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Ministry of Health
District Health Directorate
of Mono/Couffo

Plan

Collaborative Approach to Community-based Malaria Prevention in Benin

National Conference/Final Report

By
Plan International
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Executive Summary

From 2007 to 2009, Plan Benin implemented the Collaborative Approach to Community-based Malaria Prevention project in 20 pilot villages in the communes of Aplahoué and Djakotomey. This project aimed to reduce malaria-related maternal and infant mortality and was funded by the United States Agency for International Development (USAID).

At the end of the project, an evaluation utilizing the Lot Quality Assurance Sampling (LQAS) methodology was conducted to assess progress and perfomance achievements. The evaluation was conducted from March to April 2009 in four supervisory zones where beneficiary villages were grouped together.

Progress indicators were collected through questionnaires distributed to mothers of infants aged 0 to 11 months and randomly selected mothers of infants and children aged 0 to 59 months. Access to healthcare records in health centers covered in the project area have enabled data collection on the care of children under-five and pregnant women received for fever and other illnesses.

The main findings of the evaluation are as follows:

- The percentage of mothers and children under-five found to sleep under an LLIN in the 24 hours preceeding the survey increased from 34 percent at baseline to 70 percent (target – 60 percent);
- Ninety (90) percent of mothers of infants aged 0 to 11 months consistently slept under LLINs during their last pregnancy.
- The percentage of children under-five that suffered from fever two weeks preceding the survey and who received appropriate home-based care and treatment for malaria within 24 hours, increased from 25 percent to 55 percent (target rate – 40 percent).
- Twenty (20) percent of infants with serious malaria were referred to the nearest health centers.
- Ninety-five (95) percent of mothers with children under-five identified at least one sign of serious malaria, which increased from 19 percent at baseline.
- Over the two years of project implementation, no deaths recorded in the health facilities among pregnant women were due to malaria.
- The percentage of pregnant women with supervised SP intake (40 percent) remains considerably lower than the percentage receiving antenatal care visits (85 percent).
- Aside from the technical assistance provided to community health workers (CHWs) by the coaching team of the health district of Aplahoué, Djakotomey and Dogbo (AD&D), the CHWs and other members of the Quality Improvement Teams (QITs) reported that they have not benefitted from monitoring or supervision efforts conducted by government health agents.

Based on these findings, recommendations have been made which will enable continuation and sustainability of the project in the pilot villages and expansion into other villages in the Couffo district. Recommendations include the following:

- Continue to utilize and scale-up the Improvement Collaborative approach in community-based malaria prevention and treatment efforts.
- Continue to establish QITs and support shared learning experiences to efficiently expand their prevalence in Benin villages.

- Prioritize and intensify the interventions concerning treatment through home-based care and mangement of malaria by involving husbands in all the villages within the identified priority zones.
- Identify, with the community, mechanisms for the replacement of torn bed nets.
- Identify, with the community, a mechanism for facilitating children's transportation to enable the seeking of referals, counseling, and treatment outside the home.
- Set up an incentive mechanism for the Minsitry of Health (MoH) health agents with respect to the supervision of the QIT.
- Involve the staff from private maternity hospitals in trainings conducted by the project, so that they are able to administer the intermitent preventative (IPTp) therapy strategy protocals in their work.
- Encourage the generalization of *solidarity funds* and reorganize them into community health organizations or groups/associations, which have the legal authority to sign contracts for care with health centers and transport providers.
- Involve private clinics in the training of new policy formulations for the care and management of malaria.

Partner commmunities

- Sensitize more husbands in the care and management of pregnant women.
- Sensitize women on the importance of eating before going for an antenatal care visit.
- Advocate to the MoH to guarantee that a portion of profits from bed net, Coartem, and IPTp sales is utilized for community prevention and treatment activities.

DHD/HZ

- Make monitoring and supervision systematic in outreach strategies.
- Integrate the monitoring of community workers' activities into the Minimum Package of Activites for post chiefs and heads of delivery rooms in the health centers.
- Advocate for a new upcoming campaign for LLIN distribution to the MoH.
- Set up an incentive mechanism for health agents related to commmunity activities.

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List of Abbreviations and Acronyms

ACC	Antenatal Consultation Center
ACT	Artemisinin-based Combination Therapy
AD&D	Aplahoué, Djakotomey, and Dogbo districts
AHC	*Arrondissement* Health Center
CHW	Community Health Workers
C-IMCI	Community Integrated Management of Child Illness
CVCD	Children's Village Committee for Development
DDS	District Health Directorate
DH	District Hospital
GoB	Government of Benin
GPHC	General Population and Habitat Census
HCMC	Health Center Management Committee
HD	Health District
IEC	Information, Education, and Communication
IMCI	Integrated Management of Child Illness
IPTp	Intermittent Preventive Treatment
LLIN	Long-Lasting Insecticidal Nets
LQAS	Lot Quality Assurance Sampling
MoH	Ministry of Health
NPFM	National Program for Fight against Malaria
QIT	Quality Improvement Team
SP	*Sulfadoxine Pyrimethamina* (IPTp medication)
SZ	Supervisory Zone
ToR	Terms of Reference
UNICEF	United Nations Fund for Children
URC	University Research Corporation
USAID	United States Agency for International Development

I. Introduction

Plan Benin used the Integrated Management for Child Illnesses (IMCI) framework in creating the project "Collaborative Approach to Community based Malaria Prevention." The project targeted 20 pilot villages in the communes of Aplahoué and Djakotomey, with the goal of reducing maternal and infant mortality related to malaria in the Couffo district. In order to assess the effects of the project on the beneficiary communities, the evaluation was initiated to measure the progress and the perfomance outcomes achieved at the end of the pilot stage. The evaluation was conducted from March to April 2009.

II. Context and Justification

In Benin, nearly one out of six children dies before their fifth birthday due to preventable diseases including malaria, diarrhea, malnutrition, acute respiratory infections, and measles.

According to a study conducted by Plan Benin in the Couffo and Atacora districts in 2006, malaria was found to be the principle cause of morbidity and mortality among infants and pregnant women. In the Couffo district, malaria was found to be the most frequent infection occurring in children under-five (39 percent). According to a baseline study conducted by Africare in 2005, malarial prevalence is particularly high among primigravidae (women who are pregnant for the first time), which results in anemia in 5 to 15 percent of cases. In addition, the Africare study found that 34.7 and 35.3 percent of children and mothers sleep under bed nets impregnated with insecticide, respectively.

The same study also found that the majority of women's groups, men, youth, local leaders, and Health Center Management Committees (HCMC) do not recognize the symptoms common to malaria. For example, very few focus groups mentioned convulsions as a serious symptom of malaria. Moreover, in Couffo, 86 percent of mothers seek counseling and treatment in their homes rather than seeking care and support in a health facility. Mothers were found to only seek care outside of their homes if they think that they require better medications or if the expected results from home-based treatment are slow to manifest.

The findings of a study conducted by Africare in 2005 revealed that 19 out of 50 women did not use intermittent preventive treatment during pregnancy (IPTp). It is worth noting that IPTp has not been scaled up across Benin and the health centers do not carry *Sulfadoxine Pyrimethamina* (SP).

Mothers also demonstrate poor health behaviors related to illness prevention and the care of their sick children. Mothers have difficulties in recognizing the onset of common symptoms, and therefore are unable to seek timely care from health care providers.

Consequently, since 1999, the Ministry of Health (MoH) has employed the Community-based Integrated Management of Childhood Illnesses (C-IMCI) approach, which supports community-based responses in four primary sectors:

- Growth promotion and child development;
- Prevention of illness;
- Care for sick children at home; and
- Seeking appropriate care outside of the home.

Due to the limited human resources for health, the one health agent (the average coverage per village) located at the periphery of villages is unable to respond to the health needs of all the children in the villages. As a result, it is essential that community members themselves play an intermediary role, i.e., form the bridge between the health center and the community to promote key practices. Those community actors constitute a critical piece of the system, also responible for assisting mothers and caretakers in the process of sustaining those behaviors.

In April 2007, Plan Benin was awarded a grant by USAID, overseen by the University Research Corporation (URC), to pilot the "Improvement Collaborative" approach in enchancing the fight against malaria in the Couffo department.

The collaborative approach is a structured effort based on mutual learning through community-based teams that collaborate to improve implementation through:

- Adapting local behavior patterns to best-practices for an important health issue (e.g., malaria);
- Achieving significant results in a short period of time at a low cost by maximizing methods that are proving successful; and
- Extending the adapted best-practices to other localities in region/country through a controlled scale-up strategy.

This approach is generally conducted in three stages: a demonstration stage covering pilot villages, rolling out to other communities through a "snowball effect", and scaling up the project. From 2007 to 2009, Plan Benin developed a pilot project in 20 villages in the communes of Aplahoué and Djakotomé. In order to move onto the next phase, Plan Benin has conducted this evaluation to identify the good practices and lessons learnt.

Originally developed by the Institute for Healthcare Improvement in the 1990s, the collaborative approach is designed to rapidly employ practices proving most effective in individual collaborative villages across the entire project. By employing participatory methods, the methodology allows implementation to consistently adapt to improvements put forth by the key stakeholders targeted by the intervention.

Demonstration Collaborative Phase (first phase): Through Quality Improvement Teams (QITs) – comprised of local community volunteers, mothers of children under-five, village leaders, traditional healers, and health workers - the project is able to effectively mobilize the villages to learn and take action against malaria. The efforts of these "village teams" include promoting knowledge of how malaria is transmitted, how it can be prevented, and the signs of malarial complication; ensuring the proper use of insecticide treated bed nets by conducting unannounced night visits to the homes of pregnant mothers; and collecting data that utilizes common indicators throughout the project. Youth also play a critical role as key informers on household behaviors in malaria prevention. Village teams attend learning sessions every quarter to collectively share experiences and best practices, leading to consistent improvement in village implementation strategies and overall program effectiveness. Each quarter the learning session is conducted in a different QIT's village to allow the other teams to witness the innovative methods they have developed and by collecting data on common indicators, the teams are able to assess their effectiveness relative to the others breeding a competitive and entrepreneurial spirit.

Expansion Collaborative Phase (second phase): Plan built upon the programs that were consistently refined in the 20 collaborative villages and the pilot has been scaled-up to an additional 50 villages. In addition, by having previous phase QITs share the refined methods that had already been developed during the previous phase the expansion villages are able to rapidly reduce malaria prevalence and transmission in their villages.

III. Methodology

This evaluation, employing quantitative and qualitative methodologies, is a descriptive, analytic and cross-sectional study. The evaluation utilized the "Lot Quality Assurance Sampling" (LQAS) sampling methodolody in its quantitative efforts.

3.1. Study Zone.

The evaluation was conducted in 19[1] out of the 20 villages in the two communes (Aplahoué and Djakotomey) targeted for the pilot stage of the project in the Couffo district and in the 11 health centers that serve those villages. According to the third General Population and Habitat Census (GPHC), the total population of the targeted villages was 30,111 in 2001.[2] The Couffo district is situated in the southwest region of the Republic of Benin. It comprises six communes grouped into two health districts (HDs), namely the HDs of Klouékanmey-Toviklin-Lalo and Aplahoué-Dogbo-Djakotomey (AD&D). The Couffo district covers an area of 2,404 square kilometers, with an estimated total population of 524, 586 in 2001.[3]

The maternity hospitals (project sites) are situated in the *arrondissement* health centers. The latter are part of the periphery of the national health system in Benin. Benin's national health system is sub-divided into the following three levels:

- The central or national level;
- The intermediary or district level – composed of the District Health Directorate (DDS) and its district hospitals (DH).
- The peripheral level represented by the health district – comprised of the district hospitals, commune health centers, private health providers, Action Centers for Solidarty and the Evolution of Health, *Arrondissement* Health Centers (AHC), maternity hospitals, health dispensaries, and Village Health Units.

In each of those *arrondissement* health centers, the staff is made up of one chief nurse or one matron, one midwife, and health attendants. The services delivered in AHCs include curative, antenatal, consultations for healthy children, vaccinations, laboratory tests, and deliveries.

3.2. Study Population.

The study population includes mothers and their infants (0 to 11 months) and mothers and their children under-five (0 to 59 months) that suffered from fever two weeks preceding the survey.

3.3. Sampling.

[1] The village leader of one community, in the municipality of Aplahoué, did not permit the evaluation activities to occur and for this reason, the village was eliminated from the project.
[2] This population is estimated to be 37,337 inhabitants in 2009, assuming the annual rate of population growth is 3 percent.
[3] This population is estimated to be 650,486 inhabitants in 2009, assuming the annual rate of population growth is 3 percent.

Following LQAS protocals, the 19 villages covered by the evaluation were split into four supervision zones (SZs). For reasons of practicality, each of the two project communes were subdivided into two zones. These four SZs comprised the collection zone. Within each of these four zones, 19 households were chosen at random. The villages from which these households were chosen were also randomly selected according to the following procedure:

- Generating the list of villages and their respective population numbers for each supervisory zone;
- Calculation of the cumulative population of each supervisory zone;
- Calculation of the sampling interval (dividing the total cumulative population for each supervisory zone by the sampling size "19");
- Identification of the villages to be surveyed based on the sampling interval and a number drawn from the random numbers table;
- The first selected village is the one whose population size is the closest (or equal) to the randomly drawn number;
- The second selected village is the one with the population size the closest to the number obtained by adding the randomly drawn number and the digit corresponding to the sampling interval previously computed;
- The remaining villages are selected by adding the randomly drawn number to the digit corresponding to the sampling interval previously computed; and
- At the village level, subdivisions into hamlets or concessions[4] were done by establishing a list of all households. The starting household was chosen at random, proceeding to the nearest household until the planned number of interviews for the village was reached. If the targeted subject was not found in the household, data collectors skipped to the next household.

Figure 1. Household marked for census. Census identification number inscribed on the wall "ECHOM35". E=Evaluation, C=Collaborative, H=Hamlet designation, M35= 35th household ménage.

The sampling frame established according to this methodology summarizes by supervisory zone the number of interviews to be made by each village *(please see Appendix 2)*. In total, 76 mothers of infants aged 0 to 11 months and 76 mothers of children under-five were surveyed.

3.4. Data Collection Techniques and Tools.

The data collection techniques used in this evaluation includes a records review and questionnaires. A desk review using an analysis form allowed the collection of secondary data from the following documents:

- Documents and follow-up reports of the various health sections enabled effective data collection in line with the indicators and the process of implementation.
- Healthcare records for collection of health data (number of children aged 0 to 59 months seeking care for serious malaria, number of pregnant women seeking care

[4] When a hamlet is too large, it is subdivided into concessions, and one numbers the houses of all the households in the concession before randomly drawing the starting household.

for malaria, etc.)

The questionnaire included two modules –

1) The first module was administered to mothers of infants (0 to 11 months) and focused on the topics of antenatal consultations, IPTp, and long-last insecticidal net (LLIN) use during their last pregnancy; and
2) The second module was administered to mothers of children under-five who suffered from a fever within the last two weeks preceding the survey, and focused on the topics of knowledge of malaria, use of LLINs, malaria home-based care and management and seeking care at health centers.

Figure 2. Surveyors and supervisors in training session on LQAS methodology and data collection tools.

3.5. Training for community workers and health agents responsible for data collection.

The training took place from 4 to 6 March 2009 and mobilized 12 community health workers (CHWs). During the training, participants were exposed to the methodology and proper use of the questionnaires. The last day of training was dedicated to pre-testing the tools in the village of Avégodo situated in the commune of Aplahoué. The pre-test enabled surveyors to administer sampling techniques and questionnaires appropriately. The planning session enabled participants to overcome challenges faced within the villages; the numbering of households; and the completion and coherence of the data collection tools.

The training formed data collection teams consisting of two surveyors per supervisory zone. Adjustments were made accordingly based on language skills and knowledge of the villages and supervision zones. Every team submitted a data collection plan to facilitate monitoring and supervision by Plan's team.

3.6. The data collection process.

Data collection took place from 9 to 13 March in each of the four supervisory zones according to the LQAS principles. Every zone was made up of 4 to 5 villages. In each supervisory zone, the team composed of two CHWs and one health agent/near supervisor administered questionnaires to 19 mothers of children under-five and to 19 mothers of infants who were selected randomly. One CHW distributed questionnaires and another community health worker checked for consistency in the distribution ordering of the questionnaires and the translation of concepts to ensure there were no omissions or poorly translated concepts in order to avoid biases in responses. The near supervisor verified that questions were completed. The health agents dedicated the last day to collect data on the number of children in beneficiary villages and the number of people who sought consultation for serious malaria (children under-five and pregnant women). The statistics on the number of malaria-related deaths for children and women were also collected.

Figure 3. Administration of questionnaire to a mother of an infant by both surveyors in the presence of their supervisor in the village of Avegodo in the municipality of Aplahoue.

Figure 3. Plan Benin's team supervising and controlling the quality of data collection conducted by the surveyors and their supervisors in the village of Gbotohoue.

3.7. Analysis and tabulation.

During the workshop that took place from 24 to 26 March, the data collected were analyzed manually by the community workers and health agents who collected them. Manual analysis verified the completion and coherence of the data for each SZ.

The results of this analysis permitted Plan Benin to take stock of the correct and incorrect responses, question by question, and by SZ in the prepared summary tables. The development of these tables followed the order and wording of the questions as they were presented in the data collection tools. Utilizing the summaries, the average coverage of key indicators was calculated by SZ and using the decision rule, priority zones were identified. The average coverage calculated during this workshop was interpreted by focusing on the reasons for the weak coverage observed. The indicators, which required extensive codification, were later calculated using the statistical analysis software MS Excel and SPSS.

3.8. Data processing and analysis.

Collected data was processed twice, allowing for the correction of errors. Once the data were processed, they were verified through MS Excel, and summaries of the correct and incorrect responses were generated. The results of the average coverage, obtained through MS Excel, were the same as those obtained at the tabulation workshop. The data verified through MS Excel were transferred to SPSS statistical analysis software to produce frequency tables for indicators that were not computed at the tabulation workshop.

Figure 4. Manual analysis and average coverage of evaluation indicators at tabulation workshop.

IV. Results

The improvement collaborative approach utilized for the implementation of this project placed community workers at the heart of the fight against malaria. As a result, it has enabled communities to find local solutions to overcome a deadly disease that most acutely affects children under-five and pregnant women in Benin. In its pilot stage, this project targeted 20 pilot villages where QITs, which are the pillars of the approach, were put in place. Each team was made up of diverse social strata of the community—CHWs, mothers of children, opinion leaders, members of the Health Center Management Committees (HCMCs), traditional healers, and members of the children's village committees for development (CVCD). Each of these actors contributed to the achievements of the project, and those achievements are presented in the next chapters.

4.1. Contribution of the different actors involved in the project execution.

- The QITs played a crucial role in the process of improving family and community practices including:
    - Promotion of LLIN use;
    - Care of children who suffered from fever;
    - Regular monitoring and data collection on common indicators;
    - Facilitation of the learning sessions that are opportunities for experience exchanges and sharing of specific strategies implemented by the QIT to induce new behaviors. Learning sessions have been sanctioned by monthly action plans. The implementation of monthly action plans is followed up daily by the coordinator and evaluated at the next learning session.
- An advisory committee whose members have been meeting quarterly for monitoring purposes and to make recommendations to the project implementation team as part of the process of continous improvement, and to report interim results. The advisory committee is made up of representatives from the national and international NGOs, children from the CVDCs, health agents from the HSD, health districts covered by the project, and staff from the project municipalities.
- Plan Benin's technical team (Health advisor and coordinator and the project coordinator) played an advisory role to the QIT through formative supervision, conducting capacity building and regular refresher sessions, etc.
- The coaching team of the health district AD&D has provided technical support to the CHWs through training and monitoring. The health agents at the peripheral level played a semi-supervisory role for the CHWs and facilitated community referrals and counter-referrals for serious malaria cases detected at the community-level.

4.2. Determining of the percentage mothers and their children who sleep under LLINs.

The effective use of LLINs considers the following – possession, brand, and condition of the bed-nets. In other words, usage is considered effective when the LLIN is observed suspended over the sleeping location, is of a recommended brand that ensures quality (Permanet or Permanet/ PNLS/MSP Benin or Olyset net/Sumitomo), and is untorn.

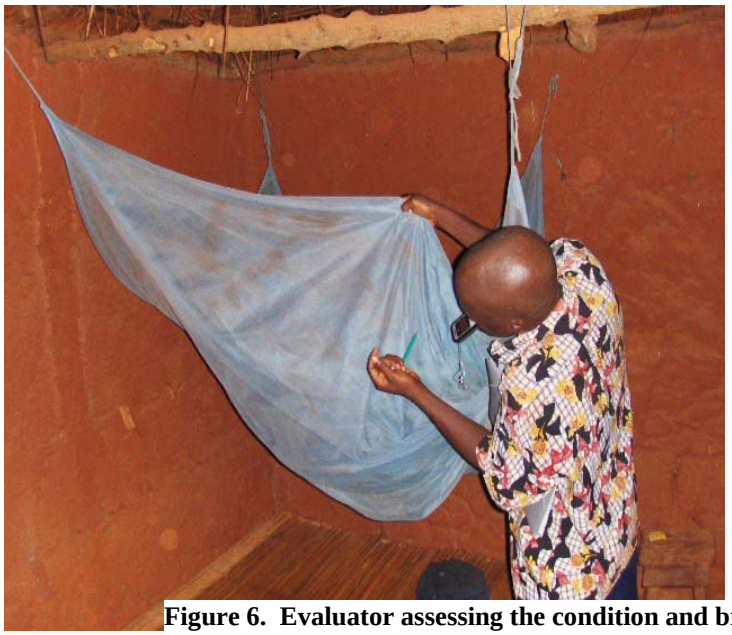

Figure 6. Evaluator assessing the condition and brand of a LLIN.

4.3. Use of LLIN among mothers and their children under-five.

The study found that 95 percent of mothers with children under-five possessed the recommended brands of bed nets, of which 80 percent were treated with an insecticide (i.e., LLINs) and were untorn. In addition, 90 percent of the bed nets were correctly suspended above the sleeping location. The main reason indicated by households that had not correctly suspended the bed nets was that the nets "have been left out in the fields." The study seemed to indicate an association between the brand and/or condition of the net and the effective use of the nets, as the most common bed nets reported to be "left out in the fields" were the UNICEF brand bed nets, those unbranded, and others with unreadable branding labels.

The percentage of mothers and their children under-five found to sleep under an LLIN in the 24 hours preceeding the survey increased from 34 percent at baseline to 70 percent, significantly surpassing the 60 percent target set at project start up. Although this surpassed the project target, this was despite the fact that the majority (95 percent) of surveyed mothers with children under-five were aware of the importance of using bed nets to prevent malaria. Two reasons for non-use of bed nets in the households that possessed bed nets but were not using them were related to heat and the nets being considered dirty.

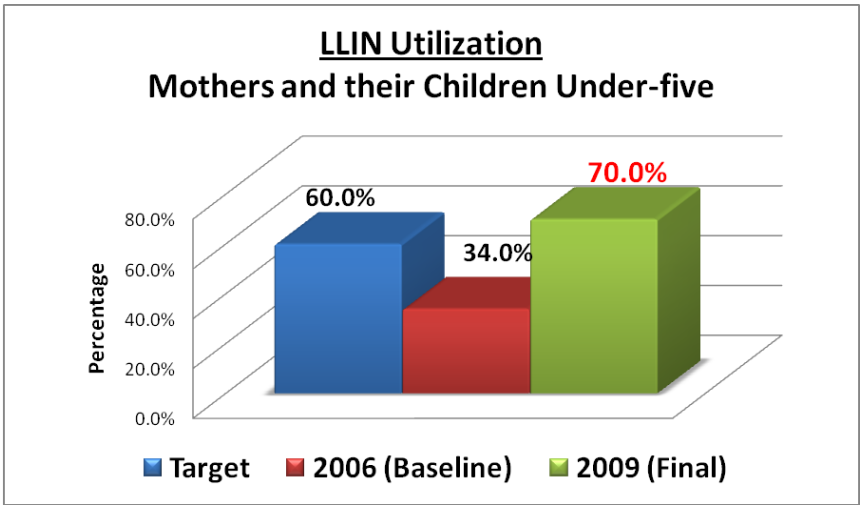

Figure 7. LLIN Utilization by mothers and their children under-five.

4.4. Use of LLINs among mothers and their infants.

Mothers with infants (aged 0 to 11 months) were observed to use the same practices related to LLIN use as mothers with children under-five. *It was found that 90 percent of mothers with infants slept under a branded LLIN throughout their last pregnancy.*

At the same time, only 85 percent utilized recommended brands guaranteeing quality during their last pregnancy. By associating the brand and condition of the bed net with its use, it has been found that 85 percent of surveyed households possess bed nets that are of recommended brand and untorn. However, only 80 percent of the households utilized these bed nets during the night preceding the survey, despite the fact that the majority of surveyed mothers with infants were aware of the importance of using bed nets in preventing malaria.

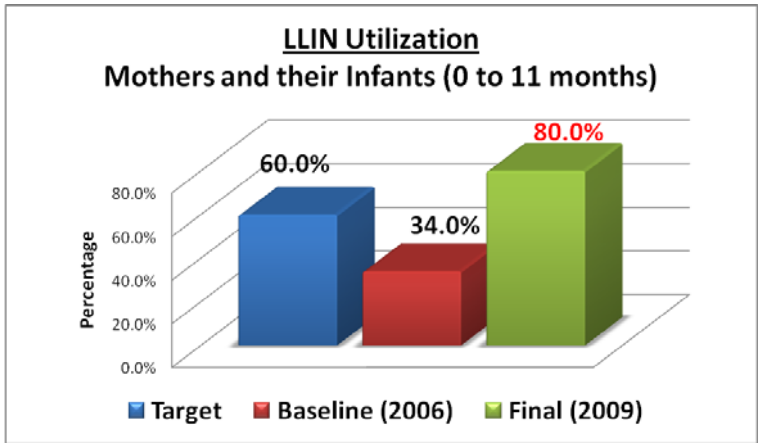

Figure 8. LLIN utilization among mothers and their infants 0 to 11 months.

Despite the free distribution of LLINs by the Government of Benin (GoB) and Plan Benin, the rate of possession of the recommended brands of LLINs has not been 100 percent. The absence of some mothers of children under-five during the distribution campaigns could explain the under use of LLINs; for others, the refusal of the free LLINs also reduced the possession rate. In Tokophoué, the mothers of children under-five refused to participate in the weighing sessions that Plan Benin leveraged to distribute the bed nets. This was due to an incident that resulted in the deaths of two children from a mother who was referred by a NGO community health worker to the MoH Center for Malnutrition, which led to a backlash against NGO and GoB service delivery efforts. In addition, during the distribution of bed nets, some households received more LLINs than were required, whereas others received none, reflecting problems in the distribution mechanism. Venues such as weighing sessions organized by Plan Benin, routine vaccination sessions conducted by the MoH, and setting up a mechanism where households can request for a second bed net in the field proved more efficient in the distribution of LLINs to the mothers of children under-five.

The percentages of LLIN use observed by pregnant women (90 percent), and mothers and their children 0 to 11 months and those 0 to 59 months (80 percent and 70 percent, respectively), were found to significantly exceeded the target rates set at project start up (60 percent). The positive outcomes observed of LLIN utilization represent meaningful and sustained modification in the health behaviors being practiced by pregnant women and mothers of children under-five. The positive outcomes were likely due to the awareness activities organized in the communities during the weighing sessions and in the maternity hospitals during antenatal consultations.

Additionally, the QITs, which conduct unannounced night visits to households to make sure that LLINs are used, have contributed to better practices by reinforcing behaviors and addressing individual barriers. In addition, to validate the data collected, the data collection teams shadowed the QITs on the first night of the data collection process to more accurately

assess LLIN usage in the village. By assessing usage at the point and time of usage, the evaluation team was able to observe the effective use of the bed nets conclusively, without the potential for bias introduced by recall issues. The results of this survey showed that in 95 percent of the households, mothers and their children under-five were observed to be sleeping under bed-nets. However, the brand and the state of those bed nets could not be assessed due to privacy concerns.

4.5. Assessing the domestic care and management of fever.

One of the principle objectives of the Collaborative Malaria project was to promote the home-based care and management of malaria for children under-five. In addition to conducting awareness and capacity building activities, Plan Benin coordinated with suppliers and the MoH to have Coartem, an artemisinin-based combination therapy (ACT) for the treatment of malaria, made available to CHWs for distribution in the project villages.

The evaluation found that the percentage of children under-five that suffered from fever two weeks preceding the survey and who were appropriately treated for malaria within 24 hours at home, increased from 25 percent[5] *to 55 percent (target rate – 40 percent).* Home-based care and management is considered appropriate if the mother of a child aged under-five suffering from malaria has purchased Coartem and complies with the directed dose according to the age of the child. Seventy five percent of mothers of children under-five reported having purchased Coartem for their child. Twenty percent of these indicated that they had not accurately followed the dosage directions provided by the CHWs (i.e., they did not did not administer the directed dose within 24 hours after the onset of fever and for three days).

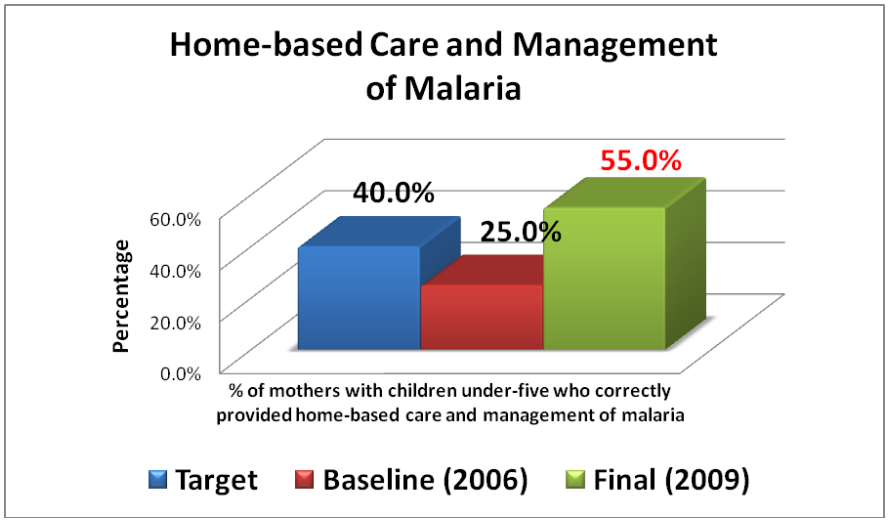

Figure 9. Home-based care and management of malaria.

Although the project achieved its objective related to the proper home-based care and management of fever, the following areas still need to be improved: Coartem provision to the CHWs; the care and management of children within 24 hours after the onset of fever; and compliance with the directed dosage according to the age of the child. In addition, CHWs should enhance the monitoring of mothers whose children suffer from malaria through daily home visits during the three days of treatment to ensure proper measures are being taken. This is particularly important in the villages of supervisory zones A and C (villages of Houétan, Dogohoué, Gbaconou, Hédjinnawa, Agondogoui (Commune of'Aplahoué) et

[5] This result was extracted from the indicators monitoring report, which was released after the first 2 months of project execution in order to share experiences and identify the best practices in villages.

Hounkémey, Tokpohoué, Gbotohoué et Agbédranfo (commune of Djakotomey)), where nearly half of mothers whose children have suffered from fever two weeks preceding the survey did not administer the proper dosage of Coartem within 24 hours following the onset of fever, and did not comply with the three days of treatment required.

In cases of domestic therapy failure, the mothers of children under-five have been sensitized on early referral to seek appropriate care in the health centers.

4.6. Determining the percentage early referrals in cases of domestic therapy failure or serious malaria.

To enable the mothers of children under-five to obtain early referral to care in cases of domestic therapy failure or when malaria becomes serious, the project has trained mothers on detecting common symptoms of serious malaria, including the following:

- Rapid/difficultly in breathing;
- Refusal of eating or sucking;
- Unconsciousness, lethargy;
- Convulsion;
- Vomiting;
- Aenemia; and
- Brown/"Coca-Cola" urine.

Symptoms such as anemia, "Coca-Cola" urine, and difficulty breathing are extremely serious signs that occur beyond the point considered for an early referral. Therefore, the project focuses on the training or refresher training of dangerous signs which mothers have to keep an eye on among their children at home. Those signs include:

- Refusal of eating or sucking;
- Vomiting;
- Unconsciuosness or lethargy; and
- Convulsions.

Based on the data collected through questionnaires, 95 percent of mothers with children under-five identified at least one sign of serious malaria, which increased from 19 percent at baseline.[6] Due to this newfound knowledge, 20 percent of children who suffered from fever within the last two weeks preceding the survey and displayed one of the serious signs were referred by their mothers through a CHW to the nearest health center for appropriate care.

The knowledge of at least one danger sign for serious cases of malaria among 95 percent of mothers of children under-five in the villages is an important project achievement. According to the baseline study on the "Program for the IMCI", conducted by Plan Benin in 2006 in the Couffo department, only 19 percent of mothers could identify a serious sign of malaria. These encouraging findings demonstrate that the information, education, and communication (IEC) activities undertaken by Plan Benin, the project supported QITs, and the complimentary efforts of Africare's Mono/Couffo Malaria project have fostered a significant change in the target population's knowledge level related to malaria. One of the effects achieved through awareness raising activities was measured by the number of children under-five who were brought by their mothers to the health centers with serious cases of malaria. The health

[6] This result was extracted from the indicators monitoring report, which was released after the first 2 months of project execution in order to share experiences and identify the best practices in villages.

centers in the project villages treated more than 200 children under-five in 2008, which climbed from 100 in 2007 and only 92 in 2006 at baseline.

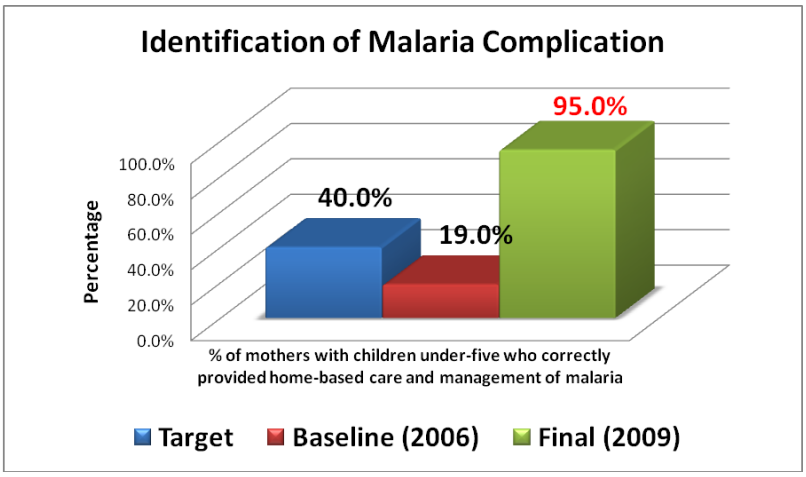

Figure 10. Identification of malaria complication.

The second indicator related to the effectiveness of IEC efforts was the number of child deaths due to malaria in the targeted villages. The findings further establish the effectiveness of targeted outreach activities in awareness-raising and training on the serious signs of malaria. In the past, serious signs of malaria were considered to be the manifestations of sympathetic magic and witchcraft.

Solidarity Funds: Community funds to subsidize early referral to a health facility

In order to facilitate early referral in cases of home-based care therapy failure, a community mechanism of referral has been set up in the project villages. In 16 villages, the communities have set up a *solidarity fund*, fueled by contributions varying from $0.05 to $0.1 per month. The mothers of children under-five in these villages contribute foodstuffs sold, with profits pooled in the *solidarity fund*. The pooled funds then remain available to subsidize the transportation of under-five children in the case of serious malaria complications.
In practice, when a child requires referral to a health facility, the CHW fills out a referral card. After filling out the card, the CHW refers the child to the nearest health center or to the *arrondissment* health center.

To transport the mother and child from the village to the health center, the CHW contacts the *solidarity fund* treasurer for transportation fees. In the absence of the treasurer, the CHW makes the necessary arrangements with a village motorcycle owner who will take them to the health center. In addition, the motorcycle owners have already been sensitized on this type of service, and have agreed to receive payment *after* providing the service. In other villages, a non-formalized contract is signed with the motorcycle owners or taxi drivers. In three villages (*Dekandji, Koyohoué and Avégodo*) where there is no solidarity petty cash, children's transportation for serious malaria is no longer a problem, as a driver has been identified to provide this service free of charge and is always available to transport a child. The *solidarity fund* in some villages also helps parents cover expenses for treatment and a health center's consultation fees.

4.7. Early referral for mothers with children under-five (0 to 59 months) who had malaria during their last pregnancy.

During the two years of project implementation, an average of 66 pregnant women consulted health centers every year for malaria, compared to 92 in 2006 (before the project started up). This result shows, as a proxy, that the frequency of malaria cases during pregnancy decreased significantly in health centers. This is largely due to the malarial preventative treatment (i.e., IPTp) provided to pregnant women. Sixty percent of pregnant women who went for

antenatal care benefitted from IPTp. *In addition, over the two years of project implementation, no deaths recorded in the health facilities among pregnant women were due to malaria*. The following interventions contributed to the number of malaria cases among pregnant women:

- Awareness sessions for information or for recalling pregnant women about malaria prevention and treatment;
- Home visits and monitoring conducted by the CHW for pregnant women; and
- Training on the serious signs of malaria conducted at the community level and at the maternity hospital during antenatal care sessions. The project has placed a particular emphasis on recognizing the signs of malaria (headaches, stiffness, fever, asthenia) so that pregnant women are able to seek timely early referrals.

4.8. Percentage of mothers with infants (0 to 11 months) who have benefited from IPTp during their last pregnancy.

To comply with the new strategy for the management of primary and secondary prevention of malaria during pregnancy, the project built the capacities of maternity hospitals through the training of service deliverers on IPTp and the provision of *Sulfadoxine Pyrimethamina* (SP – an IPTp medication). According to the strategy's protocals, women are to receive at least two doses of SP during the antenatal care visits. The women are then to ingest them in the presence of the midwife/care provider who can verify that they were taken. In the project villages, 40 percent of mothers with infants benefitted from IPTp over their last pregnancy.

However, the percentage of pregnant women with supervised SP intake (40 percent) remains considerably lower than the percentage receiving antenatal care visits (85 percent).

4.9. Assessment of the the collaboration between the health structures and beneficiary communities.

According to the results of the assessment, aside from the technical support provided to the CHWs by the coaching team in the health zone for AD&D, the CHWs and other members of the QITs did not benefit from monitoring or supervision from government health agents at the district or community levels. Chief nurses and matrons in health centers stated that this was due to the fact that they were overworked (each has a workload of 20,000 patients) within their coverage zone. Also, there was a lack of motivation or incentive to engage in monitoring and supervision. They agreed that strong planning and intergration of activities were effective mechanisms for allowing them to conduct monthly supervisions of the QIT.

4.10. Strengths and weaknesses of the project.

Project strengths

- Improvement Collaborative methodology is an effective means for creating an environment where sustained behavior changes can be achieved in communities. The methodology fostered an entreprenurial spirit that led to continous improvements and shared learning between QITs.
- Regular home visits were an enabling factor to secure consent to allow the night visits for LLIN control in households.
- Proper completion of referral and counter-referral cards for children under 6 months and serious cases of malaria.
- Referals made by CHWs for children suffering from serious malaria to seek care at the nearest health center.

- Effective monitoring of the sick children by CHWs during home visits.
- Counter referals made by some chief nurses or matrons of AHC to CHWs enable CHWs to be informed and oversee the monitoring of the child.
- Good participation of the majority of QIT members in the activities.
- Availability of motorcylces or cars to take children to health centers has facilitated referrals.
- The establishment of the *solidarity funds* in some villages has been a good practice and considered mutually beneficial to both the parent, child, and that of the transport provider.
- Children's vaccination campaigns in outreach strategy organized by the QITs has improved vaccination coverage and allowed QITs to leverage the campaigns as an opportunity to provide other health messages and services.
- Holding one QIT member in each hamlet accountable for their tasks has facilitated the social mobilization and the diffusion of messages.
- The integration of health education activities during LLIN distribution sessions has facilitated women's access to the antenatal care messages.

Project weaknesses

- Free LLIN distribution has not reached all targeted.
- The QITs have not been supervised by the chief nurses or matrons.
- Most of the pregnant women do not eat before arriving at the health centers, which prevents them from taking the SP (i.e., IPTp) while seeing the health agent.
- One out of four zones has not achieved the required improvements in knowledge level.
- Many households continue to use torn bed-nets.
- Some women do not use bed-nets because they leave them in the fields.
- Most of the chief nurses or matrons do not engage in counter referrals.

V. Recommendations

Based on the analysis of the findings, recommendations have been made to improve future activities in community-based malaria prevention utilizing the Improvement Collaborative approach.

Plan Benin

- Continue to utilize and scale-up the Improvement Collaborative approach in community-based malaria prevention and treatment efforts.
- Continue to establish QITs and support the shared learning experiences to efficiently expand their prevalence in Benin villages.
- Scout for funding to continue the operations and best practices proving effective in the villages.
- Prioritize and intensify the interventions concerning treatment through home-based care and mangement of malaria by involving husbands in all the villages within the identified priority zones.
- Identify with the community mechanisms for the replacement of torn bed nets.
- Identify with the community a mechanism for facilitating children's transportation to enable the seeking of referals, counseling, and treatment outside the home.

- Set up an incentive mechanism for the MoH health agents with respect to the supervision of the QIT.
- Involve the staff from private maternity hospitals in the trainings conducted by the project, so that they are able to apply the IPTp strategy protocals in their work.
- Encourage the generalization of *solidarity funds* and reorganize them into community health organizations or groups/associations, which can sign contracts for care with health centers and transport providers.
- Involve private clinics in the training of new policy formulations for the care and management of malaria.

Partner commmunities

- Mobilize the functioning of the *solidarity fund.*
- Sensitize more husbands in the care and management of pregnant women.
- Sensitize women on the importance of eating before going for an antenatal care visit.
- Advocate to the MoH for a part of the profit from bed net, Coartem, and IPTp sales to be used for community funding.

DHD/HZ

- Make monitoring and supervision systematic in outreach strategies.
- Integrate the monitoring of community workers' activities into the Minimum Package of Activites for post chiefs and heads of delivery rooms in the health centers.
- Advocate a new upcoming campaign for LLIN distribution to the MoH.
- Set up an incentive mechanism for health agents related to commmunity activities.

VI. Conclusion

From 2007 to 2008, Plan Benin implemented a pilot project for the prevention of malaria in communities through the Improvement Collaborative approach in 20 pilot villages in the communes of Aplahoué and Djakotomey. The goal of the project is to reduce maternal and infant mortality caused by malaria in the Couffo department. After two years of project implementation, an evaluation using LQAS was conducted to assess progress and performance. The evaluation was conducted from March to April 2009 in four supervisory zones. The main findings are as follows:

- The percentage of mothers and children under-five found to sleep under an LLINs in the 24 hours preceeding the survey increased from 34 percent at baseline to 70 percent (target – 60 percent);
- Ninety (90) percent of mothers of infants aged 0 to 11 months consistently slept under LLINs during their last pregnancy.
- The percentage of children under-five that suffered from fever two weeks preceding the survey and who received appropriate home-based care and treatment for malaria within 24 hours, increased from 25 percent to 55 percent (target rate – 40 percent).
- Twenty (20) percent of infants with serious malaria were referred to the nearest health centers.
- Ninety-five (95) percent of mothers with children under-five identified at least one sign of serious malaria, which increased from 19 percent at baseline;
- Over the two years of project implementation, no deaths recorded in the health facilities among pregnant women were due to malaria.
- The percentage of pregnant women with supervised SP intake (40 percent) remains considerably lower than the percentage receiving antenatal care visits (85 percent).

- Aside from the technical assistance provided to community health workers (CHWs) by the coaching team of the health district of Aplahoué, Djakotomey and Dogbo (AD&D), the CHWs and other members of the Quality Improvement Teams (QITs) reported that they have not benefitted from monitoring or supervision efforts conducted by government health agents.

Based on the existing collaboration between communities, the DHD, and Plan Benin, the project has demostrated that the Improvement Collaborative methodology and the project's activities resulted in sustained behavior changes in the communities that led to significant improvements on the indicators related to malaria. The recommendations in this report suggest the necessary steps that should be taken for the project to continue in the pilot villages and with their inclusion should be expanded to other villages in the Couffo district and beyond.

VII. Appendices

Appendix 1. Terms of Reference for Final Evaluation.

TERMS OF REFERENCE FOR THE FINAL EVALUATION ASSIGNMENT WITH RESPECT TO THE PROJECT OF THE COLLABORATIVE APPROACH TO COMMUNITY-BASED MALARIA PREVENTION IN THE COMMUNES OF APLAHOUE AND DJAKOTOMEY

I. Context and Justification

According to a study conducted by Plan Benin in in 2006 on IMCI, malaria is one of the main diseases causing mortality among infants and pregnant women. The study findings reveal that in the Couffo department, malaria is the infection that occurs most frequently among children under five (39 percent of children).

Parasitosis prevalence is particularly high among primigravidae (women who are pregnant for the first time) which results in a high prevalence of anemia (5 to 15 percent of the cases), low birth weight and high infant mortaliy. Malaria is responsible for about 19.8 percent of maternal deaths. According to a baseline study conducted by Africare in Couffo in March 2005 on the use of bed-nets, only 13 out of 100 children sleep under bed-nets; and only 4 out of these 13 children possess an impregnated bed-net.

According to the same study findings, 19 out of 50 women have never protected their baby in the womb by MIT; almost 6 out of 10 mothers have been able to explain how to treat a hot body at home whereas only 3 out of 10 months recognize the danger signs for child illnesses. In 2006 , according to a study conducted by Plan Benin, malaria is the disease that affects the largest proportion of children under five (39 percent); according to the same study, 30 percent of the surveyed mothers stated that they lost a child under-five; these deaths mostly occur at home (69.3 percent). Regarding malaria prevention, the study revealed that only 55.8 percent of households in Couffo possessed bed-nets; only 73.4 percent of those bed-nets have been impregnated with insecticide. Concerning bed-nets impregnated with long lasting insecticide (LLIN), 34 percent of children under-five and 35.5 percent of mothers sleep under LLIN. Regarding seeking appropriate care to treat malaria, the study showed that in Couffo, 86.7 percent of mothers first seek home-based care for counselling and treatment before seeking outside care.

Based on these findings, Plan Benin recognizes the economic and health impacts of malaria in the intervention zones; consequently, in April 2007, a project named " Collaborative Approach to Community-based Malaria Prevention" was created and implemented. This project targets children under-five and pregnant women. It is implemented on a pilot basis in twenty villages in the Couffo department i.e. 10 villages in each commune of Aplahoué and Djakotomey (see the list of the villages in appendix).

This project has set a goal: to reduce the maternal and infant mortality caused by malaria. Specifically, it aims to achieve the following:

- To increase the use of the bed nets impregnated with long lasting insecticide from 34

percent to 60 percent among pregnant mothers and the children under-five in the targeted villages.

- To promote the appropriate domestic care and management at the community level.
- To increase early referral of therapy failure or serious malaria cases for appropriate care among children under-five and pregnant women by 40 percent.
- To enhance the collaboration between health structures and communities through the organization of home visits and provision of support to community groups in malaria prevention.

In order to achieve these objectives, teams have been set up in the project's beneficiary villages- Quality Improvement Teams (QITs), which are made up of community workers, representatives of children's mothers, opinion leaders, witch doctors, AMC's representative, health agents and children. Quality improvement can be defined as a deliberate process to improve family and community practices. This is the critical role of the QIT in the collaborative methodology. Those teams, among others, organize periodic data collections; data collections are followed by learning sessions to exchange experiences and share specific strategies. The QITs execute specific strategies to induce new behaviors in domestic care and management of malaria.

The QITs have been trained on the techniques of collection, manual processing and data analysis, and are capable of calculating the indicators relating to malaria prevention; in addition, training sessions have been conducted on the national strategies for the prevention and management of malaria in households and communities. The QIT hold in their respective village sessions for reporting bimonthly monitoring results to the community or village assembly. Regarding project management, an Advisory Council has been set up; its members hold a quaterly meeting to discuss the quaterly monitorings of project activities.

II. Assignment Objectives

2.1 Goal

Evaluating whether the project objectives have been achieved through the outcomes and induced effects on families in the beneficiary communes.

2.2 Specific Objectives

- To determine the percentage of LLIN use among pregnant women and children under five in the targeted villages.
- To assess the domestic management of malaria to under five children by the mothers and the QIT based on the defined standards of the National Program for the fight against Malaria (NPFM),
- To determine the percentage of under five children and pregnant women who do not seek timely care for malaria in instances of failure of domestic therapy or serious cases of malaria.
- To appraise the collaboration between all the health structures involved in the execution of the project.
- To make recommendations based on the project's strengths and weaknesses to improve future operations.

III. Expected outcomes

- The percentage use of LLIN among pregnant women and the children under-five is known in the targeted villages.

- The percentage of mothers of children under-five use the correct domestic management techniques for fever based on the IQT and norms defined by the National Program for Fight against Malaria is known.
- The level of collaboration between the health structures and beneficiary communities is known.
- The strengths and weaknesses with respect to the program aspects are known.
- The adjustments, the corrective measures or the re-orientations are defined in the form of recommendations**.**

IV. Asssignment venue

The evaluation assignment will be conducted in the Communes of Aplahoué and Djakotomey in the 20 villages of the project execution (see list in appendix).

V. Evaluation methodology

The methodology Lot Quality Assurance Sampling (LQS) will be used at all the stages of the evaluation process. The evaluation team will be trained on the data collection approach using the LQAS methodology, data collection tools and interview techniques. This training will be conducted by a pool of trainers composed of the project coordinator, the Health Coordinator and the RED-UNIT Coordinator, backed by a resource person experienced in conducting program/project evaluations using the LQAS methodology.

The project final evaluation will be conducted according the LQSA principle that recommends the participation of community actors at all stages including: training in the LQAS methodology, collection tools, data collection and tabulation techniques for collected data.

According to LQAS principles, the 20 villages were subdivided into 4 supervisory zones, namely supervisory zone A composed of 5 villages; supervisory zone B composed of 5 villages; supervisory zone C composed of 4 villages and supervisory zone D composed of 5 villages. All 4 supervisory zones constitue the collection zone. The subdivision was done by dividing each of the two communes in two.

Nineteen interviews will be conducted in every Supervisory Zone. A team composed of 2 surveyors and 1 near supervisor will collect data in his or her supervisory zone; the surveyors are the community workers /QIT educated workers and the near supervisors, and the health agents from the Health Centres. Plan's technical team and the resource person will coordinate the entire evalution exercise (see details in Appendix).

In the Tabulation workshop, every project execution site will be informed on the indicators which need to be improved, an action plan to carry out in the villages and corrections that need to be made based on the shortcomings found in the evaluation. It is recommended that one representative from each village and one health agent from the Health Centre participate in the tabulation workshop.

VI. Assignment organization

In total, 12 participants will be trained in LQAS. They will be divided into 4 evaluation teams and every evaluation team will be composed of 3 people. These participants will collect data in his or her supervisory zone under the supervision of the trainers and Zone Chiefs. The trainers, backed by a statistician, will process the analysis through the Epi-Info software in order to finetune the evaluation findings and write the final evaluation report,

which will be shared with the grantor and other partners.

VII. Assignment duration and period

The assignment is planned for 30 days from 05 to 28 February 2009 according to a chronogram that will be evolved jointly with all the technical team members.

Appendix 2. Sampling Frame.

Zone A

Cadre d'échantillonnage/LQAS pour l'évaluation du projet collaboratif

NA= 413 Intervalle de l'échantillonnage =471,42

Village	Population	Population Cumulative	Lieu de l'interview	Total Sets of Interviews
Houétan	1907	1907	413;884;1355;1826	4
Dogohoué	1148	3055	2297;2768	2
Hédjinnawa	2078	5133	3239;3710;4181;4652;5123	5
Gbaconou	2301	7434	5594;6065;6536;7007;	4
Agondogoui	1523	8957	7478;7949;8420;8891	4
Total	8957			**19**

NA- Nombre alleatoire

Zone B

Cadre d'échantillonnage/LQAS pour l'évaluation du projet collaboratif

NA= 338
Intervalle de l'échantillonnage =467,21

Village	Population	Population Cumulative	Location of Interviews	Total Sets of Interviews
Avégodo	1766	1766	338;805;1272;1739	4
Azondogahoué	1938	3704	2206;2673;3140;3607	4
Djikpamey	2541	6245	4074;4541;5008;5475;5942;	5
Dékandji	1457	7702	6409;6876;7343	3
Koyohoué	1175	8877	7810;8277;8744	3
Total	8877			**19**

Zone C

Cadre d'échantillonnage/LQAS pour l'évaluation du projet collaboratif

NA= 130	Intervalle de l'échantillonnage =246,10			
Village	**Population**	**Population Cumulative**	**Location of Interviews**	**Total Sets of Interviews**
Hounkémey	1373	1373	130;376;622;868; 1114;1360	6
Gbotohoué	1331	2704	1606;1852;2098;2344;2590	5
Tokpohoué	958	3662	2836;3082;3328;3574;	4
Agbédranfo	1014	4676	3820;4066;4312;4558	4
Total	**4676**			**19**

Zone D

Cadre d'échantillonnage/LQAS pour l'évaluation du projet collaboratif

NA= 221 Intervalle de l'échantillonnage =400,05				
Village	**Population**	**Population Cumulative**	**Location of Interviews**	**Total Sets of Interviews**
Gamèhouégbo	1058	1058	221;621;1021	3
Ablomey	510	1568	1421	1
Bota	2772	4340	1821;2221;2621;3021;3421;3821;4221;	7
Dowomey	1066	5406	4621;5021;	2
Loko-Atoui	2195	7601	5421;5821;6221;6621;7021;7421;	6
Total	**7601**			**19**

Appendix 3. Distribution of LLINs in the project villages.

Commune	Arrondissement	Villages	Number of LLINs Distributed
CADRE D'ECHANTILLONNAGE POUR LA ZONE DE SUPERVISION A			
Aplahoué	Kissamey	Houétan	133
Aplahoué	Kissamey	Dogohoué	274
Aplahoué	Kissamey	Hédjinnawa	167
Aplahoué	Kissamey	Gbaconou	259
Aplahoué	Atomey	Agondogoui	183
Total			**1016**
CADRE D'ECHANTILLONNAGE POUR LA ZONE DE SUPERVISION B			
Aplahoué	Aplahoué	Avégodo	331
Aplahoué	Aplahoué	Azondogahoué	285
Aplahoué	Aplahoué	Djikpamey	330
Aplahoué	Dékpo	Dékandji	402
Aplahoué	Dékpo	Koyohoué	137
Total			**1485**
CADRE D'ECHANTILLONNAGE POUR LA ZONE DE SUPERVISION C			
Djakotomey	Sokouhoué	Hounkémey	227
Djakotomey	Adjintimey	Gbotohoué	206
Djakotomey	Sokouhoué	Tokpohoué	270
Djakotomey	Djakotomey1	Agbédranfo	192
Total			**895**
CADRE D'ECHANTILLONNAGE POUR LA ZONE DE SUPERVISION D			
Djakotomey	Bétoumey	Ablomey	207
Djakotomey	Bétoumey	Bota	269
Djakotomey	Houégamey	Gamèhouégbo	253
Djakotomey	Hagoumey	Dowomey	334
Djakotomey	Hagoumey	Loko-Atoui	323
Total			**1386**
Total in Village Collaboratives			**4782**

Appendix 4. Data collection tools.

Questionnaire for mothers of children under-five

I N° d'ordre de l'informateur I__I__I **II.** Statut de l'informateur **1**. Mère I__I **2**. Gardienne d'enfant I__I

III. Enquêteur: _____ **IV**. Superviseur: _____

V. Date de l'entretien /____/____/____/ **VI** Heure de début /_____/_____/

A. Reconnaissance du paludisme			
Numéro de question	**Catégories de Réponses**		**← Cocher ici**
1. Combien d'enfants de 0 à 59 mois, ont fait la fièvre dans ce ménage au cours des deux dernières semaines ? ***INSCRIRE TOUS LES ENFANTS*** **Prénom**_____ **Prénom** _____ **Prénom** _____ **Prénom**_____ ***S'IL Y A PLUS D'UN ENFANT DE 0 A 59 MOIS AYANT FAIT LA FIEVRE DANS CE MENAGE, EN CHOISIR UN AU HASARD.***			
2. ENREGISTREZ LE NOM DE L'ENFANT CHOISI _____			
3. Quel est le sexe de (**NOM DE L'ENFANT**) ?	MASCULIN		
	FEMININ		

4. Quelle est la date de naissance de (**NOM DE L'ENFANT**) ?	___ /_____ /_____ Jour / Mois / Année		
SI LA MERE NE CONNAIT PAS LA DATE DE NAISSANCE DE (NOM DE L'ENFANT), DEMANDER **5**. Quel âge a (**NOM DE L'ENFANT**) ?	 (**En MOIS**)		
6. Comment avez-vous reconnu que l'enfant faisait la fièvre/Paludisme ? ***Noter toutes les réponses***	a. Corps chaud		
	b. Tremble de froid		
	c. Vomissement		
	d. Diarrhée		
	e. Autres (Préciser)		
7. Selon vous, qu'est-ce qui cause le paludisme ?	a. Piqûres de moustique		
	b. sorcellerie		
	C .Exposition au soleil		
	d. Aliments trop huileux		
	e. Prise d'arachide		
	f. Transfusions sanguines		
	g. Injections		
	h. Partage de lames/rasoirs		
	i. Autre (Préciser)		
	j. Ne sait pas		
8. Citez au moins un signe de gravité du paludisme	a. Fièvre persistante		
	b. Respiration rapide/difficile		
	c. Refus de manger ou téter		
	d. Inconscience, léthargie		
	e. Convulsion		
	f. Vomissement de tout aliment		
	g. Anémie		

	h. Urines Coca Cola		
	i. Ne Sait Pas		
9. Quels sont les moyens à utiliser pour prévenir le paludisme ?	a. Moustiquaire		
	b. MOUSTIQUAIRE IMPREGNEE		
	c. AUTRES (PRECISER)		
	d. NSP		
B. Utilisation de la Moustiquaire			
10. Avez-vous de moustiquaire dans votre maison ? **(Si oui, demandez à la voir)**	a. Oui		
	b. Non		**Passer à Q19**
11. Demander la permission pour vérifier si la moustiquaire disponible dans le ménage est suspendue	a. Suspendue		
	b. Non suspendue		
	c. Pas pu être observée		**Passer à Q18**
12. Marque de la moustiquaire **(vérifier l'étiquette sur la moustiquaire)**	a. Permanet		
	b. Permanet/PNLP/ MSP/ Benin		
	c. Olyset net /Sumitomo		
	d. Pas d'étiquette		
	e. Etiquette non lisible		
	f. Autres (préciser)		
13. Etat de la Moustiquaire	a. Sans déchirure/trou		
	b. Avec déchirure /trou		
14. Où avez-vous dormi la nuit dernière dans votre maison?	a. A l'intérieur de la chambre		
	b. En plein air		**Passer à Q 16**
	c. Autre (Préciser)		
15. Qui a dormi sous cette Moustiquaire la nuit dernière ? ***Noter toutes les réponses***	a. Enfant choisi		
	b. Maman		
	c. Papa/mari		
	d. Autre (Si enfant, préciser l'âge)		
16. Si des membres du ménage ont dormi sous	a. Supports vus		

moustiquaire en plein air, vérifier l'existence des supports de suspension	b. Supports non vus		
17. Pourquoi avez-vous fait dormir votre enfant sous la MII? ***Noter toutes les réponses***	a. Contre Piqûres de moustique/paludisme		
	b. Paravent		
	c. Par plaisir		
	d. Contre le froid		
	e. Ne sais pas		
	f. Autre (Préciser)		
18. Encercler les raisons de non observation de la moustiquaire	a. Refus		
	b. Autre		
C. Prise en charge du paludisme à domicile			
19. Quel est le ou les médicament(s) que vous avez donné à votre enfant qui a fait la fièvre ? **POSEZ LA QUESTION SUR LE MEDICAMENT UTILISE POUR TRAITER L'ENFANT : SI LE TYPE DE MEDICAMENT N'EST PAS CONNU OU N'EST PAS DETERMINE, MONTREZ LES ANTIPALUDIQUES RECOMMANDES (CTA) A L'ENQUETEE**	a. Coartem		
	b. Quinine		**Si pas coartem passer à Q 25**
	c. Chloroquine		
	d. Paracétamol		
	e. Aspirine		
	f. Autres (préciser)		
	g. Ne Sait Pas		
20. Combien de temps (**en HEURE**) après le début de la fièvre avez vous donné le Coartem à (**NOM DE L'ENFANT**) ? **AMENEZ LA MERE A DONNER AVEC PRECISION LE DELAI SEPARANT LE DEBUT DE LA FIEVRE ET LE DEMARRAGE DU TRAITEMENT**	a. [0 - 6H [		
	b. [6 - 12 H [		
	c. [12 - 24H [		
	d. [24 - 48 H [		
	e. > 48 H		
	f. NSP		
21. Pendant combien de jours l'enfant a t-il reçu le Coartem ? **AIDER L'ENQUETEE A DONNER LA DUREE EXACTE D'ADMINISTRATION DE L'ANTIPALUDIQUE**	a. ☐☐ (**EN JOURS**) b. Ne Sait Pas		
22. Combien de comprimés de Coartem l'enfant	a. 1cp par prise		

a-t-il reçu **par prise** par jour pendant le traitement ?	b. 2cp par prise		
	c. 3cp par prise		
	d. Autres (à préciser)		
23. Combien de fois avez-vous donné les comprimés de Coartem à l'enfant par jour pendant le traitement ?	a. 1 fois par jour		
	b. 2 fois par jour		
	c. 3 fois par jour		
	e. Autres (à préciser)		
24. Où avez-vous obtenu le Coartem ?	a. Relais Communautaires		
	b. Formations Sanitaires Publiques		
	c. Cliniques		
	d. Pharmacies		
	e. Amis/alliées		
	f. Boutiques		
	g. Autre (A préciser)		
	h. NSP		
25. Au cours de la maladie l'enfant a –t-il reçu un autre médicament contre la fièvre/Paludisme ?	a. OUI SPECIFIER NOM:_____		
	b. NON		
	c. Ne Sait Pas		
26. Quand votre enfant a fait la fièvre, que lui avez-vous fait à la maison en dehors de l'administration de médicament ?	a. ENVELOPPEMENT HUMIDE b. AUTRES (PRECISER)		
27. L'enfant s'est-il rétabli au bout des 3jours de traitement?	a. Oui		
	b. Non		**Si non passer a Q 28**
D. Recours aux Formations sanitaires			
28. Avez-vous recherché un traitement en dehors de la maison pour la fièvre/Paludisme de (NOM) ?	a. Oui		
	b. Non		
29. Qui vous avait conseillé de faire recours à un traitement pour la fièvre/Paludisme de (NOM) ?	a. mère de l'enquêtée		

	b. mari/partenaire		
	c. Relais Communautaire		
	d. belle-mère		
	e. amis/voisins		
	f. Personne		
	f. Autre (Précisez)		
30. Où êtes-vous allé **en premier lieu** pour le traitement ?	a. Hôpital de zone		
	b. Centre de Santé de l'Arrondissement		
	c. Cabinet privé		
	d. Chez les Sœurs Religieuses		
	e. Clinique		
	f. Relais communautaire		
	g. Autre établissement de Santé (précisez)		
	h. Guérisseur traditionnel		
	i. Boutique		
	j. Pharmacie		
	k. Amis/parents		
	l. Autre (Précisez)		
31. Si la mère a emmené (NOM) dans un Centre de santé, demander, Après combien de jour est-elle allée au Centre de Santé ?	a. Même jour		
	b. jour suivant la fièvre		
	c. 2 jours après la fièvre		
	d. 3 jours ou plus après la fièvre		
	e. Ne sais pas		
32. Qui a décidé que vous deviez aller à cet endroit/personne pour la maladie de (NOM)	a. mère de l'enquêtée		
	b. mari/partenaire		
	c. Relais Communautaire		
	d. belle-mère		
	e. amis/voisins		
	f. Autre (Précisez)		

33. Êtes-vous allé ailleurs pour poursuivre le traitement pour la fièvre/Paludisme de (NOM) ?	a. Oui		***Si Oui passer à Q 34***
	b. Non		
34. Où êtes-vous allé ?	a. Hôpital de zone		
	b. Centre de Santé de l'Arrondissement		
	c. Cabinet privé		
	d. Chez les Sœurs		
	e. Clinique		
	f. Relais communautaire		
	g. Autre établissement de Santé (précisez)		
	h. Guérisseur traditionnel		
	i. Boutique		
	j. Pharmacie		
	k. Amis/parents		
	l. Autre (Précisez)		
35. Si la mère a emmené (NOM) dans un **autre** Centre de santé, demander, Après combien de jour est-elle allée au Centre de Santé ?	a. Même jour		
	b. jour suivant la fièvre		
	c. 2 jours après la fièvre		
	d. 3 jours ou plus après la fièvre		
	e. Ne sais pas		
36. Qui a décidé que vous alliez à cet **autre** centre de santé ?	a. L'agent de santé ?		
	b. La Mère de l'enfant ?		
	c. Le mari/partenaire		
	d. Amis/parents		
	e. Autres (Préciser)		

Heure de Fin : /_____/_____/

Questionnaire for mothers of infants 0-11 months

I N° d'ordre de l'informateur I__I__I **II.** Statut de l'informateur **1**. Mère I__I **2**. Gardienne d'enfant I__I

III. Enquêteurs: _____ **IV**. Superviseur: _____

V. Date de l'entretien /____/____/____/ **VI.** Heure de Début /_____/_____/

A. CPN			
Numéro de question	**Catégories de Réponses**		**← Cocher ici**
1. Combien d'enfants de 0 à 11 mois vivent dans ce ménage ? ***S'IL Y A PLUS D'UN ENFANT DE 0 A 11 MOIS QUI VIVENT DANS CE MENAGE, LES INSCRIRE TOUS ET EN CHOISIR UN AU HASARD*** **Prénom**_____ **Prénom** _____ **Prénom** _____ **Prénom**_____	☐☐		
2. ENREGISTREZ LE NOM DE L'ENFANT CHOISI _____			
3. Quel est le sexe de (**NOM DE L'ENFANT**) ?	MASCULIN		
	FEMININ		
4. Quelle est la date de naissance de (**NOM DE L'ENFANT**) ?	____ /_____ /_____ Jour / Mois / Année		

SI LA MERE NE CONNAIT PAS LA DATE DE NAISSANCE DE (NOM DE L'ENFANT), DEMANDER **5**. Quel âge a (**NOM DE L'ENFANT**) ?	☐☐ **(En MOIS)**		
6. Combien de grossesses avez-vous eues dans votre vie ?	☐☐		
7. Au cours de votre dernière grossesse avez-vous fait des visites prénatales ?	a. Oui		
	b. Non		
8. Si oui combien de visites prénatales avez-vous faites avant d'accoucher ?	a. ☐☐		
	b. Ne Sait Pas		
	c. Non précisé		
9. Où avez-vous fait les visites prénatales ? **PLUSIEURS REPONSES SONT POSSIBLES**	a. FS publique		
	b. FS privée confessionnelle		
	c. FS privée		
	d. Domicile (stratégie avancée)		
	e. autres (préciser)		
10. Avez-vous votre carnet de santé ?	a. Oui		
	b. Non		**Si Non passer à Q 13**
11. Si oui alors demander à voir le carnet	a. Oui, vu par l'enquêteur		
	b. Non dispo./perdu/non retrouvé		
	c. N'a jamais eu de carnet santé		
12. Reporter le nombre de visites prénatales listées dans le carnet	☐☐		
B. TPI PENDANT LA GROSSESSE			
13. Quand vous étiez enceinte de (**NOM DE L'ENFANT**) avez-vous avalé des médicaments pour éviter le paludisme ?	a. Oui		
	b. Non		
	C. NSP		
14. Avez-vous avalé pendant vos consultations prénatales 3 comprimés en même temps pour	a. Oui		
	b. Non		

prévenir le paludisme ?	C. NSP		
15. Combien de fois avez-vous avalé ces 3 comprimés au cours de la grossesse ?			
16. Toutes les fois, avez-vous avalé ces comprimés devant l'agent de santé ?	a. Oui		
	b. Non		
17. Combien de fois devant l'agent de santé ?			
18. Combien de fois en absence de l'agent de santé ?			
19. Quelles sont les raisons de la prise en l'absence de l'agent de santé ?	a. N'a pas mangé avant la visite		
	b. Manque d'eau au centre de santé		
	c. Autres (préciser)		
B. UTILISATION DE MOUSTIQUAIRE PENDANT LA GROSSESSE			
20. Quand vous étiez enceinte de (**NOM DE L'ENFANT**) dormiez-vous sous moustiquaire ?	a. Oui		
	b. Non		
21. Si OUI, à quel rythme ?	a. Toutes les nuits		
	b. De temps en temps		
	c. Occasionnellement		
22. Si NON, Pourquoi n'aviez-vous pas dormi sous moustiquaire pendant votre grossesse?	a. Odeur de la moustiquaire		
	b. Chaleur		
	c. N'aime pas		
	d. Absence de moyens		
	e. Période de rite/interdit		
	f. Dérange/étouffe		
	g. Passe aux visiteurs		
	h. Pas de moustiquaire Pendant la grossesse		
	i. Autres (préciser)		
23. Disposez-vous actuellement de moustiquaire(s) ?	a. Oui		
	b. Non		

24. Si non, pourquoi n'avez-vous pas de moustiquaire ?	a. Déchirée		
	b. Pas d'argent		
	c. N'aime pas dormir sous moustiquaire		
	d. Ne sait pas où ça se vend		
	e. Trop cher		
	f. MIILD non disponible		
	g. Ne ressent pas l'utilité		
	h. Aucune raison		
	i. Autres (préciser)		
25. Où avez-vous dormi la nuit dernière dans votre maison?	a. A l'intérieur de la chambre		
	b. En plein air		
	c. Autre (Préciser)		
26. Avez-vous dormi sous moustiquaire au cours de la nuit dernière ?	a. Oui		
	b. Non		
27. Demander la permission pour vérifier si la moustiquaire disponible dans le ménage est suspendue	a. Suspendue		
	b. Non suspendue		
	c. Pas pu être observée		
28. Si la mère a dormi sous moustiquaire en plein air, vérifier l'existence des supports de suspension	a. Supports vus		
	b. Supports non vus		
29. Marque de la moustiquaire **(vérifier l'étiquette sur la moustiquaire)**	a. Permanet		
	b. Permanet/PNLP/ MSP/ Benin		
	c. Olyset net /Sumitomo		
	d. Pas d'étiquette		
	e. Etiquette non lisible		
	f. NSP		
	g. Autres (préciser)		
30. Etat de la Moustiquaire	a. Sans déchirure/trou		
	b. Avec déchirure /trou		
	c. NSP		
31. Encercler les raisons de non observation de la moustiquaire	a. Refus		
	b. Autre (Préciser)		

Heure de Fin : /_____/_____/