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# The Control of Malaria among PLWHA in Calabar, Cross River State, Nigeria

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**Abstract:** The purpose of the study was to examine RBM programme's efforts at controlling malaria among PLWHA and explore their perception of the control strategies. The study was a descriptive survey involving guided interviews of top managers of Roll Back Malaria (RBM) programme. A structured questionnaire was administered to 108 PLWHA attending an HIV/AIDS clinic in a secondary health facility in Calabar. Data were analyzed using descriptive statistics. Thematic analysis revealed that RBM programme strategies include effective case management, promotion of Long Lasting Insecticide Treated Nets (LLINs), intermittent preventive treatment (IPT) and integrated vector management (IVM). Complementary results showed that 104 (92%) admitted accessibility to malarial treatment. Although 83 (57.7%) of PLWHA have LLINs, only 63 (42.3%) use them. Majority of the respondents 89 (60%) have not heard of indoor/outdoor residual spraying (IRS). How to get IRS services and lack of money to buy it were listed as a barrier to its use. Malarial treatment was accessible to PLWHA. The barriers to the use of ITN and IRS could be addressed through free distribution of odorless ITN and IRS to PLWHA. Higher rates of utilization of the products can be achieved through behavioural change communication.

**Key words:** Malaria control, PLWHA, Roll Back Malaria Programme, Nigeria.

## 1. Introduction

Malaria and HIV are among the two most important global health problems of our time. Malaria in combination with HIV cause more than 4 million deaths a year and are both concentrated primarily in Sub-Saharan Africa of which Nigeria is located, Asia and South America. Furthermore, more than 500 million cases of malaria occur every year and at least a million of them cause deaths. An estimated 30-36 million people are living with HIV in Africa, resulting in more than 3 million deaths [1].

Although early studies failed to demonstrate significant interaction, now there is a good evidence for a dual interaction between HIV/AIDS and malaria [2]. Studies in 2006 highlighted the interaction

between malaria and HIV infection, that malaria might be fuelling the spread of HIV in areas of Sub-Saharan Africa including Nigeria while HIV may be playing a role in boosting adult malaria infection rates. Based on a study in a Kenyan city with high levels of both malaria and HIV, researchers calculated that the interaction increased AIDS cases by 8% and malaria by 13% [1]. This result is affirmed by other reports that once malaria gets into the blood of a person living with HIV, it increases the level of HIV by up to 10 times during a malarial episode. This significantly increases the risk of them infecting a sexual partner [3].

Some of the effects of malaria and HIV interaction in HIV positive adults reveal that PLWHA are especially vulnerable to malaria and will suffer more often and severely from malaria once their immune system starts declining. HIV not only increases the

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incidence and severity of malaria, it also compromises malaria treatment by decreasing the response to standard anti-malaria treatment. For HIV positive adults with a weakened immune system (a low CD4 Count), anti-malarial drugs are less likely to be effective. Lastly, malaria contributes to increase viral load among HIV-positive people which can potentially accelerate the progression from HIV to AIDS [1]. These interactions make PLWHA to be double vulnerable to increased morbidity and mortality.

Previously malaria control had focused on case management of malaria with chloroquine as the traditional drug of choice. However, the increase in chloroquine resistant to malaria necessitated additional method of malaria control [4]. Therefore, in 2000, Roll Back Malaria (RBM) Programme was launched in Nigeria as a WHO initiative which is a global strategy to improve health systems with the goal of a 50% reduction in malaria death by 2010 [5, 6]. A key Millennium Development Goal (MDG) is to halve malaria and AIDS-associated mortality by 2015 and almost other MDGs are related to achieving success in reducing malaria and HIV burdens [7].

The Nigerian Government has been collaborating with a number of international organizations including World Bank, WHO, UNDP, UNICEF on a campaign tagged "Roll Back Malaria" [5, 7]. This effort has led to the establishment of National Malaria Control Programme (NMCP) that seeks to unify all of the disparate pieces of the Nigerian malaria control strategy at national, regional and local government levels. Through RBM Programme, malaria control comprises of four primary strategies namely: case management using artemisinin-based combination therapies; Long Lasting Insecticide-Treated Nets (LLINs), and other vector control measures; providing malaria treatment and intermittent preventive treatment for pregnant women; improving malaria epidemic preparedness and response.

Regarding the use of LLINs, it is estimated to be twice as effective as untreated net and offer 70% of protection when compared to no net. LLINs have been found to reduce clinical malaria by over 50% [8]. The established efficacy of ITNs in malaria prevention made the African Head of States at the Abuja summit in 2000 to set a target of 60% coverage by 2005 for pregnant women and children < 5 years. The target was subsequently raised in 2010 to 80% by WHO in 2005 [9]. However, accesses to nets has remained poor across many African countries [10]. Studies have equally shown that the awareness in Nigeria about LLINs is high [11, 12]. However, these studies have equally revealed that LLINs use at night prior to the studies was below 37%. Some of the challenges in using ITNs identified in the literature were high cost of the net, poor perception of the chemical used as being dangerous, low utilization of ante natal care among others [13, 14].

Another global strategy to reduce malaria burden is the use of Indoor Residual Spray (IRS) which remains the most widely used malaria vector control method [7]. The main effect of IRS is to kill off mosquitoes entering the houses and resting on sprayed surfaces. IRS is a method for community protection and to achieve its full effect, IRS requires a high level of coverage, in space and time, of all surfaces where the vector is likely to rest, with an effective dose insecticide. IRS requires the acceptance of all population to spray once or twice a year and a reasonable preservation of sprayed surfaces without re-plastering in contrast with ITNs [7].

Malaria as an endemic disease in Nigeria poses a major challenge to the country as it impedes economic development. Malaria is responsible for the huge economic loss of about 132 billion naira (US\$880 million) annually due to cost of treatment, loss of man hour and school absenteeism and other indirect cost [7, 15]. Malaria in combination with HIV/AIDS increases morbidity and mortality including economic cost. In view of the government

strategy to control malaria using RBM programme, there is no study to assess the RBM programme efforts at controlling malaria among People Living with HIV/AIDS (PLWHA) and their perception of the control strategy. The study was therefore undertaken with the following objectives:

(1) To assess Cross River State RBM programme with regards to malaria control among PLWHA;

(2) To ascertain the proportion of PLWHA who have access to and are using LLINs in the chosen public hospital Calabar;

(3) To identify the challenges in accessing ITNs by PLWHA in the chosen public hospital;

(4) To ascertain the opinion of PLWHA on accessibility to anti-malarial drugs in the chosen hospital;

(5) To determine the proportion of PLWHA in the chosen public hospital who have had their houses treated with IRS;

(6) To identify the problems encountered by PLWHA accessing IRS in the chosen hospital.

## 2. Methods and Materials

The study was carried out in Calabar which is located in the mangrove swamp forest belt in the south-south part of Nigeria. Calabar is the capital of Cross River State and it is fast developing into a tourist attraction centre. The study sites were the biggest state owned hospital which has a donor assisted unit for PLWHA and a RBM office both of which are situated in Calabar.

The study was a descriptive survey which utilized an incidental sample of 149 PLWHA who were attending out-patients clinic of the selected hospital between November 24 and December 5, 2008. Two top managers of Cross River State RBM programme were also involved in the study.

The instruments for data collection were a self developed and a well validated questionnaire and an interview guide. The questionnaire was pretested using PLWHA in another secondary health facility not

used in the study. The reliability co-efficient of the instrument was 0.87 which was considered good enough to be used for the study. The interview guide was also assessed by two experts in the Departments of Public Health and Test and Measurement of the University of Calabar, Nigeria.

Data collection was done through three research assistants who work in the Heart to Heart Units of the hospital. This unit only attends to PLWHA. The research assistants were trained by the researchers on the essence of the research and how to collect data from respondents. Prior to the survey, the purpose of the study was explained to the respondents and their consent sought. Participants were ensured anonymity and confidentiality of the information which was to be used for research purposes. Permission to carry out the research was also obtained from the Ethical Committee of the hospital. Descriptive statistics was used to analyze the data. Results were presented in simple frequencies and percentages.

## 3. Results and Discussion

### 3.1 Socio-Demographic Characteristics of the Respondents

Table 1 shows the socio-demographic characteristics of the respondents. The majority of the respondents were females 90 (60.4%); mostly between ages 21-30 years 62 (41.6%). Marital status revealed that the majority were single 69 (46.3%) and mostly of Christian origin 138 (92.6%).

Regarding ethnicity, the majority were the Efiks 58 (38.9%) followed by the Ibibios 49 (32.9%). Most the respondents had no formal education 64 (43%) and no source of income 66 (44.3%). Most of the respondents 37 (24.8%) were unemployed and trading 31 (20.8%), while 28 (18.8%) were involved in business.

### 3.2 Assessment of Cross River State RBM Programme with Regards to Malaria Control among PLWHA

The results came in form of direct reporting from

**Table 1 Socio-demographic characteristics of the respondents on the control of malaria among PLWHA in Calabar, Nigeria, 2008.**

Characteristics of the respondents	Frequency
<b>Sex</b>	
Male	59 (39.6%)
Female	90 (60.4%)
<b>Age of respondents in years</b>	
11-20	5 (3.4%)
21-30	62 (41.6%)
31-40	52 (34.9%)
41-50	18 (12.1%)
50+	12 (8.1%)
<b>Marital status</b>	
Single	69 (46.3%)
Married	67 (45.0%)
Separated/divorced/widowed	13 (8.7%)
<b>Religion</b>	
Christianity	138 (92.6%)
Islam	9 (6.0%)
Others	2 (1.4%)
<b>Ethnicity</b>	
Efik	58 (38.9%)
Ibibio	49 (32.9%)
Ekoi	13 (8.7%)
Others	29 (19.5%)
<b>Highest educational qualification</b>	
No formal education	64 (43%)
First School Leaving Certificate	23 (15.4%)
West African School Certificate	37 (24.8%)
Diploma	14 (9.4%)
Degree	11 (7.4%)
<b>Income level</b>	
No income	66 (44.3%)
< 0,000	31 (20.8%)
< 20,000	23 (15.4%)
< 40,000	15 (10.1%)
> 41,000	14 (9.4%)
<b>Occupation</b>	
Civil service	29 (19.5%)
Farming	22 (14.8%)
Trading	31 (20.8%)
Business	28 (18.8%)
pensioners	2 (1.3%)
Not employed	37 (24.8%)

two top managers of the RBM programme in Cross River State. Malaria control at the national level is stepped down to the state level with major partners: WHO, UNICEF, UNDP, World Bank, Canadian Red Cross Society, USAID among others involved in the exercise.

In Cross River State there are many NGOs such as Africare, Interface Health Care and Society for Family Health including 125 civil societies collaborating with

the state RBM programme to control malaria. Africare concentrates on health integrated programme focusing on Biase, Obubra, and Abi LGAs working on behalf of Shell. Interface Health produces insecticide treated nets for the RBM programme. Society for Family Health collaborates with the state RBM programme to build capacity of health care workers, patent medicine store vendors, pharmacist, and role mothers on the control of malaria.

The state is a global funded state for HIV, tuberculosis and malaria. The state RBM Programme also collaborates with the Institute for Tropical Diseases Research and Prevention of the University of Calabar to carry out operational research to test the efficacy of drugs and control activities. It was reported that 15% of the annual budget on health is supposed to be apportioned for malarial control.

Currently, everybody is a stakeholder in the control of malaria. The private sector made up of pharmacies, private clinics, patent medicine stores, among others control more than 43% of the cases. The state has the following structures on ground for effective control of malaria: appointment of the state malaria programme manager with his team in its Headquarters in Calabar, 18 focal persons were also appointed for the 18 local government areas. These appointees are responsible for advocacy, sensitization; distribution of commodities to designated health facilities and evaluation of malaria control activities. Evaluation meetings are held once every month.

One of the main strategies for the control of malaria includes effective management of all persons at risk including the vulnerable groups such as children under 5 years old, pregnant mothers and PLWHA. Effective case management involves prompt and appropriate treatment of patient within 24 hours of illness using the right artemisinin-based combination therapies. Intermittent Preventive Treatment during pregnancy (IPTp) is used as a preventive strategy for pregnant women. Pregnant women who live positively are given three doses of sulfadoxine-pyrimethamine (SP)

during ante-natal period. The SP is free and accessible in the hospital, health centres and other government owned clinics. LLINs are given free of charge to pregnant women who attend antenatal clinic at any government health facility.

The non pregnant HIV positive people are educated to sleep under the ITNs. The ITNs are sold at a subsidized rate of one thousand naira (approximately US\$6.00) to PLWHA. Other preventive strategies include multiple measures such as general health education, promoting the use of long acting insecticide treated nets (LLINs), integrated vector management through indoor and outdoor residual spray. Environmental management includes clearing bushes, covering stagnant water, and burying cans. Cross cutting areas involve behavioural change communication using advocacy to stakeholders, sensitization, and mobilization to create awareness on the burden and methods of reducing the burdens of malaria. Posters, handbills and jingles on radio are used to create awareness.

The state RBM activities include monitoring and evaluation which allows for accountability fostering international and united dynamic partnership. These reports on various activities of the state RBM programme are in line with the global and national objectives of RBM programme. The challenges include poor funding which is less than 15% of the annual budget on health and poor counterpart funding. Other problems identified include poor health seeking behavior of the people; lack of trained personnel (focal persons at the local government level); uncoordinated transfer of trained personnel; uncommitted attitude of staff and poor utilization of evidenced based decision; lack of transportation, spraying equipments and information communication equipments. Additionally, there is social apathy towards malarial control messages (personal communication with two top managers of Cross River State RBM programme on November 27 and December 4, 2008).

### *3.3 Proportion of PLWHA Who Have Access to and Are Using LLINs and Challenges in Accessing LLINs*

The results revealed that the majority of the respondents 129 (86%) have heard about LLINs, 83 (55.7%) have LLINs and 63 (42.3%) were using ITNs. The results of this study confirm other studies which revealed that the awareness on LLINs was high but the use of LLINs was however low [10-14]. Interaction between HIV and malaria makes PLWHA to be more vulnerable therefore if they can not access LLINs then they should be considered as endangered species and Nigeria will remain under developed because of the burdens of the two infections.

The main reason for not using LLINs was lack of money to buy the commodity 60 (40.27%); heat 11 (7.4%); some respondents did not know where to buy the net 10 (6.7%). This is not surprising because majority of the PLWHA are those with no formal education and have no means of livelihood. Although the LLINs are sold at a subsidized rate, it is still impossible for them to buy the nets because of lack of money.

### *3.4 Opinion of PLWHA on Accessibility to Anti-Malarial Drugs in the Chosen Hospital*

The results showed that the majority of the respondents attested to anti malarial drugs being accessible 71 (47.7%) and very accessible 66 (44.3%). This result is not a surprise because most of the PLWHA (63%) visit the selected health facility at least once in a month to replenish their anti retroviral drugs. Therefore, they use the opportunity to treat malaria if they are affected.

### *3.5 Proportion of PLWHA Who Had Their Houses Treated with IRS and the Problems Encountered by PLWHA in Accessing IRS*

The results highlighted that 89 (60%) respondents have heard of IRS while only 55 (37%) have had

their houses treated with IRS. This result was expected because the unit in charge of IRS is not situated in the hospital. Therefore, most of the respondents after leaving the hospital premises may not like to go and negotiate IRS services outside the hospital. The major challenges to using IRS are lack of money 60 (40.3%) and not knowing where to get the services. The benefit of using IRS as a method for community protection is enormous and this protective method is recommended by WHO as RBM preventive strategy. Therefore, the result of this study is at variance with what is expected by WHO and national RBM programmes [2].

#### 4. Conclusion and Recommendations

Conclusively, the challenges encountered by the RBM programme in Cross River State should be promptly addressed. Malaria treatment was accessible to participants, ITNs was moderately accessible while IRS was not accessible to PLWHA. Based on these findings, re-orientation of the staff of the RBM programme to increase commitment and effectiveness in the control of malaria is highly recommended. The necessary facilities and equipment to enhance work should be provided including adequate funding by the government and counterpart partners. The political will to control malaria should be provided by the government. The barriers to the use of ITNs and IRS should be removed through free distribution of ITNs and increased accessibility to IRS at no cost to PLWHA. Intensive behavioural change communication should be carried out to increase utilization of both ITNs and IRS.

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