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# PMTCT Service Uptake among Pregnant Women in 3 Internally Displace Persons Camps in Borno State Northeast Nigeria

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***Authors' contributions***

*This work was a team effort from all authors. Author AN came up with the idea for the study, took part in the collection of data, analysis for the study and participated in writing of the first draft of the manuscript. Author YP led the team members of the Global fund project. All authors took part in the data collection process, analysis of the study, discussions and writing of the abstract. All authors also read and approved the final manuscript before submission.*

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## ABSTRACT

**Background:** Humanitarian emergencies upset and wreck existing healthcare services and systems. Pregnant women and infant are incredibly defenseless, as these infants are exposed to the risk of preventable childhood disease which includes HIV that is transmitted from their HIV positive mother. In the absence of any intervention, the risk of HIV transmission increases to about 40% among infant born to HIV positive mothers.
**Objectives:** To examine the prevalence and uptake of HIV services among pregnant women and to assess the level of Early Infant Diagnosis (EID) by PCR uptake for children under 2 months born to HIV positive mothers.
**Methods:** A sentinel case study approach conducted in 3 internally displaced people (IDP) camps in 3 LGAs (Banki, Dikwa and Ngala) of Borno state Nigeria, from January 2018 to May 2019. Data

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collected using standard tools and DHIS 2.0 used for data extraction and MS Excel used for analysis.
**Results:** Prevalence of HIV among pregnant women (1st ANC Visits) in the 3 IDP camps were 1.22% (Ngala), 0.44% (Banki) and 0.16% (Dikwa) with an average of 0.61% compared to the 2018 National zonal average for the North East of1.1%. Uptake of HIV testing service among pregnant women in the 3 IDP camps were 90.65% (Ngala), 100% (Banki) and 100% (Dikwa), with an average uptake of 96.9%; while EID uptake for HIV exposed children within 2 months of age were: 50.0% (Dikwa), 12.5% (Banki) and 0% (Ngala).
**Conclusions:** The study also shows that none of the 3 IDP camps were able to optimize Early Infant Diagnosis at 2 months of birth. It is hereby recommended that Care-giver Focused Approach should be prioritized in preventing mother-to-child transmission (PMTCT) service delivery.

*Keywords: PMTCT; internally displaced persons; HIV prevalence.*

## 1. INTRODUCTION

Humanitarian emergencies upset and wreck existing healthcare services and systems. Pregnant women and infants become incredibly defenseless, as these infants are exposed to the risk of preventable childhood disease which includes HIV that is transmitted from their HIV positive mother. In the absence of any intervention, the risk of HIV transmission increases to about 40% among infant born to HIV positive mothers [1,2].

Considerable progress has been recorded over the past decade in increasing access to antiretroviral treatment (ART) and in the prevention of mother-to-child transmission (PMTCT) of HIV. The United Nations General Assembly High Level Meeting on AIDS in 2011 launched a global plan to eliminate new pediatric HIV infections and keep their mother alive by 2015 [3]. Reducing the number of new HIV infections among children under the age of 15 years by 90% and HIV related maternal deaths by 50% from 2009 levels were the high-level goals to be achieved by 2015. Accelerated scale-up of services has resulted in increased maternal ART coverage for PMTCT reaching 68% in 2013 among the 21 African countries of the 22 Global Plan priority countries [4,5]. The number of HIV positive pregnant women who gave birth (1.3 million) remained unchanged from 2009 in the 21 countries. However, the number of new infections among newborn fell from 350,000 in 2009 to 199,000 in 2013; The rate of mother-to-child transmission also fell in 2013, only 16% of children born to women living with HIV became infected compared to 25.8% in 2009 [6]. In recent years, some countries have made progress and achieved significant results, yet much remains to be done to reach the global targets for the elimination of mother-to-child transmission (EMTCT) [6].

Humanitarian emergencies in countries with a high HIV infection burden present additional challenge. The HIV positive mother-baby pair may lose access to treatment during an emergency. Scale-up of PMTCT programmes may be severely disrupted if service delivery is not effectively planned for before and during an emergency. While there may be no precise figures to refer to, the number of women and children in need and affected by emergencies considerably high. This context requires special attention to ensure service continuity, but often these individuals are not included in PMTCT plans and resource allocation [7].

Prevention of mother to child transmission programmes follow a cascade and continuous flow of services. They comprise a number of components including but not limited to antenatal care access, maternal HIV testing and counselling (HTC), initiating ART and monitoring of treatment outcome, care at labour and delivery, infant ART and cotrimoxazole preventive treatment, early infant diagnosis (EID) of HIV and initiation of ART and monitoring of treatment outcome for HIV positive infants [3].

Prevention of mother-to-child transmission (PMTCT) programmes has been one of the hallmarks of success in the fight against HIV/AIDS [8]. In South Africa, access to antiretroviral therapy (ART) during pregnancy and infancy has steadily increased, leading to a 76% reduction in new infections among children. Currently, lifelong ART is available to all pregnant or breastfeeding women regardless of CD4 count or clinical stage of infection [9,6]. Yet challenges remain in eliminating mother-to-child transmission (MTCT), with over 16,000 new pediatric infections detected in 2015 [10]. It is known that those who acquire HIV *in utero (IU)* are at highest risk of morbidity and mortality, but

strong evidence from the CHER trial indicated that prompt diagnosis and early introduction of ART can dramatically reduce mortality, disease progression and neurodevelopmental impairment in children infected with HIV [11,12,13].

The World Health Organization (WHO) recommends HIV-exposed infants be tested by six weeks of life, with those who test positive being immediately referred for initiation of ART [14,15]. However, delays in result return and high levels of loss to follow up (LTFU) within the early infant diagnosis (EID) cascade may fail to link many infants to life saving ART before the peak age of mortality at 11 weeks [16,17]. Although there are limited data on diagnosis and treatments of infants immediately after birth, there is consensus amongst clinicians that early initiation of ART has the potential to limit viral reservoirs and prevent disease progression early in infancy [6,2]. It is also argued that as ART coverage during labour raises the proportion of vertical infections that occurs Intrauterine (IU) increases relative to *intra-partum* (IP) infections [18]. A successful birth testing regime detecting 76% of all early vertical transmissions could increase the overall proportion of infected infants linked to care, but a follow up test scheduled between 6–10 weeks of age would be required to diagnose IP and very early post-partum (PP) transmissions undetectable at birth [19,20]. The negative outcome of the present humanitarian emergency in the northeast has led to inability of the IDPs to access HIV services and other basic health services. As such HIV positive mothers who might not be aware of their HIV status are likely to transmit the virus to their unborn children if undetected during pregnancy. The goal of this paper was to examine the prevalence and uptake of HIV service among pregnant women and to access the level of PCR uptake for children under 2 months born to HIV positive mothers in typical humanitarian emergency context.

## 2. MATERIALS AND METHODS

### 2.1 Study Design

A sentinel case study approach was adopted.

### 2.2 Study Population/Areas

The study was conducted in 3 internally displaced People IDP camps across 3 Local Government Areas (Banki, Dikwa and Ngala) of Borno state, Nigeria within a 17 months period between January 2018 to May 2019, under the Global Fund Impact HIV program.

### 2.3 Sample Size

A total 9019 pregnant women were considered for this study, being the total number of women that attended antenatal care (ANC) across the 3 IDP camp sites during the period in review. All the women received counseling and testing services for HIV.

### 2.4 Data Collection Method

Data were routinely collected on HIV prevalence, PMTCT service uptake and PCR optimization using standard service registers like, general ANC register, PMTCT HTS register, maternal cohort (ART) register, child follow-up register, EID tools and summary forms, across PMTCT service delivery sites in the 3 camps.

### 2.5 Method Data Analysis

DHIS 2.0 was used for data extraction and analysis was done using Microsoft Excel 2016 data analysis pack.

### 2.6 Inclusion Criteria

All pregnant women attending antenatal Clinic (ANC) for the first time (first visits) in the present pregnancy were screened for HIV. All the women received counseling and testing services for HIV.

## 3. RESULTS

Of the 9,019 pregnant women, the findings from the study revealed that the 3 IDP camps recorded an average ANC attendance of 188 pregnant (Banki 107, Dikwa 265, Ngala 193) women monthly. The prevalence of HIV among pregnant women clients (1$^{st}$ ANC Visits) in the 3 IDP camps were 1.22% (Ngala), 0.44% (Banki) and 0.16% (Dikwa). The average HIV prevalence rate among pregnant women in the 3 IDP camps was 0.61%.

From Fig. 1 the prevalence was high in Ngala IDP camp compared to Banki and Dikwa IDP camps respectively. In terms of uptake of HIV testing service among pregnant women in the 3 IDP camps; the study leveled; 90.65% (Ngala), 100% (Banki) and 100% (Dikwa), with an average HIV service uptake of 96.9% among new ANC attendees. The study also showed the level of EID by PCR uptake for children within 2 months of age delivered by HIV infected mothers to be 50.0% (Dikwa), 12.5% (Banki) and 0% (Ngala). By implication, in Ngala, none of the HIV

exposed children received PCR test earlier than 2 months of birth during the period under review.

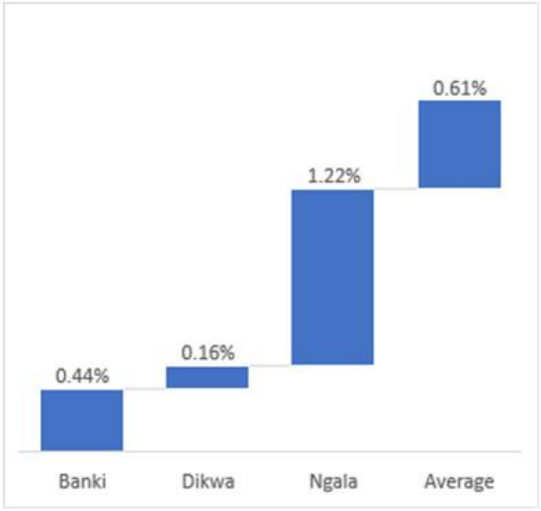


**Fig. 1. Prevalence of HIV among pregnant women in the 3 IDP camps**

### 3.1 Hypothesis Testing

**$H_0$:** There is no relationship between prevalence and uptake of HIV services among pregnant women in the 3 IDP Camps.

**Table 1. Correlation Analysis showing the extent of relationship between prevalence and uptake**

| | Uptake | Prevalence |
|---|---|---|
| Uptake | 1 | |
| Prevalence | -0.98412 | 1 |

The correlation in Table 1 depicts the extent of relationship between prevalence and uptake of HIV services among pregnant women in the 3 IDP camp. The result revealed that there is a strong negative correlation (r=-0.98) between prevalence and uptake of HIV services among pregnant women in the 3 IDP camps.

## 4. DISCUSSION

This study used routine data (2018–2019) from HIV/AIDS service delivery points in Banki, Dikwa and Ngala IDP camps. The findings revealed that the prevalence of HIV among pregnant women was higher in Ngala IDP camp compared to Banki and Dikwa. Also, the average HIV prevalence rate among pregnant women in the 3 IDP camps was 0.61% compared to the National average for the North East Region of Nigeria of 1.1% [21]. Prevalence of HIV infection is known to be high in communities with multiple factors that drive the epidemic and these factors are also known to be common in humanitarian emergency contexts [22]. Violent conflict situation attracts the presence of uniform personnel and aid workers, it promotes unhygienic conditions, deprive people of their means of livelihood, increase poverty/vulnerability and temptation to engage in transactional sex. These factors which are common in camps of the IDPs in resource constrained countries like Nigeria could be responsible for increased HIV positivity in those camps. Geographical location of Ngala as a town with international border with ease of movement from Nigeria to Cameroon and Chad in the Lake Chad basin area, explains why it has the highest prevalence rate in this study.

The overall PMTCT prevalence rate from those camps in this study is close to the national rate. This implies that; if the situation is left as it is now, it may increase above the national average for the North East Nigeria and may affect the national effort to eliminate Mother to Child Transmission of HIV/AIDS (MTCT) in Nigeria. This study recommends that HIV services at those camps be implemented using the same approach as humanitarian services are provided; where service providers live in the town where the IDP camps are located, as against the current approach of periodic visit to the sites to provide services through volunteers by HIV service providers who live at the State capital.

Uptake of PMTCT service among pregnant women was high at 96.9%. Previous studies have documented that service uptake in health facilities during humanitarian emergencies caused by violent conflict; such as violent extremism, is influenced by several factors exacerbated by the violent conflict [22,23]. Some of the factors those studies identified were camping of IDPs, access to health care centers, frequency and intensity of violent attacks, migration of affected people from place to place. In the case of the three IDPs camps in this study, high uptake of PMTCT services may be attributed to ease of access to health facility. The health facilities run mostly by NGOs with donor funding, are located within or by the camps. The pregnant women who live in the camps do not need to travel long distances and have no fear of violent attack along the road to the health centers to access care at the ANCs. Continuous sensitization that goes on in the camps on good

health seeking behaviors by aid workers could also be a contributing factor. Another reason could be the incentives given to pregnant women at the ANCs by NGOs providing services at those health facilities.

The result also shows poor uptake of Early Infant diagnosis using PCR technology across the 3 sites, the major factor identified for this poor uptake was high lost to follow (LTFU) up among HIV exposed mothers and logistics challenges in conveying Dry blood samples (DBS) from the camps to the nearest PCR Laboratory for screening.

## 5. CONCLUSIONS

In this study, Banki and Dikwa IDP camps achieved One Hundred Percent optimization of PMTCT services compared to Ngala, although Ngala had the highest prevalence among pregnant women that accessed HIV Testing service. HIV service provision should be sustained at the ANCs with improved service quality in order to achieve PMTCT at the camps. In planning for provision of humanitarian services in emergency contexts, HIV/AIDS should be factored in during program design and its implementation should follow same approach and priority as those of other humanitarian services.

The study also showed that none of the 3 IDP camps were able to optimize Early Infant Diagnosis at 2 months of birth. It was observed that this was largely due to lack of modalities for sample transportation and referral network in those sites. The study recommends that Caregiver Focused Approach should be prioritized in PMTCT service delivery in humanitarian emergencies and the National sample transport network be extended to cover all health facilities providing HIV/AIDS irrespective of their location, with improved logistic management system and workable safety measures in such context.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## CONSENT

Consent was obtained from all clients using the client intake form. This is a standard tool that has been approved by the Federal Ministry of Health for use in all HIV Counselling and Testing Services. The organization also obtained approval from the Borno State Agency for the Control of AIDS to go ahead with the study.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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