

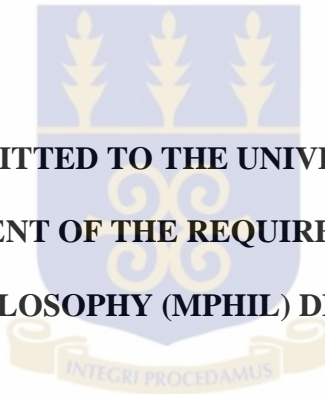
**INSECTICIDE TREATED BED NET USAGE PATTERN IN ASHAIMAN  
MUNICIPALITY ACCRA**

**BY**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON  
IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF  
MASTERS OF PHILOSOPHY (MPHIL) DEGREE IN SOCIOLOGY**



**JULY, 2014**

**DECLARATION**

I hereby declare that except for references to other people’s work which have been duly acknowledged, this work is the result of my own field investigation carried out under the supervision of Prof. Kodjo Senah and Dr. Stephen Afranie of the Department of Sociology. I also declare that, to the best of my knowledge, this thesis has never been presented in whole or part for another degree elsewhere.

Philomina Oppong

Date

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Student

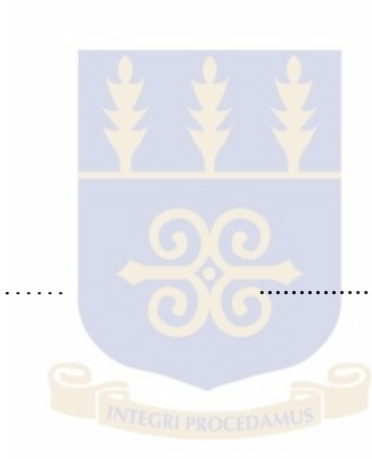
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Supervisor

## DEDICATION

This work is dedicated to God Almighty for his grace and mercy. I also dedicate this work to my mother and dear friend, Grace Amankwah of blessed memory.



## ACKNOWLEDGEMENT

I will like to acknowledge my supervisors Prof. Senah and Dr. Afranie for their immense contribution, both in time and energy which they spent with me during my thesis. I will like say thank you to officials of the Ashaiman Municipal Health Directorate as well as respondents who availed themselves for the Study. My immense gratification goes to Vera Acheampong for her support and prayers. Special appreciation goes to Dr. Collins Ahorlu for reviewing my work. Last but not least, to my parents, Mrs. Rose Osei and Mr. Reuben Philip Oppong, and my siblings.



## ABSTRACT

Malaria is the leading cause of morbidity and mortality in sub Saharan Africa. According to the Ghana's Ministry of Health, malaria is estimated to cause the loss of about 10.6% of Disability Adjusted Life Years and estimated to cost about 6% of Gross Domestic Product annually. In the wake of drug resistance by the malaria parasites, Insecticide Treated Nets is seen as the most effective tool in controlling and eliminating malaria. Due to this, large scale of the Insecticide Treated Nets have been produced and freely distributed. However, studies have revealed that owning a bed net does not necessarily imply usage. There are other factors which influence the use of the ITNs. This study therefore explores factors that are associated with the use Insecticide Net usage pattern among residents in Ashaiman.

The study employed both quantitative and qualitative research methods. Households with children less than five were interviewed using the snowballing sampling technique and personnel from the Ashaiman Municipal Health Directorate were interviewed.

Although the primary use of the ITNs is for the protection of children under five because of their susceptibility to the malaria parasite, evidence from the data collected from the field shows that factors such as house structure and sleeping arrangements influence the use of the ITNs hence, defeating the purpose of the free distribution of the bed net in the area. The perceived benefit of the ITNs is not a guarantee in the usage of it.

Results from the study also indicate that, people's health seeking behavior does not always have biomedical explanations as some of the respondents attribute the susceptibility of children to the malaria parasite to their blood not being thick enough to withstand the mosquitoes.

Implication of this study is that, free distribution of ITNs alone is not a guarantee to ensure the use of the bed nets but other factors such as the house structures and sleeping arrangements can also influence the use of the ITNs. Future antimalarial campaign should take into consideration the environmental as well as the housing aspect of the intervention program.

**TABLES OF CONTENT**

DECLARATION .....	i
DEDICATION .....	ii
ACKNOWLEDGEMENT .....	iii
ABSTRACT .....	iv
TABLES OF CONTENT .....	vi
LIST OF PICTURES .....	x
LIST OF FIGURES .....	xi
CHAPTER ONE .....	1
THE SETTING .....	1
1.0 Introduction .....	1
1.1 Brief Historical Overview of Malaria Control Globally .....	7
1.2 Research problem .....	11
1.3 Research Objectives .....	13
1.4 Significance of the study .....	13
1.5 Organization of thesis .....	14
CHAPTER TWO.....	16
THE MALARIA SITUATION IN GHANA .....	16
2.0 Introduction .....	16
2.1 Malaria Epidemiology in Ghana .....	16
2.2 Ghana's Health Sector .....	19
2.3 Ghana's Malaria Policy .....	19
2.4 International Funding and Support .....	22
2.5 Steps in the Eradication of Malaria .....	25
CHAPTER THREE.....	30
LITERATURE REVIEW .....	30
3.0 Introduction .....	30
3.1 To Pay or Not to Pay for the Insecticide Treated Nets?.....	40
3.2 Trends in the use of ITNs .....	41
3.3 Conclusion.....	41
3.4 Theoretical framework .....	42

3.5 Conclusion.....	48
CHAPTER FOUR .....	49
A PROFILE OF ASHAIMAN .....	49
4.0 Introduction .....	49
4.1 Historical Origin.....	51
4.2 Location.....	54
4.3 Population Structure .....	54
4.4 Housing .....	56
4.5 Educational Facilities .....	58
4.6 Roads and Public Transport .....	59
4.7 Environmental Sanitation.....	60
4.8 Health .....	66
4.9 Conclusion.....	68
CHAPTER FIVE.....	70
DATA COLLECTION AND APPROACHES .....	70
5.0 Introduction .....	70
5.1 Initial Contact .....	73
5.2 Study Design .....	74
5.3 Sources of Data .....	74
5.4 Population under study and Sample size.....	74
5.5 Sampling Procedure .....	76
5.6 Method of Data Collection.....	76
5.7 Data Collection Instrument .....	77
5.8 Method of Data Analysis.....	78
5.9 Ethical Consideration .....	78
5.10 Limitation .....	79
CHAPTER SIX .....	80
DATA PRESENTATION AND ANALYSIS .....	80
6.0 Introduction .....	80
6.1 Socio-Demographic Characteristics of Respondents .....	80

6.2 Sex Distribution.....	81
6.3 Level of Education .....	81
6.4 Religion .....	83
6.5 Illnesses in the Household.....	84
6.6 Conclusion.....	87
CHAPTER SEVEN.....	88
HOUSING STRUCTURES AND THE USE OF INSECTICIDE TREATED NETS ..	88
7.0 Introduction .....	88
7.1 Type of Materials used in Building the Houses .....	89
7.2 House Arrangements .....	93
7.3 Sleeping Arrangements and the Use of the Insecticide Treated Nets .....	95
7.4 Conclusion.....	99
CHAPTER EIGHT.....	100
SLEEPING MATERIALS AND THE USE OF INSECTICIDE TREATED NETs...	100
8.0 Introduction .....	100
8.1 Types of sleeping materials.....	100
8.2 Malaria Preventive Strategies of Households .....	101
8.3 Treatment seeking Behavior.....	101
8.4 Conclusion.....	104
CHAPTER NINE .....	105
CONCLUSION AND RECOMMENDATIONS.....	105
9.0 Introduction .....	105
9.1 RECOMMENDATIONS .....	108
REFERENCES.....	110
APPENDIX A .....	119
APPENDIX B .....	125

**LIST OF TABLES**

Table 1: Recent Estimates of Malaria Indicators.....	25
Table 2: Population Distribution by Age-group.....	55
Table 3: Educational Background of Respondents.....	82
Table 4: Occupational background of Respondents.....	83

## LIST OF PICTURES

Picture 1: Refuse Dump at the entrance of the Community.....	2
Picture 2: Scrap Metal collected at the entrance of the Community.....	2
Picture 3: An Environ in Ashaiman.....	3
Picture 4: An aerial view of a Section of Ashaiman.....	57
Picture 5: Abandoned Road Construction.....	60
Picture 6: Pit Latrine belonging to the Community.....	61
Picture 7: Corridors of the Public Toilet.....	61
Picture 8: Choked Drainage Systems.....	63
Picture 9: Part of the Market center.....	66
Picture 10: One of the wooden house structure.....	88
Picture 11: Types of House Structures.....	89
Picture 12: House Arrangements.....	94
Picture 13: Sleeping Arrangements.....	97

## LIST OF FIGURES

Figure 1: Map showing Malaria epidemiologic zones indicating Ghana's malaria distribution.....	18
Figure 2: Diagram showing the necessary prerequisite for behavioral change...	43

## CHAPTER ONE

### THE SETTING

#### 1.0 Introduction

Dua a bɛbu abo wo no, yetunasi, yentwa ne sro

A tree that could fall on you must be uprooted and not pruned

(Akan proverb)

The orientation of government has been the preventive and treatment of malaria with combination therapies which to some extent yielded little result in the past because of drug resistance to the therapies by the mosquito parasite. This has necessitated the use of Insecticide Treated Nets which has arguably been proven useful. However, research has shown that people are not using the ITNs especially in areas of high transmission for various reasons such as poverty, weather conditions and knowledge about the use of the net (Ndjinga and Minakawa, 2010).

In the face of drug resistance and the mortality rates due to malaria, it demands that the root cause of the disease is dealt with rather than to treat it. Using the bed nets is like postponing the inevitable unless the problem is dealt with. Unless the root cause of the disease is tackled, malaria prevalence will still persist. Breeding sites of the parasites should be larvacided in order to uproot the root cause of the disease and not by rolling out large scale distribution of Insecticide Treated Nets in those areas.

On the 5<sup>th</sup> of May, 2013, the researcher visited a friend in Ashaiman. That was her first time in the community. At the entrance of the community, one is greeted with a pile of scrap metals; collected and burnt by the scrap dealers; and another pile of empty bottles and cans which collect rain water. It is an unplanned, highly populated community with

poor drainage systems and access route. In short, the place can be described as a slum.

Below are the pictures showing the entrance into the community.

**Picture 1: Refuse dump at the entrance of the Community**



**Date: 29<sup>th</sup> June, 2014**

**Picture 2: Scrap metals gathered at the entrance of the Community**



**Date: 29<sup>th</sup> June, 2014**

As we drove through the community, one thing that struck me were the way the houses were built, the nature of the houses and how they are closely packed. When we got to my friend's house, minutes later, one could see mosquitoes and flies around. Being a sociologist and using my sociological curiosity, I asked my friend what were some of their malaria preventive strategies? How are they able to protect themselves from the malaria parasites given the fact that the nature of the environment serves as a breeding site for the mosquito that transmit the malaria parasite. Below is a picture of the area.

**Picture 3: An Environ in Amui Dzor**



**Date: 29<sup>th</sup> June, 2014**

Her response was that, every night, they purchase mosquito coil and at times, burn orange peels and place it at the entrance of the house. The smoke from the orange peels repels the mosquitoes.

A week later, the researcher decided to visit the area so as to get acquainted with the area. During that period, the researcher met a woman named Abena. Abena lives with her husband and four children in Amui Djor, a suburb of Ashiaman. Abena and her four children and husband live in a single room. There is no toilet facility or bath house in the household. They have to make use of a public bathrooms and toilet. Then I asked Abena how the households protect themselves from mosquitoes. She told me they purchase mosquito coil every night. She then recounts how officials from the Ashiaman Municipal Health Directorate freely distributed Insecticide Treated Nets to the entire community in 2012.

Abena sighed heavily which got the researcher startled. The researcher asked Abena why the heavy sigh. She showed me to her room [pointing to where the net was hanged].

Madam [referring to the researcher] see where my children and I sleep, you think sleeping in the net will be appropriate for us? During the night, the room gets hot so much that we are unable to use the net. We are surrounded by gutters and rubbish which breeds mosquitoes. Instead of constructing proper drains and dumping site, they [referring to personnel's at the Health Directorate] bring us nets.

She told me how the mosquito net makes her and her family feel warm. She told me she took the net off after sleeping in it the first day. This response set the researcher thinking. The above scenario shows that Abena does not use the treated bed net but what about the other members in the community? How are they protecting themselves from the malaria parasite using the Insecticide Treated Nets?

What is the use of the treated mosquito nets when Abena complains it makes her family feel warm and not having a convenient place to hang the net? The study therefore questions the essence of the free distribution of the treated bed nets in such an environment.

From the 5<sup>th</sup> century, treatment, causative agents and the theories of malaria have changed overtime to the current use of anti-malarial drugs and other personal protection such as the use of Insecticide Treated Nets (Hemplemann and Krafts, 2013). However, malaria remains one of the most dreadful diseases that have existed with human kind and it is among the number one causes of mortality and morbidity in developing countries. According to the Ghana's Ministry of Health (2009), malaria is estimated to cause the loss of about 10.6% of Disability Adjusted Life Years (DALYs) estimated to be about 6% of Gross Domestic Product (GDP) annually in economic burden.

Ghana, like most other countries has a malaria control program that basically relies on the use of Artemisinin-based Combination Therapies (ACTs), Indoor Residual Spraying (IRS), the use of Long Lasting Insecticide Treated Nets (LLINs), and rapid diagnostic test (RDTs) to confirm the presence or absence of the malaria parasite (Atkinson et al., 2009; Ediau et al., 2013; Griffin et al., 2010; Njau et al., 2013; Mubi et al., 2013; Munguambe et al., 2011). In Kenya, the mobile phone is being used as a tool for controlling malaria by informing people on what to do to prevent or treat the infection (Zurovac et al., 2012). However, due to the drug resistant strain of the malaria parasite in many parts of Africa, the use of chloroquine as a treatment for malaria was abandoned. Anti-malarial drugs such as Artemisinin-based Combination Therapy (ACT), Artemether-Lumefantrine (AL) and Artesunate-Amodiaquine (AS) are now used for the treatment of malaria.

In addition, due to drug resistant strain of the malaria parasite, the Insecticide Treated Nets were introduced which has arguably proven useful in the prevention of malaria as it serves as a barrier between the human host and the mosquito parasite (Heggenhougen et al., 2003; Pettifor et al., 2008; WHO, 2008; Iwashita et al., 2010). The use of the ITNs dates as far back as 484 BC when Marco Polo observed that, rich families in Coromandel Coast in India who could afford to sleep in bed nets used curtains which were shut tight and thus less likely to expose them to the bites of the mosquito vector (Heggenhougen et al., 2003). Due to the efficacy of the Insecticide Treated Nets, the Roll Back Malaria Programme (RBM) was initiated in 1998. The RBM movement as part of its responsibilities was tasked to increase Insecticide Treated Nets (ITNs) usage among vulnerable groups such as children under-five and pregnant women by 60%.

Moreover, in the year 2000, heads of African states met in Abuja, Nigeria to sign a declaration with the aim of halving mortality resulting from malaria in the region (Sexton, 2011). This they hoped to achieve by implementing the strategies and actions of the Roll Back Malaria (RBM) program. The coverage level was further revised to reach 80% by the year 2015 (WHO, 2008 cited in Iwashita et al., 2010).

Successes in the use of ITNs have been reported in numerous countries in Africa. Due to the wide coverage of the ITNs, many malaria endemic countries at least have one ITNs and the number has risen from 5% to 31% over the past 5 years (WHO 2009 cited in Ng'ang'a et al. 2009). It was also reported that in 2008, at least 50% of households in malaria burdened countries owned a treated bed net, although there is evidence that ownership does not translate into use at the same rate (Nganga et al., 2009).

According to Heggenhougen et al. (2003), the ITNs offer double protection as it protects the person sleeping inside the net and also kills the mosquito when it comes in contact with the treated bed net. This form of protection has called for the mass distribution of bed nets. Singh et al. (2013) report that in 2010, enough ITNs were procured in Africa to cover up to 73% of the population at risk. Since then, Ghana has committed itself to the Roll Back Malaria (RBM) Initiative of the World Health Organization (WHO). Consequently, the country drew up a Medium Term Strategic Plan for Malaria Control from 1998-2002, which sought to improve the coverage of malaria control activities by adopting an inter-sectorial approach involving and promoting partnership with the private sector and the community. Ghana remains committed to the Abuja Declaration on Roll Back Malaria in Africa, which similarly seeks to achieve specific targets on malaria prevention and control (MoH, 2009)

### **1.1 Brief Historical Overview of Malaria Control Globally**

A brief historical overview of malaria control is important in order to appreciate what has been done and how little attention has been paid to the elimination of malaria through improved housing and environmental sanitation which this study seeks to highlight.

Historically, malaria was not only confined to the tropical countries. Northern Europe and the United States also were battling with malaria. However, through improved changes in human behavior such as improved housing, self-protection using housing screens was some of the direct methods used to eliminate the disease – malaria was wiped out. Only a small part of the preventive measures was as a result of primary health interventions (Brown, 1983).

The disease was however very endemic in the tropical climates. The severity of the disease is captured in the book “The White Man’s Grave”. European traders and missionaries referred to the coast of West Africa as the White Man’s Grave. This was because European trading and colonization in the tropics were marked with loss of life from tropical infectious diseases and these deaths were attributed to the lethal outbreak of malaria due to mosquitoes. The worst of all the tropical regions was the coast of West Africa which was also endemic to diseases such as sleeping sickness, guinea worm, bilharzias, yaws and dysentery. However, the deadliest were malaria and yellow fever. Of these two, the more serious was probably malaria (Curtin, 1961; Carter and Mendis, 2002). It was estimated that Europeans who came to the coast of Africa in the latter part of the eighteenth century died at a very high rate during their first year , usually between 300 and 700 per thousand per annum (Curtin, 1961). From the mid-19<sup>th</sup> century quinine extracted from the bark of cinchona tree was used as an antimalarial drug and it became wide spread and used among Europeans in West Africa. Mortality rates declined.

In the 1950s, the malaria parasite became resistant to the antimalarial quinine so a new anti-malaria drug was introduced in the 1970s. The new antimalarial drugs in the 1970s included the use of Indoor Residual Spray with dichlorodiphenyltrichloroethane (DDT). The first attempt to eradicate malaria on a global level occurred in the 1950s under the auspices of the World Health Organization (WHO). This attempt was led by the Global Malaria Eradication Program (Yekutieli, 1980 cited in Griffin et al., 2010). Although Africa was the most malaria endemic region at that time, eradication program was not carried out in Africa. This was probably due to the severity of the disease, the density and the efficiency of the *Anopheles gambiae* and the problem associated in the

eradication of the disease over such a large land mass with recurrent re-invasions, high cost and maintenance of the control program (Nchina, 1998). Elimination programs were however carried out on a smaller scale in areas such as Nigeria and Kenya where transmission was moderate and high respectively (Malineaux, 1980 and Draper, 1960 cited in Griffin et al., 2010).

According to Griffin et al. (2010), the 1950s eradication programs included frequent insecticide spraying of houses with dichlorodiphenyltrichloroethane (DDT) to reduce the vector population and mass treatment with chloroquine to reduce the human infection reservoir. The campaign chalked some success as reduction in mortality and morbidity was recorded in the countries which embarked on the control program. However, countries which were unable to eliminate the presence and persistence of the parasite embarked upon a long term integrated control programs (GMAP, 2008).

Despite the fact that the 1950s malaria intervention programs were able to chalk some successes, the program began to failed in the 1970s and 1980s. Reasons such as lack of financial resources, lack of political will, and technical problems were cited (Bruce-Chwatt and Archibald, 1958 cited in Ahorlu, 2005). Heggenhougen et al. (2003), also opines that the failure of the control programs was mainly due to factors such as the behavioral, beliefs and cultural practices of the people which were not considered in designing the programs. Gessler et al. (1995) also allude to the fact that the majority of the malaria control and eradication programs in the past were all based on the belief that the indigenous people had understood the relationship between the parasite, the vector and the human host, and for that matter, administering biomedicine was the answer to the problem.

The failure of the Global Malaria Eradication Program to achieve their said objectives led to the adoption of the current Global Malaria Control Strategy in 1992. Reasons were that total elimination was far-fetched given the severity of the disease and inadequate resources. It became imperative to take a step by step approach in eliminating the disease, control first then eradication later. The objective of the Global Malaria Control Strategy was to re-focus attention on malaria, by launching a global declaration on the control of the disease with special prominence given to Africa. The Global Malaria Control Strategy has expressed the urgent need for commitment to malaria control by all governments, all health and development workers, and the world community at large (Snow and Marsh, 2010; Ahorlu, 2005).

Since 2002, International financing for malaria has received greater attention (Noor et al., 2009). It has been included in major international development programs such as The United Nations' Millennium Development Goal Six. These initiatives have led to increased attention and funding to fight the disease. Some major funding agencies are the Global Fund, World Bank, President Malaria Initiative (PMI), UNICEF, United Nations and other Non-Governmental Organization such as the Bill & Melinda Gates Foundation. Approximately 34% of funds came from national government expenditures dedicated to malaria, and the remaining funding came from international donors, which disbursed an estimated US\$ 701 million. The Global Fund contributed to half of the disbursements from International donors (RBM, 2008).

Also, UNICEF together with its partners distributes Insecticide Treated Nets using routine health services, particularly at Ante-Natal Care (ANC) and Expanded Program on Immunization (EPI). UNICEF works with Ministries of Health, non-governmental

organizations (NGOs) as well as community and village health workers to develop local distribution systems and ensure nets reach their targeted beneficiaries. UNICEF is also focusing its efforts on scaling-up behavior change communication to ensure that nets are being used effectively each and every night (UNICEF, 2010). The free distribution of the ITNs is seen as the quickest and most efficient way to effectively control malaria especially among poor communities (Njau et al., 2013). In 2007, the World Health Organization (WHO) recommended that countries provide Insecticide Treated Nets for all age groups at risk of malaria; and by 2008, 23 countries in Africa had adopted this recommendation as a policy (WHO 2009 cited in Macintyre et al. 2011).

In spite of these initiatives and grand donations, malaria still remains hyper endemic in Ghana and a major public health problem. It is also the single most important cause of mortality and morbidity especially among children under five years, pregnant women and the poor. There is, therefore, the continued effort to find the appropriate intervention to control and possibly eliminate the menace caused by the malaria parasite.

## **1.2 Research problem**

As stated in the introduction in chapter one, the use of the Insecticide Treated Nets is not an option for Abena and her family. However, how do members of the community protect themselves from the malaria parasite using the Insecticide Treated Nets given the nature of their houses and the environment?

Malaria is a threat to 40% of the world's population and the malaria situation in Ghana is perhaps typical of other sub-Saharan Africa countries like Togo, Nigeria, and Benin

where the disease is ranked first among the ten diseases in health facilities. The malaria control program in Ghana, like all other developing countries, is threatened by the development of drug resistance to mono therapies necessitating revisions of treatment policies. Since then, there have been a number of interventions which has been instituted to combat the menace caused by the malaria parasite. These intervention programs have ranged from the use of quinine, which was the first line of treatment to the use of chloroquine and subsequently, the use of anti-malarial drugs such as Atesunate, although these anti-malarial drugs have gone through various revisions since its introduction into the country.

Home management of malaria is also seen as one key area in treating malaria. This is because the first line of treatment usually begins at home. Drugs usually given at home include chloroquine, some analgesic, either purchased from a local chemical dealer or left over at home or bathing the child with cold water if the child is experiencing high body temperature. In some cases, herbal medicine is used. For this reason, mothers or care givers are being trained on how to improve upon malaria treatment at home. Currently, ACT and artemether-lumefantrine (AL) have been incorporated into the home based management of malaria. This is because of drug resistance with the use of chloroquine. Mothers and caregivers have been educated on how to give the right amount and dosage to the child. In 2004, a pilot study was carried out in Ghana to provide preliminary evidence for the feasibility and acceptability of the use of artemether-lumefantrine (AL) in the home management of malaria. So far 18 African countries have adopted the Home Management of Malaria as part of their malaria control program (Ahorlu, 2005; Ajayi et al., 2008; Tiono et al., 2008; WHO, 2004).

Although malaria affects every part of the country, certain factors predisposes some people in getting infected than others and inasmuch as there have been studies done on the use of Insecticide Treated Nets, little studies have been done specifically on house structure and its influence in the use of Insecticide Treated Nets in Ghana and its impact on malaria control intervention such as the use of Insecticide Treated Nets. This study, therefore, seeks to contribute to filling the knowledge gap on how house structure, sleeping arrangements and the various materials influence the use of the ITNs. It will also contribute to the literature on the problems associated with bed nets.

### **1.3 Research Objectives**

The general objective of this study is to determine housing structure and the use of Insecticide Treated Nets

In order to achieve the overall objectives of this study, it will be guided by the following specific objectives:

- To describe the sleeping arrangement of respondents and how this influence the use of the ITNs
- To identify the various sleeping materials used and their influence on the use of ITNs
- To find out the various malaria control measures respondents apply

### **1.4 Significance of the study**

Malaria is a topical issue in Sub-Saharan Africa due to the fact that it is lethal disease which affects most people in the region. Most of the existing literatures on the subject matter have concentrated on issues such as poverty (Wiseman et al.,2006), education

(Ndjinga and Minakawa, 2010), perceived inconvenience of the ITNs (Grabrowsky et al., 2007) and weather patterns (Nketiah-Amponsah, 2010).

One of such areas the researcher is of the view that little has been researched to is how house structure, house arrangements and sleeping arrangements influence the use of the ITNs. Iwashita et al (2010) did a study in Western Kenya and came to the conclusion that people were not aware of the fact that sleeping arrangement may hinder the use of the ITNs. It is not certain whether the same findings would be obtained if people are made aware of the fact the fact that the nature of their houses and their sleeping arrangement can contribute to the hindrance in the use of the ITNs. This study therefore intended to widen our knowledge on the subject matter.

The results from this study will provide policy makers information on the extent to which the nature of people's houses and their sleeping arrangements contribute to the use of the ITNs. This will also in the long run reduce wastage as large program will not be rolled out without first understanding the plight and real needs of the people.

Also, since the problem still persists and governments, especially in the sub-Saharan Africa spend a lot of monies to combat the disease, there is the need for further research into the problem until malaria is no longer a threat to the country.

### **1.5 Organization of thesis**

This thesis is organized into nine chapters as follows:

Chapter one sets the agenda for the entire thesis by giving an overview of the global malaria situation. The research problems, objectives both main and specific are articulated in this study.

Chapter two focuses more specifically on malaria situation in Ghana, malaria epidemiology, measures drawn by the country to control and eliminate malaria. Some

of the challenges faced in the course of the interventions are also discussed as well as step that Ghana needs to go through in order to be declared as a free malaria country is also discussed.

Chapter three focuses on the empirical work done by other scholars as well as the theoretical perspective of the study.

Chapter four describes the social organization of the community under study. Bourdieu's habitus and Marx's class consciousness are discussed in order to give a general background into the socio-demographic characteristics of the respondents. Some attention is also paid to the housing types, environmental issues as well as social welfare services of the study area.

Chapter five focuses on the data collection and approaches. This chapter also brings out some of the debates that have risen in research methods.

Chapter six focuses on the data presentation and analyses. Some of the analyses focus on the socio-demographic characteristics of the respondents as well as some of their related illnesses.

In chapter seven I describe how the types of houses and sleeping arrangements of the respondents influence their choice in the use of the Insecticide Treated Nets.

Chapter eight examines the sleeping materials of the respondents and how these sleeping materials influence the use of the Insecticide Treated Nets.

Chapter nine provides the conclusion of the study by highlighting some of the major issues relation to the use of the Insecticide Treated Nets.

## CHAPTER TWO

### THE MALARIA SITUATION IN GHANA

#### 2.0 Introduction

This chapter discusses the malaria situation in Ghana and policies that have been put in place to control and eliminate malaria. It also provides an overview of policies and implication and challenges in controlling and eliminating malaria.

#### 2.1 Malaria Epidemiology in Ghana

Initiatives towards controlling malaria started as far back as 1950 and it is ongoing. Malaria is endemic in all parts of the country. Although endemic, there are seasonal variation of the malaria parasite and more pronounced in the Northern part of the country. Some of the reasons given for the vast differences in the malaria distribution nationwide, according to some researchers is because, the malaria parasite predominantly breed in irrigation area and in forest zones where the malaria parasite is transferred from other vertebrate to humans (Hegenhougen et al., 2003). Although Ghana's entire population are at risk of malaria infections, children under five and pregnant women are the most vulnerable because of their low immune system (NMCP, 2013).

According to the Ghana Health facility data, malaria is the number one cause of morbidity and mortality accounting for 33% of hospital deaths in children under five, 38% of all outpatient illness and 36% of all hospital admissions (PMI, 2014).

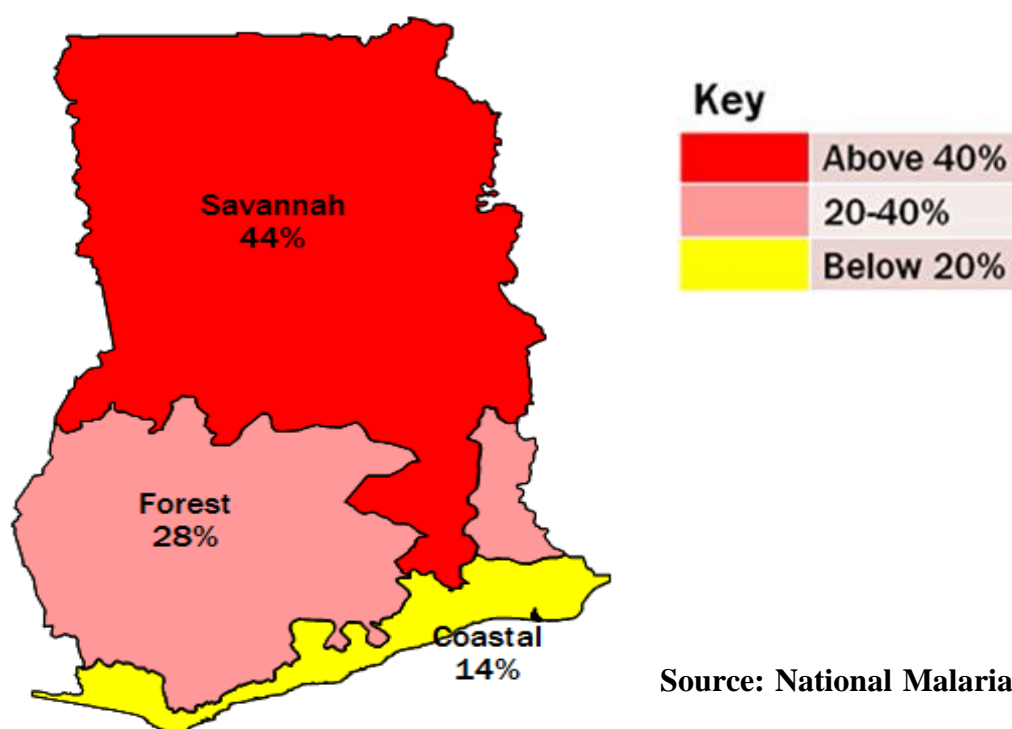
The malaria epidemiology in the country varies from region to region. In the Northern region, season ranges from approximately 6-7 months that is from May to October and up to 10-11 months in the forest zone. Peak levels of malaria infection and malaria-associated anemia in the population persist for two to three months into the dry season.

More than 50% of malaria parasites in northern Ghana are outdoor biting parasites. *Anopheles melalis* found in the mangrove swamps of the southwest and *Anopheles arabiensis* in savannah areas of northern Ghana. Among the numerous malaria parasites, *Plasmodium falciparum* accounts for 85-90% of all infections. It is the most dangerous and can cause cerebral malaria, still birth, anaemia in children and pregnant women, and shock (PMI, 2014; Sullivan, 2006). *Plasmodium malariae*, on the other hand, accounts for less than 10% of all infections and *Plasmodium ovale* are rarely found accounting for 0.15% of all infections.

There are four main malaria vectors in Africa which are *Anopheles gambiae* (which is a complex of six species) *Anopheles funestes*, *Anopheles pharoensis* and *Anopheles arabiensis*. These species generally bite late in the night, are indoor resting, and are most common in the rural and peri-urban areas. *Anopheles fluviatilis*, *Anopheles minimus* and *Anopheles culicifacies* are the vectors that are distributed in other parts of the world (Sharma et al, 1991).

Ghana's malaria distribution can be categorized into roughly three malaria epidemiologic zones, which are the northern savannah, the tropical rainforest, and the coastal savannah or mangrove swamps. Although the boundaries of these zones have not been defined precisely, the demarcations used by the Ghana Statistical Service in its periodic living standards surveys since 1998 provide a close approximation. The figure below shows the northern part of the country recording the highest malaria epidemiology with figures above 40% while the tropical rain forest has 28% and coastal region, 14%.

**Figure 1: Malaria epidemiologic zones indicating Ghana's malaria distribution.**



**Source: National Malaria Control  
Program 2013 Annual Report**

According to the 2010 Population and Housing census, Ghana is fast urbanizing with more than 50% of the people now living in the urban areas. According to the 2011 Multiple Indicator Cluster Sample (MICS)/Malaria Indicator Survey and other published research, malaria transmission tends to be significantly less intense in large urban centers than the rural areas as documented in the PMI-supported Ghana Urban Malaria Study released in April 2013. Parasitemia rates among children under five in the three large cities were found to be significantly lower than the level in rural areas in the same ecologic zone. The proportion of children with a recent fever who tested positive for malaria was 80.2% in rural areas, but just 6.6% in Accra and Kumasi.

## **2.2 Ghana's Health Sector**

As the health of the people is paramount to every nation, the government of Ghana through the Ministry of Health and the Ghana Health Service as well as other private sectors, is responsible for the health and wellbeing of the people and the nation at large. The Ministry of Health is responsible for the control over policy formulation and the monitoring and evaluation of progress in achieving health targets. This, the ministry is able to do with the help of the Ghana Health Service. In the 1990s, the Ghana's health sector underwent reform thereby adopting the Sector Wide Approach (SWAp) in its sector reforms in 1996.

This enabled the government as well as partners, private sector and civil societies to play a role in the health sector in Ghana (WHO, 2009). The Ghana Health Service is able to achieve this success by decentralizing its system in order to ensure that people have access to health at all levels. These decentralized systems are as follows:

1. National level
2. Regional level
3. District level
4. Sub-district level.

However, major policies and programs are designed and developed at the national level by the central government whiles it is carried out at the decentralized level.

## **2.3 Ghana's Malaria Policy**

Ghana's malaria control strategies have evolved over the last two decades. This evolution has been consistent with improving control methods, increasing funds and

adopting revised international technical standards such as the Roll Back Movement, committing to the Abuja declaration. In 2002, Ghana adopted the use of ACT as the first line of treatment for malaria and this adoption was as a result of the recommendation by World Health Organization (WHO). The adoption of ACT as the first line of malaria treatment was recommended in all countries experiencing drug resistance to the single use of the treatment of malaria such as the use of chloroquine. Other reasons which accounted for the adoption of ACT were that, it was cost effective and affordable, both children and pregnant women were deemed fit to take the drug, the efficacy of the drug, and also, it boosted the local industries in the various malaria endemic areas as pharmaceutical companies began importing and manufacturing these drugs.

The malaria control policy in 2002 was however revised in 2003 and 2004 and this revision was necessary in order to curb the adverse effects and reactions of the drugs as people began to complain about the side effects. The revision was also necessary in order to find an alternative in the treatment of malaria and also to ensure the safety and efficacy of any future anti-malarial drugs.

A team was commissioned by the Ministry of Health to review the existing policy and guidelines of the anti-malarial drugs and to select additional drugs and to check the dosage of the drugs in order to cater for those who had earlier on, had adverse reaction to the drug. In 2003 and 2004, Intermittent Preventive Treatment for pregnant women (IPTp), using sulfadoxine-pyrimethamine (SP) was adopted at the national level in collaboration with the National Malaria Control Program. This saw the increase in funds in the control of malaria and these funds have encouraged the National Malaria Control Program to draw up proven malaria control strategies which was captured in their 2008 to 2015 strategy. These control strategies are as follows:

1. **Universal coverage with Insecticide Treated Nets:** Every household member will get the opportunity to sleep under a treated bed net. This they did by ensuring that one ITN is available per two persons by 2013; complete coverage by all household member by 2015; and 85% of children under-five years of age and pregnant women and 80% of the general population, sleeping under an ITN by 2015.
2. **Rapid scale-up of Indoor Residual Spray** to cover one third of the country. 90% of all structures in targeted districts are sprayed.
3. **Universal coverage of pregnant women with** Intermittent Preventive Treatment for pregnant women (**IPTp**) using SP. Target: 100% of pregnant women receiving at least two doses of IPTp by 2015.
4. **Early diagnosis of malaria using microscopy or rapid diagnostic test (RDT).** Target: originally allowed for empiric diagnosis in children under 5 years of age, but amended in 2009 to aim for universal testing as soon as practicable.
5. **Prompt and effective treatment with ACTs.** Target: 90% of patients with uncomplicated malaria will be correctly treated using ACTs at public and private facilities by 2015( NMCP 2013 annual report).

Also, in 2000, the government introduced the National Health Insurance Scheme. The scheme was introduced to replace the cash and carry system. This scheme enabled individual who hitherto could not afford to go to the hospital. This scheme in a way helps curb some of the tropical infectious diseases in the country.

A revised Integrated Vector Control Strategy was also released in 2009 and a national Malaria Vector Control Oversight Committee was established with the support of PMI.

A key function of the committee is to ensure safe and effective implementation and management of malaria vector control operations, in accordance with WHO guidelines and local Environmental Protection Agency pesticides regulation requirements. The National Malaria Control Program Malaria Control Communications Strategy was released in May 2010 (NMCP 2013 annual report).

Since then, the Ministry of Health in 2008 has sponsored the Cuban Labiofam company to conduct larviciding, beginning with a pilot in central Accra and expanding to central urban districts of Kumasi, and Sunyani. The program has reported to Malaria Vector Control Oversight Committee that it regularly monitors and treats more than 1,120 anopheline breeding sites ( NMCP 2013 annual report)..

#### **2.4 International Funding and Support**

Ghana's fight against malaria has not only received local support from the local government but from other international bodies. Ghana has been able to achieve success in the treatment and prevention through the funding and support from international agencies such as the Presidents Malaria Initiative (PMI), Global Fund to fight AIDS, Tuberculosis and Malaria the World Bank, UNICEF, and the World Health Organization.

Ghana became part of the Presidential Malaria Initiative country in 2007. The PMI mainly work with the National Malaria Control Program in Ghana. One of the key functions of the PMI is to provide technical assistance and fill funding and commodity gap which the local government is unable to fulfill in the malaria control program. The National Malaria Control Program and the MOH together with Anglo Gold Ashanti

have received malaria grants support from the Global Fund during the period overlapping the Fiscal Year, 2014. As of June 2013, the National Malaria Control Program was in the process of negotiating the Phase 2 proposal and budget for this grant. The Phase 2 grant will amount to approximately \$55 million in new financing, plus an estimated \$22 million in Phase I pipeline, and will run through February 2015. The proposal for Phase 2 grant will focus heavily on sustaining universal coverage of ITNs, scale up of diagnostics and continued support for treatment in the public and private sectors. New elements include a pilot of seasonal chemoprevention in Upper East Region, at the behest of WHO, and the establishment of health facility sentinel sites for monitoring malaria case burden in all regions. The Phase 2 proposal also includes support for training, supervision, and data quality audits to improve data quality (NMCP Annual Report, 2013).

Ghana has achieved steady gains in many of the key malaria intervention indicators. Between 2003 and 2011, ITN ownership and use, uptake of Intermittent Preventive Treatment for pregnant women (IPTp), and treatment with ACTs have all increased. A universal Long Lasting Insecticide Net campaign was conducted in 2012, and pilots of routine distribution through schools, Ante Natal Care, and Expanded Program on Immunizations have occurred in 2013. Based on these 16 additional vector control efforts since the 2011 Multiplier Indicator Cluster Sample, the next Demographic Health Survey scheduled for 2014 should show an increase in ITN ownership and use (NMCP 2013 annual report).

One of the core objectives of the National Malaria Control Program is for the universal increases of Insecticide Treated Nets for the entire population that is defined as one

treated net for every two people. This universal coverage they hope to achieve through distribution strategy such as door-to-door distribution campaigns and routine distribution. Some of the channels through which they are able to achieve the universal distribution are through Ante Natal Care, Expanded Program on Immunizations, schools, non-governmental organizations (NGOs) and the private sector. At the end of 2012, rolling campaigns were held in Ghana with door -to-door distribution with a “hang-up” component. Reasons given for the “hang-up” exercises were that majority of the people were either using the nets for the wrong reasons or not using it at all. In this “hang-up” exercise, nets were not just given to the people but are hanged or fixed in their rooms by those doing the distribution. This they thought will ensure that the people actually sleep under the treated nets (NMCP Annual Report, 2013).

The National Malaria Control Program also supports communication and community mobilization activities to promote consistent Insecticide Treated Nets use, with a target of 85% of pregnant women and children under five years of age sleeping under treated nets every night. Ghana completed its nationwide universal treated nets coverage campaign at the end of 2012. The door-to-door distribution campaigns distributed more than 12.4 million treated Nets to households in all ten regions (NMCP Annual Report, 2013).

The National Malaria Control Program’s routine distribution strategy relies on Expanded Program on Immunization, Ante Natal Care and school-based distribution channels. It is estimated that the school based distribution channel will contribute 45% towards maintaining universal coverage, while EPI and ANC will contribute 29% and

26% respectively—resulting in projected coverage rates of 90% in 2013 and 85% in 2014. Table 1 below efforts in the control and treatment of malaria in Ghana.

**Table 1: Recent Estimates of Malaria Indicators**

<b>Indicator</b>	<b>2003 DHS</b>	<b>2006 MICS</b>	<b>2008 DHS</b>	<b>2011 MICS</b>
Proportion of households with one or more ITN	3%	19%	33%	49%
Proportion of children under five years old who slept under an ITN the previous night	4%	22%	28%	39%
Proportion of pregnant women who slept under an ITN the previous night	3%	NA	20%	33%
Proportion of women who received two or more doses of IPTp during their last pregnancy in the last two years*	0	28%	44%	64%
Proportion of children under five years old with fever in the last two weeks who received treatment with ACTs*	NA	3%	12%	18%**
Under-five Mortality	111	111	80	82

**Source: PMI Report (2014)**

As part of curbing the malaria parasite, in addition to the various control and preventive measures that the various malaria endemic countries have, there are steps through which they need to go through in order to achieve complete elimination. In these various steps, there are things which the country needs to embark on as recommended by WHO and Ghana has also committed itself to following the steps in the eradication of malaria.

### **2.5 Steps in the Eradication of Malaria**

According to the WHO, in order to achieve total preventive and the eradication of the malaria parasite, in addition to the various malaria control strategies that the various malaria endemic countries have, there are four steps through which malaria endemic countries need to go through. These, they have to go through in order to achieve complete success. These four steps are the control stage, pre-eliminating stage,

elimination stage and Prevention of Re-introduction Stage (GMAP, 2008). These steps are explained below.

### **2.5.1 Malaria Control Stage**

Majority of malaria endemic countries are in the control stage. Countries in this stage are those endemic countries that are fighting to bring malaria incidence and disease burden levels to its barest minimum and at a stage at which it is no longer considered a public health problem. Countries listed in this stage are the West, East, Central and Southern parts of Africa according to the World Malaria Report (2009) including Ghana. Some countries in South America are also in the control stage. A country may consider eliminating malaria when its malaria control programme has been able to reduce malaria morbidity to a marginal level (i.e. not more than five of every 100 episodes of febrile illness are due to malaria during the high-transmission season).

This requires pursuance of intensive measures by the government and public health institutions. Some interventions to be undertaken in this stage include an update of drug policy, use of ACT after laboratory diagnosis (RTD), monitoring anti-malarial drug resistance, reduce malaria transmission through high population coverage of ITN/LLIN and IRS, entomological surveillance, epidemic preparedness and response. To monitor programmes being conducted in the country, malaria population surveys can be organized (factored into the health and demographic surveys) as well as improving surveillance and national coverage. Sources of funding of malaria control programmes should be reliable be it domestic or from external sources. Most funds for fighting malaria in Africa come from external sources.

However, in-between the control and pre-elimination stage is the “consolidation period” especially for areas with high, stable transmission. In this consolidation period where a marked reduction in malaria transmission has been achieved:

1. control achievements should be sustained even in the face of limited disease incidence
2. health services should adapt to the new clinical and epidemiological situation with a lower case load and reduced levels of immunity and
3. surveillance systems should be strengthened to allow rapid response to new cases.

This transformation phase precedes a decision to reorient programmes towards elimination.

### **2.5.2 Pre-Elimination Stage**

This is basically a transition stage consisting of the period of reorientation of malaria control programme between the sustained control stage and the elimination stage whereby coverage with good-quality laboratory and clinical services, reporting and surveillance are reinforced, followed by other programme adjustments to halt transmission nationwide. Countries in this stage include Malaysia, Mexico, Sri Lanka, etc (GMAP, 2008).

### **2.5.3 Elimination Stage**

In the elimination stage, there is interruption of local mosquito-borne malaria transmission and countries in this stage should be able to reduce the malaria incidence caused by the human parasite to zero in a defined geographical area. Also, in order to

eliminate malaria the following programmes can be embarked on. This should be done alongside with heavy investment in resources and local expertise:

1. management of all malaria cases: detection, notification, investigation, classification and supervised treatment;
2. prevention of onward transmission from existing cases;
3. prevention and early detection of imported malaria infections;
4. Management of malaria foci: identification, investigation, classification, effective vector control in all foci of transmission, geographical mapping over time.

Countries in this stage include Algeria, Iraq and Saudi Arabia (GMAP, 2008).

#### **2.5.4 Prevention of Re-introduction Stage**

Having completely eliminated malaria in a country is not the end but launches the country into another stage of preventing re-introduction of the disease. Some measures to take in this stage include prevention of re-establishment of local transmission and reduction of onward transmission from imported cases. Among the countries preventing re-introduction of the disease include Syria, Egypt, Jamaica, Morocco, etc (GMAP, 2008).

#### **2.5.5 Challenges**

Some of the challenges faced by the NMCP were there was long delay stock-out of Sulfadoxine-Pyrimethamine (SP) as a result of the non-registration of the SP procured for Ghana through the Voluntary Pooled Procurement. The Ministry of Health had to make funds readily available to procure SP locally but the process prolonged and the SP was not delivered within the year. This situation made it necessary for service

deliveries to look for other alternatives in making SP available for (IPTp). Also, lack of commitment of health staff due to meager allowances given to them especially in the Upper East region of Ghana. Lastly, the various regions take a longer time in collecting their logistics which hamper the provision of health care to the people (GMAP, 2008).

## **2.5 Conclusion**

From the discussions what has emerged is that the quest to find solution to the malaria pandemic has been the concern of the country as well as other international organizations. This the government did by introducing the National Health Insurance Scheme to provide free health care to the people. Through the support of international funding, the government has been able to implement some malaria control measures such as the free distribution of the Insecticide Treated Nets. This has called for an increase in funding from the international organizations.

## CHAPTER THREE

### LITERATURE REVIEW

#### 3.0 Introduction

It is the quest to find lasting solutions to the malaria problem that large number of literature has flooded in academia. This chapter discusses some of the empirical work done on the use of Insecticide Treated Nets. Sections in this chapter include factors influencing the use of the Insecticide Treated Nets. Also, the Health Belief Model and Rational Choice theory as a theoretical framework for this study is also discussed.

Malaria is the leading cause of deaths in sub- Saharan Africa and the disease is mostly prevalent in the tropical region. According to the World Health Organization (2010), malaria is prevalent in more than 100 countries worldwide and about 1.2 million people, representing 20% of the world's population are at risk of malaria (Nonvignon et al., 2010). In 2010, it was estimated that about 3.3 billion people were at risk of getting malaria and 216 million developed malaria and about 700,000 deaths were recorded globally (Ediau et al., 2013; Singh et al., 2013; Aborah et al., 2013). About 80% of the reported cases occurred in Sub- Saharan Africa with the disease having its heavy toll on children under five and pregnant women (Aborah et al., 2013). In the case of Ghana, malaria accounted for 37.5% of all out patient visit, 36.0% of all admissions and 33.4% of all deaths in children under five in 2006 (Ahorlu et al., 2011). Malaria occurs all year round with the peak season being between June and October in Ghana.

However, because of the dangers posed by the mosquito parasite, people have used other means to protect themselves from malaria other than mosquito nets. These preventive measures range from the use of mosquito coils to burning of leaves, cow dung, the use of aerosol and indoor spray (Heggenhougen et al., 2003; Wiseman et al.,

2006). One of the main reasons people use this preventive measure is to prevent the nuisance caused by the mosquito bite and not necessarily to prevent malaria. It has been argued that, the use of these above preventive measures is only effective when people are awake and can afford to keep the coil or the leaves burning but offers no protection from the malaria parasite at night when people are asleep (Heggenhougen et al., 2003).

The disadvantages associated with the above measures, led to the introduction of bed nets. Although people began to use the bed nets, it was generally not treated and the mosquito can penetrate through the nets and bite the person sleeping in it (Sexton, 1994 cited in Heggenhougen et al., 2003). A multi country ITNs trail was conducted in Northern Ghana and other parts of Africa to determine the efficacy of the ITNs. At the end of the trail, it was realized that the use of ITNs was more effective than non-treated bed nets. The World Health Organization then adopted the finding of the multi country trail to roll out large distribution of ITNs (Binka and Adongo, 1997). Researchers have written extensively on the use of ITNs since its inception.

According to Wiseman et al. (2006), household in Gambia would prefer to spend their money on other less costly preventive measures such as the use of coils, leaves, dungs, smokes and aerosols. Reasons given for the inability to use the ITNs is that, it is expensive and therefore they cannot afford it. However, these households spent on average of US \$0.65 every fortnight on other forms of malaria prevention. After only 2 months, many of these households will have spent approximately US \$5.00 on the other preventive measure which is equivalent to purchasing one ITN.

Other studies have also shown that even the poorest households will often spend more per month on coils, sprays and repellents, than the equivalent actualized monthly cost

of owning an ITN (Heggenhougen et al., 2003; Mulla et al., 2001; Macintyre et al., 2002; Wiseman et al., 2006). The perceptions of affordability are complex and influenced by a range of factors. The mode of payment is important and for some families, the large up-front cost of purchasing bed nets is often beyond their means and for others, financial subsidies on ITNs will be a key strategy for promoting its use (Wiseman et al., 2006).

It has also been suggested that wealthier households are more likely to spend on preventive measures than poorer households (Wiseman et al., 2006). A study conducted in Gambia, however, found no correlation between wealth and bed nets (Wiseman et al., 2006). Again, a study done in Mozambique shows that there is no empirical evidence to suggest that poor households were less likely to own bed nets (Chase et al., 2009).

Onwukekwe et al., (2004) also argue that poverty was a barrier to the use of the ITNs and their study in Tanzania, Uganda and Kenya confirmed the correlation between the two. Some studies report poverty as a barrier to use, in that, poorer households have immediate needs including food, water and medical care, and therefore sell the treated bed nets to meet their basic needs (Bernard et al. 2009). Likewise, the poor may store ITNs, rather than use them, for future sale or use (Ng'ang'a et al. 2009).

Noor et al. (2009), employed recent national household survey in 18 malaria endemic countries in determining the correlation between age and sex and the use of ITNs and found out that, school-aged children were the least protected with ITNs.

Study conducted by Kaliyaperumal et al. (2010), revealed that although local residents in malaria endemic areas have ample knowledge about the effectiveness and the

treatment of the bed nets, residents were not willing to pay for the bed nets as well as the re-treatment. When they were asked why they will not pay for the utilization of the bed nets, nearly half of the respondents cited reason such as the lack of capacity to pay for the bed nets. Similar studies conducted in western Kenya revealed that majority of the respondents were not ready to pay for the treatment of the bed nets which cost \$1. When the respondents were asked how much they were willing to pay, they responded by saying they will pay nothing. Again, households from poor socio-economic background were less likely to use ITNs whether treated or untreated.

Furthermore, aside the issue of poverty, education is seen as one key component in the use of the ITNs. Ndjinga and Minakawa (2010) revealed that education was the most important factor affecting bed net use in villages outside Kinshasa. To them, the development of an educational program directed particularly towards parents is necessary to reduce misconceptions and increase prevalence of bed nets use among all age group.

Adongo et al (2005) studied how local community knowledge about malaria affects the use of ITNs in the 3 districts in northern Ghana. They argued that attributing the cause of malaria to several socio-cultural and spiritual factors has some implications for the prevention and control of malaria especially using ITNs, etc. Similar findings were made by Okra et al. (2002), who found that about half of those involved in group discussions attributed causes of malaria to spiritual forces.

Adongo et al (2005) deemed this study to be significant based on the fact that, community knowledge about malaria would help malaria control programs to be more effective. Majority of the respondents in each district viewed mosquitoes as the main

cause of malaria. Over 90% of the respondents indicated that bed nets can prevent malaria. The study also indicated that some respondents had their local terms for malaria infection which had some correspondence to the biomedical malaria but not exactly the same medical terms. Some respondents use traditional medicine as well as spiritual means to treat the local malaria infection whilst some families would prefer the modern health system to treat biomedical malaria. Since the local residents do not have an exact local name for malaria, Adongo et al (2005) argued that local terminology and knowledge should be incorporated in malaria education campaigns, this they believe would have a long term effect of synchronizing local terminology with the biomedical term for malaria which would facilitate the necessary behavior towards malaria control such as adopting ITNs. Use of ITNs was mainly regarded as a tool for reducing nuisance caused by mosquitoes. Thus nets were mostly used by adults.

The study however shows the importance of informal education in the fight against malaria. Thus a nationwide study of how education affects malaria control will be an important step in the fight against malaria control in Ghana. A household knowledge of the relationship between education and malaria control in Ghana will be important information for policy makers in trying to eliminate malaria from Ghana. Education really has a role to play in the fight against malaria.

Beyond the factors mentioned above, there is the need for the people to have knowledge about the use of ITNs in order to ensure continuous use of the technology. Studies have shown that any intervention without the prior consultation with the intended beneficiaries before the intervention is more likely to fail (Ruebsuh et al. cited in Ahorlu et al. 1997). Education therefore plays a vital role in the acceptability and use of any interventions. A study done by Ahorlu (2005) in the Volta Region and southern

part of Ghana suggest that although mosquito was seen as a causative factor in getting malaria, other factors such as eating too much sweet, standing in the sun for long hours, eating oily foods, etc is also seen as a causative factor in getting malaria. The correlation between the mosquito parasite and malaria as the only causative factor has not clearly been understood by most people hence the misappropriation of the ITNs. Some people will either re-sell the ITNs other than use it; wash the treated nets more than necessary thereby reducing the efficacy of the treated net. Some people will also not replace worn out or damaged ITNs hence increase their susceptibility in getting malaria. The above mentioned are sometimes due to inadequate information provided to the people (Ng'ang'a et al. 2009).

Others also believe that recent illness, or death may increase the usage of the Insecticide Treated Nets and proximity of a household to a health service delivery point may increase the likelihood of hearing messages related to the importance of the bed net use (Ng'ang'a et al. 2009).

Moreover, the use of ITNs is not only influenced by poverty and education but the weather pattern as well. A study conducted by Binka and Adongo in northern Ghana revealed that the majority of the respondents were more likely to use the ITNs in the rainy season as compared to the dry season. Reasons for the seasonal use of the ITNs are that during the rainy season, the mosquito prevalence is high as compared to the dry season. Also, in the dry season, mosquito visibility is less, hence the decreased motivation to use the ITNs. Nketiah-Amponsah (2010) also suggest that warm weather and the perceive absence of mosquito are part of the reasons for acceptance and use of the ITNs (Nketiah-Amponsah, 2010).

Furthermore, studies have suggested that sleeping arrangement may make the attempt to use the ITNs difficult especially in houses with few rooms. This is demonstrated in a study conducted by Iwashita et al. (2010) in western Kenya. Although the respondents were of the view that few mosquitoes were their reasons for not using the ITNs, according to them, most residents did not probably realize that sleeping arrangement and the availability of suitable place to hang the ITNs were a factor. Moreover, it was revealed that the ease of hanging a net was particularly important (Iwashita et al. 2010). Moreover, an important factor worth noting is house structure and the use of ITNs. According to Alemu (2011), in the 20th century, improved housing conditions and the use of screens were part of the main malaria control programs, but today, scant attention is given to how improved housing characteristics can help in the fight against malaria. Studies have also demonstrated that, there is a strong correlation between malaria incidence and the type of house condition. As a matter of facts, malaria prevalence is highest among the poorest sections of the society, since they cannot afford protection from malaria through improved housing and clean environment (Alemu et al, 2011).

A study conducted by Wolff et al. (2001) in Malawi revealed that children living in an improved house had 44% reduced odds of getting other infectious diseases including malaria. According to them, houses with access to safer water sources and private latrine were also less susceptible in getting some illness like malaria. Also, incorporating bed nets or ceiling into houses may increase the health benefits of better housing by reducing malaria further.

It has also been demonstrated that the risk of getting malaria is greater for inhabitants in the poorest of type of houses. These poorest of houses generally have open eaves, cracked walls and temporary house structures (Konradsen et al 2003). According to them, people living in poorly constructed houses have 30% higher risk of harboring *Anopheles culicifacies* and *Anopheles subpictus* than those in complete and permanent house structures in their study conducted in Sri Lanka. The malaria parasites hide in the cracks of the walls during the day time and at night, come out of their hiding and feed on the people thereby increasing their susceptibility in getting malaria.

Further, a study conducted in Ahero, in western Kenya, revealed that, modified ceiling provided protection for the entire family from mosquito bites as compared to bed nets which protects an individual sleeping in it. According to them, inhabitants living in traditional houses with open eaves were at a higher risk of being bitten by malaria infected mosquitoes than people who live in permanent houses with closed eaves (Atieli et al. 2009).

Also, there is some evidence that pregnant women, who have to get out of bed frequently in the middle of the night to relieve themselves, find hung nets inconvenient (Grabrowsky et al. 2007; Belay and Deressa 2008). This perceived inconvenience may also affect use by children. If nets become damaged or caretakers think the nets make children hot and disturb their sleep, they may decide to let children sleep without the net (Smith et al. 2007; Belay and Deressa 2008; Toe et al. 2009).

Studies have also shown that the free distribution of the ITNs does not necessarily imply usage due to the perceived side effects of the ITNs which affects the use of the technology. In the trail of the ITNs in the northern region of Ghana, respondents were not educated on the characteristics of the ITNs. When the respondents were asked about

the non-use of the new technology, they reported that they experienced some itching, sneezing, dizziness, headache and cough (Binka and Adongo, 1997). According to them, the people were unwilling to complain about the adverse effect of the ITNs because it was not culturally acceptable to report when the ITNs have been provided freely.

It has also been argued that most people are unwilling to report problems associated with sleeping under bed nets because it was culturally unacceptable to do so especially when there was some hope of external assistance in the near future. Given that even moderately perceived side effects may cause concern and affect acceptance, compliance and use of treated bed nets, people may need to be informed that the insecticide is safe and minor or temporary side effects could be experienced particularly during the first few days of use (Ng'ang'a et al. 2009).

Furthermore, a study conducted by Baume et al. (2009) demonstrates that in Ethiopia ITN use is associated with a number of factors such as household background, respondent's knowledge, and ITN characteristics. Based on his findings, it been suggested that ITN use in Ethiopia should be conically-shaped. Also, replacement schemes for worn-out ITNs, assistance with hanging ITNs, and communication addressing misperceptions about malaria and ITNs are likely to raise levels of use.

Moreover, factor such as prioritization of malaria by the people serves as an important factor and worth noting. There is the tendency to view some diseases as more important than others. For example, there is the tendency by majority of people to view

HIV/AIDS as a serious disease than malaria. This is because HIV/AIDS has no cure and therefore feared and dreaded while there is a lukewarm attitude towards malaria.

The participation in any control programs may not be effective if communities perceive malaria as a less important health problem (Ruebush et al, 1995 cited in Ahorlu et al, 1997). Atkinson et al. (2009), also alludes to the fact that residents in Solomon Island were using the bed nets for the wrong reasons such as for fishing and protecting their nursery. The above reasons show that if people attach much importance to the disease, the wrongful use or the intermittent use of the bed nets will be minimized. Briet and Chitnis (2013) also argue that the use of the ITNs may change the biting behavior of the malaria parasite from indoor biting to outdoor biting where people are outside the sleeping place thereby increasing their resistance to insecticides.

It should be noted that all malaria control strategies are accompanied by information, education, and communication activities by the Ghana Health Service, using all forms of communication media and strategies (GDHS Report, 2009). Despite these educational campaigns and communication activities, the ultimate decision of whether or not to use the control measure such as the ITNs lies with the individuals and how he or she perceives the disease to be an important disease. According to Heggenhougen et al (2003), malaria is a unique disease because it root lie deep within the human community and becomes a fixture of village life. In this way, people turn to adjust themselves to the situation rather than change the situation. Although according to them, the disease becomes a fixture of village life, Alemu (2011) in his study reveals that the disease is no more a fixture of village life but the disease has also moved into the cities.

### **3.1 To Pay or Not to Pay for the Insecticide Treated Nets?**

There has been debate over the years as to whether the ITNs should be freely distributed or consumers should be asked to pay for the ITN. While some have called for the free distribution of the ITNs, others have called for cost sharing of the ITNs. The manufacturing of ITNs is expensive and the question of how much to subsidize them is at the center of a very vivid debate in the international community – from opposing proponents of free distribution (Sachs, 2005; WHO, 2007 cited in Cohen and Dupas, 2008) to advocates of cost-sharing (PSI, 2003; Easterly, 2006 cited in Cohen and Dupas, 2008). A study conducted in Kenya revealed that the uptake of the ITNs dropped by 75 percent when the price of ITNs increases from zero to \$0.75 that is from 100 to 87.5 percent subsidy, which was the price at which ITNs were sold to pregnant women (Cohen and Dupas, 2008).

Proponent of the cost sharing are of the view that if a person share in the cost of ITNs or should buy for himself or herself, then the person feels the need to use the bed net and sees the importance of the bed net thereby reducing wastage. They are also of the view that cost sharing or positive price which they term as through subsidies are necessary to ensure increase in program sustainability which in turn will lead to more long term coverage and the development of commercial market. Baume et al. (2009) study in Ethiopia also revealed that ITNs that were paid for were more likely to be used than those obtained free, so therefore, segmentation strategy targeting free ITNs to rural and poorest households combined with support for the commercial sector in urban and better-off areas may optimize ITN coverage as well as help increase ITN use. (Sexton, 2011; Baume et al. 2009; Cohen and Dupas, 2008).

But proponents of the free distribution have an opposing view concerning cost sharing and their main argument is that cost sharing may reduce program coverage by dampening demand. In their opinion, full subsidy will help increase program coverage as households who could not afford to buy at least, one ITNs will have the opportunity to own and use the ITNs (Cohen and Dupas, 2008). To buttress this point by the proponents of free distribution, a study done in Kenya by Atkinson et al (2009) revealed that some members of households did not have access to bed nets because of insufficient distribution of new bed nets. Also ITNs should be seen as public goods and therefore should be distributed free of charge (Pettifor, 2008).

### **3.2 Trends in the use of ITNs**

The current trends in the use of ITNs show that the greatest use is seen among the targeted groups which are children less than five years and pregnant women (Njau et al, 2009 cited in Sexton 2011). Young adolescents of ages 5 and greater on the hand show a decrease in coverage rate which, according to Sexton (2011), is due to the fact that young adolescents within that age group often pass on their ITNs to the younger children of the family. Also young adults between the ages of 20-44 experience an increase in the use of ITNs and this could likely be due to women reaching birthing age and therefore using the ITNs to protect themselves and the fetuses against mosquitoes. Among all the age groups, adolescents between the ages of 15-19 experience the lowest level of ITNs protection (Sexton, 2011).

### **3.3 Conclusion**

In summary, the literature reviewed shows that the need to eliminate malaria has attracted much attention from researchers, international organizations and local

governments. Also, large body of literature has been generated on this subject indicating that treated bed nets do indeed offer some degree of protection. However, evidence from Ghana is limited to community's knowledge, attitudes and perception but with little attention given to other factors such house structure and its influence on the use of the ITNs. This study, therefore, seeks to fill in this gap by exploring the new dimensions in the barriers to the use of the ITNs. Also, from the literature reviewed, little is known about sleeping arrangements of the people and how this sleeping arrangements influence the use of bed nets.

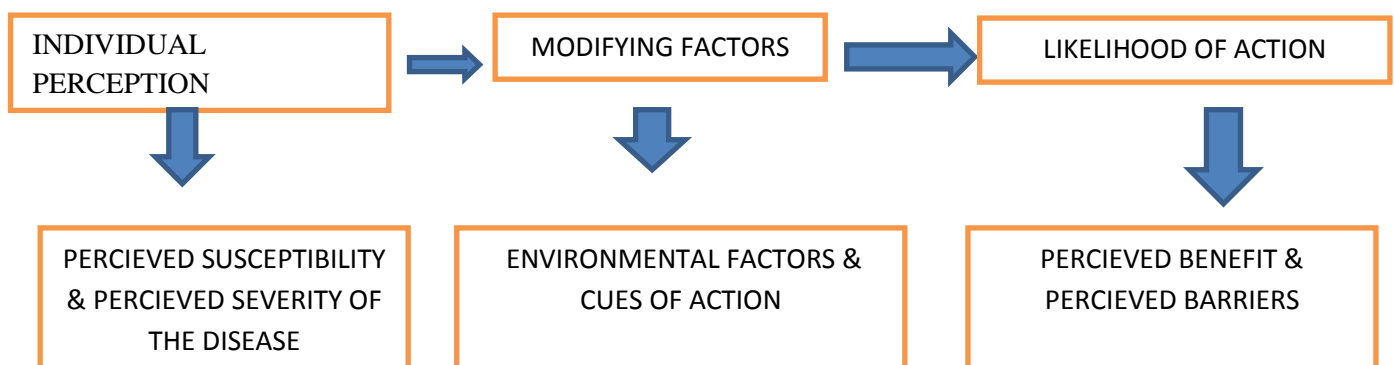
### **3.4 Theoretical framework**

One of the central arguments of this study is that, people are not passive recipient of government and international interventions and policies. People do not accept interventions just because it is beneficial to them, especially, when it is related to health. The health and wellbeing of people are situated in their socio-cultural understanding of the etiology and causative agents of the disease which in the long run, affects the kind of treatment they will seek. For the purpose of this study the Health Belief Model (HBM) and Rational Choice theory are used to illustrate this argument.

The Health Belief Model is prominently used in health education and promotion. It is an intrapersonal model that deals with the individual, knowledge and beliefs model and used to design interventions and prevention programs such as malaria interventions. According to the Health Belief Model, health behaviors are influenced by a person's desire to avoid illness or get well and with the confidence that by pursuing certain recommendation, their said action will be achieved. It was formulated in the 1950s and it is one of the most widely used theories in intervention science.

According to Heggenhougen (2003), the health belief model assumes a linear relationship of knowledge and behavior. It assumes that a change in community knowledge will eventually lead to a change in behavior. It also assumes that if an individual has an ample knowledge about a particular disease and the knowledge on how to control the disease, the individual will comply with interventions needed to control the disease. In the broader perspective, it means if members of a particular community are informed about the benefits of avoiding certain behavioral practices which leads to negative health outcome; they will be more likely to avoid those behavioral practices.

**Fig. 2 Diagram showing the necessary prerequisite for behavioral change**



**Source:** [http://currentnursing.com/nursing\\_theory/health\\_belief\\_model.html](http://currentnursing.com/nursing_theory/health_belief_model.html)

First, the individual perceptions pertain to his or her knowledge and beliefs and the outcomes they could have. An individual is influenced by his perceived susceptibility and threat of the disease. If the individual does not feel that he or she is not at risk of getting malaria from the malaria parasite, he or she has no reason to make a change in behavior by sleeping under the Insecticide treated net. Also, the perceived severity of the disease determines behavioral change. From the literature review, Atkinson et al.

(2009) argued that if people perceive malaria to be important disease, the wrongful use of the treated bed nets will be minimized and vice versa.

Second, an individual's perceived susceptibility and severity of the disease will lead to a change in behavior or influence the individual to modify his or her behavior. The external factors which are likely to cause a change in behavior are environmental factors and cues of actions. The environmental factors include demographic background that can cause one to be more at risk of getting malaria such as socio economic status, poverty and social amenities in the environment. If people cannot have access to health facilities or cannot afford to protect themselves from malaria parasite, there is the likelihood that it will affect their behavioral change. Cues of action on the other hand are reasons why an individual realizes he could be threatened by serious disease and this realization can be triggered by a close relative and or the media. This shows how important education is in modifying behavior (Adongo et al., 2005; Okrah et al., 2002).

The two previous categories lead to the likelihood of an action. The likelihood of action is influenced by the perceived benefit of the intervention and barriers in achieving the intervention. If an individual perceives the ITNs to be beneficial, he or she is more likely to modify his or her behavior and use the ITNs. Likewise if the individual perceive the ITNs to be of less beneficial, it will likely not lead to a change in behavior. Moreover, perceive barrier such as house structure, sleeping material, poverty, and family size may be perceived as a barrier in the use of the ITNs and will likely not lead to a change in behavior. In summary, the HBM is used in encouraging healthy behavior and help modify a negative behavior through education.

The strength of the HBM is that, knowledge is still important in any health intervention. Ample knowledge and information concerning issues related to health is important and can lead to an individual adopting a positive behavior thereby reducing his or susceptibility in getting other diseases or illnesses.

However, malaria control programs that are based on this conceptual framework have failed to take into account people's perceptions, socio-economic factors such as household income, education and beliefs. Gramaccia (1981) identified four reasons why health education on malaria relying on this conceptual framework has failed in various countries.

First, health education in malaria endemic countries has failed at community levels because such communities lack physical infrastructures such as good roads and have poor housing conditions and social amenities which will prove the health education futile. These are some of the things that characterize residents in Ashaiman. Alemu et al. (2011) also argues that malaria is prevalent among the poorest section of society who cannot afford to protect themselves from the malaria parasite through improved housing and clean communities.

Second, people in malaria endemic communities have accepted malaria as part of their lives and they would rather pay attention to more pressing and demanding needs such as poverty and poor living conditions. Heggenhougen et al. (2003) opines that in such communities, the malaria parasite lie deep within the community and becomes a fixture of community life. In such communities, prevention of malaria is not their priority if they cannot afford decent meals and accommodations. As such, any malaria

intervention will prove futile if these priorities are not met. These are some of the reasons why residents would rather sell their ITNs rather than use them or use them for other purposes rather than to sleep in them.

Third, Gramaccia argues that, people have difficulty in understanding the etiology and epidemiology of the malaria parasite. This is in agreement with a study conducted by Ahorlu (2005) which revealed that residents in some part of the Volta region of Ghana not only attribute mosquito as the only causative agent of malaria but other factors such as eating too much sweet and the hot sun as well.

Lastly, existing malaria control methods have been formulated without sufficient knowledge of the target population and the situation within which they find themselves in. According to the Health Belief Model, a person will take a health-related action if that person feels that a negative health condition can be avoided successfully, and if that person can perceive the benefits.

The Rational Choice Theory propounded by Coleman (1990) on the other hand also focuses on the Individual actor. Individuals are seen as rational and make rational decisions. According to this theory, actors are seen as being purposive and having intentionality that is the actors have ends and goals towards which their actions are aimed at. Also, the actor is seen to have preferences, although the theory does not concern itself with what these preferences are. According to the theory, the ultimate aim of the actor is to achieve his or her preferences.

However, in the course of pursuing these preferences, the actor is constrained by certain factors. First, the actor is constrained in achieving the preference due to scarcity of resources. Because resources are limited in supply, the actor has the option to forgo the next-most-attractive action termed as opportunity cost. Second, the actor is constrained by the social institutions. The social institutions according to the theory provide both positive and negative sanctions that either serve to encourage or discourage certain actions (Ritzer, 2000).

In relating this theory to the study, it can be said that the individual has preferences when it comes to choosing among the various malaria control strategies. In choosing his or her preferences, the individual can choose to forgo the most attractive preference which is the treated bed nets (opportunity cost) due to limited space in the house (scarcity) and opt for the next most attractive preference which is the other preventive measures.

Like many other Sociological and Anthropological perspective, the Rational Choice Theory has been heavily criticized. Criticisms against the theory include that fact that, the theory assumes too much rationalism in human behavior. Human being are not always rational, they sometimes make some irrational decisions. This notwithstanding, the theory remain one of the most important theory in that it helps to understand human thought processes tied up as it were, with human interest. The theory also helps to explain the multi-level-interest and choices people make as they contend with many issues such as poverty, ill health (Senah, 1997).

### **3.5 Conclusion**

The health belief model is a simultaneous process used to encourage healthy behavior among individuals who put themselves at risk of developing negative health outcome. For communities to select intervention programs for malaria control, it is imperative for those administering the programme to understand the context of the disease in that community and the variety of factors that motivate and inhibit action, thus putting into question the value of the Health Belief Model (Heggenhougen, 2003 pg.136). Moreover, the Rational Choice theory remains one of the most important theories in explaining the interest of people and the choices they make.

## CHAPTER FOUR

### A PROFILE OF ASHAIMAN

#### 4.0 Introduction

In chapter one the study made a casual observation of the community. This chapter gives a vivid and detailed description of the area. Discussions in this chapter include the historical origin of the area, location, population structure, housing types, environmental issues as well as health related issues. Bourdieu's Habitat and Marx's Consciousness is also dealt with in this chapter.

In the Greater Accra region of Ghana, when one mentions Ashaiaman, the general response is that it is an unplanned, highly populated, den of thieves, in a nutshell, the popular image is a "hard core" slum.

It was one rainy morning at about 8:30 am when the researcher decided to take a walk through Ashaiaman Township in order to get acquainted with the area and people. The researcher does not know whether to call it fortunate or unfortunate scene as on the first day of data collection, a petty thief was caught. This was however not surprising as there have been series of robberies in the last months leading to some loss of lives. The suspected robber was stripped naked by a mammoth crowd. The researcher drew closer to one lady and asked her what was the suspected thief had stolen. To the researchers' amazement, she learnt the robber had stolen a fowl. The researcher then heard some group of women saying:

It is unfortunate for the thief to steal from another thief. In this area we don't steal from here oooo, one lady remarked. There is nothing here to steal. If you want to steal, you go to another area, say, airport residential, which is where you have rich people living.

These comments by the women gave the researcher an idea about the kind of people living in the area, their socio-economic background and what their common consciousness is. This vignette will be analyzed using Bourdieu's habitus and Karl Marx's class consciousness to better understand the area of study.

Habitus according to Bourdieu are mental or cognitive structures through which people deal with the social world. To him, habitus is acquired as a result of long-term occupation of a position within the social world and it can be said that habitus varies from one position to the other. However, those who occupy the same social position within the social world have similar habitus which he termed as collective phenomenon. By implication, this collective phenomenon means that people who occupy the same social position tend to behave and think in similar ways (Ritzer, 2000). People occupying the same social position and economic status, tend to have similar social behavior. They tend to share some common social characteristics, hence similar attitude towards diseases.

In looking at the residents of Ashaiman, it can be said that generally, the majority of people are from the lower socio-economic background; they have inadequate social amenities with no job opportunities and a host of things which has characterized them over a long period of time. It can be said that they are occupying the same position in the social world according to Bourdieu's habitus. Moreover, their occupancy of the same position in the social world is bound in a way to affect how they act, behave and perceive the social world in a similar way. This therefore may affect the way they perceive certain diseases, their causative agents and affect their preventive and treatment seeking behavior.

Also Karl Marx espoused how people's consciousness affect the way they think and perceive the social world. According to Marx, there are two classes of people, the bourgeoisie (rich) who are in the minority and the proletariat (poor) who are in the majority. To him, people in the lower economic status have similar consciousness which he termed as false consciousness (Ritzer, 2000). In relating Marx consciousness to the residents of Ashiaman, it can be said that because of their position on the economic stratum, which is the lower part; they are in a state of false consciousness in which they have not come to realize they are being exploited which is their current deplorable situation. Until they come out their false consciousness to true consciousness, they will remain in that deplorable situation in which they find themselves in.

Campbell (1997) also allude to the fact that malaria historically was thought to be a rural problem because of the water habitats that the mosquito vector requires. To him, malaria has moved to the cities like Karachi and Bombay and also in some mega cities in Africa such as Kinshasa, Dar-es-salaam and Lagos (Breman et al, 1988 cited in Campbell, 1997).

#### **4.1 Historical Origin**

Because there is no available literature concerning the historical origin of Ashaiman, the researcher went to the Assemblyman in the area for this piece of information. According to him, oral tradition has it that, "Ashaiman" which literally means "Ashai town" in the Ga language was founded by Nii Ashai. Ashaiman was later named after him after he migrated to the area in the 17<sup>th</sup> century from Tema. Nii Ashai was later joined by his brothers, Nii Amui and Nii Oko who later settled in Mantseman and

Moniomanye, respectively. As Ashaiman expanded, communities such as Lebanon, Middle East, Jericho and Bethlehem that derived their names because soldiers, who returned from peacekeeping duties in these countries, settled there. Later on, migrants from neighboring towns joined Nii Ashai in the New town from Ada.

The area initially was intended to shelter inhabitants who migrated in search of jobs at the newly industrialized Tema Township and who could not afford accommodation temporarily in the 1950s. Ashaiman, however, quickly grew into a slum as new arrivals drawn to the city by the local economic boom created by the newly-built harbor, railway and factories expanded. This led to the creation of more rooms by relatives who had arrived in the city earlier on to accommodate their family members (AMHD, 2012).

These migrants settled in make-shift structures which were not properly sited and constructed. Owusu (1999) also cites the development of Tema as a port city of Ghana as one of the reasons for the current state of settlements in Ashaiman. To him, when the Government of Ghana claimed the lands from the natives of Tema for the construction of the port, the government resettled the natives to new towns neglecting the non-natives who later resettled in small plots in Ashaiman which was then a fishing community.

However, as Tema developed, it became a magnet for urban migrants and experienced housing shortage. So as the population grew larger, there was the need to find an alternative settlement and thus Ashaiman became the haven for the migrants. Reasons for the selection, according to Owusu, were the availability of cheap rental accommodation, the ease of building regulations and proximity to Tema made Ashaiman an attractive residential option. According to him, most Ashaiman residents

have low level of education, with income far below the national average. The movement of migrants to Ashiaman has not only been economically motivated but also, ethnic network in the city. The settlement has experienced significant changes in its economic base and housing structures and lacks most normal urban facilities and services (Owusu 1999).

As time went on it became a popular destination for several ethnic groups. The dominant ethnic groups are the Ga-Dangme, followed by Akan, Hausa and Ewe who constitute the other ethnic groups in Ashiaman. Ashaiman is a multi-ethnic society with a total of fifty tribes and twenty documented tribal heads and one of the fastest growing urban cities in the country. Currently, Ashaiman is the 5<sup>th</sup> densely populated city in Ghana (AMHD, 2012).

Like any other Municipality, Ashaiman Municipal Assembly (ASHMA) is the highest Administrative and political authority, which represents the central government in the Municipality. The General Assembly consists of 11 elected members and municipal chief Executive, who is the political and Administrative Head of the Municipality. The Municipal Coordinating Director serves as the Secretary to the Assembly and the Head of Municipal Bureaucracy. There is also a District Planning and coordinating Unit, which has a membership of all core heads of the Assembly departments. It is chaired by the Municipal coordinating Director, with the Municipal Development planning Officer as the secretary.

In 1989, Ashaiman was used as a pilot for the government's newly-implemented decentralization plan. Local leaders who had already established authority and legitimacy stepped into formal positions of power. They served as Assemblymen in their respective communities. Local participation in politics was further bolstered with the support of Nimba Community Support Services. In 2003, they established the

Ashaiman Governance Forum. This forum brought together residents, leaders and the Assembly to discuss development and community issues. Local chiefs and opinion leaders held authority in the neighborhoods (Paller, 2012). Ashiaman Municipality being a newly created municipality, the people are hopeful that the Electoral Commission will soon undertake a re-demarcation exercise to create other sub-structures for the city.

#### **4.2 Location**

The Ashaiman Municipality lies within the South-Eastern part of Ghana and located about four kilometers at the Northern Part of Tema. It is one of the many districts in the Greater Accra region of Ghana. Ashaiman Municipality used to be a sub-district under the Tema Metropolitan Assembly until July, 2008 when the Ashaiman Municipality was created. On the southern part of Ashiaman is the Accra-Tema Motorway, on the Eastern corridor is the Akosombo road, the Northern part by the Michelle camp and Zenu road and on the Western corridor is Adjei-Kojo. The topography of the area is flat and forms part of the Accra-Togo plains extending from the East coast of Ghana into Togo. There are however isolated hills in the area but they are barely up to 65 meters high. The nature of the soil is suitable for the cultivation of vegetables like okro, pepper, cabbage and cucumber. Ashaiman lies within the Coastal Savannah zone. Vegetation in the area is however destroyed because of human activity.

#### **4.3 Population Structure**

In looking at the population of Ashaiman (202996), it is not surprising the area has such a huge population. Majority of the youth, especially the males, are engaged in scrap metal picking making them somewhat economically independent. This kind of independence allows them the luxury of having girlfriends popularly called “jollies” in

the Ga language. Giving the fact that one needs not to spend much on accommodations, these boys rent accommodation with their jollies. This co-habitation has led to high teenage pregnancy in the area with a recent program organized at the municipality to curb teenage pregnancy. Also, another reason given for the large population size are that the area has become a hub for immigrants from other parts of the regions and neighboring countries such as Nigeria and Togo. Moreover, most young men only reside in the community because of the low cost of living in the area. This allows them to save enough money to live a better life when they move out of the area.

Projecting from the 2010 Population and Housing Census, the population of Ashaiman stood at 202,996 in 2012 with a growth rate of 3.1%. From the table below, it can be said that Ashaiman has quite a huge population. Below is the population distribution of the area.

**Table 2: Population Distribution by Age-group**

<b>TARGET AGE GROUP</b>	<b>TARGET POPULATION</b>	<b>% (POPULATION)</b>
Children 0 – 11 months	5684	2.8%
Children 12 – 23 months	4466	2.2%
Children 24 – 59 months	13398	6.6%
Children 5 – 14 months	44660	22%
WIFA 15 – 49years	60899	30%
Men 15 – 29 years	54809	27%
Men & Women 50 – 60 years	9338	4.6%
Men & Women 60 years+	1015	5%
<b>Total</b>	<b>202996</b>	<b>100</b>

**Source: Ashaiman Municipal Health Directorate**

#### **4.4 Housing**

As the researcher was touring the neighborhood, she nearly entered someone's bathroom. Given the nature of how the houses are built, finding your way out is a bit difficult especially if you are a new to the area. The houses are closely packed with meandering access routes. Almost all the houses are generally made out of wood which makes it difficult to distinguish ones bathroom from houses as the bathrooms are generally outside the place of residence. The bases of the houses are however made of cement with the roofing made out of zinc. A general observation of the houses revealed that the majority of the houses have open eaves. It is also however difficult to separate commercial trading premises from residential premises since all these activities take place either inside or in front of people's residential homes. However, in recent times few areas of well planned new residential facilities have emerged in the outskirts of the city

To the researcher's knowledge, Ashaiman had a well laid out infrastructure. However, due to the extreme pressure on housing which causes landlords to construct extensions to accommodate extra heads, there has been a drastic deterioration of the originally laid out infrastructure. This has given rise to the emergence of slums and semi-slum areas leading to congestion, overcrowding, large household sizes and other consequential diseases. Due to scarcity of land some houses have been constructed even on waterways creating severe flooding in some parts of the community. On the 19<sup>th</sup> of February, there was a publication in the Daily Graphic, page 26, stating there will be an upgrade of slums in Ashaiman.

## Power

Most parts of the district have electric power supply. However, in recent times, due to power fluctuation and power outages, the quality of health service delivery is being affected. Thus offices and organizations are procuring stand-by generators to address this issue. The picture below tells the kind of houses the residents live in.

**Picture 4: An aerial view of a section of Ashaiman**



**Date: 29<sup>th</sup> June, 2014**

#### **4.5 Educational Facilities**

Ashaiman is relatively endowed with a number of educational institutions both public and private including basic schools, technical/vocational schools, and second cycle institutions. There are fifty Public Basic schools, five Private Senior High schools, three Public Technical and Vocational schools, five Private Mission Schools and one Public Senior High Schools. Unlike their counterparts in most slums such as Sodom and Gomora, these schools are relatively well maintained with good structures.

Due to encroachment on the lands, there are few available places for recreational activities and other commercial activities. Vegetation cover has been reduced by the rapid expansion of housing projects. There are cinema halls and internet cafes, motels/brothels and hotels where young people hung out and this is where most of the prostitution business thrives. Also, due to rural-urban migration and the pull factor in Tema which has attracted immigrants from other neighboring countries, there is extreme pressure on the relatively few social amenities such as water supply, electricity, sanitation services, roads, markets, schools, housing, churches, mosques and health facilities (Ashaiman Health Directorate, 2012).

Water supply in the Municipality is moderately adequate compared with other districts in the country. The source of the community's water supply is the Kpone Water Works which is also the source of water supply for most homes in the Greater Accra Region. Households are served with safe and potable pipe-borne water. However, due to the pressure on these standing pipes and frequent shortage of water, most people store water in receptacles in their homes and they sometimes harvest rain in the rainy season and store them in containers and some in gallons popularly called "kuffour gallon". This makes them vulnerable to skin infections, diarrhoea and other intestinal diseases.

Like most homes and communities in the Greater Accra Region, water supply is not regular in Ashaiman. The people most of the time buys from water sellers who in turn buy from the tanker drivers. Other reasons cited for the shortage of water supply are the breakdown of pipelines (AMHD, 2012).

#### **4.6 Roads and Public Transport**

In assessing a countries development, roads and transports are part of the criteria. How good and accessible the roads are, can go a long way in the development of a nation. Roads and Transport are also important factors in determining health care delivery. For instance, one of the four “Ds” in the maternal mortality is delay in getting to the health facilities which is linked to poor roads which makes it difficult in getting to the health facility.

The Municipality has poor road infrastructure. There is only one major road that passes through the city centre. This makes movement from one end to the other very difficult. Due to the nature of the road which sometimes becomes difficult to ply during the rainy reason, some disgruntled youth mounted a road block, as a way in registering their anger towards the government, which resulted in a riot between the youth, station drivers and the police force which led to the arrest and detention of some of the youth last year. Other mini feeder roads can be found in the municipality but there are inadequate and usually lead to heavy human and vehicular traffic most times of the day. The Ashaiman Municipal Assembly is collaborating with an NGO (Urban Habitat II) to upgrade the Amui Djor (Tulaku) slum under TAMSUF.

**Picture 5: Abandoned road construction in Ashaiman**



**Date: 29<sup>th</sup> June, 2014**

#### **4.7 Environmental Sanitation**

A healthy mind resides in a healthy body and by extension, healthy people reside in a healthy community but this cannot be said of the people living in Ashaiman. Sanitation in the area remains a major public health problem. These include poor disposal of refuse, ineffective human waste disposal, and poor drainage and sewerage management. A survey of the area by the researcher reveals that approximately 99% of the household do not have private latrine. There are two public toilets in the area. The public toilet charges 20gh pesewas per person. Children are however allowed to ease themselves close to the house. The children feces are the thrown into the gutter or in some instance, "wrapped and thrown" that is the feces is wrapped in a polythene bag

and then thrown in a pile of garbage's or gutter. Below is a picture of the public toilet in the community.

**Picture 6: Pit latrine belonging to the community**



**Date: 29<sup>th</sup> June, 2014**

**Picture 7: Corridors of the public toilet**



**Date: 29<sup>th</sup> June, 2014**

According to the Ghana Statistical Service (2000), a fifth of households do not have access to any toilet facility in the country. Only 6% of households have flush toilets while 28% of households use Kumasi Ventilated Improved Pit Latrines (KVIPs). However, the most common form of toilet is the ordinary pit latrine and 38% of households use the common pit latrine. Also because of inadequate waste disposal bins, people normally dispose of their waste indiscriminately. It is common to see garbage along road sides, drainage systems and in people houses. The sanitation situation has been worsened with the introduction of food in polythene bags and the pure water sachets.

The final refuse disposal site for the Municipality is situated at Kpone in the Tema municipality. However, ineffective refuse collection has, over the years, resulted in the pile up of refuse in all areas in the Municipality. This provides ready breeding grounds for all types of vectors such as the mosquito parasite and ring worm. It is a common sight to find scavengers especially children at refuse dumps retrieving all sorts of items ranging from food to empty containers and clothing. Unavailability of public places of convenience compounded by the congestion in the Municipality has led to indiscriminate open space defecation.

The central sewerage system is choked, broken or leaking at many points giving rise to unpleasant smells and spilling of waste matter in many parts of the Municipality. The poor sanitation conditions in the Municipality foster the transmission of diseases such as Malaria, Tuberculosis, Diarrhoea and Skin Diseases and Schistosomiasis among others. It is also common in most parts of the slums to see people dispose of their waste during the rainy season. It is a period where they do not have to pay for disposing of

their waste as they throw the waste into the drains for the running water to carry it away. This practice, although relieves them of the burden of paying for the waste disposal, however turns to be a bane in the short term as it causes floods and the outbreak of diseases. Interventions have been made over the years to salvage the sanitation problem. These interventions have taken the forms of National policies and regulatory frameworks. The Revised Environmental Sanitation Policy however describes the persistent situation of lack of waste treatment as a “national crisis” (Konradsen, 2010).

**Picture 8: Choked drainage systems**



**Date: 29<sup>th</sup> June, 2014**

Three big commercial markets are located in Ashaiman Municipality. These markets serve as the bulk breaking points for goods and other farm produce for distribution to all parts of the Municipality and the surrounding districts. Although there are three markets, traders have however taken to the shoulders of the streets to do brisk business

thereby causing human as well as vehicular traffic congestion. Close to these markets are big lorry parks for easy transportation of goods to all parts of the country. The Ashaiman Municipal Assembly (ASHMA) coordinates the activities and programmes of the various Ministries, Departments and Agencies (MDAs) including Health, Social Welfare, Education and Sports, Agriculture, Roads and Highways, Youth and other utility services. Majority of the respondents in Ashaiman work as factory hands in big industries such as Unilever, Valco, Ghacem, Tema Oil Refinery, Tema Steel Works, GTP, Pioneer Food Cannery, Crocodile Maches and the Tema Fishing Harbour.

Ashaiman is also a vibrant commercial centre, thickly populated with several small scale artisan workshops which produce items like buckets, corn-mill funnels, cassava graters, grinders among others. The peripheral areas of the municipality are generally known for cattle ranching, poultry farming, piggery and other farm animals. Petty trading activities however constitute the main occupation of the city dwellers, most of them being women and mainly self-employed. Items traded in, include farm produce such as yam, cassava, maize, manufactured goods, provisions and hard ware for construction. Another important business that thrives well in the Municipality is the operation of private transport which is dominated mostly by men.

Despite these seemingly job opportunities, unemployment remains formidable force in the municipality. This is mainly due to the fact that people who migrate to Ashaiman appear to be lured by the perceived job opportunities offered by the large number of industries. However, in recent times these industries are usually fully staffed with no vacancies and even those that are in operation have closed down some of their plants due to harsh economic challenges e.g. VALCO laid some workers off due to the recent

economic crisis that hit the country. Many migrants, mostly the youth, therefore, remain unemployed or only intermittently employed for short periods and so they are financially disadvantaged. This has resulted in increased social vices such as prostitution, armed robbery; pick pocketing, child labour and general indulgence in high crime activities to survive. A greater proportion of young females are affected with the child labour menace compared to the males.

**Picture 9: Part of the market centre**



**Date: 29<sup>th</sup> June, 2014**

#### **4.8 Health**

In the Ashaiman community, there are quite a number of chemical shops and Herbal centers. A personal conversation with one of the respondents in the area revealed that it is more profitable to operate chemical shops in the slums as compared to more developed areas like Airport residential area. Reasons cited by him were that due to the nature of the environment which is the sanitation issues, people are bound to fall sick

everyday hence will be buying drugs every day. Also due to frequent scuffles between factions in the area, people are bound to be bruised and hurt thereby seeking medical care which means more money for the chemical dealers.

The Ashaiman Municipal Health Directorate (AMHD) is the highest Administrative Authority which represents the Ghana Health Service in the Municipality. It coordinates and plans the activities of the various health programs (all private health facilities including clinics, maternity homes and herbal centres) in the Municipality. Its major collaborators or stakeholders include the District Assembly, Ministries Departments and Agencies (MDAs) including, social welfare, education and sports, agriculture, roads and highways, youth and Faith based organizations. The Ashaiman Municipal Health Directorate (AMHD) reports directly to the Regional Health Directorate and the Ashaiman Municipal Assembly. Currently the municipality is divided into seven (7) sub-municipal areas for the purposes of planning and delivery of services; namely, Tsinaigber, Mantseman, Maamomo, AmuiJor, Gbemi, Nii Man and Blakpatsona. Six out of the seven sub-municipalities have no functional health facility.

The municipality has one Polyclinic. The Polyclinic provides quality of care delivery and National Health Insurance Scheme (NHIS) to the community members. The Tema General Hospital provides a wide range of health care services and it is the nearest referral hospital that serves both the Ashaiman municipality and its environs. With the introduction of the National Health insurance Scheme (NHIS) some of the citizens prefer to seek medical care directly at this hospital due to the broad range of services it provides. There are seventeen (17) registered private clinics, hospitals and maternity homes well spread in the municipality which supplements the efforts of the only public

health facility available. These private facilities also provide a wide range of services (theatre, scan, maternity etc.) that caters for the health needs of the community members, workers and their dependents. There are a number of drug stores which are located all over the municipality and this serves as the first point of call for most people seeking health care. Self-medication is therefore one of the major threats confronting the Municipal Health Directorate.

Some of the major health problems are as a result of urbanization. Urbanization is characterized by varying degrees of social, financial, psychological and physical health and related problems. Ashaiman, being mostly slum has heightened degrees of social vices which include high crime rates, drug abuse, prostitution, teenage pregnancy, streetism, child labour, high school dropout rate and substance abuse. Additionally, diseases such as STIs and HIV/AIDS infection are prevalent.

Poor environmental conditions, overcrowding and poor nutrition have also given rise to high incidence of tuberculosis, malaria, diarrhoea diseases, skin infections and malnutrition, among others. These factors coupled with the emergence of life style disease like mental health problems, hypertension, diabetes and road traffic accidents puts the Municipality in a stressful situation with a lot of challenges confronting the Municipal Health Directorate.

#### **4.9 Conclusion**

A profile of the area presents some of the difficulties and challenges faced by the residents of Ashaiman. These challenges include housing deficits, inadequate social amenities, poor drainage systems and inadequate waste disposal bins which in part encourage people to dump refuse and defecate indiscriminately, overcrowded houses

and health related problems. Given these challenges faced by the community, inhabitants are very dedicated, hard-working, and ready to support developmental efforts.

In the mist of all these difficulties and challenges, life in Ashiaman is very exciting especially during the night time. There is loud music which people dance to after the hard day's work. People in the community are very friendly and they go about their daily chores with smiles and laughter. With massive initiatives and support from all stakeholders both private organizations, NGOs, and other health partners, there will be a great transformation and improvement in the municipality towards a rapid socio-economic development for the reduction of urban poverty

## CHAPTER FIVE

### DATA COLLECTION AND APPROACHES

#### 5.0 Introduction

M' awuraba, w'amanieni fie ha?

My lady, what is your mission in this house?

(Auntie Maggie, a 65 year old woman)

Amid shyness and smiles, the researcher greeted the household and told them the purpose of her visit. Initially when the researcher told them she was researching on matters related to ITNs, they thought she was going to freely distribute ITNs again. The researcher then explained to them that she is a student and not from the Ashaiman Municipal Health Directorate. She told them the research was for academic purpose and that she will be grateful if they can spare a few minute of their time to help a student out. With this explanation, they agreed to answer the questionnaires.

The purpose of this chapter is describes procedures used to collect data for the study. Research in the social science covers a wide variety of topics and this is because research in social science represents a wide variety of disciplines such as psychology, sociology, political science, anthropology, and economics. Within the various disciplines, researchers can use a number of different methods to conduct research. These methods may include participant observation, case studies, interviews, focus groups, surveys, laboratory experiments, and field experiments. Despite the differences that exist in the methods used and the topics investigated, most social science researches share a number of common characteristics regardless of field, most research

involves an investigator gathering data and performing analyses to determine what the data mean <sup>1</sup>

For the purpose of unraveling research problems, there have been debates as to the most appropriate tool in conducting research. Whiles some scholar call for studying the problem from the perspective of the insiders (emic), others have called for distancing one's self from the study in order to be objective (etic). According to Spiers (2000), emic refers to a description of the phenomena as understood by the person under study while the etic perspective is used to describe phenomena as viewed by someone outside the experience. According to her, these two perspectives are not mutually exclusive. Also, according to Hennink et al., (2011), the concept of emic is closely linked with Max Weber's Verstehen. It provides information about the insider's perspective, his or her beliefs, perceptions, and meanings.

The emic perspective reflects the cultural meanings people attach to certain facts, experiences and events. The etic perspective on the other hand reflects the views expressed by the outsider, their opinions and beliefs. The emic and etic perspectives are also used in qualitative studies and thus relevant to my work. According to WHO and other concerned bodies like the Ashaiman Municipal Health Directorate, malaria is a disease which should be of concern to everybody because of its clinical manifestations, economic impact and other attendant problems. However, research has shown that majority of the people, especially, those in sub-Saharan Africa are more concerned about their daily survival and poverty rather than to think about protecting themselves from mosquitoes bite (Ng'ang'a et al. 2009).

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<sup>1</sup>SAS Institute Inc. 2003. *JMP Statistics and Graphics Guide*. Cary, NC: SAS Institute Inc.

Reports about the dangers of malaria are mostly presented by WHO, UNICEF, and Governmental Agencies such as the Ministry of health in endemic countries with very little input from the affected people. These agencies promote the use of insecticide treated net as a means of preventing malaria with very little or no consideration of the fact that , majority of the people are living in poor communities with poor housing types which may not be conducive when using the ITNs.

Another debate among the social sciences is whether social scientist can be objective in their studies. This brings out the objective versus subjectivity debate. Some founding fathers of sociology like Comte and Durkheim have advocated for the acceptance of sociology as a science in that the discipline follows the rules, methods and procedures of the natural sciences in the conduct of research. It is through the systematic collection of data that research problems can be unraveled. As a means of unraveling research problems, quantitative and qualitative researches are the most common type of research.

Although there are debates as to the appropriate research method, Creswell does not see the two types as polar opposites or dichotomies but should be viewed as different ends on a continuum (Creswell, 2009). Both quantitative and qualitative should not be viewed as mutually exclusive but rather as complementing each other. To bridge the gap between the two, mixed method is used. It employs both quantitative and qualitative methods (Creswell, 2009).

Quantitative research method is a means of testing objective theories by examining the relationships among variables while qualitative research method on the other hand aim at exploring and understanding the meaning individuals attach to a human problem (Creswell, 2009).

In view of the nature of the problem under study, that is, ITNs usage pattern, a triangulated method was used. This method was used in order to make up for the deficiencies in both research methods. This study involved the use of questionnaires with both close and open ended questions and an in-depth interview with personnel from the Ashaiman Municipal Health Directorate. The advantage of using both closed and open ended questions is that it allows respondents to answer on their own terms and also allows the researcher to discover unexpected things about the way people understand and interpret the problem under study (Gilbert, 2008). A qualitative method was also employed to better appreciate the views shared by the "outsider" that is officials at the Ashaiman Municipal Health Directorate who acts on behalf of the National Malaria Control Program and respondents, to gain an insight into the problem under study.

### **5.1 Initial Contact**

Entering into an unfamiliar community can pose a great problem, especially into a community where you do not hail from. The use of social network is thus useful in such instances. Ashaiman is a typical peri-urban area. Entry into the community was made possible by personnel at the Ashaiman Municipal Health Directorate (AMHD) and social ties with friends who assisted and gave guidelines as to how to interact with the people. Because of the fostered relationship between the AMHD personnel and the people, a native of the area offered to assist in getting the people to participate in the study. This made the entry to the community less cumbersome.

## **5.2 Study Design**

The study design provides the blue print in any investigation because it enables the researcher to come up with solutions to the problem being investigated. The study design also guides the researcher in the various stages of the research (Frankfort-Nachmias and Nachmias, 2007). In this study, the researcher used both quantitative and qualitative study, thus mixed methodological approach was used.

## **5.3 Sources of Data**

For sources of data, the researcher used both primary and secondary data. Primary data was obtained through field interviews and key informant at the Ashaiman municipal health directorate was interviewed. The secondary data was obtained by reviewing existing literature related to the problem under study such as books, journals, articles, data based documents and other relevant materials. Secondary data has a rich intellectual tradition in the social sciences. Secondary data are reliable and accurate and may help improve measurement by expanding the scope which gives new insight into the phenomena under study (Frankfort-Nachmias and Nachmias, 2007).

## **5.4 Population under study and Sample size**

Households with children less than five years of age were selected for the study. The rationale for selecting children under five was that, children are the most susceptible section of the population. Malaria is an endemic disease and affects most people in every part of the country especially the poorest section of society. Although the disease is endemic, some sections of the population, that is, children under five and pregnant women are more susceptible to the parasite than others. Although the distribution of the

ITNs has moved from target population to universal coverage, it was expected that at least households with children under five will be more protected.

Household was also necessary because the free distribution of the ITNs in the Ashaiman Municipality was done on the basis of households. A household is defined as a group of persons, who live together in the same house or compound and share the same catering arrangements. In general, a household consists of a man, his wife, children and some other relatives or a house help who may be living with them. However, it is important to remember that members of a household are not necessarily related (by blood or marriage) because nonrelatives (e.g. house helps) may form part of a household (GSS, 2010). This means that members of the household should eat from the same cooking pots, utensil and share the same house. Also visitors who have stayed for more than six months are considered household members according to GSS population and housing census. Inferring from the definition by the GSS a family which is not catered for as one unit do not form a household.

A total of 150 households with children under five were selected. The principle of saturation was applied in this study.

Although Ashaiman is a peri-urban area, the community turns to be homogenous in the sense that there are a lot of things which has characterized them as a group over a long period of time. Majority of the people are from lower socio-economic background which affects their world view and their perceptions about reality. Because of this, the principle of saturation was employed. Data gathering kept on repeating itself and so the researcher decided to select 150 respondents for the study. Because of the small nature of the sample size, the researcher does not aim to generalize her finding.

### **5.5 Sampling Procedure**

The sampling was purposive in nature and this is because, households with children under five were purposely selected to part take in the study. Because of the nature of the community and how clustered the area is, snow balling technique was used. The rationale for using this technique was to easily reach participants who met the predetermined criteria for participation. Using snow ball technique to access household with children under five was feasible because every mother of a child-under-five knows another mother with a child of the same age group in the community.

In this study, heads of households were selected to participate in the study but in the absence of the head of household, an adult member of the family, capable of providing the needed information was interviewed.

### **5.6 Method of Data Collection**

This study made use of both quantitative and qualitative research methods. The purpose for using both was to allow for triangulation of data so that the overall strength of the study is greater than either quantitative or qualitative research (Creswell and Plano, 2007 cited in Creswell, 2009).

To obtain data for the quantitative phase of the study, questionnaires were used. Background information about the respondents comprised their socio-demographic characteristics like their age, educational level, occupation, religion, sex, and their marital status. Also, major thematic areas of the objectives of the study were covered in the questionnaires. An average of 20 minutes was used in interviewing each respondent.

For the qualitative study, a key informant was selected at the Ashaiman Municipal Health Directorate. Since one of the objectives was to get the outsider perspective (etic), purposive sampling was used because the key informant was selected and deemed knowledgeable in the area of research (Kumekpor, 2002).

### **5.7 Data Collection Instrument**

The instruments for data collection were questionnaire and in-depth interview guide. The questionnaire comprised of open-ended and closed-ended questions and it was administered by the interviewer because majority of the people could not read nor write. In close ended questions, respondents were offered a set of answers and asked to choose the one that closely represent their views. The advantage with these techniques is that questions are easy to ask and quick to answer and it makes it easier when doing the analysis and it is straight forward. Respondent's socio-demographic characteristics were in the form of close-ended questions.

The disadvantage is that the researcher may introduce bias either by forcing the respondents to choose from a given alternatives or by offering the respondents alternatives that might not have otherwise come to mind (Frankfort-Nachmias and Nachmias, 2007; Kumekpor, 2002). Because of the bias, the researcher made sure to limit the number of close-ended questions and also, to allow respondents to specify other alternatives if they wish to do so.

On the other hand, open-ended questions are not followed by any kind of specific choices and the respondents' answers were recorded in the full (verbatim). Open-ended questions also encourage rapport. The disadvantage with this is that it makes the analysis a little bit difficult but if the analysis is well done, it enriches the data.

The household questionnaires were conducted in the Akan language because that is the common language spoken by the majority of the people. The few who could read and write preferred the researcher to fill the questionnaire for them. An in-depth interview with the key informant at the Health Directorate was conducted using a recorder and it was conducted in the English language.

### **5.8 Method of Data Analysis**

Data from the survey were processed using Statistical Package for Social Science (SPSS, Version 16). Data obtained from the field were first of all coded by assigning numbers to verbal responses such that the raw data was reorganized into a form easy for computation. In the case of the open ended questions, responses were grouped into one category till all possible categories were obtained to develop a nominal scale category for the variables under study. Data were then cleaned and edited to ensure that there was no wild coding, coding error and double entry. Tables have been used where appropriate in the presentation. Data obtained from the qualitative study were grouped into thematic areas and categorized with reference to the research objectives.

### **5.9 Ethical Consideration**

Issues relating to people's homes and especially their sleeping place are sensitive. Giving information as to how people organize their rooms which is supposed to be a private matter can be a delicate subject especially to an outsider like the researcher. Because of the sensitive nature of the problem under study, respondents who were willing to give the necessary information were considered and their anonymity was

assured. Also information from the field was treated with outmost care so that no one except for the researcher and supervisors had access to information.

Confidentiality was assured to all the respondents and respondents who at a point in time needed a break to think about whether or not to continue with the study were given the liberty to do so and to continue at their own free will.

### **5.10 Limitation**

The main limitation of the study was that, at some point, respondents were of the view that the researcher was going to give them some incentives. Upon realization that no incentives was in sight, some of them became reluctant in giving information and had to be assured that it was a personal research and funding was from researcher's own pocket. Once respondents understood the financial constraints facing the researcher who is a student, they accepted to participate for free.

Another limitation was the stress and fatigue which set in during some of the interview sessions. Some respondents, especially the mothers had to deal with catering for their children and at the same time respond to the questionnaires.

## CHAPTER SIX

### DATA PRESENTATION AND ANALYSIS

#### 6.0 Introduction

This chapter presents the interpretation of data obtained from the field. To capture the core objectives of this study, the socio-demographic characteristics of the respondents as well as their related illnesses are discussed so as to get an insight to their background and world view of the respondents.

#### 6.1 Socio-Demographic Characteristics of Respondents

##### Age

Maame [referring to the researcher] it will be difficult answering this question. I don't know my age. You look at me and guess my age.  
(Grandparent, estimated age: 70)

The above response (given by a respondent) is one of several (responses) given to the researcher. In some instances, questions on age were often met with shyness. Some respondents would like to reveal their actual age after household members have left. What the researcher noticed was that people's ages were shrouded in some kind of mystery, as if they have sworn an oath of secrecy not to reveal their actual age. Some linked their ages to events that happened in the country such as the day Ghana gained independence, the 1983 famine in Ghana and natural disasters. Based on this information, majority of the respondents' age were estimated. The data revealed that the average age of the respondents is 40 years, and ranging from 19 to 73 years old.

One important reason which accounts for the huge population is that Ashaiman is an industrial community and not a traditional one. According to some respondents in the community, they engage in brisk activities so as to save for the future. A casual observation of the area revealed able bodied youth engaged in burning of e-waste

materials, and scrap metals pickers. The females are engaged mostly in petty trading such as selling of cooked food and sachet water and this was captured in picture 9 showing parts of the market.

## **6.2 Sex Distribution**

The differences in the biological make up makes us males and females. However, in sociology, the differences that exist between the sexes are the gender roles; these are what differentiate one sex from the other.

In our traditional Ghanaian setting, men are seen as the head of the family and women are supposed to assist the man in keeping the home. Men are thus responsible for providing food, shelter and security for the household members. This therefore implies that the type of house the man is able to put up reflects his social status in the economic ladder in that society.

In line with the study, heads of households were interviewed. The sex distribution shows that males made up 74.0% of the respondents while females constituted 26.0%.

## **6.3 Level of Education**

Education is seen as key to empowering society, especially, female education. There is a popular saying by Kwagyir Aggrey, “If you educate a man, you educate one person but if you educate a woman, you educate a whole nation”.

The data revealed that 32.2% of heads of household and 38.3% of spouses has no formal education. The two groups, to some extent, can be described as illiterate in the sense that they can neither read nor write the English and local language.

Also, 50.3% and 47.7% of heads of households and spouses respectively had some form of formal education but at the primary level. To some extent, the two groups are able to speak English language fairly well.

**Table 3: Educational level of the household heads and spouses**

Educational level	household heads		spouses	
	Frequency	Percent	Frequency	Percent
No Formal education	48	32.2	49	38.3
Primary	75	50.3	61	47.7
JHS	14	9.4	9	7.0
Secondary/Vocational	8	5.4	7	5.5
Tertiary	4	2.7	2	1.6
Total	149	100.0	128	100.0

Madam scholar [referring to the researcher] me too I go school before. I can write for you if you want me to. The time I go to school, they no born you yet (starts to laugh). I complete school class five (Fatau, 40 year old man).

The data collected also revealed that heads of households have a higher form of education compared to the spouse. This can be likened to our traditional Ghanaian setting where the male children are preferred over females when it comes to education.

Madam, do you have children? One of the respondents asked. I replied by saying no. He then said, ahh!!! Are you going to go to school all your life? Won't you stop schooling and give birth? You are a woman ooo. The man can decide to give birth at 70 but you women have expiring dates.

(Dauda, 35 year old man)

One of the many responsibilities of women in the traditional Ghanaian setting is to give birth. Therefore, when a woman attains higher level of education, she is regarded as not a complete woman until she gets married and gives birth. The female child's place is seen at the kitchen and whatever level of education the woman will attain, she will end up in the kitchen.

In terms of occupation, majority of the respondents are self-employed. The men are predominantly engaged in sales and scrap metal picking while the women are engaged in petty trading.

**Table 4: Occupational Level of Respondents**

<b>Occupation of the head of the household and spouses</b>				
<b>Occupation</b>	<b>household heads</b>		<b>spouses</b>	
	Frequency	Percent	Frequency	Percent
Public (Formal)	7	4.7	7	5.6
Private (Formal)	15	10.1	9	7.1
own business (Informal)	116	78.4	97	77.0
Family business (Informal)	9	6.1	11	8.7
Unemployed	1	.7	2	1.6
Total	148	100.0	126	100.0

Source: Field survey, 2014

#### **6.4 Religion**

It is necessary to discuss the religious life of the study area. According to Durkheim, society is the source of religion. In his study of the Australian Aborigines, he found out that religion is the society's own creation. The Aborigines define certain things as their totems and come to revere them as such. These totems serve as unifying objects to the people and it is society that distinguishes between things that are profane (realm of everyday activities) and things that are sacred (set apart and revered). These distinctions exist only because society gives them these attributes and are united by these common symbols (Ritzer, 2012). By extension, Durkheim's study among the aborigines, can be related to Ghana as a nation. The Coat of Arm and the national flag can be said to be the totem of Ghanaians. During 2014 World Cup tournaments, what

distinguishes Ghana from the others is the national flag which the people identify themselves with and are united as one people.

The religious life of people can give us an insight into their world view and how they perceive things. People's health seeking behaviors as well as their preventive measures are not only explained using the biomedical factors but also shrouded in the supernatural as well especially things related to their health and wellbeing. A study conducted by Ahorlu (2005), suggested that respondents did not only attribute malaria to mosquitoes but to supernatural factors as well, hence they sought spiritual help.

Data from the field show that majority of the respondents (50.3%) are Muslims, followed by Christians which constituted 44.9%. Traditionalist and other religions constituted 3.4% and 1.4% of the respondents respectively.

Having dealt with the Socio-Demographic Characteristics of the respondents, attention was drawn to the related illnesses in the houses. The Socio-Demographic Characteristics was necessary in order to relate how their socio-demographic background affects their health and their approach to diseases. The recognition that socio-economic and cultural factors are prime determinants of health is thus important.

### **6.5 Illnesses in the Household**

Yebirem ha die, yari a etai ha yena ne malaria

(In our part of the world, our commonest disease is malaria)

(Popular saying)

The opening statement is however not surprising to the researcher. Malaria is known to be tropical disease this is because the parasites thrive well in the tropics.

This section discusses some of the common illnesses in the community, households and by extension, the nation. Some of the preventive measures used by the respondents as well as their knowledge about the disease are discussed. Also, some of their preventive measures are investigated.

In this area, mosquitoes don't bite at night again. You see them [mosquitoes] even in the mornings and afternoons. It just gets worse in the evening. They bite at all times that is why people often get sick in this community especially children who do not have any knowledge about mosquitoes.

(Fatima, 32 year old woman)

The statement above confirms a study conducted by Briet and Chitnis (2013). The use of the ITNs may change the biting behavior of the malaria parasite from biting in the evenings to early evening of the day when people are outside the sleeping place and not protected by the ITNs. This will therefore make the use of the ITNs not an effective preventive measure.

The prevalence of the malaria parasite was also captured in phrases such as “lots of mosquitoes around”, “plenty mosquitoes and “you see mosquitoes every day” by the majority of the respondents in the course of the interview. This accounts shows that malaria high in the community.

In finding out some of the common illnesses in the household, it was revealed that 89.9% of respondents mentioned malaria as a common illness in the household followed by diarrhea and cholera with 8.7% and 1.3% respectively. As discussed in chapter four, majority of the respondents do not have toilets and bathrooms in the households. Queuing in long lines during the day and at night at the public toilets and bathhouses exposes them to the malaria parasite. In this scenario, the people are

infected with the disease before retiring to bed. This therefore increases the susceptibility and the prevalence rate of malaria in the community.

In addition, majority of respondents have knowledge about the causative agents of the malaria parasite which is in contrast to a study conducted by Ahorlu (2005) in the Volta region of Ghana, where respondents attribute other things such as standing in the sun or eating too much sweet as some of the causative factors of malaria. This is due to the educational campaigns that have been carried out nationwide about the causative agents of malaria. This educational campaign has employed both formal and informal education in order to reach people at all levels. This confirms Adongo et al.'s (2005) study of how community's knowledge affects the use of ITNs and control of malaria

Also, according to the research findings 83.8% of the respondents said children in the house hold were mostly affected with malaria whereas 9.6% said both young and old are affected with malaria. Moreover 6.6% of the respondents said pregnant women are the most affected. From the data analyzed, although the majority of respondents cited children as the most vulnerable, reasons given why children are the most vulnerable included phrases such as "because they are children", "they cannot protect themselves" and "they go to places that are unhealthy exposing them to mosquitoes".

Their blood is not thick enough compared to the adults says one woman when she was interviewed on reasons why children were the most affect (Auntie Esi, 45 year old woman)

Furthermore, the research findings reveal that, majority of the respondents (42.9%) goes to drug stores when one suspects that a member of the household has malaria. This treatment is popularly known as "over the counter" .Whereas 33.3% of respondent use the hospital and clinic as a first point of call when they suspect that a member have

malaria. Meanwhile, 17.0% use home based treatment, whereas 6.8% seeks treatment from a local healer.

Since the data above reveal that the majority of respondents engage in self-medication, that is why Home Management of Malaria (HMM) has been incorporated into current treatment of malaria by mothers and care givers (Ajayi et al. 2008: Tiono et al. 2008).

## **6.6 Conclusion**

The analysis of the socio-demographic characteristics of the respondents generally reveals their low level of education. Also from the data, it has been realized that the relationship between the mosquito parasite and malaria has been clearly understood by the people. However, much education is needed to elaborate on the reasons children and pregnant women are the most affected. Also, the data revealed that over the counter treatment is highly patronized by the respondents.

## CHAPTER SEVEN

### HOUSING STRUCTURES AND THE USE OF INSECTICIDE TREATED NETS

#### 7.0 Introduction

#### Picture 10: One of the wooden house structures



**Date: 29<sup>th</sup> June, 2014**

Some of the highlights in this chapter discusses how house structure affect the use of the Insecticide Treated Nets. It is important to draw parallels in this regard and to see the extent to which this holds true. The use of the Insecticide Treated Nets as a tool in the controlling and elimination of malaria is an important tool. For this to be achieved, it demands that the Insecticide Treated Nets should be used appropriately and correctly. To achieve this, it demands that there should be a suitable place to hang the bed nets, the room should be well ventilated in order to ensure the continued usage of the bed

nets. This chapter therefore seek to highlight the effect of the house structure on the use of the bed nets.

### **7.1 Type of Materials used in Building the Houses**

Questions were asked concerning the type of house the respondents occupy. The data revealed that the majority of the respondents 82.0% live in houses made out of wooden structures whereas cement house constituted 13.3%. Brick and mud houses constituted 4.0%, and 0.7% respectively. The wooden houses however have the base of the house cemented. This, according to them, is to ensure the durability of the house, although there are different types of houses, the wooden structures are more as compared to the other structures. Below are the types of houses.

#### **Picture 11: Types of House Materials**

##### **Cement House**



### Wooden House



### Semi Wooden and Cemented house



**Date: 29<sup>th</sup> June, 2014**

Reasons cited for the wooden nature of houses were that because it is not a permanent place and they will leave at any time, there is no need to occupy permanent houses such

as houses made out of cement or bricks which are expensive as compared to the wooden houses. Also house tenure system is short term because of the threat of evacuation, does not permit landlords and residents to invest in the houses and the environment at large. Moreover, because residents do not plan on staying for a longer period, houses are built with smaller rooms where a man and wife and children have to share. In such small rooms, how are the household able to use the treated bed nets?

Also according to Paller (2012), non-recognition of slum communities is perhaps the biggest barrier to socio-economic development of slums. Without security of tenure, communities cannot receive public services and residents live in constant fear of forced eviction, making it difficult for them to invest in their neighborhoods. Also lack of land security also creates incentives for opportunistic leaders to exploit informality, leading to the persistence of slums. Moreover, most houses do not have toilet facilities. Households have to make use of the public toilet in the neighborhood as well as public bathrooms. Below is a picture of the public bathhouse (Paller, 2012).

As observed by one discussant, in the early mornings, there is a mud rush at the public toilets. This is captured in the vignette below:

You should have been here yesterday morning [referring to the researcher]. An elderly man nearly disgraced himself. When he came, there was a long cue no one was ready to allow him go first because all of us were eager to go to toilet. Unfortunately for the man, he was suffering from running stomach too. The next thing we know, the man started throwing bombs (farting) here and there and couldn't stand still so we had to plead with the first person in the cue to allow the man go.

(Isaac, 29 year old man)

In such as densely populated area with limited toilet facilities, people are forced to defecate in open area and into polythene bags and other cans then dump those into the

gutter. The study also revealed that there is a decreased motivation in the usage of the bed nets. Data from the field shows that, majority of the respondents (65.8%) are not using the ITNs while 34.2% of the respondents are still using the ITNs. Some of the reasons cited for not using the ITNs were that the room was too hot and using the ITNs was not practical in such conditions. This is captured in a short vignette below:

On 30<sup>th</sup> May, 2014, the researcher embarked on her field data collection. Upon entering one household, she met one of the respondents who happened to be a class mate of hers in junior secondary school.<sup>2</sup> He was happy to see the researcher furthering her education. He saw me as a friend rather than a researcher. I told him my purpose for coming to the area and offered to assist me. He showed me the ITNs which was given to him during the free distribution, wrapped in polythene and demonstrated how the personnel's hanged the net for him. He told me the net already had hooks on them. He explained hanging the net was difficult given the small size of the room. He also explained that the suitcases in the room had to be rearranged in order to nail the net on the wall at the back of the suitcases.

He explained that, sleeping in the net the first day made him feel uneasy, he was sweating profusely and had to take the net down. As a result, his younger brother does not get to sleep under the bed net. He said the nature of the house makes the room warm during the day and at night. The ceiling gets heated and the open eaves allow sun rays in to the room. Sleeping under the net with his household is like sleeping in an oven.

From the study, it can be said that house structure in a way influence the use of the ITNs. This study has an implication on any future malaria intervention. If houses are

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<sup>2</sup> Junior secondary school is equivalent to British system of junior high school

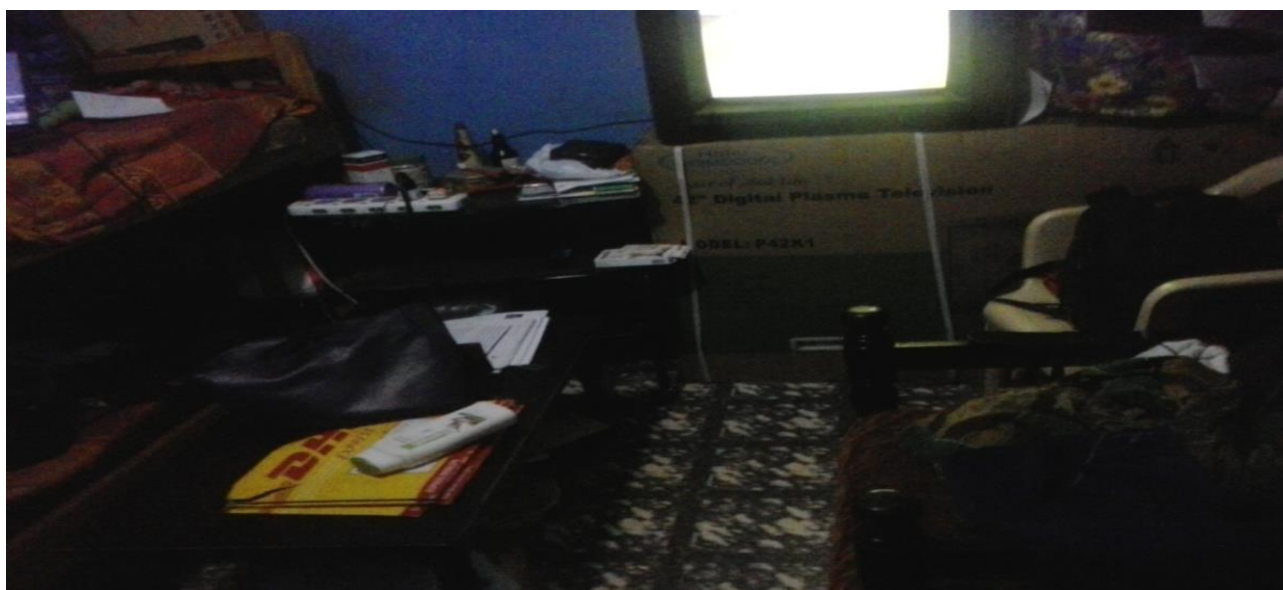
improved and ceilings are modified, it can in a long run, improve upon the malaria situation in the suburb.

## **7.2 House Arrangements**

On the question on whether the household experience any difficulty in hanging the bed nets based on the structure of the houses, data from the field also revealed that the difficulty in using the net was however not due to the wooden nature of the house but the size of the rooms and how things are arranged in the room. The way things are arranged in the house, in a way influence the use of the bed nets. In such houses with few rooms and little space, arrangements in the room in the day are different from the way the room is arranged at night.

In the picture below, during the night, the center table and the plastic chair have to be placed on the chair. This is to enable the children spread the mat on the floor. The inconvenience of having to hang the bed nets at night and bringing it down in the morning because of how things are arrangement in the room by day and night hampers the use of the bed nets.

**Picture 12: House Arrangement**



**Date: 28<sup>th</sup> June, 2014**

This inconvenience is also captured in the discussions with Maame Faustie below:

Maame Faustie, 36 year old woman with six children and husband. Two of the children are below the age of 5. They live in a single room. The room is about 1.4square km. The room serves as their sleeping place as well their kitchen, living room and store room. During the day time, the room is arranged to make room for the furniture. During the night, the furniture is removed placed outside the room, the utensils and suitcases are also re arranged to make room so that the mat can be spread on the floor so they can sleep. This single room serves as a multipurpose room, hanging the net will take the already small size of the room. They prefer to use the mosquito coil which does not consume space and can be put under the table.

The two scenarios above therefore defeats the purpose of the free distribution of the bed nets which to protect vulnerable groups that is children under five. The challenge in

using the net is not only dependent on the perceived severity of the disease but other factors such as size of the room.

According to the research findings 80.3% of the respondents encounter difficulties hanging the ITNs, while 19.7% did not have difficulty in hanging the ITNs. Results here presented agreed with the bulk of the literature. Toe et al. (2009) agrees that the functional organization of the houses which changes by day and night affects the use of the ITNs. This also confirms a study conducted by Iwashita et al. (2010). According to them, the unavailability of a suitable place to hang the ITNs will influence the use of the technology.

Also, a study conducted in Western Kenya confirms that modified ceiling provided better protection for the entire family than the mosquito net which protects an individual sleeping in it (Atieli et al. 2009).

Konradsen et al. (2003) who argued that malaria is greater among inhabitants in the poorest type of houses. These houses have open eaves, cracked walls and temporary structures which confirms the findings of this study.

### **7.3 Sleeping Arrangements and the Use of the Insecticide Treated Nets**

In 2012, the National Malaria Control Program in collaboration with the Ashaiman Municipal Health Directorate embarked on a free distribution of Insecticide Treated Mosquito Nets. The

NMCP were of the view that it's due to poverty that is why there is high prevalence of malaria in the country because they cannot afford to protect themselves from the malaria parasite.

An interview with the personnel at the Ashaiman Municipal Health Directorate revealed that sleeping arrangements made the usage of the net difficult. During the interview she explained that since the majority of the people share the same sleeping room with parents and children, if any member of the family does not feel like sleeping under the net, the whole family has to forfeit sleeping under the net that day. As part of the condition for distributing the nets, household members have to describe to the personnel's their sleeping arrangements. The ITNs are given to households based on their sleeping arrangements. She also explains that although the ITNs should be given on the basis of the number of people in the household, generally, fewer nets were given out as compared to the number of households. She gave an instance where household members were six. Under the free distribution system, the household should be given three nets but due to their sleeping arrangements, only one net was given out to the household.

She goes further to explain that they had to rearrange the sleeping arrangements of the respondents in order to accommodate the use of the net. This rearrangement to her was welcomed by some of the people while others objected to arrangements vehemently.

**Picture 13: Sleeping Arrangements****A****B****C****D**

The pictures above are interior part of one of the respondent's room. Picture A is where the husband, wife and 3 year old daughter sleep. Picture B is the foot of the bed where the remaining three children sleep. Picture C shows how suitcases and other clothes are packed in the room. Picture D on the other hand shows where the utensils, television and the fan are placed. It can be seen in picture C the water marks on the wall of the

wooden structure indicating leakages in the house. Looking at the nature of the room above how is the household able to use the Insecticide Treated Nets and to protect the children?

Findings from this present study shows that the majority of the respondents' constituting 78.0% share the same sleeping rooms with the children while 10.0% of the respondents have separate sleeping rooms for the children whereas 5.3% said male and female children have separate rooms and 4.0% said younger children share same room with parents whereas 2.7% said that each child has his/her own room.

Regarding the number of children below five years in a household, the data revealed that respondents representing 43.1% have children below five years while 39.6% have two children below five years old whereas 11.8% have three children below the ages of five, followed by 5.6% of the respondents with four children below five years in a household.

Since the data revealed that the most affected members of the household were children, it was expected that household members will continue to use the net to protect the children. However, it can be inferred from the data that due to the sleeping arrangements and size of the rooms, which inhibit the use of the ITNs, children below five do not get to sleep under the treated nets. This finding agrees with the study conducted in Kenya. The study revealed that sleeping arrangements may make the attempt to use the ITNs difficult especially in houses with fewer rooms (Iwashita et al. 2010). Also, Alaii et al. (2003) in their study in Kenya revealed that one of the factors which inhibit the use of the ITNs is that it disrupted sleeping arrangements.

#### **7.4 Conclusion**

Results from the study have revealed that the primary protection of malaria by using treated bed net is not for the under-fives, which contradicts the objectives pursued by the National Malaria Control Program.

One will also wonder whether the use of the treated nets is the solution to the malaria problem faced by the inhabitants in the community. Given the kind of houses they live in and how these houses influence their sleeping arrangements, it questions the essence of the treated bed nets. The researcher is of the view that the free distribution is a mismatched policy on the part of the National Malaria Control Program as results from the study show that beyond the efficacy of the treated bed nets, usage of the tool depends on how conducive the net will be for the people.

## CHAPTER EIGHT

### SLEEPING MATERIALS AND THE USE OF INSECTICIDE TREATED NETS

#### 8.0 Introduction

An adequate amount of sleep is an important indicator of health and well-being in children and adolescents. Having an adequate sleep is defined as 6 to 8 hours per night regularly. This is a critical factor in adolescent health and health-related behaviors. However, this study is of the view that using the bed net to some extent, dependent on the kind of sleeping material one uses. Thus this study further sought inquiry into the types of sleeping material respondents use and how these influence the use of the ITNs.

#### 8.1 Types of sleeping materials

Results from the field revealed that majority 56.7% of the respondents are using raffia mats as sleeping materials; 42.0% use wooden beds, and 1.3% sleep on the floor. Most of the respondents, 56.7%, disagree that sleeping materials influence the use of the Insecticide Treated Net (ITN) whereas 43.3% agree that sleeping materials influence the use of the Insecticide Treated Net (ITN).

Using the net is not dependent on the kind of material one sleeps on. Even if the rich sleeps on a bed and the poor sleeps on the floor, both of them can use the net. So far as you are determined to protect yourself against malaria, sleeping materials shouldn't be a problem.  
(Akwesi, 32 year old man)

When the malaria people brought the net, they showed us how to use it even if you are sleeping outside. All you need is to tuck it under the mat or bed unless you are somebody who likes rolling from one end to the other end. Both the mat and the bed support the use of the ITNs.  
(Abiba, 22 year old girl)

There is however few or no available literature relation to sleeping materials and its influence in the use of the Insecticide Treated bed nets. Results from the study so far shows that the use of the Insecticide Treated Bed Nets is not influenced by the kind of

sleeping material one uses. The majority of the respondents did not experience any difficulty in using the net.

## **8.2 Malaria Preventive Strategies of Households**

In the previous chapters, the housing structures, sleeping arrangements and sleeping materials of the respondents were analyzed and discussed. Inasmuch as the house structure, sleeping arrangements and sleeping materials of the respondents are discussed, it has become imperative to outline factors beyond the above mentioned to include some of their malaria preventive strategies. Also in the last two decades, social scientists have been included in malaria control strategies which hitherto were not the case. There was the need for considerable effort in understanding how human behavior and social world views affects responses to malaria treatments. Advances in malaria-related social, behavioral, economics, sociology, epidemiology, health systems and policy research have resulted in improvement in the design and implementation of malaria prevention, management and control.

The advances made in the social sciences in seen in interventions drawn not only from the biomedical aspect but also from the social science aspect (Mwenesi, 2003). Gessler et al. (1997) also allude to the fact that prior malaria intervention programs which relegated the behavioral and social aspects of the people were doomed to fail. It is therefore important to take into account people's health treating seeking behavior apart from the biomedical aspect.

## **8.3 Treatment seeking Behavior**

As for me because of the wee and cigarette I smoke, the mosquitoes cannot give me malaria. I have never suffered from malaria. You should try it [referring to the researcher]. For my wife and kid, they use the mosquito nets. I don't like the net, I feel as if am lying in a coffin.  
(Karim, 26 year young man, AmuiDjor)

The mosquito net is not the only malaria preventive tool. You can use things like orange peels and incense. The smoke from them drives away the witches that bring the malaria especially in children  
(Grandparent, estimated age, 65)

According to this study, it is assumed that every household member had a treated bed nets during the free distribution in 2012. It is also assumed that all the bed nets were treated. However, questions were asked as to whether prior to the free distribution, household members were willing to purchase a treated bed nets for themselves. The data revealed that 75% of the respondents were not willing to pay for the treated bed nets whereas 35% were willing to pay for the treated bed nets but if they have enough money. Further inquiry as to why they were not willing to pay for the treated bed net was that, the mosquito net is not the only available and important tool in preventing malaria.

Long before mosquito nets were distributed freely to us, we were using other methods which are equally good and is conducive for us given the nature of our houses and rooms. I have been using the mosquito coil since since.....

(Olivia, estimated age, 38 year old woman)

Respondents who were willing to pay for the treated bed nets cited poverty as a barrier in the use of the treated bed nets. They were calling for another round of the free distribution so as to acquire one for themselves.

Although it has been widely accepted by the respondents that the ITNs are useful in the control and elimination of malaria, however, due to factors such as house structure and sleeping arrangements which inhibits the use of the ITNs, people have resort to other methods which to them, offers the same protection just as the ITNs.

The study revealed the majority of the respondents' constituting 79.9% were using mosquito coil before and after the advent of the free distribution of the ITNs ;7.6%

were using orange peels and 5.6% use mosquito spray. Further investigation revealed that the majority of the respondents prefer the coil to the spray. They cited coils to be more effective because of the smoke that comes out of the coil, easily kills the mosquitoes and also consume less space compared to the ITNs.

When questions were asked as to whether the coil is not harmful to the children, majority of the respondents 80%, said it was safe and 15% think it is not safe for the children. Also when the children are of age, they will resort to other preventive measures such as mosquito spray.

If you want to use the mosquito coil when you are having little children in the house, you light the coil around 4:00 to 5:00 clock. By that time, the smoke would have killed all the mosquitoes, and then you can retire to bed.

(Aunties Aggie, estimated age, 37 year old woman)

When the mosquito coil is burned, the insecticide evaporate with the smoke which prevents the mosquito from entering the room but according to Heggenhougen et al. (2003), this mechanism is only effective so long as the coil keeps burning but then, offers no protection when the smoke is out and people are asleep. Also, Liu et al. (2003) are of the view that long term exposure of the smoke from the mosquito coil can induce asthma and persistent wheeze in children. However, despite the fact that the mosquito coil can lead to an adverse health problem, it is widely used in the developing countries. Although quite a few people were of the view that the mosquito coil can pose adverse health effects, that is the only preventive measure they can afford since the treated bed nets deprive them of their sleep. This is captured in the vignette below:

I live with my husband and two grandchildren. My husband says he does not like the net because of the smell and the net also makes him feel warm. Because of that, all of us don't use the net. Instead, he lights two coils, one at the other side of his head and the other, at the side of his head then covers himself with

his heavy cloth (Kuntu). The next day, I and my grandchildren will be coughing including him. I advised him we should use the net but he says no. I wish he was around so you can explain to him some of the dangers of mosquito coil.

(Grand parent, 70 years)

This data from the field confirms studies conducted by Wiseman et al. (2006). According to them, households would rather spend on other less costly preventive tools such as mosquito coils and sprays rather than the ITNs. According to the households, the large upfront money to purchase the net is expensive. However, according to Wiseman, after two months, many of these households will have spent approximately US\$ 5.00 on the other preventive measures which is equivalent to purchasing the ITNs. Other literature also confirms that poor households will rather spend on less costly preventive tools than pay for the ITNs (Macintyre et al., 2002; Heggenhougen et al., 2003).

#### **8.4 Conclusion**

Peoples health seeking behavior is enshrined in their world view which is influenced by their cultural practices and these have implication for their malaria preventive strategies. People adopt treatment measures that are relevant and suitable to their current conditions. Although majority of the households had access to the ITNs at one point in time during the free distribution in 2012, respondents still stacked to the other forms of malaria preventive strategies such as the use of coils and burning of orange peels. This was because the use of the ITNs was not practical and relevant in their situation.

Data from the study also revealed that using the ITNs take large part of the already small room. They would rather use the mosquito coil which can be tucked under a table or use the burnt peel which they place at the entrance of the room to drive away the mosquitoes.

## CHAPTER NINE

### CONCLUSION AND RECOMMENDATIONS

#### 9.0 Introduction

Malaria related issues have assumed center stage both national and international. Although there have been grand breaks in the fight against malaria, it still persists and it is more serious in the Sub-Saharan regions. In Ghana, malaria accounts for the loss of about 10.6% Disability Adjusted Life Years and an annual loss of 6% of the country's Gross Domestic products. Given the burden, there have been interventions such as the prevention of malaria through Intermittent Preventive Treatment for pregnant women (IPTp), Indoor Residual Spray and Insecticide Treated Nets which is seen as the quickest and cheapest means to prevent malaria. Despite the benefits of using the ITNs, there are factors which hinder the use of the bed nets which less attention have been given to. In the previous chapters, it has been shown the importance in understanding how house structures affect the use of the Insecticide Treated Bed Nets.

This study focused on one community. Ashaiman is located within the South- Eastern part of Ghana and about four kilometers at the Northern part of Tema. Residents in the area are predominantly engaged in petty trading, scrap metal picking and private transport business. The area is a typical peri-urban. The aim of the study is to examine the influence of house structure and the use of ITNs of the people of Ashaiman. More specifically, the study is to identify and describe their sleeping arrangement and materials and its influence on the use of the ITNs. Also, their malaria preventive strategies prior to the free distribution were explored. The ultimate goal of this study is to provide from the perspective of the community members their preventive strategies.

Empirical works done by other scholars were reviewed in order to buttress the findings of this study. Also, the study draws on the Health Belief Model theory and Rational

Choice Theory in order to elicit on the other hand factors that influence the acceptance of any health intervention programs such as the free distribution of the Insecticide Treated Nets in the elimination of malaria. The theory revealed that malaria interventions programs should take into account individual's perceptions, environmental factors and the perceived benefit of the interventions before rolling out large scale intervention programs such as the free distribution of the treated bed nets.

Major finding from the study revealed that malaria is prevalent in the community. This however is not surprising as malaria is ranked number one among the top ten diseases in the country. However, due to environmental factors such as poor sanitation, the people are more susceptible to the malaria parasite as compared to their counterparts in a more developed and well-planned areas. The nature of environment serves as breeding grounds for the malaria parasite.

Although children were seen as the most vulnerable group, their reasons are not enshrined in biomedical explanations.

Also the study revealed that use of the treated bed net was not influenced by poverty alone as perceived by the officials from the National Malaria Control Program as reported during the interview. Other factors such as house structure, that is to say the materials use in building the house to some extent, influence the use of the treated bed nets. Data from the study revealed that because of the nature of the houses, with open eave and the type of ceiling allows the room to be hot during most of the day thereby hampering the use of the treated bed nets. Majority of the houses are made out of wood and is because, members of the community do not plan on settling in the area for a longer period and so there is low motivation to invest in the houses. This also accounts for the lack of toilets and bathrooms facilities in the households. In view of the above

housing structures, community members have stopped using the treated bed nets and resort to their own preventive measures.

The study also revealed that sleeping arrangement hamper the use of the treated nets especially houses with fewer rooms. Majority of households occupy single rooms. These single rooms serve as their bed room, living room and kitchen at the same time. This influence the way rooms are arranged during the day and nights. At nights, furniture's and utensils have to be rearranged to make room for a place to sleep. The difficulty of having to hang the net at nights and bringing it down in the morning make it stressful for households to use the treated nets at all times. Members of the community are of the view that the treated bed nets may alter their sleeping arrangements. According to them, unlike the mosquito nets, the other preventive tool such as the mosquito coils and sprays does not consume space in the room. The mosquito coil can be place under a table or at the entrance of the house. Inasmuch as the community members have knowledge about the benefits of using the treated bed nets, the sleeping arrangements served as a barrier to the use of the Insecticide Treated Nets.

As part of the objectives of this study, the study sought to enquire into the types of sleeping materials used by the respondents. Data from the study revealed that the majority of the respondents use raffia mats. However, the usage of the raffia mat as sleeping materials does not influence the use of the treated bed nets.

In the analyses of the preventive measures used by the respondents, the data revealed that mosquito coil was preferred by the respondents. Although the respondents expressed that the treated bed nets is better than the mosquito coil, for now, they will

prefer to use the coil until such time they can afford a decent accommodation with more than one room.

## **9.1 RECOMMENDATIONS**

Since malaria is a deadly disease and millions of dollars are being pumped into fighting the disease, implication of the findings from this study is important within the context of the study area and beyond the scope of this study. The inability of members in the community to use the Insecticide Treated Nets is not only dependent on the availability of the bed nets but whether people's houses or the nature of houses can accommodate the use of the net. This must be taken into accounts in designing malaria control using insecticide treated net as a strategy.

Also, agencies in charge of the malaria control programs such as the National Malaria Control Program, Ministry of Health and the Ghana Health Service should not naively assume that because the ITNs is good preventive tool, people will automatically use them. Malaria control programs should be community driven and community specific. This will ensure the usage of the malaria control tool. It will also reduce wastage.

In chapter four, it was realized that the nature of the environment serves as a good breeding grounds for the malaria parasite and other infectious disease. Frequent collection of garbage's and proper disposal of waste will go a long way in curbing the menace posed by the malaria parasite.

Furthermore, the town and country planning agencies should take necessary steps in decongesting the area as overcrowding are some of the factors leading to the deficit in housing. This in a long run forces people to live in slums which increase their susceptibility to various infectious diseases such as malaria.

Inasmuch as the government has a role to play in curbing the malaria burden, the chunk of responsibility also lies with the individuals residing in the community. Members or Individuals in the community can contribute in the fight against malaria by keeping their environment clean. This can be achieved by distilling choked gutters and proper disposal of waste and eliminating others factors which serves as a breeding grounds for the mosquitoes.

A healthy people resides in a healthy nation.

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**APPENDIX A**  
**UNIVERSITY OF GHANA**  
**DEPARTMENT OF SOCIOLOGY**

**QUESTIONNAIRE**

I am an MPhil student at the University of Ghana conducting a research on the topic “**INSECTICIDE TREATED BED NET USAGE PATTERN IN ASHAIMAN COMMUNITY IN GHANA**”. I will be grateful if you could spend some time to respond to these questions. The data will be used for academic purposes only. Anonymity will be ensured and confidentiality will be kept. Thank you.

Tick [ ] or fill in as appropriate.

**SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS**

Head of household: Male [ ] Female [ ]

Age of head of household

Educational level of the household head: No Formal education [ ] Primary [ ]

Secondary / Vocational [ ] Tertiary [ ]

Educational level of the spouse: No Formal education [ ] Primary [ ] Secondary /

Vocational [ ] Tertiary [ ]

Occupation of the head of the household: public [ ] private [ ] own business [ ]

Family business [ ]

Occupation of the spouse: public [ ] private [ ] own business [ ] Family business [ ]

Religion: Christianity [ ] Moslem [ ] Traditionalist [ ] If others please  
specify.....

### **SECTION B: RELATED ILLNESSES IN THE HOUSEHOLD**

1. What are some of the common illnesses in the household? Malaria [ ], Diarrhea [ ], Cholera [ ], Typhoid [ ], Tuberculosis [ ], Tetanus [ ], Chicken pox [ ], Yellow fever [ ], Measles [ ], others,  
specify.....
2. Which of the illnesses mentioned above is the most common in the household?  
If malaria is not mentioned, prompt it.
3. Is malaria a major problem in the household? Yes [ ], No [ ]  
If Yes, Why  
.....
4. What do you normally do first when you suspect a member of the household has malaria? Home based treatment [ ], Local healer [ ], Over the counter [ ], Hospital/ clinic [ ]
5. Who are the most affected in the household?
6. Why do you think the group mentioned above is the most affected?  
.....  
.....  
.....
7. How can malaria be prevented?  
.....  
.....

8. What measures have you put in place to prevent malaria? Explain

.....

..

### **SECTION C: HOUSE STRUCTURE AND THE USE OF THE ITNs**

9. What type of housing structure does the household occupy?

Probe further as to why they occupy that house structure?

10. Does the material used in building the house influence the choice of using the ITNs? Explain

11. Did you experience any difficulty in hanging the net based on the kind of house structure? Explain

12. How does the size of the room influence the use of the ITNs? Explain.

### **SECTION D: INFORMATION ON SLEEPING ARRANGEMENTS OF RESPONDENTS**

13. How many people are there in the household? .....

14. How many children are there in the household?.....

15. How many of the children are below 5 years? .....

16. How many rooms does the household occupy?.....

17. How many sleeping rooms does the household occupy? .....

18. Can you explain your sleeping arrangements?

19. Explain how the sleeping arrangement influence the use of the ITNs?.....

20. Does the number of people in the household influence the use of the ITNs?

.....  
 .....

### **SECTION E: INFORMATION ON SLEEPING MATERIALS**

21. Which type of sleeping materials does the household use?

22. How do the sleeping materials influence the use of the ITNs? Yes [ ] No [ ].

If No,

Explain.....

.....

23. Does the household experience any difficulty in using the ITNs because of the sleeping materials?

Explain.....

### **SECTION F: INFORMATION ON THE USE OF THE ITNs AND OTHER PREVENTIVE MEASURES OF THE RESPONDENTS**

24. Does/did the household own a bed net? YES [ ] NO [ ]

25. If yes, is/was the net treated? YES [ ] NO [ ].

26. How did you hear about ITNs? Television [ ], Radio [ ], Community head [ ],

Health officials [ ], others,

specify.....

27. How did you acquire the ITNs?

28. Purchase [ ] Free Distribution [ ] Borrowed [ ] Voucher Scheme [ ] Antenatal Care [ ]

29. How many ITNs do/did the household own?

.....

30. Is the ITNs being used up to date? Yes [  ] No [  ]. If

No.....

why?.....

.....Dont answer question 7 if question 6 is NO.

31. How many ITNs are used in the household?

32. What are/were some of your reasons for using the ITNs?

33. Which members of the household use/used the ITNs? .....

34. Why does the group mentioned above use/used the

ITNs?.....

.....

.....

35. Is/was the ITNs used at all times? Yes [  ], No [  ].

If No

why?.....

36. What was your source of information on the free distribution of the

ITNs?Television [  ], Radio [  ], Community head [  ], Health officials [  ],

others, specify .....

37. Prior to the free distribution, what were some of the preventive measures you

used?.....

.....

.....

38. Prior to the free distribution, were you willing to purchase ITNs for members of

your

household?.....

..... If No,

why?.....

.

39. What other preventive measures are you using after the free distribution of the ITNs?

40. Is the other preventive measure safe for the children?.....

41. In what ways has the ITNs proven to be useful?

.....  
.....  
.....

42. Any comments or contribution?

.....

## APPENDIX B

### INTERVIEW GUIDE

1. Position in the organization.....
2. How long have you been in this organization?
3. What are some of the common illnesses in this Municipality?
4. Do you consider malaria a major health problem in this Municipality? If yes why if now why not?
5. What were some of the preventive measures the directorate came up with prior to the free distribution of the ITNs?
6. In your opinion, what are some of the benefits of using the ITNs?
7. What influenced the free distribution of the ITNs?
8. In your opinion, what are some of the domestic factors hindering the use of the ITNs?
9. Has the free distribution increased the use of ITNs in the community?
10. How was the distribution done? Was it according to the number of people in the household or the fixed number given to each household?
11. What informed your decision to change your strategy of giving the ITNs out freely to households to the "hang up" exercise?
12. Has the free distribution of the ITNs decrease the malaria incidence in the community?
13. Has there been a follow up exercise to ensure the continued use of the ITNs?
14. Did your staff experience any difficulty in hanging the ITNs?
15. Did the sleeping arrangements influence the use of the ITNs?
16. Do the number of people in a household influence the use of the ITNs?
17. Did the materials used in building the house influence the use of the ITNs?
18. Any comments or suggestion?