Partnership for Prevention and Treatment of Malaria (PPTM)

Malaria Communities Project
North Rift Valley - Kenya
Cooperative Agreement #GHN-A-00-09-00008-00
October 1, 2009 – December 31, 2012

FINAL REPORT
October 1, 2009 – December 31, 2012

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A. Year 3 Annual Report

General:

HealthRight received a No-Cost Extension for the PPTM project in order to allow additional time for the completion of a thorough project evaluation and for appropriate hand over of all project activities to the community and facility partners. As a result, HealthRight submitted a fourth quarterly report consisting of progress on activities from July through September 2012. The information provided in this section of the project final report is a compilation of the updates provided in those four quarterly project reports.

Objective 1: Build the capacity of community, local organizations and Community Health Workers to promote sustainable prevention and care seeking behavior.

The Partnership for the Prevention and Treatment of Malaria (PPTM) took a two-pronged approach to building the capacity of communities. The project partnered with ten local community-based organizations (CBOs) who serve as behavior change agents in their communities. And the project supported the national community health strategy which includes trained units of community health workers (CHWs) coordinated by community health committees (CHCs). This project supported 21 community health strategy units in our project areas, which are comprised of 1,050 CHWs and 21 CHCs.

Community Based Organizations:

HealthRight partnered with ten community-based organizations in order to have a larger impact on knowledge and behavior change at the community level. Building the capacity of these local organizations was essential for sustaining the project's impact beyond 2012.

In the final project year, all ten CBOs received a second round of grant funding from the HealthRight project to implement small community behavior change campaigns. In order to be eligible for this round of small grants, each organization must have completed all spending and activities on their previous sub-grant and submitted a satisfactory final project report. After each of the first-round grants were closed, partner organizations were invited to submit new project proposals.

During the first round of sub-grants awarded in the prior year, several of the CBOs struggled to develop their concepts and complete their proposals according to guidelines. Therefore, HealthRight hired a local short-term consultant to serve as a CBO Mentor during the submission process for those organizations with the lowest capacity or least amount of experience. The CBO Mentor offered intense support to CBO members in their project design and work plan development. HealthRight also changed the proposal guidelines to allow for hand-written submissions since many of the CBOs do not have easy access to computers. After a careful review process, ten new sub-grants were awarded on March 1, 2012. The proposed social behavior change projects continued through August 2012.

After the first month of implementation, each organization spent one day working with HealthRight's Sr. Finance Manager to conduct an audit of their spending. This additional monitoring was essential since some of the organizations had difficulties monitoring their spending and accounting for their funds in the past. The Sr. Finance Manager provided refresher finance management training as needed, based on the audit findings.

To ensure financial compliance, each CBO partner submitted monthly financial reports to show appropriate accounting of their expenditures. When needed, the HealthRight Community Mobilizers offered assistance in the completion of these reports. In addition, the Malaria Managers met with each CBO partner each month to discuss progress and challenges.

In September, HealthRight engaged a consultant to offer Organizational Management training to the partner CBOs. The 2-day training focused on development of the organizational mission and goals, leadership, and strategic planning.

Also in September, the final narrative and financial reports were submitted for review and closure of the sub-grants. All of the partner CBOs were invited to participate in and present at a final MCP conference during which they shared their challenges and experiences and networked with the project's other CBO partners.

National Community Strategy:
The project continued to support 21 units of CHWs during year 3. Below are the highlights for this year.

- During the first quarter, HealthRight delivered the three day training on the CCHANGE methodology for all of the CHW units that had not yet participated. The CCHANGE curriculum is a participatory means of developing messages specific to each community context and can be useful for the CHWs on all healthy behavior change topics. However, HealthRight's training focused on malaria messages such as early diagnosis and treatment and the use of LLITNs for pregnant women and children under the age of five. These trainings were projected to be completed in Y2 of the PPTM but their completion was slightly delayed until Y3 Q1.

- With funding from another donor, HealthRight organized Safe Motherhood training for 11 units of CHWs in Pokot County. This one day training was a refresher session for many CHWs since HealthRight provided this training initially in 2008 - 2009 with funding from USAID's Child Survival and Health Grants Program.

- In Y3 Q2, HealthRight Community Mobilizers conducted a brief survey of the CHWs using a focus group discussion format to collect information about their work. The questions sought to provide insights into the challenges and successes of CHWs during their household visits. Some of the questions posed were:
  1. Tell me about a time when you felt successful as a CHW. Why were you successful?
  2. Which health topics are you most confident in delivering?
  3. Do you feel adequately aware of the resources available in your community?

  All of the CHW units felt very confident providing messages about malaria in their work and many of them also felt well trained in Safe Motherhood messages. HIV/AIDS remains one topic that they felt uncomfortable addressing during their home visits, mainly because of stigma. Many of the units expressed that their work would be better if they were equipped with medications – specifically anti-malarials - to dispense at the household level. In the future, HealthRight will be able to use this information to guide support for the units toward improving job satisfaction and increasing long-term sustainability.

- Many of the HealthRight-supported units of CHWs organized themselves into federally recognized CBOs, registering through the Ministry of Social Services. Upon registration, the units become eligible to receive funding from local and national donors. For example, the community unit in Kapcherop, Marakwet received funding from the National AIDS Coordinating Committee (NACC) to implement community HIV/AIDS activities. This is an indication that these units, established by the project, will be sustained as viable resources in their communities in the long term.

- To foster greater monitoring, the PPTM community staff has been supporting the Community Health Extension Workers (CHEW) to conduct monitoring visits to a random selection of households for each CHW unit. During these visits, CHEWs meet with families to discuss the role of the CHW, verify net ownership and collect feedback about the community strategy activities.

- Last September, HealthRight coordinated meetings between the DHMTs and all of the CHW units in each district to review the community data, distribute CHW training certificates, and discuss ongoing barriers to the community strategy. Most often, payments for CHWs has been the most urgent issue raised during these meetings. Though the PPTM does not pay stipends for CHWs, maintaining that it is the responsibility of the MOH to do so and is not sustainable, several other projects in the area pay stipends irregularly. This has led to difficulties in the community health efforts.

Social Behavior Change Activities:
The project continued to disseminate malaria messages at *barazas* (community meetings), churches and during market days. In addition, the PPTM delivered malaria messages to the community very successfully through school visits. The PPTM Community Mobilizers coordinated school visits with other routine MOH campaigns such as de-worming. In this way, the project provided transport for the school visit and delivered malaria messages as part of an integrated visit. In the past year the project reached 80,869 community members through 394 community events.

The project assisted the DHMTs in each district to organize activities corresponding with World Malaria Day in April. Each district organized at least one centrally-organized community event with support from the project.

Table 1: HealthRight PPTM Objective 1 Work Plan

Objective 1: Build the capacity of communities, local organizations and CHWs to implement sustainable malaria treatment and prevention activities.

Activity	*Outputs (Year 3)*	*PMI Targets*	*Progress To Date*	*Partners*	*Location*
Organize malaria training to all partner CBOs and CHCs	189 community health committee members and staff from 10 partner CBOs receive training on malaria	85% of children receiving ACT within 24 hours of confirmed malaria diagnosis; AND 85% of pregnant women and children under 5 sleeping under an ITN the previous night;	Completed – CHWs receive regular malaria updates	10 partner CBOs, and 21 community health committees	All five districts
Monitor project activities for 10 CBO partners who received sub-grants in Y2	10 CBO partners provide final reports about their project activities and results		Completed – 10 CBOs provided final reports	10 partner CBOs	All five districts
Distribute sub-grants to CBO partners to serve as behavior change agents in their communities in Y3	10 CBOs receive one sub-grant in Y3		Completed – all final reports received	10 partner CBOs	All five districts
Conduct organizational training to partner CBO staff on topics of need (based on the baseline assessment from Y2; Q3) including advocacy and/or ME	10 CBOs in each district receive organizational training on one topic.		Completed in October 2012	CHCs; DHMT	All five districts
Evaluate the capacity of CBO partners using the OCVAT tools during the final evaluation	CBO partners are re-evaluated using the OCVAT tools		Completed in October 2012	CBOs	All five districts
Support CHWs to perform their tasks efficiently including household visits and registration, community education, monthly meetings	Monthly meetings convened for all 1,050 CHWs; all CHWs provided with necessary reporting tools and job	85% of children receiving ACT within 24 hours of confirmed malaria diagnosis; AND 85% of pregnant women and	Completed - Handover of all CHW activities to the DHMTs completed in	DHMTs, CHEWs and CHWs	All five districts

and H/hold data collection and use through refresher training and provision of materials	aids.	children under 5 sleeping under an ITN the previous night;	September		
Project staff and CHEWs measure malaria competency of communities, CHWs, and partners (CBOs) using the Malaria Competency Tool	Malaria Competency tool adapted and used, accurate malaria competency measured for all CHW units and in 21 communities		This tool will not be used. Instead, during the final evaluation, capacity will be measured using CHW-AIM and OCVAT tools.	CHEWs, CHWs and CBOs	All five districts
Conduct final evaluation including household KPC survey.	Final KPC survey conducted in all 21 communities.		Completed in November 2012	DHMTs, CHWs, CHCs and CBOs	All five districts
Handover of project activities and data.	DHMT meetings conducted in all districts. Meetings between DHMTs and CHWs convened. Final CBO conference organized.		Completed in December 2012	DHMTs, CHWs, CHCs and CBOs	All five districts

Objective 2: Build the capacity of 21 target health facilities and five DHMTs in Marakwet, Trans Nzoia East, and North, Central and West Pokot districts to deliver appropriate prevention, diagnosis, and treatment services.

Malaria Diagnosis:

As the gold standard, the PPTM focused health systems strengthening efforts on the diagnosis of malaria through microscopy. In the past quarter, HealthRight made a donation of six microscopes to target facilities in need. This donation is in addition to the five microscopes donated last year.

One priority of the PPTM was to perform quality checking of malaria lab diagnoses. In year three, the Malaria Managers all emphasized conducting regular checks of malaria slides with the District Lab Technicians. Although the project did not collect data in all sites on the concordance of the quality checks, data provided by West Pokot, indicated that the quality of lab diagnosis varied between 50 – 100% with an average score of 72.5%. In most sites, the ability of lab technicians to make an accurate malaria diagnosis was poor. The project provided slide boxes and additional slides for all target facilities in Q2.

In June 2012, the project organized Microscopy and RDT training for 40 lab technicians throughout the project districts. The week-long training was organized to improve the quality of microscopy diagnosis in our rural facilities. And, although many facilities had begun using Rapid Diagnostic Tests (RDTs), none of the clinical staff had been appropriately trained on their use. The timing of the training was particularly effective because it followed the quality review of microscopy in many of the districts. Therefore, the selection of training participants was guided by the findings of the review and targeted those facilities with the lowest capacity.

In Central Pokot, the Malaria Manager worked with the district lab technologist in the development of Standard Operating Procedures for routine checking of the quality of malaria diagnosis. These SOPs will be used throughout the district.

Training and Mentoring:

HealthRight focused efforts on regular mentoring to staff in the facilities. Based in the District Hospitals where the need is greatest, the Malaria Managers (MMs) worked alongside facility staff several days each week to improve skills, answer questions and ensure that new policies were adhered to. The behavior change that the Malaria Managers promoted was increased microscopy diagnosis, where possible, and appropriate treatment with ACT. Rural health centers and dispensaries were visited at least one day each month for these purposes. During these visits, the MMs offered mentoring on topics such as malaria complications during pregnancy, malaria case management and management of LLITN distributions to MOH staff.

Support to DHMTs:

Each quarter, the PPTM offered logistical and financial support to all five DHMTs to conduct facilitative supervision in facilities throughout their rural sites. Through these efforts, all 21 MCP-supported facilities received a visit from the DHMT each quarter through the life of the project. These visits offered opportunities for the DHMTs to monitor drug and LLITN supplies and to observe service delivery. Although the team members varied each quarter slightly, the DHMT members often included in the supervision were the District Malaria Focal Person, the District Public Health Nurse (DPHN), the District Public Health Officer (DPHO), the District Health Records Information Officer (DHRIO), and the District Disease Surveillance Officer (DDSO).

In addition, the project supported monthly DHMT meetings, which gathered staff from all facilities to report on their progress including the review of monthly HMIS data. Finally, the PPTM offered regular support to DHMTs for general health campaigns such as Polio immunizations and World AIDS Day events, when possible.

In Central Pokot, the DHMT formed a District Quality Assurance (DQA) team which was supported by HealthRight to conduct onsite training in five facilities reporting high rates of malaria including the three PPTM sites of Sigor, Ortum, and Lomut. The training provided orientation on the use of RDTs, offered quality checks on malaria microscopy diagnosis through the review of blood smears, and reviewed the quality of malaria data. Key staff from all of the facilities were in attendance.

Health Systems Strengthening:
The PPTM worked to strengthen the quality, effectiveness and sustainability of health services by working with health facility staff and the DHMTs on a variety of systems. This year, the project made several gains in strengthening health systems.

- Support to QA/QI systems: Though QA committees are not maintained in all of the districts, the PPTM project supported those that exist and are active. In Central Pokot, the QA Committee is particularly active and HealthRight financed and participated in their monthly meetings.

- Support to coordination mechanisms: In addition to QA Committees, the PPTM offered support to District and facility coordination efforts. For instance, PPTM attended and supported monthly in-charge meetings at the district level. In addition, in Marakwet, the DHMT opted to form a new coordinating body in place of a QA Committee called a Health Steering Committee. The Malaria Manager successfully lobbied for PPTM support for these monthly steering committee meetings.

- Monitoring and use of health data: The Malaria Managers worked closely with District Health Information Officers to monitor data collection and to provide mentoring, when necessary. Nearly all 21 of the PPTM-supported facilities submitted their monthly data reports accurately and on time throughout the period of the project. At times, the standard MOH malaria forms 105 were in short supply in some sites. The Malaria Managers made frequent requests from KEMRI for these forms to resolve these issues.

- Epidemic preparedness: The PPTM supported facility staff in weekly surveillance activities to document malaria prevalence and respond to epidemics. In November, malaria rates rose at the Mogil health center in Marakwet. The MM assisted the District Malaria Coordinator and the District Laboratory Technician to travel to the site and verify the data. The Laboratory Technician requested refresher training for the lab staff at the site because of the challenges that they were encountering there.

- Referral tracking: In all districts, the PPTM implemented a system of tracking referrals from CHWs to the health facilities. One facility per district was chosen to implement a system initially as a pilot, before rolling out to all other sites. This system included: the CHW referral slip was presented by the patient to the clinical officer upon arrival to the facility and the referral is logged. CHW referral slips were then collected and provided to the CHEW for follow up with the

respective CHW to confirm completion of the referral and to prompt subsequent follow up at the household level.

Outreach Clinics:
Each month, HealthRight supported each district to organize and conduct 2 outreach clinics in an isolated location. The clinics are marketed to community members in advance to encourage use of the outreach services. Staff from each of the partner district hospitals traveled with medical supplies to offer basic health services including ante-natal care, immunizations, HIV testing, and acute care.

Below please see the progress of HealthRight's program toward the 2012 annual work plan for objective two.

Table 2: HealthRight Objective 2 Work Plan

Objective 2: Build the capacity of 21 targeted facilities in Marakwet, Trans Nzoia East, and North, Central and West Pokot districts to appropriately prevent, diagnose and treat malaria.

Activity	*Outputs (Year 2)*	*PMI Targets*	*Progress To Date*	*Partners*	*Location*
Conduct refresher Malaria Case Management training for health facility staff as needed.	42 providers receive updated malaria case management training	85% of children under 5yr with confirmed malaria diagnosis receiving treatment with ACT within 24 hours of onset of symptoms;	Partially completed – 33 providers trained in July (only 33 health facility staff were identified as needing training)	DHMT; Health facility staff	All 21 locations
Project Malaria Managers mentor health facility staff monthly and promote malaria confirmatory testing and appropriate treatment	21 facilities targeted, decrease in treatment of non-confirmed cases		Completed	DHMT; Health facility staff	All 21 facilities
Community mobilizers support health facilities to conduct a total of 10 comprehensive outreach clinics each month for delivery of health services and distribution of LLITNs	10 outreach clinics organized each month, at least 12,000 people served with health services in Y3		All 10 outreach clinics conducted each month	DHMTs, health facility staff, CHWs, CHEWs	Enoch, Nyangaita, Korongoi, Chepkum, Kaptega, Kabolet, Chepturngurny, Kamayesh, Moruebong, Mading

HealthRight Malaria Managers work with the DHMTs and health facility staff to provide quality checking of microscopy diagnoses.	Quarterly monitoring of 10% of all malaria cases	85% of children under 5yr with confirmed malaria diagnosis receiving treatment with ACT within 24 hours of onset of symptoms;	Completed	DHMT; Health facility staff; Walter Reade	All 21 facilities
Malaria Managers to provide rapid diagnostic tests (RDTs) for use in one priority community to achieve a "malaria safe community" using outreach clinics to test and treat all fevers appropriately	RDTs used in at least one community, 100% of suspected malaria cases tested with an RDT. Only RDT confirmed positive cases treated with ACT to achieve "malaria safe community" in Y3	85% of children under 5yr with confirmed malaria diagnosis receiving treatment with ACT within 24 hours of onset of symptoms;	<u>REVISED:</u> RDT pilot conducted in one facility in each of the five districts. Completed in July 2012.	DHMT, facility staff, MEDS,	At least one priority community identified (TBD), and at least one outreach clinic site
HealthRight Malaria Managers work with DHMT and health facilities to monitor malaria medications to ensure constant stocks of ACT	ACT on stock at 21 target facilities; five DHMTs monitoring drug supplies in each targeted district	100%of targeted health facilities have ACTs available for treatment of uncomplicated malaria	Completed	DHMT in each district and MOH or private health facility staff	All 21 facilities
HealthRight Malaria Managers to assist districts in the implementation of the official malaria epidemic protocol	Malaria epidemic protocols monitored and adhered to in epidemic-prone districts.	100% of targeted health facilities have ACTs available for treatment of uncomplicated malaria	Completed	DHMT West Pokot;	West, Central, North Pokot, and Trans Nzoia districts
HealthRight Malaria Managers mentors and supports records information officers to conduct appropriate data collecting and reporting	Records Information Officers reporting monthly on all malaria data	100% of the target facilities submit their monthly data reports accurately and on time.	Completed	DHRIOs in	Facilities in West, Central, North Pokot, and Trans Nzoia districts

Malaria Managers to support Health Facility Management meetings and Quality Assurance Committee meetings at facilities regularly	21 health facilities have functioning HFMCs and QACs	85% of children under 5yr with confirmed malaria diagnosis receiving treatment with ACT within 24 hours of onset of symptoms; and 100%of targeted health facilities have ACTs available for treatment	Completed	DHMT, HFMCs and QACs	All five districts
Malaria Managers to support the DHMTs to provide facility supervision in their districts on a quarterly basis (with malaria coordinators)	21 partner facilities receive quarterly supervision (including malaria indicators)		Completed	DHMTs, malaria coordinators	All five districts
Malaria Managers to monitor the uptake of malaria treatment guidelines by 17 trained private pharmacists	Project monitors the dispensing practices of 17 private pharmacists	85% of children under 5yr with confirmed malaria diagnosis receiving treatment with ACT within 24 hours of onset of symptoms	Completed	Private pharmacists and providers	All five districts
HealthRight Project Director will coordinate MCP activities at the local, provincial and national levels	PD participates in 100% of KeNAAM meetings in Y3; PD attends annual combined meetings with MCP Nairobi and DOMC; PD participates in quarterly stakeholder meetings in each district	N/A	Completed	DOMC and USAID Mission; KeNAAM; DHMTs	National and district levels
Conduct final evaluation including health facility assessments and key informant interviews with DHMTs and health facility staff	Final evaluation conducted and results disseminated.		Completed in December 2012	DHMTs, health facilities	All 21 health facilities

Objective 3: Improve the system of mosquito net distribution in the five districts to decrease malaria transmission, particularly for pregnant women and children under five years of age.

Despite hopes of offering quarterly LLITN distributions, nets were not provided to HealthRight during most of Year 3. In quarter 2, the project was responsible for distributing 5,200 LLITNs from PSI to all health facilities in four of the five districts. Due to low stocks of the nets at the national level, PSI provided HealthRight with adequate numbers of nets for only two districts. However, during the subsequent months, stock-outs became more common. Lastly, the facilities reported that demand for LLITNs from women attending ANC increased, which was a good indicator of appropriate care-seeking.

During household visits, CHWs asked about net ownership and use. In year 3, HealthRight began tracking LLITN utilization at the household level using percentages. CHWs were now reporting on the total number of pregnant women and children under five years of age in each household in order to track the percentage of households that were using the LLITNs properly. Based on the sample of the entire community, use by pregnant women was 73% and use by children under five years of age was 78%. This data compares to 63% and 75% respectively at baseline. The project also collected this data in the communities as a part of the final evaluation through a household KPC survey.

Table 3: HealthRight PPTM Objective 3 Work Plan

Objective 3: Improve the system of insecticide-treated net distribution in the five districts to decrease malaria transmission, particularly for pregnant women and children under 5 years of age.

Activity	*Outputs (Year 3)*	*PMI Targets*	*Progress To Date*	*Partners*	*Location*
HealthRight works with PSI to receive an adequate supply of LLITNs for four districts	Receive 49,000 LLITNs annually, (144,000 LLITNs total at project end)	90% of households with a pregnant woman or child under five who own at least one ITN; AND 85% of pregnant women and/or children under 5 sleeping under an ITN the previous night	Incomplete – no nets delivered for several quarters	Population Services International (PSI)	all facilities in West, Central and North Pokot and Marakwet districts
HealthRight assists in transport and logistics of distribution of nets to local health facilities	All health facilities in four districts receive LLITNs on a quarterly basis		In total, 90,040 nets distributed to facilities in four districts	DHMTs; all facilities	all facilities in West, Central and North Pokot and Marakwet districts
Work with PSI to provide refresher training to health facility staff on use of LLITN distribution registers	All 21 health facilities have capacity to document LLITN distributions accurately and in a timely fashion		Completed	PSI, DHMTs and health facility staff	all facilities in the five districts
Monitor distribution of LLITNs to community members, particularly pregnant women and children under 1 year of age, through health facilities, community health workers and other outlets.	49,000 LLITNs distributed to the households and accounted for in facility distribution records each year		Completed	health facility staff, community health workers (CHWs) and health facility management teams	all facilities in West, Central and North Pokot and Marakwet districts
HealthRight Community Mobilizers work with CHWs to monitor appropriate use of LLITNs	1050 CHWs monitor LLITN use; LLITN ownership and use monitored in 21,000 households	85% of pregnant women and/or children under 5 sleeping under an ITN the previous night;	Completed	CHCs, DHMTs	all five districts

B. Evaluation Methodology

HealthRight chose to perform a multi-level evaluation using qualitative and quantitative methodologies to determine the effectiveness and the impact of the PPTM project in Kenya. The HealthRight team and an outside consultant conducted the evaluation using the following methods and tools:

- Final KPC household surveys using Lot Quality Assurance Sampling to collect data from households in the 21 project areas
- Final assessment of the functionality of the partner community health workers (CHWs) in the 21 community units using the Community Health Worker Assessment and Improvement Matrix (CHW-AIM).
- Final assessment of the capacity of HealthRight's partner community based organizations using the Organizational Capacity and Viability Assessment Tool (USAID).
- Final health facility assessment to determine the capacity of the 21 health facilities to provide quality malaria services.
- Focus group discussions with mothers of children under five.
- Key informant interviews with DHMT members and private pharmacists trained by the project.
- Review of routine health facility data.

<u>Household KPC Survey</u>

The evaluation team repeated the household KPC survey which was completed at baseline of the PPTM project in order to measure changes in knowledge and behavior since the project started. Using Lot Quality Assurance Sampling (LQAS), the team randomly selected 25 households from each of the 21 "lots" which were the project communities.

The survey tool was modified slightly with input from the project's MCHIP advisor. During the review of the survey tool, it was noted that the tool does not accurately collect data on two key indicators: the percentage of children under 5 or pregnant women sleeping under an LLITN on the previous night. The survey tool does not collect denominator data of the total number of children under 5 or pregnant women in the households surveyed. However, these questions remained in the survey tool to understand if nets are being used or not.

Five surveyors were chosen from within each community and trained for five days on the use of the final KPC survey tool. On the final training day, participants practiced the use of the tool in a separate non-project community to verify their competency to conduct the survey and to identify any concerns with the project tool.

Surveyors collected household data from 25 randomly selected households in their community over the course of five days. Data was compiled throughout the data collection by HealthRight's M&E Officer. Final data was provided to the outside evaluator for analysis.

See Annex 2 for the KPC survey tool.

<u>CHW Assessment and Improvement Matrix (CHW-AIM)</u>

HealthRight used the functionality matrix from the CHW-AIM tool during the final evaluation to determine the capacity of the 21 CHW units at project end. The CHW-AIM tool allows for self-assessment of the units on 15 variables considered essential for functionality. These variables include:

- Recruitment
- CHW Role
- Initial Training
- Continuous Training

- Equipment and supplies
- Supervision
- Individual performance evaluation
- Incentives
- Community Involvement
- Referral system
- Opportunity for Advancement
- Documentation and Information Management
- Linkages to Health System
- Program Performance Evaluation
- Country Ownership

For each area, a number of indicators were presented with a scale of scores to measure capacity. Low scores were designated with "0 = Not Functional" and high scores receive a "3 = Fully Functional." The assessments were completed during the monthly coordination meeting led by the CHW and a member of the HealthRight team, who assisted in translation or comprehension as needed. After discussing the particular indicator and the options available, the group chose one score which they all agreed reflected their functionality as a unit. Since the tool relies on an organization's self-assessment, the resulting scores cannot be truly objective measures. A baseline CHW assessment was not done because the units had not been established prior to the PPTM project.

Organizational Capacity and Viability Assessment Tool (OCVAT)

The tool chosen for use with our community partners was derived from the Organizational Capacity and Viability Assessment Tool (OVCAT), developed for the Sustained Health Outcomes (SHOUT) Group and the Child Survival Technical Support Plus (CSTS+) Project by USAID and Macro. For our purposes of working with very small community-based organizations, SHOUT's simplified CORE Initiative tool was chosen.

The tool measures organizational capacity in a number of areas, including: leadership, governance, and strategy; finances; human resources; project design and management; technical capacity; networking and advocacy; and community ownership and accountability. For each area, a number of indicators were presented with a scale of scores to measure capacity. Low scores were designated with "1" and high scores received a "4."

The baseline capacity assessments were conducted as part of HealthRight's CBO financial management and proposal writing training in May-June 2011. The final assessment was done in October 2012. The assessments were completed in groups of 4, which included the leadership team of each CBO and a member of the HealthRight team, who assisted in translation or comprehension as needed. After discussing the particular indicator and the options available, the group chose one score which they all agreed upon. The entire process took between 30 minutes and one hour.

Since the tool relies on an organization's self-assessment, the resulting scores cannot be truly objective measures. The baseline and final assessment scores are considered as perceptions of the organizations' capacity. Though it was clearly communicated to the CBOs that these scores would have no impact on HealthRight's funding decisions and would only be used to inform our capacity building strategies, some scores may have reflected an organization's desire to rank highly in the face of a potential donor. Differing scores may also have been influenced by variations in translation or personal interpretation of indicator descriptions.

Health Facility Assessments:

Baseline and final assessments were conducted to determine the capacity of the health facilities to provide quality malaria services as measured by the Health Facility Assessment Team. This team was comprised of one project staff, one community member and two district health management team

members. The team used the existing MOH supervisory checklist to assess the availability and quality of pharmacy, laboratory and clinical services at health facilities.

Qualitative Data

In each district, focus group discussions were done with two targeted stakeholders: mothers of children under five years of age and CHWs. The discussion guide was developed jointly between the project team and the project evaluator. Items of interest were the effectiveness of the project's malaria messages and the usefulness of the community health workers. FGD leaders were trained by the evaluator on the survey tool. Each FGD was led by a discussant and a note taker. In total, 15 FGDs were conducted. The FGD guide can be found in Annex 3.

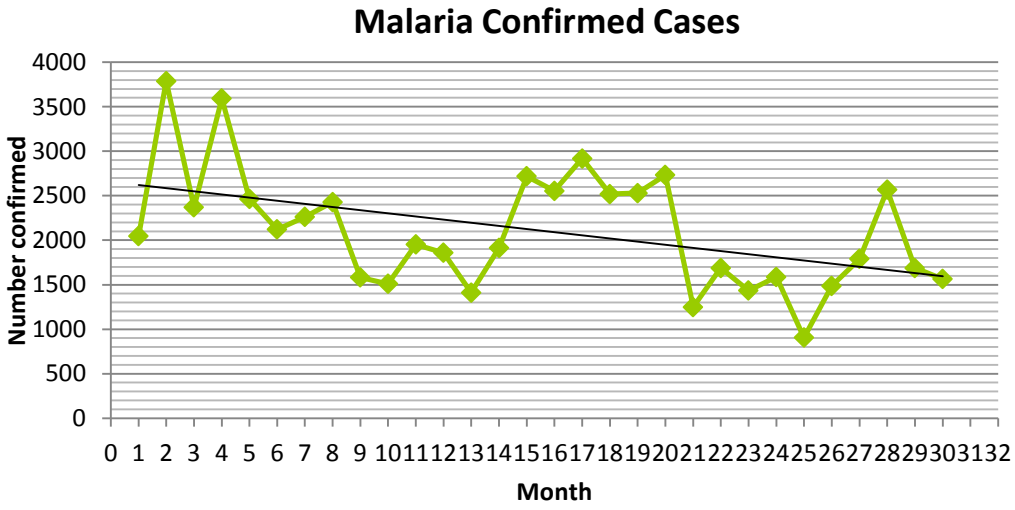
Finally, the outside evaluator conducted key informant interviews with several members of each district health management team (DHMT) and with a selection of the private pharmacists trained by the project. These interviews collected qualitative information about the impact of the PPTM at each level.

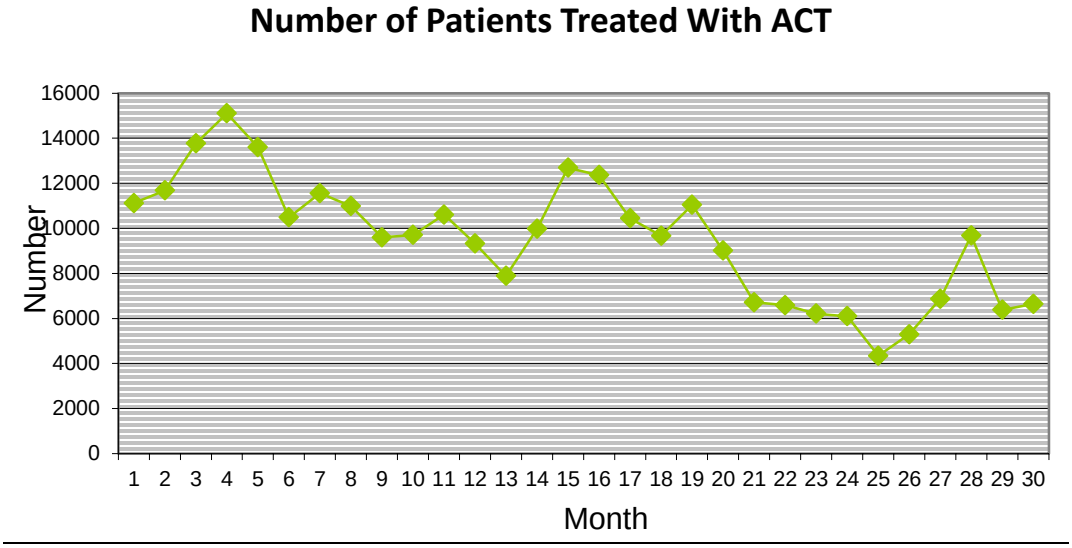
C. Main Accomplishments

Overall, the evaluation showed that the PPTM project had a number of positive impacts at the community and facility level on the prevention and treatment of malaria in the North Rift Valley.

1. Malaria Rates Decline

HealthRight collected malaria data from all of the facilities in the five districts beginning in April 2010. Below are the trends in the facility data showing a clear decline in the number of malaria cases in the project area. Over the course of the three years, rates of malaria declined by 49%. Though still much higher in number, treatment rates showed a similar decline. (see **Challenges to RDT Rollout** on page 26)





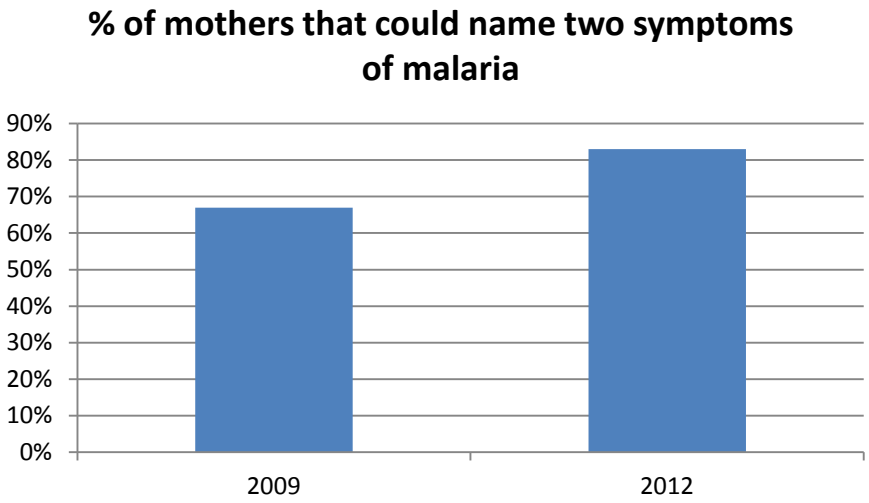
2. Community capacity

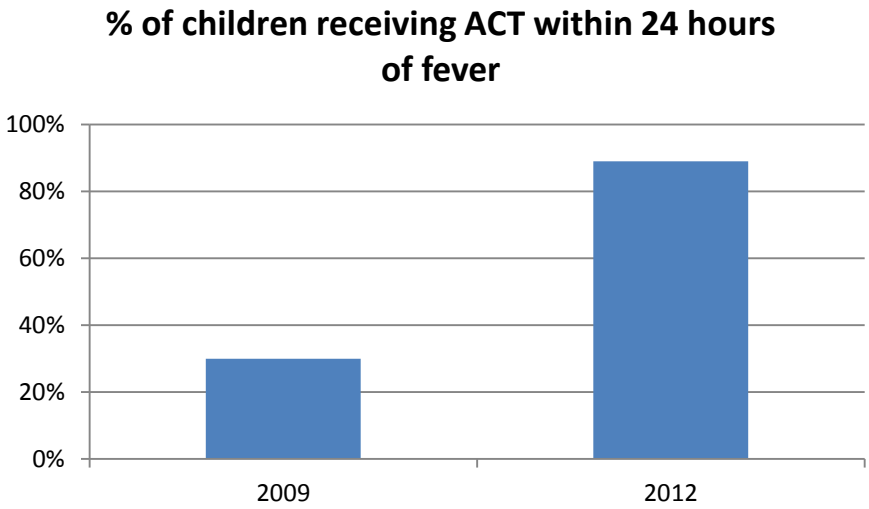
The evaluation used a household KPC survey and focus group discussions to evaluate the project's impact on the capacity of the community to prevent and treat malaria. The household survey showed improvements in a number of key MCP global indicators from baseline to final. At the community level, the household survey and corresponding focus group discussions highlighted the increase in knowledge and corresponding improvements in care seeking behaviors. According to the 2010 Kenya Malaria Indicator Survey, the PPTM project areas had far better results than in Kenya overall.

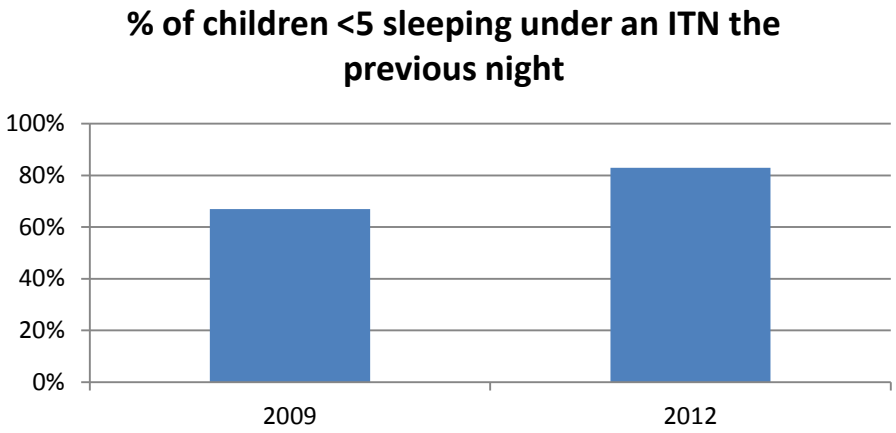
Table 4: KPC indicator Results at Baseline and Final

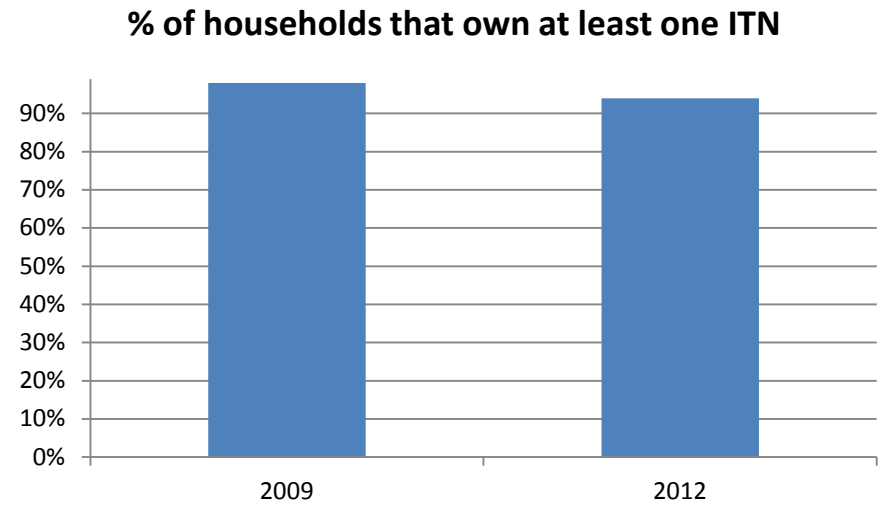
PMI KPC Indicator	Baseline	Final	Kenya 2010 Malaria Survey
85% of children receiving ACT within 24 hours of fever (only ACT – not other treatments)	30%	89%	35%
85% of pregnant women sleeping under an ITN the previous night*	63%	3%	73%
85% of children <5 sleeping under an ITN the previous night	75%	96%	71%
% of households that own at least one ITN	98%	94%	57%
% of children <5 experiencing fever in the past two weeks**	74%	48%	27%
%of children <5 that were tested for malaria (this is a new indicator that was not collected at baseline)	Was not done	46%	12%
% of households that can name two or more signs/symptoms of malaria	67%	83%	

*This indicator cannot be correctly measured using the KPC tool.
**The baseline survey was conducted in March while the final survey was done in October.









3. <u>CBO capacity</u>

Based on the OCVAT scores, the PPTM resulted in greater capacity of CBOs across five of the seven categories of capacity. The categories that did not show an increase from baseline to final were those that scored the highest at baseline (Leadership and Networking). The largest increases were seen in Human Resources and in Technical Capacity. Scores are on a scale of 0 – 4 with 4 being the highest capacity.

Below are the overall average results from the assessment. (See Annex 4 for individual score sheets.)

Table 5: Average Capacity Scores for All Ten CBOs by Category

Category	**Baseline**	**Final**
Leadership, governance, and strategy	3.8	3.7
Finances	3.2	3.5
Human Resources	2.5	3.3
Project Design and Mgmt	3.1	3.3

Technical Capacity	2.9	3.6
Networking and Advocacy	3.7	3.7
Community Ownership and Accountability	3.3	3.7

The assessment also showed that the project resulted in an increase in perceived overall capacity for nine of the ten CBOs. The partner organizations in Trans Nzoia district marked the largest increases in overall perceived capacity and one, CANA, showed the greatest improvement. One CBO in Central Pokot, Yes Plus, noted a decrease in capacity from baseline to final. However, the members of the organization that participated at baseline were not the same as those participating at final. This could account for the perceived decrease.

Table 6: Average Capacity Scores for all Categories by CBO

Average Capacity Scores for all Categories by CBO			
Organization	**District**	**Baseline**	**Final**
Kamatong	Central Pokot	2.6	2.9
Yes Plus		3.2	2.9
Tumaini	Marakwet	3.4	3.8
Sobon Support Group		3.2	4.0
Muslim Youth Group	North Pokot	3.4	3.5
Naremit		3.0	3.0
Sikom	West Pokot	3.5	3.9
Yangat		3.5	4.0
CANA	Trans Nzoia	2.8	3.7
Makutano PHC		2.8	3.3

4. CHW capacity

All 21 units of CHWs were assessed on 13 categories of functionality using the CHW-AIM matrix. The matrix includes 15 categories but two of them were inadvertently removed from the tool during the assessment and were not included. These two categories were supervision and community involvement. No baseline assessment was done of these units so comparisons cannot be made over the course of the PPTM project. Instead, the assessment offers an understanding of the current capacity of the CHW units to perform their role in their communities.

The CHW units scored themselves as “partially” or “fully functional” (that is a score of two or three) on nine of the 13 categories. The highest categories of functionality across all units were “documentation and information management” with a score of 2.57 and “initial training” with a score of 2.52.

The lowest area of functionality was “equipment and supplies” with a score of 1.57. The PPTM project offered each CHW several job aids and non-financial incentives such as a T-Shirt, Training Certificates, a bag and Safe Motherhood flash cards. However, according to the MOH policy, CHWs are to be equipped with a health kit containing a variety of medications and medical supplies. These have not been available in any of the PPTM project areas. “Linkages to the health system” also ranked low with a score of 1.90.

The CHW units with the lowest perceived functionality are Kabichbich in Central Pokot and Arror in Marakwet. Those units perceived as the most functional are Kacheliba and Amakuriat in North Pokot. Below are the overall assessment results for each of the 21 units.

Table 7: Average Capacity Scores for CHW Units

District	CHW Unit	Overall Score (0 – 3)
Central Pokot	Kabichbich	1.67
	Sigor	1.75
	Ortum	2.00
	Lomut	1.92
Marakwet	Tot	1.83
	Chebiemit	2.00
	Kapcherop	1.83
	Kapsowar	1.75
	Arror	1.67
North Pokot	Amakuriat	2.83
	Kacheliba	2.92
	Konyao	2.33
	Kacheliba M	2.58
West Pokot	Chepararia	2.08
	Serewo	2.00
	Kapenguria	2.17
Trans Nzoia	Cherangani	2.25
	Endebess	2.58
	Kolongolo	2.50
	Kapsara	1.92
	Suam	2.33

See Annex 5 for the individual score sheets.

5. More rational drug use

The PPTM project tracked routine HMIS data every month over the course of the three years of the project beginning in April 2010. As a result, it is possible to note trends in malaria testing and treatment practices. During the first year of the project, the number of patients treated for malaria was approximately 4.6 times greater than the number of patients testing positive for malaria. By the final quarter of the project, this number had decreased to 3.9. These data show a trend toward more rational drug use among the providers in the project areas. As a result, in 2012, the health facilities saved 6,084 doses of ACT in only five months.

Table 8: Malaria Data from Health Facilities in the Five PPTM Districts

	April - August 2010	April - August 2011	April - August 2012

Total Malaria tests	33,339	36,719	33,771
Total New Malaria positives	14,260	11,514	8,437
Total treated for malaria with ACT	65,277	53,363	32,557
Ratio of positive:treated	4.58	4.63	3.86

6. Strengthening parasitological diagnosis

The PPTM focused health systems strengthening efforts on the diagnosis of malaria through microscopy, which is the gold standard. As mentioned in Section A above, the PPTM project donated 11 microscopes to health facilities in the project area to increase their ability to test for malaria – as well as other illnesses. In addition, the Malaria Managers offered regular mentoring to providers to encourage malaria testing and to discourage presumptive treatment. In addition, the PPTM organized a 6-day training for health care providers in the partner facilities on malaria diagnosis including microscopy and RDTs.

In July 2012, the project organized a pilot study of the use of Rapid Diagnostic Tests (RDTs) in five rural facilities – one in each of the project districts. Each health center received 800 RDTs which were distributed to coincide with the peak malaria transmission season which runs between April and August of each year. Providers in the five facilities were instructed to use RDTs for all patients presenting with malaria symptoms over a two week period from July 5 – 18. If microscopy was available, RDT results were confirmed using microscopy as the gold standard. The project also provided a survey to be completed after the use of each RDT which collected information on the results, any follow up diagnostics, and treatment provided. The study collected data on 1,522 RDT samples in two weeks. Microscopy confirmatory tests were performed on 816 of the RDT samples. The findings of the study were drafted for submission to USAID and project partners, including the DOMC, in order to inform the roll out of RDTs nationally in Kenya. The draft report of the RDT pilot study can be found in Annex 1.

D. Progress on MCP Objectives

1. Did the project identify and support any new partners (i.e. who have not worked with USAID previously) or networks of community-based organizations?

The PPTM project worked with ten community based organizations in the five targeted districts. The table below identifies the project's CBO partners.

Table 9: Project Partners

District	Site	CBO Partners
West Pokot	Kapenguria	Yangat
	Chepararia	Sikom
North Pokot	Kacheliba	Nalemit
	Konyao	Muslim Youth Development
Central Pokot	Sigor	Yes Plus
	Ortum	Kalas

Trans Nzoia	Kapsara	Community Action Network of Africa (CANA)
	Kolongolo	
	Cheranganyi	Jambo Women Group
Marakwet	Kapsowar	Tumaini Support Group
	Kapcherop	Sabon(small enterprises)

Over three years, the project provided training to partners on the following topics:
- Malaria Basics
- Communication for Change (CCHANGE)
- Financial Management
- Project Design and Proposal Writing
- Organizational Management

After providing some initial training to the partners on Project Design and Proposal Writing and Financial Management, each organization was asked to submit a proposal for funding to implement a community-level social behavior change project that addressed one of the PPTM objectives. In total, each organization went through two rounds of sub-grants. At the project end, all of the organizations participated in a PPTM conference to share lessons learned, challenges and best practices.

A more detailed description of the project's work with local CBO partners in Year 3 can be found in **Section A. Objective 1** of this report. The impact of the PPTM project on the CBO partners can be found in **Section C. CBO Capacity** of this report.

2. Is there evidence or some indication that local and indigenous capacity to undertake community-based malaria prevention and treatment activities increased during the project period?

The final evaluation indicated that the PPTM project increased local capacity among households, partner CBOs, rural health facilities, and CHWs in the five project districts. These impacts are described in other sections of this report.
- The impact of the PPTM project on the CBO partners can be found in **Section C. CBO capacity**.
- The increased knowledge and improvements in care-seeking for malaria at the household level is described above in **Section C. Community Capacity**.
- The improvements at the facility level are noted in **Section C. More Rational Drug Use** and **Section C. Strengthening Parasitological Diagnosis**.

3. Is there evidence or some indication that local ownership of malaria control increased for the long-term, in partnership with communities and national malaria control programs (NMCPs), during the project period?

During the evaluation, the CHW units were found to be functional as a community health resource and focus group discussions revealed that they were very comfortable providing the malaria messages during their work. Because these units exist under the current MOH policy and report directly to CHEWs, they will continue to serve their communities with malaria messages beyond the scope of the PPTM project. By partnering in this way to build their capacity, local ownership for malaria control has been increased in the long term.

In addition, many of the HealthRight-supported units of CHWs organized themselves into federally recognized CBOs, registering through the Ministry of Social Services. Upon registration, the units become eligible to receive funding from local and national donors. This is an indication that these units established by the project will continue to be viable resources in their communities in the long term.

4. Did the project extend coverage of PMI and NMCP efforts to reach a larger beneficiary population with malaria prevention and control interventions (particularly children under age 5 and pregnant women)? Include the final estimate of the total population reached by the project, including the total number of children under 5 and the total number of pregnant women.

The PPTM project extended the NMCP's efforts into the rural North Rift Valley, remote areas which receive little supervision or resources from the national level. For example, the project was responsible for establishing, training, and supporting 21 units of community health workers including the first five units in Marakwet District. The project provided much needed funding for social behavior change activities to local organizations which had not previously received funding. In addition, HealthRight facilitated the distribution of LLITNs from the district hospital into rural facilities throughout four districts where previously insecurity and poor infrastructure had hampered distribution efforts.

In total, the project reached the entire population in five districts – Marakwet, Trans Nzoia, West Pokot, Central Pokot and North Pokot – with social behavior change messaging, improved malaria treatment services or increased availability of LLITNs. These communities included an estimated 41,667 pregnant women and 176,046 children under 5 years.

5. Constraints

LLITN Distributions: HealthRight encountered difficulties throughout the PPTM project with LLITN supplies from PSI. Initially, the project agreed to offer quarterly distributions of the nets in four of the five project districts. Trans Nzoia district distributions continued through PSI directly due to their existing capacity in that district.

In year 2 and 3, LLITN supplies from PSI were inconsistent leading to difficulties in completing distributions at the facility level. Some of the delays were provoked in part by reporting difficulties by the PPTM project team. PSI conducted an audit of the PPTM distributions early in Year 3, however, the results of the assessment were not provided to HealthRight.

In the final project year, LLITN stock-outs were experienced in all partner facilities. The last distribution that HealthRight provided to health facilities in four project districts occurred in April 2012. Since that time, most of the facilities have depleted their stocks, particularly during the peak malaria season from May – July when nets are most in need. This has significantly affected the project's ability to achieve its goals for net distributions.

Partner coordination: The national APHIA *Plus* project, funded by PEPFAR, is implemented in all of the HealthRight project areas and also undertakes training and support of units of CHWs. This has led to some instances of duplication of efforts in which APHIA *Plus* and the PPTM are training the same units of CHWs. In June 2012, an APHIA *Plus* partner organized training for a partial unit of CHWs in Marakwet on the topics of Malaria and HIV/AIDS. Unfortunately, the entire unit had already been trained on these topics through the PPTM. These issues are best addressed by the DHMT members who are responsible for coordinating all health partners in the district. For instance, this quarter in West Pokot, HealthRight,

APHIA Plus and the DHMT reached an agreement that APHIA *Plus* would discontinue work with the Psigirio CHW unit which was initially established by HealthRight in 2008.

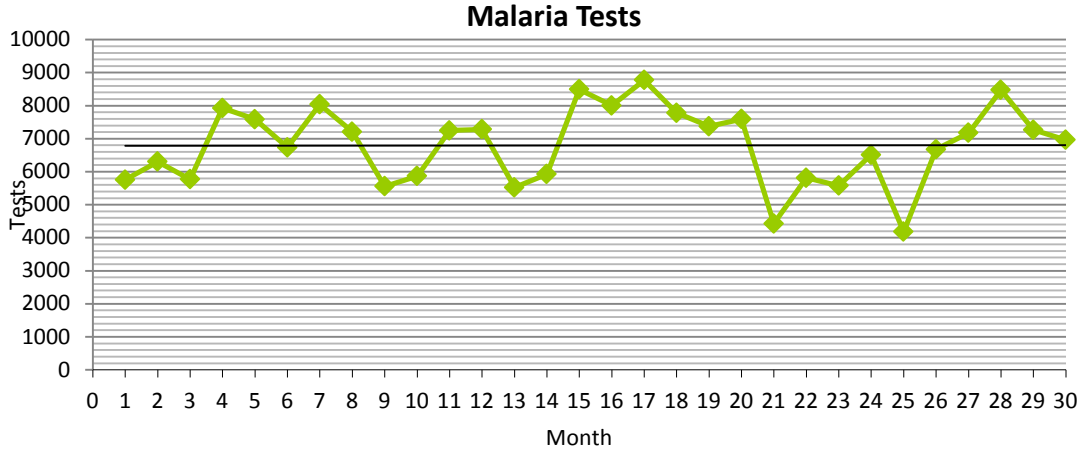
ACT Stock Outs: ACT distribution was a problem nationally for several of the project quarters. Fortunately, many of the facilities in the PPTM project areas received ACT through other partners. However, Trans Nzoia East didn't benefit from these supplies and suffered a complete stock-out of the drug throughout the district during year 3.

Staff Turnover: HealthRight experienced some staff turnover in year 3 that affected the impact of the project at the community level. Four of the five PPTM Community Mobilizers left the project when they were recruited to work on a five year nutrition initiative with Action Against Hunger in West Pokot. As a result, there was a loss of institutional memory and a need to reestablish community partnerships and relationships leading to a significant decrease in project momentum. Luckily, HealthRight recruited and oriented replacement staff within one month to minimize these negative effects.

6. Lessons Learned

a. Undiagnosed fever: One of the most important lessons from the PPTM project is that fever is often undiagnosed and incorrectly treated as malaria in these rural areas. Over the course of the project and across all project areas, the positivity rates of malaria tests ranged from 15% to 60% of tests conducted. As a result, up to 85% of all patients tested for malaria were found to be negative. However, malaria treatment rates routinely exceed testing rates by a factor of 4. Although it is beyond the scope of the PPTM project to investigate these fevers further, based on the results of the RDT pilot study, at least 32% of negative patients were probably ultimately treated using ACT. (see **Challenges to RDT Rollout** below.)

b. Ability to increase malaria testing is limited: Despite increased availability of microscopes and an increased diligence from providers to test all patients presenting with symptoms of malaria, the project did not affect malaria testing rates over the three years of implementation. This is due to the fact that most facilities are limited in their diagnostics by the availability of the laboratory technologists who are not available during nighttime or weekend hours. Until this issue of understaffing is addressed, the use of microscopy of malaria diagnosis will remain low.



c. Challenges to RDT Rollout: According to the RDT pilot study conducted in July 2012, health care providers are reluctant to forego dispensing malaria treatment for a patient with a negative RDT result. According to the findings, 29% of all negative RDT patients received ACT treatment based on their clinical symptoms. Furthermore, table 6 shows that 23% of those testing negative using microscopy received ACT. In addition, 32% of those patients that received a confirmatory negative malaria diagnosis using both RDT and microscopy were ultimately treated with ACT.

Table 10; Treatment Practices by RDT Test Result

			Treatment		
			Yes	No	Total
RDT Results	Positive	N	612	7	619
		%	98.9%	1.1%	100.0%
	Negative	N	252	618	870
		%	29.0%	71.0%	100.0%
	Invalid	N	0	2	2
		%	.0%	.1%	.1%
Total		N	864	627	1491
		%	57.9%	42.1%	100.0%

Table 11; Treatment Practices by Microscopy Result

			Treatment		
			Yes	No	Total
Microscopy Results	Positive	Count	263	2	265
		% of Total	99.2%	.8%	33.4%
	Negative	Count	124	405	529
		% of Total	23.4%	76.6%	66.6%
Total		Count	387	407	794
		% of Total	48.7%	51.3%	100.0%

This indicates an overuse of malaria treatment in the project areas. In the two-week study period, health care providers in the five participating health centers dispensed 252 unnecessary prescriptions of ACT. If these treatment practices remain consistent nationally, then 32% of all ACT doses – or approximately 2.56 million doses each year – are wasted on the treatment of non-malaria fevers. This represents an enormous waste of vital national resources particularly in a context such as Kenya where stock outs of essential medicines are a common complaint in rural facilities.

7. Technical Assistance

- USAID and MCHIP provided the PPTM project and HealthRight staff with technical assistance in the finalization of the malaria baseline and final KPC survey tool and the LQAS sampling frame. HealthRight and the PPTM project are grateful for the support provided by MCHIP in preparation for the final KPC survey. The MCHIP Advisor reviewed the KPC survey tool and

offered suggestions on improvements. It was through this review that the difficulties in measuring the percentage of pregnant women using the LLITN were discovered.

- MCHIP assisted the PPTM Project in 2012 by funding and coordinating a presentation at the Fall CORE Group meeting in Washington DC. MCHIP provided support to the PPTM Project Director to travel to DC for the conference. MCHIP also organized a malaria forum on the first day of the conference during which MCP grantees could highlight their work.

- In year 2, the PMI and MCHIP teams provided some necessary technical support to HealthRight's MCP project in Kenya. Those activities included:
  - The organization and financing of a regional technical workshop on two topics: Malaria in Pregnancy and Community Case Management. Two of the PPTM project staff attended the work shop and carried the essential messages to the team in Kenya.
  - The MCP team from Washington organized a field visit to the PPTM team in Kenya. The field visit generated several useful suggestions for the team to consider in the remaining 18 months of implementation. In addition, a follow up visit from the PMI Nairobi staff served to foster closer working relationships between the field and the Mission and also led to the development of the Malaria Safe Community concept.

8. Specific Information Requests – N/A

9. Collaborations

- PMI Kenya: The PPTM Kenya team collaborated with the USAID PMI focal point in all aspects of the project, from planning to evaluation. Dr. Wacira assisted in the revision of the PPTM work plan. He was invited to stakeholders' meetings and participated in national level meetings with the DOMC. This collaboration was particularly useful in communications with the DOMC.
- Population Services International: For the distribution of LLITNs in four project districts, HealthRight collaborated with Population Services International (PSI). Each quarter, PSI agreed to provide the nets to the project team for distribution based on the catchment populations of each health facility. Upon receipt of the LLITNs, HealthRight worked with the DHMT in each district to complete the distributions to the facility level. During the first two years of the project, net distributions were conducted regularly. Unfortunately, in year 3, only one distribution was completed.
- Academy for Educational Development (AED): In year 2, HealthRight partnered with AED to provide Communication for Change (CCHANGE) training to project staff and CBO partners.

10. Other – N/A

11. Publications – See Annex 1.

12. Stories

TUMAINI SUPPORT GROUP-PMI SUCCESSES.

We are a nonprofit making Community Based Organization working in Marakwet West District in Kapsowar Division. We started in the year 2006 with 30 members with an objective of reducing stigma among PLWHAS. We are legally registered by the Ministry of social services as a Community Based organization. We have been actively involved in HIV/AIDS activities as far as advocating for equal rights for people living with HIV/AIDS in our district.

We worked in partnership with the Ministry of Health (MOH), HealthRight International, and Constituency AIDS coordinating committee (CACC) among others. We have received sub grants twice from Healthright International to implement Presidential Malaria Initiative (PMI) activities in Marakwet West District which focused on two areas of intervention; Increase awareness about Malaria and advocate for correct and consistent use of LLITNs among pregnant mothers and children less than 5 years of Age; work to Increase the number of pregnant mothers with signs and symptoms of malaria tested for malaria.

During the implementation period we were able work with the public health officers, community leaders to disseminate health information to the communities. We established community forum/dialogoue meetings targeting 30 pregnant mothers and women of reproductive ages in each sub location who will then serve as change agents at the community.
We provided health education on Malaria prevention interventions where we taught pregnant women on the importance of attending ANC early enough seek prompt treatment for Malaria and use LLITNs correctly.

When we began, mothers thought that Malaria was brought by eating mangoes, being rained on, eating sugarcane, drinking dirty water and a few thought that it was brought by mosquitoes and one mother said*, "I remember when it rained on me, the following day, my body was all aching and I knew I had Malaria"*

During the Forums, mothers were able to learn a lot on Malaria transmission, prevention interventions including seeking prompt treatment and ensuring that testing for Malaria is the only sure way of confirming whether one has Malaria or not.

The Forums were very participatory and at one time the community leaders requested that the number of the participants to be increased and the forums extended to the village level because it provided opportunity for empowering members of the community on malaria especially pregnant women and children whose immunity is still low and that Malaria continues to claim their innocent lives because of lack of adequate information on its transmission and prevention interventions. Our team members carried out home visits to monitor LLITNs use and provide health education on the same, provided adequate IEC materials bearing Malaria prevention messages and made referrals as necessary.

We also taught and demonstrated on correct and consistent use of LLITNs at Household level and worked very closely with the local leaders and public health officers to disseminate policies and penalties on any household members who are found Misusing the LLITNs provided to them free of charge by the government,. The information was well communicated to other community members and as such during our Follow ups visits with the local leaders at the community, there was not a single LLITNs used at the gardens or for protecting chicken dens and as such the area chief for Kapsowar Division Mr. Masingong James had this to say" *We appeal to Healthright International to continue*

supporting this group because they came in to work with us and we can now say Misuse of Nets in this place will be a thing of the past ,my office was able to work in harmony with them and we could hardly forget them even during our community events to talk about Malaria, we hope that this support will continue" .

Our team felt that this was a huge success and that our activities towards Malaria prevention at the community was not a waste of time and resources sub granted to us by HealthRight International but an achievement towards building the capacity of our community and promoting a positive care seeking behavior and in addition, our group members were empowered with knowledge by Healthright international in terms of trainings, coaching and technical expertise and we have gathered experience mobilizing the community and sharing information in public.

We are much grateful with the financial support we received from HealthRight International to implement the Malaria prevention activities in our community, we believe that knowledge is power and that a lot more need be done on continuous basis to have a Malaria free community.

Below attached is a Photo of Lydia Jemaiyo Kaino, the Secretary of Tumaini support group making a presentation to some group members .

Serewo Success Story

Serewo health centre is located in Serewo location of kongelai division , west Pokot district on the North Rift part of Kenya. This location has been identified as an epidemic prone area by the Division Of malaria control Kenya . this health centre is managed by a clinical officer Mr Kenneth Kirui who serves the residents of Mtembur ,kamayech and chepkeram villages. Bordering Serewo location is Adurkoit location which is 15 Kms and patients who require lab investigations have to walk or take a motorbike all the way to Serewo health centre as there is no lab in adurkoit. HealthRight international in partnership

with the ministry of Health decided to pick Serewo Health centre as a sentinel site in its efforts to fighting malaria.

Kirui is one of the health personnel that benefitted from the malaria case management training that was conducted by HealthRight International and the Ministry of Health, in this this training they were taken through the National malaria guideline 2010 which emphasized on the importance of treating only confirmed cases of malaria, this led to a substantial decline in the consumption of Anti malarial drugs more specifically Artimether Lumefantrine which is the recommended drug by the Ministry of Health for treatment of uncomplicated malaria. Kirui reports that " the workload has substantially reduced since the patients benefit from differential diagnosis and only positive malaria cases are getting ACT's, we are no longer seeing cases of reattendance due to incorrect diagnosis thanks to the trainings and the LLITN's which were distributed to the vulnerable groups have helped reduce the prevalence of malaria in this area," data from the health centre indicates that ACT consumption has reduced from 1349 doses on the first quarter of 2010 which was when HealthRight International started the Presidential malaria initiative to 433 which was the figure for the last quarter of 2012.

HealthRight International has also been conducting monthly outreach program in Kamayech, 3 km's from the Serewo health centre, this has also enabled the patients from Kamayech Village and its environs to access medical services and immunization thus ensuring prompt treatment of patients who can't reach the health centre in time and reducing rates of immunization defaulters.

Serewo community unit is linked to Serewo health centre and has a total of 60 CHW's/CHC's .these CHW's/CHC's have been involved in conducting health education sessions at the household level to advocate for behavior change in health seeking practices and promotion of interventions necessary for the reduction of malaria ie the LLITN's that were distributed to the vulnerable groups after HealthRIght was contracted by the Population Services International to oversee the distribution. These CHW's and CHC's are under the supervision of the community health extension worker, Mr Joseph yaraita who together with HealthRight staff mentor them and provide them with updates to ensure the community is getting the right information on health promotion.

This approach has enabled HealthRight international to run a very successful program in west Pokot and has drastically reduced the prevalence and improved the management of malaria.

13. Photographs

ANNEXES

Annex 1: Publications and Presentations

- Fall CORE Group Poster Presentation (attached separately)
- HealthRight Board Meeting Presentation (attached separately)
- RDT Pilot Study Draft Manuscript

Investigating the Effectiveness and Acceptance of Using Rapid Diagnostic Tests for Malaria in the North Rift Province, Kenya

Authors: Jennifer Olson MPH, Charles Angira MCH

Keywords: Malaria, RDT, Kenya,

Introduction

In Kenya, as well as globally, the malaria burden has been decreasing.[1] Despite this, malaria accounts for 34% of all annual outpatient consultations in Kenya and an estimated 170 million days of lost work each year. [2] Based on data from the National Malaria Indicator Survey, the prevalence of malaria in Kenyan children under five years of age has doubled from 4% in 2007 to 8% in 2010.[3] In 2007, only 4.3% of children under five years experiencing fever in Kenya received treatment with Artemisinin combination therapy (ACT) within 24 hours.[4] Malaria during pregnancy is associated with a number of adverse outcomes including miscarriage, low birth weight, anemia and maternal mortality. Unfortunately, in Kenya only 25% of women in high malaria risk areas receive appropriate malaria prophylaxis during pregnancy.[5]

Most districts in the North Rift Valley Province lie in areas of seasonal or epidemic-prone transmission zones of malaria. In these areas, malaria accounts for 29% of all outpatient consultations, 52% of hospital admissions and nearly 19% of all deaths annually.[6] According to health facility data, 40% of all children tested for malaria in the HealthRight project areas received a positive result.[7] In 2009, the malaria incidence rate was 39% in the three Pokot Districts and 32% in the districts of Marakwet East and West.

[1] World Health Organization, World Malaria Report 2012, Switzerland.
[2] National Malaria Strategy 2009 - 2017; Division of Malaria Control (DOMC), Ministry of Health, Kenya, 2009.
[3] Division of Malaria Control [Ministry of Public Health and Sanitation], Kenya National Bureau of Statistics, and ICF Macro. 2011. 2010 Kenya Malaria Indicator Survey. Nairobi, Kenya: DOMC, KNBS and ICF Macro.
[4] Malaria Operational Plan, Division of Malaria Control (DOMC), Ministry of Health, Kenya, 2008.
[5] Division of Malaria Control [Ministry of Public Health and Sanitation], Kenya National Bureau of Statistics,and ICF Macro. 2011. 2010 Kenya Malaria Indicator Survey. Nairobi, Kenya: DOMC, KNBS and ICF Macro.
[6] Ministry of Health utilization data; District Health Management Teams (DHMT); North, Central and West Pokot, Marakwet and Trans Nzoia East Districts; 2008.
[7] HealthRight International; Partnership for the Prenvetion and Treatment of Malaria; project data 2012.

And yet, malaria is a fully preventable and treatable disease provided basic interventions are implemented including vector control through ITNs and indoor residual spraying (IRS); preventive treatment for vulnerable groups such as pregnant women and children <5 years; effective diagnosis through microscopy or Rapid Diagnostic Tests (RDTs); and timely treatment with ACT. According to the Kenya National Malaria Strategic Plan, by 2013, 100% of fever cases who present at a health facility will receive parasitological diagnosis and if positive for malaria, ACT treatment.[8] The National Policy Guidelines for Malaria Diagnosis from 2010 highlighted the role of RDTs as the primary method of malaria diagnosis in Level 1, 2 and 3 of the health system.[9] Rollout of RDTs at health centers and dispensaries (facility Levels 2 and 3) is slated for 2013 – 2015. In addition, between 2016-2017, RDTs will be rolled out for use at the community level (Level 1) using trained Community Health Workers (CHW).

Microscopic diagnosis of malaria is difficult in many rural areas of Kenya. Some health facilities lack electricity while most are in need of microscopes, slides and other necessary supplies. Facilities are understaffed and overworked health care providers don't have time to perform malaria slides on each patient presenting with fever, particularly during times of high transmission. Many health facilities lack the capacity to perform analysis on malaria slides. This may be especially true during evening and weekend hours when laboratories are often closed, though fever cases continue to arrive. And, in the absence of diagnostic capabilities, providers are required to presumptively treat all patients with malaria symptoms leading to over-diagnosis and wastage of valuable treatment. All of these barriers contribute to the argument for low-cost, fast and easily administered and interpreted malaria diagnostic tests in rural areas.

However, the introduction of RDTs into health facilities also presents some challenges. Supply chain issues are a big constraint in Kenya where national supplies of RDTs fell short of the total needed to stock health facilities in 2012.[10] Another concern to RDT scale up is reluctance on the part of clinical officers and nurses to transfer the responsibility of malaria diagnosis via administration of RDTs to low level or untrained staff as it threatens the role of the clinical staff as primary health care providers. In addition, providers question the reliability of RDT results and opt instead to provide ACT to patients with malaria symptoms and negative RDT results. Several studies have documented high rates of treatment for patients despite negative RDT results.[11,12] However, several studies have also shown that over-prescription was reduced when using RDTs compared to microscopy.[13] Finally, providers may lack the capacity and time to explore alternative causes of fever when receiving a negative malaria result either by RDT or microscopy leading to under-diagnosis of other febrile illnesses, unnecessary treatment with ACT, and delays in receiving proper diagnosis and treatment for non-malarial fevers.

Study Purpose

[8] National Malaria Strategy 2009 - 2017, Division of Malarai Control (DOMC), Ministry of Health, Kenya 2009
[9] National Guidelines for the Diagnosis, Treatment and Prevention of Malaria in Kenya, Ministry of Public Health and Sanitation and Ministry of Medical Services, Kenya, May 2010
[10] United States, President's Malaria Initiative. Malaria Operational Plan Kenya, 2011. Found at: http://pmi.gov/countries/mops/fy11/kenya_mop-fy11.pdf
[11] Whitty C, Chandler C, Ansah E, Leslie T, Staedke S**: Deployment of ACT antimalarials for treatment of malaria: challenges and opportunities.** *Malaria Journal* 2008, **7:**S7.
[12] Msellem MI, Martenson A, Rotllant G et al. Influence of rapid malaria diagnostic tests on treatment and health outcome in fever patients; Zanzibar. PLoS Med, 2009 Apr 28;6(4).
[13] Batwala V, Magnussen P and Nuwaha F. Comparative Feasibility of implementing rapid diagnostic tests and microscopy for parasitological diagnosis of malaria in Uganda. *Malaria Journal* 2011, 10:373.

The aim of this study is to determine the effectiveness of using RDTs for malaria diagnosis in rural facilities in the North Rift Valley of Kenya. In addition, the study examines subsequent treatment practices of rural providers following the use of RDTs. As a result, the study seeks to describe some of the challenges and recommendations that should be considered prior to the national rollout of RDTs for malaria diagnosis in health facilities in Kenya.

Methods

Rapid Diagnostic Tests (CareStart™ HRP2) were distributed by HealthRight International for use in five health centers located in the five districts of Marakwet, Trans Nzoia East, Central Pokot, North Pokot and West Pokot in the North Rift Valley Province. One RDT testing site per district was purposively chosen based on rates of confirmed malaria cases according to health facility data. All five sites are rural health centers (level 3). Each health center received 800 RDTs which were distributed in July 2012 to coincide with the peak malaria transmission season which runs between April and August of each year. Providers in the five facilities were instructed to use RDTs for all patients presenting with malaria symptoms over a two week period from July 5 - 18. If microscopy was available, RDT results were confirmed using microscopy as the gold standard. Prior to the study, health care providers from the five testing sites received a six-day training on RDT and microscopic testing for malaria by Ministry of Health trainers at the Provincial level. HealthRight clinical staff also attended the training in order to offer mentoring to any health care provider in the five testing sites that was in need.

Each participating health center received copies of the RDT Results Survey (see annex 1). Providers were instructed to answer all survey questions after the performance of each RDT. The survey collected information on the test results, confirmatory testing and results, subsequent treatment practices and reasons for treatment.

Study staff collected all RDT Results Surveys at the end of the study period. At the time of survey collection, the study team reviewed malaria data from the health facility daily registers for comparison with the survey results. Survey data was entered and analyzed using SPSS software.

Results

In total, surveys were completed for 1,531 RDTs performed over the two week study period. Of those surveys, RDT test results were provided for 1,522 tests with 9 results missing. Of the 1,531 completed surveys, 1,498 provided information about subsequent treatment practices. In addition, 816 of the surveys provided information about confirmatory testing using microscopy. No information was gathered on other subsequent testing conducted to identify non-malarial fevers.

According to the surveys, a total of 622 (40.9%) of the RDT results were positive, 898 were negative (59%) and 2 (0.1%) were invalid. (See Table 1.)

Table 1; Results of Rapid Diagnostic Tests

		N	%	Cumulative Percent
Result	Positive	622	40.9	40.9
	Negative	898	59.0	99.9
	Invalid	2	.1	100.0

Total	1522	100.0	

A total of 814 of the surveys (53%) provided results on confirmatory testing for malaria that was done using microscopy. (See Table 2.) Of these surveys, 215 patients had had a positive RDT result and 597 patients had had a negative RDT result. Using microscopy as the gold standard resulted in a total of 265 patients positive for malaria. The RDTs successfully identified 181 (68.3%) of the true positives, missing 84 patients that were incorrectly diagnosed as negative or false negatives. In addition, 34 (6.2%) of the RDT positive results were found to be negative using microscopy or false positives. This calculates to a sensitivity of 68.3% and a specificity of 93.4% for the RDTs.

Table 2; Confirmatory Microscopy Testing Results by RDT Result

			Microscopy Results		
			Positive	Negative	Total
RDT Results	Positive	N	181	34	215
		%	68.3%	6.2%	26.4%
	Negative	N	84	513	597
		%	31.7%	93.4%	73.3%
	Invalid	N	0	2	2
		%	.0%	.2%	.2%
Total		N	265	549	814
		%	100.0%	99.9%	100.0%

A total of 1,491 surveys contained information about treatment practices. (See Table 3.) Of the 619 patients with positive RDT results and treatment information, 612 (98.9%) received treatment with ACT and 7 (1.1%) did not. Furthermore, an additional 252 (29%) of the patients with negative RDT results were treated for malaria.

Table 3; Treatment Practices by RDT Test Result

			Treatment		
			Yes	No	Total
RDT Results	Positive	N	612	7	619
		%	98.9%	1.1%	100.0%
	Negative	N	252	618	870
		%	29.0%	71.0%	100.0%
	Invalid	N	0	2	2
		%	.0%	.1%	.1%
Total		N	864	627	1491
		%	57.9%	42.1%	100.0%

While a portion of these patients that received treatment received a confirmatory positive microscopy diagnosis for malaria (n=88; 35%), there were a total of 164 patients (32%) that were found to be

negative by both RDT and microscopy that received malaria treatment. In all of those cases, the health care provider indicated that malaria treatment was warranted based on clinical symptoms.

Discussion

There are two findings from this RDT Pilot Study that will be of importance when implementing the rollout of RDTs nationally into rural health facilities. First, health care providers routinely treated patients despite a negative RDT test result and secondly, the test results from RDT and microscopy were inconsistent showing exceedingly low sensitivity and specificity of the RDT.

1. Overtreatment Using ACT

According to this study, health care providers remain reluctant to forego dispensing malaria treatment for a patient with a negative RDT result. Historically, malaria treatment has been provided based on a patient's clinical symptoms because of the poor availability of microscopy in many rural areas. Therefore, this reluctance may be due to force of habit. It may also represent a provider's distrust of the test results or a patient's expectation for malaria treatment.

Almost one-third of all patients with a negative RDT result received treatment with ACT in this study. In addition, 32% of those patients that received a confirmatory negative malaria diagnosis using both RDT and microscopy were ultimately treated with ACT. Therefore, in this two-week period alone, health care providers in these five health centers dispensed 252 unnecessary prescriptions of ACT. If these treatment practices remain consistent nationally, then 32% of all ACT doses – or approximately 2.56 million doses each year – are wasted on the treatment of non-malaria fevers. This represents an enormous waste of vital national resources particularly in a context such as Kenya where stock outs of essential medicines are a common complaint in rural facilities.

With the rollout of RDTs, the Division of Malaria Control should complement malaria testing policies with guidelines for providers to perform additional diagnostics following a negative RDT result in order to determine the true cause of the clinical symptoms. This will reduce the inappropriate use of ACT, lead to more rational drug use, identify alternative causes of fever in these rural communities and result in better health outcomes as patients will be more likely to receive a correct diagnosis and treatment.

However, rolling out RDTs is a positive step toward more rational drug use compared to earlier presumptive treatment policies. In facilities where diagnostics (microscopy and RDTs) are unavailable, the introduction of RDTs will reduce the unnecessary use of ACT when compared to treatment based solely on malaria symptoms. According to this study, the introduction of RDTs would decrease treatment with ACT by 42%, which represents the percentage of patients in this study that presented with malaria symptoms at the facility but were not treated. (See Table 3.)

2. RDT Accuracy

The surprising finding from this study is the inconsistency of the RDT and confirmatory testing by microscopy. The Ministry of Health RDT guidelines in Kenya recommend the use of CareStart test kits, which have a sensitivity and specificity each of greater than 95%. This study found a much higher than acceptable rate of false positives and false negatives with a sensitivity of 68.3% and specificity of 93.4%. The reason for this inconsistency warrants additional review. However, it is likely that the use of microscopy for the diagnosis of malaria should not be considered the gold standard in these rural facilities where resources and capacity are lacking. In most laboratories in these project sites, malaria slides are reused many times before being discarded, compromising the slide quality. This lack of supply

also limits the number of smears that are produced for each patient and may result in missed diagnoses. While the study attempted to eliminate errors on the part of the lab technicians by providing refresher training in microscopy diagnosis prior to the study period, low capacity of the health care workers cannot be ruled out.

To address these inconsistencies, the Ministry of Health and the Division of Malaria Control will need to lay a solid foundation of quality assurance mechanisms prior to the rollout of RDTs nationally to examine where the true cause of inconsistency lies. If microscopy is determined to be the diagnostic method of lesser quality, speedy rollout of RDTs would be warranted to improve the accuracy of malaria data and lead to greater efficiency in treating malaria. At the same time, if RDT diagnosis proves to be of lesser quality, then decisions should be made to delay the rollout until these quality issues are addressed. Most importantly, resources need to be allocated to building the capacity of health care workers in the use of RDTs properly prior to the rollout to avoid a reduction in quality of malaria diagnosis and treatment.

Organizational Background

HealthRight International is a global health and human rights organization working to build lasting access to health for excluded communities. HealthRight works closely with communities and establishes local partnerships to deliver health services, while providing training and equipment to improve systems and enable our partners to deliver services on their own. Our projects address health and social crises made worse by human rights violations, with a particular focus and expertise on: HIV/AIDS, TB, and malaria; women's health; orphans and other at-risk children and youth; and survivors of human rights violations.

HealthRight received funding from USAID's President's Malaria Initiative (PMI) to implement a three year malaria communities' project in the North Rift Valley of Kenya entitled the Partnership for the Prevention and Treatment of Malaria (PPTM). The PPTM project worked to build the capacity of the local community and health system to promote healthy care seeking behaviors, improve service delivery and increase access to long lasting insecticide-treated nets. The project worked with 21 health facilities and over 1,000 CHWs to reduce morbidity and mortality from malaria in these excluded communities.

Acknowledgements

This study could not have been possible without strong collaboration with HealthRight partners in Kenya. This includes the Division of Malaria Control within the Ministry of Public Health and Sanitation; and the District Health Management Teams (DHMT) in Marakwet East and West; Pokot West, Central, and North; Trans Nzoia East; and Kwanza. HealthRight also appreciates support from the US President's Malaria Initiative which supports HealthRight's Malaria Communities Project in Kenya. Finally, many thanks to the health facility staff in the five health centers in which data was collected including Konyao, Arror, Anderson, Serewo and Cherangani.

ANNEX 2: KPC SURVEY TOOL

PMI BASELINE SURVEY

INFORMED CONSENT

Hello. My name is _____, and I am working with the Ministry of Health and HealthRight International. We are conducting a survey for a Malaria Community Project and would appreciate your participation. I would like to ask you about malaria. This information will help the Ministry of Health and HealthRight International to assess whether the project activities are achieving its goals. The survey usually takes 30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

Will you participate in this survey?

At this time, do you want to ask me anything about the survey?

Signature of interviewer: _____
Date: _____

RESPONDENT AGREES TO BE INTERVIEWED	RESPONDENT DOES NOT AGREE TO BE INTERVIEWED
.....	……..Exit Survey
Continue 1 ☐	2 ☐

NOTE TO THE INTERVIWER: All questions are to be addressed to mothers of children under 5 years

Identification	
Record Number	☐☐
Lot Number (1-21)	(1) Kapenguria (2) Chepareria (3) Serewo (4) Kacheliba (5) Konyao (6) Kachileba Mission Hospital (7) Amakuriat (8) Sigor (9) Ortum (10) Lomut (11) Kabichbich (12) Kapsara (13) Kolongolo (14) Cherangani (15) Suam (16) Endebess (17) Kapsowar (18) Kapcherop (19) Arror (20) Chebiemit (21) Tot
Household Number	
Village	
Sub Location	
Location	

Name of Mother	
Number of children under 5 years of age in house?	☐
Ages of Children (CIRCLE THOSE THAT APPLY)	
Youngest Child	__ 0-11 mo (1) __12-23 mo (2) __24-35mo (3) __36-47m (4) __48-59 mo (5)
Second Youngest Child	__ 0-11 mo (1) __12-23 mo (2) __24-35mo (3) __36-47m (4) __48-59 mo (5)
Third Youngest Child	__ 0-11 mo (1) __12-23 mo (2) __24-35mo (3) __36-47m (4) __48-59 mo (5)

	1	2
Interview date	___/___/____ day/month/year	___/___/____ day/month/year
Name of Interviewer		
Signature of Interviewer		
Name of Supervisor		
Data Entered by		
NOTES:		

Questionnaire VERIFIED (date): Signature of Supervisor:

Questionnaire

I. BACKGROUND INFORMATION			
No.	Questions and Filters	Coding Categories	Skips
101	In which language(s) do you feel most comfortable communicating? CIRCLE ALL MENTIONED.	KIPOKOT……..01 KISWAHILI……..02 OTHER_____.....88 (SPECIFY)	
102	How old are you now?	AGE (in completed years) ☐☐	
103	Do you work outside of the home to earn money?	YES……..01 NO……..02	→ 105
104	What kind of work do you do? CIRCLE ALL MENTIONED.	FARMING……..01 TENDING ANIMALS……..02 SELLING VEGETABLES/ FRUITS……03 SELLING PREPARED FOODS……04 SHOP KEEPER/STREET VENDOR……05 SERVANT/HOUSEHOLD WORKER……06 DAY LABORER……..07 OTHER_____.....88 (SPECIFY)	
105	Have you ever attended school?	YES……..01 NO……..02	→ 107
106	What is the highest level of school you attended? CIRCLE ONE ONLY.	NONE……..01 SOME PRIMARY……..02 COMPLETED PRIMARY……..03 SOME SECONDARY……..04 COMPLETED SECONDARY OR HIGHER……..05	

107	What is your current marital status? IF MARRIED, PROBE TO SEE IF THERE IS MORE THAN ONE WIFE. IF RESPONDENT IS THE ONLY WIFE, CHECK "ONLY WIFE". IF THERE IS MORE THAN ONE WIFE, CHECK "MORE THAN ONE WIFE".	MARRIED……01 ONLY ONE WIFE……☐ MORE THAN ONE WIFE……☐ SINGLE……02 WIDOWED……03 DIVORCED……04 OTHER_____.....88 (SPECIFY)	
	II. SOCIO-ECONOMIC		
201	How many people live in your house?	☐☐	
202	How many rooms in your house are usually used for sleeping?	☐	
203	Main material of the roof of main house INTERVIEWER OBSERVATION.	GRASS/THATCH……01 METAL SHEETS…… 02 IRON SHEETS…… 03 WOOD/TIMBER…… 04 TILES…… 05 OTHER_____ 88 (SPECIFY)	
204	Main material of the walls of the main house INTERVIEWER OBSERVATION.	MUD……01 STONE/CEMENT BLOCKS……02 BURNT BRICKS…… 03 CEMENTED MUD…… 04 IRON SHEETS(MABATI)…… 05 TIN/METAL SHEETS..... 06 OTHER_____ 88 (SPECIFY)	
205	Main material of the floor of the main house INTERVIEWER OBSERVATION	MUD/SAND……01 CEMENT……02 POLISHED WOOD/CARPET……03 OTHER_____ _88 (SPECIFY)	

206	Does your household have the following:						
	ITEM	1=Yes, 2=No	NUMBER	ITEM	1=Yes 2=No	NUMBER	
	Bicycle			Mobile phone			
	Car			Plough			
	Television			Motorcycle			
	Radio			Cattle			
	Video			Goats/sheep			
	Refrigerator			Poultry			
	Land in acres			others (specify……			
207	What is the main source of drinking water for members of your household during the dry season?			PIPED INTO DWELLING……..01 PUBLIC TAP.....02 OPEN WELL…… 03 COVERED WELL……..04 RIVER/STREAM……..05 DAM/POND……..06 RAIN WATER…….... 07 BORHOLE……..…..08 OTHER _____88 (SPECIFY)			
208	What kind of toilet facility do household members usually use? ASK TO SEE THE TOILET FACILITY TO VERIFY.			FLUSH TOILET……..01 VIP TOILET.....02 TRADITIONAL PIT TOILET…… 03 NO FACILITY-BUSH/OPEN FIELD…….04 OTHER (SPECIFY)……..88			
III. MALARIA KNOWLEDGE							
301	Have you heard of malaria before?			YES……01 NO……..02			→ 401

302	What do you think are major signs and symptoms of malaria CIRCLE ALL THAT APPLY	FEVER……01 SHAKING CHILLS…… 02 HEADACHE……03 MUSCLE ACHE……04 TIREDNESS……05 NAUSEA, VOMITTING……06 DIARRHEA……07 OTHERS……88 (SPECIFY) DON'T KNOW……99	
303	How do you think malaria is spread? CIRCLE ONLY ONE	MOSQUITO BITE……01 BEING RAINED UPON……02 EATING FRESH MAIZE/SUGAR CANE/MANGO……03 OTHERS……88 (SPECIFY) DON'T KNOW……99	
304	Can malaria be prevented?	YES……01 NO……02	→ 401
305	How do you think malaria can be prevented? CIRCLE ALL THAT APPLY	USING MOSQUITO NETS……01 USING MOSQUITO REPELLENTS……02 AVOID STAGNATING WATER NEARBY…03 OTHERS……88 DON'T KNOW……99	
IV. MALARIA ITN USE			
401	Does your household have any mosquito nets that can be used while sleeping?	YES……01 NO……02	→ 501
402	How many mosquito nets does your household have?	Number of Nets ☐	

403	From where was the mosquito net obtained?	HOSPITAL……..01 HEALTH CENTER……..02 DISPENSARY……..03 PRIVATE CLINIC……..04 SHOP/ DUKA……..05 CHW ……..06 OTHER_____.....88 (SPECIFY) DON'T KNOW……..99	
404	How long ago was that net obtained? **IF LESS THAN 1 MONTH AGO, RECORD '00'.** **IF ANSWER IS "12 MONTHS" OR "1 YEAR", PROBE TO DETERMINE IF NET WAS OBTAINED EXACTLY 12 MONTHS AGO OR EARLIER OR LATER.**	**MONTHS** ☐☐ MORE THAN 3 YEARS AGO……..02 DON'T KNOW……..99	
405	Did anyone sleep under a net last night?	YES……..01 NO……..02	→ 407
406	Who slept under a mosquito net last night? CIRCLE ALL THAT APPLY	YOUNGEST CHILD (0-59M)…….. 01 PREGNANT WOMAN……..03 NO ONE……..04 OTHERS _____88 (SPECIFY)	
407	Which brand of bed net (Name/Other) do you have? SHOW PICTURES OF TYPICAL NET TYPES AND BRANDS.  **Square net sample (Blue, white, pink, green**  **Round net sample (Blue, white, pink, green)**  Square LLITN sample	SUPANET .....01 PERMANET.....02 NETPROTECT.....03 ASILIA X-TRA.....04 SLEEP NET ……..05 DURANET……..06 OTHERS SPECIFY----------88 DON'T KNOW BRAND……..99	

V. MALARIA TREATMENT IN CHILDREN			
No.	Questions and Filters	Coding Categories	Skips
501	What is the name, sex, date of birth of the last child (0-59m) that you gave birth to?	NAME _____ Sex MALE……..01 FEMALE…….. 02 Age of Child (in months) ☐☐ Date of Birth DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐	
502	Has (Name) been ill with fever at any time in the last two weeks?	YES……..1 NO…….. 2 DON'T KNOW……..9	☐601 ☐601
503	Did you seek advice or treatment for the fever?	YES……..1 NO…….. 2	☐508
504	Where did you first go for advice or treatment for fever?	PUBLIC HEALTH FACILITY… … 01 PRIVATE HEALTH FACILITY… 02 TRADITIONAL HEALERS…… …..03 CHWS…… .04 OTHERS _____88 (SPECIFY) DON'T KNOW…….. 99	
505	Did you go anywhere else for advice or treatment for (Name of Child) fever?	**YES……..01** **NO……..02**	☐507
506	Where did you go next for advice or treatment for fever?	PUBLIC HEALTH FACILITY… … 01 PRIVATE HEALTH FACILITY… 02 TRADITIONAL HEALERS…… …..03	

		CHWS…… .04 OTHERS _____88 (SPECIFY) DON'T KNOW…….. 99	
507	How many days after the fever began did you first seek treatment for (Name of child)?	SAME DAY……0 NEXT DAY……1 TWO OR MORE DAYS……2	
508	Did (Name of child) get tested for malaria?	YES……1 NO…….. 2 DON'T KNOW…….. 99	
509	At any time during the illness did (Name of child) take any drugs for the fever?	YES……1 NO…….. 2 DON'T KNOW…….. 99	☐END ☐END
510	What drugs did (Name of child) take? Any other drugs? RECORD ALL MENTIONED. ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT KNOWN. IF TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT **COUNTRY SPECIFIC BASED ON NATIONAL MALARIAL PROTOCOL.	ANTI-MALARIAL SP/FANSIDAR……A CHLOROQUINE……B AMODIAQUINE……C QUININE……D ACT……E OTHER DRUGS ASPRIN……F PARACETAMOL……G OTHER_____..X (SPECIFY) DON'T KNOW……Z	☐END
511	**How long after the fever started did (NAME) start taking the medicine?**	SAME DAY……0 NEXT DAY…… ….. 01 2 DAYS AFTER THE FEVER……02	

		3 DAYS AFTER THE FEVER…..... 03 4 OR MORE DAYS AFTER THE FEVER… .04 DON'T KNOW……99	

THANK THE RESPONDENT FOR TAKING THE TIME TO BE INTERVIEWED. MAKE SURE ALL SECTIONS ARE COMPLETE BEFORE EXITING THE HOUSEHOLD.

ANNEX 3: FOCUS GROUP DISCUSSION GUIDE FOR FINAL EVALUATION

PARTNERSHIP FOR PREVENTION AND TREATMENT OF MALARIA (PPTM) MALARIA COMMUNITIES PROJECT

FOCUS GROUP DISCUSSION (FGD) GUIDE

MOTHERS OF U5 CHILDREN

(For the questions below, ask each question and probing question separately. Allow several minutes for discussion on each probing question, until everyone has had an opportunity to offer their thoughts. The discussion should not last more than 90 minutes.)

Care Seeking:

1. Generally, if your child is sick, what symptoms are you most worried about?
   Probe for: Why do you worry about these symptoms? Which symptoms require a visit to a health facility?

2. When your child has a fever, where do take you him/her for care? Why is this the best place for you and your family to seek care?

3. How serious is the problem of malaria for your family?
   Probe for: Is it a common or frequent problem? Is it dangerous? For whom is it most dangerous? Is it life threatening?

LLITN Use:

4. Sometimes, why do you choose not to sleep under a mosquito net?

5. Do you put your child under a mosquito net at night to sleep?
   Probe for: Why are nets useful for your child? How often does your child sleep with a net? Why does your child sleep without a net?

CHW Capacity:

6. Does a CHW visit your home? If so, tell me about the work of the CHW that visits you.
   Probe for: Are the CHWs valuable to your family? How do they help you? Are they doing good work? What do you dislike about the CHWs?

ANNEX 4: INDIVIDUAL OCVAT SCORES

Tool Name: **Organizational Capacity and Viability Assessment Tool**

Date: **November 2012 Final**

Leadership, governance, and strategy

INDICATOR NAMES	INDICATOR DESCRIPTIONS	Central Pokot		Marakwet		North Pokot		West Pokot		Trans Nzoia		*AVG Scores*
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	
Constitution	Organization has a written constitution accepted and approved by all the members of the board	3	3	4	4	4	2	4	4	4	4	*3.6*
Governing Committee	Organization has a committee/board that meets and makes decisions that guide the organization's development	3	4	4	4	4	4	3	4	4	4	*3.8*
Mission and values	Organization has a mission and set of values which are clearly understood, agreed and approved by all the members of the organization and these are used	3	3	4	4	4	3	4	4	4	3	*3.6*
		3	3.33	4	4	4	3	3.67	4	4	3.67	*3.67*

Finances

INDICATOR	INDICATOR	Central Pokot	Marakwet	North Pokot	West Pokot	Trans Nzoia	*AVG*

NAMES	DESCRIPTIONS	Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	*Scores*
Finances	**Organization keeps accounts of money that can be presented on demand**	**4**	**3**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**4**	***3.8***
Bank account	**Organization has a bank account to hold its funds**	**3**	**3**	**4**	**4**	**3**	**3**	**4**	**3**	**3**	**4**	***3.4***
Supporting documents	**Organization maintains supporting receipts and invoices for every expenditure**	**2**	**2**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**3**	***3.4***
Budgets and cash flow planning	**Organization prepares, monitors, and reviews the budget**	**2**	**2**	**3**	**4**	**2**	**2**	**4**	**4**	**4**	**3**	***3***
Reporting requirements	**Organization provides financial reports on time to donors**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	***3.8***
		2.8	**2.6**	**3.8**	**4**	**3.4**	**3**	**4**	**3.8**	**3.8**	**3.6**	**3.48**

Human Resources

INDICATOR NAMES	INDICATOR DESCRIPTIONS	Central Pokot		Marakwet		North Pokot		West Pokot		Trans Nzoia		*AVG Scores*
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	
Staff / volunteer organization	**Organization involves a number of salaried staff and volunteers who have different areas of responsibility**	**2**	**2**	**4**	**4**	**2**	**2**	**4**	**4**	**2**	**2**	***2.8***

Staff and volunteer development	**Organization ensures that staff and volunteers support and motivate each other and have sufficient skills**	**4**	**3**	**4**	**4**	**4**	**3**	**4**	**4**	**3**	**4**	***3.7***
Office and equipment	**Organization has its own office, meeting space, and equipment for handling administration and writing reports and has sufficient equipment to do this**	**3**	**3**	**4**	**4**	**4**	**2**	**4**	**4**	**4**	**2**	***3.4***
		3	**2.67**	**4**	**4**	**3.33**	**2.33**	**4**	**4**	**3**	**2.67**	**3.3**

Project Design and Management

INDICATOR NAMES	**INDICATOR DESCRIPTIONS**	**Central Pokot**		**Marakwet**		**North Pokot**		**West Pokot**		**Trans Nzoia**		***AVG Scores***
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	
Activity development and planning	**Organization plans the development of its activities, involving all people concerned**	**3**	**3**	**4**	**4**	**3**	**3**	**4**	**4**	**3**	**3**	***3.4***
Project and proposal development	**You are satisfied with the quality of the projects developed**	**2**	**2**	**3**	**4**	**4**	**3**	**4**	**4**	**4**	**4**	***3.4***
Targeting	**The type of people that you work with in your programs**	**2**	**2**	**3**	**3**	**2**	**3**	**4**	**4**	**3**	**3**	***2.9***
Monitoring and evaluation	**Organization has a functioning monitoring and evaluation system**	**3**	**3**	**4**	**4**	**3**	**3**	**3**	**4**	**4**	**3**	***3.4***
		2.5	**2.5**	**3.5**	**3.75**	**3**	**3**	**3.75**	**4**	**3.5**	**3.25**	**3.28**

Technical Capacity

INDICATOR NAMES	INDICATOR DESCRIPTIONS	Central Pokot		Marakwet		North Pokot		West Pokot		Trans Nzoia		AVG Scores
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	
Technical area knowledge and skills	Organization trains all its staff and volunteers in general technical knowledge and skills necessary to do their duties well	3	3	4	4	3	3	4	4	3	4	*3.5*
Information Education and Communication development and utilization	Organization creates messages to raise awareness or change people's thinking	3	3	4	4	3	3	4	4	4	3	*3.5*
Gender issues	Staff and members understand the relationship between gender and health status	3	3	4	4	3	3	4	4	4	4	*3.6*
Access to new technical knowledge	Organization encourages and enables members to learn and develop their knowledge about technical areas	2	3	4	4	4	4	4	4	4	4	*3.7*
		2.75	3	4	4	3.25	3.25	4	4	3.75	3.75	3.58

Networking and Advocacy

INDICATOR NAMES	INDICATOR DESCRIPTIONS	Central Pokot		Marakwet		North Pokot		West Pokot		Trans Nzoia		AVG Scores
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	

Advocacy	**Organization carries out advocacy activities to influence those in power to change conditions or policies that form barriers to work**	**3**	**3**	**3**	**4**	**4**	**3**	**4**	**4**	**4**	**3**	***3.5***
Broader context and potential relationships	**Organization works with local government, private and/or community groups**	**4**	**3**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	***3.8***
		3.5	**3**	**3.5**	**4**	**4**	**3.5**	**4**	**4**	**4**	**3**	**3.65**

Community Ownership and Accountability

INDICATOR NAMES	**INDICATOR DESCRIPTIONS**	**Central Pokot**		**Marakwet**		**North Pokot**		**West Pokot**		**Trans Nzoia**		***AVG Scores***
		Kamatong	Yes Plus	Tumaini	Sobon	Muslim Youth	Nalemit	Sikom	Yangat	CANA	Makutano PHC	
Involvement of vulnerable people in activites, work, and major decisions	**Vulnerable people that the organization works with participate fully in the activities, work, and major decisions of the organization**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**2**	***3.6***
Gender	**Organization respects, encourages, and promotes equal participation from people of both genders**	**4**	**4**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**2**	***3.7***
		3.5	**3.5**	**4**	**4**	**4**	**3.5**	**4**	**4**	**4**	**2**	**3.65**
	Overall Average:	**2.9**	**2.9**	**3.8**	**3.96**	**3.5**	**3.0**	**3.9**	**3.96**	**3.7**	**3.3**	
		central pokot average		marakwet average		north pokot average		west pokot average		trans nzoia average		
	District Average:	2.89		3.89		3.26		3.93		3.48		

ANNEX 5: INDIVIDUAL CHW-AIM SCORES

Tool Name: CHW Assessment and Improvement Matrix

Date: October 2012

INDICATOR NAMES	Amakuriat	Arror	Chebiemit	Chepareria	Cherangany	Endebes	Kabichbich	Kacheliba	Kacheliba M	Kapcherop	Kapenguria	Kapsara	Kapsowar	Kolongolo	Konyao	Lomut	Ortum	Serewo	Sigor	Suam	Tot	TOTAL
Recruitment	**3**	**2**	**2**	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2.33**
CHW Role	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**3**	**2**	**2**	**2.33**
Initial training	**3**	**2**	**2**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**2**	**2**	**3**	**2**	**2.52**
Continuous training	**3**	**2**	**1**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**1**	**3**	**3**	**3**	**2**	**3**	**2**	**3**	**1**	**2.48**
Equipment and supplies (including job aids)	**3**	**0**	**2**	**2**	**1**	**2**	**1**	**3**	**2**	**1**	**1**	**1**	**1**	**3**	**2**	**1**	**1**	**1**	**2**	**2**	**1**	**1.57**
Individual Performance Evaluation	**3**	**1**	**2**	**1**	**1**	**3**	**2**	**3**	**1**	**1**	**2**	**1**	**2**	**2**	**1**	**2**	**1**	**0**	**2**	**2**	**2**	**1.67**
Incentives	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**3**	**2**	**2**	**2.19**
Referral system	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**2**	**3**	**2**	**2.38**
Opportunity for advancement	**3**	**2**	**2**	**1**	**3**	**3**	**0**	**3**	**3**	**2**	**3**	**2**	**2**	**3**	**3**	**0**	**2**	**3**	**0**	**3**	**2**	**2.14**
Documentation & IM	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**1**	**3**	**2**	**2.57**
Linkages to Health System	**2**	**1**	**2**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**1.90**
Program Performance Evaluation	**3**	**2**	**2**	**2**	**3**	**2**	**1**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2.10**
Country ownership	**3**	**2**	**2**	**1**	**2**	**2**	**1**	**3**	**3**	**2**	**1**	**1**	**2**	**2**	**3**	**3**	**3**	**2**	**1**	**2**	**2**	**2.05**
Average:	2.85	1.69	2.08	2.15	2.31	2.62	1.69	2.92	2.62	1.85	2.23	2.00	1.77	2.54	2.38	1.92	2.00	2.08	1.69	2.38	1.85	2.17