

MARKETING OF ANTI-MALARIA DRUGS - IMPLEMENTATION OF NATIONAL MALARIA DRUG POLICY BY CTC-MS IN KWARA STATE, NIGERIA

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Abstract

Nigeria recently changed her antimalarial treatment policy from monotherapy single based to artemisinin-based combination therapy (ACT). Close to Community Medicine Sellers (CTC-MS) were defined to include all commercial retailers supplying malaria drugs. The study examines implementation of National malaria drug policy by Close to Community Medicine Sellers (CTC-MS) in Kwara state Nigeria. It was a descriptive cross sectional study, multi stage sampling techniques was adopted and interviewer administered questionnaires was used to collect data. EPI-INFO software statistical package was used to analysis. Despite high level of awareness (53.9%) of new treatment guidelines for malaria, ninety (43.0%) of the CTC- MS correctly differentiate between artesunate monotherapy and artemisinin-based combination therapy (ACT). Only 96 (46.6%) respondents sold artemisinin-based combination therapy (ACT) in the new policy for the treatment of malaria. Majority CTC-MS sold Chloroquine (84.0%) and Qunine (64.1%) respectively, (75.2%) of the respondents agreed to sell any form of monotherapy for the treatment of malaria. Due to non-availability (47.1%), competition from other providers (35.3%) and high cost (17.6%). Age, educational level, years of practice and type of training significantly affected response to the implementation of new malaria guideline. Mono therapy still considered to be adequate for treatment of malaria, there is increased marketing of anti-malaria monotherapy drugs and advised to consumers to purchase Artesunate monotherapy for the treatment of malaria. Non-availability and high cost of ACT drugs are some of the factors responsible for the sales of monotherapy anti malaria drugs. It is recommended that special interventions such as trainings, continuous professional medical education on new anti-malaria drugs and government to withdraw non-ACT antimalarials from the market. In addition age limit, years of practices and source of trainings should be considered by the formal or informal association of CTC-MS prior to approval to join the market for sales of anti-malaria drugs therapy.

Keywords: Close to Community-Medicine Sellers (CTC-MS), Marketing, Malaria Drugs, Malaria Policy, Nigeria

1.0 Introduction

It is no longer news that Nigeria occupies the unenviable position of contributing 32 percent of the global malaria burden, along with democratic republic of Congo (FMoH, 2013.) Malaria remains a leading cause of morbidity and mortality in Nigeria as in other sub-Saharan Africa countries (Saka A.O. 2012). The Federal Ministry of Health in 2015 estimated that 50% Nigerian population have at least one episode of malaria in a year (NMEP, 2015). Nigeria recently changed her antimalarial treatment policy (WHO, 2006), from chloroquine single based therapy to artemisinin-based combination therapy (ACT). Nigeria adopted ACTs as the drugs of choice for the management of uncomplicated malaria in 2004 following drug therapeutic efficacy trials which confirmed widespread resistance to the erstwhile drugs of choice and demonstrated adequate response to selected ACTs. (FMoH-NMEP, 2015). Artemether-Lumefantrine (AL) is the preferred ACT, while Artesunate-Amodiaquine (AA) is the alternate treatment (National Malaria Treatment Policy, 2005). This study accessed to close to community medicine sellers socio-demographic characteristic of close to community medicine sellers, awareness of malaria drugs treatment guidelines and policy marketing pattern of anti-malaria drugs.

2.0 Literature Review

A diverse group of Close to Community Medicine Sellers (CTC-MS) are defined to include all commercial retailers supplying malaria drugs, except formal pharmacies that are required to be staffed by a qualified pharmacist (Awodele, 2012). They market and delivered a wide range of health products in rural and urban slum areas of many low- and middle-income countries. CTC-MS are variously known as drug sellers, chemical sellers, village drug sellers, Community Health Workers (CHWs), midwives, Traditional Birth Attendants (TBAs) and patent medicine vendors (PMVs) (Nduka, 2013). They operate in specialist drug shops as well as general shops, kiosks, market stalls and as itinerant hawkers (Oyeyemi, 2014). Such outlets are not permitted to stock prescription-only medicines, but in some cases are allowed to sell over-the-counter (OTC) products, such as cough syrups, painkillers and some antimalarials (Chukwuocha, 2013).

No professional consultation is required for purchase, and staffs are not required to be fully qualified pharmacists. The hallmark is that they are very close to the people in the community. There outlets, shops, centers, locations and premises are the most accessible and widely used, although many similarities can be recognized with the operation of some formal pharmacies, which are not always staffed by appropriate personnel (Goel, et al, 1996), and with some basic private clinics (Tawfik, 2006). They also engaged in other roles such as education, counselling, treatment, follow-up and even data collection.

Some of the CTC-MS are considered expert and safe to be sell drugs to the general public in pre-packaged form. These include common drugs like pain-relieving tablets and oral rehydration solution sachets (Hamel, 2001). The CTC-MS is an individual

without formal pharmaceutical (and/or health care) training, selling orthodox pharmaceutical products on a retail basis for profit (Tsuyuoka, 2001).

Extensive review of literature on treatment seeking for malaria and fever in sub-Saharan Africa identifies health care providers including patent medicine vendors widely used different and many source of drugs for fever and malaria. Medicines bought from CTC-MS in shops or on the streets are used for treatment of the sick without doctor's prescription as in formal health facilities. The proportion of caregivers visiting shops during recent childhood illness ranged from 15% to 83%, with a median across studies of approximately 50% (Snow, 1992). For example, on the Kenyan coast, shop-bought medicines were used first, or solely, in 69% of childhood fevers treated (Kaseje, 1987). In Togo, only 20% of children less than five years of age with fever were seen at a health center, and 83% were treated at home with an antimalarial drug obtained from a street or market vendor. Furthermore, the use of CTC-MS is common in both rural and urban areas, among children and adults, and across socioeconomic groups (Akinde, 19822). CTC- MS are used even when supposedly more convenient and cheaper alternatives exist, such as village health workers (VHWs) (Obinna, 2009).

Lack of consultation fees, diagnostic tests, as well as access to sub-optimal drug doses makes CTC-MS dispensed drugs more affordable to people than those at health facilities. Even where inexpensive or free drugs are available at facilities, people may still patronize medicine sellers to avoid the travel and time costs involved in accessing formal care. Credit may also be more easily obtained at retail outlets.

Some CTC-MS do not have adequate knowledge of the drugs they stock and the illnesses presented by their customers. In giving information and care to customers, CTC-MS vary widely in the amount, accuracy and quality of information that they give out. They may be variously referred to as CTC health commodities marketers, CTC health products and CTC health care providers. There is need to communicate information effectively using marketing communication mix and ensure that information is not distort (Aremu & Saka, 2006).

Health is wealth; a healthy nation is a wealthy nation. The attainment of malaria free and healthy living environment is important to every individual, family, society and government at all levels. However, there are concerns surround the appropriateness of drugs and information that CTC-MS provide. Polypharmacy may also be widespread, where providers prescribe additional unnecessary drugs such as antibiotics. Moreover, drugs may be of sub-standard quality because of poor storage. In the new era of artemisinin-based combination therapy (ACT), there is concern that CTC-MS may continue to sell artemisinin derivatives alone (monotherapies), potentially jeopardizing ACT efficacy in the long-term.

3.0 Methods

This study was carried out in Ilorin East Local Government which was created in 1991, with her headquarters in Oke-Oyi, about 18 km from Ilorin, the Kwara State capital in Nigeria. The LGA is bounded in the north by Moro LGA; in the south by Ilorin West LGA; and in the east by Ilorin South LGA. It is located in the central zone between

northern and southern parts of Kwara State. The local government is made up of twelve (12) political wards, 28 public health facilities, 22 private health facilities and one tertiary hospital (University of Ilorin Teaching Hospital) in Ilorin East Local Government Area. There are three hundred and eighty-five (385) CTC heath service providers which are distributed on zonal/wards basis.

An introductory letter was obtained from the Head of the Department, Epidemiology and Community Health, University of Ilorin, to the Head, Department of Health, Ilorin East Local Government Area, and an advocacy visit was paid to the CTC heath service providers, and all the medicine association/ dealers in the LGA. All the ethics guiding research studies such as anonymity and freedom to decline participation were discussed during the advocacy visit.

The minimum sample size was determined using the Fisher's formula for obtaining sample size is less than 10,000. A total of 206 CTC heath service providers participated in the study. The multi stage sampling technique was used. Simple random sampling was used to select six wards out of the twelve wards of different national association of CTC heath service providers in the LGA by balloting. Proportional allocation to the size of sample was used to determine number of respondent to be chosen in each of the selected sampled wards. Simple random sampling (Table of random numbers) was used to determine the starting point at each ward. Systematic sampling technique was then used to select the respondents until the desired sample was achieved in each of the selected wards.

The study was cross sectional and consisted of a structured questionnaire with close ended questions was utilized to collect the data. This instrument was administered by trained research assistants. The questions were interpreted as appropriate, for some of the respondents when the need arises. Informed consent was obtained from all the participants of the study. The pre-testing of the questionnaire was carried out in Ilorin South Local Government Area of Kwara State, which has similar characteristics with Ilorin East LGA with a view to validating the research tool and make appropriate corrections. Data collected from the questionnaire were sorted, collated, and analyzed using EPI INFO software package. Statistical analysis was then carried out.

4.0 Results and Analysis

Seventy five (36.4%) of the respondents are within the ages of 30-39 years, with mean age of Mean $\pm$ SD 34.45 $\pm$ 11.22 more females (56.3%) than males ninety (43.7%). As seen in table 1, majority of them (56.3%) were females and have been practicing for at least 4 years (40.8%). One hundred and fifteen of the respondents attained secondary education (55.8%). Table 1.

One hundred and one (53.9%) of the CTC-MS were aware about the new treatment guidelines for malaria while ninety five (46.1%) were not aware of the new treatment guidelines for malaria. Fig 1 Only 96 (46.6%) respondents sold artemisinin-based combination therapy (ACT) in the new policy for the treatment of malaria. Majority CTC-MS 173 (84.0%) sold Chloroquine for the treatment of malaria, one hundred and thirty two 132 (64.1%) of the respondents sold Quinine for malaria treatment while twenty four (11.7%) sold local herbs package for treatment of malaria. Fig2

More than two third, one hundred and fifty five (75.2%) of the respondents agreed that any form of monotherapy is adequate for treatment of malaria, while only fifty one (24.3%) of the CTC-MS do not agreed on sales of any form of monotherapy drugs for the treatment of malaria. One hundred and fifty nine (77.2%) sold anti malaria medicine/drugs to health consumers/clients without prescription from trained health professional while fourth seven (22.8%) CTC-MS always requested from health consumers/clients prescription from a trained health professional. Many of the CTC health commodities marketers, one hundred and eighty nine (91.7%) advised clients to purchase artsunates monotherapy for the treatment of malaria while only seventeen (8.3%) correctly advised clients on appropriate anti malaria drugs to buy. Decision by some of the drugs marketers not to sell ACT to consumers was because is non availability (47.1%), competition from other providers (35.3%) and (17.6%) was due to high cost as indicated in Table 2.

On policy guidelines for the use of injectable or oral anti malaria drugs, one hundred and sixty two (78.6%) of the CTC-MS do not consider injectable formulation to be more effective than oral therapy for malaria as revealed in Table 2. On the understanding of the content of new anti- malaria drug policy, one hundred and one (49.0%) of the CTC-MS wrongly stated that artesunate monotherapy is the same as artemisinin-based combination therapy (ACT), while ninety (43.0%) of the CTC-MS correctly knew the differences between the two drugs for the treatment of malaria. The difference among CTC-MS age group and their awareness of new treatment guidelines for malaria was found not to be statistically significant $X^2= 8.2543$ df=3 p-value 0.4116. Inverse relation exists between CTC- medicine sellers's age and marketing of monotherapy anti malaria drugs. A total of 101 (49.0%) respondents indicated that Artesunate monotherapy and ACTs are the same for the treatment of malaria, 90(43.7%) respondents showed that Artesunate monotherapy differ from ACTs, while 15 (7.3%) respondents don't even know. (Table 2). Sixty two (55.9%) of male respondents are aware of new national malaria treatment policy guidelines so do not sell monotherapy drugs however, many of the female who do not aware of the new treatment guidelines sold monotherapy anti malaria drugs. This relationship was statistically significant $X^2= 14.4820$ df=1 $p-v$ 0.0001.

None educated (8.4%) segments of the CTC-MS were aware of new malaria treatment policy guidelines, as level of education of CTC-MS increase, level of awareness of new treatment guideline for anti-malaria increases. The difference in respondents' educational level with respect to their awareness of new treatment guidelines for malaria was found not to be statistically significant $X^2= 8.8671$ df=3 (P=0.0310). Those who had formal training in school, twenty one (18.9%) of them were aware of the new treatment guidelines as against those with informal education many (3.2%) of them were not aware of new treatment guidelines. The difference in the type of training received by respondents was statistically found to be significant (i.e. $0.05 > P = 0.0318$) with respect to their awareness of new treatment guidelines for malaria as revealed in Table 3. With increase in age of the respondents, wrong perception of adequacy of monotherapy drugs for the treatment for malaria significantly increased $X^2= 11.92$ df= 3 $Pv=0.0076$), especially those within the age group of 30-39years. Age variation

among CTC health commodities marketers was statistically found to be significantly associated with wrong perception of adequacy of monotherapy for treatment of malaria ($0.05 > P=0.0076$). Among the females, majority, seventy eight (67.2%) sold anti malaria monotherapy drugs to consumers than just thirty eight (32.8%) who do not sell. However, many of the males seventy seven (85%) sold the monotherapy than thirteen (14.4%) of the respondents who do not sell the monotherpaphy anti malaria drugs. This relationship in gender was statistically significant $X^2= 9.1346$ df=1 $Pv= 0.0025$

Results

Table 1: Socio demographic data of CTC-MS

Variables	Frequency (N=206)	Percentage (%)
Age in years		
20-29	62	30.1
30-39	75	36.4
40-49	39	18.9
>50	30	14.5
Mean ± SD 34.45±11.22		
Sex		
Male	90	43.7
Female	116	56.3
Religion		
Islam	149	72.3
Christianity	57	27.7
Level of Education		
No formal Education	11	5.3
Primary	23	11.2
Secondary	115	55.8
Tertiary	57	27.7

Years in practice		
<1 year	22	10.7
1-4	84	40.8
5-8	44	21.4
8-12	41	19.9
=12	15	17.2

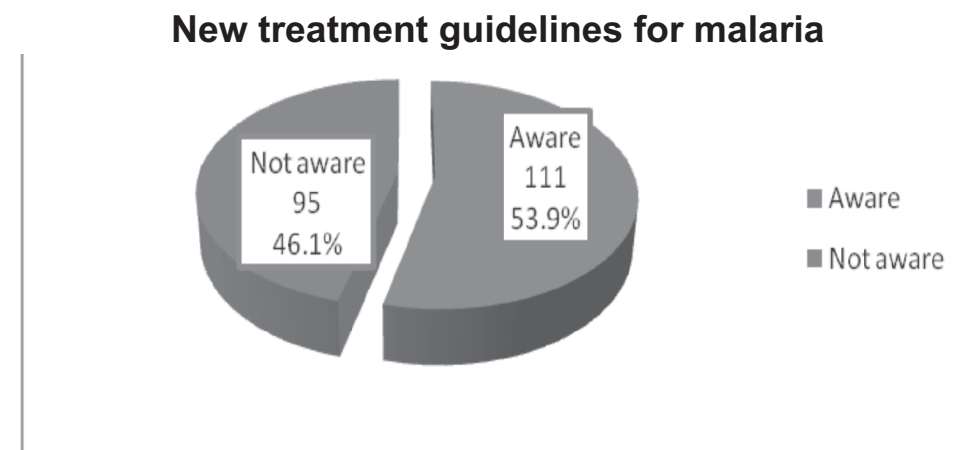


Fig 1: Awareness on the treatment guidelines for malaria

The figure above showed that 53.9% of the CTC-MS were aware of the new treatment guidelines for malaria.

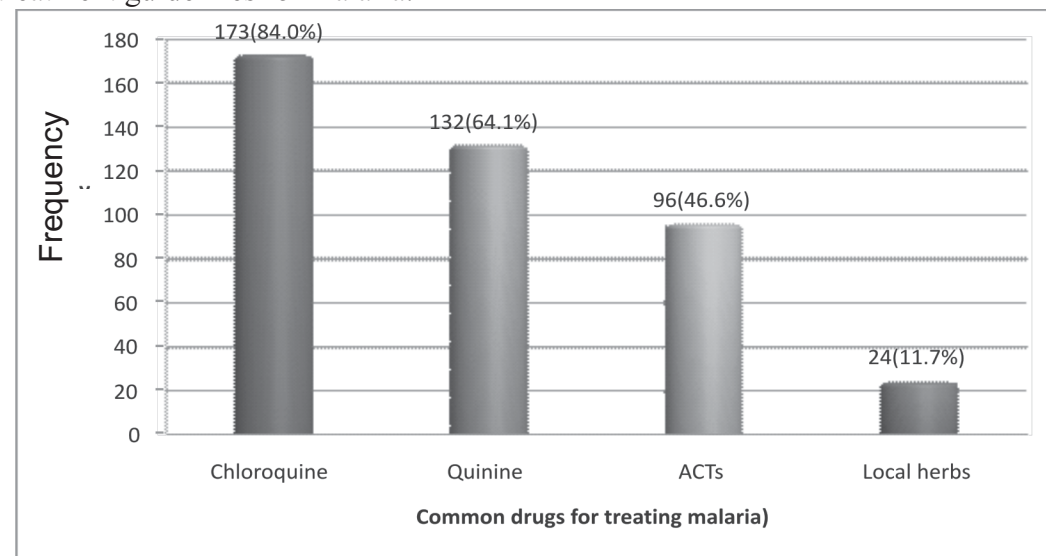


Figure 2: Marketing of common drugs for malaria treatment (multiple responses)

Table 2: Response of CTC-MSto policy on treatment of malaria

	Frequency	Percentage
Mono therapy is adequate for treatment of malaria		
Yes	155	(75.2)
No	51	(24.8)
Total	206	(100.0)
Consider injectable formulation to be more effective than oral therapy		
Yes	44	(21.4)
No	162	(78.6)
Total	206	(100.0)
Always request from customer prescription from a trained health professional before selling medicine		
Yes Request prescription	47	(22.8)
No Do not request for prescription	159	(77.2)
Total	206	(100.0)
Advise customers to purchase monotherapy ARTESUNATE to treat malaria		
Yes	189	91.7
No	17	8.3
Total	206	100.0
If no, what informed your decision		
Non- availability	8	47.1
Competition from other providers	6	35.3
High cost of the drug	3	17.6
Artesunate monotherapy the same ACT		
Yes same	101	49.0
No Not same	90	43.0
Don't know	15	7.3
Total	206	100.0

Table 3: Relationship between Socio-demographic and Policy guidelines for malaria

Socio-demographic		National Malaria Treatment Policy Guidelines			
SD		Aware	(%)	Not Aware	
Age	20-29	26	(23.0)	36	(37.9)
	30-39	41	(37.0)	34	(35.8)
	40-49	22	(20.0)	17	(17.9)
	=50	22	(20.0)	8	(8.4)
	Total	111	(100.0)	95	(100.0) ⁺
Gender	Male	62	(55.9)	28	(29.5)
	Female	49	(44.1)	67	(70.5)
	Total	111	100.0	95	(100.0) ⁺
Education	None	3	(2.7)	8	(8.4)
	Primary	11	(9.9)	12	(12.6)
	Secondary	58	(52.3)	57	(60.0)
	Tertiary	39	(35.1)	18	(19.0)
	Total	111	(100.0)	95	(100.0)
Learning	Shop owner	89	(80.2)	85	(89.4)
	Formal Sch	21	(18.9)	7	(7.4)
	Informal	1	(0.9)	3	(3.2)
	Total	111	(100.0)	95	(100.0) [?]

+not significant,

Table 4: Difference in respondents' perception of adequacy of monotherapy for treatment of malaria in relation to their characteristics Socio-demographic

		Monotherapy and adequate for treatment of malaria				
Socio-demographic		Yes	(%)	No	(%)	Total (%)
Age	20-29	38	(61.3)	24	(38.7)	62(100.0)
	30-39	63	(84.0)	12	(16.0)	75(100.0)
	40-49	28	(71.8)	11	(28.2)	39(100.0)
	=50	26	(86.7)	4	(13.3)	30(100.0)
	Total	155	(75.2)	51	(24.8)	206(100.0)
Gender	Male	77	(85.6)	13	(14.4)	90(100.0)
	Female	78	(67.2)	38	(32.8)	116(100.0)
	Total	155	(75.2)	51	(24.8)	206(100.0)
Education	None	4	(36.4)	7	(63.6)	11(100.0)?
	Primary	10	(43.5)	13	(56.5)	23(100.0)
	Secondary	95	(82.6)	20	(17.4)	115(100.0)
	Tertiary	46	(80.7)	11	(19.3)	57(100.0)
	Total	155	(75.2)	51	(24.8)	206(100.0)
Years Practices	<1	9	(40.9)	13	(59.1)	22(100.0)
	1-4	59	(70.2)	25	(29.8)	84(100.0)
	5-8	36	(81.8)	8	(18.2)	44(100.0)
	9-12	38	(92.7)	3	(7.3)	41(100.0)
	=12	13	(86.7)	2	(13.3)	15(100.0)
	Total	155	(75.2)	51	(24.8)	206(100.0)
Training	Shop Owner	130	(74.7)	44	(25.3)	174(100.0)
	Formal School	23	(82.1)	5	(17.9)	28(100.0)
	Informal	2	(50.0)	2	(50.0)	4(100.0)
	Total	155	(75.2)	51	(24.8)	206(100.0)

+ Not significant, ? significant

Discussion

A total of 206 respondents participated in this study; all were CTC-MSoperating in Kwara State Nigeria. The average duration of respondents' years in practice was six years which is in agreement with others studies conducted in other places which reports that the medicine sellers in the rural area community had a median of 5 years' experience (Saka, 2011). A mean number of 6 years of practice experience shows stability on the job and its positive effects due to experience gained. This study also revealed that majority (84.5%) of the CTC-MS had their training through apprenticeship. This finding corroborate with the report of studies (Fayemi, 2010). Elsewhere which show that the predominant method to function as a community medical drugs sellers is by apprenticeship under an existing license holder (Brieger, 2011).

The results of this study revealed further that over half of the respondents which stood at 111(53.9%) were aware of the new treatment guidelines ACTs replacing chloroquine as first-line treatment for uncomplicated malaria) and in line with other studies in Nigeria (Adeyemi, 2012). This is contrary to the finding reported in a study on malaria treatment and policy, that relatively few health commodities sellers were aware of the new government policy on anti-malaria drugs (Oyeyemi, 2014). Though it was reported in the finding that there were differences between states for instance 80% of the community drugs vendors in south west Nigeria claimed to know about new treatment guidelines (Uzochukwu, 2011), while only 16% did the same in Enugu State (Tobin-West, 2012). Furthermore, it was revealed that nearly all the drugs vendors (92%) were aware of the ACTs as drugs for Malaria treatment. This was however contrary to the finding of a study conducted across the three regions in Nigeria which stated that though most medicine sellers heard about the ACTs, only 9% had ACTs in stock. This might be as a result of the fact ACTs were the most expensive among the recommended drugs for treating Malaria (Obinna, 2009).

It was apparent that about three quarter 155(75.2%) of the respondents had the believed and sold Artesunate Monotherapy malaria treatment. This finding is consonance with another study conducted in South –East Nigeria which reported that 44.1% of hospitals in the area provided Artesunate Monotherapy while it was 31.4% for non-hospitals which are community medicine vendors. In other study, 32% of the Patent medicine vendors were reported to have Artesunate Monotherapy drugs in stock. Though the Artesunate Monotherapy potency for treatment of Malaria has some level of inadequacy, it can still work to cure malaria in many instances as believed by many CTC-MS anti malaria drug sellers and this is in consonance with other study (Salami, 2008). Despite awareness of the new guidelines for malaria, many of the CTC anti malaria drugs sellers often sold without prescription from trained health professional, probably because some of the CTC-MS are educated with more than half having secondary education while some of the those with tertiary education may have para-medical education or work in medical establishments as reported in other study (Ruebush, 1995. NPC, 2009). The situation where by the anti-malaria sellers advised

the consumers to purchase artsunatesmonotherapy for the treatment of malaria is a finding which is at variance with the new policy on malaria treatment recommendation. For the client to have received monotherapy anti malaria from the CTC –MS suggested low level of awareness of the new drugs by the caregivers. Community based studies revealed poor awareness of ACTs among households (Litrell, 2011). This underscores the need for consumer education about the new treatment policy.

This study found that there is direct relationship between education levels and selling of anti-malaria monotherpahy with increase in education level more of the respondents sold the drug. Though slightly differ among those with tertiary education. This relationship between respondents' level of education was statistically found to be significant in respects to their perception of adequacy of monotherapy for treatment of malaria $X^2 = 25.65$ df = 3 p-value = 0.0001). Respondents within less than one year in practice of practices (59.1%) do not sell the monotherpahy drugs, however, with increase in year of practices the CTC–MS tend to sell more of monotherpahy anti malaria drugs. This was found to be statistically significant $X^2 = 23.8204$ df = 4 $P_v = 0.0008$ (Table 4). Though many of the CTC-MS had training from shop owner, however, source of training is in significant on marketing of monothepraphy anti malaria drugs $X^2 = 2.1105$ df = 2 p-value 0.3481.

The sale of monotherapy ant- malaria mirrors the stock of malaria medicine found on anti-malaria drugs assessment showed that CQ, quinine, artesunate still dominate the market. These findings are in consonance with other studies in Nigeria (ACT watch. Noor, 2009) and elsewhere (Yeung, 2008) where, despite change in treatment policy, monotherapy ant- malariawere still on sale in drug shops even years after the change. The wide availability and sale of monotherapy ant- malaria such as CQ and SP implies that many cases of uncomplicated malaria were still receiving inappropriate treatment with consequences including progression to severe illness, increased mortality and growing drug resistance.

5.0 Conclusion and Recommendations

There is increase awareness of new national anti-malaria policy. However, the policy is yet to be fully implemented by CTC-MS as there are still commensurate increased in the sales of the old anti- malaria monotherpahy drugs against new anti-malaria drugs (ACTs) in the national malaria policy. Almost all the medicine sellers considered mono therapy as adequate for treatment of malaria, sold anti malaria monotherapy drugs to customers without requesting for prescription from a trained health professional before selling the medicine.

They also advised their clients/customers to purchase monotherapy Artesunato treatment of malaria. Decision not to fully comply with new national policy on anti-malaria drugs are due to factors beyond their control such as non-availability and high cost of ACT drugs amongst others. Awareness of the treatment guideline is statically significant related to educational level and type of training received with age, gender and year of practice are not significantly related level of awareness of anti-malaria policy. However, CTC-MS sales of montotherapy drugs are significantly related to

age, gender, educational level, years of practice and sources of training of marketers.

The authors recommended special intervention by the government to provide trainings, continuous professional medical education on new anti –malaria drugs and to also withdraw non-ACT antimalarials from the market. Age limit, years of practices and source of trainings should be considered by the formal or informal association of CTC-MS prior to approval to join the market for sales of anti-malaria drugs therapy.

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