

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
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**TOPIC:
AN ASSESSMENT OF THE QUALITY OF CASE
MANAGEMENT OF MALARIA AT THE DISTRICT
HEALTH FACILITY IN THE DANGME-WEST DISTRICT**

BY

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DECLARATION

I declare that except for references of other people's investigations which have been duly acknowledged, this dissertation is the result of my own research and that this dissertation either in whole or in part has not been presented for another degree elsewhere.

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DEDICATION

This work is dedicated to the memory of all children under five years who have died from malaria or its complications.

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My greatest appreciation is rendered unto my God the Almighty for seeing me successfully through the MPH course and this dissertation. When He begins a good thing, He is able to bring it to successful end, with much grace and beauty.

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ABSTRACT

Malaria control largely relies on the diagnosis and prompt treatment of both suspected and confirmed cases through the healthcare structures. In Ghana, the Standard Treatment Guidelines (STG) and the Anti-malaria Drug Policy (AMDP), stipulates how malaria should be managed. Challenges have been identified with respect to quality of case management. This study aims at assessing the quality of the management of malaria at the district health facility.

A Cross-sectional survey was conducted in all 4 sub-districts. Records review of a sample of 300 clients (selected by systematic sampling) seen with malaria over the period of March 2007 to May 2007 was done using a checklist. Interview of healthcare providers, facility assessment and interview of facility managers (Facility Audit) and Non-Participant Observations of consultations were done in the selected facilities.

Analysis is mainly descriptive using tables, frequencies and chi squares. Data were entered using EPIDATA and double was performed on all data. Analysis was done using SPSS.

55.3% of record of patients diagnosed as having malaria, had a history of fever. During observation fever was elicited /volunteered by 87.5% of patients.

A good history was taken for 52% of clients but adequate clinical diagnosis was made in only 38%. Three (37.5%) have functional laboratories. No provider routinely request for the laboratory examination and from records, only 20.3% showed a request for Bf for mps. 75% of facilities have adequate drug stocks. 80.3% of patients had Artesunate/amodiaquine prescribed although only 27.3% had correct dosage.

All the facilities have copies of the STG and treatment protocols. 80% of providers interviewed are well trained to manage malaria. Two (25%) facility have adequate supervision and 77% of providers are well trained to manage malaria. 29% of malaria cases were adequately managed.

There is the need for more thorough work on the part of providers and managers in managing malaria. The STG and other treatment protocols should quickly be reviewed to enhance the service delivery process.

Key words: malaria, Dangme-West, case management, quality, health facility,

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ABBREVIATIONS

AMDP	Anti-Malaria Drug Policy
BF	Blood Film
CHPS	Community based Health Planning and Services
CRs	Consulting Rooms
DHMT	District Health Management Team
HW	Health Workers
mps	malaria parasites
NGO	Non Governmental Organization
QHP	Quality Health Partners
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test kit
STG	Standard Treatment Guidelines
URTI	Upper Respiratory Tract Infection
WHO	World Health Organization

CHAPTER ONE

1. INTRODUCTION

1.1 Background

Malaria is hyperendemic in Ghana and has been identified as one of the major causes of poverty and low productivity. It has a perennial transmission and affects all age groups across the country. The female *Anopheles* mosquito is the vector for transmission. In Ghana, *Plasmodium falciparum* accounts for about 90% of all cases; *Plasmodium malariae* 9%; and *Plasmodium ovale* 1%. It is among the leading causes of morbidity and mortality and accounts for more than 45% of reported out-patient visits and 22% of under-5 mortality in Ghana (Ghana RBM Final Report, 2004).

These statistics are worrisome not just for Ghana but the whole of the sub-region. In an effort to reduce this burden, some African Heads of State and government delegations, on April 25, 2000, adopted the Abuja declaration on Roll Back Malaria (RBM) in Africa (WHO, 2000).

Malaria control largely relies on the diagnosis and prompt treatment of both suspected and confirmed cases through the healthcare facilities (Font *et al*, 2001). These cases form important reservoirs for transmission and managing them effectively is crucial.

Malaria is diagnosed clinically and by laboratory findings. Microscopy remains the most established and widely used technique in confirming blood parasitaemia. However, the lack of microscopic examination in most health facilities, due to a lack of equipment and or trained staff, means that health workers have to rely on clinical suspicion to treat malaria (Font *et al*, 2001). This results in over-diagnosis and or missing other diseases with overlapping symptoms. Strict reliance on microscopy too will result in missing a lot of cases which affects the ability to control the disease.

Guidelines have been developed by WHO for situations where there are limited diagnostics (Font *et al*, 1992). Also in Ghana, the Standard Treatment Guidelines (STG) and the Anti-malaria Drug Policy, stipulate how malaria should be managed. In looking at the process of care, one's interest lies in whether what is known to be good 'medical care' has been applied (Donabedian, 1966 & 2005). It is therefore important for health workers to adhere to the new guidelines which have been designed to give optimum care to a majority of the population.. However, facility surveys in Ghana have shown that health workers frequently do not comply with treatment guidelines (Bruce, 2007).

Supervision of healthcare centres is needed to ensure quality healthcare. Supervisory visits should consist of six (6) components: teaching; communication; seeing patients; tour of the facility; performance assessment and follow-up (Gibson and McClelland, 1990). This will allow problem areas to be identified and subsequently improved upon to make service delivery better.

The National Malaria Control Program in collaboration with other organizations has since 2005, rolled out in-service and pre-service programs for health workers of various categories to enable them manage stocks and treat malaria according to the new policy guidelines (Malaria, A Programmatic Evaluation Concept, 2007). The drugs so prescribed are new and evidence-based, replacing chloroquine for which there is massive documentation of resistance (Neequaye *et al*, 1987). The portion of the STG for treatment of malaria has a dosage regimen that does not quite agree with the new AMDP which was published in 2005. New drug policies need better implementation strategies in the health facility setting, and better implementation strategies require an understanding of why treatment errors occur, as well as the presence of an enabling working environment.

1.2 Statement of the Problem

Patterns of malaria morbidity and mortality in Ghana are consistent with those observed in areas with high transmission in sub-Saharan countries, highlighting that the challenge of reducing malaria burden is still unmet. This has wide policy implications because malaria control has been recognized as an essential prerequisite, as well as an outcome of development policies in Ghana.

Malaria epidemiological studies in the Dangme West district between 1992 and 1994 by the Noguchi Memorial Institute for Medical Research found that malaria transmission occurred year round, (Afari *et al*, 1995). It was found that peak parasite rates were found to have occurred in 5–9 years old with a high of 68% in this age group in the forest area and 43.9% in the savannah area. Most of the morbidity occurred in children less than five years old (Afari *et al*, 1995).

Malaria forms about half of all Out Patient Department attendance year after year in the Dangme West district, (GHS Annual Report – Dangme West, 2005). Most of malaria cases occur in children under five and pregnant women. It must be noted that the problem of poor quality of service is nationwide and the district is no exception, reporting of poor functioning or non-existent laboratories in most of their facilities which affects the quality of case management (GHS Annual Report – Dangme West, 2005). Also, one of the challenges highlighted in this report is how to improve the quality of care in the face of resource constraints (both human and financial).

Quality Health Partners (QHP), an NGO working in several districts in Ghana, including Dangme-west, has identified a variety of gaps and challenges in relation to the proper and efficient implementation of the malaria control strategy. An example is that providers prescribe based on a chart with wide ranges of weight and do not know how to prescribe according to weight as recommended. There are also reported stock-outs in anti-malaria drugs, and non compliance with the dual therapy approach (Bruce, 2007).

1.3 Conceptual framework

Two main issues are pertinent when it comes to the measurement of quality of care: **what** aspects of quality of care one should measure and **how** they should be measured. Donabedian describes three measures of quality namely Structure, Process and Outcome measures (Donabedian, 2003; Donabedian, 1980).

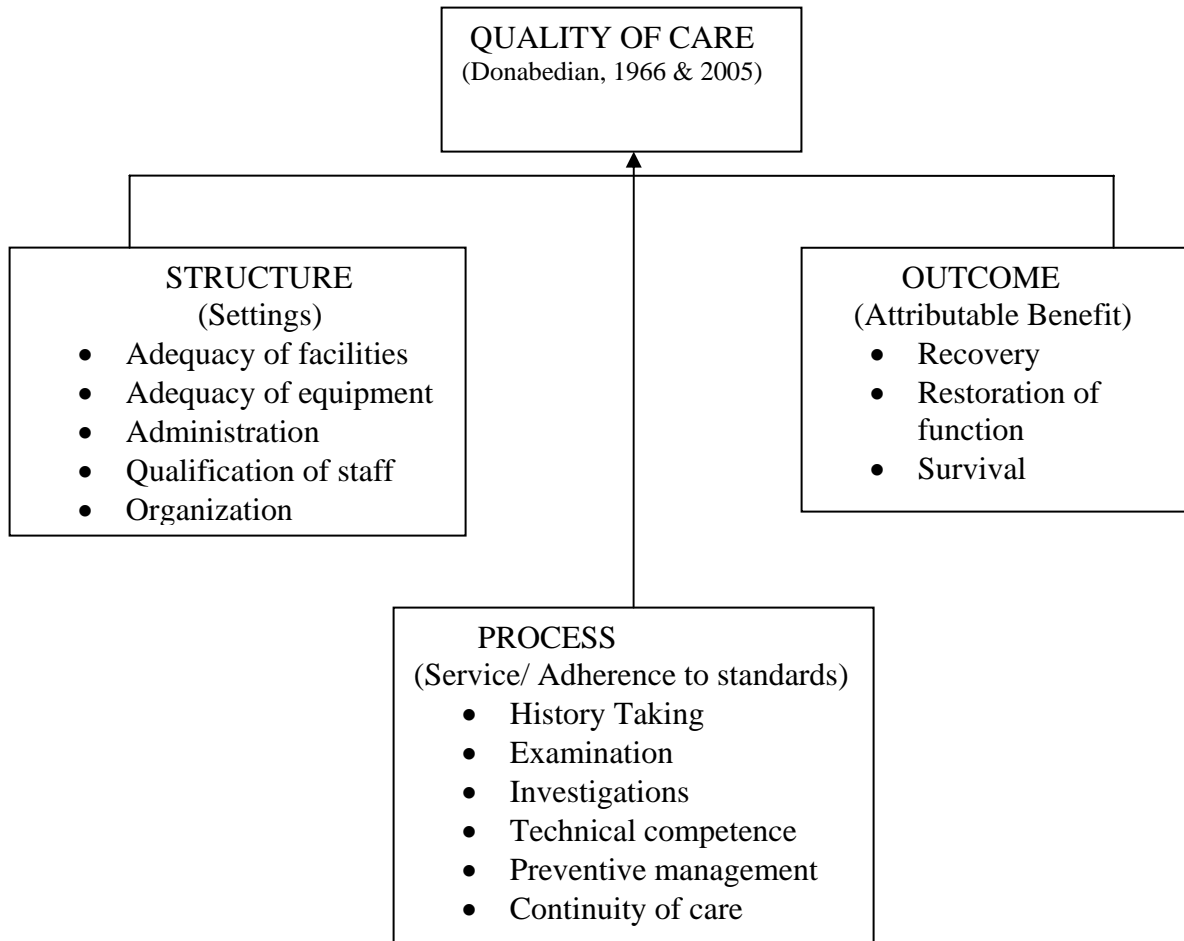
Structure measures, according to Donabedian (2003), represent the characteristics of, or inputs to health care. Although these are necessary conditions for the delivery of healthcare, they are not in themselves sufficient to provide the needed quality.

Process measures represent a measure of the delivery of appropriate healthcare to patients. They are the most approximate measure of healthcare offered among the three and also the most clinically specific.

Outcome measures represent measures of health improvements (or deterioration) attributable to healthcare, and may be influenced by other factors than quality of care.

The diagram below describes the concept as proposed by Donabedian.

Figure 1-1: Conceptual Framework



1.4 Justification

Due to the burden of malaria and its consequences, and the persisting inconsistencies with regards to the dosage of the required anti-malarial, this study becomes necessary.

- The study reveals the dynamics involved in managing malaria at the district level
- It informs the DHMT on the weaknesses and the strengths of their healthcare delivery system in terms of managing malaria

- The study results, it is hoped, will form the basis of future interventions and review of current operating systems for improvement..

1.5 Objectives

1.5.1 General

The general objective of the study is to assess the quality of the management of malaria at the district health facilities.

1.5.2 Specific

Specifically, this study aims to:

- i. Evaluate the efficiency of diagnosing (clinical and laboratory) and treating malaria in the district
- ii. Determine the availability and adequacy of supplies and equipment needed for malaria management in the district
- iii. Determine the availability and adequacy of trained staff in managing malaria
- iv. Determine the level of supervision of malaria management in the district.

1.6 Research questions

In order to find answers to the research objectives, a number of research questions must be asked:

1. How often do caregivers follow the standard treatment guidelines, in diagnosing and treating malaria?

2. How accurate is a diagnosis of malaria at the facility level?
3. Are the care providers well trained and resourced to adequately manage malaria?
4. Is the level of supervision adequate to ensure effective management of malaria at the facility?

CHAPTER TWO

2. LITERATURE REVIEW

2.1 The Malaria Burden

In the last decade, the prevalence of malaria has been escalating at an alarming rate, especially in Africa. An estimated 300 to 500 million cases each year cause 1.5 to 2.7 million deaths, more than 90% in children under 5 years of age in Africa (WHO, 1996). Malaria has been estimated to cause 2.3% of global disease and 9% of disease in Africa (WHO, 1996); it ranks third among major infectious disease threats in Africa after pneumococcal acute respiratory infections (3.5%) and tuberculosis (TB) (2.8%). Between 1994 and 1996, malaria epidemics in fourteen countries of sub-Saharan Africa caused an unacceptably high number of deaths, many in areas previously free of the disease (Harare Declaration, OAU, 1997).

Malaria has been estimated to constitute 10% of the overall disease burden in sub-Saharan Africa, being the leading cause of mortality in children aged under five years and accounting for about 40% of public health expenditure (Adams *et al*, 2004) . In Niger, malaria, of which 90-95% is due to *P. falciparum*, is responsible for 30% of outpatient consultations and is one of the first causes of morbidity with an average of 850,000 cases per year, or an incidence of 80 per 1,000 (WHO Niger Country Profile, 2007).

Patterns of malaria morbidity and mortality in Ghana show consistency with those observed in areas with high transmission in sub-Saharan countries. Service utilization patterns and mortality burden in some selected districts show that malaria was the leading cause of hospital admissions, accounting for 24.6% of the total admissions made in 2003. Malaria

also accounted for 19.5% of the total bed days and 17.1% of the total deaths in the facilities (Adams *et al.*, 2004).

Malaria has significant cost implications, and this includes economic cost-direct and indirect (Sachs and Malaney, 2002). It is a major setback for economic and other development. In Eritrea, about 7 to 12 days are lost per episode of malaria, thus having an enormous impact on the productive labour force. The average cost for treating an episode of uncomplicated malaria is about 2.00 USD and about 7.00 USD for severe cases (National Malaria Control Programme, Eritrea, 1999). These treatment costs are significant for a country with a per capita Gross Domestic Product (GDP) below \$,200(,2006). In a study that explored the burden of malaria in Ghana, the average user fees for malaria admission was estimated at 105,776 Cedis (\$11.8), ranging between 73,846 Cedis (\$8.2) in the Northern belt, 124,237 Cedis (\$13.8) in the southern belt, and 141,443 Cedis (\$15.7) in the middle belt (Adams *et al.*, 2004).

2.2 Role of effective case management

Case management of malaria is important in malaria control and prevention. The Roll Back Malaria Partnership, which began in 1998, aims to halve the burden of malaria by 2010 and develop strategies and targets for 2005 (Remme *et al.*, 2001). This involves hard work and includes among other measures, supporting and promoting access to correct, affordable and appropriate treatment within 24 hours of the onset of symptoms (Jamison *et al.*, 1994).

A strong healthcare delivery system would ideally provide early reliable diagnosis, appropriate and prompt effective treatment. However, in most malaria-endemic countries access to curative and diagnostic services is limited (Wilson, 2004). Surveillance and

diagnostic systems are weak in many parts of Africa where malaria takes its highest toll. Many febrile illnesses in endemic countries mimic malaria and parasitologic confirmation of diagnosis is often either not available or unreliable. Most diagnosis, whether in clinics or at home is presumptive and is probably more accurately described as “febrile illness presumed malaria” rather than conclusively as malaria. Thus, unfortunately, malaria case detection and reporting are often incomplete.

Rapid, accurate diagnosis, prompt and effective patient management (diagnosis, treatment, counselling and education, referral) are very important in curbing the malaria menace (Font *et al*, 2001). Early diagnosis and effective treatment of patients lends credibility to a malaria program, strengthens confidence in the health care system by families and communities, and raises the esprit of clinicians and public health workers. Such an intervention can cure infection, prevent further morbidity and progression to severe disease and death, and arrest transmission. This intervention requires timely and accurate diagnosis; use of efficacious drugs; education of patients and their families about the disease, home management, and prevention; and referral to higher levels of the health system where necessary (Jamison *et al.*, 1994).

2.3 Current Management Policies and Protocols

As a response to the anti-malarial drug resistance situation, WHO recommends that treatment policies for falciparum malaria in all countries experiencing resistance to monotherapies should be, combination therapies, preferably those containing an artemisinin

derivative (ACT - artemisinin-based combination therapy) (http://www.who.int/malaria/docs/who_ap_t_position.htm). Three available ACT combinations have been evaluated for safety and efficacy and are recommended for deployment (http://www.who.int/malaria/docs/who_ap_t_position.htm):

1. artemether-lumefantrine (Coartem);
2. artesunate (3 days) plus amodiaquine; and
3. artesunate (3 days) plus SP in areas where SP efficacy remains high.

By the end of 2005, artemisinin-based therapeutic combinations were already being used as first-line regimens in Venezuela, Suriname, Guyana, and Ecuador. Over the last three years twenty countries, (seven in Africa), have updated their treatment policies to include ACTs as 1st-line or 2nd-line treatment of malaria. This was based on WHO advice, and was made possible with the participation of RBM partners and increased mobilization of international funding (WHO, RBM Dept Policy).

By June 2006, thirty-nine African countries had changed their policies to recommend artemisinin-based combination therapy (ACT) as the first line treatment for malaria (Olumese, 2006). This was to reduce the adverse effects of failing monotherapies (Snow *et al*, 2001), and to limit the spread of drug resistance (*Lancet*, 2004) This represents one of the most significant public health developments in malaria control for decades. To implement these policies, several key challenges remain: increasing sustainable financing of these expensive treatments, improving prompt access through better care-seeking at health

facilities and high quality community-based delivery systems, and ensuring these new drugs are used appropriately during clinical management.

Of these challenges, inadequate case-management practices are of particular concern. In health facilities across Africa, febrile children are often treated sub-optimally (Rowe *et al.*, 2003; Rowe *et al.*, 2003; Zurovac *et al.*, 2004; Osterholt *et al.*, 2006). Incorrect doses of anti-malarials are frequently prescribed (Font *et al.*, 2001; Nshakira *et al.*, 2002; Zurovac *et al.*, 2005), and appropriate counselling and drug dispensing is rarely provided (Zurovac *et al.*, 2005; Rowe *et al.*, 2003; Armstrong-Schellenberg *et al.*, 2004). Therefore, the introduction of ACTs, which are new, expensive and more complex antimalarial regimens with less well described safety profiles, poses both a challenge and an opportunity to the quality of malaria management in Africa.

Options for alternative antimalarial drug policies are limited, especially in the regions facing the highest resource constraints, such as sub-Saharan Africa (WHO, 2003). In many cases, a lack of resources has forced countries to continue the use of drugs whose effectiveness is known to be limited due to drug resistance. Although the potential value of drug combinations, particularly artemisinin-based combination therapies (ACTs), is widely acknowledged and accepted, high costs are still a major barrier to their effective use. Because of the increasing role as first or second-line treatment of malaria of these drugs, it is important that their use is secured, that they are not misused to the extent of currently available antimalarials, and that the development of resistance is held back as long as possible (WHO, 2003).

In Ghana, a national multi-sectoral task force formed in 2002 in response to the high and ever increasing levels of chloroquine resistance which was estimated to be 23.2% in the country (<http://www.who.int/countries/gha/news/2006/anti.malaria.drug.policy/en/>), reached a consensus with stakeholders to change the first line drug policy in 2004. The consensus meeting selected Artesunate/Amodiaquine as the preferred option for Ghana, based on local data on efficacy. The new Anti-Malaria Drug Policy (AMDP) stipulates that for uncomplicated malaria, the drug of choice is Artesunate /Amodiaquine , 4/10milligram per kilogram body weight, administered concurrently for three(3) days. Severe malaria and malaria-in-pregnancy are to be treated with Quinine, (Anti-Malaria Drug Policy for Ghana, 2004).

From the Standard Treatment Guidelines (STG) (STG, Ghana, 2004), symptoms of malaria in adults and older children are fever (usually high and intermittent); feeling cold; with sweating and rigors; body aches and pains and weakness; headaches and bitter taste in the mouth; sometimes vomiting, diarrhoea and abdominal pain and poor appetite. For younger children, there is poor appetite, diarrhoea, fever and may progress to fits and coma. Signs to be noted are warm to touch, pallor, and no other sign suggesting other cause of fever. When malaria is severe, signs include dark coloured urine, drowsiness or coma, jaundice, inability to stand or support oneself, persisting vomiting, temperature over 39°C, anaemia and poor urine output. Prescribed investigations are Full Blood Count and Blood Film for malaria parasites.

Treatment of uncomplicated malaria is with Artesunate and Amodiaquine. The recommended dosage regime for the combination is as follows:

Table 2-1: Standard Treatment Guidelines for Malaria

		NUMBER OF TABLETS					
WEIGHT (KG)	AGE (YEARS)	ARTESUNATE TABLETS			AMODIAQUINE TABLETS		
		DAY 1	DAY 2	DAY3	DAY 1	DAY 2	DAY 3
5-10	INFANTS	25MG	25MG	25MG	75MG	75MG	75MG
11-24	1-6	50MG	50MG	50MG	150MG	150MG	150MG
24-50	7-13	100MG	100MG	100MG	300MG	300MG	300MG
50+	14+	200MG	200MG	200MG	600MG	600MG	600MG

The problem with this chart has to do with the wide ranges of weight used. The dosage received therefore tend to be different from what the new policy recommends. Again, perhaps based on this chart, there are treatment protocols in the form of charts in the consulting rooms which also have wide weight ranges and also recommend that amodiaquine be given twice daily instead of the pharmacologically proven recommendation of once daily. This thus affects the bioavailability of the drugs being taken by patients and one cannot guarantee that patients are getting exactly what they need. (Copy of the Chart is available in the Appendix).

Among other activities, the Government of Ghana set up systems for monitoring safety, quality and efficacy to support the implementation process. For instance,, the University of

Ghana Medical School undertook the responsibility to constantly monitor reports of any adverse events through their Pharmacovigilance (PV) Centre. Policy implementation started in January 2005 and since then the PV Centre has endeavoured to follow reported adverse events and has contributed greatly to inform the implementation process (WHO, 2006).

2.3 Adherence to Treatment Guidelines and Protocols

Prescribers' adherence to treatment guidelines remains critical to the success of any new drug policy. However, results from health facility surveys have shown that health workers (HW) frequently do not comply with treatment guidelines (Rowe *et al*, 2000). Some studies have shown that adherence to guidelines results in reduced need for hospitalization, shorter stays, and lower mortality. Nevertheless, adherence is variable among clinicians (Feagan *et al*, 2000) and may be due to individual disposition (Cabana *et al*, 1999).

The quality of drug prescription is the result of an interplay of a complexity of factors: diagnostic quality, training and experience of nurses' (and for that matter healthcare providers or prescribers), availability of drugs, practice setting, patients' expectations, social circumstances, expected patient compliance, costs of the drug, supervision, the quality of national treatment guidelines, to mention only a few. Therefore, drug prescription patterns may vary between different prescribers and health facilities (Lindbaek *et al*. unpublished; Brook 1994; Barber 1995; Denig & Rethans 1996; Straand 1999; Salisbury *et al*. 1998).

Despite the existence of several laws and enactments, clinical practice guidelines have had limited effect on changing physician behavior. This may be due to the fact that little is known about the process and factors involved in changing physician practices in response to

guidelines (Cabana *et al*, 1999). For instance, in Ghana, prescribing according to the national Essential Drugs List is not enforced. In addition the Essential Drugs List is limited only to the public sector. The private sector therefore offers an alternative to prescribers and consumers (Ofori-Adjei and Arhinful, 1996).

2.5 Availability of Drugs and Logistics

Drug treatment is vital to any strategy to roll back malaria. Protection and prevention are important, but the morbidity and mortality of malaria in Africa cannot be significantly reduced without effective curative measures.

To date, antimalarial drugs have been cheap, and very affordable to low-income populations. While stock-outs in public health facilities are unfortunate, they are often accepted because cheap antimalarials are readily available in the private sector—even though their quality is often substandard and their use likely to induce resistance. Selecting the most appropriate ACT involves technical discussion, but also raises financing and affordability questions. WHO has reached an agreement with Novartis for differential pricing of Coartem (artemether-lumefantrine) for use by public sectors in malaria-endemic countries. The cost of Coartem to developing countries is US\$ 2.40 per adult treatment. This is much lower than in industrialized countries (US\$ 40), but still high for low-income countries, especially when the scale on which the drug needs to be deployed is considered.

Increasing rates of resistance mean that continuing efforts to control malaria with the low cost drugs currently available is no longer an option. ACTs will have to be made widely

available in both public and private sectors in malaria-endemic regions of the world. To do this, affordability and financing issues will have to be appropriately addressed. Improving affordability raises some important questions including which ACTs should be recommended. Costs and drug use practices must be considered as well as the pharmacotherapeutic viewpoint. Then there is the question of improving affordability and increasing available financing for ACTs in developing countries. These questions can only be answered by an integrated and collaborative approach, involving ministries of health, NGOs, donors, international agencies and consumers (WHO, 2003). Fundamentally, this collaborative approach should ensure availability and affordability of the recommended drug(s) at the facility level.

Also, as part of strengthening our health system for effective malaria interventions, it is crucial to put in place measures like availability of commodities and supplies for malaria control, as well as well equipped laboratories with diagnostics for basic investigations, such as haemoglobinometers, microscopes and Rapid Diagnostic Testkits (RDTs). Utilities such as water, electricity and telephone are also crucial and must be provided in adequately.

2.6 Training of Staff

A variety of in-service training activities had been undertaken since the launch of the new Malaria Drug Policy. These trainings included a national malaria training course sponsored by Novartis Pharma Ltd, provincial and district level trainings organized by the National Malaria Control Centre and the Integrated Management of Childhood Illnesses (IMCI)

programme in Zambia began to train health workers on the use of artemether-lumefantrine. The proportion of health workers receiving any form of training that included artemether-lumefantrine rose from 25% (26/103) in 2004 to 41% (55/135) two years later.(Zurovac *et al*, 2007).

In Ghana, the Ministry of Health (MOH) has since 1987 been organizing in-service training, seminars and workshops for all categories of health personnel, particularly medical assistants (MAs). MAs represent the key therapeutic staff at health centres/posts which form the largest number of health facilities in the country. These facilities are mostly in the rural areas where the majority of the population live and thus serve the largest proportion of the population. The current method of teaching MAs during these in-service training programmes consists of didactic lectures using case histories and case presentations to emphasize issues. Two hours are devoted to the clinical management of malaria. The lecture covers clinical features, diagnosis and treatment including study of severe and complicated malaria, chemoprophylaxis and side-effects of drugs. The important messages include: not every fever is caused by malaria, prompt and adequate treatment is necessary to cure and prevent the selection of resistant strains, e.t.c (Ofori-Adjei, Arhinful, 1996).

2.7 Supervision

Supervision of health care facilities is needed to ensure quality health care. Visits to health centres by supervisors should consist of six primary components: communication, teaching, seeing patients, tour of the health centre, assessing performance, and follow up. Whiles,

effective communication skills between the supervisor and health care workers are needed, good communication is also dependent on the supervisor's attitude. For instance, criticisms, where necessary, should be constructive.

In teaching, information should be based on standard protocols and treatments (Gibson and McClelland, 1990). Seeing patients is the third component of health centre visits; this allows the supervisor to observe daily problems encountered by the staff and to teach workers.

Gibson and McClelland (1990) further point out that a tour of the health centre should be conducted for the purposes of improving the centre. The objective of assessing performance is to identify problem areas which can be improved. Areas of assessment include clinical skills, dispensary, and health education. Data from records can be collected and utilized to demonstrate the centre's effectiveness. At the end of the visit, problems should be identified and actions of improvement should be proposed. Follow up is important to correct deficiencies and problems (Gibson and McClelland, 1990).

Case management of malaria which forms part of malaria control when rigorously supervised and evaluated in conformity with the enumerated standards will lead to improvement in the control programme.

2.8 The Issue of Quality of Care

Quality assessment measures the differences between expected and actual performance so that improvements can be made. Donabedian stipulates that performance standards can be established for most dimensions of quality, such as technical competence, effectiveness, efficiency, safety, and coverage. Where standards are established, a quality assessment will measure the level of compliance with these standards.

For dimensions of quality where standards are more difficult to identify, such as continuity of care or accessibility, a quality assessment describes the current level of performance with the objective of improving it. The assessment is usually the initial step of a larger process and may include providing feedback to health workers on performance, training and motivating staff to undertake improvements, and designing solutions to bridge the quality gap (Donabedian, 1980).

In a quality assessment case study done in Malawi, it was found that, for the management of fever, providers did not adequately take medical histories or perform physical exams to exclude other possible causes of fever before reaching the diagnosis of malaria. The diagnostic process was adequate in only 18 to 42 percent of the cases observed, depending on the type of provider. Prescribed treatment was correct for a given diagnosis in only 71 percent of the cases in which the patient was a child with fever. Moreover, only 53 percent of patients received correct and complete drug therapy (drugs and doses, including frequency and duration) (Lin and Franco, 2000).

Quality of malaria diagnosis and case management is weak because of poor exploration, non-observance of treatment guidelines and reliance on basic signs and symptoms for the diagnosis (WHO, 2003). For the year of 2006, QHP's baseline study in Ghana showed that only 1% of providers were treating malaria appropriately and during midterm evaluation the value had improved to just 13% (Bruce, 2007). If health facilities are doing this bad, we can imagine how poor our home management strategies are.

Such findings, according to Barocochea, raise serious questions about the effectiveness of providing health services through small health units, like health centres. Far greater attention must therefore be directed to focus on the institutionalization of problem-based training, continuous supportive supervision and maintenance of clinical skills and provision of essential drugs, supplies and equipment to ensure that rural health workers (RHW) can provide sound care (Barocochea *et al.*, 1995). Quality of care is frequently measured in terms of how care, provided to patients, compares with care recommended in practice guidelines ([Lawler and Viviani, 1997](#); Schuster *et al.*, 1997; Worrall *et al.*, 1997; Malone and Shaban, 2001). Guideline adherence constitutes desirable behaviour to the degree that adherence is correlated with positive patient outcome (Milchak *et al.*, 2004). If prescribers are convinced that sticking to a set guidelines will lead to recovery of their patients, they are more eager to use them.

CHAPTER THREE

3. METHODOLOGY

3.1 Study Design

A Cross-sectional survey was conducted.

3.2 Study Area

The Dangme West District is one of the two purely rural districts of the Greater Accra Region. The district is divided into four administrative sub-districts:

- Dodowa (Shai)
- Prampram
- Great Ningo
- Osudoku

(District Map Appendix II)

The land is flat and at sea level with isolated hills, like the ancient ‘Shai Hills’ which attracts a lot of tourists. The vegetation is mainly a Coastal Savannah, but a dense thicket with forest type trees, popularly known as the “Dodowa Forest”, also exists. The district has a total population of 120,065 (GHS Annual Report – Dangme West, 2005). There are 4 health centres, one in each sub-district; 8 Community-based Health Planning and Services (CHPs) compounds; 103 outreach sites; 3 private clinics; a Catholic Mission clinic and a private midwife. All these facilities manage malaria cases amongst other conditions.

The study was conducted in all four (4) sub-districts: Dodowa and Prampram (farming communities), Great Ningo and Osudoku (fishing communities).

3.3 Study Population

A sample of records of patients seen and managed (treated) for malaria at the selected health facility between 1 March 2007 and 31 May 2007; all healthcare providers; facility managers; facility equipments and logistics relevant to malaria management, were included in this study.

3.4 Health Facility Selection

- 4 subdistrict health centers (census)
- 2 private/community clinics (simple random sampling: balloting with replacement)
- 1 CHPs compounds (simple random sampling: balloting with replacement)
- the only mission clinic (census)

3.5 Sample size

A sample of existing patients' records was reviewed.

Sample Size Calculation was based on the following:

- i. Percentage of the least factor of interest
Facilities with Quality Assurance Team --75% (December, 2006)
- ii. Population size for 2005 stood at 120,065
- iii. Worst Acceptable Result is estimated at 70% (5% error).

Using the above information in EPI INFO, a sample size of 287 was generated at 95% confidence level. This was rounded up to 300 to make up for default.

3.6 Methods and Tools

The study involved the collection of quantitative data. Four tools were designed and used to collect these data. The tools were:

1. Facility Audit Questionnaire: This questionnaire looked at general issues that affect quality at the facility including staffing and supervision and the availability of standards and guidelines. This questionnaire also looked at the availability of equipment and overall service statistics for the facility. One questionnaire was filled in for each facility.
2. Provider Interview: This questionnaire was used to interview ALL providers present on the day of the assessment who routinely prescribe ACTs. This questionnaire assessed training, knowledge and practice for prescribing. It also reviewed supervision and the availability of guidelines and looked at providers experience with side-effects.
3. Patient Record Review: This questionnaire collected information on the practice of documenting treatment for malaria in each of the facilities in the district for the period March 2007 to May 2007. A total of 300 records were reviewed stratified by population accessing each health centre.
4. Observations: This questionnaire provided a structure for observing how providers diagnose and treat patients presenting with fever in the facility. For each provider who prescribed ACTs, between one and three febrile consultations were observed.

3.7 Protocol for selecting respondents

3.7.1 Records review

The 2005 annual report of malaria case load from the various facilities was used as the basis of apportioning the number of records per facility to be reviewed. For the total of 300 samples, 20%(60) was taken from Dodowa health center; 10%(30) each from Prampram, Old Ningo, and Asutuare health centers; 5%(15) from Osuwem CHPS; and 15%(45) each from St. Andrews (mission), Omari and Ebenezer (private) clinics. A systematic sample of records was taken.

3.7.2 Non participant observation

For each provider present on the day of data collection, a minimum of one and maximum of two febrile consultations were observed.

3.7.3 Provider interview

All providers who manage malaria at the facility and present on the day of data collection, with a maximum of five (5) per facility.

3.7.4 Facility audit

The In-Charge of the Facility was interviewed. In the case of St. Andrews where the in-charge was unavailable for the time of the study, a provider was interviewed, but she could

not answer all questions. The laboratory, pharmacy, consultation area and the general environs of the facility were also assessed.

3.8 Data Processing and Analysis

Double Data Entry in EPIDATA was performed on all data. Data were cleaned and analyzed using SPSS.

Data were analyzed by using descriptive analysis using frequencies and cross-tabulations.

Table 3-1: Nature of Variables Used

Facility Variables	Provider Variables
<ul style="list-style-type: none"> • stock-outs of key drugs • availability of routine laboratory tests at the facility • availability of guidelines and protocols • caseload • staff strength • Availability of supervision • Availability of quality assurance activities at the facility 	<ul style="list-style-type: none"> • Provider training on malaria treatment • Provider practice of prescribing ACTs • Provider ability to diagnose accurately • Supervision • Availability of IPT policy with provider

3.9 Quality Control

Field assistants were trained on the study objectives and how to go about collecting data.

Pre-testing was done at the Kasoa health center in the Awutu-Efutu-Senya District in the Central Region. This was useful in correcting systematic errors, ensuring consistency in flow of questions, and estimating the time taken to answer each questionnaire.

3.10 Ethical considerations

Clearance from GHS ethics review committee was sought. Informed consent from study participants was sought for with assurance of confidentiality, during the study. Because this study presents minimal risk and collects no personal information about clients or providers, verbal informed consent indicated by the signature of the interviewer was solicited. Participants in the research were given information cards with details of who to contact if they have further and future questions.

3.11 Limitations

- Poor Record keeping – in some instances selected records could not be traced in the records pile; other times a documented record with a diagnosis of malaria on a particular date was found not to be a malaria consultation and then there is the issue of records with missing data.
- Inadequate resources in terms of time, finances and transportation.
- Only eight facilities were used for the study and this notably is a small number. However, although it may be limited in terms of extrapolating the findings for the entire nation of Ghana, it is very representative of the Dangme-West district.
- It is possible that provider practice was influenced by the presence of the observer during the non participant observation. To minimize this effect, the observer sat through many consultations and the provider was not aware of which particular consultation was being used for the study.

CHAPTER FOUR

4. RESULTS

4.1 Facility characteristics.

All the four sub-districts in the Dangme-West District, namely Dodowa, Prampram, Osudoku and Great Ningo were involved in the study. The four sub-district health centres, one mission clinic from Dodowa, two private clinics from Prampram and one CHPS compound from Asutuare were used. All the Health centres and the CHPS compound are government owned.

With regard to the category of providers giving care at the facilities, only 1(25%) health center has a medical doctor, two in number. One of the clinics also has two doctors. All health centres except one have medical assistants and one private clinic also has a medical assistant. Two out of the four health centres have public health nurses, the other facilities have none. Apart from one clinic all the other facilities have midwives, numbers ranging between one and four. Only one health centre has a pharmacist and in two of the health centres a dispensing technician is available

All (100%) health centers and the CHPS center have formal meetings to review their work and two out of three clinics (75%) have such meetings. Only two facilities (25%) have a Quality Assurance Team, and these are health centres. Three facilities (37.5%) said they have a Quality Assurance Action Plan, but no plan was seen. 50% of facilities have no

Action Plan. The availability of an Action Plan could not be determined in one facility. Five (62.5%) facilities had had outside supervisory visit within prior six months and two (25%) had had a visit more than six months ago.

Table 4-1: Supervisory activities

Supervisory Activity	% of facilities by type where this was done		
	Health centre (n=8)	CHPS	Clinic
Check Registers	75	0	0
Discuss problems	75	100	50
Discuss policy/administrative issues	50	0	50
Discuss Protocols	25	100	50
Hold Official Meeting	50	0	0
Observe Staff providing services	25	0	50
Other Activity	75	100	0
➤ Bring Equipment			
➤ Help with work at facility			
➤ Inspect Ongoing Project			
➤ Quality Assurance			

Six (75%) of facilities have printed referral forms which were seen. One (12.5%) facility reported it has the form, but it was not seen. Availability of this form could not be determined for one facility.

All (100%) facilities have electricity.

Table 4-2: Alternative to electricity * Facility type

Alternative Energy Source	Facility Type			Total
	Health centre	CHPS	Clinic	
Generator	1	0	1	2 (25.5%)
Rechargeable/Gas lamp	3	0	1	4 (50.0%)
Torchlight	0	1	0	1 (12.5%)
Missing				1 (12.5%)
Total	4	1	2	8

For alternative energy source two (25%) use generators; four (50%) use rechargeable/gas lamps 12.5% use torchlight.

Four (50%) facilities have a functioning toilet for clients and four (50%) have a working phone. Six (75%) facilities were assessed to be clean and two (25%) unclean.

All facilities have copies of the Standard Treatment Guidelines and Treatment protocols in the consulting rooms. Apart from the CHPS centre staff in all facilities have been trained in the use the new drug policy, with maximum number of thirty-four (34) in Dodowa health centre and minimum of two (2) from Ningo and Ebenezer clinic having been trained. Only three (37.5%) facilities have IPT manuals.

The most pressing problem, in the facilities, from the view of the facility managers, included few qualified staff; inadequate staff accommodation; patients' reporting late to the facility; no personnel to man a laboratory; patients not following instructions to medication; poor patient compliance with treatment and poor water supply.

All facilities had Artesunate/Amodiaquine in stock. In the past six months, only one (12.5%) had had a stock-out of Artesunate/Amodiaquine and this was a clinic; no facility had stock-out of S/P, but one (12.5%) health centre had had stock-out of Quinine and another health centre had had stock-out of Antipyretic. All facilities label drugs well for clients and in seven (87.5%) facilities clients are told how to take drugs correctly.

The average waiting time at the pharmacy is less than thirty minutes in all facilities. Total number of workers in pharmacies ranged from one to four and only one (12.5) facility has a pharmacist.

All (100%) keep records for malaria cases but none (0%) separates malaria cases from others. Only three (37.5%) facilities have working labs, one health centre; one private clinic and one mission clinic. All three labs had piped water/veronica bucket; microscopes; haemoglobinometer; reagents for testing for malaria and all these are in working order or adequate. They all work morning and afternoon. Two out of the three laboratories (75%) have haematological analyzers, centrifuge and the labs are well labelled.

Four (50%) facilities see clients in an area before consultation; in six (75%) facilities, weight is routinely taken and recorded. Temperature is routinely taken in seven (87.5%) and

immunization status of children is checked in seven (87.5%) of the facilities. One facility routinely sponges febrile children; six (75%) do not and in 1 facility this was not determined. Six(75%) facilities routinely give first aid medication to patients.

4.3 Clients' records

One hundred and fifty (50%) records were taken from health centres, one hundred and thirty five (45%) from clinics and fifteen (5%) from the CHPS compound. This totalled one hundred and seventy one (57%) females, one hundred and twenty (40%) males and nine (3%) records did not indicate clients' sex. Of the patients, 4.3% were less than one year old, 16.3% between one and four years, 22.7% between five and seventeen years and 55.7% were adults (above seventeen). Three (1%) records showed missing age and in ninety three (31%) records were missing the patient's weight.

Table 4-3: Age categorization

Age	Male	Female	Missing	Total	% of records
Infant (under1)	5	8	0	13	4.3
1-4 years	28	19	2	49	16.3
Older child (5-17 years)	31	33	4	68	22.7
Adult	55	109	3	167	55.7
Missing data	1	2	0	3	1.0
Total	N (40%)	N (57%)	9	300	100.0

Fever is a commonly noted symptom of malaria. One hundred and sixty six (55.3%) records had fever recorded as a symptom and 63.3% of these were diagnosed as malaria, 4.81% as uncomplicated malaria, 1.8% as severe malaria, 16.6% as malaria +anaemia, 10.8% as

malaria +URTI and 13.3% as malaria +other condition. Only twenty three (13.9%) records with fever had warm to touch recorded as a sign; and 56 (33.7%) had temperature above 37.5°C. Twenty (12%) records without fever had warm to touch as a sign. 94.6% of patients with fever were given antipyretic medication.

50.3% records had headache; one hundred and twenty nine (43%) had vomiting/abdominal pain/diarrhoea; twenty six (8.7%) had feeling cold/sweating/rigors; thirteen (4.3%) had fits/unconsciousness/dizziness; seventy seven (25.7%) had poor appetite; fifty three (17.7%) had general body pains. Thus the five most common symptoms of malaria noted from the records are fever, headache, vomiting/abdominal pain/diarrhoea, poor appetite and general body pains.

Seventy five (25%) of records showed pallor as a sign; 7.7% had drowsiness/coma/confusion; 7.7% had jaundice; 0.3% had dark coloured urine and 2% had other sign. Only 134 (44.7%) records showed duration/time of onset of symptoms. Again only 61 (20.3%) records showed request for Blood Film (BF) for malaria parasites (mps). This means that majority of cases diagnosed as malaria are presumptive. 13 (4.3%) records had request for full blood count and 4.3% had other lab tests. 31 (18.7%) of records with fever had request for **BF for mps**, and 18 out of 43 records with warm to touch as sign (41.9%) did **BF for mps**.

Effective treatment for diagnosed cases is crucial for malaria control and analysis of this is a key component of this study. 241 (80.3%) records had artesunate/amodiaquine prescribed as anti-malarial; 13 (4.3%) had co-artinate; 8 (2.7%) had artesunate only; 5 (1.7%) had

chloroquine; 3 (1%) had S/P; and 1 (0.3%) had quinine. 24 (8%) had missing anti-malarial on their records. 18 (6%) of records had injection artemether stat dose in addition to a full course oral anti-malarial.

For those with severe malaria as diagnosis, one (8.3%) were treated with quinine; another one (8.3%) had coartem and three (25%) had artesunate/amodiaquine. For 58.3% the treatment is missing on the records.

277 (92.3%) of patients had antipyretic; 44% had antibiotics and 42% had haematinic. 56.8% of those given antibiotics were diagnosed as simple malaria; 5.3% as severe malaria; 15.2% as malaria and URTI; 3.8% as malaria and anaemia and 18.2% as malaria and other condition. 65.1% of those who had haematinic were diagnosed as simple malaria; 4% as severe malaria; 11.9% had malaria and anaemia; 6.3% as malaria and URTI; and 12.7% had malaria and other condition.

For dosage of artesunate/amodiaquine, only 82 (27.3%) were correct. 55 of these (67.1%) were correct based on the STG but not the AMDP; and 27 (32.9%) were correct based on both the policy and the STG. In 83 (27.7%) it could not be determined if dose was correct or not mainly due to missing data on weight. 28 (9.3%) had dosage prescribed at the pharmacy. 192 (64%) records in all had temperature between 35 and 37.5°C; 76 (25.3%) had temperature above 37.5°C and 31 (10.3%) had no record of patient's temperature.

4.4 Observation results

Observing what happens in the consulting room was hoped to give an idea of what the provider-patient encounter entails. Although it has its own limitations, it serves as a useful supplement to the record review and facility audit. This was done before the provider interview to reduce the influence of the researcher on the provider practice.

A total of sixteen non participant observations were made in the facilities. Five (31%) of the observations were in children under 5 year olds; 69% in above 5 year olds. Only 1(20%) of under 5year olds had their immunization status checked through inspection of child welfare records cards.

Although all the observed clients had fever, the symptom was elicited in 7(43.8%) clients and volunteered by 9 (56.2%). Headache was often elicited (50%). Vomiting/abdominal pain/diarrhoea as a symptom was frequently not mentioned at all (62.5%), likewise feeling cold/sweating/rigors (62.5%) and fits/unconsciousness/dizziness (93.8%) were not mentioned or elicited during the observations. Dark urine colour was never elicited, even during the consultation diagnosed as severe malaria. Other symptoms elicited/volunteered were bitter taste; cough, general body pains, palpitations, eye aches and skin rashes.

Examining patients helps in excluding other conditions that have similar symptoms as malaria. It was evident that most often signs were not checked for. Pallor was checked for in 25% of observations; jaundice (6.2%) and drowsiness/coma/confusion (12.5%). Warm to

touch was checked for in 8 (50%) of clients. No other signs were included in the consultation.

Ten (62.5%) clients were asked about the duration of their symptoms. Treatment protocols were available in consulting rooms for 14 (87.5%) client consultations but none of the providers directly referred to the protocol during the consultation.

Ten (62.5%) providers diagnosed just malaria. Only one diagnosed uncomplicated malaria. Another provider (6.3%) diagnosed severe malaria, 6.3% diagnosed malaria with anaemia and two (12.5%) diagnosed malaria with Upper Respiratory Tract Infection. In 6.3% the diagnosis made could not be determined by observation.

For treatment of the observed cases, ten (62.5%) of the providers prescribed artesunate/amodiaquine; one (6.3%) gave coartem and for five (31.3%), the anti-malarial prescribed could not be determined.

Ten (62.5%) of the observed febrile consultations had an antipyretic prescribed. This prescription could not be determined for six (37.5%) consultations. Four (25%) had a haematinic prescribed and one (6.3%) had antibiotic prescribed. Here again, one (6.3%) had injection artemether prescribed in addition to artesunate/amodiaquine. This agrees with the proportion of records having this prescription.

Only one observed client (6.3%) was counselled on the diagnosis made. Two (12.5%) were counselled on how to take the medication prescribed, four (25%) were counselled on coming for review but none was counselled on disease prevention. Two (12.5%) were given some other counsel, “to eat and take sweet drinks with medication” and “to eat well before taking the medication”.

On logistics in consulting rooms, eight (50%) had thermometers, five (31.3%) had a weighing scale, nine (56.3%) had an antipyretic, seven (43.8%) had an emergency tray, fourteen (87.5%) had water and same proportion had a copy of the treatment protocol in their consulting room.

4.5 Provider results

Thirteen providers were interviewed. Two (15.4%) of these were doctors; three (23.1%) were medical assistants, two (15.4%) are midwives and six (46.2%) are nurses. Four (30.8%) were male and the rest were female.

Only one provider (7.7%) routinely asks for a blood film for malaria parasites, and none routinely asks for Haemoglobin status.

On the factors that influence the providers’ request for laboratory investigations, two (15.4%) – one doctor and one medical assistant- mentioned fever; one (7.7%) each mentioned age of client and fits/coma/confusion; none mentioned vomiting nor duration of

symptoms; 6 (46.2%) mentioned relapses and twelve (92.3%) mentioned other factors, notable amongst them being “indefinite history”- six (46.2%).

For factors influencing the choice of anti-malarial, eight (61.5%) mentioned Standard Treatment Guidelines; five (38.5%) mentioned relapses; four (30.8%) mentioned treatment protocols; three (23.1%) each mentioned age of patient, disease severity and pregnancy status; one (7.7%) each mentioned patient’s choice, treatment cost and side effects; two (15.4%) mentioned other factors like “vomiting” and “inspiration from God”. None mentioned pharmaceutical agents as an influential factor.

Two (15.4%) said the dosage of anti-malarial they prescribe is influenced by patient’s age and one (7.7%) said side effects of drugs. All mentioned weight but none mentioned treatment cost as factors influencing dosage. One mentioned other – “patient’s diet”.

Twelve (92.3%) providers wrote down their diagnosis and one (7.7%), a medical assistant, said she does not always write it down. Ten (76.9%) providers routinely ask patients to come back for review. On what counselling is given to patients, one (7.7%) mentioned counselling on the disease, four (30.8%) mentioned disease prevention and seven (53.8%) mentioned taking drugs correctly.

Concerning commonly reported side effects of anti-malarial, five (38.5%) providers mentioned weakness, four (30.8%) mentioned dizziness, two (15.4%) each mentioned vomiting and fits/confusion/coma and one (7.7%) each mentioned palpitations, restlessness

and numbness. Six (46.2%) mentioned other side effects like abdominal pain, itching, swollen face, red eyes, headaches and sweating. None mentioned protruded tongue.

All providers interviewed had knowledge of the new anti-malarial drug combination therapy. Two (15.4%) first heard of it from radio, two (15.4%) from television and nine (69.2%) from other sources including “at work”, “at a workshop” and “from the anti-malarial booklet”. Ten (76.9%) had been trained with the introduction of the policy. Nine (69.2%) said they have copies of the STG. Nine (69.2%) also said they had learned that the combination is more effective.

Reasons for not always prescribing the combination included personal experience and experience of patient. Other anti-malarial sometimes prescribed by two (15.4%) providers was chloroquine.

Eight (61.5%) provider feel they need additional training to manage malaria, three (23.1%) need the training in diagnosis, two (15.4%) said they need additional training in treatment and one (7.7%) need training in prevention.

Seven (53.8%) providers rated the new policy as very effective, four (30.8%) as effective and two (15.4%) as effective but with side effects. Eleven (84.6%) want it continued and two (15.4%) want it modified. Some comments made by the providers are: “the dosage is too strong”; and “the dosage of new drugs should be reviewed to reduce side effects”.

Derived results

Within the context of the stated specific objectives, various variables were computed to aid in assessing the quality of care. Tables 4-4, 4-5, 4-6 and 4-7 are summaries of these variables and how they were defined for the derivations.

Table 4-4: Quality of Care Variables (I) Distribution among Facilities

Type of facility	% of records with good history ¹	% of records with adequate clinical diagnosis ²	% of records with adequate management ³	% of records with appropriate management ⁴
Health centre	49.3	55.3	43.3	0.7
CHPS	80.0	33.3	33.3	0.0
Clinic	51.9	19.2	12.6	8.1
Total	52.0(n=300)	38.0 (n=300)	29.0 (n=300)	4.0 (n=300)
p value	>0.05	<0.001	<.001	<0.005

¹ Fever and any other symptom noted on the record.

² Good history and at least one sign noted on the record.

³ Adequate clinical diagnosis and given artesunate /amodiaquine as treatment .

⁴ Adequate clinical diagnosis and given artesunate /amodiaquine as treatment, and lab investigation done .

Table 4-5: Quality of Care Variables (II) Distribution among Facilities

Type of facility	% of facilities keeping adequate drug stock ⁵	% of facilities with adequate logistics ⁶	% of facilities with adequate supervision ⁷	% of providers well trained to manage malaria ⁸
Health centre	75.0	25.0	75.0	75.0
CHPS	100.0	0.0	0.0	100.0
Clinic	66.7	66.7	33.3	75.0
Total	75.0 (n=8)	37.5 (n=8)	50.0 (n=8)	77.0 (n=13)
p value	>0.5	<0.5	>0.05	>0.5

⁵ Facility has artesunate/amodiaquine in stock and hasn't had stock out in past 6 months.

⁶ Facility keeps adequate drug stock and has a lab to test for malaria.

⁷ Facility has bi-monthly, monthly or quarterly formal meetings to review work and has received outside supervisory visit.

⁸ Provider has knowledge of new anti-malaria policy and has received training on its use.

Table 4-6: Quality of Care Variables (III) Distribution among Facilities

Type of facility	% of records where lab utilization ⁹	% of records where provider adheres to ACTs ¹⁰	% of providers with adequate management of malaria during observation ¹¹	% of providers giving a good clinical diagnosis during observation ¹²
Health center	2.0	79.3	90.0	20.0
CHPS	0.0	100.0	100.0	0.0
Clinic	33.3	76.3	100.0	0.0
Total	16.0 (n=300)	79.0 (n=300)	93.7 (n=16)	12.5 (n=16)
p value	<0.001	>0.05	>0.05	>0.05

⁹Record is from a facility with a laboratory and if either Blood Film for malaria parasites or Rapid Diagnostic test was requested.

¹⁰Record has malaria (alone or plus other condition) as diagnosis and treatment is an ACT.

¹¹Adequate clinical diagnosis observed, artesunate/amodiaquine prescribed and some counselling given.

¹²Fever and other symptom elicited, and one clinical sign checked for during observation.

Below is a representation of how the level of provider training in the facilities affects various variables:

Table 4-7: The Effect of the Presence of a Doctor in Facility on Management variables

	% of records where lab diagnosis used ⁹	% of records where provider adheres to ACTs ¹⁰	% of records with adequate management ³
Doctor present	70.8	26.0	43.7
Doctor not present	29.1	60.8	56.3
Total	16.0 (n=300)	91.0 (n=300)	29.0 (n=300)
p value	<0.005	<0.001	<0.05

Table 4-8: Service Statistics - Dec 2006 – May 2007

Facility	Under 1	Under5	Total malaria(A)	Total OPD (B)	% of cases that are malaria in the OPD - overall
Asutuare HC	51	173	711	2273	31.3
Prampram HC	62	265	1191	2352	50.6
Ningo HC	152	401	1439	2928	49.1
Dodowa HC	284	903	1876	7406	25.3
St Andrews Clinic	71	266	855	2089	40.9
CHPS	11	50	147	531	27.7
Ebenezer Clinic	82	351	1352	2163	62.1
Total	713	2409	8571	19742	43.4

NB: data for Omari Clinic not available

Table 4-9: Staff Strength

Facility Type	Doctors	Medical Assistants	Nurses	Total Providers	Total malaria	Case load /provider/ month
Health centre	2	4	65*	17	5217	102.3
CHPS	0	0	2	2	147	24.4
Clinic	2	2	10*	9	2207	81.7
Total	4	6	77*	28	8571	102.0

* Not all of these are providers or see to OPD patients.

CHAPTER FIVE

5. DISCUSSION

5.1 Statistics

In all, seven of the facilities involved in the study saw a total of 8571 cases of malaria over the period of March 2007 to April 2007 and this formed 43.4% of all out-patient visits. This is rather high for a three month period since for the year 2005, malaria formed 51% of all out-patient visits. It must however be borne in mind that the first rainy season occurs within the stated period and thus contributed to the burden. The under-five year olds affected by malaria constituted approximately 28% of the overall cases. Dodowa Health Centre saw the highest number of cases and the CHPS compound in Osudoku saw the least. In terms of proportion of out-patients however, the highest is from Ebenezer Clinic. This could be attributed to the fact that Dodowa is the largest facility (soon to be made the district hospital) and thus sees a varied array of disease conditions.

5.2 Efficiency of Diagnosing Malaria

5.2.1 Clinical Diagnosis

Clinical diagnosis offers the advantages of ease, speed and low cost (WHO, 2003). Malaria is termed a febrile illness, and it is evident from the records review that 55.3% of patients diagnosed as having malaria, report with a history of fever. Also, it was observed that fever was elicited from or volunteered by 87.5% of patients.

In areas where malaria is endemic, it usually results in all patients with fever and no other apparent causes of malaria being treated for malaria. However, since there are a host of conditions that present as fever, it is important to find out other symptoms which will help the provider make a good diagnosis of malaria. From the results the four most common symptoms apart from fever are headache, vomiting/abdominal pain/diarrhea, poor appetite and general body pains. It must be pointed out however that each of these symptoms or a combination of them, alone, does not conclusively mean a patient has malaria. They can only be said to highly suggestive of malaria.

Diagnosing malaria is further enhanced by eliciting signs that either confirm the symptoms (e.g. taking temperature in a patient who complains of fever) or to rule out other possible causes of fever (e.g. examining the respiratory system to rule out respiratory tract infection). Unfortunately only 13.9% of records with fever had warm to touch as a sign, and although 55.3% had fever, only 25.3% had temperature greater than 37.5° C. This is in tandem with the observation in which all clients had fever, and warm to touch was checked for in 50%.

It is obvious from the observation results that most providers do not routinely examine their clients. This perhaps is due to the work load they have daily. This however needs to be addressed to ensure that clients get the maximum benefit from a consultation. This way, anomalies which the patient may not yet be aware of could be detected early for prompt remedy.

Overall, a good history was taken for 52% of clients but adequate clinical diagnosis (involving some examination of patient) was made in only 38%. However only 38% of records showed adequate clinical diagnosis, with the health centres being the best at doing so. Clinical diagnosis of malaria in as much as it is presumptive and in our hyperendemic situation very much acceptable, should be made as accurately as possible in order to avoid misdiagnosis that eventually translates into mismanagement of the patient.

5.2.2 Laboratory Diagnosis

There are various ways of diagnosing malaria in the laboratory such as Blood Film for malaria parasites and Rapid Diagnostic Test (RDT), amongst others. Laboratory investigations allow us to know for sure, i.e. confirm, the diagnosis of malaria. However, lack of infrastructure makes this impossible as a routine. Basic laboratories to test malaria (B/f for in parasites) were found in only three (32.5%) of the facilities – one government health centre, one privately owned clinic and one mission clinic. This suggests that 63.5% have to rely on presumptive clinical diagnosis. Interestingly, BF for mps is not always requested in the facilities with laboratories. From records, only 20.3% showed a request for Bf for mps and laboratory utilization among the facilities with laboratories is 16% provider routinely requests for the laboratory examination.

Factors that influenced providers' request for laboratory investigation included relapsed malaria, indefinite history and a history of fever. Perhaps the unwillingness of providers to routinely or often request for laboratory investigation to confirm malaria is because of the

hyper-endemicity of malaria in our environment, the fact that sometimes one may have malaria in the absence of parasitaemia and possibly the economic cost of the investigation to the patient.

None of the facilities is currently doing RDT as routine laboratory investigations or any other investigation such as trophozoites count.

5.3 Treatment

Evidence based effective treatment of malaria is ACT and in Ghana, the new AMDP (2004) states that we use Artesunate-Amodiaquine. Whereas Artesunate–Lumefantrine/other may pass for effective treatment of malaria, no studies have been done in the Ghanaian setting to satisfy their usefulness in treating malaria. 80.3% of patients had Artesunate/amodiaquine prescribed although only 27.3% had correct dosage of the drug combination. In 27.7% of cases, the dose cannot be determined to be correct or not largely because of the absence of the patient’s weight on the record. Without the record of weight, it is highly probable that the doses will not be accurate since one wonders what the basis was in deciding the dose.

It was observed that ten (62.5%) of providers prescribe ACTs without referring to treatment protocols that are supposed to be a guide for effective treatment, although in reality they are not because of the problems associated with them. Although there may be some problems associated with the protocols in the consulting rooms (CR), it is important for the charts to be used as reference for dosage prescription. This will help in the determination of whether in the presence of appropriate treatment charts providers will refer to and use them.

Five (1.7%) records patients were treated with chloroquine, which has been proven to be ineffective as far treating malaria in Ghana is concerned. Perhaps some patients are still asking for the drug because to them 'it works', or some providers have specific conditions under which they would still prescribe chloroquine.

Interestingly, providers are not treating severe malaria with the drug of choice with regards to the AMDP, which is Quinine. Only one (8.3%) was treated with quinine and 25% had artesunate/amodiaquine whilst for 58.3% of severe malaria cases the treatment given is not stated on the records. Some providers have expressed fears about the use of quinine and lack of experience with its use. Perhaps patients with severe malaria are also referred to hospitals which happen to be outside the district. It is however disturbing to find as much as seven records have missing treatment. One is left to wonder what treatment they were given.

From the records, all patients diagnosed as malaria with anaemia were prescribed haematinics. Of those diagnosed as simple malaria 65.1% and 4% of those with severe malaria were also prescribed haematinics. This may be useful and perhaps is based on the knowledge that anaemia is a common complication of malaria.

Again, 56.8% of patients diagnosed as simple malaria and 3.8% of those with severe malaria were given antibiotics. This may perhaps be due to the belief of some providers that malaria lowers the immune status and thus patients need to be covered for any opportunistic

infections. This must however be done with the risk of inducing antibiotic resistance in mind.

5.4 Availability of supplies and equipment

A well equipped facility (in terms of manpower and logistics), is crucial in ensuring an acceptable level of quality of management of any disease condition. In the absence of that people lose faith in the facility and resolve to other means of relieving their ailments.

All the facilities had Artesunate/Amodiaquine in stock. Patients prescribed the medication therefore have access to it (assuming they could afford it if they were not insured). The unavailability of the drugs especially for the insured could have led to prescription of alternatives, but this was not the case. The supply of the drugs also appears constant since over the past six months, only one facility had had stock-out of artesunate/amodiaquine. The other ACTs, that is Coarinate (Artesunate/S/P) and Coartem (Artesunate/Lumefantrine) were present in only four (50%) of facilities. This could be due in part to adherence to the ADMP, which was 91% in all, and also due to the cost of these drugs. It is also interesting to note that although Ghana is moving away from the use of Chloroquine in the treatment of malaria, three (37.5%) facilities had the drug in stock. Perhaps it is only from January 2008, when production and importation of Chloroquine will be banned that we can expect not to find the use of Chloroquine to treat malaria in the country. Also, Quinine was available for treatment of complicated malaria in only four (50%) facilities.

Only three (37.5%) have functional laboratories. This is an important aspect malaria management which must be provided. Rapid Diagnostic Test Kits are easy to use, even where there are no laboratories and this will help reduce misdiagnosis. One health centre is in the process of acquiring a laboratory, through the benevolence of a foreign researcher who did some work in the facility. Another health centre has a lab but has no personnel to man it so it is temporarily closed down.

During the observation, 50% of providers had thermometers in their CR. Unavailability of this does not allow the provider to verify temperature of patients, especially where clients are not seen in an area prior to consultation, or where confirmation of a specified temperature is necessary. Only five (31.3%) had weighing scales although none was observed using them. 56.3% had an antipyretic in the CR and only 43.8% had an emergency tray. A patient could present with a high temperature of fits and so these two are quite important to have within the reach of the provider. 87.5% providers had water for handwashing and same proportion had copies of treatment protocols. Only 37.5% of facilities have adequate logistics and this is likely to affect the quality of care.

In terms of utilities all the facilities have electricity. This is good. However in the phase of the current electricity crisis, the need for a reliable alternative cannot be overemphasized. Only two (25%) facilities have working generators, with the rest having to rely on rechargeable or gas lamps and torch lights. This has the potential of interrupting service delivery especially in the night. For some of the facilities, staff live off the premises and patients have to call them from their homes in the night for care.

Piped water is available in all the facilities except the CHPS compound.

Communication is also important when it comes to working at night and also in respect of referrals. The WHO Expert Committee recommends that, in general, referral systems should be strengthened to ensure that referred patients receive prompt care at facilities with more specialized facilities (WHO, 2003). Referrals are better facilitated when the referring facility pre-informs the receiving facility so it can prepare to manage the patient. Also patients are saved the delays that arise because the facility they are referred to do not have the capacity to receive them. However, only 50% of facilities have access to a working phone. Some facilities have phones that have not been working for a long time. Staff usually have to use their personal phones to facilitate activities at the facility.

Satisfactorily all the facilities have copies of the STG and treatment protocols in the CRs. The major problem with these protocols is that they do not conform strictly to the AMDP. There are wide variations from the required dose of Artesunate/Amodiaquine, and this is probably due the range of weights used in the charts. The ranges of weights are so wide that some patients end up with too much and others too little of drug to take compared to what they should have going by the AMDP.

5.5 Training

Staff working in the district range from doctors, nurses (enrolled, community/public health), midwives, medical assistants, pharmacists, dispensing technologists, laboratory technicians,

laboratory assistants, medicine counter assistants, etc. all these have roles to play to help the patient with malaria who visits the facility for care. There were only four doctors in the district. Other categories of staff thus contribute greatly to the management of cases, and these are mainly nurses, midwives and medical assistants.

77% of providers interviewed are well trained to manage malaria. These have knowledge of the new AMDP and have received one form of training or the other with regards to its use. The rest of providers at least have some knowledge of the policy.

A comparative analysis of the differences in adequate management shows that there is a significant reduction in adequacy of management where there are no doctors compared to where there are doctors at significance level of $p < 0.05$.

5.6 Supervision

Work in our health facilities must be supervised regularly and measures put in place to ensure that facility is able to fulfil its role in healthcare. In as much as the provider should be given the room to operate without unnecessary interference, facilitative and supportive supervision will achieve the best results. Almost all facilities except two clinics (25%) have formal meetings to discuss work at the facility. Such meetings hopefully will address shortcomings e.g. if there are frequent stock outs of drugs or other logistics, or help direct public education if patients are noted to be reporting late to clinics or not completing their

treatment or taking their drugs wrongly. At such meetings too providers can be updated on current management practices as far as malaria (and other conditions) are concerned.

Unfortunately only 25% of facilities have Quality Assurance Teams, and even these do not have regular meetings to develop action plans. Three (37.5%) said they have Quality Assurance Plans but even these were not available to be seen. Healthcare involves standards and these must be seen to be known and adhered to. These Action plans when available serve as a basic guide upon which the quality of care can be assessed.

Five facilities (62.5%) had had outside supervisory visit within six months prior to study, and 25% had had one such visit in more than six months prior to the study. Some of the activities carried out during such visits included discussing problems, discussing policy/administrative issues, discussing protocols/practices and observe staff amongst others. However from the computation, only two (25%) facility have adequate supervision. This is not encouraging. Supervisory visits should be clearly distinguished from other visits and well planned.

5.7 Missing data

Clients' records are very important source of health data and the only way one can tell what has transpired with regards to management of a patient. It informs others about the care a

client has or is receiving. It is therefore necessary to make it as complete and representative as possible.

Important demographic information such as age and sex must be stated. 3% records had no sex stated and 1% had no age. Little as these may seem they may be records of clients whose data might significantly affect some result of interest. As far as this study is concerned record of weight was crucial since dosage is largely based on weight of client. Thus having as many as ninety three (31%) records not indicating weight is not commendable. Perhaps providers are using size of patients as an estimate of their weight or they use their ages to determine the dosage of drug.

For twenty four (8%) records there is no record of what treatment they had for their condition. If any of these had a relapse it is possible he or she would have the same drug treatment especially if he or she sees a different provider on the second occasion.

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusion

A total of 43.7% out-patient visits are diagnosed as malaria, with 28% being children under five years. The case load per provider per month was one hundred and two.

A diagnosis of malaria at the district health facility is mostly presumptive i.e. based on clinical suspicion. Adequate clinical diagnosis was found in 38%.

Although laboratory investigation confirms malaria, only few facilities have laboratories to do this. Unfortunately where laboratories exist, only few patients are sent to the laboratory to have the diagnosis of malaria confirmed.

Most facilities have artesunate/amodiaquine in stock and are using it treating simple malaria in line with the new AMDP and STG. The problem however lies with the treatment protocols or charts in the consulting rooms. It appears the weight ranges on the charts used for the dosages are too wide, making a good number of patients go home with the wrong dosage of treatment. Providers are also not treating severe malaria with quinine as required of them.

In all, adequate management was found in only 29% of records with appropriate management being 4%.

6.2 Recommendation

- There is the need for more training of providers to enhance adherence to the national policy and the use of artesunate/amodiaquine for simple malaria.

- The STG needs to be reviewed alongside the treatment protocols in the CRs of our facilities. It is appreciated that due to the drug formulations available, ranges will have to be used in guidelines or protocols. However the ranges should be as narrow as possible to stay within correct dosages for different weights.

- As we roll out the use of Chloroquine, efforts should be stepped up to ensure that the drug is not manufactured or imported, and that our facilities do not stock and use it.

- There is the need for the provision of more laboratories in the public facilities. RDTs are easy to use and they should be provided where well equipped laboratories are not available.

- Quality Assurance Teams are essential and all facilities must put these in place to enhance provision of quality healthcare. They should exist not just in name but in practice with well tailored action plans and regular review sessions to monitor activities.

- Supervision of work in our facilities should be improved.

- The Dangme-West district needs a hospital and efforts should be stepped up to upgrade the Dodowa health center into a hospital as is now intended.

- Also more doctors should be encouraged and motivated to work in the district since the results show that the presence of doctors in a facility significantly improved adequacy of management of patients.

- Providers must be continually reminded of the need for accurate and elaborate documentation of their work.

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APPENDIX

APPENDIX I: Study Tools

Patient's Records Review Checklist – Dangme West

Consent / General Information

FOR OUTPATIENT SERVICES: FIND THE MANAGER OR MOST SENIOR HEALTH WORKER RESPONSIBLE FOR **OUTPATIENT SERVICES** WHO IS PRESENT AT THE FACILITY. INTRODUCE YOURSELF AND READ THE FOLLOWING:

I am a student of the school of Public Health of the University of Ghana, Legon. In doing my MPH dissertation, I am collecting information on how uncomplicated malaria is managed at health facility level in the district. This information will be useful to the facility and DHMT in planning your health service delivery. This part of the survey will review records of patients seen and managed as uncomplicated malaria. It will take between 1-2 hours to complete. All information from this survey is confidential and using any records for this survey is voluntary. No names of patients will be collected. You can refuse to let me use any record. I am asking for your help to ensure that the information collected is accurate. If there are sections where someone else is the most appropriate person to provide information, I would appreciate your introducing me to that person. If you need more information about this study you can contact the people on this card.

Do you have any questions for me?

Can we begin now ?

100

SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT

FILL IN THIS FORM ONE TIME ONLY

FACILITY IDENTIFICATION

<p>Name of Region: _____</p> <p>Name of District: _____</p> <p>Name of sub-district _____</p> <p>Name of the facility _____</p> <p>Type of Health Facility : (1= Hospital; 2 = Health Centre;;3=CHPS; 4= clinic; 5= Maternity home; 6= Other _____)</p> <p>Operating Authority: 1= Government; 2 = Quasi-government 3 = Non-governmental organization 4= Mission/Religious 5 = Private for profit 6 = Other _____)</p>	<p>REGION CODE <input type="text"/> <input type="text"/></p> <p>DISTRICT CODE <input type="text"/> <input type="text"/></p> <p>SUBDISTRICT CODE <input type="text"/> <input type="text"/></p> <p>FACILITY CODE <input type="text"/></p> <p>FACILITY TYPE <input type="text"/></p> <p>OPERATING AUTHORITY <input type="text"/></p>
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101	Record identification	ID Code <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>				
102	Date of Consultation <hr style="width: 80%; margin: 0 auto;"/> DAY / MONTH / YEAR MISSING 99					
103	Does the record note the following symptoms?	YES(1)	NO(2)			
	a. fever	1	2			
	b. headache	1	2			
	c. vomiting/abdominal pain/diarrhea	1	2			
	d. feeling cold/sweating/rigors	1	2			
	e. poor appetite	1	2			
	f. fits/unconsciousness/dizziness	1	2			
	g. general body pains	1	2			
	h. other (specify).....	1	2			
104	Does the record have the following signs of malaria?	Yes(1)	No(2)			
	a. warm to touch	1	2			
	b. pallor/ pale	1	2			
	c. drowsiness/coma/confusion	1	2			
	d. jaundice	1	2			
	e. dark coloured urine	1	2			
	f. other (specify)	1	2			
105	Does the record show duration of symptoms?	1	2			
106	Does the record have any of the following laboratory investigations?	YES	NO			
	a. Blood film for malaria parasites (BF for mps)	1	2			
	b. Full blood count or haemoglobin (FBC)	1	2			
	c. Rapid Diagnostic test (RDT)	1	2			
	d. Other (specify).....	1	2			
107	Does the record have any of the following drug treatment?	YES	NO			
	a. antimalarial	1				
	amodiaquine only	2				
	artemesunate only	3				
	artemesunate/amodiaquine	4				
	chloroquine	5				
	S/P	6				
	Coarinate	7				
	Coartem	8				
	Quinine	9				
	Other (specify)	MISSING ANTIMALARIAL 99				
	b. Antipyretic	1	2			
	c. Antibiotic	1	2			
	d. Haematinic	1	2			
	e. Other	1	2			
	Specify					

108	What is the sex of the record owner (patient)? Male=1; Female=2 Missing=99	Male	1	
		Female.....	2	
		Missing.....	99	
109	What is the age of the record owner in years?	Infant (<1)	(1)	
		Under 1-4	(2)	
		Older Child (5-17)	(3)	
		Adult	(4)	
		MISSING	99	
110	What is the weight of the record owner (to the nearest whole number)	_____ KG (999=Missing)		
111	What dose of anti-malarial in Q107A was prescribed?	Correct	Not Correct	Don't Know
	A. Artesunate only 100mg twice day, 50mg twice day2-day5	1	2	9
	B. Amodiaquine 10mg/kg body weight daily for 3 days	1	2	9
	C. Artesunate/amodiaquine 4/10mg/kg body weight daily for 3 days or as stated in Standard Treatment Guideline(STG)	1	2	9
	C. S/P 500mg/25mgtablets, 3 stat	1	2	9
	D. Coartem (>35kg, 4tabs twice daily * 3days)	1	2	9
	E. Co- Arinate 1 tab each daily * 3days	1	2	9
	F. Chloroquine 600mg days 1&2; 300mg day 3	1	2	9
	G. H. I. J. K. L. Quinine 600mg 8 hourly for 7 days (adults) and 10mg/kg 8 hourly for 7 days (children)	1	2	9
	G. H. I. J. OTHER _____	1	2	9
		NOT APPLICABLE	8	

	What was the actual prescription _____ (antimalarial)	
112	What is the diagnosis on the record?	
	a. malaria b. Malaria (uncomplicated) c. Malaria (severe) d. malaria+ anaemia e. malaria + URTI h. Malaria+Other(specify)	1 2 3 4 5 6 MISSING (99)
113	What is the temperature on the record Less than 35 ⁰ c 35.0-37.5 ⁰ c more than 37.5 ⁰ c	1 2 3 MISSING (99)
114	If severe malaria was patient referred?	YES(1) NO(2) N/A(9)

COMMENTS:

**Provider Interview Questionnaire
Dangme West District**

Instructions: Interview all providers at the facility who provide curative care services. At a minimum interview the person in-charge and a nurse.	
	<p>INTERVIEWER: INTRODUCE YOURSELF TO THE PROVIDER./ CONSENT</p> <p>I am a student of the school of Public Health of the University of Ghana, Legon. In doing my MPH dissertation, I am collecting information on treatment of uncomplicated malaria with respect to the new anti malaria policy in the district. This information will be useful to the facility and DHMT in planning your health service delivery.</p> <p>All information from this survey is confidential and participation in answering questions for this survey is voluntary. You can refuse to answer any question or all the questions. I am asking for your help to ensure that the information collected is accurate. If you need any further information please feel free to contact the people on this information sheet.</p> <p>Do you have any questions for me?</p> <p>Can we begin now?</p>
100	SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT

FACILITY IDENTIFICATION	
Name Of Region _____	REGION CODE <input type="text"/> <input type="text"/>
Name of District: _____	DISTRICT CODE <input type="text"/> <input type="text"/>
Name of the sub-district _____	SUBDISTRICT CODE <input type="text"/> <input type="text"/>
Name of facility _____	FACILITY CODE <input type="text"/> <input type="text"/>
Type of Health Facility : (1= Hospital; 2 = Health Centre;; 3= CHPs 4= Clinic; 5= Maternity home; 6= Other _____)	FACILITY TYPE <input type="text"/>
Operating Authority: 1= Government; 2 = Quasi-government 3 = Non-governmental organization 4= Mission/Religious 5 = Private for profit 6 = Other _____)	OPERATING AUTHORITY <input type="text"/>
Date: <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DAY / MONTH / YEAR	
Name of the interviewer _____	INTERVIEWER CODE <input type="text"/> <input type="text"/>

Provider Information	
Provider category*: (1=Doctor; 2=Medical Assistant; 3=Nurse; 4= Midwife; 5= Community Health Officer; ; 6=other (specify_____)	PROVIDER CATEGORY <input type="checkbox"/>
Sex of Provider: (1=male; 2=female)	SEX OF PROVIDER <input type="checkbox"/>
Provider Code (start numbering the interviews at each facility with one and continue until you have interviewed all the providers who treat for malaria at the facility)	PROVIDER CODE <input type="checkbox"/> <input type="checkbox"/>

NO.	QUESTIONS	CODING CLASSIFICATION	GO TO
1.Provider Training and Experience			
101	Do you personally provide care for clients with malaria?	YES..... 1 NO..... 2	→END
102	In what year did you start working in this facility?	YEAR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
103	What is your current technical qualification?	MEDICAL OFFICER 10 MEDICAL ASST 20 NURSE 30 MIDWIFE 40 COMMUNITY HEALTH NURSE.. 50 OTHER..... 96	
104	What year did you graduate with this qualification?	YEAR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE SERVICES YOU PROVIDE HERE IN RELATION TO MALARIA

2. MALARIA - PRACTICE			
201	Do you routinely ask for blood film for malaria parasites	Yes.....1 No.....2	
202	Do you routinely ask for haemoglobin check	Yes.....1 No.....2	
203	What factors influence your request for lab tests in patients you suspect have malaria (tick as mentioned)....Don't probe	MENTIONED(1)	NOT MENTIONED(2)
	a. fever	1	2
	b. vomiting	1	2
	c. fits/coma/confusion	1	2
	d. age	1	2
	e. duration of symptoms	1	2
	f. relapses	1	2

	g. other (specify)	1	2
204	What drugs do you usually prescribe for malaria	MENTIONED(1)	NOT MENTIONED(2)
	a. amodiaquine	1	2
	b. artesunate	1	2
	c.artesunate+ amodiaquine	1	2
	d. chloroquine	1	2
	e. artesunate +S/P	1	2
	f. Coartem	1	2
	g. Co-Arinate	1	2
	h . Quinine	1	2
	i. Other (specify)	1	2
205	What factors influence your choice of antimalarial drug? (don't probe, tick as mentioned)	MENTIONED(1)	NOT MENTIONED(2)
	a. age	1	2
	b. patient's choice	1	2
	c. standard treatment guidelines	1	2
	d. available protocols/ charts	1	2
	e. side effects	1	2
	f. cost of treatment	1	2
	g. pregnancy status	1	2
	h. severity	1	2
	i. relapses	1	2
	j. pharmaceutical agents	1	2
	k. other (specify)	1	2

206	What factors influence your dosage of drugs? (don't probe, tick as mentioned)	MENTIONED	NOT MENTIONED
	a. age	1	2
	b. weight	1	2
	c. cost of treatment	1	2
	d. side effects	1	2
	e. standard treatment guidelines	1	2
	f. available protocols / charts	1	2
	g. other (specify)	1	2
207	Do you routinely write down your diagnosis	Yes.....1 No.....2	
208	Do you ask the patient to come back for review	Yes.....1 No.....2	
209	What do you counsel your patient on?(Don't probe)	MENTIONED(1)	NOT MENTIONED(2)

	a. the disease	1	2	
	b. prevention	1	2	
	c. how to correctly take drugs	1	2	
	d. other (specify)	1	2	
210	When people are given the drug, do they come back still feeling sick or with complaints. (adverse effects)?	Yes.....1 No.....2 →213		
211	What side effects of antimalarials do clients complain of? (DON'T PROBE)	MENTIONED(1)	NOT MENTIONED(2)	
	a. dizziness	1	2	
	b. palpitation	1	2	
	c. vomiting	1	2	
	d. restlessness	1	2	
	e. protruded tongue	1	2	
	f. numbness	1	2	
	g. worsening of symptoms	1	2	
	h. fits/confusion/coma	1	2	
	i. weakness	1	2	
	j. others (specify).....	1	2	
212	How do you take care of reported adverse reactions?	YES(1)	NO(2)	
	a) fill adverse drug reaction form	1	2	
	b) record in a book	1	2	
	c) manage the adverse reaction and discharge when well	1	2	
	d) stop medication	1	2	
	e) other (specify).....			
213	What dose of anti-malarial mentioned in 204 do you prescribe? DON'T PROBE	Correct	Not Correct	Not Applicable
	A. Artesunate only... 100mg twice day1, 50mg twice day2-day5	1	2	8
	B. Amodiaquine 10mg/kg body weight bid for 3 days	1	2	8
	C. Artesunate/amodiaquine 4/10mg/kg for 3days or as stated in Standard Treatment Guidelines			
	D. S/P 500mg/25mg tablets, 3 stat	1	2	8
	E. Quinine 600mg 8 hourly for 7 days (adults) and 10m/kg 8 horuly for 7 days (children)	1	2	8
	F. Co-arinate 1tab each daily * 3days	1	2	8
	G. Coartem (>35kg, 4tabs twice daily * 3days)	1	2	8
	H. Chloroquine 600mg for days 1&2; 300mg on day 3	1	2	8
	I. OTHER _____	1	2	8
	9...other dose of drugs A-H, SPECIFY			
3. NEW ANTI- MALARIA THERAPY				

NO.	QUESTIONS	CODING CLASSIFICATION	
301	Do you know of the new antimalarial drug therapy, Artesunate-Amodiaquine introduced by the Ministry of Health?	YES.....1 NO.....2	
302	Where did you first hear it from?	RADIO.....1 TELEVISION.....2 NEWS PAPER.....3 NEIGHBOUR/FRIEND.....4 OTHER (SPECIFY).....5	
303	Did you receive any training with the introduction of this policy?	YES.....1 NO.....2	
304	Do you have a copy of the national malaria policy? (ask to see a copy) .	Yes seen1 Yes, reported to have.....2 No.....3 Don't know.....8	
305	Do you have a copy of the standard treatment guideline? (ask to see a copy)	YES(1)	NO(2)
306	Where is the copy/copies usually kept? (circle all that apply)		mentioned Not mentioned
		Each consulting room	1 2
		One consulting room	1 2
		Matron's office	1 2
		Med Sup's office	1 2
		Administrator's office	1 2
		Doctors' resting room	1 2
		Hospital resting room	1 2
Other (specify).....	1 2		
307	What did you learn about the new drug combination? (circle all that apply) OTHER _____		mentioned Not mentioned
		To replace chloroquine	1 2
		Malaria resistance to CHQ	1 2
		Combination more effective	1 2
		Easier to take combination	1 2
		Other (specify)	1 2
308	Do you see/ agree to the need for a change?	YES.....1 NO.....2	
309	Do you prescribe the Artesunate-Amodiaquine combination to patients?	YES.....1 NO.....2	→311
310	How often do you prescribe this combination?	Always.....1 Very often.....2 Sometimes.....3 Seldomly.....4	

311	Why don't you prescribe the combination? OTHER _____ N/A8	REASON	mentioned	Not mentioned
		fear of adverse reaction	1	2
		personal experience	1	2
		experience of a patient	1	2
		lack of confidence	1	2
		experience of a colleague	1	2
		other (specify)	1	2
312	What other anti malarial do you prescribe?		mentioned	Not mentioned
		Amodiaquine only	1	2
		Artesunate only	1	2
		Artesunate/ amodiaquine	1	2
		Chloroquine	1	2
		S/P	1	2
		Coartem	1	2
		Coarinate	1	2
		Quinine	1	2
		Other	1	2
313	do you feel you need additional training in order to be able to do manage malaria better?	YES (1) NO (2)		
314	What specific area do you feel you need additional training in order to be able to do manage malaria better? DO NOT PROBE – CIRCLE ALL THAT ARE MENTIONED A. diagnosis B. treatment C. prevention D. OTHER _____	MENTIONED	NOT MENTIONED	DON'T KNOW
		1	2	8
		1	2	8
		1	2	8
		1	2	8
315	How will you rate the effectiveness of the new policy?	very effective.....1 effective.....2 effective but for the side effects.....3 not effective.....4 other.....8		
316	If given the chance to decide the fate of this new policy, what will you say?	Continue.....1 Modify.....2 take it out.....3		

	go back to chloroquine.....4 other (specify).....8
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INTERVIEWER COMMENTS

NON-PARTICIPANT OBSERVATION Checklist

Consent Form

Information: Prior to each consultation, the observer must read the following statement to the patient. If the patient objects, quietly leave the consulting room and return when the consultation is finished.

My name is _____ and I am from the SPH, Legon. I am doing research on the management of malaria at this facility today. This will hopefully improve care at this facility. Would you mind if I observed your consultation? If you decline, this will in no way affect your ability to receive health care at this facility. If you need further information about this study, you can contact the people on this card (give person information card).

100	
	SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT

FACILITY IDENTIFICATION	
Name of REGION _____	REGION CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of District _____	DISTRICT CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of sub-district _____	SUBDISTRICT CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of the facility _____	FACILITY CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Type of Health Facility : (1= Hospital; 2 = Health Center; 3= CHPs; 4= clinic; 5= Maternity home; 6= other) _____ -	FACILITY TYPE <input style="width: 20px; height: 20px;" type="text"/>
Operating Authority: 1= Government; 2 = Quasi-government 3 = Non-governmental organization 4= Mission/Religious 5 = Private for profit 6 = Other _____)	OPERATING AUTHORITY <input style="width: 20px; height: 20px;" type="text"/>

Date: _____ <div style="text-align: center; margin-top: 10px;"> DAY / MONTH / YEAR </div> Name of the observer _____ Health care provider ID _____	INTERVIEWER CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> PROVIDER CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
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INSTRUCTION: Observe a minimum of 1 and maximum of 3 consultations diagnosed as malaria			
101	Client identification	ID Code	<input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
102	Age of client	Under 5yrs (1) Above 5yrs (2)	
	Clinical diagnosis	Coding Classification	
		Elicited by provider 1	Volunteered by patient 2
			Neither elicited nor volunteered 8
103	Symptoms of malaria		
	a. fever	1	2
	b. headache	1	2
	c. vomiting/ abdominal pain/ diarrhea	1	2
	d. feeling cold/ sweating/ rigors	1	2
	e. poor appetite	1	2
	f. fits/ unconsciousness/dizziness	1	2
	g. dark urine colour	1	2
	h. general body pains	1	2
	i. other (specify) _____	1	2
104	Signs of malaria	CHECKED(1)	NOT CHECKED(2)
	a. warm to touch (temperature taken with thermometer)	1	2
	b. pallor (mucous membrane checked)	1	2
	c. jaundice (mucous membrane checked)	1	2
	d. drowsiness/ coma/ confusion	1	2
	e. other specify	1	2
105	If child under five years, immunization card seen	YES(1)	NO(2) N/A(9)
106	Does the provider ask about duration of symptoms?	YES(1)	NO(2)
107	Is there a copy of a treatment protocol for malaria	YES(1)	NO(2) if 2, skip 108

108	Does care provider refer to it?	YES(1)	NO(2)	
109	What is the provider's diagnosis?			
	a. malaria	1		
	b. malaria (uncomplicated)	2		
	c. malaria (severe)	3		
	d. malaria+ anaemia	4		
	e. malaria +URTI	5		
	f. malaria +other (specify) _____	6		DONT KNOW 8
110	What medication was prescribed			
	a. anti-malarialamodiaquine/ artesunate	1		
	Amodiaquine only	2		
	Artesunate only	3		
	Chloroquine	4		
	Sulfadoxin/ pyremethamine	5		
	Co- Arinate	6		DON'T KNOW 8
	Coartem	7		
	Quinine	98		
	Other	9		
		YES	NO	DON'T KNOW
	b. antipyretic	1	2	8
	c. haematinic	1	2	8
	d. dewormer	1	2	8
	e. other (specify) _____	1	2	8
111	Was the client counselled on	YES(1)	NO(2)	DON'T KNOW(8)
	a. the diagnosis			
	b. prevention	1	2	8
	c. how to correctly take medications	1	2	8
	d. when to come for review	1	2	8
	e. the need for referral(where applicable)	1	2	8
	f. other (specify) _____	1	2	8
112	Logistics in the consulting room	YES(1)	NO(2)	DON'T KNOW(8)
	a. thermometer	1	2	8
	b. stethoscope	1	2	8
	c. weighing scale	1	2	8
	d. antipyretic	1	2	8
	e. water	1	2	8
	f. emergency tray	1	2	8
	g. copy of treatment protocol/charts	1	2	8
	h. sphygmomanometer	1	2	8
		i. other (specify) _____	1	2

COMMENT:

Facility Audit – Dangme West

Consent /General Information

FOR OUTPATIENT SERVICES: FIND THE MANAGER OR MOST SENIOR HEALTH WORKER RESPONSIBLE FOR **MANAGING** THE FACILITY. INTRODUCE YOURSELF AND READ THE FOLLOWING:

I am a student of the school of Public Health of the University of Ghana, Legon. In doing my MPH dissertation, I am collecting information on how malaria is managed at health facility level in the district. This information will be useful to the facility and DHMT in planning your health service delivery. This part of the survey will review general management at the facility, staffing levels and practices at the pharmacy in relation to the treatment of uncomplicated malaria. It will take between 20-30 minutes to complete. All information from this survey is confidential. You can refuse to answer any question and no identifying information on respondents will be collected. I am asking for your help to ensure that the information collected is accurate. If there are sections where someone else is the most appropriate person to provide information, I would appreciate your introducing me to that person. If you have any further questions about this survey you can contact the people on this information sheet.

Do you have any questions for me?

Can we begin now ?

100	SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT
-----	---

NO.	QUESTIONS	CODE CLASSIFICATION	GO TO
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FACILITY IDENTIFICATION	
Name of Region: _____	REGION CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of District: _____	DISTRICT CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of sub-district _____	SUBDISTRICT CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Name of the facility _____	FACILITY CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>
Type of Health Facility : (1= Hospital; 2 = Health Centre; 3=CHPS; 4= Clinic; 5= Maternity home; 6= Other _____)	FACILITY TYPE <input style="width: 30px; height: 20px;" type="text"/>
Operating Authority: 1= Government; 2 = Quasi-government 3 = Non-governmental organization 4= Mission/Religious 5 = Private for profit 6 = Other _____)	OPERATING AUTHORITY <input style="width: 30px; height: 20px;" type="text"/>

Date: _____ DAY /MONTH/YEAR			
Name of the interviewer _____	INTERVIEWER CODE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>		
10 1	Is there a trained health provider present at the facility at all times (24 hours/day)	YES, TRAINED PROVIDER ALWAYS PRESENT 1 NO, 2	→ 103
10 2	Is there a trained health provider available on call at all times after normal working hours? IF YES, ASK TO SEE A CURRENT DUTY ROSTER	YES, DUTY SCHEDULE SEEN 1 YES, NO DUTY SCHEDULE 2 NO 3	
103	Now I have some questions about the staff. I want to know the <u>highest technical qualification</u> and the number of staff who are routinely assigned for services. This may include staff who provide both inpatient and outpatient services but NOT staff who function purely administratively. COUNT STAFF IN ONLY ONE CATEGORY. DO NOT INCLUDE STAFF IN TRAINING.		
	QUALIFICATION	TOTAL NUMBER	
	A) Medical Doctors (INCLUDE DOCTORS WITH SPECIALTY TRAINING)	MEDICAL DOCTOR <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	B) Medical Assistants	MEDICAL ASST <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	C) Public Health Nurses	PH NURSE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	D) Midwives	MIDWIFE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	E) Professional Nurses (INCLUDE NURSES WITH SPECIALITY TRAINING)	PROF. NURSE <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	F) Disease Control Officers	DCO <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	G) Community Health Nurses/Enrolled Nurses	CHN/EN <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	H) Pharmacists	PHARMACIST <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	I) Dispensing Technicians	DISPENSING TECH <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	J) Dispensing assistants	DISPENSING ASST <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	K) Lab Technicians/technologists	LAB. TECH. <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	
	L) Lab assistants	LAB ASST <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	

M) Nutrition Technical Officers	NUT. TECH	<input type="text"/> <input type="text"/>
N) Ward Assistants / Ward Maid	WARD ASST	<input type="text"/> <input type="text"/>
O) Environmental Health Officers	ENVIRONMENT HEALTH OFFICER	<input type="text"/> <input type="text"/>
P) Biostatistician / Medical Records Assistants	BIOSTATS	<input type="text"/> <input type="text"/>
Q) Others: SPECIFY _____	OTHER	<input type="text"/> <input type="text"/>

NO.	QUESTIONS	CODE CLASSIFICATION	GO TO
104	Does this facility have formal meetings to review management or administrative issues?	YES 1 NO 2 DON'T KNOW 8	→107 →107
105	How often are formal meetings held to discuss management/administrative issues?	BI-MONTHLY 1 MONTHLY 2 QUARTERLY 3 SEMI-ANNUALLY 4 ANNUALLY 5 OTHER 8 N/A 9	
106	Is an official record of meetings maintained? IF YES, ASK TO SEE SOME DOCUMENTATION (MINUTES/NOTES) FROM THE MOST RECENT MEETING	YES, DOCUMENT SEEN 1 YES, DOCUMENT NOT SEEN 2 NO DOCUMENTATION MAINTAINED 3 N/A 9	
107	Does this facility have any system for determining client opinion about the health facility or services? IF YES, CIRCLE ALL METHODS FOR ELICITING CLIENT OPINIONS THAT ARE USED	SUGGESTION BOX 1 CLIENT SURVEY FORM 2 CLIENT INTERVIEW 3 COMMUNITY DURBAR 4 PUBLIC FORUM 5 OTHER 6 (SPECIFY) NO CLIENT FEEDBACK 7 DON'T KNOW 8	→109 →109
108	In the past 6 months have any changes been made in service delivery as a result of client opinion? IF YES, DESCRIBE THE CHANGES MADE.	YES, _____ 1 (SPECIFY) NO 2 DON'T KNOW 8	
109	Does this facility have a Quality Assurance Team?	YES 1 NO 2	

		DON'T KNOW 8	
110	Does the team have a Quality Assurance Action Plan? IF YES, ASK TO THE PLAN OR EVIDENCE OF RECENT ACTIVITY	YES, PLAN SEEN 1 YES, NO PLAN SEEN 2 NO 3	→112

111	Are any of the following methods for quality assurance used? IF YES, ASK TO SEE SOME DOCUMENTATION (REPORT/ MINUTES/ ETC). FOR THE METHOD IMPLEMENTATION.			
	METHOD (DON'T PROBE, tick as mentioned)	METHOD USED : WAS FORM OR REPORT SEEN?		
		Mentioned	Not Mentioned	Don't Know
	a) Supervisory checklist for health system components (e.g. service specific equipment, drugs, supplies and records)	1	2	8
	b) Supervisory checklist for health service provision (e.g. Observation Check list)	1	2	8
	c) Mortality meeting	1	2	8
	d) Periodic audit of medical records or service registers	1	2	8
	e) Quality Assurance or Client Oriented Provider Efficient (COPE) committee/team?	1	2	8
	f) Regional/Dist. Health Management Teams Visits' feedback?	1	2	8
	g) Clinical Conferences/Meetings	1	2	8
	h) Other (SPECIFY).....			

NO.	QUESTIONS	CODE CLASSIFICATION			GO TO
112	When was the last time a supervisor from OUTSIDE this facility came for a supervisory visit?	WITHIN PRIOR 6 MONTHS..... 1 MORE THAN 6 MONTHS AGO..... 2 NEVER SUPERVISED FROM OUTSIDE FACILITY..... 3			→114 →114
113	Within the past 6 months did a supervisor from outside the facility on a visit do any of the following activities?	MENTIONED	NOT MENTIONED	DON'T KNOW	
	A) Check some registers or service related books?	1	2	8	
	B) Discuss problems?	1	2	8	
	C) Discuss policy/administrative issues?.....	1	2	8	
	D) Discuss technical protocols, practices, or service delivery technical issues?.....	1	2	8	
	E) Hold an official staff meeting?.....	1	2	8	
	F) Observe individual staff providing services?	1	2	8	
	G) Do anything else?	1	2	8	
114	Is there a printed referral form which is sent with referrals from this facility?	YES, FORM SEEN.....1 YES, FORM NOT SEEN.....2			

	IF YES, ASK TO SEE THE FORM.	NO FORM, USE LETTERHEAD.....3 NO FORM.....4 DON'T KNOW.....8
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NO.	QUESTIONS	CODE CLASSIFICATION			GO TO
115	A. Does this facility have electricity? B. WHAT OTHER ALTERNATIVE DO YOU HAVE	YES.....1 NO.....2 GENERATOR 1 RECHARGABLE /GAS LAMP 2 LANTERN 3 TORCHLIGHT 4 NONE 5			
116	How is water made available for use in examination/consultation areas in the facility today?	PIPED.....1 BUCKET/BASIN.....2 VERONICA BUCKET.....3 NO WATER IN SERVICE DELIVERY AREAS.....4			
117	Is there a waiting area for clients, where they are protected from sun and rain?	YES.....1 NO.....2			
118	Is there a toilet (latrine) in functioning condition which is available for clients' use?	YES.....1 NO.....2			
119	Does this facility have a working phone or short-wave radio?	YES.....1 NO.....2			
120	ASSESS GENERAL CLEANLINESS OF FACILITY: ■A FACILITY IS CLEAN IF THE FLOORS ARE SWEEPED, COUNTERS/TABLES ARE WIPED AND FREE FROM OBVIOUS DIRT OR WASTE. ■A FACILITY IS NOT CLEAN IF THERE IS OBVIOUS DIRT/WASTE/BROKEN OBJECTS ON FLOORS OR COUNTERS	FACILITY CLEAN.....1 FACILITY NOT CLEAN.....2			
121	Does this facility have copies of the following: IF YES, ASK TO SEE A COPY.	Reported Available	Not Available	Not Determined	
	A. Standard Treatment Guidelines	1	2	8	
	B. New Anti-malarial Drug Policy	1	2	8	
	C. Treatment Protocols in Consulting Rooms	1	2	8	
	D. IPT Manual	1	2	8	

122	How many staff have been trained in the use of the new antimalarial drug policy	<input type="checkbox"/> <input type="checkbox"/>	Don't Know = 98	
123	How many staff have copies of the new malaria treatment protocols	<input type="checkbox"/> <input type="checkbox"/>	Don't Know = 98	
124	In your view, what are the three biggest problems facing this facility related to the treatment of malaria? 1.			

	2.	
	3.	

PHARMACY/ DISPENSARY

FIND THE MANAGER OR MOST SENIOR HEALTH WORKER RESPONSIBLE FOR **MANAGING** THE PHARMACY. INTRODUCE YOURSELF AND READ THE FOLLOWING:

I am a student of the school of Public Health of the University of Ghana, Legon. In doing my MPH dissertation, I am collecting information on how malaria is managed at health facility level in the district. This information will be useful to the facility and DHMT in planning your health service delivery. This part of the survey will review practices at the pharmacy in relation to the treatment of uncomplicated malaria. It will take between 20-30 minutes to complete. All information from this survey is confidential. You can refuse to answer any question and no identifying information on respondents will be collected. I am asking for your help to ensure that the information collected is accurate. If there are sections where someone else is the most appropriate person to provide information, I would appreciate your introducing me to that person. If you have any further questions about this survey you can contact the people on this information sheet.

Do you have any questions for me?

Can we begin now ?

200	SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT			
201	Do you have the following drugs in stock today? Can you please show me a sample of each one? If you have the drug – what is the cost per treatment?	In Stock	Not In Stock	
	a. anti-malarial Artesunate / Amodiaquine	1	2	
	Artesunate	1	2	
	Amodiaquine	1	2	
	Chloroquine	1	2	
	Sulfadoxine – pyremethamine	1	2	
	Coarinate	1	2	
	Coartem	1	2	
	Quinine	1	2	
	b. antipyretic	1	2	
	c. haematinic	1	2	
	d. other	1	2	
202	Have you had a stock out of any of the following drugs during the past 6 months?	Yes	No	Don't Know
	a. anti-malarial Artesunate / Amodiaquine	1	2	8
	Artesunate	1	2	8
	Amodiaquine	1	2	8
	Chloroquine	1	2	8
	Sulfadoxine – pyremethamine	1	2	8
	Coarinate	1	2	8
	Coartem	1	2	8
	Quinine	1	2	8
	b. antipyretic	1	2	8
	c. haematinic	1	2	8
		Yes	No	Don't Know
203	Do pharmacy staff label drugs appropriately for clients?	1	2	8

204	Do pharmacy staff tell clients how to take malaria drugs correctly?	1	2	8
205	What is the average waiting time for clients at the pharmacy?	<30 minutes.....1 31-60 minutes.....2 61 Minutes +.....3 Don't Know.....9		
206	How many workers do you have here total pharmacist dispensing technologists dispensing assistants other (specify).....	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
207	What are the working hours at the pharmacy? OTHER _____	Morning Only.....1 Morning and Afternoon.....2 24 hours a day.....3 Other.....4		
		Yes	No	Don't Know
208	Do you have a measuring scale in this pharmacy?	1	2	8
209	Do you have a measuring container in this pharmacy?	1	2	8
210	Is there a sufficient waiting area for clients?	1	2	8

CONSULTATION AREA

<p>FIND THE MANAGER OR MOST SENIOR HEALTH WORKER RESPONSIBLE FOR CURATIVE CARE SERVICES. INTRODUCE YOURSELF AND READ THE FOLLOWING:</p> <p>I am a student of the school of Public Health of the University of Ghana, Legon. In doing my MPH dissertation, I am collecting information on how malaria is managed at health facility level in the district. This information will be useful to the facility and DHMT in planning your health service delivery. This part of the survey will review practices at the OPD in relation to the treatment of uncomplicated malaria. It will take between 20-30 minutes to complete. All information from this survey is confidential. You can refuse to answer any question and no identifying information on respondents will be collected. I am asking for your help to ensure that the information collected is accurate. If there are sections where someone else is the most appropriate person to provide information, I would appreciate your introducing me to that person. If you have any further questions about this survey you can contact the people on this information sheet.</p> <p>Do you have any questions for me? Can we begin now ?</p>				
300	SIGNATURE OF INTERVIEWER INDICATES PARTICIPANT AGREEMENT TO PARTICIPATE AND THAT THE TIME IS CONVENIENT			
301	<table border="1"> <tr> <td>Is there a ROUTINE system where patients are seen <u>prior</u> to the consultation for the illness?</td> <td> YES.....1 NO.....2 DON'T KNOW8 </td> <td>➔ If no, go to next section</td> </tr> </table>	Is there a ROUTINE system where patients are seen <u>prior</u> to the consultation for the illness?	YES.....1 NO.....2 DON'T KNOW8	➔ If no, go to next section
Is there a ROUTINE system where patients are seen <u>prior</u> to the consultation for the illness?	YES.....1 NO.....2 DON'T KNOW8	➔ If no, go to next section		

302	ASSESS WHICH ITEMS ARE ROUTINELY DONE AT THE FACILITY	ROUTINE DONE	NOT ROUTINELY DONE	DON'T KNOW
	a. take weight	1	2	8
	b. record weight	1	2	8
	c. Take temperature	1	2	8
	d. assess immunization status	1	2	8
	e. sponge febrile children	1	2	8
	f. give first aid medication eg p'mol	1	2	8
	g. other (specify)	1	2	8
303	Are records kept for all malaria patients?	YES.....1 NO.....2		→305
304	Are separate records kept for all malaria patients?	YES.....1 NO.....2		
		Yes	No	Don't Know
305	Do you have the following pieces of equipment in the OPD?	1	2	8
	a. Adult weighing scale?	1	2	8
	b). Child weighing scale (hanging salter scale)?	1	2	8
	c). Infant weighing scale?	1	2	8

LABORATORY

400	Now I would like to ask some questions about your laboratory facilities. Does your facility have a laboratory that offers tests for malaria? IF YES, GO TO WHERE LABORATORY TESTS ARE CONDUCTED AND ASK TO SEE THE RELEVANT EQUIPMENT AND SUPPLIES	YES..... 1 NO 2		→stats		
	ITEMS REQUIRED FOR LABORATORY EXAMINATION	(a) Is item present?		(b) Is item in working order? /*Adequate		
		Observed or Reported Available	Not Available	Yes	No	Comments
401	Piped Water/Veronica Bucket	1	2	1	2	
402	Microscope	1	2	1	2	
403	Centrifuge	1	2	1	2	
404	Haematological Analyzer	1	2	1	2	
405	Haemoglobinometer	1	2	1	2	
406	Blood Chemistry Analyzer	1	2	1	2	
407	Slides and covers (malaria smears; gram stain)	1	2			
408	Capillary Tubes	1	2			
409	Reagents	1	2	1*	2*	
410	G6PD reagents	1	2	1*	2*	
411	Labeling of the laboratory facility			1*	2*	
412	What are the working hours at the lab? OTHER _____			Morning Only.....1 Morning and Afternoon.....2 24 hours a day.....3 Other.....4		
413	How long does it take on average to do a malaria test for a client?			<30 minutes.....1		

		31-60 minutes.....2
		61 Minutes -24hrs.....3
		24hrs+ 4
		Don't Know.....9

MONTHLY OUTPATIENT MORBIDITY (SERVICE STATISTICS)

	May 2007	Apr 2007	Mar 2007	Feb 2007	Jan 2007	Dec 2006
Malaria cases children<1yr						
Malaria cases children 1-4yrs						
Malaria cases children<5yrs						
Malaria cases Pregnant women						
Total Malaria cases						
Total OPD Attendance						