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A retrospective evaluation of the quality of malaria case management at twelve health facilities in four districts in Zambia

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PEER REVIEW

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Comments

This is a relatively small, retrospective study of malaria case management practices in Zambia. It highlights several aspects that require attention including the use of diagnostics for all patients, decreasing the use of SP for malaria test confirmed cases, eliminating the use of anti-malarial drugs for patients WHO test negative for malaria, and assuring that all patients with confirmed malaria receive treatment.

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ABSTRACT

Objective: To establish the appropriateness of malaria case management at health facility level in four districts in Zambia.

Methods: This study was a retrospective evaluation of the quality of malaria case management at health facilities in four districts conveniently sampled to represent both urban and rural settings in different epidemiological zones and health facility coverage. The review period was from January to December 2008. The sample included twelve lower level health facilities from four districts. The Pearson *Chi*-square test was used to identify characteristics which affected the quality of case management.

Results: Out of 4891 suspected malaria cases recorded at the 12 health facilities, more than 80% of the patients had a temperature taken to establish their fever status. About 67% (CI_{95} 66.1–68.7) were tested for parasitemia by either rapid diagnostic test or microscopy, whereas the remaining 22.5% (CI_{95} 21.3.1–23.7) were not subjected to any malaria test. Of the 2247 malaria cases reported (complicated and uncomplicated), 71% were parasitologically confirmed while 29% were clinically diagnosed (unconfirmed). About 56% (CI_{95} 53.9–58.1) of the malaria cases reported were treated with artemether–lumefantrine (AL), 35% (CI_{95} 33.1–37.0) with sulphadoxine–pyrimethamine, 8% (CI_{95} 6.9–9.2) with quinine and 1% did not receive any anti-malarial. Approximately 30% of patients WHO were found negative for malaria parasites were still prescribed an anti-malarial, contrary to the guidelines. There were marked inter-district variations in the proportion of patients in WHO a diagnostic tool was used, and in the choice of anti-malarials for the treatment of malaria confirmed cases. Association between health worker characteristics and quality of case malaria management showed that nurses performed better than environmental health technicians and clinical officers on the decision whether to use the rapid diagnostic test or not. Gender, in service training on malaria, years of residence in the district and length of service of the health worker at the facility were not associated with diagnostic and treatment choices.

Conclusions: Malaria case management was characterised by poor adherence to treatment guidelines. The non-adherence was mainly in terms of: inconsistent use of confirmatory tests (rapid diagnostic test or microscopy) for malaria; prescribing anti-malarials which are not recommended (e.g. sulphadoxine–pyrimethamine) and prescribing anti-malarials to cases testing negative. Innovative approaches are required to improve health worker adherence to diagnosis and treatment guidelines.

KEYWORDS

Malaria, Quality, Diagnosis, Treatment, Antimalarials, Microscopy, Rapid diagnostic tests, Zambia

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1. Introduction

Prompt and effective case management is part of an essential package of integrated malaria control^[1]. Malaria case management strategy involves two main components: accurate case identification with parasitological diagnosis and appropriate treatment with the recommended drugs. This is promoted through the provision of guidelines to inform WHO member states on their national malaria diagnosis and treatment guidelines^[1,2].

In Zambia, malaria services are provided free of charge in line with the health reforms of 1993^[3] as part of the Basic Health Care Package (BHCP) and the user fee removal policy of 2006^[4]. The malaria prevention and control services are provided within this financing policy framework. The current malaria diagnosis and treatment guidelines in Zambia demand that: All patients with suspected malaria should undergo a routine confirmatory diagnostic test regardless of age, using microscopy or rapid diagnostic tests (RDTs); all uncomplicated malaria cases should be treated with the six-dose regimen of artemether–lumefantrine (AL); severe malaria cases should be treated with quinine and all these malaria services should be provided at no cost to the user^[5,6].

The efficacy and cost effectiveness of the AL and sulphadoxine–pyrimethamine (SP) have been well documented by studies conducted in the country and AL has been found to be more efficacious and cost-effective than SP^[7,8]. Studies on the effectiveness of the available strategies for malaria diagnosis at the point of care in Zambia have shown that RDTs are more cost-effective than microscopy and clinical diagnosis of malaria^[9,10]. The availability and use of malaria interventions are monitored through the routine health management system and specialised population surveys such as the Zambia Demographic and Health Survey^[11] and the Malaria Indicator Surveys^[10,12,13]. All these sources of information have demonstrated that progress has been made in improving access to preventive and curative tools and corroborate findings in the World Malaria Report of 2010^[2]. The impact of the malaria control interventions has been demonstrated by reductions in both parasite and anaemia prevalence^[12–14] and is thought to have contributed to reductions in child mortality in Zambia^[11].

However, WHO reports have recently indicated that Zambia is among the countries experiencing an increase in malaria transmission after the initial decline in disease morbidity and mortality^[2]. This is supported by up to 15% increase in the in-patient malaria cases between 2008 and 2009^[2,15].

Uncomplicated malaria, if treated early and appropriately does not progress to the severe form of malaria and consequently does not lead to death^[1]. For malaria fatalities to be prevented, the health workers must be able to diagnose the disease definitively using RDTs or microscopy and treat with the appropriate antimalarial in line with the national

diagnosis and treatment guidelines for malaria in the country^[5,6].

However, little attention is paid to how the quality of these services can be enhanced. Quality and not just the availability of health services is important if health outcomes are to be improved significantly^[16]. It is important to invest in quality improvements in public health facilities because more than 80% of the malaria patients in Zambia seek care from these facilities^[17,18]. Thus, this paper endeavours to establish the appropriateness of malaria case management at the health facility level among four districts in Zambia.

2. Materials and methods

2.1. Study design and study sites

A retrospective evaluation of the quality of malaria case management was conducted at 12 health facilities as a part of a larger study on willingness to pay for malaria risk reduction^[19]. The study sites were four districts in four of the nine provinces of Zambia. The districts were Chongwe, Chingola, Kabwe and Monze and were conveniently sampled due to the availability of secondary data which was a basis for the retrospective review. The sites represent both the high and low malaria epidemiological zones and cover both urban and rural settings^[20].

2.2. Sampling

All the patient registers were reviewed for 2008 at each of the 12 level one health facilities (3 facilities per district). The year 2008 was used for the review because this is when the supply of malaria commodities (including RDTs and antimalarials) was optimal and the health facility staff had received the required in-service training on malaria case management as documented in the malaria programme reports^[21,22].

2.3. Data collection

The quality assessment was based on the malaria diagnosis and treatment guidelines for Zambia which were in use in 2008. The quality of management of malaria was established for each facility, health worker characteristics were assessed and all data were entered in the transcribing sheet developed for the survey. Each health worker was identified using their hand writing. The number of health workers at each of the health facilities was limited and it was possible to identify the handwriting according to each health worker, verified by the health centre in-charge and the corresponding days of being on duty for a particular health

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