

## **Practices and Problems of Intermittent Preventive Treatment (Ipt) of Malaria in Pregnancy in Selected Primary Healthcare Centres In Ivo Local Government Area, Ebonyi State Nigeria**

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The study sought to investigate the practice of intermittent preventive treatment (IPT) of malaria in Ivo Local Government Area of Ebonyi State, Nigeria. Six health facilities were selected. Medical record and questionnaires were used in obtaining information on the volume and time of antenatal registration, types of drugs used for IPT and method of administration. The result showed that antenatal registration was adequate and very high in Amaeze health center (42.1%) followed by Okue health center (14.0%) and least in Ayaragu (8.0%). Differences were statically significant ( $X^2=1370.6343$ ,  $p<0.05$ ). Time of antenatal registration showed the overall record of 44.27% in the 2<sup>nd</sup> trimester followed by 1<sup>st</sup> trimester (39.43%). Differences were statically significant ( $X^2=442.95$ ,  $p<0.05$ ). Only Amaeze health center stocked ACT drugs as currently recommended. Only two of the six health centers (33.3%) employed "Directly Observed Therapy" (DOT) method as approved by the Government for drug administration. The study recommended that Local health authorities should organize workshops for health personnel in their area to ensure equitable compliance with the recommended best practices in the use of IPT for malarial control among pregnant women.

**Key Words:** Malaria, Intermittent Preventive Treatment, Pregnant Women, Health facilities.

### **INTRODUCTION**

Recently, Malaria has become an issue of public health discussion at both national and international levels. The disease is endemic in Nigeria posing a great challenge and impeding human development programs (Federal Ministry of Health, 2005). Regrettably, financial loss due to malaria in Nigeria is estimated at 132billion Naira annually usually spent on treatment, preventive activities and loss of man hours. The morbidity impact of the disease is great,

affecting mostly pregnant women and children under five years of age (Granja et al., 2001; UNICEF, 2006; WHO, 2019). Malaria infection during pregnancy poses substantial risks to the mother, fetus and the neonate. Prevalence of parasitemia appears more in the second trimester (Brabin, 1993; Gitau and Eldred, 2005), while susceptibility to clinical malaria may persist into early postpartum period. However, due to the endemicity and high transmission rate of malaria

in Africa most pregnant women have acquired immunity (Monif and Baker, 2007) and are susceptible to subclinical infections which may result in adverse effect to both the mother and the unborn child.

Studies on the outcome of malaria in pregnancy showed that it contributes significantly to anemia and maternal death (Khan, 2001; Granja et al., 2001; Doku et al., 2016). On the foetal side, cases of stillbirth, intrauterine growth retardation (IUGR) and prematurity have been reported as major consequences of malaria during pregnancy (Verhoeff et.al., 2001; Sullivan et al., 1999; Mockenhaupt, 2002; Schantz-Dunn and Nour 2009). Guyat and Snow (2001) in their study estimated that about 5.7% of infant deaths in malaria endemic area could be directly linked to malaria infections during pregnancy.

Controlling malaria is a subject that has received great attention in recent years too. In pursuance of this, various strategies which include the use of intermittent preventive treatment (IPT), the use of insecticides treated nets (ITNs) and proper case management of malaria illness (WHO 2004; Kakkilaya, 2006; WHO 2017) were developed and are effective in controlling the disease among pregnant women. The effectiveness of these strategies is enhanced where large numbers of pregnant women seek for care in the formal health centers.

In Nigeria, reports from rollback malaria (RBM) baseline studies showed that 68.6% of pregnant women in their current pregnancy were receiving care in formal healthcare centers (Federal Ministry of Health, 2001). This is a good development as it could enhance the adoption of any of the various control strategies and limit the tendency to miss out large number of pregnant women from such programmes. The use of intermittent preventive treatment for the control of malaria during pregnancy has long been adopted in Nigeria using Sulphadoxine/Pyrimethamine (SP) combination drugs as one of the intervention packages (Federal Ministry of Health, 2005). This is usually given at predefined intervals after quickening to clear the presumed burden of malaria (WHO, 2017). In practice, it consists of two doses of SP drugs taken at least once a month interval in the second and third trimester of pregnancy by directly observed therapy (DOT) to ensure compliance. How this is carried out in various countries/ areas needed to be investigated to unravel reasons for success or failure.

In rural settings like Ivo Local Government Area of

Ebonyi State, primary healthcare centers play very significant role in primary health care delivery thus impacting on people's life especially pregnant women and children. This study was therefore carried out to determine how the volume of antenatal registration, the time of antenatal registration, and the type of drug used as well as the method of drug administration have served as determinant of success or otherwise of the practice of intermittent preventive treatment by primary healthcare service providers in Ivo Local Government Area of Ebonyi State Nigeria.

## MATERIALS AND METHODS

### Study Area

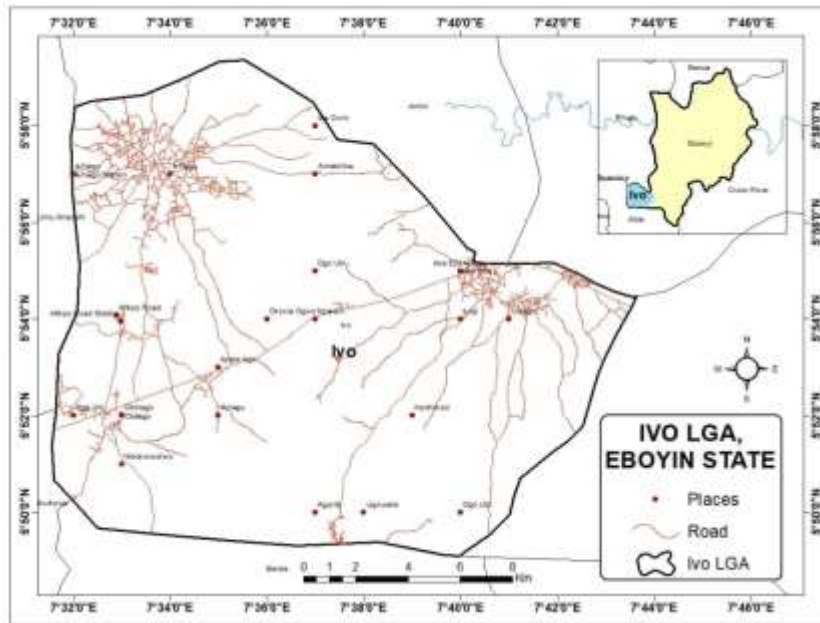
This study was carried out in Ivo Local Government Area ([Figure 1](#)) of Ebonyi South Senatorial zone, Nigeria, located on a vast low-lying Riceland of Eastern Nigeria usually flooded during the rainy season. The economy of the people is mainly agrarian, providing food all year round for many other states in Southern Nigeria. The climate is tropical with distinct rainy and dry seasons. Seasonal inundation of farmlands coupled with the migration of large numbers of people to farm settlement locations account for explosive mosquito population during the rainy season and high malaria transmission. There are sixteen primary healthcare centers located in various communities in the area. Random sampling method was used to select six of them for this study.

### Ethical Clearance

A letter endorsed by the ethical clearance committee of Federal College of Agriculture Ishiagu was sent to the head of department of health, in Ivo Local Government Area seeking for authorization to use the selected primary health facilities for this work. A letter of approval was communicated to us as well as to the health officers in charge of the selected primary health facilities. A preliminary visit was made to each of the selected health facilities to introduce ourselves to their staff, seek for further cooperation and book appointment for the day of data collections.

### Data Collection

Visits to each of the selected health centres were done on their days of antenatal care. In order to randomize the selection process, all pregnant women



**Figure 1.** The Map of Ivo Local Government Area, Ebonyi State.

**Table 1.** volume of Antenatal Registration of Pregnant women.

Health Facilities	1 <sup>st</sup> quarter registration Number (%)	2 <sup>nd</sup> quarter registration Number (%)	3 <sup>rd</sup> quarter registration Number (%)	4 <sup>th</sup> quarter registration Number(%)	Total Number (%)
Okue PHC	15(14.7)	20(16.0)	15(13.1)	13(11.4)	63(14.0)
Amaeze PHC	43(42.1)	57(40.8)	48(42.1)	49(43.0)	191(42.1)
Model PHC	12(11.8)	10(8.0)	15(13.1)	9(7.9)	46(10.1)
Basic	9(8.8)	11(8.8)	12(10.5)	25(21.9)	57(12.5)
Ayaragu PHC	10(9.8)	8(6.4)	14(12.3)	7(6.1)	39(8.6)
Akaeze PHC	12(11.8)	25(20.0)	10(8.8)	11(9.6)	58(12.8)
<b>Total</b>	102(11.8)	125(11.8)	144(25.1)	144(25.1)	454(100)

Source: PHC =Primary Health Center/Centre

in attendance were given numbers and those with odd numbers were selected and administered with questionnaires. Next is the examination of medical records and noting down relevant entries as well as interviews with the matron in-charge. From these sources, information on the volume of antenatal registration, types of drugs used for IPT and Methods of drug administration were obtained and transformed into concrete data. The study lasted between February 2017 and January 2019 (2yrs) and a total of 454 sample size were involved.

### Statistical Analysis

Descriptive statistics were employed. Data were transformed into percentages. Levels of significance were tested using chi-square.

### RESULT

The volume of antenatal registration in the study area was investigated and the result presented in [Table 1](#).

**Table 2.** Time of Antenatal Registration of Pregnant Women.

Health Facilities	1 <sup>st</sup> Trimester Number (%)	2 <sup>nd</sup> quarter Trimester Number (%)	3 <sup>rd</sup> quarter Trimester Number (%)	Total
Okue PHC	32(17.88)	26(12.94)	5(6.75)	63(13.88)
Amaeze PHC	38(19.89)	110(57.59)	45(23.56)	191(42.07)
Model PHC	26(14.53)	18(8.96)	2(2.70)	46(10.13)
Basic	27(15.08)	23(11.14)	7(9.46)	57(12.56)
Ayaragu PHC	27(15.08)	4(1.99)	8(10.81)	39(8.59)
Akaeze PHC	29(16.20)	20(9.95)	9(12.16)	58(12.78)
<b>Total</b>	179(39.43)	201(44.27)	74(16.30)	454(100)

**Table 3.** Health Facilities and Drugs available for Intermittent Preventive Treatment (IPT).

Health Facilities	Drugs used for (IPT)
Okue PHC	sulphadoxine/ pyrimethamine drugs (SP)
Amaeze PHC	ACT drugs
Model PHC	Quinine and SP drugs
Basic PHC	SP drugs only
Ayaragu PH C	SP drugs only
Akaeze PHC	Quinine and SP drugs

A total of 454 pregnant women were registered within the space of two (2) year. The highest registration 42.1% was recorded in Amaeze Health Center followed by Okue health center (14%) and Akaeze Health Center with 10.1% only. Whereas the overall quarterly registration was lower compare to the first quarter (22.5%) the highest registration (27.5%) was recorded in the 2<sup>nd</sup> quarter. Differences in antenatal registration among them were statistically significant ( $X^2=1370.6343$ ,  $P<0.05$ ).

The time of antenatal registration of pregnant women was presented in **Table 2**. In the overall, highest registration of 44.27% of pregnant women was recorded during the second trimester while 39.43% registered in the first trimester. Only 16.30% of pregnant women registered in the third trimester. Pattern of antenatal registration showed some similarities in all health centers. For instance, Amaeze health center presented a highest antenatal registration of 57.59% in the second trimester and 23.56% in the third trimester. High third trimester antenatal registration was also recorded in Ayaragu Health Centre (10.8%) and Akaeze Health Centre (12.10%) which recorded very low second trimester antenatal registration of 1.99% and 9.95%

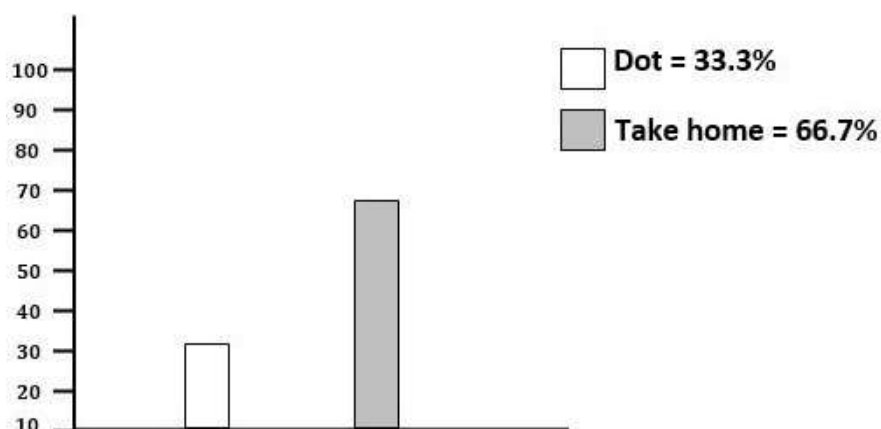
respectively. Differences in time of antenatal registration of pregnant women in the various health centres were statistically significant ( $X^2=442.95$ ,  $P>0.05$ ).

**Table 3** shows the different drugs available in the various health facilities and used for IPT program. Artemsinine containing therapy (ACT) was found only in Amaeze Health center while sulphadoxine/ pyrimethamine (SP) drugs were found in the others. Quinine was also found in Model Primary Health center and Akaeze Health Center together with SP drugs.

The method of IPT drug administration was presented in **Figure 2**. Two of the six health centers (33.33%) used directly observed therapy. They included Model Primary Health Center and Basic Health Center whereas others (66.67%) used the take home method.

## DISCUSSIONS OF FINDINGS

Malaria control has for many decades been an issue of great concern which has gulped a handsome chunk of resources of Governments both national,



**Figure 2.** Method of IPT drug administration by percentage of PHC.

international, non-governmental organizations and private individual at community and family levels. Because the millennium development goals demanded concerted effort towards ensuring child and maternal health, controlling malaria during pregnancy became imperative. This is realizable through various approaches including the use of intermittent preventive treatment (IPT). The use of IPT in the control of malaria during pregnancy has received strong support from the Federal Government of Nigeria (Federal Ministry of Health, 2005, 2009) because of its benefits which include significant reduction of malaria cases among pregnant women, protection against maternal anemia and low birth weight, and reduction of the risk of pre-term delivery, still birth and maternal death. With these benefits, it is no wonder that African Union in her Abuja declaration adopted it as the best practice for malaria control during pregnancy. Consequently, it became a rule in the Nigeria health delivery system that all (100%) pregnant women attending antenatal clinics (ANC) receive at least two doses of IPT before delivery. The five years strategic plan of the Federal Government (2009-2013) stated her expectation in 2015 about 80% of pregnant women attending antenatal clinics would be taking two doses of Sulphadoxine/Pyrimethamine (SP) drug for intermittent preventive treatment (IPT). As the realization of the ultimate goal of these policies is yet being awaited, the need to evaluate the practice of IPT in the rural communities in order to unveil certain factors influencing success or failure of the program did arise.

This justifies any investment in IPT by the

government as a large number of pregnant women would benefit from the program. It was also noticed that 42.1% of the overall antenatal registration which was recorded in Amaeze health center may be due to the presence of resident doctor attached to it and believed by the people to offer a better service delivery. This therefore suggest the need for government to employ more medical doctors and get them posted to rural health centers in various communities where they could be of immense benefit.

Time of antenatal registration was also investigated and impressive revelation was made. Large number (83.7%) of pregnant women registered ANC at the appropriate time (1<sup>st</sup> and 2<sup>nd</sup> trimester) leaving out only 16.3% who registered late (3<sup>rd</sup> trimester) and may not benefit from IPT program. This result shows an improvement to the result obtained by Nduka et al., (2011) in southeastern Nigeria where they observed that greater number of pregnant women registered late for ANC. Though many pregnant women registered for ANC at the appropriate time, in this work, there is room for improvement and this can be achieved through aggressive enlightenment programs by the Government through public talks, radio discussion and sending memos to religious bodies and community leadership. Involving private health service practitioners in such program will enhance better result.

Federal Government guideline for IPT drug administration recommended the directly observed therapy (DOT) method which demanded that pregnant women take the drug in the presence of the care provider to ensure strict compliance. This was



investigated and it was observed that only two (Model primary Health Centers and basic Health Centers) representing only 33.33% complied with this method of drug administration while the rest four health centers (66.7%) practice take home method. This does not guarantee compliance but provides a challenge to the success of IPT program.

Ugboaja and Ejiofor (2017) noted that poor knowledge and implementation of IPT among pregnant women and health care providers could pose great challenge to wide spread use of intervention packages in Africa as revealed in this work. The inconsistent attitude of care providers in the adoption of DOT in IPT administration noticed in this work may be blamed on lack of proper information dissemination or inadequate of supervision by the appropriate ministry which does not ensure compliance.

This may lead to either delays in the achievement of noble objectives of Government programs or outright failure. This calls for revival of supervisory functions in the ministry.

The available drugs in the use for IPT in the six primary health centers were also studied. SP drugs were found in stock in five of the six primary health centers and only Amaeze Health Center with resident doctor has artemisinin containing drugs (ACT) in use as in currently recommended. Model primary health center and Akaeze Health Center were found to keep quinine in addition of SP drugs. The use of quinine is obsolete and therefore counterproductive in the treatment of malaria especially among pregnant woman. With the increased report of parasite resistance to SP drugs, one expects to see every primary health center stocking and using artemisinin combination therapy in their IPT treatment of pregnant women, especially as it has been recommended by Federal Ministry of Health for adoption.

The study recommends routine workshops for rural health practitioners especially those employed in the government health facilities to enable them catch up and adopt best practices in their implementation of any strategy designed for effective control of malaria in pregnancy or other public health problems.

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