universal treatment as prevention (TasP) to curb HIV transmission.	Adopts the Public Health Approach and ART is given the 'sickest of the sick'
Upholds accelerated ART initiation of ART to all PLHIVs for life	Treats advanced disease (Stages 3&4 and CD4<500)
Upholds PrEP which reduces transmission in >90% when used with TasP.	No PrEP in Nigeria Guidelines in spite of high Serodiscordance relationships
Commences lifelong ART for female PLHIVs to achieve near-elimination of MTCT.	ARVs commenced in pregnancy for PMTCT and discontinued after breastfeeding

#### 4.5. Summary

Nigeria's HIV burden remains high with MTCT and heterosexual sex being major contributors but guidelines are yet adopt evidence-based strategies to close these gaps. Accelerated ART initiation as TasP is cost effective protection that cuts across heterosexual transmission. PrEP reduces approximately 90% transmission when used in conjunction with TasP, while lifelong ART has been associated with near elimination of MTCT. The TasP and PMTCT are provided with same triple Anteretroviral drug-Atripla while Truvada®, which contains two ARVs, is used for PrEP.

## 5. Conclusions

Early universal ART is effective for HIV prevention and treatment and Nigerian health facilities have systems for providing ART, with many health workers possessing some degree of training and treatment facilities possess the basic

minimum requirements. The TasP, PrEP and PMTCT services can be provided concurrently in the same setting, by same health workers engaging strategies like community collaboration, task shifting/sharing, health systems strengthening and ART decentralization [9, 10]. Hub and spoke linkages of facilities are already in place in Nigeria, and clients can be referred to the next level of care as required. Couple HIV Counseling and Testing (HCT) points are good platforms for identifying serodiscordant couples while pregnant PLHIVs receive prevention care at same sittings [4]. Thus integrated models will improve program coordination and efficient patient management. Studies show all three are amenable to once daily ARVs, which are convenient and safe [7].

## 6. Policy Recommendations

- 1) Further research is required in PMTCT in this setting where women breastfeed, to provide information regarding Undetectable equals untransmittable in

PMTCT settings.

- 2) The Nigeria HIV Task team should take leadership for adopting WHO guidelines and HCT/ART scale-up by increasing funding, engaging communities and strengthening civil-societies.
- 3) Trainings for Health workers to provide quality HIV services should be provided and facilitated by members of Academia.
- 4) Strategies like task-shifting and PLHIV expert-patient engagement should be led by civil society organizations to bridge human resources gaps.
- 5) PEPFAR should support fundraising for HIV prevention and treatment programs.
- 6) Implementing partners should facilitate adoption of universal ART to improve quality of life and eliminate new infections including MTCT.
- 7) Leveraging WHO in-country support, Nigeria should commence PrEP for sero-discordant couples and persons at risk of HIV acquisition.

## Note

Nigerian Federal Ministry of Health responded to the call to adopt the WHO guidelines by reviewing guidelines and commenced implementation of the 'test and treat' all policy.

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