How sulfadoxine-pyrimethamine (SP) was perceived in some rural communities after phasing out chloroquine (CQ) as a first-line drug for uncomplicated malaria in Tanzania: lessons to learn towards moving from monotherapy to fixed combination therapy

Stephen ED Nsimba*

Address: Department of Clinical Pharmacology, Muhimbili University College of Health Sciences (MUCHS), Dar-es-Salaam, Tanzania

Email: Stephen ED Nsimba* · snsimba@muchs.ac.tz

* Corresponding author

Abstract

Malaria is a leading cause of death in Sub-Saharan Africa. Tanzania changed its malaria treatment policy from chloroquine (CQ) to Sulphadoxine-Pyrimethamine (SP) as first line drug in August 2001. We wanted to assess the perception and behaviour about SP after phasing out chloroquine which was very popular, cheap, available, and was preferred by many people for self-medication in homes as it was considered to have minimal side effects.

Focus Group Discussions (FGDs) were carried out after one year of the anti-malarial drug treatment policy change in the country. The FGD themes were on malaria for under-five children and other age groups, anti-malarial drug use through self-medications, specific experiences people had about SP drug for both mothers/guardians, men in the communities and health workers. A total of twelve FGDs were performed with mothers/guardians, men and health workers in the selected public health care facilities in the district.

In the FGDs people feared adverse reactions from SP; its slow ability of reducing fever and self-treatment in this case was less reported from the mothers/guardians groups. However, SP was reported by health workers to be administered using the direct observation approach under supervision in their health care facilities. This was done in order to increase compliance as there were worries that some mothers were throwing away the drug if they were instructed by health workers to go and administer SP to their sick children at home.

Based on this information, it is obvious that fear and negative perceptions about SP drug was common in the study setting. As evidence of this, there was less reported home-stocking and self-medication in the discussions for this particular recommended new first-line anti-malarial. The public has demonstrated a lack of confidence in SP. Furthermore, some health workers expressed obvious fear and negative perceptions towards the drug despite the fact that some FGDs with health workers considered the drug to be good and effective against malaria. Such negative perception towards SP highlights the need to start earlier sensitization and educational campaigns to the rural communities for a new drug program to ensure its success. Messages should clearly state what should be expected from the new drug (Coartem), before its introduction. This is important especially as Tanzania is expected to move towards the expensive but efficacious and effective fixed-combination (Coartem) anti-malarial therapy early next year (2006).
Introduction

Worldwide, malaria causes more than 1.5–3 million deaths each year of which more than 90% occur in under-five children in sub-Saharan Africa [1]. The majority of those are among the children who have not developed adequate immunity to the parasite and also in pregnant women. However, malaria is on the increase due to changes in the environment, the collapse of health systems in areas of civil strife and war, growing resistance of malaria to affordable anti-malarial drugs and limitations in national health services.

Despite many attempts to eradicate or control malaria, the disease still threatens about 40% of the world populations (300–900 million cases every year). Malaria is endemic in almost all parts of Tanzania, and it accounts for over 30–40% of the disease burden (admissions and outpatient attendances). It is a major cause of under-five mortality and morbidity. About 70,000–100,000 under-five deaths which occur annually in the country are due to malaria [2]. Malaria is a threat to every one as it affects all age groups but under-fives, pregnant women and non-immune individuals are more vulnerable than others. The cause of death in these vulnerable groups is mostly due to cerebral complications and anaemia especially in under-fives children and pregnant women. Malaria is also a major contributor to maternal deaths and low birth weights of children [3].

Chloroquine (CQ) has been used for many years as first line treatment drug for uncomplicated malaria in many sub-Saharan countries including Tanzania. Nevertheless, because of rapid development and spread of resistance to the drug in African countries, these countries have been forced to change their anti-malarial drug treatment policies to sulfadoxine-pyrimethamine (SP). However, it is very unfortunate that even to this newly recommended drug (SP) resistance is reported to be developing very fast in most places of sub-Saharan countries [4,5]. So far when Tanzania changed its anti-malarial drug treatment policy to SP in August, 2001, chloroquine resistance was more than 42% [6].

The widespread self-medication practices for most febrile illnesses is a known major problem in sub-Saharan countries [7]. Such irrational self-treatment practice is reported to be accompanied with either over-or-under-dosages [8], with an increased risk of toxicity or emergence and widespread development of drug resistance [9]. Furthermore, SP is reported to be expensive in terms of price when compared to chloroquine in Tanzania [10].

Tanzania is a country heavily affected by malaria, as it combines widespread prevalence of the malaria mosquito with low levels of government and community resources available to combat the disease. Over 75% of Tanzania’s 35 million people live in areas where malaria is highly endemic (transmission period longer than 4 months per year), and the estimated number of cases is between 14–18 million annually. Next to the enormous loss of productivity due to illness and the costs of treatment, malaria results in an estimated 100,000 to 125,000 deaths per year, of which 70% are children under the age of five [2]. For Tanzania, malaria is not just a health issue, but a national development problem.

Tanzania has made malaria control a priority and is an active partner in the global Roll Back Malaria (RBM) partnership, set up by the WHO in 1998. Comprehensive malaria control policies have been formulated by the National Malaria Control Program, a large number of pilot projects have been implemented, national first-line drug treatment for malaria was changed in August, 2001 to Sulfadoxine-Pyrimethamine (SP) to overcome chloroquine resistance. Despite these efforts, much remains to be done as local governments and poor rural communities lack resources to implement successful malaria control programs.

Thus, it was necessary to study how SP was perceived by both the mothers/guardians, men in the communities and health workers who are entrusted with providing care to these communities within their catchment areas. SP was introduced after the government (Ministry of Health) decided to phase out chloroquine from being used as first-line-anti-malarial for treatment of uncomplicated malaria for all age groups in Tanzania. The aim of this study was to access people’s perceptions, compliance, self-medication practices (rational use of SP), household responsibilities in case of sickness and source(s) of information about SP. This study also aimed at forming basis for instituting interventions to improve compliance and rational drug use practices which may help in prolonging the life span of the available first line anti-malarial drug in the country. Such rational practices if achieved would also increase the cure rates and reduce treatment failures.

Furthermore, Tanzania will early next year (2006) be replacing SP with an expensive but efficacious and effective fixed-anti-malarial-combination of artemether and lumefantrine therapy (Coartem). This new fixed combination drug will need its life span be preserved so that it remains in use for at least the same duration or more than what chloroquine served over 40 years in Tanzania.

Materials and methods

Study area

The study was conducted in Kibaha district, Coast region-Tanzania. The district is located 40 km north-west of Dar es Salaam, Tanzania. The district was chosen because
malaria is endemic to holoendemic. Furthermore, Kibaha is also geographically accessible from Dar-es-Salaam the economical capital of the country. According to the National Census of 2002, Kibaha district has a total population of 132,443 people [11].

Selection of study population
A three-stage cluster sampling procedure was used in the selection of wards, hamlets and households. Our sampling framework was based on the administrative structure of the Kibaha district. In Tanzania, all districts have divisions, and divisions are subdivided into wards. In urban areas, wards were further subdivided into hamlets (vitongoji), whereas, in rural settings, wards were subdivided into villages and the villages were further subdivided into hamlets.

The district had a total of 9 wards and of these 4 were urban and 5 were rural. After listing all the wards, then two rural and two urban wards were randomly selected. A list of the villages and hamlets in the chosen wards was obtained from the District Planning Officer (DPO).

A total of 12 focus group discussions consisted of 6–10 participants each were held, four with mothers, four with men and four with health workers. The participants in the mother’s men focus groups were chosen with help from the ward secretaries and the district nursing officer for the health worker focus groups. The mothers and men and health workers were aged between 18–50 years. Most of them had completed primary school education. The health workers FGD groups were divided according to their educational level and their training background.

Table 1: Shows summaries of statements made by different focus group discussions (4 FGDs) with mother’s guardian’s about SP

<table>
<thead>
<tr>
<th>About SP</th>
<th>Why switch to SP?</th>
<th>How can the situation be improved?</th>
<th>Who’s responsibility to care the sick child?</th>
<th>What’s wrong with the media?</th>
</tr>
</thead>
<tbody>
<tr>
<td>- SP is mixture of all drugs like Fansidar.</td>
<td>- SP is on research trial by the government.</td>
<td>- More research has to be done how to lower the dose and what causes these side effects.</td>
<td>- When the children are sick we mothers take them to hospital.</td>
<td>- SP is advertised so much in newspapers, radio and television.</td>
</tr>
<tr>
<td>- SP is not good because it causes: swelling, body rashes, children dying.</td>
<td>- They want to see how many people will be killed by the drug.</td>
<td>- Educate people first about SP before introducing for large scale use.</td>
<td>- Father directs us not to take SP.</td>
<td>- They show people who gets affected by the drug after using it.</td>
</tr>
<tr>
<td>- We are afraid of using it because it is too strong and kills people.</td>
<td>- If drug was good, we would not find it plenty in our hospitals.</td>
<td>- Nurses should educate mother’s on how to take this drug and about side effects to be expected.</td>
<td>- Father work to get money and most of the time they are out but they provide money.</td>
<td>- They also put a name and a picture of a person who has been affected by SP.</td>
</tr>
<tr>
<td>- My son became like a cobra-snake and got black like a charcoal after using SP.</td>
<td>- We have nothing to do, but agree with what the government gives us as we are forced to use the drug.</td>
<td>- The news writers about the drug.</td>
<td>- If the father is not at home and the child is sick I can’t wait, I go myself to hospital or take any other immediate actions.</td>
<td>- These news scare a lot of people who see or read them.</td>
</tr>
<tr>
<td>- SP has no side-effects to me and when I use it cures my malaria.</td>
<td>- The Ministry of Health should work hard on sensitizing and educating the people.</td>
<td>- The sulfa component should be removed from SP.</td>
<td>- We mother’s are first child’s doctors in our homes.</td>
<td>- We also here in radio that chloroquine is no longer working in treating malaria.</td>
</tr>
<tr>
<td>- SP is a good drug, my son used it and has never fallen sick again.</td>
<td>- If you tell the doctors that you don’t use SP he/she may listen to you and give an alternative drug or not give it depends.</td>
<td>- We want doctors and nurses to properly inform us how to use SP whether without eating etc.</td>
<td>- Some men are lazy and sometimes they are drunk and do not care about the child.</td>
<td>- SP is advertised so much in newspapers, radio and television.</td>
</tr>
<tr>
<td>- The drug is too strong and one needs to eat enough food.</td>
<td>- We are treated with SP at the facilities for all illnesses.</td>
<td>- Nurses and doctors should be given seminars on how to properly treat malaria.</td>
<td>- Most fathers get involved when the child is seriously ill.</td>
<td>- They also put a name and a picture of a person who has been affected by SP.</td>
</tr>
<tr>
<td>- People are afraid of using the drug and we hate it and we don’t give our children when they give us at the hospital.</td>
<td>- Doctors don’t ask whether don’t use SP.</td>
<td>- Doctors should listen carefully to patients so that they can reduce the dose as the drug is too strong for weak people.</td>
<td>- At times we discuss with our husband’s if they are at home, otherwise we brief them what transpired when they were not around.</td>
<td>- They also put a name and a picture of a person who has been affected by SP.</td>
</tr>
<tr>
<td>- Now we are being forced at the hospital to give our children the drug under supervision of nurses.</td>
<td>- Parasite are resistant to CQ.</td>
<td>- Put in place drugs which are less strong for mild to moderate malaria and reserve SP for severe cases.</td>
<td>- We mother’s/guardian’s about SP</td>
<td>- They show people who gets affected by the drug after using it.</td>
</tr>
</tbody>
</table>

Who’s responsibility to care the sick child?
- When the children are sick we mothers take them to hospital.
- Father directs us not to take SP.
- Father work to get money and most of the time they are out but they provide money.
- If the father is not at home and the child is sick I can’t wait, I go myself to hospital or take any other immediate actions.
- We mother’s are first child’s doctors in our homes.
- Some men are lazy and sometimes they are drunk and do not care about the child.
- Most fathers get involved when the child is seriously ill.
- At times we discuss with our husband’s if they are at home, otherwise we brief them what transpired when they were not around.
- In most cases we involve them if the child’s condition gets worse.
- The father mostly gives you money to go and buy drugs or ask bus fare to send the child to hospital and very rarely they escort you.

What’s wrong with the media?
- SP is advertised so much in newspapers, radio and television.
- They show people who gets affected by the drug after using it.
- They also put a name and a picture of a person who has been affected by SP.
- These news scare a lot of people who see or read them.
- We also here in radio that chloroquine is no longer working in treating malaria.
Table 2: Shows summaries of statements made by different focus group discussions (4 FGDs) with men about SP

<table>
<thead>
<tr>
<th>About SP</th>
<th>Why switch to SP?</th>
<th>How can the situation be improved?</th>
<th>Who’s responsibility to care the sick child?</th>
<th>What’s wrong with the media?</th>
</tr>
</thead>
<tbody>
<tr>
<td>- People who had experienced side effects due to SP can never use the drug again in their life.</td>
<td>- Even if you tell the doctor that you don’t have malaria still you will get SP prescribed.</td>
<td>- Find preventive measures against malaria and more research on SP is needed.</td>
<td>- All married men take responsibilities as children are our only investment.</td>
<td></td>
</tr>
<tr>
<td>- Most people fear using SP because they think it is not a good drug; health facilities because people don’t use the drug may be unless you force them.</td>
<td>- These drugs are still on trial and this is bad to play with peoples lives.</td>
<td>- More efforts should be done to inform and educate the people about the drug.</td>
<td>- Most decisions involving finances are done by men and if the father is not around the wife takes the task in the absence of the husband.</td>
<td></td>
</tr>
<tr>
<td>- When one takes the drug needs to eat a enough food and drink a lot of water</td>
<td>- Sometime when you ask the doctors about SP they become harsh and they think that you are trying to teach them their job.</td>
<td>- There is a need to improve laboratory facilities so that people should be checked for malaria parasites before they are given or prescribed SP.</td>
<td>- Many women prefer to start with traditional healers for a seriously sick child.</td>
<td></td>
</tr>
<tr>
<td>- Few people get side effects due to SP and actually it is not easy to tell if really what people complain is due to SP.</td>
<td>- These days doctors don’t pay much attention to patients as they mind their own business and less time for patients.</td>
<td>- There is a need to have SP injection formulation.</td>
<td>- Even if the husband is a drinker, when one gets home we normally ask if things are in order. As the father is a bread earner in most households.</td>
<td></td>
</tr>
<tr>
<td>- A lot of people are affected by and many have died.</td>
<td>- It is up to the Ministry of Health and experts to decide what should be done regarding malaria treatment.</td>
<td>- SP dosage should be reduced especially for under-five children as the drug is too strong though it is a good one.</td>
<td>- The wife takes care of the children and the father looks for money to feed the family.</td>
<td></td>
</tr>
<tr>
<td>- Children who use SP get very weak, tired, and some become confused.</td>
<td>- In general SP cures better than chloroquine and it is a good drug except of its minor problems it causes SP is a combination of Fansidar, Metakelfin and Seprin.</td>
<td>- Radio and newspapers should help in educating people.</td>
<td>- Sometimes we men take the responsibility of helping our wives to take a sick child to hospital or go together if we around home.</td>
<td></td>
</tr>
<tr>
<td>- In general SP cures better than chloroquine and it is a good drug except of its minor problems it causes SP is a combination of Fansidar, Metakelfin and Seprin.</td>
<td>- SP should be removed from use and chloroquine be brought back</td>
<td>- Doctors should be educated on measuring weight of patients before prescribing SP and should check who to give SP.</td>
<td>- Most father’s can not leave his/her sick child dying without helping each other at home.</td>
<td></td>
</tr>
<tr>
<td>- Even pictures of affected individuals by SP are shown in newspapers, radios and televisions.</td>
<td>- Even if you tell the doctor that you don’t have malaria still you will get SP prescribed.</td>
<td>- All married men take responsibilities as children are our only investment.</td>
<td>- We-father’s participate especially if the sick child is above 5 years and mother’s deal with sick under-fives.</td>
<td></td>
</tr>
</tbody>
</table>

Thus, making one group of clinical officers and assistant clinical officers (COs & ACOs), one group of trained nurses and two groups consisted of nurse assistants.

Data collection
Focus group discussions (FGDs)
Guided themes for the FGDs were developed using the Swahili language (National language spoken by most Tanzanians) and were pre-tested before carrying out the actual study. The themes included self-medication practices with SP and other different anti-malarials, perceptions toward SP, any untoward experiences with SP or rumours they have heard about the drug and from which source. The discussions were held in undisturbed locations with one moderator who was an experienced social scientist from the Department of Sociology, University of Dar-es-Salaam. He was assisted by the PI and the main author (SN). Note taking was done by two graduate social scientists who had just completed their Masters of Arts in Sociology at the University of Dar-es-Salaam. All discussions were tape recorded and later on transcribed from the Swahili version into English. The translation into English included also the Swahili hand written notes. This translation was done by the author (SN) and one of the note taker (DS).

The FGD approach was used for data collection because it allows the researchers to get ideas about peoples experience, opinions, beliefs and participants’ responses can be presented with actual quotes that helps the reader to get the main ideas or messages. Furthermore, it gives opportunity to observe the interactions within the groups which is normally lacking with interviews.

Data analysis
The focus group discussions were analysed using a combination of qualitative approaches or methods [12] which also included coding and structuring the data into categories [13]. Furthermore, analysis also used the traditional interpretive understanding approach [14]. This analysis is
a process of making sense of the collected information through eliciting meanings and responses the study participants gave during the FGDs. A code sheet was created following the focus group guide and data were coded. Then a master sheet was done giving listing of all the responses from the focus groups. These responses were interpreted by looking at their patterns. Finally sorting and sifting through information, looking for patterns, consensus, differences, variations or contradictions and weighing the relative importance of information complemented the interpretative understanding. Raking and tabulation of the data was also done.

**Ethical Approval**

Ethical approval was obtained from the human ethics committees of the Muhimbili University College of Health Sciences and from the Kibaha district, Coast Region administrative authorities, ward secretaries, village chairmen and leaders of the hamlets.

**Results**

**Knowledge about "SP"**

Focus group discussions (FGDs), revealed some knowledge about the drug (SP) and its use. Some participants reported that malaria parasites were resistant (in a Swahili...
word [sugu] (meaning resistant) to CQ. The mother's FGDs reported "sisi tunalazimishwa tutubutia hii dawa ya SP kwa sababu klorokwini haipo kwenyewe maduka ya dawa" [our translation] they are forced to use SP in public health facilities and CQ is not available in drug stores or shops. Some said "sisi tungependa kuendelea kutumia klorokwini kama ingekuwa ni hiari ya mtu kuchagua kwani bado tunaa mimi ina aweza kutibu maliar" [english translation] they would have liked to continue using CQ if they were given freedom to chose as they strongly believed CQ was still effective for malaria treatment (Tables 1 &2).

In all the FGDs, participants mentioned they had heard about the new drug (SP) on the radio, some few in news papers and the majority were those who had visited health facilities previously and were either informed by the health care workers or they read about it on posters posted on the walls at the health care facilities.

**Experience with "SP"**

In the FGDs, most participants expressed a lot of fear and worries about using SP due to reported adverse reactions. Few had actual experience of such reactions, but everyone had heard about people who died after using SP. In one of the FGDs with men, one participant stated that "hii dawa ni nzuri kwani haina madhara mengi kama watu wanavyoomea na kufikiria kwani bado tunaa mimi inaweza kutibu maliar" [english translation] side effects due to SP use are rare in occurrence and he had used the drug and found it was a good one and never got any side effects (Tables 1, 2, 3).

Others commented that "SP ni dawa mbaya sana kw sababu inau, inaungwa ngozi mwili au inababua au kuchuna kabisa ngozi na haishushi homa haraka bolda yake iapandisha homa na kwa umla ni dawa ambayo ina ngwao sana hasa ukitumia kwato au watoto" [english translation] it is a bad drug as it kills, burns the skin, it does not reduce the fever or temperature and it is too strong especially when used for children.

Furthermore, during the FGDs, some participants with mothers and men were very angry and thought they were part of an experiment staged by the Tanzanian government to see how the drug kills or how many people would be killed by using SP [Swahili translation] "serikali yetu imeamua kufanya majaribio hii dawa ya SP kwetu ili waone kama watu wawili watakuwa" (Tables 1 &2).

**The mass media**

Participants in all FGDs, had heard about severe adverse reactions through mass media, most commonly newspapers and radio. Several participants suggested that "waandishi wa habari lazima waelimishwe namna ya kwando kwa habari zinazohusua madawa vizuri hasa dawa hii ya SP kwani wanavyoandika kwenyewe magazeti na watu wakasoma na kuona picha ya mtu aliyeunguzwa na dawa hii kila mtu anaogopa na kusema hataitumia hii dawa" [english translation] the news media or writers should be educated about SP drug and how to write proper medical news or information in the correct way which will not scare the audience when they read. They went further to say information is very important as it may build or destroy the image of the drug. Once people have read or heard about it, it is difficult to change their mind back (Tables 1, 2, 3).

**Healthcare workers observations and experience**

Because of the fear and negative perception about SP, all FGDs with health workers explained "kwa sababu ya kuona watu wanaiogopa hii dawa na akina mama wengi wakipe wa wakamati moto SP nyumbani wengine wanaitupa njiani hiyo tumeamua watoto wote wenye homa homa tunaa pata moto ya kutipa watoto na watoto wengine" [our translation] they had to give the drug under observation in the health facility to avoid mothers throwing away the drug (SP tablets) on their way home instead of giving them to their sick children (Table 3). To combat this practice, the child was made to swallow the drug in the presence of a healthcare worker and was observed for 30 min before being allowed to go home in order to make sure the child did not vomit the drug. This practice of the healthcare workers was confirmed by FGDs with mothers. The DOT for SP in under-five children was applied in these facilities and if the child vomited within this period another dose was administered by the health worker (Table 1).

**Discussion**

Sulfadoxine-Primethamine (SP) was previously reported to be too strong for children in the same district [10] and that the drug had characteristic properties of rapidly clearing parasites but slow fever clearance [15]. From the FGDs it was revealed that people knew that SP was available and was used as a first line drug for treatment of malaria. However, other FGDs reported that the drug (SP) increases fever and makes the general body weak after taking the drug.

In spite of the described negative perceptions about SP, the drug was used in these communities. However, experience from African countries like Malawi and Kenya which introduced SP as first line treatment shows that people continue to use chloroquine after the introduction of the new drug due to scepticism about the efficacy of the new drug or fear that "a potent" drug could be dangerous [16]. With such a change in anti-malarial drug policy, mothers/guardians had no option except to seek care at the public health care facilities. However, this health seek-

---

**Journal of Ethnobiology and Ethnomedicine 2006, 2:** [http://www.ethnobiomed.com/content/2/1/5](http://www.ethnobiomed.com/content/2/1/5)
ing behaviour by mothers/guardians was accompanied with other consequences related to personal, social and economic problems. For example walking distances and long waiting time must be considered as factors which may affect treatment. These delays prevent children from getting early diagnosis and prompt treatment with first line anti-malarials as advocated by the Roll Back Malaria (RBM), the Integrated Management of Childhood Illnesses (IMCI) and Home Based Management of Fever (HBMF) [17].

In general our results from the FGDs with mothers/guardians and men revealed some good awareness about SP despite the fact that some of them were hesitant in accepting the drug. All these fears, negative perception about the drug are due to several factors such as; its slow pharmacological effects or actions in providing quick relief of fever symptoms, instead it takes up to three days to resolve the fever. Secondly, because of the reported rare but serious side effects which occur to some individuals being reported through mass media. This rare side effect is medically known as Steven’s Johnson’s Syndrome.

Furthermore, FGDs with mothers and men gave strong statements about the drug such as "our government has decided to use this drug (SP) for experimental or research purposes so that they can see how it kills or how many people will be killed after using this drug. They went on further to say "SP is a bad drug as it kills, produces adverse skin reactions, does not reduce the fever, and instead raises, and was too strong for children". These are strong allegations to the government (Ministry of Health) which are not true per se because no government would subject her people to a harmful drug. These comments show how some groups of participants were illiterate or not well informed about the drug (SP) properties or actions.

A concern regarding SP raising fever for children was discussed on several occasions in the FGD groups. The other negative effects about the drug included fear of side effects, burning the skin or producing blisters. Thus, the drug was negatively perceived in that way. Some FGDs with mothers/guardians clearly reported that they were forced to use SP in public health care facilities. Nevertheless, they used the drug because chloroquine was no longer available. In their opinion, they would have liked to continue using CQ as they believed the drug was still effective in treating malaria.

FGDs with healthcare workers reported using a direct observation therapy (DOT) when administering SP to the sick under-five children in health care facilities. This DOT approach was stated also by mothers FGDs. This DOT approach is important because mothers who fear and have negative impressions of the drug can not administer the given drug at home. Instead they may give an inefficient substitute or not give anything to the sick child. This is a dangerous practice as it allows the disease to progress from mild to severe forms. The severe form of the disease for a sick under-five child in most cases is accompanied with fatal consequences or outcomes such as cerebral malaria, anaemia or death. Sadly, you may find these mothers coming back to the facilities on the following day or after one to two days complaining that the drug did not work while in fact they never administered it to the sick child.

Previous studies reported lack of anti-malarials at public health care facilities especially during the chloroquine era [18,19]. However, SP was available and free of charge for all sick under-five children in Tanzania. The possible reason why SP was available as reported by FGDs with healthcare workers was because they received the same number of tins (quantities of SP) as during the chloroquine era in public facilities. SP is given as a single dose as compared to chloroquine which was administered spread over 3 days. The anti-malarial fixed combination therapy (Coartem) which Tanzania will be changing to early next year (2006), has the dosage schedule spread over 3 days like chloroquine which may compromise compliance. Perhaps it is important to consider and plan to order more tins of the new drug as it will be given on a 3 day regimen. Otherwise, we could repeat the problem previously experienced with chloroquine. That is the new drug (Coartem) being not readily accessible and available all the time in most primary health care facilities in the country.

However, SP is expensive as it costs 5–11 times the price of CQ [10]. If this drug was not given free at the public facilities, the poor Tanzanians, especially in rural communities, would not have been able to purchase the drug and this would result in poor treatment seeking behaviour for malaria [20–22]. Due to fast development of resistance to SP, Tanzania will soon be moving from SP (monotherapy) to an expensive fixed combination anti-malarial therapy that is ten-times more expensive than SP. A full course or dose of artemether-lumefantrine (Coartem) will cost 6,000–10,000 Tanzania shillings (equivalent to 6–10$). Initially the drug will be given free of charge for a period of about 3 years or more through the Global Fund (GF) support. Thus, this calls for concerted efforts to be put in place by the National Malaria Control Program within the Ministry of Health to properly educate the people on rational practices of using this drug once it becomes officially available. Rational use of this fixed combination drug will help to prolong the life span of this expensive medication.

SP was reported to be in use through FGDs in spite of the reported fear and wide spread negative perceptions about
the drugs side effects. Thus, any future anti-malarial drug treatment change in the country, should consider the practical aspects of community involvement and acceptance of any new anti-malarial drug to be introduced. The implementation phase should focus more on community sensitisation of the people using various communication approaches or strategies such as use of mass media, news, radio and television. These communication strategies should bear correct, relevant, and short clear messages. Sensitizing and educating the people to raise their knowledge and awareness is of paramount importance for the success of the program.

However, the commonest reported media were newspapers and radio and on rare occasion television was mentioned. Nevertheless, some participants commented that there was a need for educating news writers about the drug(s), in order for them to write proper messages about the drug. Wrong messages are likely to divert attention of the people in the wrong direction and hence create a lot of fear with an increased negative perception about the drug in use or to be used. Thus, there is a need for both intervening and doing more research in this area of assessing the quality of messages sent out to consumers, the way messages diffuse out in the rural communities of Tanzania and the way they are perceived if we are aiming to improve future communication strategies for any new anti-malarial drug policy change to follow early next year in Tanzania.

Acknowledgements
I am thankful to mothers/guardians, men and health care workers in the health facilities in Kibaha district for their co-operation and participation in the study. The study received financial support from Sida/SAREC. Special thanks to the note takers (research assistants), the district authorities, ward secretaries, village and hamlet leaders of Kibaha district communities for giving us maximum cooperation during the study period.

References
15. Tarimo DS, Minjas JN, Bygbjerg IC: Sulfadoxine-pyrimethamine monotherapy in Tanzanian children has a rapid parasite clearance but slow fever clearance that is improved by chloroquine in combination therapy. Tropical Medicine & International Health 2002, 7:592-598.