
NetsforLife Malaria Prevention Programme

**End of Phase II
Evaluation Report**

May 2013

LIST OF ABBREVIATIONS

ANC	Antenatal Clinic
ACT	Artemisinin-based Combination Therapy
CBPs	Community-Based Providers
DHMT	District Health Management Team
FGD	Focus Group Discussion
IPT	Intermittent Preventive Treatment
ITNs	Insecticide Treated Nets
LLIN	Long Lasting Insecticide Treated Nets
MCAAs	Malaria Control Agents
MCH	Maternal Child Health
MDGs)	Millennium Development Goals
MOHS	Ministry of Health and Sanitation
NGOs	Non-Governmental Organisations
NMCP	National Malaria Control Programme
PHU	Peripheral Health Unit
SPSS	Statistical Package for Social Scientists
SSIs	Semi-Structured Interviews
UMCOR	United Methodist Committee on Relief
UN HDI	United Nations Human Development Index
UNICEF	United Nations Children’s Fund
VDC	Village Development Committee
VVHCs	Village Health Committees
YKK	YaKpukumuKrim

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Executive Summary

Implementation Context and Evaluation Purpose: Sierra Leone's population of 5.7 million resides in a region that is endemic to malaria. The disease accounts for about half of all outpatient visits (48%). Under-five children are more affected by malaria in Sierra Leone, accounting for one in every four under-five deaths. The signed up to specific targets to accomplish by 2015 in the area of combating malaria related morbidity and mortality. There is evidence that the country has made some progress in delivering on the main performance indicators for combating malaria, including the use of insecticide treated nets (ITNs) and availability of more effective anti-malaria treatment, such as the Artemisinin-based Combination Therapy.

NetsforLife® is a malaria prevention programme under the Episcopal Relief & Development, which is the development wing of the Episcopal Church of the United States of America. The programme is a unique partnership that brings together corporations and foundations in the fight against malaria in 17 countries in sub-Saharan Africa. In Sierra Leone, the programme is managed by the Anglican Diocese of Bo. NetsforLife Sierra Leone programme started in 2009 and in November 2010, the programme joined in the one week Integrated Maternal and Child Health Campaign, which also included a mass LLIN distribution project. To date the Sierra Leone NetsforLife® programme has distributed over 507,000 LLINs and trained over 6,400 Malaria Control Agents. The Phase II evaluation was intended to assess the extent to which the project's objectives and its contribution to the goal of reducing malaria related morbidity and mortality in Bo and Pujehun districts were achieved.

Overview of the Methodology: An evaluation framework was developed at the inception of the study, to define the scope and focus of data collection. Household survey elicited the relevant quantitative information while semi-structured interview and focus group discussion were administered to gather qualitative data. A total sample of 155 households in seven chiefdoms and 23 PHU catchment areas in Bo and Pujehun districts participated in the survey, with respondents recruited from pregnant women, mothers of under-five children and caregivers/grannies. Qualitative data was conducted through focus group discussion with community representatives, semi-structured interviews with NetsforLife programme staff and representatives from the district health management teams in Bo and Pujehun. Data was gathered by 5 enumerators over a six-day period. Statistical package for social scientists (SPSS) was used to enter and analyze the survey data.

Key findings- the following results highlight the key findings of the evaluation:

On relevance of the intervention: the programme has contributed to filling demand for mosquito nets on the population. In the FGD with community representatives in Tobanda, YKK, for example, participants emphasized that the first bed net distribution in 2009, by the Anglican Church, marked the turning point in the availability and usage of bed nets in their community. It was also obvious from discussions with community representatives that people do recognize that the distribution and use of the mosquito net has contributed to the declining malaria cases and malaria related deaths, particularly among under-five children.

On Role of the NetsforLife in combating malaria morbidity and mortality: the programme was able to make a reasonable contribution to the stock of LLINs available in both districts, during the Phase II cycle. In Bo district, it supplied boarding schools, prison, private clinics and hospitals not particularly targeted during the MCH Week. The programme further organized training for distribution volunteers in procedures for targeting households, hanging nets and monitoring usage. NetsforLife staff also supported the DHMT in monitoring supervision of the mass distribution programme.

Accomplishment of Key NetsforLife Outcome Indicators: The programme has also contributed to improving the knowledge of the population on a range of issues pertaining to malaria control. For example, mosquito bite was widely reported as the mode of transmitting the disease. Stagnant water bodies, including water trapped in drainages, empty tins and open wells, were the most recognized

breeding site for mosquitoes, as reported by nearly two-third of respondents-64.6%. The use of bed nets was the most popular method known to respondents, for the prevention of malaria.

Use of LLINs and mosquito nets in households- Only 58% of the sampled households reported owning two or more LLINs. Sampled households in Pujehun district outperformed those in Bo district. More than 80% of households with a pregnant woman had at least two LLINs in use; while the percentage of households that reported a similar quantity of LLINs for under-five children was 58%. Some 89.2% and 85.9% of pregnant women and under-fives, respectively, reportedly slept under a bed net the night before the survey. For the rest of the other sub-groups of the household population, only about two in three (i.e. 67.2%) of them slept with protection from bed net the previous night to the survey.

On access to Anti-Malaria Treatment for Pregnant Women and Under-Five Children: nearly two-third-65.5% of pregnant women received the required minimum of two SP/Fansidar doses from a health facility for intermittent prevent treatment purposes. About 56% of the sampled households confirmed that at least one under-five child in their household was sick with fever in the two-week period to data collection.

Challenges and Gaps in Implementation

- The annual budget that has been made available to the implementation team so often makes it difficult for the team to fully implement activities and achieve optimal results.
- The volunteer scheme (referred to as malaria control agents) became less effective after the mass distribution exercise in 2010, because of poor motivation and gaps in coordinating this component of the programme.
- There is a poorly developed market and in fact lack of price incentives for the retail sector to supply mosquito nets to prospective customers. Government and NGOs freely are distributing the product, which means the price is artificially kept very low, to inadvertently discourage private sector participation.

Prospects for Sustaining Project Achievements

In terms of opportunities, it appears that local communities are highly aware of the transmission pathway of the disease; they also know what measures they could take to control the vector population and beyond that mosquito bite. Some committees, like the one in Semebehun 17 in Tikonko chiefdom established and now enforces a bye-law of compulsory cleaning exercises in the community every last Saturday of the month. NetsforLife is represented at the district taskforce for malaria control in both districts which also means it will continue to exercise some degree of leverage on decisions to combat the disease in the district, even though the agenda is usually set by the NMCP.

Despite these opportunities, the greatest challenge to usage of mosquito nets over the long term certainly comes from a poorly developed retail market for bed nets, precisely because the market price is severely suppressed by huge inflows and free distribution to households.

Key Recommendations and Potential Focus Areas for the Next Phase

- To strengthen community-based structures to promote changes in behaviour and practices
- To strengthen the Capacity of NMCP in sensitization and monitoring activities
- To reviewing programme scope, especially after mass distribution activities
- The need to start lobbying government to undertake discrete actions to promote private sector participation in the importation and trading of mosquito nets

Summary Accomplishment of Key NetsforLife Outcome Indicators

Domain	Indicator #	Indicator	Results (end of programme evaluation)
Use of bed nets	1	Proportion of Households with at least two LLINs	58.1%
	2	Proportion of households with a pregnant woman with at least two LLINs	86.5%
	3	Proportion of households with a child under five with at least two LLINs	58.0%
	4	Proportion of population of all ages who slept under LLIN the previous night	67.2%
	5	Proportion of pregnant women who slept under LLIN the previous night	89.2%
	6	Proportion of children under five who slept under LLIN the previous night	85.9%
Access to anti-malaria treatment for pregnant women and under-five children	7	Proportion of women who have received two or more doses of IPT during their last pregnancy in the last 2 years	65.5%
	8	Proportion of (Household with) children under 5 years old with fever in the last two weeks who received treatment with ACTs within 24 hours of onset of fever	29.9%
Knowledge on casues, transmission mode, health consequences, preventive measures and treatment of malaria	9	Proportion of target audience who know/believe mosquitoes cause malaria	85.8%
	10	Proportion of target audience who know/believe malaria is serious, can be fatal	96.8%
	11	Proportion of target audience who know/believe children under 5 and pregnant women are most vulnerable	97.8% for under-five children
			27.1% for pregnant women
	12	Proportion of target audience who know/believe you can prevent malaria in your home	100.0%
	13	Proportion of target audience who know four cardinal sign/symptoms of mild or uncomplicated malaria	64.1%
	14	Proportion of target audience who know where mosquitoes breed	64.6%
	15	Proportion of target audience who know/believe there is an effective treatment for malaria	Not assessed
	16	Proportion of target population/caregivers who know the recommended medicine/drug for treating malaria	42.6%
17	Proportion of target population who know at least 2 methods of preventing malaria	64.5%	

1. Implementation Context and Evaluation Purpose

1.1 Country Context

1.1.1 Overview of Malaria Situation in Sierra Leone

Sierra Leone's population of 5.7 million resides in a region that is endemic to malaria. Overall, the country has poor development indicators, usually ranking very low in human development ranking¹. Average life expectancy in 2010 was 47 years, based on the United Nations Human Development Index (UN HDI) estimate. Although infant and under-five mortality have improved since the millennium development goals (MDGs) were declared in 1990, country level data continue to indicate that under-five mortality in Sierra Leone is among the highest in the World². Infant mortality rate has declined from 162 deaths per thousand infants in 1990 to 114 deaths per thousand in 2010, representing about 30% decline in infant deaths. Similarly, under-five mortality dropped from 276 deaths per thousand in 1990 to 174 per thousand, about 36% decline in under-five deaths³.

Amidst the progress, malaria remains a major public health issue, putting considerable demand on the scarce human and financial resources available to the primary health care system, as well as undermining the wellbeing and financial position of poor households. The disease accounts for about half of all outpatient visits (48%). Under-five children are more affected by malaria in Sierra Leone, accounting for one in every four under-five deaths⁴. This mortality pattern bears particular implication for the country and the health system, bearing in mind that about 17.1% of the population⁵ is below the age of five.

1.1.2 Country Response to Malaria

Within the framework of the MDGs, Sierra Leone has signed up to specific targets to accomplish by 2015 in the area of combating malaria related morbidity and mortality. Although MDG monitoring data indicates that malaria related targets will likely not be achieved, there is evidence at the same time that the country has made some progress in delivering on the main performance indicators for combating malaria, including the use of insecticide treated nets (ITNs) and availability of more effective anti-malaria treatment, such as the Artemisinin-based Combination Therapy (ACT)⁶.

AS reported by various national health surveys (*See Figure 1 below*), the percentage of under-five children and pregnant women with access to preventive (i.e. use of bed nets), prophylactic (i.e. SP/fansider) and curative (i.e. ACT) options have increased, particularly since 2005.

¹The United Nations Human Development Index (HDI), ranked Sierra Leone at 158 out of 169 in 2010 and 180 out of 187 countries and territories in 2011 on a composite index of key development index including health, education, etc.

² See Sierra Leone Country Brief, Published by the World Health Organization (2009). Available at: [http://www.who.int/countryfocus_WHO/DGR/CCO/09.03/Sierra Leone](http://www.who.int/countryfocus_WHO/DGR/CCO/09.03/Sierra%20Leone)

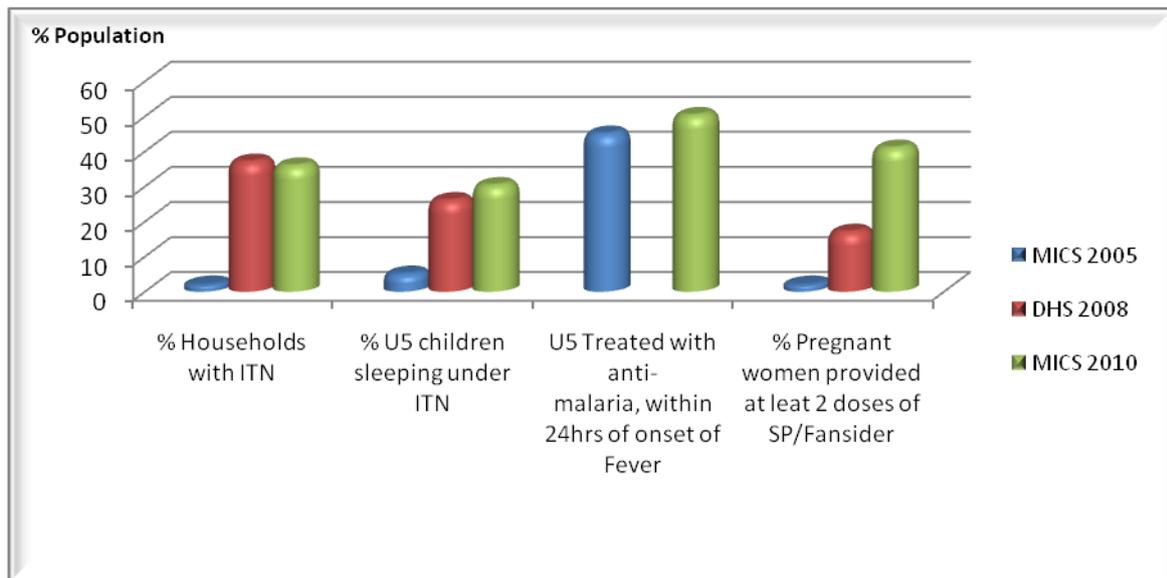
³ Comparative data published by Unicef; available at: http://www.unicef.org/infobycountry/sierraleone_statistics.html

⁴ WHO Country Brief (2009)

⁵ *Statistics Sierra Leone (2004)* in Sierra Leone Malaria Control Strategic Plan (2011-2015)

⁶ See Millennium Development Goal Progress Report for Sierra Leone (2010)- published by the Government of Sierra Leone

Figure 1: Progress in Key Malaria Control Indicators for Under-Fives and Pregnant Women, 2005-2010.



Progress in the fight against malaria has been driven by commitment from both the Government of Sierra Leone and the donor community. The government has established the National Malaria Control Programme (NMCP) to mobilize resources and coordinate the implementation of malaria control initiatives in the public health system, while keeping oversight of activities implemented by NGOs and other stakeholders outside the public sector. A national malaria control strategic plan has been developed to guide the implementation of malaria control activities over the period 2011-2015. The plan outlines multi-tier approach to combating the disease, including the prioritization of integrated vector management-i.e. the use of long lasting insecticide-treated nets (LLINs) and in-door residual spraying, and community case management.

1.2 Evaluation Purpose

1.2.1 The NetsforLife Programme

NetsforLife® is a malaria prevention programme under the Episcopal Relief & Development, which is the development wing of the Episcopal Church of the United States of America. The programme is a unique partnership that brings together corporations and foundations in the fight against malaria in 17 countries in sub-Saharan Africa. In Sierra Leone, the programme is managed by the Anglican Diocese of Bo. NetsforLife Sierra Leone programme started in 2009 with the primary aim of contributing to a reduction in malaria related morbidity and mortality, with the specific objectives of: a) increasing knowledge and improving practices on malaria prevention and management; and b) increasing coverage of LLINs in the two districts. The programme has thus worked closely with the National Malaria Control Programme and the Ministry of Health in Sierra Leone in this direction.

Since 2009 to date, the Anglican Diocese of Bo has implemented NetsforLife activities to support malaria control in the entire Bo district and three chiefdoms in Pujehun district (Mano Sakrim, YaKpukumuKrim and KpangaKrim). In November 2010, the programme joined in the one week Integrated Maternal and Child Health Campaign, which also included a mass LLIN distribution project. In the Bo district of Sierra Leone, the LLIN campaign was

successfully implemented in collaboration with the Bo District Health Management Team (DHMT) and UMCOR while in Pujehun the programme collaborated with the Pujehun DHMT.

To date the Sierra Leone NetsforLife® program has distributed over 507,000 LLINs, trained over 6,400 Malaria Control Agents (MCAs)⁷ and reached over 3 million people with malaria messages in the current Phase II of the project. MCAs also conducted follow up on beneficiaries to ensure consistent and correct usage and the proper care for the nets as well as sensitized them on malaria.

12.2 Purpose of the Evaluation

The Phase II evaluation was intended to assess the extent to which the project's objectives and its contribution to the goal of reducing malaria related morbidity and mortality in Bo and Pujehun districts were achieved. Specific evaluation objectives included:

- To assess the progress on achievement of the project objectives;
- To determine the performance of the programme with regards to its 17 outcome indicators;
- To assess the role and technical capacity of NetsforLife in supporting/contributing to the reduction of malaria related morbidity and mortality;
- To identify gaps, barriers and constraints in implementation of the project, and provide recommendations for consideration;
- To recommend appropriate changes in programme approach, management process and structure to position the program for the next phase; and
- To assess sustainability of programme benefits, including the assessment of existing structures to sustain and expand activities and maintain results.

The evaluation mission further responded to key questions:

A. What difference did the project make to people's lives?

1. To what degree did the project outputs result in the desired outcomes (i.e. contributed to a reduction in malaria related morbidity and mortality) for different population groups?
2. Are those changes (outcomes) relevant to people's needs; are they likely to be sustained over time?

B. How has the project made this difference?

1. How has the project bridged the gap between malaria knowledge and practice? Has it been effective in bringing about lasting change?
2. What has been the most effective methodologies and approaches used by the organization, to bring about change to people's lives? What has worked and what has not worked so well?

⁷ MCAs refer to volunteers recruited and trained for mass LLINs distribution during the MCH campaign.

2. Overview of Evaluation Methodology

2.1 Evaluation Framework

An evaluation framework was developed at the inception of the study, to define the scope and focus of data collection. It outlined the relevant research parameters and issues under each specific objective; sources of primary data; and data collection methods. Details of the issues explored under each objective are summarized below.

Objective 1- To assess the progress on achievement of the project objectives: This domain assessed the performance of the intervention with regards to the 17 core outcome indicators. Both quantitative (survey) and qualitative data collection methods (focus group discussion and semi-structured interviews) were utilized to elicit data for this objective. Data was sourced from households in the sampled communities, NetsforLife programme staff and the DHMT in Bo and Pujehun.

Objective 2- To assess the role and technical capacity of NetsforLife in supporting/contributing to the reduction of malaria related morbidity and mortality: this objective assessed varying dimensions relating to project management. The functions of the project team were explored, with particular consideration given to the coordination of NetsforLife activities with other stakeholders in malaria control in the two districts.

Objective 3- To identify gaps, barriers and constraints in implementation of the project and provide recommendations for consideration: there was a focus on exploring the constraints to the accomplishments of some project targets for this domain. Particular attention was given to understanding gaps in collaborations with agencies that were also implementing bed net interventions, supply side constraints, as well as community attitude to the use of bed nets. It was also important to explore challenges with the volunteer⁸ scheme, given the critical role that was envisaged for volunteers in the distribution and follow-up phase.

Objective 4- To recommend appropriate changes in the programme approach, management process and structure to position the program for the next phase: there was a focus on synthesizing lessons from the main evaluation findings as input into designing the next phase of the programme. The issue of programme sustainability was also assessed under this objective.

2.2 Sampling

Separate sampling procedures were used to collect qualitative and quantitative data. Household survey elicited the relevant quantitative information while semi-structured interview and focus group discussion were administered to gather qualitative data. Detailed sampling process for each of the collection methods is outlined below.

⁸ This refers to the Malaria Control Agents

2.2.1 Sampling Design for the Household Survey

A total sample of 155 households participated in the survey. Multi-stage sampling procedure was applied to select the survey sites and household respondents; the procedure is summarized below:

- At the first stage, the 18 chiefdoms (15 in Bo and 3 in Pujehun districts) were categorized into high, moderate and low prevalent areas, based on under-five malaria morbidity computed for the second half 2012. This data was obtained from the district Bo health management team (DHMT).
- At the second stage, data was collected from 23 PHU catchment areas, selected on a random basis. 19 PHU catchments were selected in Bo district while four (4) were chosen in Pujehun district; altogether, survey data was collected in 23 localities in the two districts.
- The third stage entailed the distribution of samples to chiefdoms and PHU catchments, with data collection sites divided between PHU community⁹ and remote community in the catchment area¹⁰.
- In the fourth and final stage, one respondent was randomly selected from one household in a dwelling unit¹¹. Three categories of respondents were eligible for the household interviews: a) pregnant women; b) under-five caregiver/granny; and c) under-five mother.

The final distribution of samples to chiefdoms is indicated in Table 1 below:

Table 1: Locations and Number of Samples for the Beneficiary Survey

District	Sampled Chiefdom	# of Respondents Sampled
Bo	Badjia	20
	Baoma	25
	Bumpeh-Gao	25
	Selenga	20
	Tikonko	25
Pujehun	KpangaKrim	20
	YaKpukumumKrim (YKK)	20
Total		155

2.2.2 Sampling Design for the Qualitative Data

Three FGDs were conducted with residents in three separate communities. Each session brought together a mixed group of community residents, including community leaders, pregnant women and mothers of under-five children and other adults. Three semi-

⁹ This refers to the community that hosts the PHU.

¹⁰ Remote sites are communities with limited road access; they do not host a health facility of its own, but access health care services from a PHU in the catchment.

¹¹ Random selection was done to select one household at dwelling units with multiple households

structured interviews (SSIs) were also conducted- one SSI was conducted with the Development Officer of the NetsforLife programme while two separate interviews were held with the DHMT in Bo and Pujehun. The DHMT sessions brought together health personnel with adequate insight into the malaria situation and malaria control initiatives in the district. In the two districts, the focal person for NMCP and the district monitoring and evaluation officer were interviewed together, using the SSIs¹².

2.3 Tool Development

Five (5) separate tools were prepared for the collection of quantitative and qualitative data, although three (3) tools were utilized in the end. Each tool is briefly summarized under the relevant data collection method.

Quantitative Tool- a structured questionnaire was obtained from the NetsforLife programme; few questions were added to the questionnaire, before it was used for the household survey. As already indicated, the respondent group included pregnant women, mothers of under-five children and caregivers/grannies. The tool constituted 31 questions plus a household observation checklist at the end. Questions were organized into six (6) sections, as follows:

- **Section A**- collected data on respondent/household profile, including age, household size, as well as the number of pregnant women and under-five children.
- **Section B**- explored respondents' knowledge and perceptions on key malaria subjects, ranging from modes of transmission, cardinal signs of the disease, possible health outcomes of delayed treatment, preventive measures and recommended drugs for treating malaria episode.
- **In Section C**- household measures to prevent mosquito bites were investigated, with particular focus on assessing how much protection was offered to pregnant women and under-five children. Among others, questions were asked on availability and usage of mosquito nets and LLINs in particular, number of under-fives and pregnant women present in the household who slept under a mosquito net, the night before the data collection; observations were also carried out by enumerators to verify sleeping spaces with hanging nets, in the respondent's household.
- **Section D**- elicited information on malaria control education accessed by the respondent in the past six months, including the source of information.
- **Section E**- explored health seeking behaviour practiced for under-five children, during a suspected malaria attack. Fever was used as the main condition signaling onset of malaria attack; respondents were therefore asked whether an under-five living in the household was ill in the two-week period leading to the survey, what drug was given to treat the condition, and how long it took for treatment to be administered.

¹² SSIs are usually held with one person, but the consultant adapted the session into a group discussion, to obtain perspectives on malaria control measures from more than one DHMT representative.

- Section F- contained a checklist of questions to assess the vulnerability of the household environment in providing the breeding sites to mosquito. Questions were asked on observations for empty boxes, pools of standing water, un-kept wells, etc.

Qualitative Tools- three separate tools were used to gather data in this domain.

- In-depth interview guide for NetsforLife Programme Staff- this topic guide contained 19 questions, which explored the following themes: a) project background and implementation approach; b) management and financing arrangement; project achievements; c) implementation challenges; and e) recommendations for improving similar programmes in future programme cycles.
- Semi-structured interview guide for implementing partners- this guide was administered to the DHMT in Bo and Pujehun. The tool explored their perspective on the malaria situation and progress in efforts to combat the disease in their respective districts, collaboration with the NetsforLife programme, perspective on actions to sustain access to mosquito nets over the long haul, among other questions.
- Focus Group Discussion Guide- this tool was to elicit the experience and perceptions of community representatives on several issues pertaining to the programme and malaria control initiatives. questions were organized under the following themes: a) knowledge and relevance of the NetsforLife intervention; b) usage of bed nets; c) local actions to control malaria; d) health seeking behaviour for treatment of fever and malaria; and e) general suggestions to improve malaria control initiatives.

2.4 Data Collection and Management

Five (5) experienced enumerators were hired to collect data in 6 days in the seven (7) chiefdoms. One-day training was organized for the enumerators, to take them through the tools and the data collection process. The enumerators were then allocated to gather data in specific chiefdoms.

A database was established in Statistical Package for Social Scientists (SPSS) to enter the quantitative data. Data entry operators were trained and assigned the responsibility of capturing the data. After entry, the data was cleaned to resolve inconsistencies. The cleaned data set was subsequently analyzed in SPSS to generate the relevant tables for the report.

SSIs and FGDs interviews were analyzed into relevant themes, which were aligned to the purpose and objectives of the evaluation.

3 Findings of the Evaluation

Layout of Findings

Altogether, the findings section is divided into 5 sub-sections, including:

Section 3.1 presents information on key demographic profile of respondents and household.

Section 3.2 report findings on the relevance of the intervention, including the contribution of the programme in filling gaps in household demand for mosquito nets as well as gaps in NMCP's programme

In Section 3.3, Assessment of the Role of NetsforLife Programme in Malaria Control is reported, including NetsforLife contribution to stock of LLINs in Bo and Pujehun districts, support to the mass distribution of LLINs during the MCH Week, post-distribution follow up and sensitization, etc.

Section 3.4 findings on the accomplishment of Key netsforlife Outcome Indicators- i.e. Knowledge on control of malaria, usage of long lasting insecticide-treated nets (LLINs), and access to Anti-Malaria Treatment for Pregnant Women and Under-Five Children

Section 3.5 presents gaps and challenges in programme implementation

3.1 Demographic Characteristics of Respondents

A total of 155 households participated in the household survey. Questionnaires were administered to representatives in the sampled households in seven (7) chiefdoms- i.e. five in Bo and two in Pujehun district. Table 2 below presents the relevant respondent and household (HH) demographic data.

Table 2: Key Profile of Survey Participants

Respondent & Household Profile		District and Chiefdom (# of Households)							Sub-Total
		Bo					Pujehun		
		Badjia (HH=20)	Baoma (HH=25)	Bumpeh -Gao (HH=25)	Selenga (H=20)	Tikonko (HH=25)	Kpanga Krim (HH=20)	YKK (HH=20)	
<i>Average Age of Respondents (Years)</i>		27	32	27	25	28	36	32	
<i>Respondent Type (#)</i>	Under-Five Mother	10	15	20	19	20	11	12	107
	Caretaker/ Granny	6	3	0	1	1	3	3	17
	Pregnant Woman	4	7	5	0	4	6	5	31
<i>Household Population (#)</i>	# of Under-Five Children	36	47	42	40	58	29	46	298

Respondent & Household Profile		District and Chiefdom (# of Households)							Sub-Total
		Bo					Pujehun		
		Badjia (HH=20)	Baoma (HH=25)	Bumpeh -Gao (HH=25)	Selenga (H=20)	Tikonko (HH=25)	Kpanga Krim (HH=20)	YKK (HH=20)	
# of Pregnant Women	1	8	7	2	7	6	6	37	
Total Household Population	144	165	175	130	197	123	163	1097	
Average Household Population	7	7	7	7	8	6	8		

From Table 2, the average age of respondents indicate that women interviewed were mostly in the childbearing age, with a much younger sample recruited in Selenga chiefdom (respondent mean age of 25 years) compared to women recruited in KpangaKrim (mean age of 36 years). Overall, the majority of respondents (69%) were mothers of children below five years.

Table 2 further reveals that a total of 1,097 individuals lived in the 155 households sampled for the survey. About 27% of this population was under-five children while 3.4% were pregnant women. The mean household size varied between six and persons across chiefdoms.

3.2 Relevance of the Intervention

Two important parameters were explored in this evaluation to determine the relevance of the intervention. First, it was significant to assess how much the intervention contributed to fulfilling household demand for mosquito nets. The second dimension then assessed specific gaps filled in malaria control programme implemented by the Ministry of Health and Sanitation. Findings to both dimensions are reported below.

3.2.1. Contribution to Filing Demand for Mosquito Nets in the Population

The use of Mosquito nets has prevailed in Sierra Leone over a long period. However, the proportion of households that used bed nets, before the mass distribution in 2010 was very low, usually confined to a handful of individuals and households with the financial means and personal preference for using bed nets. In fact, various stakeholders consulted during data collection, including staff in the MOHS and community representatives, indicated that bed nets were rarely found on sale at any stores, except for a handful of vendors in second-hand clothing, who occasionally sold them to the public.

Clearly, this background always implied there was a huge unmet need for mosquito nets in the population, which was practically impossible to satisfy, because of severe shortage in the availability of mosquito nets in the retail market. This point was so often strongly expressed by FGD discussants, each time they referred to the significance of the mass distribution of mosquito nets carried out in 2010. In the FGD with community representatives in Tobanda, YKK, for example, participants emphasized that the first bed net

distribution in 2009, by the Anglican Church, marked the turning point in the availability and usage of bed nets in their community. Participants said that it was the first time more households had access to bed nets than at any other point in the history of the community. Altogether, the NetsforLife programme distributed 16,500 mosquito nets in 2009. Although this quantity was not quite sufficient for the population in its operational areas at the time, the distribution did significantly increase the usage of bed nets in the targeted communities. The mass distribution programme in 2010, to which NetsforLife was part of, eventually fulfilled the demand.

It was also obvious from discussions with community representatives that people do recognize that the distribution and use of the mosquito net has contributed to the declining malaria cases and malaria related deaths, particularly among under-five children. Mothers, in particular, spoke at FGD sessions that since they started protecting babies and even older children with mosquito nets, the frequency at which children fell ill to malaria had reduced, compared to the period when they did not have the bed nets to protect children.

3.2.1 Addressing Gaps in MOHS' Malaria Control Programme

The Ministry of Health and Sanitation (MOHS) has the statutory responsibility for combating malaria; this responsibility is currently executed by the National Malaria Control Programme (NMCP). While NMCP is striving to tackle the disease, through a multi-tier approach that includes the provision of effective treatment (such as ACT) at health facilities, vector control and community sensitization, the agency faces several gaps. For instance, NMCP usually finds it challenging to fully mobilize the required logistics, such as transportation, personnel and even the stock of bed nets, when it plans to distribute mosquito nets to the population on mass.

Understandably, the MOHS and NMCP in particular usually have to collaborate with NGOs and other stakeholders outside government in order to increase the coverage and effectiveness of its effort. To a large extent, the NetsforLife programme has been successful in enhancing the operational effectiveness of NMCP activities in both Bo and Pujehun districts in diverse ways. The programme has, for example, complemented the agency through logistical support and even with supplies of mosquito nets for distribution.

Based on conversations with NMCP focal persons and other MOHS representatives in the two districts, there is a credible and highly valued perception for the participation of the Anglican Diocese in malaria control activities executed in the district. There is clear preference from these stakeholders that they expect the Diocese to continue this role, and possibly support them in other aspects in future.

3.3 Assessment of the Role of NetsforLife Programme in Malaria Control

Programme activities were largely focused on increasing the availability and usage of LLINs to households. This focus represents the frontline approach by the MOHS for preventing malaria episode, and therefore complementary to one of the core activities of NMCP. Hence, the role of the programme in combating malaria in the two districts is mainly restricted to supply, distribution, monitoring and promoting of bed net usage. Findings to those dimensions are discussed below.

3.3.1 NetsforLife Contribution to Stock of LLINs in Bo and Pujehun Districts

The programme was able to make a reasonable contribution to the stock of LLINs available in both districts, during the Phase II cycle. Although the overall quantity of nets that was brought into the districts by the programme was small, totaling about 49,500 in 2009 and 2010, it was quite purposeful in targeting groups that were not necessarily eligible for receiving bed nets, especially during the mass distribution scheme in 2010 which focused on households.

In Bo district, it was decided between the programme and the MOHS, for NetsforLife to distribute its supplies to institutions that accommodated people. On this basis, boarding schools, prison¹³, private clinics and hospitals were supplied with LLINs, as complementary effort to controlling malaria. From an evaluation perspective, it was significant that such institutions were targeted, because the Mother and Child Health Week (MCH Week), which distributed bed nets to households did not necessarily include them as beneficiaries for the programme, given the primary target of the distribution was pregnant women and under-five children.

3.3.2 Support to the Mass Distribution of LLINs in the Districts

The Anglican Diocese played a much visible and recognized role in the MCH Week that distributed more than 300,000 LLINs to households in the two districts. The programme organized training for distribution volunteers (then referred as malaria control agents) in procedures for targeting households, hanging nets and monitoring usage. Volunteers eventually became the backbone to the distribution effort, because of their success in reaching every community with LLINs, with many of them quite remote and inaccessible to vehicles and motorbikes. But the volunteers also played another significant role at the planning stage of the intervention, by collecting baseline data on pre-intervention usage of bed nets; this data was used to estimate the required quantity of nets to fill the gap in demand.

In the distribution phase¹⁴, programme staff also supported MOHS in supervising and monitoring the process. It was revealed by MOHS representatives in Bo District, where the mass distribution was particularly complex because of the population and geographic size of the district, that NetsforLife staff were instrumental in mapping out travel itinerary and distribution centres, because of their good knowledge of many chiefdoms in the district.

3.3.3 Post-Distribution Follow Up and Sensitization

There seems to be a clear focus on nurturing and deepening a bed net culture in as many locations as possible in the programme operational areas. Hence, the NetsforLife programme had a discrete follow-up programme component to work more closely with local communities and households on bed net issues. At the field level, the activities are executed by four project staff- one project officer and two project assistants assigned to the

¹³ LLINs distributed to prison cells were later withdrawn by prison authorities, over safety and security concerns-i.e. fears that some determined prisoners might attempt to commit suicide or use it to stage incident leading to escape.

¹⁴ Several public and NGOs were involved in LLINs distribution during the MCH Week. The activities were however jointly led by MOHS, UMCOR and NetsforLife in Bo district

three chiefdoms in Pujehun district and one project officer covering the entire fifteen chiefdoms in Bo district, although this staff is sometimes supported by the Development Officer, who more or less coordinate programme activities.

So far, the picture that has evolved around post distribution follow up shows varying degree of success between Bo and Pujehun districts, although it has to be acknowledged that prospects for achieving the global objective of promoting bed net culture is promising in both districts. In Pujehun, the Anglican¹⁵ presence and engagement with local communities is obvious to most people in the sampled communities, where the Church is associated with the bed net initiative and support to the agriculture sector. Many respondents did mention to the evaluation team that community sensitization activities had been organized by NetsforLife programme staff in the past, although the consistency of those initiatives could not be always confirmed by the community. Some representatives in communities specifically mentioned that staff occasionally monitored homes to ensure the bed nets were in use and used correctly. These staff engagements were confirmed in interview with programme staff. It was indicated that project officers did organize community education activities on net usage and environmental management to control the vector, monitor proper usage of bed nets in the homes and sometimes assisted health workers in delivering health talks to visiting pregnant women at the health facilities, on malaria control measures for the mother and under-five children in particular.

In Bo district the picture is somewhat different, but for an obvious reason. Bo is one of the largest districts in the country, both in population and geographic size. Yet, one project officer was assigned the responsibility of administering follow-up activities, including monitoring bed net usage and organizing community sensitization across the district. It has proven a challenge for this staff, although he sometimes got support from the Development Officer in implementing activities in some communities, to effectively engage with communities in a way that was similar for the three project staff working in the three chiefdoms in Pujehun District. Consequently, it was difficult to come across many residents in the sampled communities who specifically referred to the Anglican Church when discussing the distribution of bed nets in the district.

3.4 Accomplishment of Key NetsforLife Outcome Indicators

A total of 17 outcome indicators were identified for evaluating the performance of the intervention. The indicators are categorized into various themes, including knowledge and perception about malaria, malaria prevention measures, treatment and health seeking behaviour, etc. findings on these themes are reported in the sub-sections that follow.

3.4.1 Knowledge on Control of Malaria

Respondents were asked specific questions in order to measure achievements on knowledge on malaria control. Varied issues were explored in this domain, including transmission mode, cardinal signs/symptoms of malaria, vector breeding site, populations

¹⁵ Local people spoke more of the Anglican Church when referring to the LLINs distribution than associating the initiative with NetsforLife

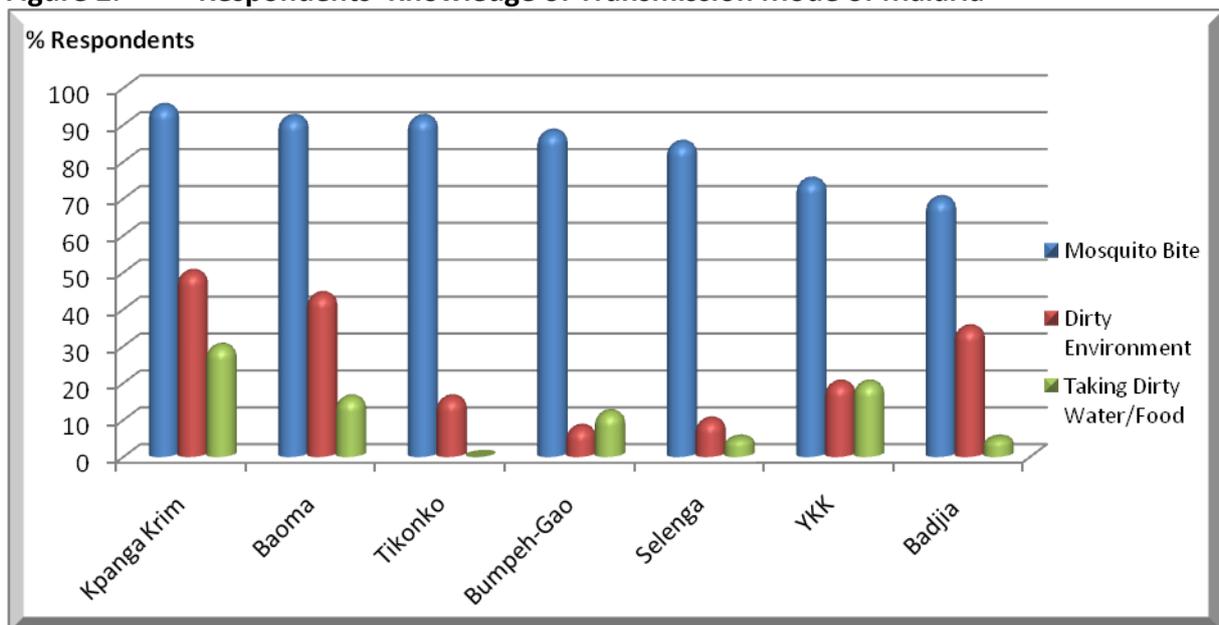
most vulnerable to the disease and recommended drugs for curing the disease. Findings to these themes are therefore presented below.

3.4.1.1 *Transmission Mode of the Malaria Parasite*

Respondents were asked how malaria was transmitted. As shown in Figure 2 below, mosquito bite was widely reported as the mode of transmitting the disease- 85.8% of all respondents. The data however indicate that respondents in KpangaKrim, Baoma and Tikonko were more informed on this subject than those in YKK and Badjia Chiefdom.

Dirty environment was sometimes associated with malaria, especially among respondents in KpangaKrim, Baoma and Badjia. However, it is important to note that during FGD sessions with communities, participants were always clear in associating dirty environment as the breeding site for the vector. This feedback further suggests that even when respondents linked malaria to poor hygiene and environmental sanitation, they most often knew that mosquitoes were the agents that transmitted the disease, and cleaning the environment was a means of depriving the mosquito an environment to breed.

Figure 2: Respondents’ Knowledge of Transmission Mode of Malaria

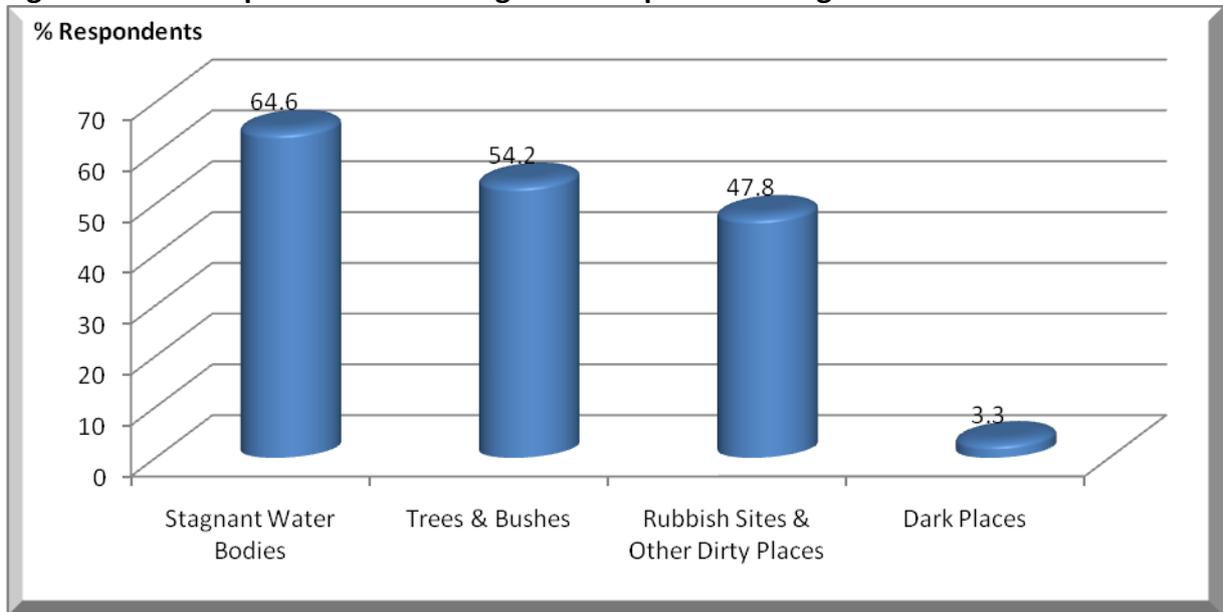


3.4.1.2 *Mosquito Breeding Sites*

As revealed in Figure 3 below, stagnant water bodies, including water trapped in drainages, empty tins and open wells, were the most recognized breeding site for mosquitoes, as

reported by nearly two-third of respondents-64.6%. Plant bodies and household rubbish sites were also mentioned as common sites where mosquitoes breed.

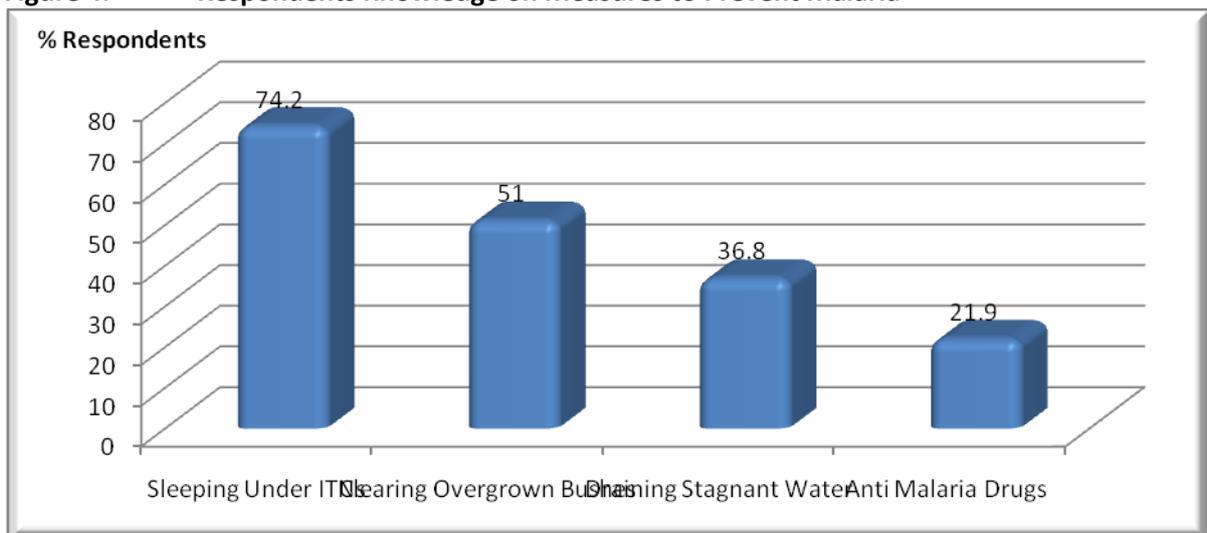
Figure 3: Respondents Knowledge on Mosquito Breeding Sites



3.4.1.3 Household Measures to Control Malaria

Knowledge on malaria control measures at the household level in particular was further assessed by asking respondents to identify the range of possible actions that could be taken to control the vector, with the exception of using the bed net. The options ranged from simple cleaning of the surrounding of the home to depriving mosquitoes of breeding sites, to the use of repellents and anti-malaria drugs. The most significant results to this question are illustrated in Figure 4 below.

Figure 4: Respondents Knowledge on Measures to Prevent Malaria



From Figure 4 above, the use of bed nets was the most popular method known to respondents, for the prevention of malaria. Although stagnant water bodies was identified in Section (3.4.1.3) as the most likely breeding site for mosquito, respondents did not always

spontaneously mention this option when asked what actions they thought could prevent malaria. Whereas some 64.6% had identified this stagnant water bodies as breeding place for the vector, only 36.8% of respondents indicated that getting rid of stagnant water was one of the measures to control mosquito and malaria.

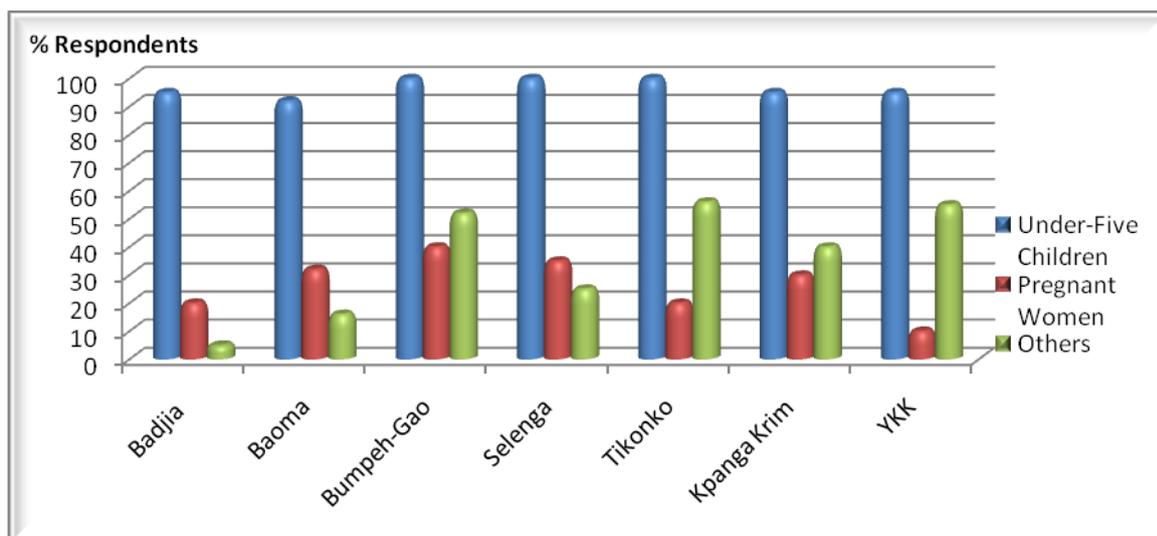
Data was further examined to assess the proportion of respondents who knew at least two appropriate methods for preventing malaria¹⁶. Overall, 64.5% of respondents correctly identified two or more possible measures for controlling the vector, with the majority of respondents making reference to the use of ITNs and clearing overgrown bushes.

3.4.1.4 Sub-Populations Most Vulnerable to Malaria

Children and to some extent pregnant women were recognized as more vulnerable to malaria attack compared to other population sub-groups. However, under-five children were overwhelming identified (by 97.8% of respondents) as especially susceptible to the disease. Many respondents also acknowledged that older children (referring to children over five-years) were also a vulnerable group. Although pregnant women are also at more risk of suffering poor health outcomes from malaria, the proportion of respondents who were aware of this situation was low, at about 27.1% of the sampled respondents. This finding is perhaps significant bearing in mind that the vast majority of interviewees were either pregnant at the time of the study or had carried at least a pregnancy prior to the study. Spontaneous response to the vulnerability of a pregnant woman to malaria episode would have been therefore expected from respondents.

The same data was analyzed at chiefdom level; Figure 5 below shows the distribution of reported vulnerable sub-populations to malaria episode.

Figure 5: Percent Distribution of Respondent Knowledge on Sub-Populations More Vulnerable to Malaria



It is obvious from Figure 5 above that respondents in the various chiefdoms recognized the particular susceptibility of under-five children to malaria episode, especially in Bumpeh-Gao,

¹⁶This indicator constitutes one of 17 NFL outcome indicators

Selenga and Tikonko, where 100% of respondents indicated this position. The vulnerability of other sub-groups was also indicated by at least two in five respondents in Bumpeh-Gao, Tikonko and YKK; however, this was a loosely defined sub-group that often included adults and older children.

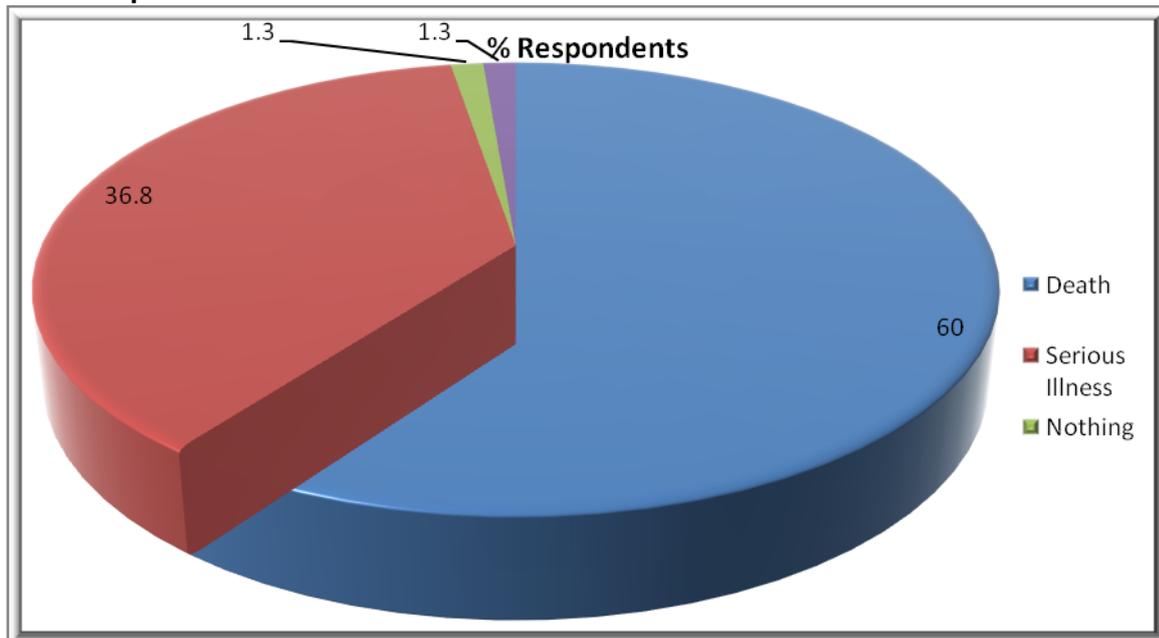
3.4.1.5 Knowledge of the Four Cardinal Signs/Symptoms of Uncomplicated Malaria

Numerous symptoms tend to be associated with malaria in Sierra Leone, ranging from yellowish colour of urine, excessive perspiration and bitter taste in the mouth. Knowledge of the four cardinal signs for uncomplicated malaria was therefore assessed in the evaluation. The signs include fever, headache, joint pain and tiredness. Overall, 64.1% of respondents correctly identified the four cardinal signs for the condition.

3.4.1.6 Knowledge of the Fatality of Malaria

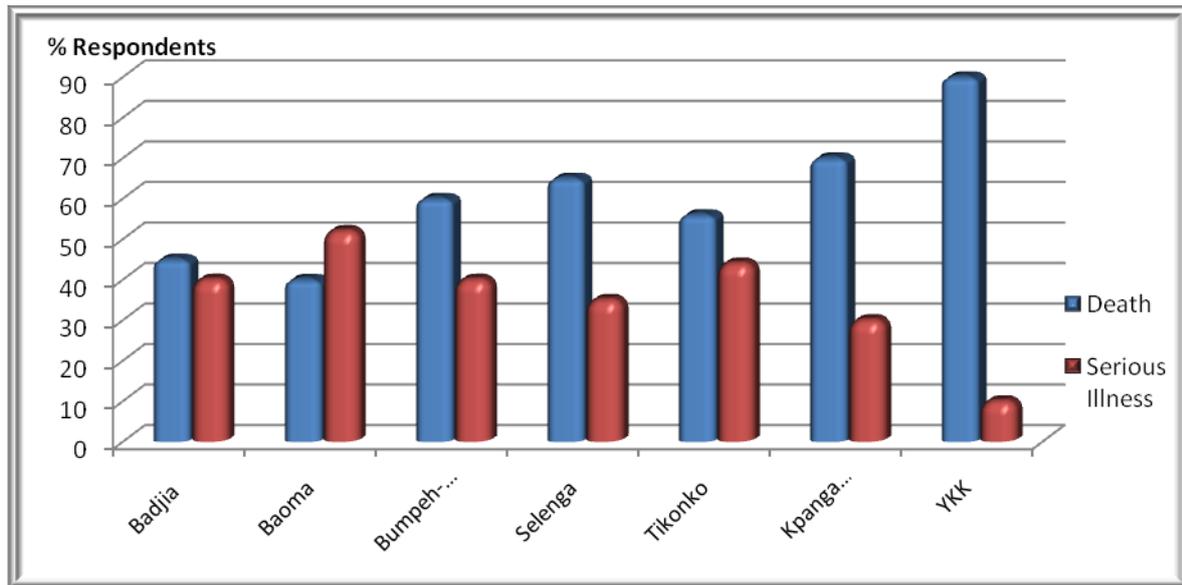
Increasing the level of awareness on the fatality of malaria was a key outcome indicator. Respondents’ opinion was therefore elicited on this subject. As highlighted in **Chart 1** below, about three in five respondents (i.e. 60%) indicated that the likely outcome of delaying treatment to malaria episode was death; while many other respondents-36.8%, acknowledged untreated case of malaria was likely to develop into other serious conditions.

Chart 1: Respondents Perception on Likely Health Outcome of Delaying Treatment during Malaria Episode



Data was further examined at the chiefdom level for differences and similarities in understanding the fatality of untreated malaria cases; Figure 6 below display findings on significant responses to the question. It can be seen that respondents in KpangaKrim and YKK, in Pujehun district, recognized the likelihood of death from delaying treatment to malaria than chiefdoms in the Bo district. In Baoama chiefdom in particular, more respondents (52%) attributed late treatment of malaria to further poor health conditions than they did for death (40%).

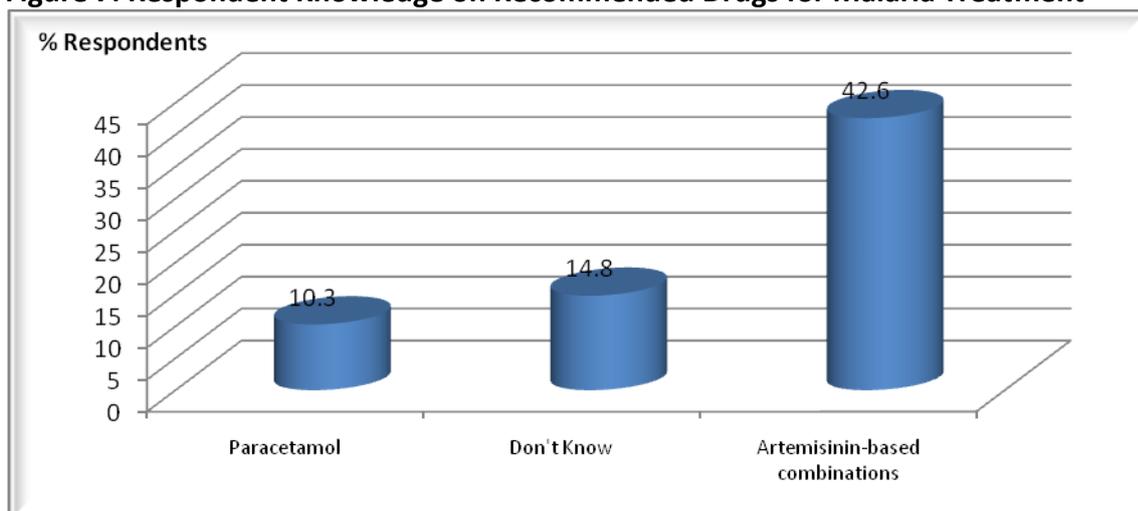
Figure 6: Respondents Perception on Likely Health Outcome of Delaying Treatment during Malaria Episode



3.4.1.7 Knowledge of Recommended Drug for Malaria Treatment

The recommended drug for the treatment of malaria in Sierra Leone is Artemisinin-based combination. ACT is the standard therapy for treating malaria. Knowledge of this drug, as the recommended treatment for malaria was assessed. As revealed in Figure 7 below, just about two in every five respondents identified ACT as the recommended drug for treating malaria. It is however, also revealed in Figure 7 that about one in ten respondents believed paracetamol was the recommended drug for treating the condition. This finding is likely explained by the fact that usually, health facilities administer ACT and paracetamol together when treating malaria, particularly for under-five children.

Figure 7: Respondent Knowledge on Recommended Drugs for Malaria Treatment



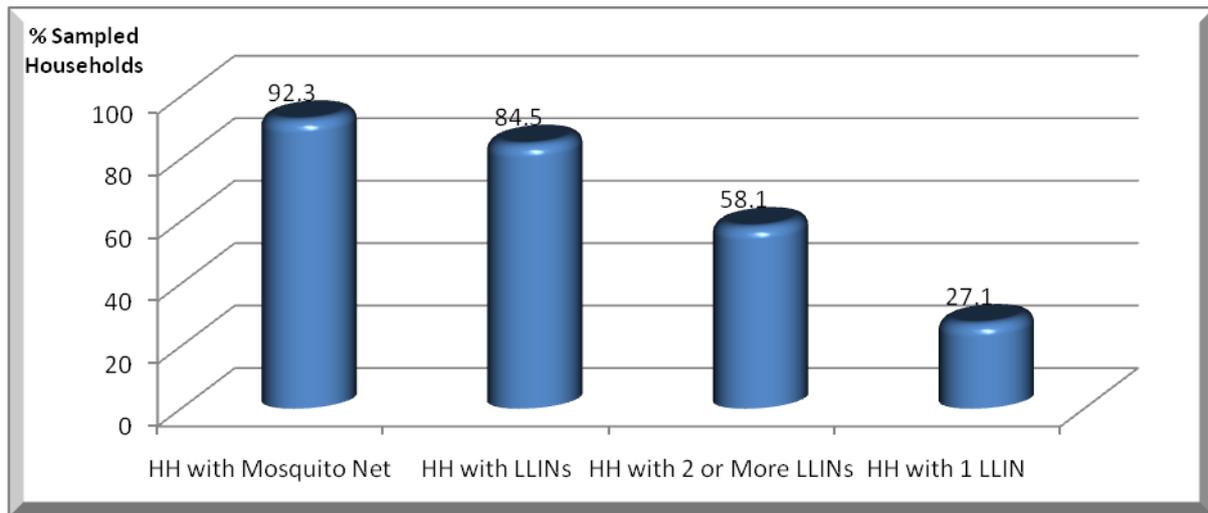
3.4.2 Usage of Long Lasting Insecticide-Treated Nets (LLINs)

Six outcome indicators are linked to the usage of bed nets. Data was therefore gathered to assess progress on those indicators.

3.4.2.1 Use of LLINs in Households

The availability of bed nets to the sampled households was explored in several dimensions, from simple ownership of bed net of any type, to the number of LLINs available to the household. Figure 8 below indicate that the vast majority of households covered for the bed net evaluation did have at least one mosquito net. As revealed by the data, however, a handful of households reported using bed nets not necessarily treated with insecticide. There is further variation in the number LLINs that was available to households. Only 58% of the sampled households reported owning two or more LLINs, as against 27% of households with a single LLIN in their possession.

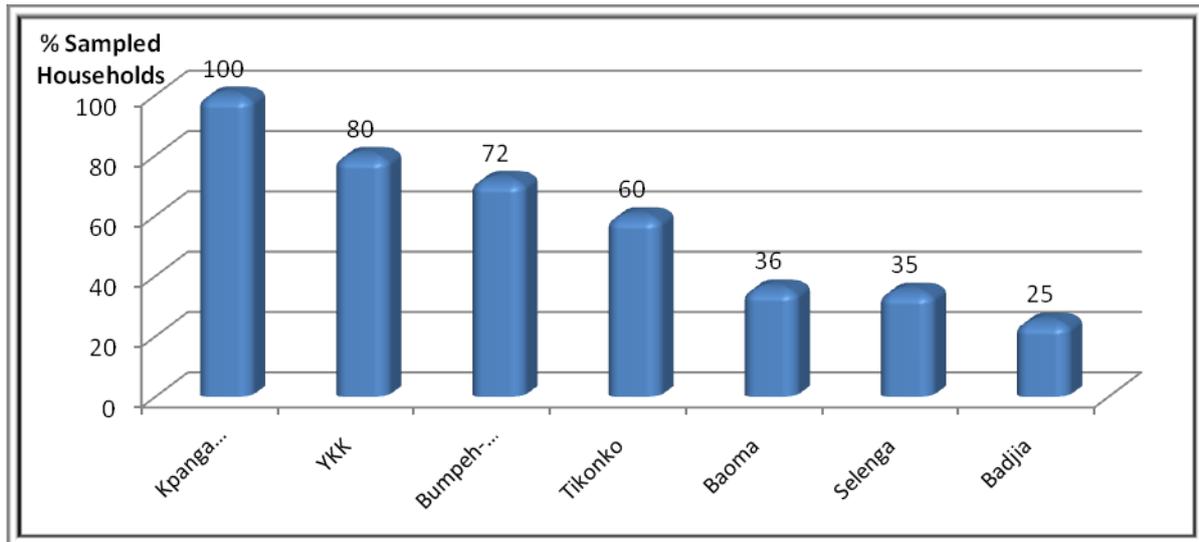
Figure 8: Household Ownership of Mosquito Net, by Type and Number



Data was closely examined at the chiefdom level to assess variation in ownership level for LLINs. Figure 9 below shows that sampled households in Pujehun district outperformed those in Bo district. For example, every respondent interviewed in the KpangaKrim chiefdom did indicate the presence of bed net in her home; about four in five respondents in YKK also revealed the same position when asked whether they owned any bed net in the home. It is important to highlight this result, particularly for YKK chiefdom. NetsforLife programme staff and the Pujehun DHMT emphasized that the chiefdom was severely underserved before the Anglican Diocese started operations there, because most communities were river-rine, taking several hours of risky river travels to reach them. Hence, the programme was credited for providing bed nets service to the community, even the mass distribution exercise in 2010.

Figure 9 also shows that the use of LLINs in Baoma, Selenga and Badjia was significantly low among households.

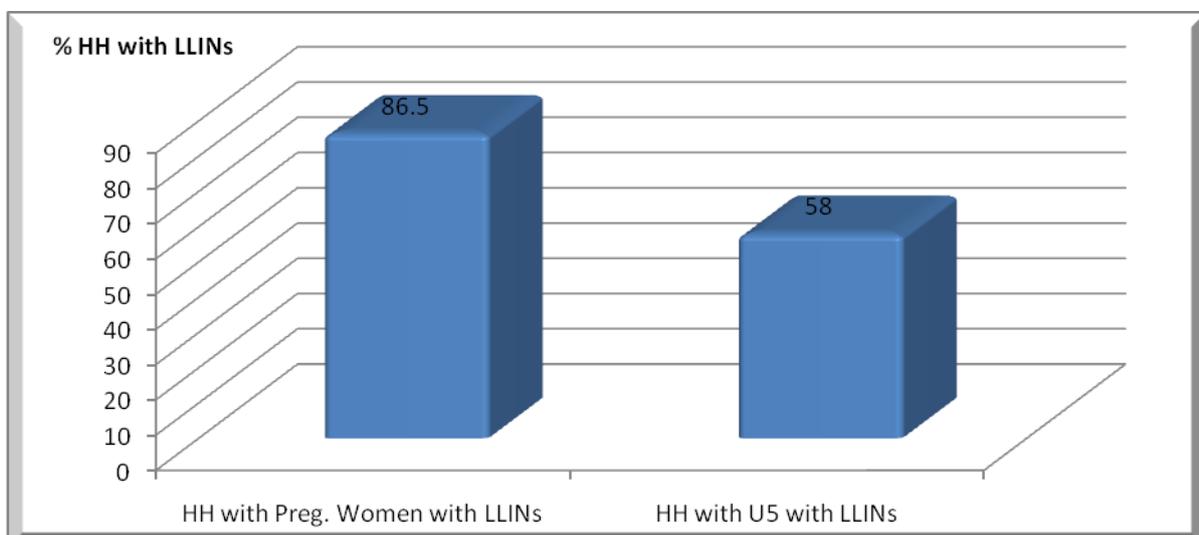
Figure 9: Percent Distribution of Sampled Households with LLINs, by Chiefdom



3.4.2.2 Households with Pregnant Women and Under-Five Children with At Least Two LLINs

Figure 10 below shows that more than 80% of households with a pregnant woman had at least two LLINs in use; while the percentage of households that reported a similar quantity of LLINs for under-five children was much lower, almost similar to the trend observed in Figure 9 above for the general population. The varying results for under-five and pregnant women, with respect to LLINs, could perhaps be explained by varying access that both groups have to LLINs. In interviews with health workers, and also during FGD sessions with community representatives, it was revealed that pregnant women were usually given bed nets at health centres during ANC visits. There is no similar programme to deliberately target under-fives for bed nets, even though babies who are delivered at the health facility are provided with a bed net, especially if the mother was not provided with one during pregnancy.

Figure 10: Households with At Least Two LLINs, with Pregnant Women and Under-Fives

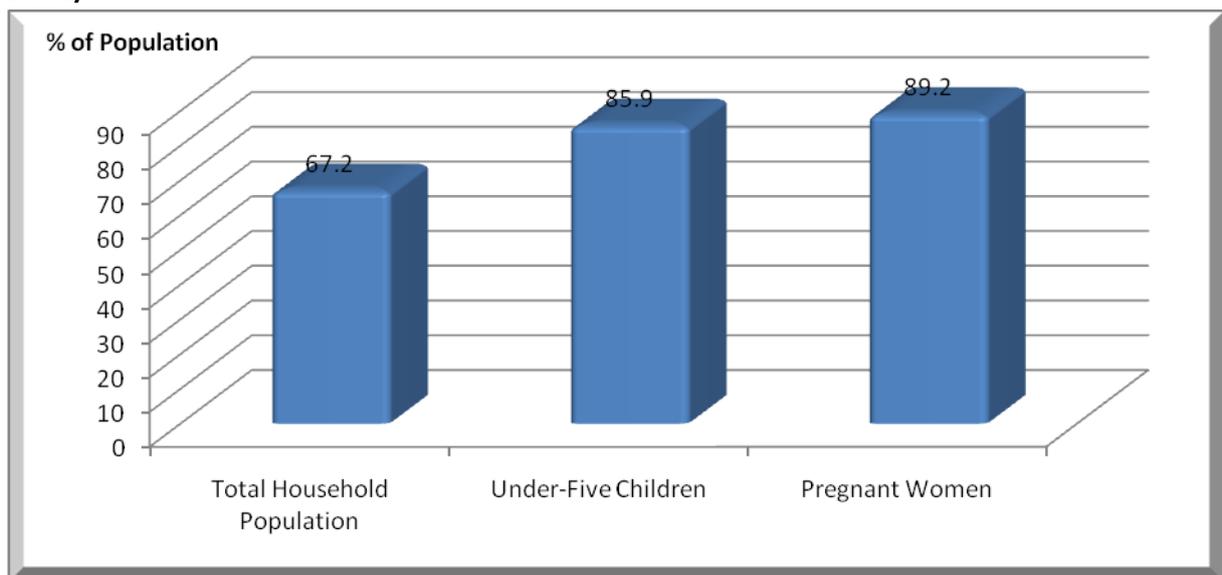


3.4.3.3 *Population Slept Under Net, Night before the Survey*

Promoting the use of insecticide treated nets is the main anchor of the NetsforLife programme and indeed one of the pillars of national malaria control activities. This parameter was assessed for varying population sub-groups, by essentially asking respondents the number and category of household members that slept under a net on the night before data collection.

As reported in Figure 11 below, pregnant women were the highest sub-population group that was protected from mosquito bite the night before the survey, although the proportion of under-five children that also slept under a bed net was also high. Some 89.2% and 85.9% of pregnant women and under-fives, respectively, reportedly passed the night under a bed net. For the rest of the other sub-groups of the household population, only about two in three (i.e. 67.2%) of them slept with protection from bed net the previous night to the survey. Overall, these findings seem to indicate that the most vulnerable groups to malaria episode- i.e. pregnant women and under-five children, seem to be given protection priority from mosquito bites in households.

Figure 11: Distribution of Sub-Population Groups Protected by Bed Net the Night before the Survey

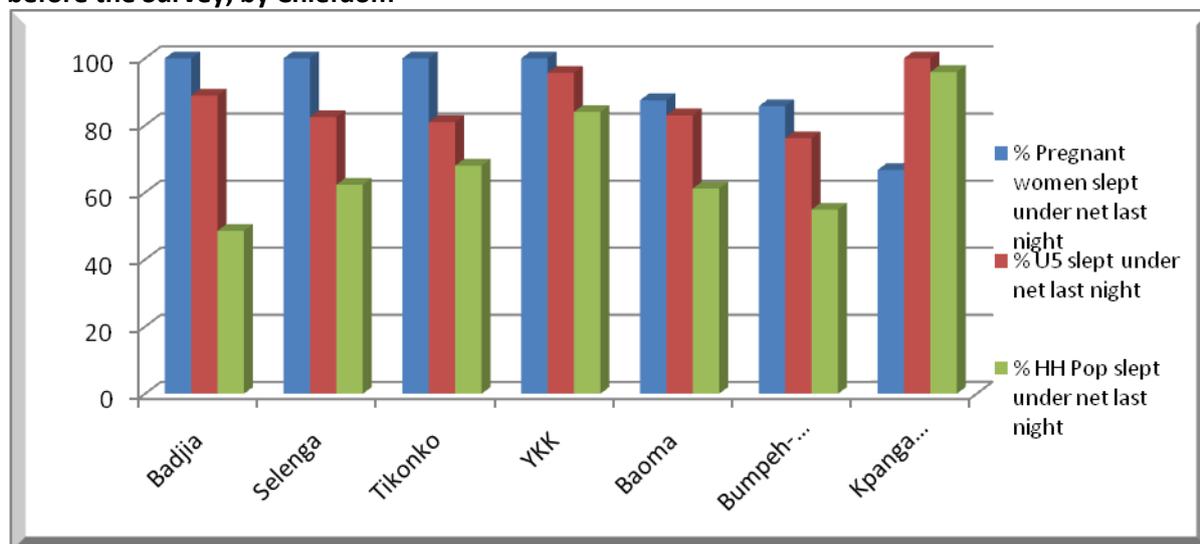


The data was also disaggregated to report findings at the chiefdom level. Figure 12 below indicates that highest scores for the household population of pregnant women that slept under a bed net were reported in Badjia, Selenga, Tikonko and YKK- 100% coverage in each of these chiefdoms; while the lowest score was reported in Kpanga Krim-66.7%. For the under-five population, households in KpangaKrim (100%) and YKK (95.7%) offered the highest protection from mosquito bites, the night prior to the survey; whereas sampled households in Bumpeh-Gao (76.2%) chiefdom reported the least protection to under-five children.

At the level of the general household population, more household members in KpangaKrim (95.9%) and YKK (84%) - both in the Pujehun district, used bed nets the previous night of the survey than the other chiefdoms. On the other hand, the sampled households in Badjia

(48.6%) and Bumpah-Gao (54.9%), both in the Bo district, reported the lowest proportion of its members under the protection of the bed net on the night before the survey.

Figure 12: Percent Distribution of Sub-Population Groups Protected by Bed Net the Night before the Survey, by Chiefdom



3.4.4 Access to Anti-Malaria Treatment for Pregnant Women and Under-Five Children

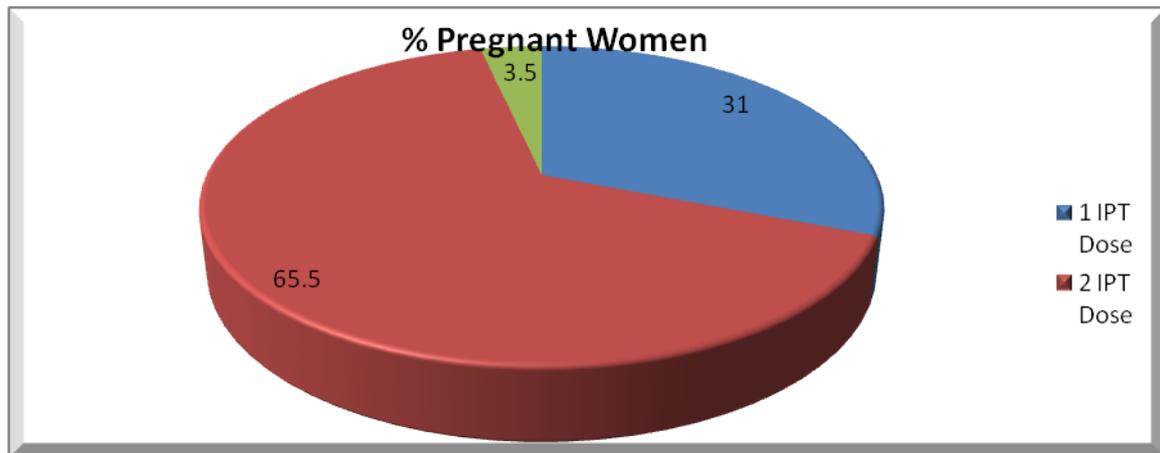
3.4.4.1 Use of Intermittent Preventive Treatment during Pregnancy

Intermittent preventive treatment (IPT) in the form of administering SP/Fansidar doses is the prescribed protocol in Sierra Leone for controlling malaria episode during pregnancy. Two separate doses are required in the pregnancy period to offer optimum protection to the mother and the unborn baby.

In total, 30 women¹⁷ confirmed taking at least a dose of SP/Fansidar in the last two year to the survey. 29 of the 30 women further provided information on the number of doses taken during this period. Chart 2 below shows that nearly two-third-65.5% of pregnant women received the required minimum of two SP/Fansidar doses from a health facility. However, a reasonable minority- 31% of women that received the IPT indicated that only a single dose was administered to them during pregnancy.

¹⁷ This question was only asked to women that either pregnant during the survey, or were pregnant in the two-year period to data collection.

Chart2: Percent Distribution of Pregnant Women Provided IPT, by Number of Doses

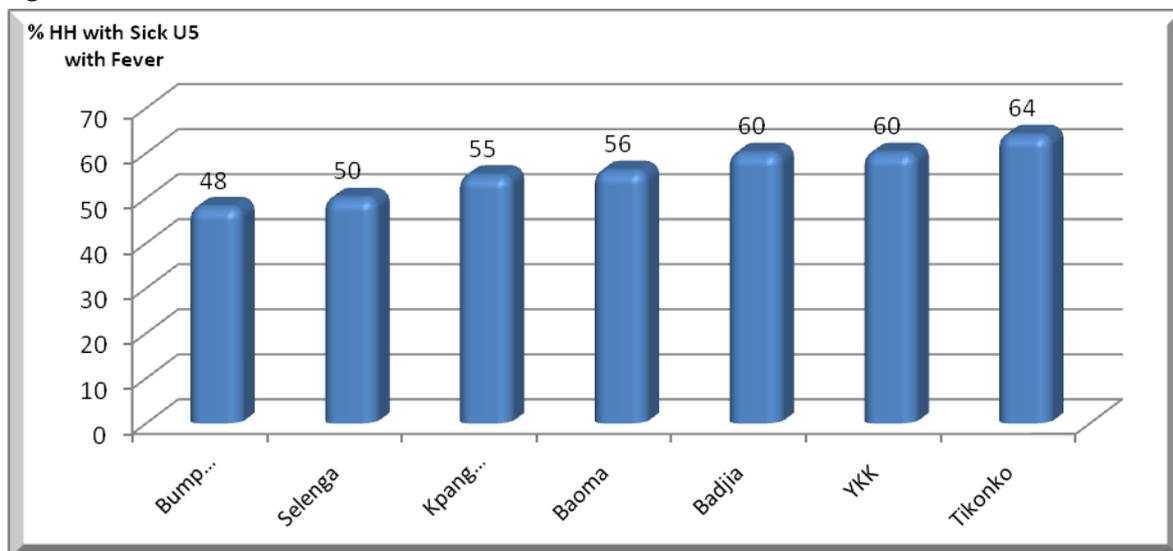


3.4.4.2 Malaria Treatment Seeking Behaviour for Under-Five Children

Fever is usually associated with malaria, and widely used as a key sign for malaria episode among children. About 56% of the sampled households confirmed that at least one under-five child in their household was sick with fever in the two-week period to data collection.

However, the percentage of households that reported sick under-five with fever often varied across chiefdoms, although the margin was not always significant. As shown in Figure 13 below, about half the sampled households (of course higher in many chiefdoms) reported sick under-five with fever. The highest cases of fever, over the two-week period, were reported in Tikonko chiefdom-64%; while the lowest was in Bumpah-Gao-48%.

Figure 13: Percent Distribution of Under-Fives Sick with Fever, Within 2-Weeks of Data Collection



Households who indicated giving medicine to the sick child were asked how long it took before treatment was administered to treat the fever. As shown in Figure 14 below, the majority of households, 68.3%, reported that treatment was started for the fever within 24 hours of the condition while about one in five households (24.3%) administered the first medicine for the condition after 24 hours but within 24 hours of the onset of fever.

Figure 14: Percent Distribution of Period Taken to Administer First Treatment to Under-Five Children for Fever

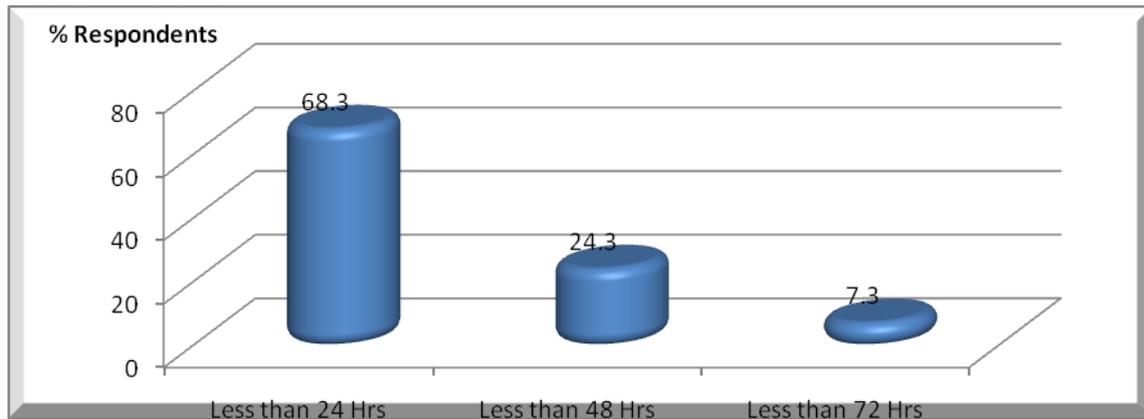
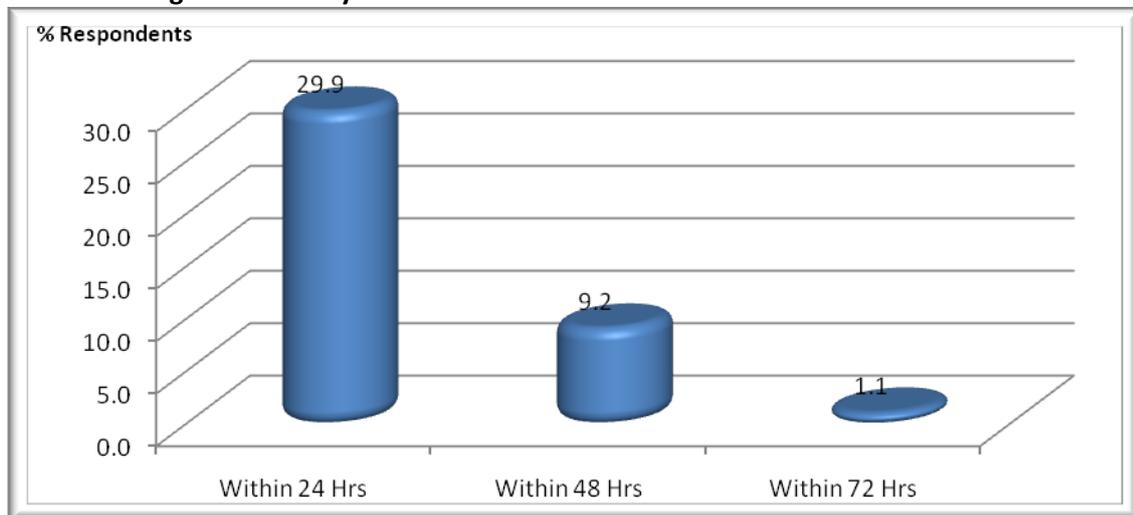


Figure 15 below also shows reported periods of administering Artemisinin-based combination¹⁸ by respondents that reported incident of fever or malaria among under-five child(ren) in the household, in the last two weeks to data collection. Altogether, 35 of the 87 respondents (40.2%) that reported a sick child with fever or malaria in the last two weeks to the survey recalled the child received Artemisinin-based therapy, at varying onset of administering the drugs (*See Figure xxx below*). This finding should not however be interpreted as the remaining 60% got other anti-malarial drugs. It simply refers to those respondents who were able to recall or correctly identify Artemisinin-based (or ACT) drugs to enumerators during data collection.

Figure 15: Percent Distribution of Sick Under-Fives in Households that Received ACT for Fever, 2 Weeks leading to the Survey



3.5 Gaps and Challenges in Programme Implementation

The findings did reveal some gaps in the implementation phase of the programme. While these have not significantly affected the programme from accomplishing its global objective

¹⁸ACT is the most common artemisinin-based combination for treating malaria cases among under-five children in locations selected for the evaluation.

of promoting the use of bed nets, the programme results could have been much better without them. Key challenges are briefly discussed, as follows:

Funding constraint undermining implementation in varied dimensions- the annual budget that has been made available to the implementation team so often makes it difficult for the team to fully implement activities and achieve optimal results. For instance, the sum of 50,000US Dollar was allocated to NetsforLife activities in the two districts for 2013. This sum covers both direct and indirect cost of project activities. Because the funds have to be spread too thinly to ensure no particular activity is neglected, the scope of some activities in particular tend to be narrow and less frequent than required for effective results.

For instance, the technical staff membership (including 1 Development Coordinator and 4 field staff) is too small to effectively execute the anticipated project activities. It has been difficult for these staff to sufficiently maintain frequent contacts with local communities and organize sensitization activities that require reasonable amount of finance, even though these may be the most effective options for promoting the project objective. There is no where this reality has manifested itself than in the Bo district, where a single project officer is charged to administer NetsforLife activities in the entire district, along with responsibility for executing a livelihood project in selected chiefdoms in the district. Overall, what has come as the consequence of funding limitations is substantial moderation in the community sensitization and related dimension in the project. This is an area that obviously requires the necessary priority in future programme cycles, of course with a more clearly defined short and medium term objective in mind.

Ineffective volunteer scheme to support malaria control activities at the community level- the project design laid discrete emphasis on establishing malaria control agents to help with the distribution and hanging up of LLINs during the MCH Week, and further work with the project officers in promoting other vector control measures, including environmental management. This scheme started on quite well and was instrumental during the distribution phase, thanks to the financial incentives that was provided to volunteers by UMCOR, for their support to the MCH Week.

It seems to the evaluation team, however, that somehow the scheme fell apart not too long after the MCH Week was over, mainly because the programme did not have the required funds to continue with the coordination of volunteer activities on such scale, and more importantly in providing them the cash incentives that probably got them quite motivated to dedicate time to the MCH Week in the first place. It was assumed at the programme planning phase that community people will fill volunteer positions without the expectation of financial incentives. The evidence now suggests that this assumption was perhaps not sufficiently thought through, because even though the volunteers have in most cases not made an explicit demand for money in return for dedicating time and effort to the project, it has become obvious to the programme management team they are not enthusiastic to be involved without some form of financial reward, no matter how small that reward is.

Poorly developed retail market for mosquito nets in Sierra Leone- by and large, the private sector, particularly importers and vendors of health and related products do not feel motivated at this time to trade in mosquito nets, because the state and NGOs have

tampered with the market dynamics for this particular commodity, by freely handing out bed nets to households. There was a mass distribution of mosquito nets across the country in 2010, during the MCH Week. Selective distributions have continued after that period, usually targeting specific target groups such as pregnant women and under-five children, especially those who visit government health facilities for antenatal and postnatal care. For all these reasons, the price of bed nets is kept artificially below the true market price in Sierra Leone.

Yet, the fact that many of the bed nets that were supplied to households in 2010 and periods after need replacement is undisputable. Many bed nets have been torn and damaged in other ways¹⁹, but there is no where people know they could purchase replacements, except for pregnant women who are usually hopeful of receiving a supply of at least one mosquito net from the health facility at some point during pregnancy or after childbirth. It will be a very rare occasion to come across a retailer who sells bed nets in the rural area in particular. What is even more worrying is the willingness for people to buy mosquito nets, even though they acknowledge it is perhaps the most effective option available to them when it comes to preventing mosquito bites at bedtime. In FGDs with community representatives, participants often indicated they would be willing to buy bed nets if they knew where to buy them from, but more often expressed their preference for government to again provide them another free round of supply of LLINs. It would seem that, somehow, a culture of dependence is gradually evolving around bed nets; the government is likely to promote this dependence one step further, as it is presently murmured that government was planning another mass LLINs distribution in the second half of 2013.

Varying quality in the durability and protection offered by existing mosquito nets- feedback from the community generally indicates that the current stocks of mosquito nets in circulation is diverse in quality. While people said the supplies that they got in 2010, part of which came from the NetsforLife programme, were of high quality and well treated with insecticide, the nets that have been supplied by some agencies after that period are not trusted for couple of reasons. First, some people in the community complained that the air passage in some brand of nets was large enough to allow mosquitoes through, which makes it less effective in preventing bites. Another complaint was some brands did not also last long, and could become unusable after a short period in use.

It should be emphasized that these weaknesses are not associated with the NetsforLife programme in any way. However, it is important to highlight them in this evaluation, so these points could be taken into account for procurement purposes in future.

¹⁹ These were observed during data collection

4 Prospects for Sustaining Project Achievements

For the purpose of this evaluation, the subject of sustainability is discussed with some background to take note of, vis-à-vis findings on the key NetsforLife outcome indicators that was reported in Section (3.4) above. First, it is worthwhile to note that the evaluation does not necessarily attribute those results to the intervention, because it is obvious those results, particularly elements pertaining to knowledge, are themselves the outcome of a myriad of programmes and initiatives carried out in the health sectors that predates the NetsforLife programme. Rather, the programme has complemented the efforts of previous and ongoing malaria control initiatives in the health sector.

The focus therefore is to examine opportunities and constraints that will hinder or support usage of mosquito nets and related malaria control measures over the medium and long term. In terms of opportunities, it appears that local communities are highly aware of the transmission pathway of the disease; they also know what measures they could take to control the vector population and beyond that mosquito bite. The sampled communities also have village health committees (VHCs) and/or village development committees (VDC) that oversee health and development issues at the village level; these committees usually include key village authorities, which give its decisions considerable weight and legitimacy. Some committees, like the one in Semebehun 17 in Tikonko chiefdom established and now enforces a bye-law of compulsory cleaning exercises in the community every last Saturday of the month. The membership believed this was one measure they had adopted to deprive mosquito of breeding places, thereby reducing their population. VHCs in some of the communities do also emphasize it to the population in their community to make appropriate use of mosquito nets. Hence, there is some level of initiatives being led by local communities to promote usage of bed nets and also control the vector population. This background sets a positive context for sustaining community-led efforts to controlling malaria; the possibility of strengthening these local arrangements, so they become more effective and result oriented should be explored in the next phase of the programme.

At a separate level, the NetsforLife programme has been quite successful in establishing close relationship with the respective DHMT in the two districts. The programme is represented at the district taskforce for malaria control in both districts which also means it will continue to exercise some degree of leverage on decisions to combat the disease in the district, even though the agenda is usually set by the NMCP.

Despite these opportunities, the greatest challenge to usage of mosquito nets over the long term certainly comes from a poorly developed retail market for bed nets, exactly for reasons previously discussed in this report. During data collection, many nets, sown over and patched several times, were observed in many households. The situation is not helped by the fact that there are some low quality nets distributed to the population. Since the mass distribution in 2010, the only realistic option that households have to replace damaged mosquito nets is the supply that is given to pregnant women/neonates. Until another mass distribution is targeted at the entire population soon, it is likely that usage of bed nets will start to decline in the next two to three years, as the existing stocks become so badly damaged that they could no longer be patched.

5. Key Recommendations and Potential Focus Areas for the Next Phase

The recommendations of this evaluation are mainly intended to guide decisions around the design and execution of the next Phase of the programme. The content itself is based on key findings already covered in the report; in some cases, the recommendations are based on feedback not necessarily reported so far in the document, from malaria control agencies in the districts.

Key recommendations therefore include the following:

1. **Strengthening community-based structures to promote changes in behaviour and practices**- it is obvious that the first line of defense against malaria has to target the vector, by depriving it of breeding sites. Local communities are informed on this, and seem to implement measures to this effect, such as instituting compulsory cleaning days. A long term strategy to promoting vector should definitely give considerable stake and responsibility to local communities to lead the process. This could be one area that the next cycle of NetsforLife programme could consider. The VHC/VDCs and other local structures that do promote vector control measures at the moment seem to be less organized and focused on initiating measures that will gradually reduce the vector population over time.

This is an area that would require some significant revival in the volunteer scheme, although this time with a more coherent focus around coordination and keeping them focused on targets. There is probably no need to build new structures, beyond the bodies that already promote malaria control initiatives locally, such as the VHCs. The need is more likely to improve their planning and organizational skills.

2. **Strengthening the Capacity of NMCP in sensitization and monitoring activities**- there is an emphasis and enthusiasm on providing mosquito nets and anti-malaria drugs within NMCP as the frontline strategies for combating malaria. While the programme is in principle equally committed for influencing behaviour change and practices through sensitization, the feedback from DHMT representatives in both districts suggests that malaria sensitization activities are under-funded. For example, the NMCP focal persons face enormous constraint with transportation to make it easy for them to organize regular malaria sensitization and education sessions at the community level. It could be useful to explore the possibility of supporting NMCP district programmes to conduct more effective sensitization in future NetsforLife programme cycles.

Besides sensitization, numerous initiatives are happening in the two districts to improve treatment and vector control in the district. In Pujehun district, for example, UNICEF trained about 1,080 community health volunteers in 2010 to administer malaria treatment to under-five children in remote locations, within 24-hours of fever attack. Other NGOs such as Red Cross and World Vision are also supporting volunteer initiatives to influence behaviour change around the subject of Malaria in the district. In Bo district, there are currently about 280 community based providers (CBPs) that administer ACT to under-fives; they also carry out limited activities to promote vector control measures in their respective communities. However, the NMCP focal persons are also less effective in supervising and monitoring the activities of these volunteer schemes at present, because of mobility and other logistical challenges in reaching volunteers. It would be important for the programme to look into ways it could actually support NMCP to monitor and effectively coordinate the many volunteer schemes in both districts.

3. **Reviewing programme scope, especially after mass distribution activities**- the available funds for carrying out programme activities after the mass distribution exercise in 2010 were consistently overstretched, partly because of the desire to cover a much wider area than the programme resources would permit. This situation was quite evident in Bo district, where the programme was perhaps a little ambitious in covering the entire district with follow-up activities.

Except if future annual budgets are significantly increased, otherwise, the implementation team should consider purposefully selecting few chiefdoms with high(er) malaria incidence in Bo district for its follow-up activities it may want to carry out. This way staff will be able to engage more closely with the community and support them in organization of initiatives to combat the vector population at the community level.

4. **The need to start lobbying government to undertake discrete actions to promote private sector participation in the importation and trading of mosquito nets**- there is no official ban against the importation of bed nets. However, the incentives for the business community to trade mosquito nets are poor because of the free distribution that is artificially keeping down the market price for the product. It would be a useful development for the next NetsforLife programme phase to raise the implications of this situation with government stakeholders and the many other NGOs that are quite enthusiastic in freely handing out bed nets to communities at this time.

This is certainly no doubt this sort of conversation with the government and other actors will be complex, partly because of the rush to accomplish MDG target for malaria, but also the political sensitivities around this subject. At the same time, it is important to start alerting government of the need for a multi-tier approach to the supply of mosquito nets to the population, part of which will necessarily include private sector participation in the distribution of the product.