MALARIA QUALITATIVE STUDY IN ENDEMIC AND EPIDEMIC ZONES IN KENYA

JUNE 2017

Malaria Qualitative Study in Endemic and Epidemic Zones in Kenya

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This report presents findings from the malaria qualitative study implemented in malaria endemic and epidemic zones in Kenya. This Survey was designed by the research team at PS Kenya and data collection executed by TIFA Research. The study was funded by the United States Agency for International Development (USAID). The opinions expressed in this report are those of the authors and do not necessarily reflect the views of USAID.

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LIST OF ACRONYMS

ACSM	Advocacy, Communication and Social Mobilization
ACT	Artemisinin-based Combination Therapy
ANC	Ante Natal Care
AMREF	African Medical and Research Foundation
CHEW	Community Health Extension Worker
CHV	Community Health Volunteer
FGD	Focus Group Discussion
HBM	Health Belief Model
HH	Household
ICCM	Integrated Community Case Management
IPTp	Intermittent Preventive Treatment in pregnancy
KII	Key Informant Interview
KMIS	Kenya Malaria Indicator Survey
KEMSA	Kenya Medical Supplies Authority
LLINS	Long Lasting Insecticidal Nets
MCU	Malaria Control Unit
MOH	Ministry of Health
NGOs	Non-Governmental Organizations
NMCP	National Malaria Control Program
PHO	Public Health Officer
PS Kenya	Population Services Kenya
SBCC	Social Behaviour Change Campaign
SGDs	Sustainable Development Goals
SP	Sulphadoxide-Pyrimethamine
SSA	Sub-Saharan Africa
WHO	World Health Organization

OPERATIONAL DEFINITIONS OF TERMS FOR THIS SURVEY

Child under 5 years: it's a child who has not yet attained his/her 5th birthday. The child is between one day old to a day to their fifth birthday.

IPTp: Intermittent preventive treatment in Pregnancy, refers to routine antimalarial medication given to pregnant women from their second trimester to protect them from Malaria infection.

Caregivers: This refers to persons who are the primarily responsible of a child's upbringing, diet, health and general wellbeing. In most cases it is usually the mother, however in some instances this role may be taken by other relatives or friends such as the grandmother, sisters to the mother etc. due to the absence or inability of the mother.

Case Management: This refers to actions taken to mitigate or offset the effects of a malaria infection in a child.

Decision Makers: Person in charge of making health decisions for a child under 5 especially with regard to case management of malaria. The health decisions include using of home remedies, and seeking care.

EXECUTIVE SUMMARY

A reduction in malaria prevalence that has been observed in the recent past from 11% in 2010, to 8% in 2015 (KMIS 2015). Indeed, key interventions have included the provision of vector control methods including long-lasting insecticidal nets (LLINs), intermittent preventive treatment for pregnant women (IPTp) and prompt diagnosis and effective

treatment of all malaria cases. However, in the recent past, there has been an upsurge of cases in certain areas of the country, and thus, malaria continues to remain a major cause of morbidity and mortality in Kenya with more than 70% of the population at risk of the disease. The population living around Lake Victoria and on the coast remain at highest risk, with children under age 5 and pregnant women being the most vulnerable to infection. This study was conducted to further determine the factors (enablers and barriers) associated with net use, IPTp uptake and case management among target populations living in malaria endemic and epidemic prone areas in Kenya.

The study assumed a purely qualitative approach using a hybrid conceptual framework that combined both the Health Belief Model and the 3 Delays Model to gain further insight. Specifically, focus group discussions, key informant interviews and in-home visits with the following target groups: care givers of children under 5 years, decision makers and pregnant women were undertaken. The recorded data was transcribed verbatim and then coded using a thematic framework and analyzed using NVivo software.

Net Use: It was noted that mass net distribution was by far the most efficient method for achieving universal coverage. However, an oversupply has encouraged alternative use within communities. Generally, adults appeared to only consider children under 5 and pregnant women to be at highest risk. Moreover, cultural beliefs and myths acted as major barrier to net use especially in Coast endemic zones.

IPTp: Pregnant women in endemic areas were conversant about malaria preventive treatment in pregnancy, with most going to health facilities to get their treatment. However, late ANC attendance was one of the main barriers to effective IPTp uptake. Respondents reiterated that health care providers did not provide information on the importance and need for taking IPTp.

Case Management: Respondents were well informed with regards to symptoms of malaria, including the knowing about adverse outcomes of the disease. However, it appeared that they would only seek medical intervention when symptoms worsened. In the interim, community members use home remedies which were mostly herbs and leftover medication and consult with relatives (mother or mother-in-law) and community health volunteers.

Additional insights into the various communities' awareness with regards to net use, IPTp uptake and malaria case management are discussed, including recommendations towards strengthening of these important malaria interventions across the country.

1. INTRODUCTION

1.1. Background Information

On a global scale, the rate of new malaria cases and deaths fell by 21% and 29% respectively between 2010 and 2015 (WHO, 2017). Malaria is heavily concentrated in sub-Saharan Africa at 188 per 1,000 population at risk.

In Kenya, the disease remains a major cause of morbidity and mortality accounting for more than 70% of the population at risk of the disease (Ministry of Health, 2014). Moreover, the malaria burden in Kenya is not homogenous. The population living around Lake Victoria and on the coast is at the highest risk, with children under age 5 and pregnant women being the most vulnerable to infection.

The Ministry of Health, Kenya, through the National Malaria Control Programme (NMCP), has implemented sound policies and evidence-based strategies in the fight against malaria. Key interventions have included the provision of vector control methods including long-lasting insecticidal nets (LLINs); intermittent preventive treatment for pregnant women (IPTp); prompt diagnosis and effective treatment of all malaria cases both at health facilities and community level through community health volunteers (CHVs); surveillance, monitoring and evaluation and operational research; advocacy, communication and social mobilization (ACSM); and epidemic preparedness and response. Interventions have also included improving the capacity of health care providers, strengthening the supply chain to deliver diagnostic tests and quality-assured medicines at all levels of the health system. These interventions are supported by a robust advocacy and communication platform focused on enhancing demand and uptake by communities. Despite these impressive efforts that have been made to reduce and eliminate malaria in Kenya and around the world, there still remain some crucial gaps.

This study was aimed to further determine the factors (enablers and barriers) associated with net use, IPTp uptake and case management among target populations living in malaria endemic and epidemic prone areas in Kenya. In order to achieve this, the study assumed a purely qualitative approach. The conceptual framework combined both the Health Belief Model and the 3 Delays Model, to gain further insight through focus group discussions, key informant interviews, in-home visits and literature reviews. The target respondents for this study included: care givers of children under 5 years, decision makers and pregnant women.

The findings from this study will inform both the programme team, as well as policy makers at both the county and national level, on how to improve further efficient prevention and case management of malaria at both the community and health facility level.

1.2. Problem Statement

The Kenya Malaria Indicator Survey of 2015 states that Malaria is a major health problem in Kenya with over 70% of the population living in malarial risk areas including those most vulnerable to the disease such as children and pregnant women. Over the last five years, efforts have been made to combat malaria with prevention and treatment interventions inclusive of mass and routine mosquito net distribution programs to attain universal coverage, intermittent preventive treatment of malaria during pregnancy and parasitological diagnosis and management of malaria cases.
There is high ownership of LLINs in Lake Endemic, Highland Epidemic and Coastal but this does not necessarily translate to usage of nets. Understanding the reasons for this nonuse are critical in designing an effective implementation programme to improve use. This study will give insights on possible ways to improve management of malaria especially amongst the most vulnerable (children under five years and pregnant women) by helping determine factors that influence net use, prevention and management of malaria amongst children under 5years and pregnant women in Kenya.

Despite the remarkable reduction in malaria prevalence that has been observed in the last 10 years from 11% in 2010, to 8% in 2015 (KMIS 2015), the rate of malaria remains markedly higher in the lake endemic zone (27%) compared to other epidemiological zones, like the coastal region that experienced 8% in 2015.

Risk perceptions also drive behaviour change towards using malaria preventive interventions. KMIS (2015) also showed that a reduction in proportion of people that felt at risk of malaria only during the rainy season dropped from 35% in 2010, to 25% in 2015. However, while this reduction is significant, there appears to be other factors driving net use, apart from risk perception.

Population Services Kenya (PSK) has been working with the Ministry of Health (MOH) through the NMCP, to design and implement evidence based behaviour change communication campaigns. These campaigns have been geared towards improving and further strengthening net usage, uptake of IPTp among pregnant women and case management among target populations living in malaria endemic and epidemic prone areas in Kenya.

It is thus against this background that PS Kenya conducted qualitative studies incorporating the Health Belief Model and the 3 delays model to inform design of Social Behaviour Change Campaign (SBCC) interventions.

1.3. Research Objectives

The general objective of this study was to determine factors associated with net use, IPTp and case management uptake among target populations living in malaria endemic and epidemic prone areas in Kenya.

The specific objectives of this study were to asses:

- Factors associated with adaptation of various malaria interventions among the different target groups epidemiologic zones in Kenya
    I. Caregivers on net use among children under five years
    II. Net use among other household members
    III. IPTp uptake among pregnant women
    IV. Case management among caregivers of children under 5 years i.e. diagnosis and treatment- (care seeking behaviour, test done and treated with ACT)
- Barriers to net use, IPTp and case management uptake
- Enablers of net use, IPTp and case management uptake
- Preferred source of information from communities perspective on malaria (prevention and treatment)
- Factors associated with alternative use of nets
- Disposal methods of nets

1.4. Research Questions

The hypothesis of the study was that strengthening various interventions comprehensively would lead to reduced malaria cases. The research questions therefore included the following:

1. What were the factors associated with use of various interventions among the different target groups?
    a. What were the factors associated with net use among care-givers of children under five?
    b. What were the factors associated with net use among other household members?
    c. What were the factors associated with IPTp uptake among pregnant women?
    d. What were the factors associated with case management among caregivers of children under 5?
2. What were the factors associated with differential net use IPTp and case management uptake across epidemiologic zones in Kenya?
3. What were the barriers to net use IPTp and case management uptake?
4. What were the enablers of net use IPTp and case management uptake?
5. What were the preferred sources of information on malaria (prevention and treatment)
6. What were the factors associated with alternative use of nets?
7. What were the disposal methods of nets?

2. LITERATURE REVIEW

According to WHO, there has been tremendous progress made in the fight against malaria since 2000. The latest estimates, between 2000 and 2015, showed that the malaria case incidence was reduced by 41%, whilst malaria mortality rates decreased by 62% (WHO, 2016). Much of the change was attributed to the wide-scale deployment

of malaria control interventions, in a bid to achieve universal access to the latter. These prevention strategies, are key to attaining WHO's targets of the Global Technical Strategy for Malaria 2016-2030, to which Vision 2030, Kenya is aligned to.

In 2014, the Malaria Control Unit (MCU), Kenya revised the Kenya Malaria Strategy to prioritize malaria prevention and treatment interventions focused on reaching a twothird reduction of malaria morbidity and mortality by 2017. The MCU has strategically reprioritized the approved malaria control interventions according to malaria risk (USAID, 2015). These prevention strategies included increasing the proportion of at-risk population sleeping under LLINs (vector control); the proportion of eligible pregnant women receiving 3 or more doses of IPTp (malaria in pregnancy); diagnostic and treatment (case management) strategies include access to treatment for febrile children under 5 years and treatment with effective antimalarial therapy(WHO, 2016); epidemic preparedness and responses; ACSM; surveillance, monitoring and evaluation and operational research (USAID, 2015). Further strategies include health systems strengthening and integration. Only the following strategies that will be further assessed in study will be discussed below: LLINs, IPTp uptake and case management.

2.1 Long Lasting Insecticidal Net Use

The most commonly used vector control methods to prevent mosquito bites are sleeping under a Long Lasting Insecticidal Net (LLIN), as well as spraying the inside walls of a house with an insecticide – indoor residual spraying (IRS). The use of LLINs in sub-Saharan Africa, has been shown to reduce malaria incidence rates tremendously by up to 50% in a range of settings, besides reducing malaria mortality rates by 55% in children aged under 5 years (Flaxman et al., 2010; Dellicour et al., 2010). Historical and programme documentation suggest a similar impact for IRS, but randomized trial data are limited (Cibulskis et al., 2011). This study did not look at IRS.

Lake and Coastal Endemic areas include Lake Victoria in western Kenya and coastal regions, with altitudes ranging from 0 to 1,300m, where there is stable malaria transmission. In these regions, the vector life cycle is usually short with a high survival rate due to the suitable climatic conditions. The Highland Epidemic regions includes the regions in the western highlands of Kenya, where malaria transmission is seasonal with considerable year-to-year variation. The epidemic phenomenon is experienced when climatic conditions favor sustainability of minimum temperatures around 18˚C. This increase in minimum temperatures during periods of long rains favors and sustains vector breeding which in turn results in an increased intensity of malaria transmission.

The use of mosquito nets in Kenya is relatively mixed in the various regions of the country. According to Kenya Malaria Indicator Survey (KMIS) 2015, there is high ownership of longlasting Insecticidal Nets (LLINs) in Lake Endemic, Highland Epidemic and Coastal but this does not translate to usage of nets. In the lake endemic zone and highland epidemic zones, a lower proportion of pregnant women sleep under a net compared with children under five years. Urban residents have high ownership of nets but do not use them as seen for example in a study from Ethiopia (Gobena, Berhane, & Worku, 2012).

According to KMIS 2015, households with children are more likely to have the LLINs. Reported ownership and usage in households with children under the age of five years

may not translate to children actually sleeping under the net, the reported usage could be other members of the household. Children under the age of five years in households with large numbers of people are also less likely to sleep under a net. Men and similarly children over the age of 5 years, including teenagers are less likely to use nets, compared with the under-fives and women. It also emerged that households with older people (no children/teenagers) were less likely to use nets compared to households headed by younger people. Similarly, children over the age of five years and teenagers are less likely to use nets compared with the under-fives and women.

Poor households are less likely to use nets compared with wealthier households (Aung et al., 2016). Households with only a single room used for sleeping coupled with the rudimentary design of the house limits how many nets can be hanged in the room (Watario & Awoke, 2016). The interior design of the houses makes it difficult to hang the net particularly so in thatched, round houses. Not being able to hang the net was associated with non-use in Calabar Nigeria (Iwuafor et al., 2016). The interior design of the houses with respect to the type of cooking fuel used whether open flame, or not, and the location of the kitchen also affects the sleeping arrangement of the household members which does affect usage (Gnanguenon, Azondekon, Oke_Agbo, Beach, & Akogbeto, 2014). In a study in Kersa in eastern Ethiopia, a blue net was preferred over a white one, and a cylindrical shape net was preferred over a rectangular shape net which participants reported to be difficult to hang and to keep hanged when not in use due to space constraints (Gobena et al., 2012). There were also several faults mentioned with the nets distributed during the campaign which brings to question the quality assurance protocols affects net usage (Aung et al., 2016).

Behaviour change communication campaigns have had a great impact by increasing usage of nets (Russell et al., 2015). Interestingly enough, this did not translate to a reduction in the burden of malaria among children under the age of five years. Instead, there was a surprising increase in malaria transmission among children particularly after the rainy season (Louis et al., 2015). Inconsistent use, and poor maintenance of nets may have been the cause of the upsurge of malaria cases among children (Louis et al., 2015). Usage of mosquito nets is low when the weather is warmer/ not rainy though the risk of transmission is all year round and still remains high during dry season. A study in Calabar Nigeria, made a judgment of whether to use a net or not based on whether they visualized mosquitoes or not in the house (Iwaufer et al., 2016). A study in Senegal found that watching television outside or indoors prior to going to bed increased the risk of malaria transmission (Iwaufer et al., 2016).

Other factors associated with net use include: number of nets in the house, having more than three nets increased the usage of LLNs; knowledge, the higher the knowledge the higher the usage; and remoteness, populations living further away from major transportation networks such as roads and rails were less likely to own and therefore to use nets as well as those living further away from a health facility (Watario & Awoke, 2016). According to a survey done in Ethiopia, alternative usages of nets included: for fishing or mesh farms, covering property in the household or as a curtain.

2.2 Intermittent Preventive Treatment (IPTp) Uptake

Pregnant women are at a risk of malaria hence the WHO recommends intermittent preventive treatment in pregnancy (IPTp) with sulphadoxine-pyrimethamine (SP) and artemisinin-based combination therapies (ACTs) as one of the strategies of reducing maternal morbidity, mortality and negative pregnancy outcomes. Although the women who receive at least one dose of SP is high, a very low proportion of women receive the recommended three doses or more of SP during the pregnancy. The lowest proportion was in highland endemic zone (20%) followed by the lake endemic zone (35%) with the highest in the coastal endemic zone (43%). There was no inequality observed based on education level or wealth status (NMCP et al., 2016). According to KMIS 2015, attendance of ante-natal care (ANC) has not increased the uptake of IPTp, coverage remains low despite high ANC attendance. Public health facilities in the lake endemic zones confirmed that majority of health facilities failed to deliver these interventions to 80% of eligible women despite SP being in stock. Proportions of women who attended ANC at least twice in an eligible gestation (78%) and those receiving at least two doses of IPTp (27%).

Systemic analysis suggest that health care worker confusion about the dose and timing as well as inadequate supplies including SP stock outs and lack of cups for drinking water all play a key role. Restrictive policies recommending administration of SP-IPTp during specific weeks of gestation or prohibiting its administration in the last for weeks of pregnancy certainly contributed to at least some missed opportunities. According to KMIS 2015, women believe that SP is harmful to the fetus, low levels of awareness of the use of IPTp as a malaria preventive measure and poor knowledge of the gestational age for taking SP were identified as individual barriers to the use of SP-IPTp. The survey also showed that use of insecticidal nets also determined the use of SP-IPTp. This is because it is expected that mothers who use insecticidal nets are more likely to be exposed to health education programs focusing on the consequences of malaria in pregnancy. It also emerged that many women are reluctant to seek care for an illness they do not have.

2.3 Case Management Of Children Under 5 Years

Malaria is still considered to be endemic in 91 countries and territories, although this is down from 108 in 2000 (WHO, 2016). Updated estimates showed that 212 million cases occurred globally in 2015, leading to 429 000 deaths, most of which were in children aged under 5 years in Africa. Specifically, Kenya accounts for 3% of the deaths due to malaria, and 14% of malaria cases in East and Southern Africa in 2015 (WHO, 2016). WHO estimates show that children under 5 years of age are one of the most vulnerable groups affected by malaria: in 2015, they accounted for approximately 70% of the estimated 429 000 malaria deaths worldwide (WHO, 2017). Indeed, prompt diagnosis and treatment of malaria can cure a patient, thus preventing the development of severe malaria and subsequent death. Moreover, this results in the reduction of the length of time that patients carry the parasites in their blood, which in turn reduces the risk of onward transmission.

According to KMIS 2015, management of uncomplicated malaria at home included recognition of symptoms of malaria by caregivers and appropriate and immediate

treatment at home and seeking treatment outside the home. The lake endemic zones had the highest proportion of children presenting with fever in the two weeks prior to the survey (53%) followed by children in the coast endemic region (39%) and the highland epidemic zone (36%). The proportion of children for whom advice or treatment was sought was however very low in the lake endemic region (65%) compared with the coast endemic zone (73%) and highland epidemic (82%).

One of the Sustainable Development Goals (SDGs) is to accelerate progress towards malaria elimination end endemic tropical diseases including malaria by 2030 (WHO, 2016). This is also in line with Kenya's Vision 2030. To this end, there is a global strategy led by the WHO to reduce malaria incidence and mortality rate by 90% by 2030. Nonetheless, less than 50% of countries are on track to meet this target and the WHO is calling for innovative ways to reach this goal(WHO, 2016). WHO is calling for new and improved malaria-fighting tools. More so, greater investments are needed in the development of new vector control interventions, improved diagnostics and more effective medicines. Additionally, community engagement will remain essential for the success of all malaria preventive activities, as most often people living in remote or hardto-reach areas with limited access to health facilities can only be supported through community-based approaches, often in partnership with non-governmental implementing partners. Undeniably therefore, well-planned public health communication and behavioural change programmes will be critical to educate affected communities about the benefits, and correct use, of malaria prevention tools (WHO, 2017).

In Kenya, the Ministry of Health (MOH), through the National Malaria Control Programme (NMCP), has continued to implement sound policies and evidence-based strategies in the fight against malaria. This has included the key intervention strategies mentioned above: provision of LLINs, IPTp and prompt diagnosis and effective treatment of all malaria cases. Additionally, other interventions have included the improvement of the capacity of health providers and strengthening the supply chain to deliver diagnostic tests and quality-assured medicines at all levels of the health system. These interventions are supported by a robust advocacy and communication platform focused on enhancing demand and uptake by communities.

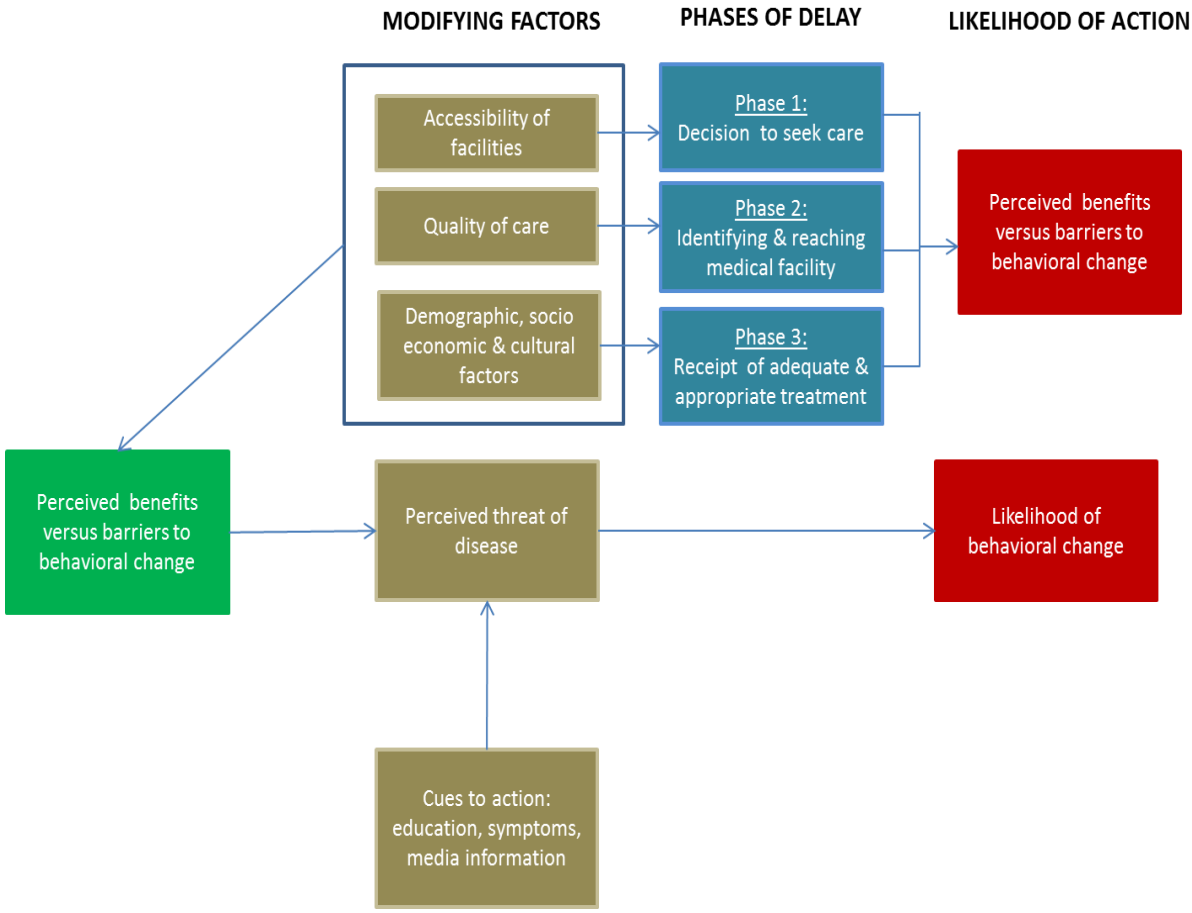
In enhancing the advocacy and communication platforms, Population Services Kenya (PSK) has been working with the Ministry of Health (MOH) to design and implement evidence based behaviour change communication campaigns. These campaigns will be geared towards growing net usage, uptake of IPTp among pregnant women and case management among target populations living in malaria endemic and epidemic prone areas in Kenya in the next 5 years.

Based on the gap in knowledge and the promising strategy proposed, the study seeks to further explore how reduction in malaria cases can be realized through behavioural change communications.

3. THEORETICAL APPROACH AND OPERATIONALIZATION OF THE RESEARCH

The proposed conceptual framework is an integrated approach of the Health Belief Model (HBM) and The Three Delays Model to address the vulnerable population faces in accessing anti-malarial care as shown in Figure 1 below. These two models were harmonized in this survey in order to answer the study questions.

Figure 1: Conceptual Framework: Health Belief Model and Three Delays Model



3.1 Health Belief Model

[1] The HBM is a psychological model that attempts to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals within a community. The HBM states that, in the case of prevention, individuals will take a health related action if they have a desire to avoid an illness and if they believe that a specific health action will prevent their illness.

The model includes four elements:

1. **Perceived Susceptibility of the individual to the condition**:
   This refers to subjective assessment of risk of developing a health problem. The HBM predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviours to reduce their risk of developing the health

[1] www.incendi.org

problem. For example the mother believes that her child will face severe consequences if the child does not sleep under a mosquito net.

2. **Perceived severity of the condition as having serious medical and social consequences**:
   This is the person's view of how severely they would be impacted if they were affected by the condition. The HBM predicts that higher perceived threats lead to higher likelihood of engagement in health-promoting behaviours.

3. **Perceived benefits of taking the health action in reducing the disease threat as well as other additional benefits**:
   This is the belief in how effective the advised action will be in mitigating the problems of the condition considered in severity. For example, a mother believes that she is more likely to get good quality malaria medicine if she gets it from a government health facility, instead of the local drug vendor. A mother believes that she is likely to have a healthy pregnancy and thereby a healthy baby if she takes IPTp.

4. **Perceived barriers of taking the health action in reducing the disease threat as well as other additional benefits**:
   Perceived barriers can be identified and reduced through reassurance, incentive and assistance. These four perceptions are elements that determine the readiness to take the action. For example, a mother is concerned about the time and transportation costs involved in going to the government health facility when her child is sick with fever, rather than simply buying malaria medicine from the local drug vendor. They are activated by:
   - **Cues to action** which trigger this readiness, for example a health provider recommends a quality medicine source when telling the mother her child tested positive for malaria, and
   - **Self-efficacy** which is the conviction that one can successfully execute the health behaviour, for example a mother feels that she is able to purchase malaria medicine from less risky, regulated sources.

3.2 The Three Delays Model

The Three Delays Model according to Thadeus & Maine 1994, The Model exists in 3 phases[2] that examines the factors associated with delays in seeking health care for episodes of serious illness and their possible implications for safe interventions. These phases include the following:

Phase 1: Delays in the Decision to Seek Care

- Lack of understanding of complications: the caregiver could will observe some symptoms in children under 5 but fail to take them seriously.
- Time taken to consult with influencers: women's ability to make decisions either alone or in consultations with other people at the level of the family or household is an important determinant of their access to, and use of skilled healthcare services.

[2] www.maternityworlwide.org

- Economic barriers: this involves facilitating income generation schemes for women to enable them to become financially independent and empowered to make decisions about their own sexual and reproductive health and to become future leaders.
- Socio-cultural barriers to seeking care: this involves cultural obstacles to accessing health care and this include myths and misconceptions.

[3]Phase 2: Delays In Reaching Care

These delays are due to a number of factors and these are explained below;

- Difficult terrains such as mountains, islands, and rivers make it difficult to access health centers. This can be overcome by making a provision for motorbike ambulances for mountainous terrain to improve access to health centers.
- Distance to health centers and hospitals hence a need for provision of health centers in rural and remote areas as well as outreach healthcare workers visiting villages to provide care
- Availability of and cost of transportation: There could be few transportation options available to those who want to travel to a health centre. The cost of transportation could also be a barrier to low income earners.
- The amount of time that a woman can spend travelling to get medical care is a barrier as women are often the primary caretakers and they have other responsibilities at home. They hence must find ways to navigate the obligations of childcare and household duties in order to walk to a health facility

Phase 3: Delays in Receiving Care

The set of delays happened when the patient is already at the health centre. This can be due to:

- Inadequate personnel: they number of medical personnel in a health centre could be few relative to the number of patients and this leads to long queues
- Inadequate supplies: some health centres do not have adequate equipment and the patients have to wait to use them.
- Poorly trained personal with punitive attitude

4. RESEARCH METHODOLOGY

4.1 Desk Research

Desk review entails comprehensive review of relevant documents in relation to the area of study. Desk research was conducted in order to get a better understanding of the behaviour malaria prevention and management. Specifically, the investigators reviewed quantitative data from PS Kenya surveys, KMIS 2015, WHO global reports, and other relevant reports. These existing reports were reviewed to get a better understanding of the issues that needed to be investigated further using qualitative research.

[3] National Centre for Biotechnology Information

4.2 Qualitative Data Collection

4.2.1 Target Respondents

In this study, two categories of respondents: primary respondents who were also the target beneficiaries, and secondary respondents, the health experts, were included:

Our primary respondents included;

- Caregivers of children under 5 (who were at a high risk of malaria),
- Pregnant women and;
- Decision makers household hold

Secondary Respondents

This study also targeted key informants who could provide further insights on community behaviour in regards to malaria prevention and management. Key informant interviews were undertaken with selected respondents who were also purposively sampled, and included:

- At the County Level: Community Health Volunteers (CHVs); Malaria Control Coordinators and Health Care Workers at the facilities;
- At the National Level: Kenya Medical Supplies Authority (KEMSA); LLIN Manufacturers; NMCP staff; Donors, malaria stakeholders and partners

4.2.2 Qualitative Research Techniques

The study design combined a number of qualitative research methods at the different methods were able to address inherent limitations associated with application of a single methodology. It is therefore important in obtaining relevant information necessary for making value adding recommendations. The methodologies were be as follows:

- Focus group discussions (FGDs) only using various projective techniques
- Key Informant Interviews (KIIs)
- In-home visits observations (IHVs)
- Journey mapping through in-depth interviews

4.2.2.1 Focus Group Discussions (FGDs)

Focus group discussions are discussions that comprised of 8 to 12 participants/ respondents and were conducted by 2 experienced researchers, a moderator and a note taker. In order to evaluate net usage, malaria case management and IPTp uptake within the study regions FGDs were conducted with; pregnant women, care givers of children under five years (who are at a high risk of malaria) and decision makers.

A screening guide was used to ensure that the right group was recruited for participation in the FGD. During the discussion sessions, a FGD guide was used. The discussion covered all the key exploratory areas (net usage, IPTp uptake and case management) for this survey. The guide comprised predominantly open ended and deep probing questions that kept the respondents most engaged.

Each of the FGDs, comprised between 8-12 participants/ respondents. This was to ensure that group dynamics could be checked and under control during the discussion sessions, as well as reducing any form of bias due to dominance. Two FGDs were conducted per day to allow for transcription and reflection of the information identified in the transcripts. This thus gave the researchers the opportunity to refine the session guide and prepare for subsequent interviews. Each group discussion did not exceed two and half hours and was recorded on a Dictaphone for transcription and referencing back to the client.

In order to explore in-depth responses, stimulate better responses and reveal certain aspects of the respondents' perceptions and beliefs on the malaria interventions behaviour under study, several creative and projective techniques were used. Projective techniques are unstructured and indirect form of questioning that encouraged respondents to project their underlying perceptions, motivations, beliefs and attitudes regarding the issue of concern. This study made use of theatre/ role plays projective technique.

During the focus group discussion, 60% of the discussion time focused on the key theme and 40% of the discussion time was concentrated around other themes for each respective target group.

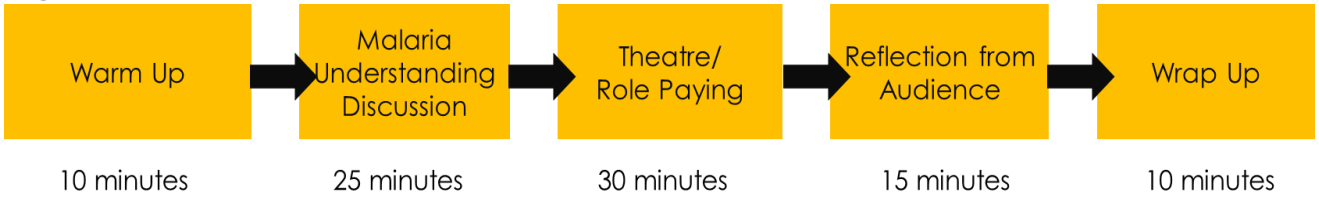
The focus group setting was arranged to allow for a free roundtable discussion, with the FGD venue being central and accessible to all respondents. FGDs were administered in the respective local languages i.e Luo, Kisii, Nandi, Maasai, Kiswahili and Luhya.

4.2.2.2 Theatre-Role Plays

Theatre/ role plays allowed community members/ respondents to perform a drama based on the messages that emerged from the story telling process. Role play is a technique in which people spontaneously act out problems of human relations. The session participants stimulated real life situations either as themselves, or someone else that they know. This exercise helped participants demonstrate specifically, in a step by step manner what went on in certain situations i.e. malaria case management.

The purpose of this technique in this study was to generate insights on handling malaria case management cases by getting the participants to role play specific interactions and scenarios. The drama was used to enact specific interactions and events on malaria. This technique was carried out as shown in Figure 3 below;

Figure 2: Role Play Format



- **Warm up**: Ice breaker questions, respondents introduced themselves, their hobbies, their values, amongst other introductory statements.

- **Malaria Understanding Discussion**: this involved a discussion on the most pressing health challenges facing them, with regards to malaria, their understanding of prevention and management of malaria, amongst other topics around malaria issues.
- **Theatre-Role Playing**; ○ Facilitator briefed the respondents on task at hand
    - ○ The researchers asked the respondents to role play their usual behaviours on how they manage malaria cases
    - ○ Respondents selected a team leader and a time keeper ○ Respondents selected the audience ○ The drama was enacted
- **Reflection from audience**:
    - ○ The audience was then given a chance to add to the script
    - ○ Respondents discussed the "what" that was enacted in the drama and the issues that arose from this.

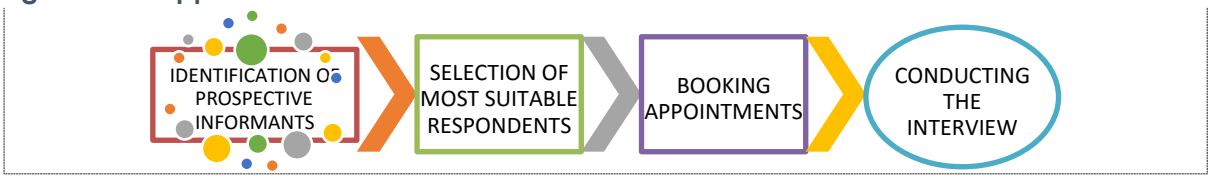
4.2.2.3 Key Informant Interviews

Key Informant Interviews (KIIs) are one on one interviews with respondents and the aim was explore a topic in-depth. Key stakeholders who were knowledgeable on the various malaria intervention measures under study within the selected counties were interviewed. They provided information such as: current statistics, trends on net use, case management and IPTp uptake. This information was used to draw conclusion of the study.

Data collected from this approach was in the form of opinions, experiences and recommendations. A KII guide was used to guide the interviewer to ensure that the questions administered to respondents were relevant and aligned to the study topics. The KIIs' were administered in English, by researchers who were recruited based on professional qualifications, then trained before the commencement of the field work.

The KIIs' adopted the approach stipulated in Figure 4 below:

Figure 3: KII Approach



4.2.2.4 In-home visits Observations

For the in-home visits researchers visited respondents home and interviewed them in their real-life environment. The homes of some of the community members were visited to gain a better understanding of net usage in their homes. The visits were made during the night and this enabled researchers to observe net use in a natural setting. In addition, researchers took photos of children sleeping under nets and also different ways in which the nets were hung. Additionally, a check list of what to observe was followed. The observations were also an important factor for cross-checking against what respondents reported about themselves during the FGDs.

4.2.2.5 In-depth Interviews – Journey Mapping

In-depth interviews were administered in the respective local languages with pregnant women who were specifically on their third trimester, and mothers of children under 5 years from the various regions.

This was in the form of a one-on-one interview with the target respondents. The aim was to explore a topic in- depth, and in most in-depth interviews lasted from 45 minutes to 2 hours long depending on the topic and what was being covered. In most cases the researcher used an open-ended interview approach. All interviews were recorded.

This approach was appropriate for more sensitive subjects allowed for a greater understanding without the views of the respondent being influenced by what other group members might say.

The journey mapping methodology was used to generate insights on malaria case management. Using this approach the researchers sought understand various aspects that included: how respondents identified malaria symptoms in children, first aid measures taken while at home, how they managed the symptoms at home, at what point in time they visit health facilities for treatment, amongst other aspects.

4.2.3 Data Analysis

Data once collected, was transcribed and analyzed using NVivo, a software for coding and managing qualitative data. Variations that could have resulted due to socioeconomic, cultural or geographical factors were further explored, as well as interesting findings from the malaria zones noted for attention of program implementers.

4.3 Sample Structure

The aim was to generate a sample which allowed for the understanding of net use, IPTp uptake and malaria case management. The sampling design and procedure used in this study was purposive sampling. The target respondents were selected purposively using a recruitment questionnaire. Below is a summary of the sample breakdown by data collection methodology and geographical region.

Table 1: Sample Structure

Data Collection Methodology	Thematic Area	Highland Malaria Epidemic Counties	Lake Malaria Endemic Counties	Coast Malaria Endemic Counties	National Level	Total
Focus Group Discussions	Net Use	7	7	7	-	**21**
	IPTp Uptake	4	4	3	-	**11**

	Malaria Case Management	5	5	5	-	**15**
In-depth Interview / Journey Mapping	Malaria Case Management and IPTp Uptake	4	4	4	-	**8**
In-home visits Observations	Net use	6	6	6	-	**12**
Key Informant Interviews	Net use, IPTp and Malaria Case Management	9	9	9	5	**32**

4.4 Research Protocol and Ethical Clearance

Prior to the commencement of the field work, research protocol and informed consent were prepared. The research protocol provided a detailed documentation of the research problem in the Kenyan context, objectives of the study, research questions, the proposed conceptual framework, study design and the sampling frame work, data collection, collation and analysis plan, quality control and the detailed work plan for undertaking the study. In addition, the data tools were shared alongside the research protocol for approval during the stakeholder consultation meetings. The data collection tools included the recruitment questionnaires, consent forms and discussion guides together with their respective translations.

These submitted to AMREF Ethics Review Committee for review. Following a detailed review, the Committed sought clarification on a number of items. These were addressed and the Committee then gave approval for the study to go ahead.

4.5 Study Challenges and Mitigation Measures

In course of the study implementation, there were challenges encountered. Several mitigation measures were put in place to address these challenges as detailed in the section below.

Heavy Rainfall

This was evident in regions such as Kilifi, and Kwale which led to respondents reaching the venues late. In some regions such as Migori and Nandi, the rainfall hindered ease of communication among respondents and moderators during the focus group discussions due to the noise made by iron sheets. As a mitigation action, the researchers started some of the sessions late as they waiting for the rain to ease so that the respondents could travel to the FGDs venue. In addition, the moderator encouraged the respondents to speak loudly so as to be able to capture the proceedings on an audio recorder.

Access to Pregnant Adolescents

Access to pregnant adolescents aged 15 to 19 years was a challenge in Kwale and Kilifi regions. The main reason was this target group was hesitant to leave their homes to attend the FGDs due to stigmatization resulting from early pregnancies. In addition, those were married were hesitant to reveal themselves as they feared their husbands would be arrested as part of the ongoing activities to deter underage marriages. As a mitigation action, we conducted mini-groups with this targeted group. In addition, we also substituted one FGDs with pregnant girls aged 18 to 19 years as were in legal marriages.

Access to Adolescent Caregivers

Access to caregivers of children under 5 years aged 15 to 19 years in Migori were a challenge. This is because with the free education programmes, most were in school a, and unable to attend the FGDs. In addition, the county has many programs discouraging early marriage and encouraging affected girls to back to school. To address this challenge, we recruited caregivers of children under 5 years aged 25 to 35 years.

Availability of Key Informants

Due to busy schedules and the short time allocated for data collection, booking appointments with Malaria Control Coordinators as difficult. To address this challenges, we sought permission to substitute the respondents with a similar profile respondents. For instance, the Malaria Control Coordinator in Migori was substituted with Nyatike Malaria Control Coordinator.

Poor Internet Connectivity

It was a requirement for moderators to share the audios of their sessions they moderated with a day of completion. The audio files were supposed to be uploaded on a google drive. Due to poor intent connectivity, some of the moderators found it difficult to send audios using google drive mainly due to poor internet connections or power failure.

This challenged was addressed by using 'WeTransfer' which was easier, faster and cheaper, and allowed PS Kenya, the quality control team, as well as the project managers in the respective regions, receive audios daily.

Vector Control

5. STUDY FINDINGS - VECTOR CONTROL

5.1 Introduction

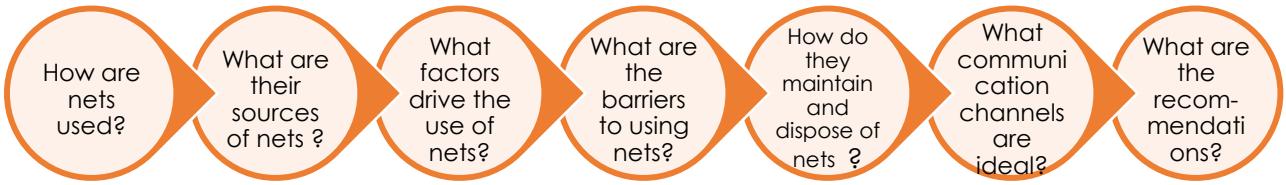
The policy orientation as stipulated by NMCP, around LLIN use in Kenya is the consistent and correct use of LLINs every night, every season. LLINs have proven to be instrumental in the fight against malaria in sub-Saharan Africa, Kenya included. As part of Vision 2030, which is aligned to the SDG targets, the NMCP scaled up distribution of LLINs specifically to target populations of children under 5 and pregnant women. However, despite massive scale-up of LLINs distribution all over the country, shortfalls and inequities exist, which might compromise long-term elimination or control programmes.

The respondents targeted for this thematic area included;

- Pregnant women (15 to 19 years & 20 to 49 years),
- Decision makers (no age limit, both male and female);
- Caregivers of children under 5 years (20 to 29 years, 30 to 70 years & 15 to 19 years, both male and female), and;
- Key informants

The study sought to explore further the following key research questions, as illustrated in Figure 5, surrounding LLIN use:

Figure 4: Key Research Questions on Net Use



5.2 Knowledge of Net Use

It was apparent that in all counties, knowledge on net was high. According to most respondents, the following individuals tended to sleep under net mainly to protect themselves from contracting malaria as their immunity was perceived low: children under 5 years, pregnant women and lactating mothers especially those who sleep with the baby. Others also mentioned that fathers, visitors and everyone else also used nets,

> "…*children and their mothers but it is supposed to be everyone*…" Caregiver of a child under 5 years, 15 to 19 years, Female, Narok

Most of the respondents further mentioned that its predominantly the mother who decides who to sleep under a mosquito net mainly due to the that they are the ones

who buy the nets, or bring the net home; are more involved with household activities; are the main decision makers in some households and tended to seek treatment if the child fell ill. Additionally, mothers are also the ones who mostly take care of the children. The following quotes highlight this;

> "…*it is the mothers who are mostly concerned when it comes to bed time. They are the ones who normally see to it that the children sleep well under a net. They keep reminding the children to use the nets*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

> "…*the fathers will only provide money. It is the mother who will go to the hospital with the child both day and night*…" Decision Maker, Female, Kisumu

> "…*women are the ones who bear the burden of illnesses at home. So, most homes that use nets, there is usually a woman who insists on net use*…" Key Informant, County

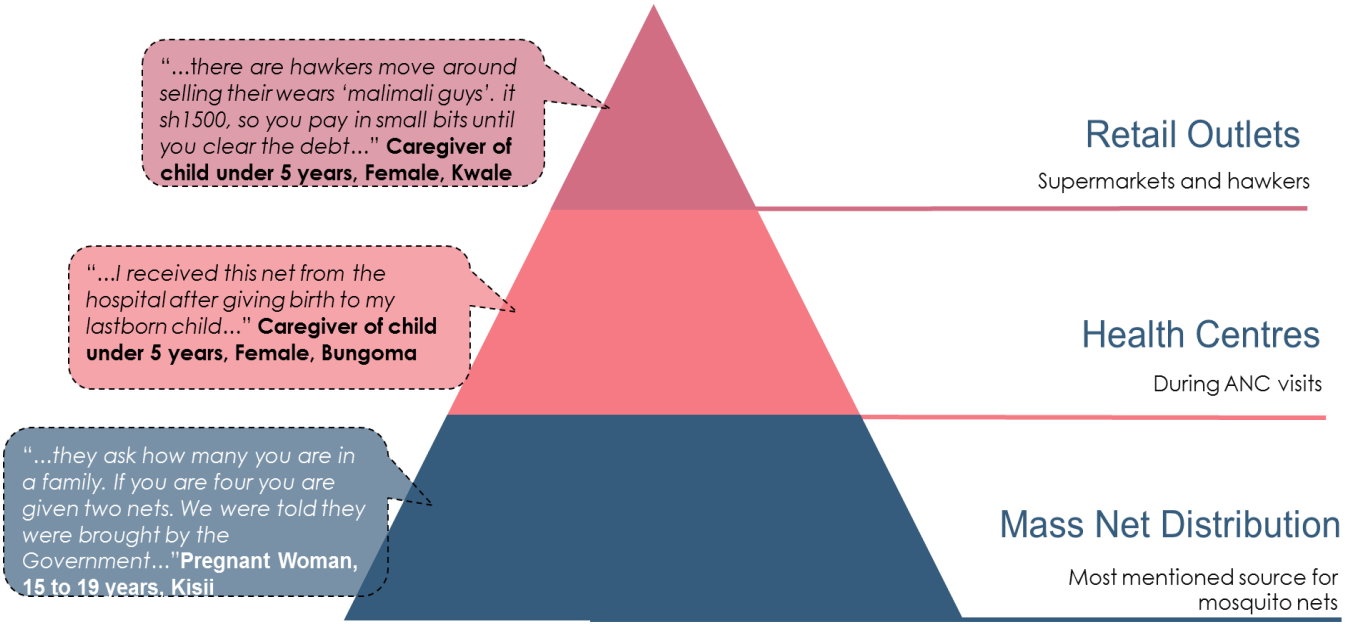
The study findings indicated that the role of the man in net use is limited. A small proportion of women mentioned that their husbands in some instances were given priority over the female caregivers in net use.

> "…*there are those husbands, like mine, he can't sleep in a bed that doesn't have a net. So that means if there is no net, he will sleep with the children and you, you sleep without*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

5.3 Sources of Nets

According to KMIS 2015, the majority of nets were accessed through routine LLIN distribution, which included either the 2014-2015 mass net distribution campaign, other distribution campaigns, or distribution by government, clinical and faith-based health facilities (Figure 6). The findings of this study also confirm this as a majority of respondents indicated that that they had indeed acquired their nets through mass distribution. The second most common source of LLINs is health centres and the nets are obtained during the ANC visits where pregnant women are initially given nets for themselves and later on for their child. Ranked third as a source of nets are retailers in the form of supermarkets and hawkers.

Figure 5: Sources for Mosquito Nets


"...there are hawkers move around selling their wears 'malimali guys'. it sh1500, so you pay in small bits until you clear the debt..." **Caregiver of child under 5 years, Female, Kwale**
"...I received this net from the hospital after giving birth to my lastborn child..." **Caregiver of child under 5 years, Female, Bungoma**
"...they ask how many you are in a family. If you are four you are given two nets. We were told they were brought by the Government..." **Pregnant Woman, 15 to 19 years, Kisii**
Retail Outlets
Supermarkets and hawkers
Health Centres
During ANC visits
Mass Net Distribution
Most mentioned source for mosquito nets

5.4 How Nets are Used (Observations)

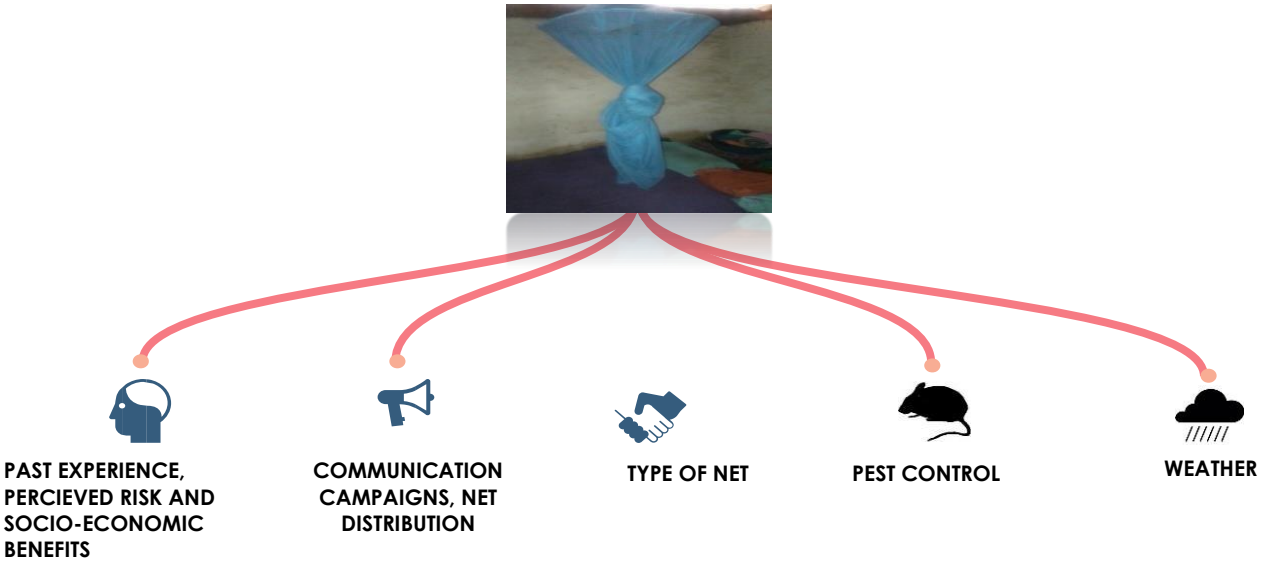
As indicated earlier, net use was best understood by making in-home visits during the night. A variety of sleeping materials were observed, and for the most part, nets were noted to be hung above the sleep space (Figure 7). In addition, the observations show the sleeping space determines how the net is hung. For instance, those sleeping on a bed, hang the net from the celling whilst those sleeping on the floor use either the wall or the ceiling. It was also observed that a number of children were using the sofas in the sitting room and this means that the net is removed from the sleeping area every morning.

Figure 6: Observations of Net Use at Night vs Sleeping Space

5.5 Drivers of Net Use

Motivation for use of nets was categorized into two major categories: individual drivers (past experience, perceived risk) and driven by specific malaria programme activities (communication activities, net distribution). The other categories mentioned was type of net and other reasons. According to most of the respondents and key informants, the main drivers to sleeping under a net included:

Figure 7: Drivers to net use



5.5.1 Individual Drivers

Past Experience and Perceived Risk

The respondents past negative experience is a key driver. The experiences that driver net usage include the death of a family member or neighbor to malaria. In addition to death, miscarriages experienced personally or observed on a neighbor raise the concern of malaria. Therefore these experiences contribute to their perceived risk of malaria and hence their knowledge on the need to ensure they sleep under a net.

> "…*my kids and I sleep under the nets reason being my last born and I have previously contracted malaria and that is the way to prevent it*…" Caregiver of child under 5 years, 20 to 29 years, Female, Mombasa

Socio-Economic Benefits

Another driver is the perceived socio-economic benefits associated with preventing malaria. Suffering from malaria is associated with the financial burden that comes with treating the disease such as purchase of medication and transport costs to a health centre motivate respondents to prevent malaria by using nets.

> "…*when malaria comes it will take us back from our development plans*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

5.5.2 Malaria Programme Activities

Communication Campaigns

There are indications that communication messages on malaria motivate net use. Such campaigns mentioned include 'Mbu nje, sisi ndani' campaign by PS Kenya. Other

sensitization campaigns activities included dramas on net use at the market centres and outreaches carried out by CHVs, village elders known as 'Nyumba Kumi elders' who actively campaigned to sensitize communities about the benefits of sleep under mosquito nets.

> "…*the "Sisi ndani mbu Nje" campaign on television*…" Decision maker, female, Bungoma

Free Net Distribution
The free distribution of nets at public health facilities, Tunza clinics, and those distributed through were important driver to net use.

> "…there are accessing the nets through Global Fund, through PS Kenya projects…." Key informant, County

5.5.3 Type of Net

Color of Net
A majority of respondents preferred blue or green nets, perceiving them as being durable and easy to maintain as they hid the dirt. There are indications that white nets are not ideal not only due to the concerns around hygiene but also due to cultural factors. White nets are used to cover dead bodies in the coastal region and as a result are considered not ideal for day to day use.

Shape of Net
In the Coastal region especially, conical/ round shaped nets were perceived as being easy to hang/ hook. Respondents from all regions agreed that rectangle shaped nets were bigger in size, durable, easily fitted on the bed, and gave the user ample space inside the bed.

> "…*it aligns with the bed. Not like the round one. The round one, at times when you hang it, it slants this way*…" Caregiver of child under 5 years, Female, Mombasa

Treated Nets
The respondents are aware of the benefits of treated nets and therefor have a preference for them as they are considered more effective in protecting them against mosquitoes.

5.5.4 Other Drivers

A variety of other reasons were mentioned as drivers of net use. These included:

Pest Control
There were a number of respondents who feel that mosquito nets protect them from other pests such as snakes, cockroaches, ants and geckos mostly mentioned by

respondents from Migori, Bungoma, Kwale, Kilifi and Mombasa. In addition, the nets are ideal for bed bugs control, mostly mentioned in Bungoma

> "…*I think having and using a net is important. It helps keep away mosquitoes and even snakes from crawling into the bed as one sleeps. The net acts as a protection from many things not only mosquitoes*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

> "…*you know the medicine kills bedbugs*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

> "…*It is to prevent malaria and as for me I know once inside the net other insects cannot entre and bite me, our houses are made of mud and even snakes move around or even houseflies or the insects that light up, they cannot reach you*…." Community Health Volunteer, Kwale

Weather Patterns and Environmental Factors

Most people tended to sleep under mosquito nets more during the cold/ rainy seasons Those living near water bodies are more likely to use nets as they consider the water as breeding grounds for mosquitoes i.e. Lake and Coastal regions. It was also noted, especially among the young adolescents aged 15 to 19 years that they use the nets to protect the child from cold and from falling off the bed.

Sleeping with Vulnerable Populations

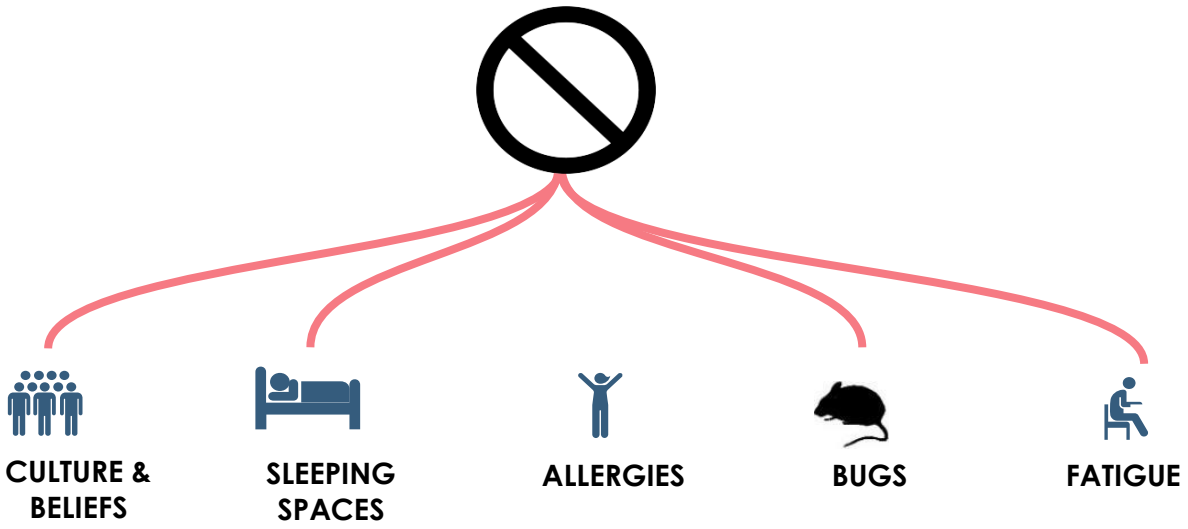
Sleeping with a baby, some respondents cited that they were forced to sleep under a net mainly because they were sleeping with a baby

> "…*am forced to sleep under one even if it's the hot season because if you are mothering an infant you have to*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kwale

5.6 Barriers to Net Use

Cultural factors, beliefs, bedbug infestation, distribution and side effects were noted to be the main barriers to net use. Figure 8 and table 1 below both illustrate the mentioned barriers and possible mitigations to the latter.

Figure 8: Perceived Barriers to Net Use



Culture and Beliefs

There are number of cultural myth around mosquito nets that deter their use. In the coastal counties, nets are associated with corpses. This is because there is a culture of covering corpses with nets to keep off house-flies. The respondents fear to sleep under a net as they feel they the ghost of the deceased will visit them at night. Another myth in the Coastal region is the association of rectangular nets with coffins.

> "…*some say they feel they are dead and are inside a coffin*…" Caregiver of child under 5 years, 15 to 19 years, Kwale

> "…*I wasn't using that net at all, because there was a time I went to a funeral and I saw a net used to cover a dead body, so I totally refused to sleep under a net*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kilifi

> "…*there are other people who don't feel like sleeping in the nets because there are things attached to it. Sometimes back they said that when you sleep in the white nets they saw it like you are died and it created fear*…" Malaria Control Coordinator, Narok

In the Lake counties, there was a misconception that mosquito nets cause infertility. There were a number of respondents in Migori who felt that the nets were a covert method of family planning.

> "…*they believe that the nets weaken their reproductive abilities. Some are also claim that net usage is a method by USAID for family planning. But we try to educate them that these are just nets meant for protection from malaria*…." Health Care Worker at the facility, Migori

Other cultural factors is the belief that some members of the family use the same nets. For instance, in Bungoma and Nandi, the mother-in law cannot use a net that has been used by her son-in-law. This meant that when some visitors do not use nets due to such beliefs.

There is generally a feeling that nets cause insomnia and this is because some respondents feel warm under a net.

> "…*some are not used to using the net claiming they feel a lot of warmth*…" Caregiver of child under 5 years, 15 to 19 years, Kwale

> "…*some people follow some myths, saying if I sleep inside the net I feel so warm, or the baby cries a lot and some say the treatment is too strong*…" Community Health Volunteer, Kwale

There are cultural barriers associated with pastoralists' lifestyle. Since pastoralists always on the move and sleep in open, they find it difficult to hang nets.

> "…*Narok County is predominantly are pastoral county. They are farmers and also keep animals and they also move a lot especially during dry season they move. It will be difficult for somebody moving every day to carry a net and use*…." Malaria Control Coordinator, Narok

There was also the belief amongst adults that it is only children and pregnant women who need mosquito nets. These beliefs results to a low risk perception amongst other adults leading to low usage of nets.

Sleeping Spaces

There are number of barriers associated with the sleeping space. In some instances, the sleeping spaces were found to be too small to allow the net to be hang. The structure of the roof was a barrier as some ceiling do not have a provision for hanging the net. In some homes in the Coastal region, the respondents sleep on the floor in mats or on hammocks making it difficult to tuck-in the net. Due to poverty, some households have inadequate bed and this leads to household members improvising the sleeping spaces that are unconducive to the use of nets. The challenges with the sleeping spaces was a key barrier in Migori-Nyatike area. There were also mentions of prohibition to drill holes on the walls by landlords from those living in a rented houses.

> "…*in some places where there are not enough rooms in the house hence children are forced to sleep in the kitchen thus the nets being nlyon are prone to fires*…" Decision Maker, Female, Bungoma

Allergic Reactions

A number of respondents indicated that they were allergic to the chemical used to treat the nets. As a result they suffered from allergic reactions such as itching, burning sensation, rashes, sneezing and headaches. It also emerged that some of the undesirable reactions to the nets potentially arose from participants not following instructions given with newly distributed bed nets. The nets are supposed to be aired for 24 hours prior to use but in some instance, the respondents would hang them without aeration.

Bed Bugs Infestation

The study findings indicate that some respondents in Migori, Kwale and Kilifi are faced with the challenge of bed-bugs due to poor hygiene. They are also not well informed on how frequently they should wash their nets. As a result of poor hygiene, the bed-bugs find breeding grounds in the nets. In Kilifi and Kwale, it was established that respondents set their nets on fire as they were infested with bedbugs.

Fatigue

Another barrier to net us is associated to respondent's lethargy in hanging the net and removing it on a daily basis. This was a key barrier mentioned by those whose net is not hang on a permanent basis. Those likely to have inconsistent net use due to either fatigue or lethargy include pregnant women, elderly persons and those who get home when they are intoxicated.

> "…*tiredness, maybe you folded it in the morning and then you come back in the evening every tired so you decide to sleep that way especially on pregnant women*…" Pregnant Women, 15 to 19 years, Kisii

Size of Nets

The size of nets was also a key barrier to usage. In the Coastal regions, the respondents raised concerns about the small sized net that do not fit their beds.

Access to Nets

Another barrier to net use was the inadequate nets in the home and this is attributed to inadequate nets given to families during the mass distribution. There were also concerns raised that during the mass distribution, the nets were issued to specific groups and more so to pregnant women. There were instances where the respondents mentioned stock out mainly at the health facility leading to a limited number being used at the household.

> *"...lack of nets. During mass distribution you find that a family is given only two. That will be for the father and mother leaving the other children out. The age group of 14 - 18 teenager`s do not sleep under nets. That's a challenge. Maybe if they could give more a lot of people will use. So that shortage. Buying from the shop is expensive for some people*…." Health Care Worker at the facility, Bungoma

> "…*we all don't have because they are not available in the hospital*…" Caregiver of child under 5 years, 30 to 70 years, Female, Nandi

> "…*another challenge is when you are given one net and maybe you have five children. So you remain confused whom to put under the net and whom should you leave*…." Caregiver of child under 5 years, 20 to 29 years, female, Kisii

Financial Constraints

A number of respondents indicated that they were not being able to buy nets for the adults or older children whose nets have worn out. The priority is for infants to sleep under a net and this meant that other family members are exposed to mosquitoes.

5.7 Mitigation Actions

Those not using nets are using other alternatives such as i.e. mosquito coil and mosquito repellents. Notably, there were barriers without mitigation measures/ actions and hence respondents were not able to protect themselves from mosquito bites in any way.

5.8 Net Maintenance

LLINs distributed during routine distribution retain their effective biological activity, without re-treatment after repeated washes, for up to 3 years of use under field conditions (KMIS, 2015). In addition, net users are advised by the manufacturers to wash them using bar soap and then hang it under a shade to dry.

5.8.1 Net Hygiene

To keep their nets clean, respondent laundered their nets using water only, or bar soap, or powder soap i.e. OMO. There we those who indicated that they

"…*I wash it weekly or fortnightly to avoid accumulation of dust, which may lead to other complications like chest problems*…" Decision Maker, Female, Kwale

"…*when I want to wash it, I just remove it in the morning and wash and spread it in the shade. By evening, it is dry and ready for use. I hang it back and use it*…." Decision Maker, Female, Kwale

"…*they advise us this way, if that net has been used for 5 years, it is not a must you use it for 5 years, you are supposed to wash it with a bar shop and you put it hang it other the shade for it to dry and then you hang it back in your bed*…" Pregnant Woman, 15 to 19 years, Kisii

"…*when you wash that net, the strength of the drug reduces, so it can be clean but not effective*…" Caregiver of child under 5 years, 20 to 49 years, Male, Bungoma

Figure 8: Net hanging after washing

The observations show that a number of respondent were hanging the out in the open instead of under a shade (see figure on the right). This is contrary to the instructions provided in the net packaging

Net hang outside and not under a shade

Net hang on a cloth line and not under a shade

5.8.2 Nets with Holes

As a preventive measure, the respondents indicated they kept their finger and toe nails short to ensure that they not create holes on the net. In addition, they keep the net from sharp objects such as nails from the bed. Further, keeping nets away from open fires and airing them under a shade frequently were other maintenance mechanisms undertaken by participants. They respondents also indicated that they ensured that the net was well tied or folded after use every morning.

Once the net is torn, the respondents indicated that they sew them with a needle and thread. Some indicated that they tie a knot is the area that is torn. A small proportion of respondents in Kwale, Kisii and Kilifi claimed that they treated the nets regularly by using Super Tabs or Power tabs.

5.9 Disposal of Nets

In a majority of sites visited, alternative use of nets was understood as being a means of net disposal. Nets are disposed when they became torn, had been in use for more than 5 years or were too dirty.

Others claimed that they used the old nets to tether animals, for fishing amongst other activities. Other disposal methods also included throwing nets away, burning them, or returning them to the health facility where they were originally picked them up from, as in Kisii and Bungoma. Specifically, respondents said the following:

> "…*I throw them away when they are completely damaged*…" Caregiver of child under 5 years, Female, Narok
>
> "…*it is also used as a rope to fetch water from the well or hanger or they are used to tie our goats that is when it is old. Maybe it has some holes or it is dirty you use it on other things*…" Pregnant Woman, 15 to 19 years, Kisii
>
> "…at the hospital we are told if you notice the net is torn, you can take it back, they confirm and give you another one. But that is a lie, they never give us…." Pregnant Woman, 15 to 19 years, Kisii
>
> "…*when those nets age I burn them because those are the instructions on the net*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi

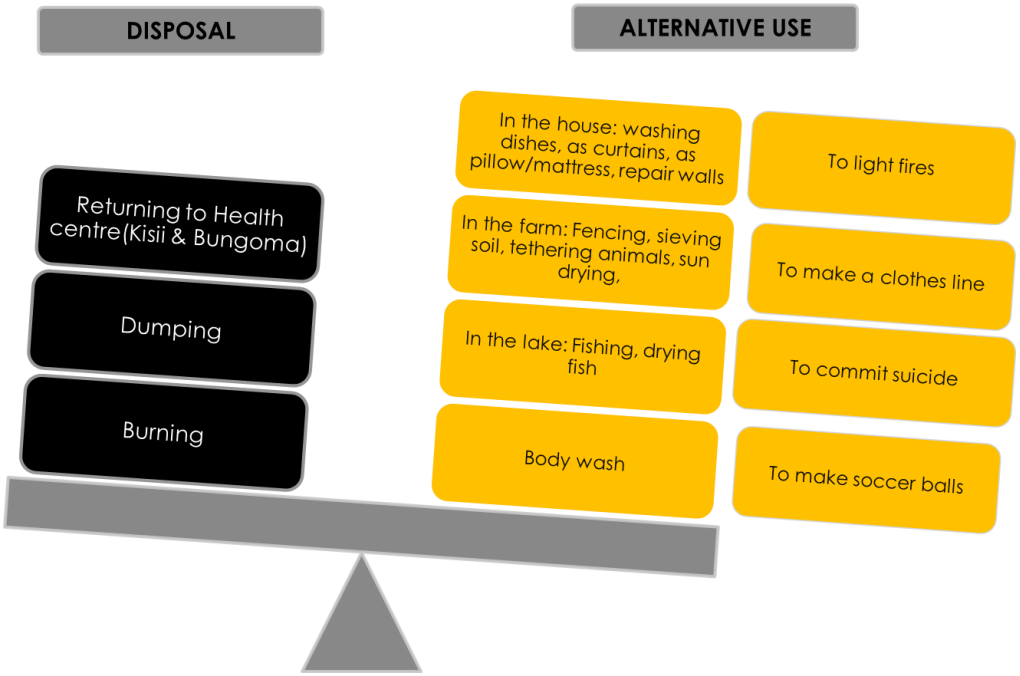
The study findings show that there is a higher incidence of alternative net use as compared to disposal. The key motivations for alternative net use is the strong materials used to make nets. In addition, there were mentions of some households in the Coast and Lake Regions having more than excess nets.

"…*I don't use new ones for that. If it has holes I use it for that; sewing is so much work and in any case we have so many…*" **Caregiver of child under five years, 30 to 70 years, Female, Kilifi**

"…*the government… their specification for the free net is for the very tough net. So, they easily misuse it because it is very hard…*" **Key Informant, National**

The various ways of net disposal is summarized in Figure 9 below.

Figure 9: A Summary of Methods for Net Disposal across Study Sites



5.10 Alternative Net Use

Alternative use of nets was variable amongst the different communities. It was noted that respondents from mainly the Coastal region had alternative use for their nets. In view of most of the respondents, there are various alternative methods of using nets.

Household Care and Construction

Nets could also be used in household functions such as: washing dishes; window curtains i.e. Kwale; sleeping on as a mattress i.e. Kwale; hanging clothes as a clothes line i.e. Kwale, Kilifi, Kisii; tying wooden beams when building earthen houses i.e. Coastal region; decorating house walls; making toilet walls i.e. Kwale; fetching water from the well; sleeping on as a pillow; sieving soil when constructing i.e. Bungoma, Kisumu and lighting up a 'jiko'.

"…*like me I also used the damaged mosquito net to rub myself while bathing…*" Caregiver of child under 5 years, 15 to 19 years, Female, Kilifi

For agriculture uses, this entailed fencing on the farm to protect vegetation from eagles, and as part of chicken houses to protect the chicks; fishing i.e. Mombasa, Kisumu; sieving of legumes or traditional alcohol contents; tethering animals i.e. goats i.e. coastal regions; sun-drying farm produce i.e. Kisii; storing farm produce and drying fish.

"…*others use the net as a fence when they plant kales. They will run it round swell so that nothing can get inside*…" Pregnant Woman, 15 to 19 years, Bungoma

"…*some cut them and use them to make curtains for their windows. Because some windows do not have grills, so they use the nets*…" Caregiver of child under 5 years, 15 to 19 years, female, Kwale

Agriculture

Household Construction

Cultural practices for example, covering dead bodies as done in Kilifi and Kwale, was another source for use.

> "…*so that the house flies don't settle on the body. It happens when maybe someone dies inside the house and the body is not taken to the mortuary and there is no coffin, so the body is just laid on the bed and covered with the mosquito net*…"Caregiver of child under 5 years, 15 to 19 years, Female, Kilifi

Yet other uses encompassed committing suicide, use by kids to make soccer balls and goal posts as well as traps for birds, as described by participants from Kwale.

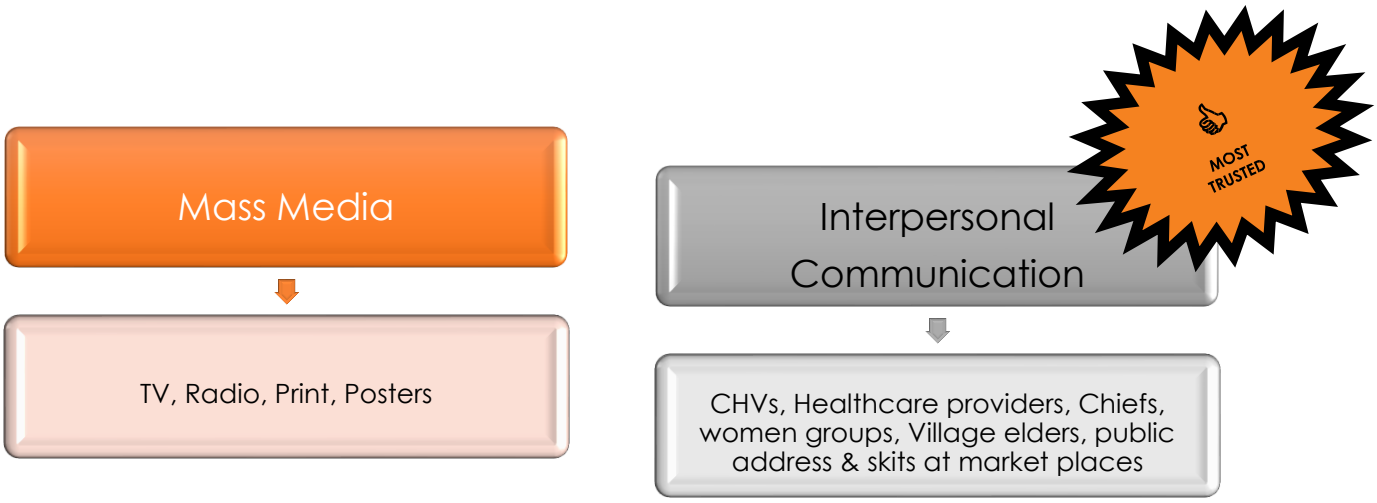
Soccer ball

5.11 Communication on Nets

5.11.1 Communication Channels

Participants mentioned a number of communication channels that they use to access information on malaria. The findings of this study indicate that interpersonal communication channels are the most trusted channels of communication. The communication platforms and the reasons for why they are trusted are illustrated below:

Figure 10: Communication Channels



5.11.2 Campaign Recall

The respondents were probed on whether they had seen any communication campaigns on net use and the message in each of these campaigns. The study findings indicate that they have seen or heard adverts electronic mass media channels, local sensitization sessions through drama and posters at the health centres.

Figure 11: Campaigns and Message takeout

5.12 How else they would like to Get Such Information

Other ways of receiving information on net use were expressed. Respondents agreed that the greatest influencers were doctors at the health facilities, CHVs, children, and hence net use should be taught in schools and religious leaders at the religious institutions.

> "…*children should be taught about this in schools*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi

Furthermore, Groups were cited as also effective communication channels. These groups included, small group sessions, public gatherings and women groups: Most women preferred groups.

> "…*a seminar will be good. Because people are many. Many people will get the information*…" Pregnant Woman, 15 to 19 years, Female, Bungoma

Innovative ways were mentioned such as, having a skiza tune, distributing free 'lesos/ kangas', curtains, calendars and shirts bearing the message and using 'matatu' or public buses for branding.

> "…*create a skiza tune on how we are supposed to use nets*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

> "…*I heard that mosquito nets will be given freely and I heard it communicated through matatu branding*…" Decision Maker, Female, Kisumu

5.13 Conclusion and Recommendations

LLINs have proven to be instrumental in the fight against malaria in sub-Saharan Africa, Kenya included. Despite massive scale-up of LLIN distribution all over Kenya, shortfalls and inequities still exist which might continue to compromise long-term elimination or control programmes. The findings of this study point to a number of recommendations and these are discussed below;

Increasing Knowledge On Net Use

- There is a need for sensitization on: correct usage of nets, consistent use of nets, hanging of nets vis-a-vis sleeping arrangement.
- Bad experience remains the main motivator for net use. Communication could use this by showing the adverse effects of Malaria
- Consider having communication campaigns ensuring men involvement at all stages of demonstration of net use i.e. acquiring, hanging, maintenance.
- Risk perception is centred around children i.e. children under 5 and pregnant women, adults do not consider themselves at high risk
- Mothers are the key decision makers on net use since they are the primary caregivers, communication should target this group

- Most households also do not have proper sleeping spaces hence net use is limited by space and structure of the sleeping space. There is a need to study the sleeping space and develop a net that can be used across various sleeping spaces.
- Cultural beliefs & myths are a major barrier to net use in the coast endemic zone and these need to be addressed.

Nets Type and Distribution

- There is a need to consider distributing the right color and size in the different endemic and epidemic regions
- Coming up with strategies to ensure that every household has adequate nets i.e. CHVs checking the nets community members currently have vis-a-vis the number of households to avoid over-supply of nets
- Mass net distribution is so far the most efficient method towards achieving universal coverage. Care should however be taken as excess nets encourage alternative use

Net Maintenance

- Need for communication campaigns on how to maintain nets with a focus on how to wash the nets and where to hang them to dry.

Deterring Alternative use of nets

- Consider having behaviour change communication campaigns that mainly emphasize the benefits of nets especially in the Coastal region
- Consider having disciplinary actions enforced through community leaders for those who use nets for alternative ways

Disposal of nets

- There is a need for communication campaigns on when and how to dispose nets

Communication Channels

- Consider using other innovative ways to communicate information on net use i.e. through schools/ learning institutions, 'Lesos', Skiza tune
- Consider using real people in actual events and not cartoons to communicate on net use
- Consider incorporating the topic on net use in the primary school curriculum

Malaria in Pregnancy

6. STUDY FINDINGS – MALARIA IN PREGANCY

6.1 Introduction

During the period 2010-2015, a five-fold increase in the percentage of women in subSaharan Africa and Kenya as well, receiving the recommended at least 3 or more doses of intermittent preventive treatment (IPTp) was reported (WHO, 2017). Despite this, preventative treatment coverage remains low, and malaria in pregnancy (MIP) still remains an important public health problem in Kenya being associated with considerable morbidity and mortality in both pregnant women and infants (KMIS, 2015). Infection during pregnancy can be either asymptomatic, or may present with clinical signs and symptoms. Both conditions have been associated with adverse effects on pregnancy outcomes, including miscarriages, stillbirths, and low birth weight in infants, as well as the risk of anaemia in the mother (Takem & D'Alessandro, 2013). The Government of Kenya's policy (MOH 2015) in line with WHO guidelines (WHO, 2017), advocates for all pregnant women living in malaria endemic areas in Kenya to receive free malaria preventive treatment during ANC. Ideally, pregnant women should receive three doses of IPTp within the second and third trimesters, ANC visits being at least 4 weeks apart, in order to reduce the risk of malaria infection.

The study sought to understand the target respondents' knowledge, attitudes and behaviour towards IPTp uptake as per the thematic areas discussed further down below in Figure 10. The target group comprised pregnant women (15 to 19 years, and 20 to 49 years), household decision makers (no age limit, both male and female) and also key informants.

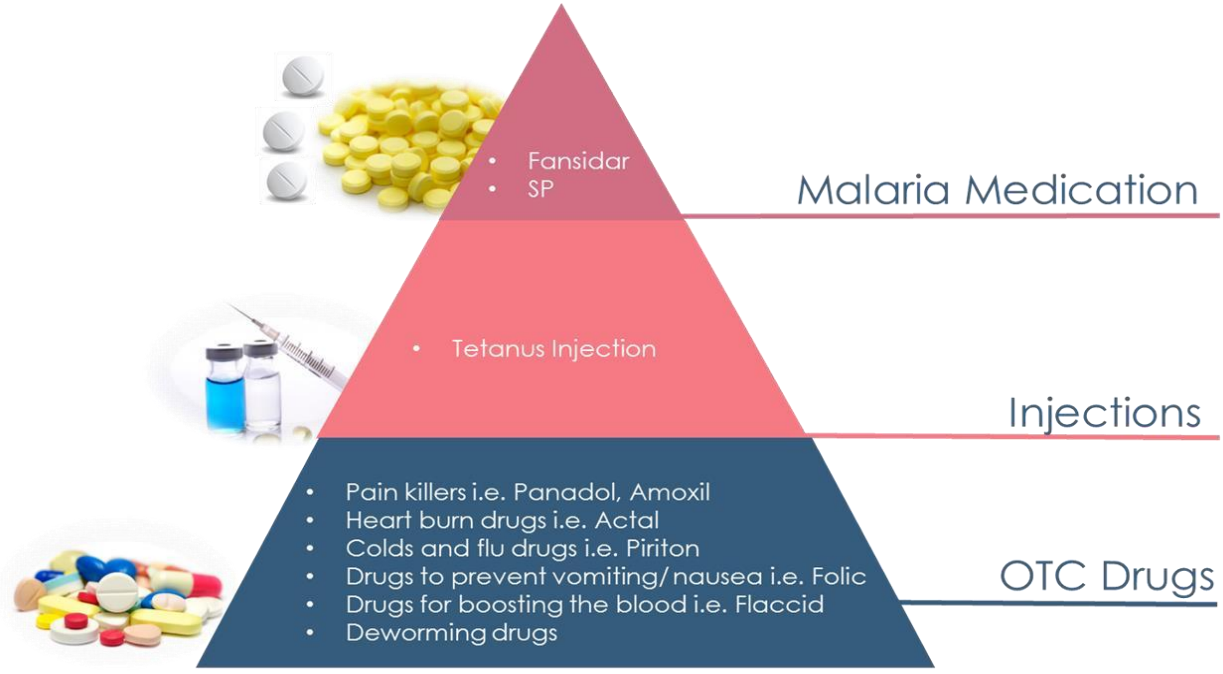
Figure 12: IPTp Key Research Questions

6.2 Knowledge of Medication in Pregnancy

During the FGDs, pregnant women were asked to mention some of the drugs that they took during pregnancy. Most pregnant women mentioned a long list of various over the counter (OTC) medications, or those prescribed to them during ANC visits. The range of OTC medications (Figure 11) mentioned included pain killers (Panadol), antibiotics

(Amoxil), heart burn remedies (Actal), anti-cold and flu drugs (Piriton), anti-vomiting/ nausea, those for boosting blood iron (Folic Acid)) and those for deworming. Participants from Kisii and Bungoma Counties also mentioned that they had access to Septrin.
It was also reported that pregnant women received tetanus injections from public health centers. Knowledge of IPTp medication, also commonly referred to as Fansidar or SP was minimal, and was mainly referred to by pregnant women in malaria endemic counties.

Figure 13: The Range of Medication Accessed by Pregnant Women across the Various Counties



6.3 Knowledge Malaria Preventive Medication

Knowledge of IPTp Medication
Women from Kwale, Kilifi and Kisumu had some level of knowledge with regards to IPTp; they were conversant about its importance, and some participants were even aware of the name of the drug. Pregnant mothers mentioned that they took IPTp drugs mainly to protect themselves and their unborn babies from contracting malaria.

> "…*they help the unborn baby and the mother from getting malaria*…" Pregnant woman15-19 Years, Kwale

> "…*They have changed the name because last year they were known as Fansidar, they were white in colour but this year they have changed the name, they are oval in shape and yellow in colour. You can't read the name because you're given the tablets to take on the spot*…" Pregnant woman 20-49 Years, Kilifi

"…*One of the drugs is referred to as Orda. It is used only for malaria prevention and not treatment*…" Pregnant woman 20 to 49 Years, Kisumu

"…*my wife was pregnant; I took her to Kisii level 6 which was then called level 5. She was given the same SP drug. I heard them saying that they were prescribing her SP and the like*…" Decision maker, male, Kisii

"…*for malaria you are given SP*…" Decision Maker, Female, Kwale

"…*I was just given three drugs, white in color and I was told to take water and swallow them but I did not know their purpose*…" Pregnant Woman, 15 to 19 years, Female, Bungoma

Knowledge on IPTp Dosage

According to those aware of IPTp, it was mentioned that medications tended to be given during their 2nd trimester of pregnancy.

Pregnant woman 20-49 Years, Kilifi
"…when the baby starts playing in the womb…3 or 4 months…"

However, it should be noted that there was a confusion with regards to the number of doses received. Some pregnant women acknowledged that there was a correlation between the number of doses taken and frequency of ANC attendance, with those attending ANC earlier on in their pregnancy receiving more doses.

"…*three dosages, when three month's pregnant, when four months pregnant and six on*…" Pregnant woman-15 to19 Years-Bungoma

"…*I have been going to the clinic for the last four months. I have always been given drugs every time I go to the clinic*…." Pregnant woman 20 to 49 Years, Kisumu

"…*I think the number of times one is given the drugs also depends on the time they start going to the clinic. Those who start early, say the second month, are likely to take the drug more times as compared to those who start going when they are 7 months pregnant*…" Pregnant woman 20 to 49 Years, Kisumu

The findings of this study indicate that the staff working at the public health centers in Bungoma most of the times did not provide detailed information on the nature of medication given to the pregnant women. This could be one of factors contributing to low awareness of the drug in this county. Therefore, the lack of knowledge culminated in participants describing the drugs given to them either by colour (white or yellow), the dosage (3 *tablets taken at once, or on a monthly basis),* or the shape (oval or round).

"…*me when I was pregnant I was just given three and I was told to take water and swallow but I did not know what they were for*…" Pregnant woman, 15 to 19 years, Bungoma

"…*when I was near seven months, I was given some yellowish tablets to take in pairs of two*…" Decision Maker, Female, Kwale

"…as *for me when I went to the clinic, there is a drug I was given, they were three tablets but now they don't tell you what the drug is for*…" Pregnant Woman, 15 to 19 years, Bungoma

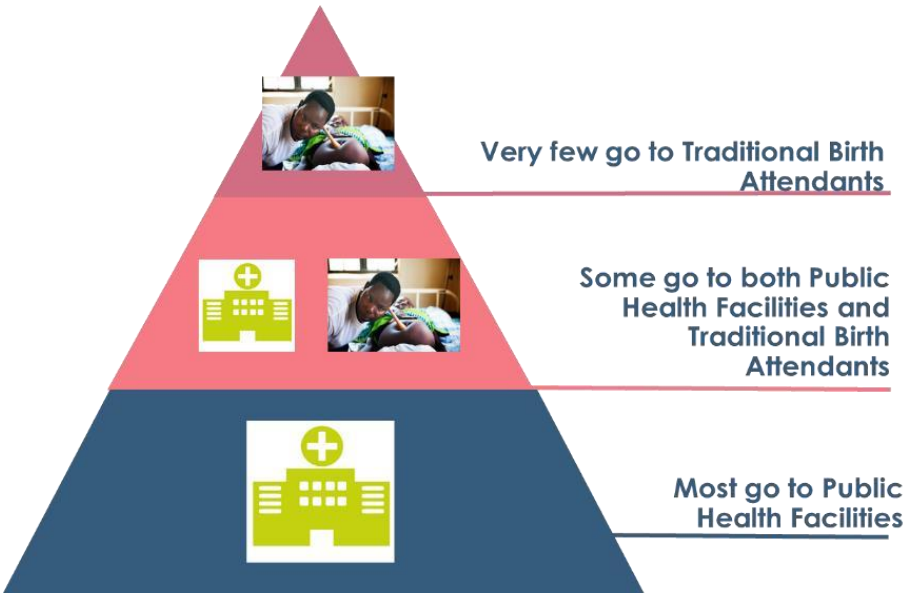
"…*Fansidar, I really don`t know (what it means) but I believe it is because it is only taken in by mouth once* …" Pregnant woman-15 to19 Years-Bungoma

It was also noted that in Narok, Nandi and Kisii Counties, IPTp drugs were not being given. This is most likely due to the fact that these counties are considered to be in the highland epidemic regions.

6.4 Access to ANC services

The study also noted that most respondents visited public health centers to seek ANC services, yet others visited both public health facilities and traditional birth attendants, and while a few predominantly visited traditional birth attendants as shown in Figure 12 below:

Figure 14: Access to ANC Services by Type of Facility



6.4.1 Public Health Facilities

There were several reasons driving ANC attendance at public health centers and these are indicated below:

Various Tests Are Done

According to most of the respondents, the benefit of visiting public health facilities was that several tests were undertaken to check the mother's general health such as: HIV screening test, high blood pressure, weight gain, amongst others. In addition to this, the pregnancy was examined thoroughly, as well as a check on the position of the fetus done.

> "…*I usually go to government clinics because they examine you and test for several diseases such as malaria*…" Decision Maker, Female, Bungoma

Access to Free Services

According to most respondents, public health facilities provided free drugs/ medications such as folic acid that were important for the general health of the unborn child. In addition to this, they were also given free mosquito nets which aided in preventing malaria.

> "…*in the dispensary, it is free but in the privates, you have to pay*…" Pregnant Woman, 15 to 19 years, Kwale
> "…*in the hospital, you get mosquito nets*…" Pregnant Woman, 15 to 19 years, Kwale

Furthermore, some respondents claimed that clinics provided free yoghurt to the women attending ANC for the first time.

> "…*Katito Dispensary. All pregnant women are always given yoghurt, I think they are given when they stay long on the line and become hungry*…" Pregnant woman, 20-49 Kisumu

Experienced Medical Practitioners

The public health facilities were perceived as having experienced medical practitioners who are able to examine the pregnancy including the position of the baby.

> "…*in the hospital, there are many doctors who are specialized*…" Pregnant Woman, 20 to 49 years, Kilifi

The findings of this study also indicated that respondents visited public health facilities predominantly during the last trimester as they preferred visiting traditional birth attendants (TBAs) as a first choice, especially during the early stages of pregnancy.

> "…*when the pregnancy is still young, one month or so; even if they start going to the clinic, it will be just a waste of time, they say, that is too early to visit the clinics. They prefer going to the hospital when the pregnancy is 7 or 8 months*…"

Pregnant Woman, 15 to 19 years, Kisii

Source of Health Information

ANC visits were also a key source of information with regards to their health. Respondents were given information through posters, booklets as well as via medical personnel (doctors and nurses) on the ground. They also mentioned that they were sensitized on: which signs to watch out for during labor, and how to take care of one's child following birth.

> "…*it helps because tests will be done and maybe you maybe be found with HIV which you didn't know. You will be counseled and guided on how to take care of the pregnancy*…." Decision Maker, Female, Kwale

> "…when you go for the clinic, you are prepared for the day of delivery and what to expect…" Decision Maker, Female, Kwale

6.4.2 Traditional Birth Attendants

There was a perception that these TBAs were better placed to review and correct the position of the baby should it be needed. TBAs were a preferred choice as they were considered to offer a more personalized service and were knowledgeable. Furthermore, TBAs were seen to be easily accessible as they provided services anytime of the day and respondents did not have to contend with long queues. In addition, traditional herbs, that were perceived to help in "reducing heat" and alleviating pain within the stomach, were prescribed. In addition, it was said that TBAs would examine the condition of one's breasts. The TBAs were also known to provide massage services at prenatal visits which provided great comfort for the pregnant woman who often experienced back aches.

> "…*she massages your stomach to know the status of the baby. She advices you accordingly and gives you dates for checkups. You usually go to her at least three times during pregnancy before delivery. She is your second doctor and she accompanies you to the doctor for visits*…" Pregnant Woman, 15 to 19 years, Kwale

> "…*the midwives massage us well and give us some drugs which clean the womb*…" Decision Maker, Female, Kisumu

TBAs were said to be able to tell the sex of the fetus, and the pregnant women were sometimes encouraged to visit the traditional birth attendants by other women. The incidence of prescribing traditional herbs was more prominent in, Kisumu and Kwale counties.

> "…*we do go to the midwives because of the numerous advices we do receive whenever we have pregnancy related issues from other women in the community. Whenever you have a complication or an issue, the first question you will be asked is whether you have seen a midwife*…" Pregnant Woman, 20 to 49 years, Kisumu
> "…*if you are in pain, the traditional midwives give you traditional medicine to*

alleviate the pain. They also check your baby and make sure it is well placed or seated…" Pregnant Woman, 15 to 19 years, Kwale

It was however noted, that in Nandi County, due to distant health facilities, pregnant women were often at times advised by health care providers to visit TBAs as they were knowledgeable enough to be able to examine the pregnant woman, as well as the unborn child's condition.

"*…in hospitals we are sometimes advised to go for traditional medical care especially where hospitals are far. They say those women might help you when you are in danger…*" Pregnant Women, 20 to 49 year, Nandi

There were however some respondents who were aware of the risks of delivering a baby with the assistance of TBAs as they are not well equipped.

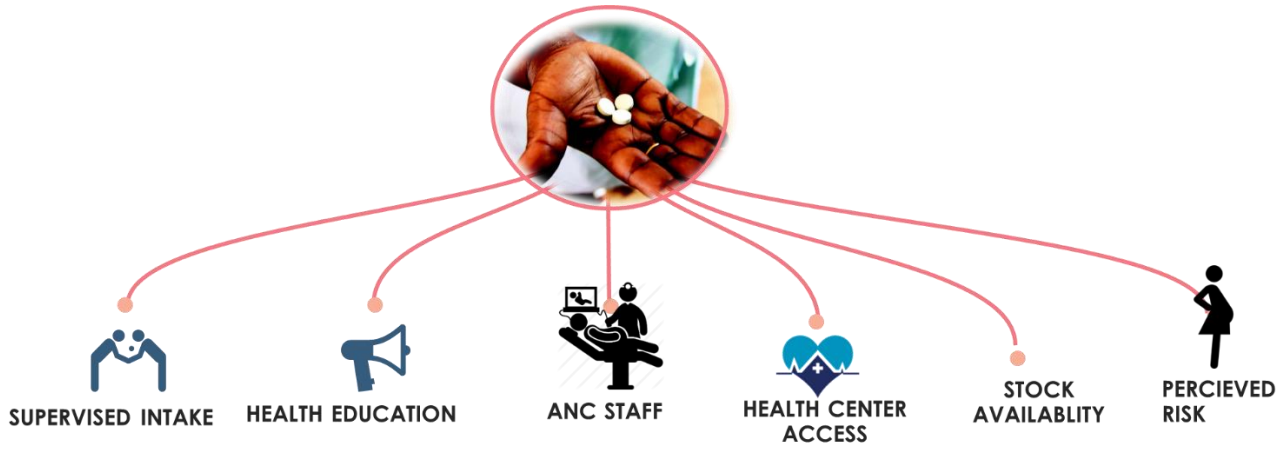
"*…the good thing with the mid wife, she takes care of you until the last day. But the challenge is the tools that they use on you, they may be having rust, all the mid wives use one tool…*" Pregnant Woman, 20 to 49 years, Kilifi

"*…they don't have gloves, they use their bare hands, and they insert their fingers on you…*" Pregnant Woman, 20 to 49 years, Kilifi

6.5 Drivers of IPTp Uptake

According to most of the focus group respondents and key informants, there existed a number of key drivers to IPTp uptake as illustrated below in Figure 13:

Figure 15: Drivers to IPTp Uptake across the Study Sites



Supervised Intake

Supervised consumption of IPTp drugs by health care providers at the health facilities emerged as one of the main drivers for uptake. Most of the respondents mentioned that

they were mostly asked to consume the drugs at the facility and had to swallow the drug under the supervision of a health care worker.

> "…*you cannot read the name because you are given the tablets to take on the spot*…" **Pregnant Woman, 20 to 49 years, Kilifi**

> "…*the drugs are taken in the presence of the doctors because initially people used to throw them away*…" **Decision Maker, Female, Kwale**

Health Education

Health Education plays a key role in creating awareness on the benefits of IPTp drugs. Those educating women included health care providers (at the clinics) and CHV (during community outreach). This was mostly mentioned by Kwale and Kilifi respondents.

> "…*at the facility, they tell us that the drugs protect the unborn baby and the mother from getting malaria*…" Pregnant Woman, 15 to 19 years, Kwale

> "…*they are educated that it is for malaria. They are told on the first clinic that they would be given malaria tablets at a certain time*…" Key Informant, County

> "…*when they come we tell them the dangers of malaria in pregnancy. On hearing that, they take it*…" Key Informant, County

Health Center Access

According to key informants, those who tend to consume these drugs were those who attended ANC visits. Accessibility of facilities makes it easier for pregnant women to attend ANC regularly and thus take a full dose of IPTp drugs to protect themselves against malaria.

> "…*accessibility to the facility. Those who are close will go but those who are far will not come because it requires them to spend money*…" Key Informant, County

Stock Availability

The availability of IPTp drug was a key driver, albeit under direct observation, was underscored.

> "…*availability of the drugs influences the uptake*…" Key informant, County

Perceived Risk

It was also observed that knowledge of respondents with regards to adverse effects of malaria on pregnant women, including the threat of miscarriages, was a driver to uptake, and this in this in turn encouraged mothers-to be to regularly attend ANC where they received appropriate IPTp doses.

> "…*to prevent you getting malaria which can cause miscarriage*…" Pregnant Woman, 15 to 19 years, Kwale

"…*malaria disease is very common. They have been told that they are at risk of being infected with malaria. Therefore they go for the IPTp to reduce chances of getting sick*…" Key Informant, County

Key informants further mentioned that IPTp was important for clearing the parasites from within the bloodstream which was of utmost importance to prevent colonization of placenta, and hence led to protection of both mother and unborn child against anemia, and helps to prevent the previously mentioned adverse events of MIP. The significant decrease in maternal deaths from malaria has been greatly attributed to use of IPTp. According to the key informants, early registration of pregnancy for ANC visits was considered to be the key motivator for IPTp uptake. However, it was still important that consumption of the medication occurred under direct supervision of the pregnant woman. This will minimize women spitting out the tablet.

6.6 Barriers to IPTp Uptake

Most of the key informants and respondents mentioned the following barriers to IPTp uptake: delays in seeking care, reaching care and receiving care at health facilities. These are further expounded down below.

6.6.1 Delays in Seeking Care

Late ANC attendance

Late ANC attendance implies that the pregnant woman will not benefit from the full dose of IPTp, or that she will not get the drugs at all, especially if she goes to the clinic when almost full term. It emerged that most of the women tend to go for ANC during their second trimester (4 months to 6 months). Some women waited to feel the baby start kicking before attending ANC; others mentioned that they were not aware that they had conceived until some months later; therefore, they missed out on some doses of IPTp.

"…*for the pregnancy I am having currently, I didn't know I had conceived during the early stages. I fell sick and when I went to the hospital, I was told I had conceived and that I was five months pregnant. They then gave me the drug then, during my fifth month***…"** Pregnant woman 20 to 49 Years, Kisumu

Financial constraints i.e. transport costs; some respondents mentioned that they could not afford transport to health facilities for all the required appointments of ANC.

"…*I have not started going to the clinic I am looking for money right now*…" Pregnant Woman, 20-49 Years, Kilifi

Disparagers/Peer Pressure

Word of mouth about the side effects of IPTp from other pregnant women acts as a deterrent to uptake. The pregnant woman hears her peers mentioning that the drugs will make them vomit or weak, and they end up developing an aversion towards the drug.

As well, negative peer pressure from mothers-in-law, who insisted that regular attendance of ANC was not beneficial or necessary, would bar their pregnant daughters-in-law from attending ANC early on in their pregnancy, and this was a further barrier to uptake.

> "…*some are told by other women that the drugs will make them vomit, feel tired*…" Pregnant Woman, 15 to 19 years, Bungoma

Myths and Misconceptions

These varied from these drugs being associated with family planning, to them affecting the mental and physical development of the fetus, to the drugs being manufactured from the brains of dead people etc. Such information was noted to thus induce fear of IPTp uptake in pregnant women. These beliefs were widely expressed in Kisumu, Kisii and the coastal regions.

> "…*They believe that if you take the drugs your unborn child will be disabled or have undeveloped brain* …" Pregnant Woman, 15 to 19 years, Kwale

> "…*you know at times, I hear that those medicines are made from the dead person's brain. That is why people hate those medicines and that is why they don't take them*…" Pregnant Woman, 15 to 19 years, Kisii

Another myth described by respondents, and noted to be one that hindered early access to ANC, was the fact that a woman whose pregnancy was a few months old, should minimize movement because she was likely to miscarriage if she stepped on "something" along the road.

> "…*There is the belief that it is easy for pregnant women to have miscarriages when they step on some things along the road or paths especially when they are just a few months into the pregnancy… I always wait until the fifth month before going to the hospital because of that reason*…" Decision maker, Nyakach-Kisumu

> "…*Some people say that after taking the drugs, you can only give birth to the child you are already carrying. You cannot have subsequent pregnancies. They throw away the drugs*…" Pregnant woman 20-49 Years, Nyakach-Kisumu

Adolescent Stigmatization

There was great stigmatisation of pregnant adolescents, especially in Kwale and Bungoma Counties, leading to them hiding or being hidden at home, away from public view. This was a key barrier to early ANC attendance, as these women were fearful of the community becoming aware of their situation.

The pregnant adolescents also mentioned that their choice of fashion which included trousers and skirts, was a constant sticking point with health providers who preferred they wear long maternity dresses. As thus, they felt discouraged and did not attend ANC. The

study also found that some pregnant adolescents only started attending ANC once they moved into their husbands' homes.

> "…*we also have those who live in the villages, some of whom are young girls who shy away from going to clinics*…" Pregnant Woman, 20 to 49 years, Kisumu

> "…*we have some that are used to wearing skirts or trousers so when they look at wearing free dresses they feel that they can't*…" Pregnant Woman, 15 to 19 years, Bungoma

> "…*during the first months of my pregnancy I was not married so I came here when I got married and now started going for the ANC*…" Pregnant Woman, 15 to 19 years, Kwale

Risk Perception

Some pregnant women felt they did not need to take IPTp as they were not sick from malaria, and thus failed to show up at the ANC. However, they did take the initiative to go to seek medical advice and intervention from health facilities when, and if they started feeling unwell; this meant that they did not get the full dosage of IPTp since their ANC attendance was inconsistent. During the first trimester, the pregnancy was considered still young and ANC visits were deemed inessential. Additionally, there was also the perception that there was no need to take IPTp if a person was already sleeping under a net.

> "…*Others wonder why they should take medicine yet they are not sick*…" Pregnant Women, 20 to 49 years, Nandi-Tinderet

> "…*some people, you will find that there pregnancy is still young, like one month, so even if they start going to the clinic, it will be just a waste of time, they say, that it is too early to visit the clinics. They prefer going to the hospital when the pregnancy is 7 or 8 months*…" Pregnant Woman, 15 to 19 years, Kisii

> "…*I started at 6 months because my body was ok*…" Pregnant Women, 20 to 49 years Nandi-Tinderet

Previous Experience with another Pregnancy

The study noted that previous experience had an influence on attendance of ANC. Women whose first pregnancies were unproblematic felt that attendance of ANC for the second pregnancy was not necessary.

> "…*There are those ones who normally say being pregnant is normal. Even if they don't go to the clinic, everything will be normal* …" Pregnant Woman, 15 to 19 years, Kisii

Bad Attitude by Health Care Providers

The seemingly harried and non-caring attitude of staff at the public health center tended to discourage some pregnant women from attending ANC especially if they felt that they will be harassed or disrespected.

> "…*some mothers are afraid of visiting clinics because the doctors will not be happy because they have delayed to visit the clinics.*…" Pregnant women, 15 to19 Years, Bungoma

Ignorance

The lack of information on the benefits of taking the IPTp drugs prevented some pregnant women from using the drugs because of certain misconceptions such as believing that the drugs were meant for abortion. Moreover, the latter led to unintentional mix-ups by the pregnant woman. For instance, one incident was described whereby a respondent had malaria and was meant to receive treatment, but wrongly assumed that the course of IPTp she had previously been administered was part of the treatment course and thus mentioned the same to the health workers at the clinics.

> "…*because they don't know the reason for taking the tablets.*…" **Pregnant Woman, 20-49 Years, Kilifi**

Side Effects

Side effects such as bad breath, dizziness, possible outbreaks of rashes, vomiting and exhaustion act further hindrances to uptake of IPTp.

> "…*Some fear taking these drugs or because if they do, they vomit immediately so they don't want to*…" **Decision maker-Bungoma-Kimilili**

> "…*Some people claim that the drugs make them become unconscious*…" **Pregnant Woman, 20 to 49 years, Nyakach-Kisumu**

6.6.2 Delays in Reaching Care

Long Distances to the ANC

When health facilities were far or inaccessible, the women did not see the point of making the journey, especially more so as they did not consider themselves sick.

> "…*in some cases, they are far from hospitals, so they feel lazy walking the long distances to reach hospitals*…" **Pregnant Woman, 15 to 19 years, Kwale-Lunga Lunga**

Financial Constraints

Some of the respondents avoid expenses associated with visiting the health facility for ANC such as transport costs, charges at the ANC, among others. This was strongly mentioned by Kilifi and Kwale respondents.

"…*they need money for motorbike since there is no access road and no public transport like 'matatus'*…." **Key Informant, County**

Preference for TBA's

As earlier alluded to, some of the women cited that they preferred going to TBAs mainly due to fact that they were easily accessible, the lack of long queues, the advice they gave on how to take care of the pregnancy, and more so the massage services they offered.

"…*they prefer going to the traditional midwives who are easily accessible*…" **Pregnant woman, 15 to 19 years, Kwale**

6.6.3 Delays in Receiving Care at the Facility

Stock Outs

Key informants mentioned that stock outs were a major barrier, because once health facilities run out of IPTp, then the pregnant women was no longer able to access the required doses. Additionally, lack of IPTp drugs in endemic regions i.e. Narok and Kisii because of policy gaps meant that pregnant women in those regions remain at risk of contracting malaria.

"…*sometimes the drugs get finished and then we don't have any in that month to give to the mothers. That means those mothers are at risk that month*…." **Key Informant, County**

"…*the challenge has been on pregnant women. There is stock out of IPTp then no nets. So no nets for protection and also no SP*…." **Key Informant, County**

In addition, there was the mention of lack of cups and water at the health facility by key informant at national level, as a barrier.

"…*In facilities where there is no water or a cup, it is hard to observe actually as a health worker to see whether this pregnant women has actually taken the IPTp*…" **Key Informant, Nairobi**

Compliance in Intake

This can be described as occurring in two ways – from the health provider perspective, and from the patient perspective. The study found that there was failure of physicians' to administer direct observation treatment. Some physicians were overwhelmed by long queues and staff shortages that they failed to observe whether their clients actually swallowed the IPTp medicine given to them. Some pregnant women pretend to swallow the drug but later throw them away especially if the physician is not attentive.

"*Personally when given the medicine I never take it in because it makes me feel nauseated so when I am given I drink water and throw it away*." **Decision makerBungoma-Kimilili**

"*…at the lower health care levels, we have some health care facilities that are overwhelmed. They want to really pass through the patients very quickly. So, they don't have time to counsel the patient and take them through the importance of taking the IPTp and then observe them take the SP…*" **Key Informant, National**

ANC Procedures

A variety of factors such as, fear of HIV tests, health facilities requiring pregnant women to come with their spouses during some of the ANC visits, and the long queues at the health facilities contribute to some women preferring to go to TBAs instead, as the latter do not have these constraints. Therefore, these are added barriers to IPTp uptake.

"*…When I was pregnant, my husband wasn't around so I had to go to the hospital alone but the doctors wanted to see my spouse. The second time they refused to attend to me until I brought my spouse so I had to look for him and plead with him to accompany me to the hospital until he agreed …*" **Decision maker, Female, Kwale**

"*…as my friend said, they don't want to go and queue. They prefer taking some medicine at home and staying at home…*" **Decision Maker, Female, Kwale**

"*…at Katito, you have to endure long queues. Sometimes after queuing for long, you are told that the drugs are out of stock….*" **Decision Maker, Female, Kisumu**

For some respondents, the fear of undressing before male doctors was a great hindrance to some pregnant women attending the required ANC visits, only going to hospital when they were close to delivery.

"*…Others refuse going for the care because for the tests, you need to remove your clothes but they find it very hard to be seen by the doctors undressed and to be touched by the young male doctors so they choose to stay at home and even deliver at home…*" **Decision maker, female, Kwale**

According to a key informant from the Ministry of Health, pregnant women living in areas with high HIV prevalence were not advised to take IPTp since HIV positive women take a similar regimen of drugs, thus the few who are HIV negative, might be missed out and not receive IPTp.

Current practices and strategies to behave

Given the challenges encountered, various strategies or mitigation efforts were put in place by the respondents as a way of overcoming these challenges. The main strategy by pregnant women with regards to taking IPTp, was to spit out the drugs.

"…*personally when given the medicine I never take it in because it makes me feel nauseated so when I am given I drink water and throw it away*…"Decision Maker, Female, Bungoma

Side Effects of IPTp Drugs

Pregnant women hide drugs under tongue and the spit them out

Avoiding IPTp Drugs

The pregnant women attending ANC claim that they have not eaten before coming to the clinic as a strategy not to take the medication. The health center staff pregnant woman to come after they have eated for the IPTp drug

Perceived risk of malaria

Net use to prevent malaria is found adequate and not need for IPTp

6.7 Communication on IPTp

The findings of this study further indicated that very few respondents mentioned that they had seen or heard IPTp campaigns. Those who knew about them mentioned that the main message being communicated targeted pregnant women who were advised to go for SP drugs in order to prevent malaria.

> "…*Last month I saw one by safe Pwani telling pregnant women to take SP when pregnant*…" **Decision maker, Kwale**.

Sources of information about IPTp mentioned included television, radio, word of mouth from friends, village elders, doctors at the health facility, chiefs who addressed crowds at gatherings and CHVs.

> "…*I have heard the Chief encourage women during barazas and even in funerals to seek antenatal treatment*…" **Decision maker, Kwale, Lungalunga**

Trusted and preferred sources respondents discussed included health care providers whom they consider knowledgeable; word of mouth from women who had used the IPTp drug, and media

> "…*any doctor so long as he is giving us the correct information, there is no problem*…" **Pregnant Woman, 15 to 19 years, Kisii**

> "…they should advertise and put their logo so that people can know it is genuine…." **Pregnant Woman, 20 to 49 years, Kilifi**

One communication campaign seen by one particular respondent focused on a man accompanying his pregnant wife to the clinic. The message received was the benefits of IPTp drugs.

> *"…I saw one about three months ago about spouses accompanying each other to the clinic when pregnant…"* **Decision Maker, Female, Kwale**

> *"…I love the Citizen advert because even if I don't know how SP looks like, I was able to tell that it is important to take it during pregnancy thus I was able to go to the chemist and ask for SP…"* **Decision Maker, Female, Kwale**

6.8 Recommendations

Sensitization

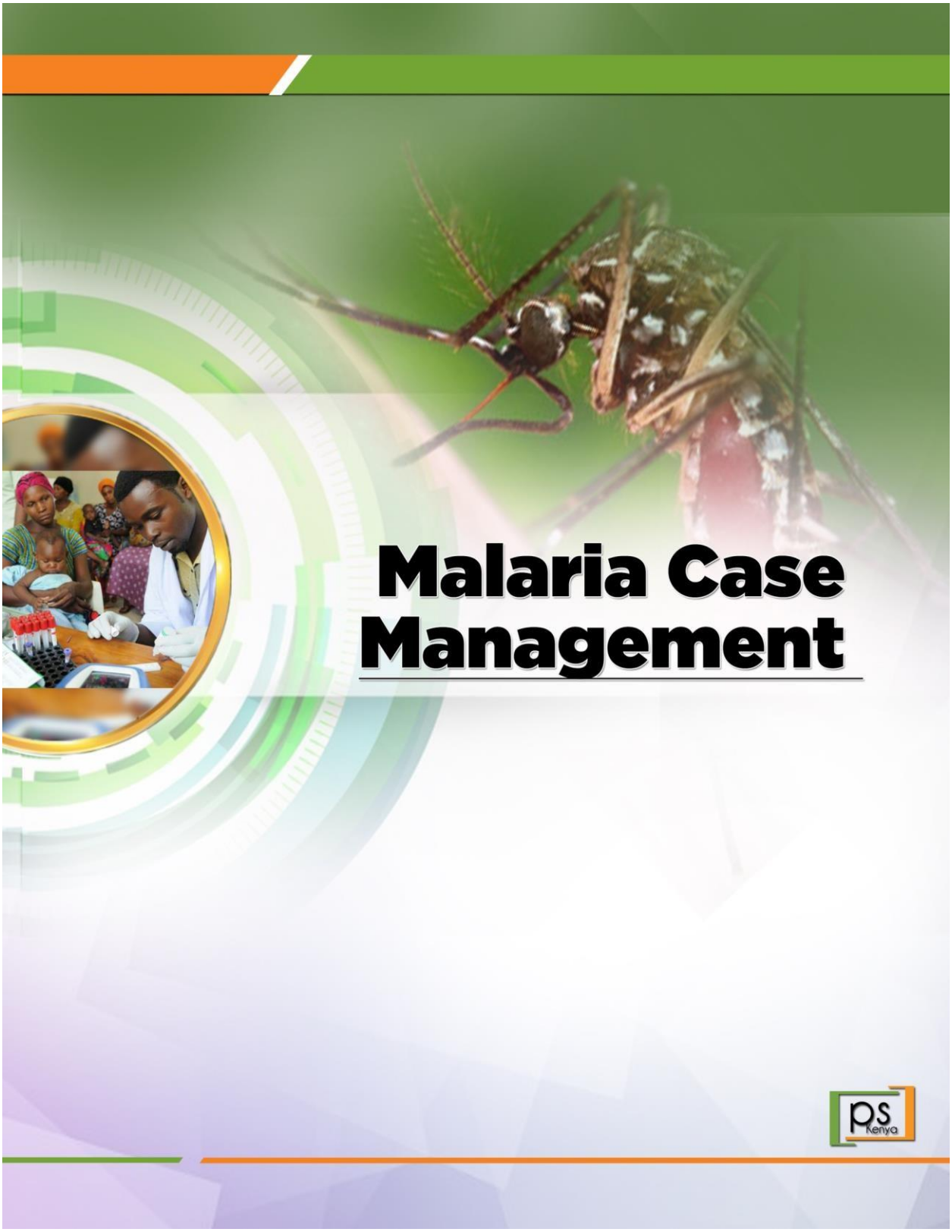
- It is important to carry out sensitization of the community, including both parents and men as well, and other beneficiaries on the benefits of ANC visits and IPTp uptake.
- Communication campaigns should try to link perceived risk of not using nets, together with IPTp uptake, as the former is already high.
- It is suggested that all health providers should be sensitized about the fact that not all pregnant mothers are from a union.

Drivers for IPTp uptake

- IPTp campaigns need to also target TBAs so that they understand, and are encouraged to tell the pregnant women who visit them, to take the recommended dose of IPTp drugs
- It is suggested that MoH should consider having the drug available in different formulations i.e. injections, syrup
- Health centers are encouraged to revise their procedures to encourage male involvement especially during ANC visits by their pregnant wives. History of patient before male involvement
- Programs for adolescents (mother/youth/etc). Study targeting adolescents subject to number of pregnancies
- MOH must ensure adequate and constant stock of SP at all its health facilities
- It is suggested that it should be mandatory for health care providers supervise pregnant women to ensure they swallow their IPTp medication
- MOH should strive to educate health care providers with regards to provision of the best health care with a good attitude hence taking into account customer satisfaction
- It is important to advocate for school programs to have educational days on IPTp as a means of ending stigmatization
- Opinion leaders such as chiefs, must continue to positively advocate for IPTp uptake, with the end result of influencing more pregnant women to avail themselves and receive preventative therapy in pregnancy.

Communication

- Consider having more campaigns on IPTp that are "catchy" as these can have a greater impact, encouraging better IPTp uptake.



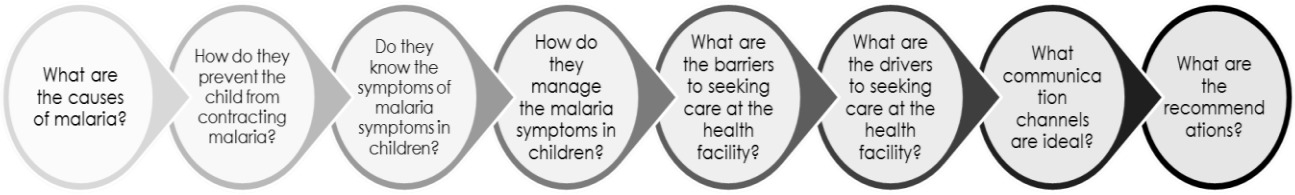
7. STUDY FINDINGS – MALARIA CASE MANAGEMENT

7.1 Introduction

According to KMIS 2015, malaria case management includes prompt diagnosis and treatment within 24 hours of onset of symptoms with appropriate and effective medicines. Access to prompt and effective treatment as well as improvement of the quality of care are key to reducing malaria-associated morbidity and mortality.

This chapter provides findings from the study on knowledge and attitudes concerning the treatment of fever and malaria in children under five years. The study sought to understand the target respondents' knowledge, attitudes and behaviour in regards to malaria case management as per the thematic areas illustrated in Figure 14 below. The target group included: caregivers of children under five years (20 to 29 years, 30 to 70 years & 15 to 19 years, both male and female), household decision makers (no age limit, both male and female) and also key informants.

Figure 16: Case Management Research Questions



7.2 Knowledge on Causes of Malaria in Children

According to most of the respondents, pregnant women and children under five years were more susceptible to contracting malaria mainly due to their low or weak immune systems. Some of the respondents further cited that there were different types of malaria i.e. highland malaria and cerebral malaria.

> "…*highland and cerebral*…" Caregiver of child under 5 years, 30 to 70 years, Female, Nandi

7.2.1 Correct Knowledge of Causes of Malaria

Mosquito Bite

Most of the respondents were aware that malaria in children under 5 years was mostly caused by a mosquito bite. Moreover, a number of other respondents also mentioned the disease was caused from a bite by a female mosquito. Below are some excerpts of what the respondents had to say;

> "…*as I understand, it's a disease caused by a mosquito which bites late in the night. When a mosquito bites you, it inserts some parasites into your body. Those parasites may lead to death*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi

"…*it is spread by a female anopheles mosquito*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

"…*malaria is caused by bacteria brought about by plasmodium which finds its way into the body to result into the disease called malaria*…" Decision Maker, Female, Bungoma

Poor Net Use

The respondents indicated that when children did not sleep under a net, or they used an old net that had holes, they were then exposed to mosquitoes.

Environmental Management

When questioned about possible environments most amenable to mosquito growth, respondents cited unhygienic environments as places that encouraged mosquitos to breed and thereby exposing children to their bites. This included stagnant water, keeping damp clothes in the house, dirty animal sheds, and long bushes.

"…*when they are near a cowshed, mosquitoes love that too because the dung attracts them*…" Pregnant Woman, 15 to 19 years, Kwale

"…*bush around the compound allows mosquitoes to spread*…" Caregiver of child under 5 years, 30 to 70 years, female, Nandi

"…*the malaria disease is mainly caused by female mosquito and this kind of mosquito thrives in bushy surroundings which have not been cleared*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

7.2.2 Misconceptions on Causes of Malaria in Children

However, despite the demonstrated widespread knowledge that malaria is caused by a mosquito bite, there were a few misconceptions noted and these are discussed below.

Breast Milk

Malaria cannot be transmitted through breastfeeding. However, there was a misconception that a breastfeeding child was at risk of contracting malaria from the mother.

"…*when I am bitten by mosquitoes and get malaria, the breast feeding child will suckle it when breast feeding*…" Caregiver of child under 5 years, 15 to 19 years, Female, Narok

Certain Foods

There was confusion between the causes of diarrhea and the causes of malaria. Some respondents indicated that malaria could be caused by feeding children raw food or through the consumption of certain fruits (i.e raw mangoes, sugarcane).

> "…*children can contract malaria when they eat food that is not properly cooked. This usually comes in the form of stomach upsets characterized by vomiting and diarrhea*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

> "…*children eating sugarcane that is not yet mature causes malaria*…" Decision Maker, Female, Bungoma

Environmental Factors

Respondents also had a misconception that any child who directly drank contaminated water, or consumed any food that a mosquito had rested on, were prone to contracting malaria. Some respondents also believed that children could get malaria from exposure to cold weather or rain.

> "…*when the mosquitoes lay eggs in the water they are drinking, it can make them get malaria*…" Decision Maker, Female, Kisumu

> "…*children playing in the rain which causes malaria*…" Decision Maker, Female, Bungoma

> "…*cold which is also said to be one of the causes of malaria disease*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

7.2.3 Expert Opinion on Causes of Malaria in Children

During the interviews with the key informants, we asked them to give us their views on why there were still new incidences of malaria being reported in both endemic and epidemic zones. Most cited that this could be attributed to the following:

Low net use status and/ or inconsistent use of nets throughout the year amongst caregivers of children under five years, exposed children to malaria infections.

> "…*if you look at reports, you will find that most people believe that during the dry spell, they are not at risk even in the endemic areas, so what happens is that they don't use the nets*…" **Key Informant, National**

Under-dosage amongst those children being treated with malaria; this often occurred where a mother prematurely stopped giving the child medication, rather than complete the fully dose, because the noticed her child had improved and seemed 'well'.

Lack of equipment and chemicals for in-door residual spraying hence exposing children to the risk of further malaria infection.

Cultural myths and beliefs among community members for example; in the coastal region where white nets were associated with dead bodies or funerals, rectangular shaped nets were associated with coffins, among others, hampered some community member from putting children under a net. Hence, these children were being exposed to malaria infection.

Net usage constraints appeared to be a further issue among some of the community members, especially rural residents, who found it difficult to hang the rectangular-shaped nets. Respondents mentioned that to hang the latter was difficult in a round hut, one needed four corners to hook or hang up the net. As a result therefore, some children did not sleep under a net, and they were being exposed to malaria infections.

Change in mosquito behaviour: some of the key informants mentioned that there was a change in mosquito behaviour and this was most likely to contribute to new incidences being seen.

> "…*there could be a possible change in mosquito behaviour whereby we have more mosquitoes biting early in the evening before retiring to bed or early in the morning immediately when people come out of bed*…" Key Informant, National

Delays in decision to seek care by caregivers for a child who felt unwell, was a contributing factor to the increase in malarial cases being seen. Most caregivers have a tendency to to wait for the symptoms to persist, before seeking care.

> "…*we have people who have not taken time to do early treatment of cases and investigation at our facilities. That is treatment of malaria earlier and seeking medical facilities*…" Key Informant, County

Population migration into endemic and epidemic areas is seen to increase the exposure of malaria to children.

> "…*we have Somalis who come to our place, their health system is broken and that is why I can say that we have new cases of malaria in children under 5 years*…" Key informant, County

Some key informants indicate that there the existence of faulty MRITs that do not give adequate results and some patients not responding to anti-malaria drugs who in the end expose the children to malaria infections.

7.3 Knowledge of when Malaria is Most Prevalent

Most respondents agreed that children contracted malaria mostly during the rainy season. This was mainly because mosquitoes bred rampantly during this time as there are a lot of bushes and more stagnant water bodies around, which acted as breeding

grounds for mosquitoes. Furthermore, the respondents mentioned that the cold weather was conducive for the mosquitoes. Some of their responses are illustrated below:

> "…*in the month of June, the environment is green which allows spread of mosquitoes*…" Caregiver of child under 5 years, 30 to 70 years, Female, Nandi

> "…*people tend to get malaria during the rainy season. This is because the mosquitoes easily find stagnant water during this period where they can lay eggs and multiply in number*…" Decision Maker, Female, Kisumu

> "…*mosquitoes usually come during the rainy season because they are brought about by the cold*…" Decision Maker, Female, Kisumu

During the dry season the incidence of malaria apparently went up because children covered themselves less, while others did not sleep under a mosquito net at night.

> "….*malaria disease is common during the periods with intense sunshine. In this place, during the dry seasons, it is normally hot at night. As such people do not use the mosquito nets during these periods*…" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

During harvest time, this was mainly because the harvest acted as a breeding ground for the mosquitoes. Further, it was said that there was pollen which they believed the mosquitoes fed on.

> "…*the mosquitoes are also common when we have crops that are yet to be harvested in the farms. The mosquitoes therefore live and breed in the farms and bite us at night*…" Decision Maker, Female, Kisumu

Some of the respondents however felt children were at a higher risk of contracting **malaria at night** as they had the perception that the mosquitoes that bite at night, were the ones that caused malaria.

> "…*I want to point out that malaria is the same but the most dangerous mosquito is the one found from 12am at night and 1am. This is because they tend to be very active from midnight….during the day children cannot be infected by malaria*…" Decision Maker, Female, Bungoma

However, very few respondents felt that their children could contract malaria anytime, as they had the knowledge that mosquitoes are present all the time.

> "…*malaria here is all seasons because the mosquitoes are there throughout all the seasons*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

7.4 Knowledge of Malaria Symptoms in Children

During the focus group discussion with respondents, we asked them to mention key malaria symptoms in children they were aware of. It was apparent that most were aware of the symptoms. We identified that the respondents mentioned both uncomplicated and complicated malaria symptoms as shown below:

Table 2: Types of Malaria

Uncomplicated malaria symptoms mentioned	Complicated malaria symptoms mentioned
❑ Thirst ❑ Coughing ❑ Mouth sores ❑ High fever/ feeling cold ❑ Headaches ❑ Dizziness ❑ Loss of appetite ❑ Pain on joints ❑ Stomach ache	❑ Vomiting (yellow stuff) ❑ Diarrhea ❑ Seizures ❑ High blood pressure ❑ Unconsciousness ❑ Jaundice " yellow eyes" ❑ Loss of weight ❑ Strong urine color (dark yellow)

Notably, there were high mentions of uncomplicated malaria symptoms an indication that most tend to wait for the symptoms to worsen before taking the child to hospital. Key informants mentioned that most community members had good knowledge of what malaria symptoms were, as most of them were able to mention these symptoms when they visited the health facilities.

7.5 Perceived Risk of Malaria

During further discussions with respondents, it was clear most of them were aware of what the adverse effects of malaria were, as such they mentioned miscarriages, death and seizures. They repeatedly used the following words when describing malaria: **"dangerous"**, **"death"**, **"serious disease"**, **"menace"**, **"bad disease"**, **"madness"**, **"catastrophic"**, **"deadly disease"** and **"harmful".** Below are a few highlights of quotes from the focus group respondents;

> "*…malaria is a dangerous disease which can kill if immediate action is not taken…*" Decision Maker, Female, Kisumu

> "*…malaria is a dangerous disease and it kills children and pregnant women…*" Caregiver of child under 5 years, 25 to 35 years, Female, Migori

> "*…malaria is a disease that kills. If it is not treated early enough, it kills…*" Decision Maker, Female, Bungoma

7.6 Malaria Prevention Methods for Children Under 5 Years

According to KMIS data 2015, vector control is one of the key preventive interventions in malaria control. It has been, and remains a major focus in the Kenya National Malaria Strategy 2009-2018 (revised 2014). Focus group respondents cited using the following malaria prevention methods for children under 5 years;

Net Use

This involved ensuring that children slept under a treated mosquito net, hanging the net early in the evening, ensuring the net did not have holes, ensuring the net did not have mosquitoes trapped inside it, ensuring the child slept at the center of the bed so that they were not in contact with the net, and ensuring that the net was well tucked in before and after getting in bed.

> "…*in the evening before the children sleep, you check whether inside the mosquito net there are mosquitoes*…" Pregnant woman, 20 to 49 years, Kilifi

> "…*when they are about to go to bed, the mother ensures that the net is well tucked under the mattress so that the mosquitoes do not find a space to penetrate into the net*…" Decision Maker, Female, Kisumu

Keeping the compound clean by clearing the bushes, collecting and burning litter/ garbage and by draining stagnant water which are breeding places for mosquitoes.

> "…*there are those grass that grow around the house, they are supposed to be cleared so that mosquitoes cannot breed in them*…" Pregnant Woman, 15 to 19 years, Kisii

Alternative Use to Net use, was mostly mentioned by respondents who did not have nets, or whose children seemed to be affected by the mosquito net. They tended to use either mosquito coils, mosquito repellants, liquid electrical mosquito killer and insecticide sprays**.**

> "…*we use the Mortein doom spray that is sprayed on all dark corners under the chair and tables because that is where they tend to hide*…" Decision Maker, Female, Bungoma

Clothing: this involved ensuring the child wore long sleeved clothes and trousers in the evening before they went off to sleep, to avoid them being bitten by mosquitoes.

Food: this involved ensuring that the child consumed clean food and water to prevent the child from contracting malaria.

"…*I make sure that they do not touch dirty water and make sure that they take clean and healthy food*…" Caregiver of child under 5 years, 20 to 29 years, Female, Narok

Burning a mixture of 'udi', sunflower and cow dung: some Kisii respondents reported they burnt this mixture to keep away mosquitoes.

'Kamarakaru': some Bungoma respondents mentioned that they scrubbed the walls with 'kamarakaru' as it has thorns which they believed pricked the mosquitoes and hence acted as a deterrent.

"…*it's called "kamarakaru" I don't know its scientific name but I use it raw to scrub walls especially in the evening when mosquitoes come in. It has thorns that prick mosquitoes*…" Decision Maker, Female, Bungoma

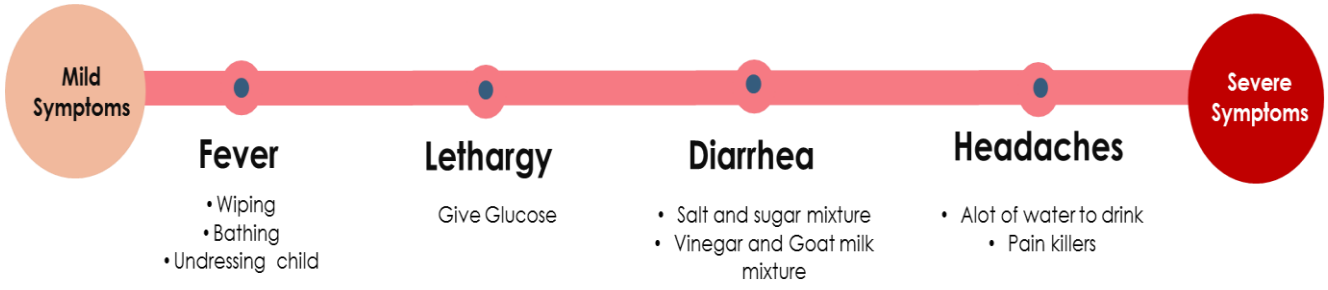
Cypress Tree: some Bungoma respondents burned Cypress leaves as they believed that the resulting fumes kept the mosquitoes away.

"…*another method I am familiar with is burning cypress tree as the smell chases away mosquitoes*…" Decision Maker, Female, Bungoma

7.7 Malaria Case Management Practices

The study findings showed that most the respondents mostly engaged in first aid measures upon seeing uncomplicated symptoms of malaria. There were a number of mitigation measures put in place for symptoms such as fever, lethargy, diarrhea and headaches and these are discussed below.

7.7.1 Mild Symptom of Malaria in Children



Fever

In case of high fever, the practice was to wipe the child with a damp cloth that had been dipped in cold or warm water to lower the fever. Some caregivers also gave the child anti-pyretic drugs such as Panadol and Calpol. A certain proportion of women would undress the child in a bid to lower the fever.

"…*you have to take a cloth dipped in cold water and wipe the child at least to lower the temperatures*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kilifi

"…*if the child has high fever, you are supposed to undress him because if you leave the child dressed, it increases the fever that should be like doing the first aid*…." Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Lethargy

If a child was normally full of energy, showing symptoms of lethargy was of great concern to caregivers. When faced with such signs, the caregivers indicated that they gave the child glucose to boost their energy levels.

"…*for the baby I think you give him glucose water to give him some energy*…" Caregiver of child under 5 years, 20 to 29 years, Female, Mombasa

Diarrhea

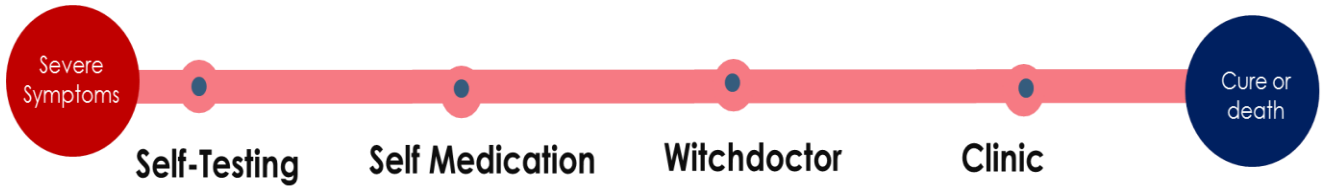
Some of the respondents also mentioned that they gave their child various concoctions, such as mixture of vinegar and goat milk, or water mixed with salt and sugar to stop the diarrhea.

"…*you can boil water, you put some salt, and very little sugar and then you give him that water*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Headaches

Some gave the child an analgesic or painkiller such as Panadol to ease the pain, some would give their child a lot of water to drink.

7.7.2 Severe Symptoms of Malaria in Children



Self-testing For Malaria

Some of the respondents cited that they had malaria test kits at home which they would use once they identified the symptoms. If the kit confirmed that the child had malaria, they then would go to buy an anti-malarial drug from the nearby chemist.

Self-Medication

Some respondents mentioned that they immediately went to buy anti-malaria drugs (artemether lumefantrine, AL) from the chemist, yet others gave their child concoctions that included water that had been boiled with Paw Paw leaves as an anti-pyretic remedy.

> "…*as a mother your house should not lack malaria tablets. Antimalarial tablets e.g. Al*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi **Witchdoctors and Herbalists**

In addition, respondents in Kisii and Kwale mentioned that they take their child first to the witch doctor to check what the child is clearly suffering from. The witchdoctor appears to be the first point of contact for some caregivers.

> "…*when you see the child diarrhea a lot and vomit, there are these old women, we might be saying like us Kisii's there are some things that are normally found in the child's mouth, then you go to them explain and seek guidance from them before you take the child to the hospital*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Clinic

Others mentioned that they take the child to the hospital immediately once they saw the above mentioned symptoms.

> "…*I rush them to hospital immediately so that they get treated*…" Caregiver of child under 5 years, 20 to 29 years, Female, Mombasa

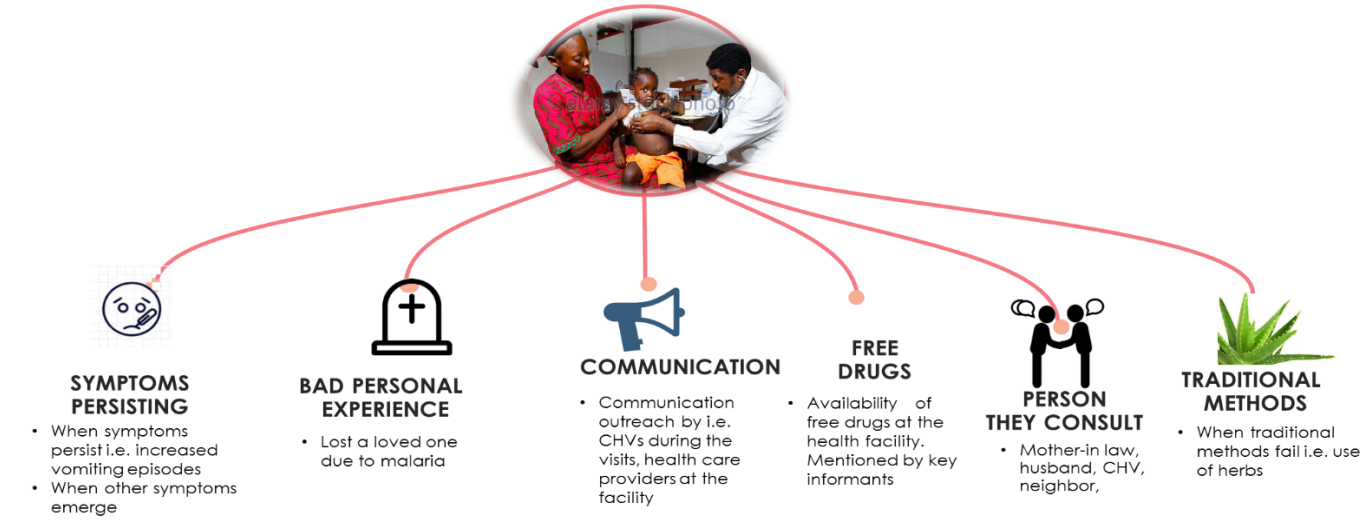
> "…*I know it is malaria when the child becomes weak and they vomit. I always rush them to the hospital without delaying*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kisumu

According to a key informant, the status of seeking malaria treatment was at approximately 70% in the public sector, approximately 25% in the private sector and approximately 3% in the faith-based organizations. This was an indication that quite a number of people were aware of the need to seek treatment at the health facility.

7.8 Drivers to Seeking Treatment at a Health Facility

According to KMIS 2015, access to prompt and effective treatment is key in reducing malaria-associated morbidity and mortality. The view of most respondents, in relation to being key drivers to seeking treatment for malaria for children under five years at a health clinic are shown in Figure 15, and further discussed down below.

Figure 17: Drivers to Seeking Treatment across the Study Sites



Symptoms Persisting

Caregivers took their child to the health center when symptoms worsened. This was evidenced by increased vomiting episodes, increased diarrhea, prolonged loss of appetite and the presence of high fevers despite self-medication, or the use of traditional methods or other first aid measures undertaken. In addition, the caregiver would become concerned when other symptoms emerge such as hallucinations and seizures.

> "…*you find that you are doing to him. Whatever you are doing the fever increases, it increases, that is when you will notice that this person has no otherwise, so you should hurry you take him to the hospital*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

> "…*when the child stretches on the ground and the eyes fail to blink. When I see this, I rush them to the hospital because that is a sign of strong malaria*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kisumu

Bad Personal Experiences

There was a correlation between past negative experiences with malaria, and seeking medical care in a public hospital. Respondents who had lost a child or a relative to malaria, felt that it was important for a person to seek treatment at the facility in good time.

> "…*sometimes you can despise malaria but it's dangerous. I lost a child that way. He just told me that he had a headache and some dizziness but he was active during the day. He fainted and we rushed him to hospital but they were not able to add water into his system. He died at night. It was malaria*…." Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi

Communication
Communication messages on malaria acted as drivers for seeking treatment at a health facility, by community members. The CHVs were considered to be a key communication channel used to sensitize caregivers on the need to take an infant to public health centers for prompt treatment.

> "…*mostly it is the CHVs. Because they are playing a very big role in the community. They are aware of everything that happen in the homesteads where they visit. They influence malaria management. Additionally, the health facilities also influence malaria management. Whenever the CHVs hold the community dialogue, we do invite the health facility staff to come to pass information on how to prevent malaria*…." Key Informant, County

Free Drugs at Health Centre
The availability of free drugs at health facilities for children under 5 years suffering from malaria, also encouraged them to seek treatment at those facilities.

The Person Most Consulted
The study findings further illustrated that there was a high degree of informal consultation when a child was unwell. Those consulted include mothers-in law, CHVs, male head of household, and neighbors who normally advised them to seek treatment at the health facilities should symptoms persist.

7.9 Alternative Treatment Methods: Traditional Herbs

Case management communication campaigns have repeatedly emphasized that treatment for malaria was free at public health facilities, and that treatment was also available at a subsidized cost in the private sector. However despite this, some respondents still tried out traditional herbs and concoctions as a treatment malaria option, during the FGDs as noted below;

Neem: this involved making the child consume or inhale fumes, or bathe with water that had been boiled with neem. This was mostly mentioned by Kwale, Kilifi and Kisumu respondents.

> "…*some use the neem tree. They boil parts of the tree and drink that water. Malaria goes away*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kilifi

Aloe Vera: some of Kwale respondents mentioned giving the child water that had been boiled with aloe vera so that he or she was encouraged to vomit. Once the child vomits, the child was declared treated from malaria.

> "…*you crash it in a bowl, add water, mix evenly and sieve then drink the water. It cures malaria*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kwale

Tea leaves and garlic: in Kilifi, some of the respondents mentioned they made their child inhale fumes from water that had been boiled with tea leaves and garlic until he or she started sweating. They considered the child had thus been treated from malaria once the sweating began.

'Moringa': some of the Mombasa respondents cited making the child consume water that has been boiled with moringa leaves so that he or she could vomit. Once the child vomited, he or she or he was declared free from malaria.

'Nyayado': in Kisumu, some of the respondents mentioned they made the child consume water that had been boiled with 'Nyayado' leaves. They believed this tree helped treat malaria.

> "…*in my community, there is a tree called 'nyayado' whose leaves are grinded then mixed with hot water and then drunk. It makes you vomit the malaria*…" Caregiver of child under 5 years, 30 to 70 years, Female, Kisumu

'Mkilifi' Meliaceae, Azadirachta indica: in Kwale, some of the respondents mentioned they would make their child drink and bathe with water that has been boiled with 'mkilifi', as it was their belief that the latter was an effective malaria treatment remedy.

> "…*you boil 'mkilifi' and that water we bathe with it and some we drink. It reduces fever and heals malaria*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kwale

'Okita': in Migori, some of the respondents mentioned making their child consume water that had been boiled with 'Okita'.

7.10 Barriers to Seek Treatment at a Health Facility

7.10.1 Delays in Seeking Care

The delays in seeking care can be mainly attributed to 3 sequential stages which could be described as: appraisal delay, which was the time taken by the caregiver to appraise the child for signs and symptoms of illness. This was followed by illness delay, which was the time taken from actually deciding if the noted symptoms were actually as a cause of malaria, to the time the caregiver decides it was time to seek professional medical care, and finally utilization delay which was the time from the decision to seek care until the patient actually goes to the clinic and uses its services.

Waiting For Effects of First Aid Measures

Most of the respondents mentioned they waited to see if there would be any changes based on the first aid measures undertaken. If the symptoms persisted, then they knew that they ought to go to the health facility.

"…*let's say after about three hours of observation is when you take a step of rushing them to the hospital*…" Decision Maker, Female, Bungoma

Financial Constraints

Some of the respondents from Bungoma, Kwale, Kilifi and Kisii mentioned that at times they did not have cash in hand to cater for certain costs such as transportation costs. Some of the respondents mentioned that they had to sometimes borrow money from friends or relatives.

"…*you will ask your wife to wait until you look for money so as you can see it will take you longer*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

"…*let us say I don't have money to take the child to the hospital. That is something that will hinder me from taking the child to the hospital*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Consultative Permission

Some of the respondents mentioned they waited for their household heads to give them permission to seek treatment at the health facility as they were the key decision makers. These persons included the head of household, and mothers-in-aw

7.10.2 Delays in Reaching Care

The delays in reaching care were mainly attributed to a number of factors and these are discussed below.

Distance to Health Care Facilities

Most of the respondents from Kwale, Kilifi, Kisii and Narok mentioned that the health facilities were far from their homesteads.

"…*we normally prefer the hospital but the hospital might be far. That is why we do first aid to push time till very early in the morning. That's when you take the child to the hospital*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Insecurity

Some of the respondents mentioned they preferred taking the child to the hospital in the morning mainly due to insecurity at night.

7.10.3 Delays at the Health Centre

Long queues at the health facility

Most of the respondents from Kwale, Bungoma, Kisii and Kisumu mentioned that most of the public hospitals they go to had long queues. Due to this, some of the respondents mentioned they went to private health facilities.

"…*you can take a whole day and not even see a doctor until the next day*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kwale

"…in the health center you will queue with the child yet they are very sick…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

Some of Nandi and Kisumu respondents cited that the public health facilities had limited number of doctors, and hence they ended up waiting for long periods before being served.

Unavailability of Doctors

Some of the respondents from Narok and Kisii cited that at times the doctors were unavailable at the hospital e.g. during lunch hours, or during doctors' strikes.

"…*like during the doctor's strike, I really suffered a lot*…" Caregiver of child under 5 years, 20 to 29 years, Female, Kisii

Lack of Testing Kits

Lack of equipment at the health facilities such as testing kits, emerged as a barrier to seeking malaria treatment especially in Kwale.

"….*in some cases, the doctors do not have the necessary tools to diagnose you so they send you to private labs then you bring back the results for them to prescribe medicines for you*…" Caregiver of child under 5 years, 15 to 19 years, Female, Kwale

Discrimination

Discrimination by health care providers was also a problem. There were instances where at the facility, priority appeared to be mostly given to those considered 'rich'. This emerged as a barrier to seeking treatment at the health facility in Bungoma.

"…*if they look at you and you look poor, you will come in last*…" Caregiver of child under 5 years, 20 to 29 years, Male, Bungoma

Drugs Stock Out

Respondents from Nandi, Migori, Kwale, and Kisii mentioned that often there were no drugs at the health facilities and hence they opted to buy the medicines elsewhere.

"…*sometimes we have stock outs of AL. Sometimes we have stock out of the Artesunate which we use for the management of sever malaria*…" Key Informant, County

"…*they come to hospital late and take long before they start work, the process also consume time, and sometimes medicine are not available after waiting for a very long time*…" **Caregiver of child under 5 years, 30 to 70 years, Female, Nandi**

"…*at times when your child has malaria, you are told to go buy medicine from the pharmacy…*" **Caregiver of child under 5 years, 15 to 19 years, Female, Kwale**

Preference for self- treatment and self-medication:
Self-medication was mainly perceived to be encouraged by the communication campaigns that were created as an awareness campaign of the currently available malaria drugs i.e. ACT, Coartem to treat malaria.

"…*there are advertisements on radio for self-medication is actually high on things such as ACTM. They go to chemists and buy these drugs…*" Health Care Worker at the facility, Narok

It emerged that quite a number of respondents were not aware of the free services at the health facilities with regards to malaria case management i.e. free drugs for children under 5 years.

7.11 Role Play

During some of the FGDs, we asked the respondents to demonstrate in a step by step manner how they handled malaria cases at home, especially with children below five years. This was carried out through role play.

Table

3: Role play

***Drama One**:*

The play started with a child feeling unwell and the mother seen feeling the child's temperature using her hand. Shortly, the mother rushed to a nearby community health volunteer (CHV) carrying her child.

CHV: How are you and what's wrong with the child?

Mother: Am fine but she has a very high fever

CHV: Ooh!! Am sorry let me feel her temperature. She has a very high fever. I will give you some Paracetamol to cool the fever but if she continues feeling bad please see a doctor.

The mother went back home with her daughter. However, the next day, the mother realized that the symptoms were persistent and rushed to get a motor cycle to take her child to the health facility

Mother: Hey!!! (To the motorcycle rider) how much will you charge me from here to the hospital?

Motorcycle rider: I will charge you only Ksh.50

Mother: Okay, take us

Once they arrived at the health facility, the mother took the child to the doctor to be observed and diagnosed.

Doctor: Welcome. How may I help you?

Mother: My daughter has a very high fever and she's not eating well

Doctor: I will have to test if she has got malaria but first let me check her temperature. Her temperature is too high, let's test her malaria.

The doctor was seen to undertake some tests and then afterwards approached the mother with the sick child.

Doctor: Your daughter has malaria, take this medicine and make sure she sleeps under a treated mosquito net.

The play ended with the mother going back home with her child.

Key Insights

Drama one, clearly showed that the community tended to consult CHVs during such situations, there were some first aid measures undertaken such as giving the child paracetamol, they were potential barriers to seeking treatment such as transportation costs. Notably, the drama ends on positive note where the child was tested and proper medication given for free

Drama two:

The play started with the mother going back home in the evening from the market and finding her child having a high fever and diarrhea. She immediately reduced the number of clothes the child was wearing and went to her husband to inform him that the child was unwell.

Father: How is the baby feeling?
Mother: She has a high fever.
Father: What of her stomach?
Mother: It has high temperature too.
Father: Does she have diarrhea?
Mother: Yes she has?
Father: Then take her to hospital. Take this money.

The mother was seen receiving the cash from her husband. The next day, the mother rushed the child to the hospital and met up with a doctor. **Mother**: Doctor, my baby has diarrhea **Doctor**: When did it start?
Mother: Yesterday.
Doctor: Did she eat?
Mother: No and she has high temperatures.

The doctor was observed measuring the child's temperature
Doctor: Her temperatures are high, I will prescribe you some medicine

The play ended with the mother and the child going back home.

Key Insights

Drama two, clearly showed that the mother did not attempt to give her child any medication or traditional herbs to manage the symptoms, although the audience felt that she should have at least given the child paracetamol to reduce the high fever. This implies that there is knowledge gap on what a person needs to do to manage malaria symptoms at home especially during the interim period, like evening or at night, prior to going to hospital. Drama two also clearly pointed out that the first point of contact in this case was the husband. It was however interesting to note that the mother took the child to the hospital alone (the husband playing a passive role). It was also key to note that the child was not tested though medication was given.

7.12 Communication on Malaria Case Management For Children

Key sources of Information

Key sources of information on malaria that were mentioned by most of the respondents included, health facilities, TV, radio, PS Kenya group, public address, church, community health volunteers, their children, posters at the hospitals, drama at the market, posters

displayed at chemists, posters displayed on the ferry, magazines, musicians and roadshows.

> "…*in the past there was a group called PSI that would call groups and teach people about malaria in 2013*…" **Caregiver of child under 5 years, 15 to 19 years, Female, Kwale**

> "…*our children from school pass this messages in the market and house to house*…" **Caregiver of child under 5 years, 30 to 70 years, Female, Nandi**

> "…*in fact the posters are so many on the ferry*…" **Pregnant Woman, 15 to 19 years, Kwale**

Trusted and preferred sources:
Some of the sources preferred and trusted by respondents included:

Health Care Providers i.e. CHVs, doctors, nurses: According to most of the respondents, they mostly preferred and trusted CHVs as they tended to visit their households frequently, and they were well known to them. Moreover, for those who did not have access to radios, the CHVs were able to deliver the message to them at their doorstep. The health providers were also perceived to be knowledgeable.

Radio: Radio was preferred mainly because most participants mentioned that they had a radio in their homes, or even on their mobile phones. For those who cannot read, this was a means of hearing and receiving important information. The participants also had a perception that doctors that talked on the radio stations, were certified doctors. The preferred radio stations across the study sites were:

Kwale: Citizen FM, Pwani FM, and Kaya FM
Mombasa: Radio Maisha, Radio Citizen and Pwani FM
Nandi: Kass Fm, Chamgei FM
Narok: Sidai FM, Mayian Fm
Kisii: Egesa FM
Kisumu: Nam Lolwe, Lake Victoria and Ramogi FM
Bungoma: Sulwe FM, Mulembe FM

Posters: Posters were also a preferred source of information, as they clearly showed what a person needed to do to manage a case of malaria.

Groups: Women groups and small groups, which were considered interactive, provided considerably detailed information that easily reach many people at once.

Campaigns they had seen/ heard on malaria case management included, 'ACT' campaign, 'Msimu wowote' campaign, 'Pimwa Tibiwa Zuia' campaign, and plays at

school on malaria. Key messages they received from these campaigns included the effects of malaria, symptoms of malaria, not to take medications that were not prescribed by the doctor, the female mosquito caused malaria, there is no difference between a mosquito that bites during the dry season and the one that bites during the rainy season, and there will be malaria tests done.

> "…*there is another one promoting 'Dawa za ACT' in all stations*…" Decision Maker, Female, Bungoma

Key things they liked about these campaigns was that the posters were self-explanatory, some of the campaigns were held at the market, the communication was frequent, there were gifts to be won, the plays were self-explanatory and some people were able to get malaria treatment. One thing they disliked about the campaigns however, was that the school plays were long.

> "…*I loved the campaign because some people do not go to the hospital so this was an opportunity for them to get treatment*…" Pregnant woman, 15 to 19 years, Kwale

7.13 Recommendations

Knowledge on malaria case management

- It is suggested that more sensitization campaigns on the benefits of seeking treatment at the health facilities through health care providers, CHVs and school children, should be carried out

Drivers to seek treatment at the health facility

- If possible, it would be important to facilitate income generating schemes for women would enable them become more financially independent and empowered to make decisions
- There was a great need for the provision of more health centers in rural and remote areas
- Advocacy, communication and social mobilization efforts should strengthened so as to increase community demand for malaria prevention measures
- Consider having other targeted approaches to managing community misconceptions

Communication

- Communications campaigns should include messages on the need for prompt decision making and the importance of insisting for and seeking testing prior to treatment

8. APPENDICES AND REFERENCES

8.1 References

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8.2 Appendix 1: Survey Sampling

Sample Framework of the Focus Group Discussions (FGDs)

A total of **21 FGDs,** each FGD having 8 to 12 participants as indicated in table 1, table 2 and table 3 below were carried out:

Highland Malaria epidemic counties

Table 4: Highland Malaria epidemic counties-FGDs

COUNTIES	THEMATIC AREAS	TARGET GROUP	FGDS
Kisii-Kenyanya	**Net use**: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
		Decision makers	1
	Case Management: 60% of time **Net Use:** 20% of time **IPTp Uptake:** 20% of time	Pregnant Women	1
Nandi / Tinderet	**IPTp Uptake:** 60% of time **Net Use:** 20% of time **Case Management:** 20% of time	Pregnant women	1
	Case Management: 60% of time **Net Use:** 20% of time **IPTp Uptake:** 20% of time	*Caregivers of children under 5 years	1
Narok –Narok South	**Net use**: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Decision Makers	1
	Net use: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
Total			**7**

*Included theaters/ role plays

Lake Malaria endemic counties

Table 5: Lake Malaria endemic counties-FGDs

COUNTIES	THEMATIC AREAS	TARGET GROUP	FGDS
Kisumu-Nyakach	**Case Management:** 60% of time **Net Use:** 20% of time **IPTp Uptake:** 20% of time	*Caregivers of children under 5 years	1
	IPTp Uptake: 60% of time **Net Use:** 20% of time **Case Management:** 20% of time	Pregnant women	1

	Net use: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Decision Makers	1
Migori- Nyatike	**Net use**: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
Bungoma-Kimilili	**IPTp Uptake:** 60% of time **Net Use:** 20% of time **Case Management:** 20% of time	Pregnant women	1
	Net use: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
	Net use: 60% of time **Case Management:** 20% of time **IPTp uptake:** 20% of time	Decision Makers	1
TOTAL			7

***Included theaters/ role plays**

Coast endemic counties

Table 6: Coast endemic counties-FGDs

COUNTIES	THEMATIC AREAS	TARGET GROUP	FGDS
Kwale-Lunga Lunga	**IPTp Uptake:** 60% of time **Net Use:** 20% of time **Case Management:** 20% of time	Pregnant women	1
	Case Management: 60% of time **Net Use:** 20% of time **IPTp Uptake:** 20% of time	*Caregivers of children under 5 years	1
	Net use: 60% of time **Case Management:** 20% of time **IPTp uptake:** 20% of time	Decision Makers	1
Kilifi-Kilifi North	**IPTp Uptake:** 60% of time **Net Use:** 20% of time **Case Management:** 20% of time	Pregnant women	1
	Net use: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
	Net use: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1

Mombasa-Likoni	**Net use**: 60% of time **Case Management**: 20% of time **IPTp uptake**: 20% of time	Caregivers of children under 5 years	1
TOTAL			7

*Included theaters/ role plays

Sample Framework of Key Informant Interviews (KIIs)

We conducted **32 KIIs** as shown below;

Highland Malaria epidemic counties

Table 7: Highland Malaria epidemic counties-KIIs

COUNTIES	TARGET GROUP	KIIs
Kisii	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Nandi	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Narok	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
TOTAL		**9**

Lake Malaria endemic counties

Table 8: Lake Malaria endemic counties-KIIs

COUNTIES	TARGET GROUP	KIIs
Kisumu	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Migori	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Bungoma	Public Health Official	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
TOTAL		**9**

Coast endemic counties

Table 9: Coast endemic counties-KIIs

COUNTY	TARGET GROUP	KIIs
Kwale	Public Health Officials	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Kilifi	Public Health Officials	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
Mombasa	Public Health Officials	1
	Community Health Worker/Community Health Extension worker	1
	Health Care Worker at the facility	1
TOTAL		**9**

National Level

Table 10: National level-KIIs

TARGET GROUP	KIIS
National Malaria Control Program (NMCP)	1
Kenya Medical Supplies Authority (KEMSA)	1
LLIN Manufacturers	1
Donor	1
Malaria Stakeholder	1
TOTAL	**5**

Sample Framework of the In-Home Visits

We conducted **18 in-home visits**, 2 per county, as shown by table 8 below;

Table 11: In-home visits

COUNTY	NO. OF IN-HOME VISITS
Lake Endemic Counties	
Kisumu	2
Migori	2
Bungoma	2
Highland Epidemic Counties	
Kisii	2
Nandi	2

Narok	2
Coast Epidemic Counties	
Kilifi	2
Kwale	2
Mombasa	2
TOTAL	**18**

Sample Framework of the In-Depth Interviews

We conducted **12 journey maps via in-depth interviews** as shown below;

Table 12: List of IDIs

County	No. in-depth interviews
Lake Endemic Counties	4
Highland Epidemic Counties	4
Coast Epidemic Counties	4
Total	**12**

8.3 Appendix 2: Survey Tools

Informed Consent Form

[This ICF should only be used for those who have attained the age of 18 years]

Study Title	Malaria Qualitative Study 2017
Investigator(s)	Dr. Hildah Essendi – Principle Investigator Brian Mdawida – Co-investigator Christine Awuor – Co-investigator Joyce Wanderi – Co-investigator Dr. Anne Musuva – Co-investigator Dennis Mwambi – Co-investigator
Study Sponsor(s)	USAID & DFID
Collaborators	GoK National Malaria Control Program

This Informed Consent Form has two parts:

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you choose to participate)**

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

PS Kenya is doing qualitative research on malaria evidence based behaviour change communication campaigns which are geared towards growing net usage, uptake of IPTp among pregnant women and case management among target populations living in malaria endemic and epidemic prone areas in Kenya in the next 5 years. We are giving you this information because we would like you to participate in our research project. If you prefer not to participate, you are free to choose to do so. We want to make sure that you have all the information that you need before you decide. Members of our team are here to help you understand more about the project. If you do not understand any of the words or ideas that you see on this form, please ask us to explain the information to you. You can talk to anyone from our team whom you feel comfortable with about the research.

Why is this Project Important?

In Kenya, malaria remains a major cause of morbidity and mortality with more than 70 percent of the population at risk of the disease. Through this project, we would like to understand; the factors associated with adoption of various malaria interventions among the different groups in the community, net use, Intermittent Preventive Treatment in Pregnancy (IPTp) and case management uptake across epidemiologic zones in Kenya. Findings from the study project will help Ps Kenya in designing of Social Behaviour Change Campaign (SBCC) interventions to control malaria in this community

Who Can Participate?

You are being invited to take part in this research project because we feel that your experiences as a caregiver (or a pregnant woman, or a household head, or a health worker) can contribute much to our understanding and knowledge of local practices in relation IPTp uptake and case management

Participation is Your Choice

Your participation in this research is completely voluntary. You will make the choice about whether you will participate or not. If you choose not to take part, you will continue to receive all of the services that you usually get in your community and nothing will change.

What Is Involved in this Project?

This research will involve your participation in a group discussion that will take about one and a half hour interview. The FGDs will comprise of 8 - 12 participants and will be conducted by 2 experienced researchers, a moderator and note taker who will ensure that you are comfortable with the sessions. During the discussion sessions, a focus group discussion (FGD) guide will be used. The guide will

comprise of open ended and probing questions regarding malaria and also give you time to share your knowledge and experience in net usage, IPTp uptake and malaria case management.

Theatre and role play will also be used to generate insights on handling case management cases (e.g. malaria) by getting you to role play specific interactions and scenarios. We will not ask you to share personal beliefs, practices, stories or knowledge that you are not comfortable sharing. The entire discussion will be tape-recorded on a Dictaphone and on some occasion's photos taken for transcription and referencing purposes. Audio recordings or photographs and videos taken will only be done after seeking consent to do so from the participants. All recordings will be stored in a password secured database which will only be accessed by the research investigators. All recorded materials will be deleted after a period of 12 months upon completion of analysis and report dissemination. All transcription will be delinked from the recordings.

How Long will the Project Last?

This study takes place over a period of 36 days. Within this period we will have the group discussion which will take about two and a half hours.

What are the Risks?

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics in this study. However, we do not wish for this to happen. You do not have to answer any question or take part in the survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

What are the Benefits?

There will be no direct benefit to you, but your participation is likely to help us find out more about how to prevent and treat malaria in your community

How will we Protect your Information and Confidentiality?

The research being done in the community may draw attention and if you participate you may be asked questions by other people in the community. We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone outside of our project.

We will ask you and others in the focus group discussions not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know, however, that we cannot stop or prevent participants who were in the group from sharing things that should be confidential

What will Happen with the Results

The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small meetings in the community and these will be announced. Following the meetings, we will publish the results so that other interested people may learn from the research.

Can I Refuse to Participate or Withdraw from the Study?

You do not have to take part in this research if you do not wish to do so. If you choose not to participate, you will continue to receive all of the normal services that you usually get and nothing will change. If you wish to stop participating in the study after you begin, you can stop at any time by telling someone on our project team. If you choose to stop taking part, you will continue to get all of the normal services that you usually get in your community.

Who Can I Contact?

If you have any questions, you can ask anyone from our team now or later. If you have questions later, you may contact Dr. Hildah Essendi, phone number 0202714346, email Hessendi@pskenya.org. If you have questions about your rights as a research participant, you may contact:

The Research Officer
AMREF Kenya
Wilson Airport, Lang'ata Road
Office Tel: +254 20 6994000
Fax: +254 20 606340
P.O Box 30125-00100
Nairobi, Kenya

Do you have any questions at this time?

Part II: Certificate of Consent

I have read the above information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Print Name of Participant	[at least forename and surname]
Signature of Participant	
DD/MM/YYYY	

If visually impaired, physically impaired, mentally impaired or illiterate

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print Name of Participant	[at least forename and surname]
Thumb/Foot print of Participant	
Signature of Witness	[A literate witness must sign and should be selected by the participant and MUST have no connection to the research team.
DD/MM/YYYY	

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

1. **A member of the research team will visit her once over a 22-month period.**
2. **At the visit the participant will complete a 2-hour questionnaire.**
3. **The participant's information will be kept confidential.**

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Print Name of Researcher/person taking the consent	[at least forename and surname]
Signature of Researcher/person taking the consent	
DD/MM/YYYY	

In-depth Discussion Guide

GUIDELINES

- Introduce self and PS Kenya
- Explain the background of the study
- Need to record the discussion for report writing
- Complete confidentiality – to obtain unbiased responses
- Rules for discussion – one person at a time, no side conversations
- Request respondents to switch off mobile phones to avoid interruptions

A. STUDY BACKGROUND INFORMATION

The objectives for this study are to assess:

1. Factors associated with adaptation of various malaria interventions among the different target groups.

    I. Net use among care-givers of children under five

    II. Net use among other household members
    III. IPTp uptake among pregnant women-coverage has been very low.
    IV. Case management among caregivers of children under 5 i.e. diagnosis and treatment- (care seeking behaviour, test done and treated with ACT)
2. Factors associated with differential net use IPTp and case management uptake across epidemiologic zones in Kenya
3. Barriers to net use, IPTp and case management uptake
4. Enablers of net use, IPTp and case management uptake
5. Preferred source of information on malaria (prevention and treatment)
6. Factors associated with alternative use of mosquito nets
7. Disposal methods of mosquito nets

B. TARGET RESPONDENTS

- Mothers of child or children under 5 years

- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and **should not be first time mothers**
- One of their children must have had a recent episode of malaria infection but survived (had malaria within the last one year).

C. INTRODUCTION QUESTIONS

- Introduce self, introduce PS Kenya and the purpose of the research
- Encourage the respondent to decide on the language to be used: English, Kiswahili or their local language
- Explain this is a free discussion, and there are no right or wrong answers.
- Explain that you need to record the discussion for report writing purposes and seek their permission to do so. Assure them of confidentiality of the recorded information
- Assure the respondent of confidentiality of the discussion • Encourage the respondent to offer their very honest opinions.
- Request respondent to switch off mobile phones to avoid interruptions
- Explain the session length as approximately 1 to 1.5 hrs.

D. ICE BREAKER (5 min)

- Let us start with introductions. Please tell me your: name, age, marital status, number children you have and their ages.
- Please describe your typical day
- What do you like doing during your free time?
- How many months pregnant are you? (to be asked to pregnant women)

E. GENERAL QUESTIONS (10 min)

- How serious is the problem of malaria in this community/ county?
    - Kindly describe the malaria disease symptoms.
- In your opinion, which household member tends to get/ contract the malaria disease more often? Why do you think so?
- When do people tend to get malaria disease in this county/ community? Why?
- What do you do to protect yourself from malaria?
- What do you do to protect the children aged below five years in your household against malaria?

F. NET USE (10 min)

- Do you have mosquito nets at home?
    - If yes, do you use them consistently? **Probe**…
        - ✦ Who in your household mainly sleeps under the nets? Why?
        - ✦ If no, when don't you use them? Why?
    - If no, why don't you use the nets?
-
- What factors do you consider when purchasing/ selecting a mosquito net?
- What factors act as barriers in your use of mosquito nets? **Probe…** ○ Barriers that prevent consistent use?
    - Probe knowledge, cost, decision-making etc.

G. MALARIA CASE MANAGEMENT (20 min)

- Have you or any of your children contracted malaria in the last one year?
    - When was this? ○ Was this your first child or second child?
    - What were the symptoms? ○ How did you know it was malaria? How long did it take you to notice that your child was suffering from malaria?
    - What is the first thing you did when your child starting getting sick?
    - What was the first sign that your child was sick?
        - ✦ When you first noticed this symptom, did you instantly know that this was malaria? Why? Why not?
    - Did you consult anyone when you first noticed that your child was unwell? ✦ If yes, who and why?

If no, why not? ○ Did you later visit the health facility?

- ✦ At what point did you visit the health facility?
- ✦ Who made the decision to visit the facility
- ✦ How long did it take from when you first noticed the symptoms in your child to when you visited the facility?

- Probe, reason for the delay in going to the facility
    - ✦ Kindly describe what happened when you visited the health facility?

- ✦ Were you satisfied with the service you received at the facility? If so, why? If not, why not?

- If above was first case of malaria amongst your children, ask if there has ever been a second episode with the same or other child ○ If yes, did you follow the same process? Why? Why not?

- Do you do this (follow the mentioned process) similarly to other household members who contract malaria?
  - ○ If no, what do you tend to do?

- Are there any challenges you face when visiting/ going to a health facility when faced with malaria or any other illness?
  - ○ If yes, which ones?
- Which health facilities do you tend to go to? Why? **Probe for Public or private**
- Are there any challenges you face with the health facility you go to?

  - ○ Probe for: drug stock out, long waiting time, unavailability of staff, poor quality of care
- What do people in this community tend to do as first aid or treatment when they notice these 'malaria symptoms?
- Who do you think are the people who are important in deciding course of action to take when faced with a malaria episode in your household? Why?
  - ○ Is this the case with most of your peers, friends or neighbors? Why? Why not?
- At what point do people in this community generally seek for professional health care for the sick members of their households? Why?

H. IPTP UPTAKE (20 min)

- During pregnancy, did you see anyone for antenatal care?

  - ○ If yes,

    - ✦ Who? Why? ✦ Where?
    - ✦ What happens during the antenatal care?
    - ✦ Is it important to seek for antenatal care during pregnancy? Why?

  - ○ If no, why?

- Are you aware of all medication to be given for pregnant women to prevent malaria? If yes, please mention some.
- During these antenatal care are we given anti-malarial drugs i.e. Fansidar?
  - ○ At what point of the pregnancy are pregnant women given these drugs (Fansidar)?
  - ○ Probe for trimester when they are given these drugs (Fansidar) ○ In your last pregnancy, were you given these drugs (Fansidar)? ○ How many times did you take the anti-malarial drugs during pregnancy (Fansidar)?

- In what months of pregnancy did you take these drugs?

- Do you think it is important for pregnant women to be given these anti-malarial drugs (Fansidar)? If yes why? If no why?
- Do pregnant women in this community experience any challenges in accessing these antimalarial drugs (Fansidar)? If yes, what challenges are these?
- In your opinion, do most pregnant women in this community seek antenatal care?
- What should be done to encourage more pregnant women in this community to seek ANC?
- In your opinion, do most pregnant women in your community take these anti-malarial drugs (Fansidar)?
- What do you think could be done to encourage more pregnant women to take these antimalarial drugs (Fansidar)?

I. CONCLUSION (5min)

- What more would you like us to know in regards to net use, malaria case management and uptake of anti-malarial drugs
- Is there anything you would like to add in regards to what we have discussed?

THANK RESPONDENTS AND END DISCUSSION

DISCUSSION GUIDE

FOCUS GROUP DISCUSSION GUIDE

GUIDELINES

- Introduce self and PS Kenya
- Explain the background of the study
- Need to record the discussion for report writing
- Complete confidentiality – to obtain unbiased responses
- Rules for discussion – one person at a time, no side conversations, sound projection
- Request respondents to switch off mobile phones to avoid interruptions

A. STUDY BACKGROUND INFORMATION

The objectives for this study will be to assess:

1. Factors associated with adaptation of various malaria interventions among the different target groups
   I. Net use among care-givers of children under five
   II. Net use among other household members
   III. IPTp uptake among pregnant women-coverage has been very low
   IV. Case management among caregivers of children under 5 i.e. diagnosis and treatment- (care seeking behaviour, test done and treated with ACT)
2. Factors associated with differential net use IPTp and case management uptake across epidemiologic zones in Kenya
3. Barriers to net use, IPTp and case management uptake
4. Enablers of net use, IPTp and case management uptake
5. Preferred source of information on malaria (prevention and treatment)
6. Factors associated with alternative use of mosquito nets
7. Disposal methods of mosquito nets

B. FOCUS GROUP DISCUSSIONS TARGET RESPONDENTS

- Care givers (women) of children under 5 years.
- Decision makers (male or female) and should have a child under 5 years in their households
- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and **should not be first time mothers**

C. INTRODUCTION

- Welcome the respondents and introduce self, introduce PS Kenya and the purpose of the research
- Encourage the respondents to decide on the language to be used: English or Swahili

- Explain this is a free discussion, and there are no right or wrong answers
- Explain that you need to record the discussion for report writing purposes
- Assure the respondents of confidentiality on the discussion
- Encourage everyone to participate and offer their very honest opinions
- Ask participants to speak clearly, one at a time during the discussion
- Give directions on the location of rest rooms
- Request respondents to switch off mobile phones to avoid interruptions
- Explain the session length as 1.5 to 2 hrs.

D. ICE BREAKER (10 min)

- Let us start by introducing ourselves, please tell us your: name, age, marital status, number children you have? Their ages?
- Who else do you live with at home?
- How many months pregnant are you? (to be asked to pregnant women)

E. GENERAL QUESTIONS (10 min)

- Tell me what you think about Malaria
  - In your opinion, who is at risk of contracting Malaria? Why?
  - kindly describe the malaria disease symptoms
  - Which Malaria prevention methods have you heard of?
  - What malaria prevention methods have you used before?
  - When do people tend to get malaria disease in this county/ community? Why?
- Please tell me about the sleeping arrangements in your house – Do children under five have a separate bedroom? When you get visitors, where do they sleep?
- What type of sleeping material does your household have (bed, mat, etc.)?

F. NET USAGE (20 min)

- In your opinion, who should use a net? *Probe:*
  - (*For each category mentioned ask*) Please explain why these people should use a net.
  - For those not mentioned (Children under five, pregnant women), why do you think they should not sleep under a net?
- Please tell us why people should sleep under a net.

Probe:

- What is the importance of sleeping under a net?
- What risks do people face when they do not use a net?
- In your opinion, are there people who do not sleep under a net? If yes, why do they not sleep under a net?

- Do you own a net? Probe:

- What kind of net is it?
    i. Tell me the shape of the net (round or square). What color does it have?
- How long is it – are you able to tuck it under your bed?
- What do you like about your net (color, shape, length)? What do you NOT like about your net?
- How many nets do you have? ○ Where did you get the bed net(s) you now own?

(For participants not owing a net), ask, Why don't you own a mosquito net?

- How do we use this mosquito nets at home? **Probe for**:
    - *How they hang them* ○ *Other usages of mosquito nets at home and why they use the mosquito nets for other purposes.* ***Probe for****: if they use old nets or new nets or both for these other purposes*
- What factors are considered while making this decision on who sleeps under a mosquito net?
    - Who makes these decisions
- What challenges do you face in making children to sleep under a net?
- How have you addressed these challenges ○ Which among these challenges are yet to be addressed ○ If no why?
- Do some of the household members share the mosquito nets? If yes, how many household members share one mosquito net?
    - Do you think it's important for young children under 5 years to sleep under a treated mosquito net? Why?
- Who mostly doesn't use the mosquito net at home? Why?
- Which kinds of mosquito nets do you prefer and why? **Probe on**: shape and colour
- For how long have you used the mosquito nets you use?
    - How do you maintain your mosquito net to ensure it is in good condition?
    - Are their times when we don't use the mosquito nets?
        ✦ If yes, when and why? **Probe on**: change on weather patterns, time of day ✦ If no, why do we use it all the time?
    - When do you dispose the mosquito nets?
    - How do you dispose the mosquito net?
- Have you experienced any problems with the mosquito nets you use?
    - If yes, which ones? What did you do to solve the problem?

- How did you first decide to begin using a bed net? *Probe*:

    - What were your thoughts when you were considering using a bed net?
    - What kinds of expectations did you have?
    - Did you talk to anybody before using a bed net?
        i. Who did you talk to?
        ii. Why that person specifically? iii. What did you mainly talk about? iv. How did talking to that person influence your decision? v. In the end, why did you choose to use a bed net?

- We will now focus on bed net use of specific categories of household members.

Note to Interviewer- Identify the category of respondent and please ask the relevant questions.

- How often do children under five years sleep under a net? *Probe*:
  i. Why should these children sleep under a net?
  ii. Are there occasions when they do not sleep under a bed net? If yes, please explain.
  iii. Who is responsible for ensuring these children sleep under a net? iv. Who decides whether children under five should sleep under a net? Why? v. Do you find it difficult to wake up at night to adjust a child's bed net vi. What happens when the person responsible is not available?

- Why should pregnant women sleep under a net? *Probe*:
  i. Are there occasions when they do not sleep under a bed net? If yes, please explain.
  ii. Who is responsible for ensuring that they sleep under a net?
  iii. Who decides whether pregnant women should sleep under a net? Why?
  iv. What happens when the decision maker is not available?

- Should other household members (besides children under five and pregnant women) sleep under a net? *Probe*:
  i. Are there occasions when they do not sleep under a bed net? If yes, please explain.
  ii. Who decides whether they should sleep under a net?
  iii. What happens when the decision maker is not available?

- Have you experienced any problems or obstacles in using bed nets? *Probe:*

  - What kinds of problems or obstacles?
    i. What do you do when visitors stay overnight and the bed nets are few? Do you give priority to children under five or the visitors? ii. Please describe any cultural norms or practices associated with bed net use. How do they influence bed net use?
    iii. What do you do when the weather is hot and you need to sleep under bed nets?
    iv. Why do you use bed nets - all the time? Do you only use nets when mosquitoes are many? Why?
    v. Are there any issues you face when hanging nets? Please explain. What happens when it is not possible to hang a bed net in the usual place?
    vi. What do you do when you find your bed net is damaged? vii. What about when the net is dirty and it is late in the day?

viii. Are there any other problems or obstacles associated with sleeping under bed nets?
ix. How do you overcome these?
x. (For those who use bed nets), Even with these obstacles, what are thereasons you continue to use bed nets?

- Are there any disadvantages of sleeping under a bed net? *Probe*: Which ones?
  i. Have you or other person in your household, experienced any personal discomfort from using a bed net?
- Have you had any side effects related to using bed nets? *If yes, Probe*:
  i. What kinds of side effects have you had when using bed nets?
  ii. What health concerns do you have about bed nets? iii. How do you cope with these side effects or health concerns? iv. Who do you talk to about these side effects? v. Why do you prefer to talk to this person?
  vi. What do health providers say about the side effects?
  vii. How do you overcome these side effects in your daily life?

G. MALARIA CASE MANAGEMENT (30 min)

Role Play Malaria Case Management at home (for groups with role play)

- Role play child with malaria symptoms at home?
- Discuss the issues that arise during the role play
- Is that how we all manage malaria cases at home? If now, how else?
- Did they miss anything? What else do you think should have been incorporated in the role play?

8. In your opinion, kindly describe how you manage children or household members who have the above mentioned malaria symptoms? **Probe**:
   I. What are the first things you do when they have a fever?
   II. When your child/ children has a fever, is it important to seek antimalarial treatment immediately? Why?
   III. Who do you consult first/ seek advice or treatment?
   IV. What are some of the home-made treatments we practice? V. At what point do you visit the health facility?
   VI. When you go to the health facility what happens?
   VII. What was the recommended treatment advice for malaria
9. What challenges do you experience in managing malaria at home?
10. What challenges do you experience with public health facilities when you have a malaria case? **Probe for**: drug stock out, long waiting time, unavailability of staff and trying to secure funds

11. Why do some community members prefer home management vis a vis health centers?
12. Do mothers trust community health workers in malaria case management? If yes why? If no why?
13. Who are the key influencers on how to manage malaria symptoms at home? Why?
14. What are the traditional beliefs and practices regarding malaria management in this community?

H. IPTP UPTAKE (20 min)

- During pregnancy, did you see anyone for antenatal care?
    - If yes,
        - Who? Why?
        - Where?
        - What happens during the antenatal care?
        - Is it important to seek for antenatal care during pregnancy? Why?
    - If no, why?
- Are you aware of all medication to be given for pregnant women? If yes, please mention some
- During these antenatal care are we given anti-malarial drugs i.e. Fansidar?
    - At what point of the pregnancy are we given these drugs (Fansidar)? Probe for trimester when they are given these drugs (Fansidar)?
    - How many times did you take the anti-malarial drugs during pregnancy (Fansidar)?
- Do you think it's important we are given these anti-malarial drugs (Fansidar)? If yes why? If no why?
- Do you experience any challenges in accessing these anti-malarial drugs (Fansidar)? If yes, which ones?
- In your opinion, why do some pregnant women in this community find it difficult to seek antenatal care?
- According to you, what should be done to encourage more pregnant women to seek ANC?
    - In your opinion, why do some pregnant women find it difficult to use these anti-malarial drugs (Fansidar)?
- According to you, what should be done to encourage more pregnant women to take these anti-malarial drugs (Fansidar)?
- Who are the key influencers to use of these anti-malarial drugs (Fansidar)?
- Which health facility do pregnant women in this community mostly visit for the antenatal clinics/ care?
- What are the traditional beliefs and practices regarding ANC and usage of anti-malarial drugs (Fansidar) in this community?

I. COMMUNICATION (20 min)

- Through which means do you mostly get information from?
    - Which is the most popular radio station in this community/ county? Around what time of the day do most community members listen to the radio stations?
    - Which is the most popular TV station in this county? Around what time in the day do most community members watch the TV station?
- Where do you obtain health care information from?
    - Which ones are the most reliable? Why?

- What kind of information do you get from these sources?

- Have you seen or heard any communication campaigns that promote net use/ mass net distribution?
  - If yes, ✦ Where?
    - ✦ When?
    - ✦ What was the message being communicated?
    - ✦ What did you like about the campaigns?
    - ✦ What did you dislike about the campaigns?
    - ✦ What key things were being mentioned in the campaign? ✦ How else would you like to get such information?
  - If no,
    - ✦ Through which means would you like to get such information from?
  - Have these campaigns impacted on how you use mosquito nets at home?
    - ✦ If yes, how?
    - ✦ If no, what more would you like this campaigns to incorporate in order for them to have a positive impact on you?
- Have you seen or heard any communication campaigns that promote Malaria testing and treatment?
  - If yes, ✦ Where?
    - ✦ When?
    - ✦ What was the message being communicated?
    - ✦ What did you like about the campaigns?
    - ✦ What did you dislike about the campaigns?
    - ✦ What key things were being mentioned in the campaign? ✦ How else would you like to get such information?
  - If no,
    - ✦ Through which means would you like to get such information from?
  - Have these campaigns impacted on how manage malaria cases at home?
    - ✦ If yes, how?
    - ✦ If no, what more would you like this campaigns to incorporate in order for them to have a positive impact on you?

- Have you seen or heard any communication campaigns that promote uptake of IPTp for pregnant women?
  - If yes, ✦ Where?
    - ✦ When?
    - ✦ What was the message being communicated?
    - ✦ What did you like about the campaigns?
    - ✦ What did you dislike about the campaigns?
    - ✦ What key things were being mentioned in the campaign? ✦ How else would you like to get such information?
  - If no,
    - ✦ Through which means would you like to get such information from?
  - Have these campaigns influenced your decision to take IPTp while pregnant?

- If yes, how?
- If no, what more would you like this campaigns to incorporate in order for them to have a positive impact on you?

J. CONCLUSION (10 min)

- What more would you like to know in regards to net use, malaria case management and uptake of anti-malarial drugs
- Is there anything you would like to add in regards to what we have discussed?

THANK RESPONDENTS AND END DISCUSSION

In Home Visits Tool

GUIDELINES

- Introduce self and PS Kenya
- Explain the background of the study
- Need to record the discussion for report writing
- Complete confidentiality – to obtain unbiased responses

A. STUDY BACKGROUND INFORMATION

The objectives for this study will be to assess:

- Factors associated with adaptation of various malaria interventions among the different target groups
  - I. Net use among care-givers of children under five
  - II. Net use among other household members
  - III. IPTp uptake among pregnant women-coverage has been very low

IV. Case management among caregivers of children under 5 i.e. diagnosis and treatment- (care seeking behaviour, test done and treated with ACT)

- Factors associated with differential net use IPTp and case management uptake across epidemiologic zones in Kenya
- Barriers to net use, IPTp and case management uptake
- Enablers of net use, IPTp and case management uptake
- Preferred source of information on malaria (prevention and treatment)
- Factors associated with alternative use of mosquito nets
- Disposal methods of mosquito nets

B. INTRODUCTION

- Introduce self, PS Kenya and the purpose of the research
- Explain that this is a free discussion and there are no right or wrong answers
- Ask for permission to use a recorder
- Assure them of confidentiality
- Explain the session length

C. TARGET RESPONDENTS

- Mothers of child or children under 5 years
- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and should not be first time mothers

D. ICE BREAKER

- Please tell us your name, age, marital status, number of children you have, their ages • Kindly tell us what your typical day entails
- Who else do you live with here?

E. CHECK LIST

Check List	Comments
1. Presence of a mosquito net (take picture)	
2. Number of mosquito nets (take picture)	
3. Observe if the mosquito net has holes (take pictures)	

4. Check if the mosquito net is hanged (take picture)	
5. Check colour	
6. Check the shape	
7. Check for alternative use of mosquito nets i.e. at the kitchen garden (take pictures)	

F. DISCUSSION

- **If there is presence of a mosquito net ask**:
  - How long have you used this mosquito net (s)?
  - Do you use this mosquito net constantly?
    - ✦ If no when don't you use them? ○ How many household members sleep under one mosquito net? ○ Who tends to use this mosquito net(s)? Why?
  - If mosquito net has holes, ask
    - ✦ What caused the holes?
    - ✦ Why do you still use it as it is?
  - If mosquito net is not hanged, ask:
    - ✦ Why is the mosquito net not hanged?
  - If mosquito net is used for other purposes, ask:
    - ✦ Why do you use this mosquito net for these other purposes?
  - If mosquito net is in good condition ask:
    - ✦ Kindly tell me how you manage to keep your mosquito net in good condition? ○ How and when do you dispose mosquito nets? ○ Why do you prefer this colour and shape of mosquito net?
  - Have you experienced any problems with the mosquito nets you use? ✦ If yes, which ones? What did you do to solve the problem?
- **If there is no presence of a mosquito net ask:**
  - Why don't you have a mosquito net?
  - How do you protect yourself from mosquito bites at night? ○ Are you planning to buy/acquire one?
  - What do you think should be done to encourage more women like you who don't have mosquito nets at home to acquire or buy one?

G. CONCLUSION

- Is there anything you would like to add in regards to what we have discussed?

THANK RESPONDENTS AND END DISCUSSION

8.4 Appendix 2: Recruitment Questionnaire

Introduction

Good morning/afternoon: My name is…….. from PS Kenya, an organization that conducts health market research in Kenya. We are currently conducting a study on malaria. We would like to ask you a few questions as regards to this. The information you provide us will be kept strictly anonymous and confidential and will be used solely for the purpose of the study.

Would you like to participate?		
Response	**Code**	**Instruction**
Yes	1	Continue
No	2	Terminate

SECTION B: RECRUITMENT

SC1: Do you or any one in your family or friendship circle work for any of the following industries?		
Industries	**Code**	**Instruction**
Health Sectors i.e. hospitals	1	Terminate
Market and Social Research	2	
None of the above	3	Continue

SC2: Have you ever taken part in any health care research in the past 6 months?		
Response	**Code**	**Instruction**

Yes	1	Terminate
No	2	Continue

SC4: Gender (Check quota)		
Response	**Code**	**Instruction**
Female /	1	Continue
Male	2	

SC5: How old are you? (Check quota)		
Age /Miaka	**Code**	**Instruction**
Under 18	1	Terminate
18 to 30	2	Continue
31-40	3	
40-50	4	
Above 50	5	Terminate

SC6: Are you a household head or spouse? (Check Quota)		
Response	**Code**	**Instruction**
Yes	1	Continue
No	2	

SC7: Do you have children at your household?		
Response	**Code**	**Instruction**
Yes /Ndio	1	Continue
No /La	2	Terminate

SC8: How many children do you have at your household?.....

SC9: Do you have a child/ children aged 5 years and below?		
Response	**Code**	**Instruction**
Yes /Ndio	1	Continue
No /La	2	Terminate

SC10: Are you the caregiver of this child/ children? (Check Quota)		
Response	**Code**	**Instruction**
Yes /Ndio	1	Continue
No /la	2	Terminate

SC11: Are you pregnant? (check quota)		
Response	**Code**	**Instruction**
Yes	1	Continue
No	2	Terminate

SC12: Your pregnancy is how many months? (Check Quota)		
Response	**Code**	**Instruction**
1 month	1	Terminate
2 months	2	
3 months	3	

4 months	4	
5 months	5	
6 months	6	
7 months	7	Continue
8 months	8	
9 months	9	Terminate

SC13: Has any of your children or child contracted malaria? (check quota)		
Response	**Code**	**Instruction**
Yes	1	Continue
No	2	Terminate

SC13: Could you please tell me which of the following words you think other people e.g. your friends would use to describe you?

Practical	1	Outgoing	8	Experimental	15
*Informed	2	Intellectual	9	Open to change	16
Down to earth	3	Conservative/mwenye	10	Opinionated	17
Serious	4	Shy	11	Hesitant	18
Liberal minded	5	Articulate	12	Creative	19
*Principled	6	Imaginative	13	Confident	20
Adventurous	7	Modern	14	Quiet	21

NB: All respondents to code at least three of the statements marked with an asterisk. If respondent meets the above mentioned criteria recruit as appropriate

SECTION C: RESPONDENT INVITATION

I would like to invite you for a focus group discussion where the session will take at least 2 hours. Would you be interested?

Yes	Continue
No	Terminate

The interview will be on…… Date……Month……..Year

At…….. a.m. / p.m. The venue will be……

Respondent's bio data and declarations/Maelezo kuhusu mhojiwa.

Respondents Names	
Respondents residential area	
Respondents mobile number	
Email address	
Date of interview	
Interviewer declaration: • The respondent named above wasn't known to me prior to this interview • The respondent voluntarily gave information and is willing to participate without expecting any monetary reward in order to participate • The information contained here is confidential and I'm obliged not to divulge its content to anyone outside the research team • I have verified the information I recorded here and that it is a true and accurate account of the interview I had with the respondent	
Interviewer Signature and date	

Quality control checks-field checks

QC Control measures	Yes	No	Comments
Accompanied	1	2	

Back checked	1	2	
Approved to participate	1	2	

8.5 Target Respondents Description

Focus Group Respondents

- Care givers (women) of children under 5 years.
- Decision makers (male or female) and should have a child under 5 years in their households.
- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and **should not be first time mothers**

In-Depth Interview Respondents

- Mothers of child or children under 5 years
- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and **should not be first time mothers**.
- One of their children must have heard and experience with malaria case but the child did not die.

In-Home Visits Respondents

- Mothers of child or children under 5 years
- Pregnant women on their 2nd or 3rd trimester (6 months, 7 months or 8 months) and **should not be first time mothers**.