

# EXPLORING THE PREVALENCE OF MALARIA AND PRESCRIBING PATTERN OF ANTIMALARIAL TREATMENT AT AN URBAN PRIMARY HEALTH CARE CENTRE

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## ABSTRACT

**Background:** The primary healthcare is the entry point of the populace into the healthcare sector and is aimed at providing effective and efficient healthcare services. It is paramount to prescribe drugs correctly; especially malaria which remains a major public health problem in Nigeria and a leading causes of out-patient visits to hospitals.

**Objectives:** The objectives of the study was to determine the Tj20.2201 0.0000 TD(ectl4F93o32.7311 -19.9349.(w

## Introduction:

There is little existing knowledge about actual quality of drugs provided by different providers in Nigeria and in many sub-Saharan African countries. Such information is important for improving malaria treatment that will help in the development and implementation of actions designed to improve the quality of treatment.<sup>1</sup> Drug availability and its affordability to its end user, will serve as a good booster to any health system. But should the concern be just its availability and its affordability? No, there should be more to these if the necessary impact of Bamako Initiative is to be

felt at our Primary Health Care (PHC) centres. The primary healthcare is the entry point into the Nigerian healthcare sector and is aimed at providing healthcare services to the grass root; though the use of primary health facilities for malaria management is low. It is estimated that only about 20% of malaria episodes are treated in the health centres.<sup>2</sup> It is paramount to prescribe these drugs correctly to the few that come in contact with the health centres; the extent of drug use and its effect is affected by the pattern in which these drugs are prescribed by the health workers, especially in primary care. Malaria

remains a major public health problem in Nigeria and Africa at large. It has been estimated that out of the over one million deaths caused by malaria world-wide, 90% occur in sub-Saharan Africa.<sup>3</sup> Malaria is one of the leading causes of out-patient visits to hospitals, hospital admission and mortality in all age groups but more in the vulnerable groups such as the pregnant women and children particularly the under-fives. Appropriate treatment of malaria in terms of its correct prescription is a good indicator for an effective programme for malaria control. Much has been put into malaria in terms of training in form of workshops, seminars; and malaria policy treatment guidelines. It is expected that all these measures will contribute to a proper prescribing pattern of antimalarials at health centres.

### Objectives:

- \* To determine the prevalence of malaria among out patient at the PHC
- \* To assess the knowledge of health workers on current antimalarial prescription at the PHC
- \* To determine the existing challenge to malaria management at the PHCs

### Methods:

Study area was Panshin Street PHC in Jos North Local Government Area of Plateau State beside the local government secretariat to represent a PHC located in an urban setting. This was a cross-sectional study that involved a review of records of outpatient prescriptions of 1823 patients, 792 with a blood film microscopic diagnosis of malaria during the months of January to May 2012. An interviewer administered semi-structured questionnaire was used to generate information on the knowledge of and treatment options of malaria from the four health personnel involved in the consultation and treatment of the patients and the nurse in-charge of the drug store. Ethical clearance was obtained from the Health Department of the Jos North Local Government secretariat.

### Results:

In the five months under review, a total of 1823 patients were seen at the out-patient department of the clinic, out of which 1050 and 773 were children and adults respectively.

**Table I:** Type of diseases diagnosed at a PHC

Disease diagnosed	Frequency (%)	Percent
Malaria	792	43.4
Diarrhoea disease	150	8.2
Urinary tract infections	200	11.0
Respiratory tract infections	257	14.1
Typhoid fever	315	17.3
Others	109	6.0
<b>Total</b>	<b>1823</b>	<b>100</b>

\*Others= Epigastric pain, eye infections, joint pain Malaria had the highest frequency of out-patient visit.

**Table II:** Age and Sex distribution of diagnosed malaria

Characteristics	Frequency (%)	Percent
Sex Male	357	45.1
Female	435	54.9
<b>Total</b>	<b>792</b>	<b>100</b>
Age (years) 0-10	359	45.3
11-20	184	23.2
21-30	162	20.5
31-40	38	4.8
>40	49	6.2
<b>Total</b>	<b>792</b>	<b>100</b>

Malaria prevalence was higher in the females and the vulnerable age group 0-10yrs accounted for almost half of the diagnosed cases.

**Table III:** Knowledge of health workers on current antimalarial prescription

	Correct	Incorrect
1. What is malaria fever?	4	0
2. Which age group/s does this disease affect the most?	3	1
3. What drug/group of drugs are used currently for malaria treatment?	0	4
4. What drugs do you prescribe for malaria treatment?	1	3
	Yes	No
5. Do you have a copy of the National policy on malaria treatment?	0	4
6. Have you ever attended any training workshop/seminar on the management of malaria?	0	4

All the health personnel in the out-patient department knew the cause of malaria out of which 3 (75%) of them had correct knowledge of the age group/s most affected by the disease and none could give the current recommended treatment guideline of malaria, while only 1 (25%) attempts to give the current treatment regime in all its prescription. However, no copy of the National policy guideline on malaria treatment had been seen or used by the health personnel and none had ever attended any training in form of workshop or seminar on malaria. Health workers identified challenges to efficient work as inadequate manpower, lack of materials like current national policy guidelines on disease management especially those commonly seen at the grassroots, lack of blood pressure measuring apparatus, erratic power supply, dilapidated structures and inadequate training opportunities.

From the response given by all the health workers, they write out their prescription at the outpatient clinic without a prior knowledge of the antimalarial

drugs available in its drug store. Patients either purchase these drugs from pharmacists outside the clinic or get some from the health centre, however these were currently out-of-stock as the stock for the year was yet to be received as of the time of this study. Pre-packed antimalarial were given out free-of-charge to patients whenever they were available and the demand often out weights the supply.

### Discussion:

Malaria is the most common reason for outpatient visit in the clinic 43.4% (Table 1), this finding supports the earlier reports from Nigeria and other tropical countries that malaria is the leading cause of morbidity especially in children and accounts for over 60% of outpatient visit in Nigeria and other Sub-Saharan African countries.<sup>4</sup> In Uganda, it is also the leading cause of illness and death, accounting for 2540% of all outpatient visits at health care facilities.<sup>5</sup> The prevalence was more in the vulnerable age group 0-10 years accounting for almost half of diagnosed cases despite the wide spread distribution of the insecticide treated bednets. However the use of insecticide treated bednets are just one of the several preventive measures against malaria, factors that may also affect its acquisition and usage may include cost, availability, and public education. Even when these bednets are available, some or all the children may not be allowed to sleep under due to cultural reasons or beliefs, though this study did not establish such.

The study revealed the unavailability of copies of the National guidelines for malaria treatment as one of the challenges to manpower building among the other reasons given. Over the years there has been increasing spread of malaria parasites resistant to the commonly used antimalarial drugs. Resistance to previous antimalarials has been reported in the six geo-political zones in Nigeria and this has led to the change in the National guidelines for treatment of malaria in Nigeria to a drug combination with other class of antimalarials to bring about a synergistic effect on the malaria parasites. Appropriate drug prescription is central to not only proper malaria treatment but also to prevent drug resistance to the currently effective antimalarials. The pattern of antimalarial prescription and the performance of health workers could be evaluated by assessing their prescribing habits at our PHCs, which may proffer ways for some interventions that will contribute to effective malaria control, malaria being a major factor that devastates the countries whose health systems are already overburdened by the communicable diseases. The risk of the development of drug resistance is less when antimalarial are prescribed by an informed health practitioner.

Various ways may be employed to determine drug use in health facilities such as the use of indicators, as validated by World Health Organization (WHO).<sup>6,7</sup> There are twelve core drug use indicators sorted in three groups: prescribing indicators (five), percentage of drugs prescribed from essential drugs list  $\leq$  (number of drugs prescribed from essential drugs list / total number of prescribed drugs)  $\times 100$ .<sup>8,9</sup>

The study confirmed the functioning of a drug revolving fund in this Primary Health facility, but the percentages of antimalarials drugs prescribed by the health personnel from essential drugs list were low, as knowledge of most of the prescribed drugs was from the older malaria treatment regimen knowledge they had previously acquired or recently acquired through self capacity building by reading current literatures. This may amount to wrong practice due to unavailability of copies of essential drugs list and National malaria treatment policy guidelines in this health facility.

It is however important to realize that a change in drug policy and its implementation for malaria case management in African settings is complex. It is not always expected that a change in National malaria treatment policy will translate to an immediate, effective policy change at health service provider level which also may not necessarily translate into adequate quality case-management of patients.<sup>5,10,11</sup> Prescribers' knowledge and adherence to treatment guidelines remains critical to the success of any new drug policy.<sup>12</sup> Prescribing habits may be influenced by a number of factors including lack of training, shortage of drugs, financial influences, patient load, lack of materials and prescribing attitudes, all of which are challenges in a typical health centre setting in Africa.<sup>5,13</sup>

Despite the fact that the majority of the combination based antimalarials supplied are in pre-packed sachets which are made relatively easy to prescribe by health workers, most of the prescribed antimalarial were given to patients either without a knowledge of what is available in the drug store or based on old knowledge of treatment modalities. Such lack of awareness of available antimalarial drugs may cause unnecessary increases in drug costs on the part of the patient that buys from outside the health centre as well as increasing the risk of adverse events and lack of confidence in the health system.

Correctness of the prescribed doses was not ascertained as information on dosage was missing from the register for many of the patients. In addition, weights were not taken generally for

patients and even for those treated for malaria. This implies that adequacy of weight-based dosage could not be assessed. It would have been important to assess whether appropriate dosing instructions were given to the patient but since records were used in this study, this could not be done.

### Conclusion:

Implementation of National malaria treatment policy is usually faced with several constraints, it is important to ensure that adequate training is done, with provision of relevant information, as well as effective communication with health workers to promote behaviour change and effective uptake of policy changes. These efforts should especially address the specific needs and challenges of different cadres of prescribers as well as persons that have been in service for longer periods, who have been using older treatment guidelines. There is also need to conduct further studies to assess other aspects of the treatment like dosage and proper drug administration.

### References

1. Onwujekwe O, Kaur H, Dike N, SShu E, Uzochukwu B, Hanson K, et al. Quality of anti-malarial drugs provided by public and private healthcare providers in south-east Nigeria. *Malaria Journal*. 2009; 8:22.
2. Ajayi I, Falade C, Bamgboye A, Oduola A, Kale O. Assessment of a treatment guideline to improve home management of malaria in children in rural south-west Nigeria. *Malaria Journal*. 2008; 7:24.
3. Omole MK and Onademuren OT. A survey of antimalarial drug use practices among urban dwellers in Abeokuta, Nigeria. *Afr J Biomed Res*. 2010 Jan; 13:1-7.
4. Oshikoya KA. Antimalarial prescriptions for children presenting with uncomplicated malaria to a teaching hospital in Nigeria after the change of National guidelines for malaria treatment. *World Journal of Med Sci*. 2007;2(1):49-53.
5. Ucacon PS, Achan J, Kutwabam P, Odoi AR, Kalyango NJ. Prescribing practices for malaria in a rural Ugandan hospital: evaluation of a new malaria treatment policy. *Afr Health Sci*. 2011 Aug; 11(1): 53-59.
6. Babalola CP, Awoloye SA, Akinyemi JO, Kotila OA. Evaluation of prescription pattern in Osun State (Southwest) Nigeria. *Journal of Public Health and Epidemiology*. 2011 March; 3(3):94-98.
7. Alva S, Kleinau E, Pomeroy A, Rowan K. Measuring the impact of health systems strengthening: A review of the literature. 2009 Nov [Cited 2012 May]; Available from: [www.usaid.gov/global\\_health/hs/..impact\\_h ss.pdf](http://www.usaid.gov/global_health/hs/..impact_h ss.pdf).
8. Eze UIH and Olowu AO. Prescribing patterns and inappropriate use of medications in elderly outpatients in a tertiary hospital in Nigeria. *Tropical Journal of Pharmaceutical Research*. 2011 February; 10(1): 19-25.
9. Karande S, Sankhe P, Kulkarni M. Patterns of prescription and drug dispensing. *Indian J pediatr*. 2005;72(2): 117-121.
10. Amin AA, Zurovac D, Kangwana BB, Greenfield J, Otieno DN, Akhwale WS, Et al. The challenges of changing national malaria drug policy to artemisinin-based combinations in Kenya. *Malaria Journal*. 2007;6:72.
11. Hanson K, Goodman C, Lines J, Meek S, Bradley D, Mills A. The economics of malaria control interventions. *Global Forum for Health Research*. 2004 January; 2:2.
12. Zurovac D, Rowe AK, Ochola SA, Noor AM, Midia B, English M, et al. Predictors of the quality of health worker treatment practices for uncomplicated malaria at government health facilities in Kenya. *Int. J Epidemiol*. 2004 July; 35(4):1080-1091.
13. Ghebrehwet T. Expanding the role of nurses in TB prevention, care, and treatment. From the group up. 2004 [Cited 2010 May]; Available from: <http://ftguonline.org/ftgu-232/ftgu/3980>.