MalariaCare
A USAID PARTNERSHIP

# Universal diagnosis and treatment to improve maternal and child health

**Project Year 1 Annual Report**
November 15, 2013

PRESIDENT'S MALARIA INITIATIVE

USAID FROM THE AMERICAN PEOPLE

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# Acronyms

| | |
|---|---|
| ACT | artemisinin-based combination therapy |
| AFRO | Regional Office for Africa (World Health Organization) |
| AOR | Agreement Officer's Representative (USAID) |
| COP | Chief of Party |
| CLU | Clinical Laboratory Unit (Ghana) |
| DHMT | district health management team |
| DRC | Democratic Republic of Congo |
| EHNRI | Ethiopian Health and Nutrition Research Institute |
| ESMPIN | Expanded Social Marketing Project in Nigeria |
| FMOH | Federal Ministry of Health |
| FY | Fiscal Year |
| GFATM | Global Fund to Fight AIDS Tuberculosis and Malaria |
| GHS | Ghana Health Service |
| HSA | health surveillance assistant (Malawi) |
| HIO | health information officer |
| HMIS | health management information systems |
| ICC | in-country coordinator |
| ICD | Institutional Care Division (Ghana) |
| IHP | Integrated Health Project |
| IMaD | Improving Malaria Diagnostics project |
| INRB | National Reference Laboratory (Democratic Republic of Congo) |
| KHRC | Kintampo Health and Research Centre |
| MERG | Monitoring and Evaluation Research Group |
| M&E | monitoring and evaluation |
| MCDI | Medical Care Development International |
| MDRT | malaria diagnostics refresher training |

| | |
|---|---|
| MOP | Malaria Operational Plan |
| NAMS | National Archive of Malaria Slides |
| NMCC | National Malaria Control Centre (Zambia) |
| NMCP | National Malaria Control Program |
| OTSS | outreach training and supportive supervision |
| PMI | US President's Malaria Initiative |
| PMI-EP | President's Malaria Initiative-Extension Project |
| PMP | performance monitoring plan |
| PPMV | proprietary patent medicine vendor (Nigeria) |
| PNLP | National Malaria Control Program (Democratic Republic of Congo) |
| PPME | Policy Planning Monitoring and Evaluation Division (Ghana) |
| PSI | Population Services International |
| PY | project year |
| QA/QC | quality assurance/quality control |
| RBM Partnership | Roll Back Malaria Partnership |
| RDT | rapid diagnostic test |
| RHMT | regional health management team |
| SFH | Society for Family Health |
| SOP | standard operating procedure |
| SSDI | Support for Service Delivery Integration project |
| TOT | training of trainers |
| TSHIP | Targeted States High Impact Project |
| USAID | US Agency for International Development |
| WHO | World Health Organization |

# Executive summary

MalariaCare, a five-year partnership led by PATH and funded by the US Agency for International Development (USAID) under the US President's Malaria Initiative (PMI), aims to scale up high-quality diagnosis and case management services for malaria and other life-threatening illnesses. The partnership currently works in PMI focus countries to reduce the burden of serious disease and promote healthy communities and families. MalariaCare is a partnership between PATH and three other organizations: Medical Care Development International, Population Services International, and Save the Children.

The annual performance monitoring report describes accomplishments toward achieving MalariaCare's objectives, intermediate results, and milestones during project year one (PY1), from September 30, 2012, through September 30, 2013. The report also describes challenges faced by the MalariaCare team and next steps.

In PY1, MalariaCare initiated activities to improve malaria diagnosis and treatment in eight countries, established global operations, and strengthened the technical quality of global malaria case management policies and programs. Activities launched during this period will contribute to reducing the burden of malaria and other diseases and promote healthy communities and families over the course of the project.

Highlights from MalariaCare's first year include:

- Built a team of more than 20 staff with strong technical and management expertise. The team facilitated a smooth transition from the predecessor Improving Malaria Diagnostics (IMaD) project by converting IMaD's in-country coordinators (ICCs) to MalariaCare technical advisors.
- Designed field activities to be applied across countries, including development of a generic National Archive of Malaria Slides (NAMS) protocol, development of quality assurance/quality control (QA/QC) protocols for malaria case management, and development of laboratory and clinical outreach training and supportive supervision (OTSS) protocols to be implemented from the community to the hospital level.
- Strengthened capacity of a cadre of laboratory supervisors and technicians in Zambia and Democratic Republic of Congo (DRC) in microscopy competence through malaria diagnostics refresher training (MDRT). In Zambia, 18 district-level supervisors achieved a mean score of 96 percent in microscopy competence, and in DRC, 14 of 16 technicians obtained expert (level 1) status in preparation for World Health Organization (WHO) accreditation.
- Identified and took action to address the need for training and supervision of approximately 600 untrained health workers who are currently performing rapid diagnostic tests (RDTs) at health facilities in Malawi. The project will work with partners to address this critical gap in PY2—helping to ensure that more families and communities have access to quality malaria diagnosis.

- Assisted stakeholders in Ghana's Upper West Region to develop evidence-based work plans and teams for implementing OTSS activities. Each of the region's 11 district health management teams (DHMT) has agreed to reduce presumptive treatment for malaria by half over the next six months.
- Launched the MalariaCare website and kicked off the MalariaCare webinar series with a global discussion on how countries can make progress toward reaching universal diagnosis and treatment of malaria.

# Background

MalariaCare, a five-year partnership led by PATH and funded by the US Agency for International Development (USAID) under the US President's Malaria Initiative (PMI), aims to scale up high-quality diagnosis and case management services for malaria and other febrile illnesses. The partnership works in PMI focus countries and other countries in Africa to reduce the burden of serious disease and promote healthy communities and families. MalariaCare started on September 30, 2012, and will end on September 29, 2017.

The MalariaCare team aims to achieve the following objectives:

- Improve the accuracy of diagnostic testing in the health sector.
- Increase the percentage of suspected malaria patients who receive a diagnostic test for malaria.
- Increase the percentage of patients who receive appropriate treatment for malaria or other febrile illness, consistent with test results.
- Strengthen health systems at country level for the diagnosis and treatment of malaria and other infectious diseases, with a focus on laboratory support.

## MalariaCare partners

MalariaCare is led by PATH and supported by three other organizations: Medical Care Development International (MCDI), Population Services International (PSI), and Save the Children (SC). Each partner has extensive experience in designing and implementing malaria control programs in high-burden countries. The MalariaCare team's expertise includes laboratory strengthening, malaria diagnosis and treatment, program evaluation and research, and community-based management of disease in both the public and private sectors.

# Introduction

This annual performance monitoring report describes accomplishments toward achieving MalariaCare's objectives, intermediate results, and milestones during project year one (PY1), from September 30, 2012, through September 30, 2013. The report also describes challenges faced by the MalariaCare team and next steps. The report is organized by global and country achievements. Annex 1 provides MalariaCare's global and country-level performance monitoring plans reporting on progress toward reaching specific targets.

The global achievements section describes progress toward reaching the project's PY1 core work plan objectives. Global work plan areas are:

- Project operations
- Monitoring and evaluation (M&E)
- Advocacy and communications
- Technical leadership

The country achievements section summarizes MalariaCare's activities and progress toward improving diagnosis and treatment of malaria and other illnesses in the following eight countries. Accomplishments are described by each project objective as relevant.

- Democratic Republic of Congo (DRC)
- Ethiopia
- Ghana
- Guinea
- Liberia
- Malawi
- Nigeria
- Zambia

# Global achievements

## Project operations

During PY1, MalariaCare built a strong team of US-based and in-country staff; established field offices or embedded program operations into existing offices; developed global and country work plans; and established internal policies and procedures to ensure efficiency within the partnership. The operations accomplishments described below enabled the team to make solid progress toward achieving its global and country objectives.

**Key accomplishments**

- Established a project team of nine US-based staff and 12 field staff. The team facilitated a smooth transition from the Improving Malaria Diagnostics (IMaD) project by converting IMaD's in-country coordinators to MalariaCare technical advisors. A technical director joined the team late in the year following an extended recruitment process.
- Started up operations in eight countries including establishing a project office in Ghana. To facilitate effective project operations and communications, backstops in the US supported and served as key resources for each country.

The MalariaCare team met in Maryland in July 2013 for its first annual work planning meeting. Twenty-three team members from four partner organizations worked together to develop eight PY2 work plans.

- Developed PY1 work plans for core activities and six countries, and received approval for the core, DRC, Ethiopia, Ghana, Malawi, and Zambia work plans. (See Table 1 for work plan status and staff by country.) The team also developed and submitted PY2 work plans for core activities and seven countries.
- Created an operations advisory group with representation from all project partners. The group met four times to review country-level operations and establish and communicate processes, such as procedures for invoicing and billing and timelines for work plan budgets.
- Established a technical advisory group made up of technical members of MalariaCare's partner organizations. The group met three times to review the current status of MalariaCare activities, seek

cross-organizational advice, and discuss technical strategies, such as revising and improving coordination of outreach training and supportive supervision (OTSS) checklist data in coming years.

- Finalized subagreements for each partner organization.
- Developed financial reporting and monitoring templates for use by PATH staff and determined procedures for travel requests to ensure efficient use of partner time and resources.
- Participated in biweekly face-to-face or telephone conference meetings with the PMI Agreement Officer's Representative (AOR) team in Washington. The meetings have enabled consistent and effective communication between the MalariaCare and PMI teams.
- Held two meetings to update partners on project implementation status and to plan for upcoming program milestones.
- Conducted introductory trips to Ghana, Guinea, and Liberia to present MalariaCare programming to the USAID Missions, ensuring that key PMI staff was well informed of the project's capabilities.
- Attended a stakeholder's meeting in Tanzania to present an overview of MalariaCare, review M&E tools used to assess the success of OTSS and refresher training, and provide input on the development of a manual for malaria microscopy quality assurance at PMI's request.
- Participated in the Roll Back Malaria (RBM) Partnership's Monitoring and Evaluation Research Group (MERG) meeting.
- Presented and shared lessons learned regarding MalariaCare's approach to quality assurance of parasitological diagnosis of malaria at the WHO Regional Office for Africa's (AFRO) Coordination Workshop on the Quality Management System for the Parasitological Diagnosis of Malaria in the AFRO Region, held in Harare, Zimbabwe.
- Conducted four trips to Nigeria to discuss and assess potential MalariaCare approaches to strengthen proprietary patent medicine vendor (PPMV) capacity, to discuss a pilot concept and implementation with USAID Nigeria, to support Expanded Social Marketing Project in Nigeria (ESMPIN)/Society for Family Health (SFH)–PSI in design of a pilot for improved case management, and to revise the tools and protocol for evaluation of said pilot.

**Table 1. MalariaCare PY1 countries**

| Country | Work plan approval | Country lead | Backstop |
|---|---|---|---|
| Core (global) | Approved 3/28/2013 | N/A | N/A |
| Democratic Republic of Congo (DRC) | Approved 4/8/2013 | Séraphine Kutumbakana | Troy Martin |
| Ethiopia | Approved 6/3/2013 | N/A | Nicole Whitehurst |
| Ghana | Approved 7/18/2013 | John Bawa (interim) | Christine Demmelmaier |
| Guinea | PY2 work plan approved 10/3/2013 | N/A | Matt Worges |
| Liberia | Pending | TBD | Luis Benavente |
| Malawi | Approved 5/13/2013 | Petros Chirambo | Molly Robertson |
| Nigeria | TBD | TBD | Paul Hamilton, Molly Robertson |
| Zambia | Approved 3/29/2013 | Timothy Nzangwa | Troy Martin |

## Challenges

A major operations challenge during this first project year was making sure that the MalariaCare team was ready to start implementation concurrently in multiple countries immediately following work plan approvals. Many work plans were finalized during the third and fourth quarters of the year, making the implementation period very short. MalariaCare collaborated with PMI Washington and several PMI country teams to move forward with selected OTSS and malaria diagnostics refresher training (MDRT) activities before receiving final work plan approvals.

## Next steps

MalariaCare will continue to focus on attaining its key operations objective of ensuring effective management in each country. During PY2, the team will establish additional field offices or embed project operations into existing partner offices and establish in-country capacity on award compliance issues. Continuing with regular donor and partner meetings will ensure efficient operations and implementation of project activities. As the project grows, we will hire additional team members to provide M&E and overall administrative expertise and support to the project. Another priority for PY2 will be to continue building strong relationships with external partners and resource groups in order to achieve global and country-level goals and objectives.

# Monitoring and evaluation

M&E efforts ensure that project activities respond directly to USAID objectives, align indicators with PMI and RBM Partnership indicators, and determine how the project can contribute to the global discussion on malaria diagnosis and treatment. During PY1, the team developed an M&E plan and a reporting system that will enable MalariaCare to effectively collect data, generate information, monitor progress, and report results over the next four years.

**Key accomplishments**

- Developed global indicators for a performance monitoring plan (PMP) that aligns with PMI and RBM indicators. Global indicators have been used in each country-specific program so that information on clinical competence and malaria test adherence can be tracked across countries. This system also allows MalariaCare to share best practices across country programs to strengthen malaria diagnosis and treatment efforts.

- Created country-specific performance indicators and established M&E systems that complement annual work plans for six countries and feed into the global PMP.

- Designed a five-year MalariaCare results framework. The results framework graphically represents the connection between MalariaCare activities and the outcomes and impact.

- Developed PMP reporting forms and responded, where possible, to the standards set out by PMI and the RBM Partnership. As a result, global information will be available on the progress toward quality diagnosis and treatment of malaria.

- Participated in the RBM MERG in New York City in July 2013. By participating in this group and other working groups, including the mHealth working group in Washington, DC, MalariaCare is helping to advance the quality of global M&E guidelines and tools for malaria programs.

**Challenges**

A key M&E challenge is to analyze each country's reporting and database systems and how they will feed into global reports. As the project moves forward, the team will continually assess lessons learned in implementation of programs across the partnership and partner- and country-specific M&E systems.

Supportive supervision plays an integral part in the team's ability to assess programmatic outcome data by providing information on clinical competence and on-the-job training. Data collection and processing needs to be strengthened to support data analysis and data use for decision-making. The team will improve OTSS data collection in PY2 to facilitate analysis of specific steps included in OTSS checklists. This will allow countries to analyze specific challenges in meeting competency thresholds and allow programs to adjust supportive supervision practices.

**Next steps**

MalariaCare aims to improve M&E practices in-country and on a global level by conducting an analysis of the OTSS methodology. The outcome of this should lead to improved supportive supervision practices, both for monitoring and for use of data for targeted capacity strengthening. For example, the team will provide guidance on improving data collection practices, as well as develop strategies that will facilitate gathering of key data from multiple surveys and routine monitoring for decision-making. Finally, MalariaCare plans to review mHealth strategies that can contribute to national and global MalariaCare programs to improve the quality and sustainability of malaria case management.

## Advocacy and communications

MalariaCare's advocacy and communications activities aim to influence policy at the national and global levels, increase access to technical and programmatic information, and support USAID communication with Missions and governments about MalariaCare. During the project's first year, the project team advanced global discussions on malaria case management and established several new communications channels to reach program managers, PMI staff, local service providers, and other global health colleagues with helpful information and tools to improve malaria diagnosis and treatment programs.

**Key accomplishments**

- Launched the MalariaCare website—www.malariacare.org. The site includes basic information about the partnership and an expanding list of free, online resources related to malaria diagnosis and treatment and treatment of other febrile diseases.

- Kicked off the MalariaCare webinar series on September 25, 2013, with a global discussion on how countries can make progress toward reaching universal diagnosis and treatment of malaria. More than 60 colleagues from 16 countries, representing national malaria control programs, PMI, global nongovernmental organizations, and other organizations interacted with MalariaCare's technical director and panelists from Geneva, Malawi, and Zanzibar. In addition, around 40 people from more than 10 countries viewed a recording of the webinar after the live event.

**Countries with webinar participants or viewers**

| | | |
|---|---|---|
| DRC | Liberia | Switzerland |
| Ecuador | Madagascar | Uganda |
| Ethiopia | Malawi | UK |
| Germany | Nigeria | USA |
| Ghana | Pakistan | Vietnam |
| Haiti | Senegal | Zambia |
| India | Somalia | Zanzibar |

- Established the MalariaCare Bulletin, enabling the project to disseminate periodic email messages with news and technical updates. By the end of the year, the e-bulletin mailing list included more than 250 users.

- Mapped key advocacy and policy needs related to diagnosis and treatment and proposed top priority advocacy topics for inclusion in the 2013–2014 MalariaCare work plan.
- Created a package of materials with key messages about the project to share with USAID Missions, country partners, and other global health colleagues. Products include a MalariaCare flyer, a two-page Ghana fact sheet, a handout with key information for project staff, and PowerPoint slide decks for the Malaria Operational Plan (MOP) and other key meetings.
- Developed a brand identity, including a logo and tagline; templates for fact sheets, reports, work plans, and PowerPoint presentations; and quality standards to unify all project communications and products. The communications team also created a brand guide and provided training for all project partners and staff to ensure high-quality products and adherence to USAID and project brand guidelines.

**Challenges**

As activities ramp up in several countries, the team expects to have more robust successes and lessons learned to share during PY2. In PY1, the team was still collecting details about country activities for the MalariaCare website and other materials. As the project moves forward with activities, the team will be able to regularly identify and disseminate a wide range of country lessons learned with global health colleagues. The website, webinar series, e-bulletin, and other tools established this year will enable the project team to routinely report on successes and lessons learned, disseminate useful project tools, and lead discussions on universal diagnosis and treatment of malaria over the course of the project.

**Next steps**

During PY2, MalariaCare's communications efforts will focus on growing the audience for its website, e-bulletin, and webinar series—reaching more malaria program managers, local service providers, PMI staff, and other colleagues with helpful information and tools to improve case management programs. In addition, team members plan to share MalariaCare's experiences and technical expertise and lead global discussions at key regional and international conferences and meetings. Pending consultation with the PMI AOR team, MalariaCare will develop a detailed plan for global advocacy work promoting testing and treatment. We will seek to do so in collaboration with a variety of partners.

> "This was a very informative meeting that provided a good overview of case management programs around the world and inspiring lessons learned."
>
> **Webinar participant from USAID**

The project will delay the publication of a series of technical briefs until PY2 in conjunction with the second webinar. After deciding to introduce the webinar series with a broad topic for its inaugural discussion, the team determined that the technical briefs should focus on more specific topics in conjunction with future webinars. Discussion topics may include integration of malaria and other

illnesses, community case management, health systems strengthening, and the role of the private sector in malaria case management.

## Technical leadership

MalariaCare's technical leadership activities in support of the project's four objectives aim to improve care of the febrile patient, with a primary concentration on malaria and other life-threatening febrile illnesses such as pneumonia, diarrhea, and sepsis. The focus of core technical activities during PY1 was on designing field activities for application across project countries and contributing to global technical consultations. The accomplishments described below ensure that the project's strategies and activities are based on the latest evidence and best practices, and that they strengthen the technical quality of global malaria case management policies and programs.

### Key accomplishments

- Participated in a WHO–sponsored informal consultation meeting on "Management of Fever in Peripheral Settings" in Geneva, Switzerland. MalariaCare's senior technical advisor for clinical care attended the meeting as an observer and contributed to a discussion group developing recommendations to be published by WHO.
- Two members of the team—MCDI team leader and PATH senior technical advisor, clinical care—participated in WHO AFRO's "Regional Coordination Workshop on Strengthening the Quality Management Systems for the Parasitological Diagnosis of Malaria" in Harare, Zimbabwe. The workshop was used to start a global malaria diagnostics quality assurance working group. MalariaCare will assist with revision of the current version of the WHO *Malaria Microscopy Quality Assurance Manual, Version 1*, 2009.
- Designed field activities to be applied across countries, including development of a generic National Archive of Malaria Slides (NAMS) protocol, development of quality assurance/quality control (QA/QC) protocols for malaria case management, and development of laboratory and clinical OTSS protocols to be implemented from the community to the hospital level.
- Drafted a first iteration of a generic national "Malaria Diagnostics QA/QC Framework." Members of the project's Technical Advisory Group will review the draft during an upcoming meeting scheduled for November 2013.

### Challenges

As a result of project start-up activities, the majority of the technical team's level of effort was dedicated to developing country program activities, leaving little time to address core issues. However, significant work has been done to develop a comprehensive approach to malaria case management QA/QC, which

will be generalizable across project countries and will be used to inform global working group activities. This work will continue in PY2, particularly with full development of a standard "national" case management QA/QC framework. Additionally, experience gained during PY1 country programming will better inform core level activities moving forward. As a result, the impact of technical leadership will ultimately be broader and more insightful.

**Next steps**

In PY2, the technical team will expand efforts to provide global malaria case management leadership. The team will continue to consolidate and refine current technical assistance documents and strategies with global reach—including work on policies for supportive supervision, guidelines for case management QA/QC, and algorithms/guidelines for management of fever. Team members will participate in RBM and WHO technical working groups for case management, malaria diagnostics QA/QC, and artemisinin resistance and containment.

# Country achievements

## Democratic Republic of Congo

During PY1, MalariaCare focused on strengthening malaria diagnostics capacity through a central-level training of trainers (TOT) and a provincial-level training of OTSS supervisors, and by providing regular on-site laboratory OTSS visits at the central and provincial levels. The DRC Mission allocated $500,000 for activities including holding an advanced MDRT for national-level experts, performing a supervisor training in Orientale Province, and conducting two rounds of laboratory OTSS.

**Key accomplishments**

***Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90 percent.***

- Printed and distributed 350 copies of laboratory standard operating procedures (SOPs) and 50 copies of malaria diagnostics bench aids.
- Conducted a basic MDRT for microscopists in the new PMI focus province, Orientale. Twenty laboratory technicians and one clinician were trained from provincial and sub-provincial health

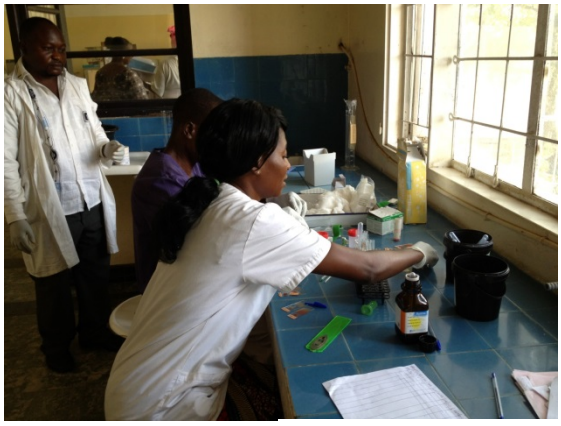


Photo: PATH/Troy Martin

facilities. Trainees will lead continuing malaria QA/QC activities within the province. A subgroup will serve as OTSS supervisors. In addition, one trainee was selected to attend the advanced MDRT and serve as part of a national group of trainers. Post-course assessment indicated that 7 of the 21 participants displayed expert-level microscopist skills.

- Performed an advanced MDRT for 16 highly experienced laboratory technicians, designed to improve the skills of a cadre of trainers and prepare candidates to undergo WHO-level microscopist accreditation. The post-course assessment after reading 60 slides indicated that 14 of the trainees obtained expert (level 1) status (using internal criteria which is similar in format, but not comparable in full content, to the WHO microscopist grading scale).

- Installed an OTSS database at the national malaria control program (PNLP). A five-member data management team was trained on OTSS checklist data entry, analysis, and reporting. The new database will be used by the PNLP to monitor all malaria training and on-site QA/QC activities.

- Supported the national reference laboratory (INRB) and 15 health facilities to conduct rounds 1 and 2 of laboratory OTSS. Ten health workers received on-the-job training during these rounds. Round 2 was started in PY1, but will finish early in PY2.

**Table 2. Democratic Republic of Congo results for outreach training and supportive supervision (OTSS)**

| | Improving Malaria Diagnostics (IMaD) OTSS Assessment | | | MalariaCare OTSS Rounds 1 and 2 | | |
|---|---|---|---|---|---|---|
| **Indicator** | **Mean** | **Median** | **Total Obs** | **Mean** | **Median** | **Total Obs** |
| Adherence to negative tests (RDTs and blood slides)* | **--** | **--** | **--** | **31.4%** | **22.0%** | **8** |
| RDTs only | -- | -- | -- | 0.0% | 0.0% | 3 |
| Blood slides only | -- | -- | -- | 41.8% | 47.0% | 6 |
| Microscopy slide preparation only | 44.6% | 41.2% | 14 | 78.1% | 79.7% | 16 |
| Microscopy slide staining and reading only | 50.0% | 50.0% | 11 | 78.0% | 90.0% | 15 |
| RDT observation - ***laboratory staff*** | **39.1%** | **38.5%** | **6** | **89.7%** | **96.2%** | **9** |
| Slide validation | **100.0%** | **100.0%** | **8** | **87.1%** | **100.0%** | **8** |

*Adherence to negative test is recorded overall by health facility based on a review of 10 records each. The total number of observations for RDT and blood slides represents the total number of health facilities involved in the analysis. This analysis is then disaggregated by those with RDT results and blood slide results with some facilities reporting on both. Therefore the total number of observations for the disaggregated analysis may be greater than the total number of facilities visited.

The information in Table 2 is based on an initial assessment by IMaD and rounds 1 and 2 of OTSS under MalariaCare. IMaD did not assess adherence to negative test results, which were found to be very low during the first two rounds of OTSS. However, there was significant improvement in microscopy and rapid diagnostic test (RDT) during observations. The number of individual observations was low, nevertheless, the data indicate that improvements need to be made in slide preparation to increase the

percentage of participants who score at or above a 90 percent threshold for slide preparation and reading (currently at 20 and 67 percent, respectively, as shown in the attached PMP). MalariaCare will closely analyze the OTSS data in these and subsequent rounds to determine specific challenges in competency for malaria microscopy, RDT performance, and RDT adherence.

***Objective 2: Increased percentage of patients suspected to have malaria or a febrile illness who receive a diagnostic test for malaria.***

No activities under objective 2 during PY1.

***Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illness—consistent with the result of the diagnostic test.***

No activities under objective 3 during PY1.

***Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.***

- Facilitated meetings with key bilateral project partners, facilitated malaria QA/QC activities, and participated in OTSS round 1 site visits. Meetings held with the Integrated Health Project (IHP) and President's Malaria Initiative – Extension Project (PMI-EP) helped to clarify the scope of work of each project and suggested future areas for coordination: MalariaCare may assist the IHP to provide malaria case management QA/QC activities at health zone level in the future.

- Initiated preliminary steps to begin development of a DRC NAMS at the INRB—with NAMS SOPs under review by the reference lab leadership.

- Initiated a national microscopy external quality assurance program with the United Kingdom National External Quality Assessment Service through the INRB.

**Challenges**

Logistics and coordination have been the largest challenge during PY1, particularly as MalariaCare has functioned with only one full-time staff member to manage all activities throughout the country. MalariaCare will seek to leverage PATH's DRC infrastructure in PY2, to provide administrative and logistics support. Specifically, some oversight support will be provided by the PATH central office in Kinshasa, and field offices in Lubumbashi (Katanga Province), Kisangani (Orientale Province), and Bunia (Orientale Province) will provide administrative support.

**Next steps**

While most activities were delayed, the team will finish all PY1 activities within the first part of PY2. MalariaCare will work to further develop the malaria case management QA/QC infrastructure on a

national level and consolidate improvements at the facility level within the target provinces. The short-term strategy will include:

- Working with the PNLP to develop a national framework for malaria QA/QC and to coordinate all malaria and fever management training activities throughout the country.
- Working with the INRB to further strengthen national QA/QC capacity through operationalizing external quality assurance and NAMS development.
- Strengthening on-site OTSS at the provincial level by adding a clinical component and seeking to leverage supervisor activities down to the health zone level.
- Evaluating the feasibility of retail sector test-based malaria case management.

Activities described in the PY1 work plan that will be carried over as PY2 activities include completing round 2 of laboratory OTSS. A pilot feasibility assessment for RDT testing and malaria case management in the private retail sector was delayed until early in PY2.

**Supporting the PNLP to make health systems improvements**

MalariaCare is working to strengthen health systems by improving access to timely and useable data for national and local decision makers across the DRC. In PY1, MalariaCare worked with the PNLP to install a user-friendly database program to monitor on-site OTSS visits. The program, developed by MCDI, allows PNLP staff to easily collate routine monitoring data and access automatically generated reports to assist with promoting regular improvements in case management programs.

Recognizing the need to move away from paper-based reporting forms and to improve data management, the PNLP leadership has been exploring ways to use the database to better monitor malaria case management training and oversight activities throughout the country. For example, the PNLP and MalariaCare plan to install provincial-level databases within local PNLP offices, allowing input of data at the local level. The provincial teams will then have access to automatically generated reports, and the updated database will be transmitted regularly and securely via the internet to the central PNLP. This will strengthen the integrity of local data input and improve timely receipt of monitoring data at the national level.

In addition, MalariaCare will support the PNLP to use the central level database to monitor other malaria projects throughout the DRC. Given the size and diversity of the country, it has often been difficult to manage all of the malaria training and case management interventions supported by a diverse group of organizations. With MalariaCare's support, PNLP can continue to adapt and use the database as a key health systems strengthening tool.

# Ethiopia

During PY1, MalariaCare worked with the Ethiopian Health and Nutrition Research Institute (EHNRI) and ICAP, a PMI partner, to develop a work plan to support the implementation of the Ethiopia NAMS. PMI allocated $30,000 for these activities and approved MalariaCare's proposed work plan in June 2013. However, activities were delayed pending the outcome of a meeting of the ICAP-supported Federal Ministry of Health (FMOH) Technical Working Group on Diagnostics in PY2. During this meeting, working group members will make key decisions on routine training, external quality assurance, and national level accreditation for malaria diagnostics. Once the information is shared during an upcoming meeting with ICAP, the MalariaCare team will assist in the review of these materials and ultimately link the diagnostic packages to the NAMS database for implementation.

**Key accomplishments**

- Developed a plan to coordinate activities with implementing partner ICAP for the implementation of the NAMS and WHO endorsement of the NAMS.

**Challenges**

Due to the limited scope of work, MalariaCare has no in-country presence to coordinate activities with the EHNRI and PMI partner ICAP, making it a challenge to gain traction on activities. In response, the team made a planning visit during August 2013 following the approval of the PY1 work plan to facilitate effective communication between MalariaCare and implementing partner ICAP.

Many key decisions needed to be made by the FMOH technical working group on diagnostics before MalariaCare could begin working on the review of the training packages and linking programs (i.e., routine training, national accreditation, and proficiency testing) to the NAMS database. This meeting was scheduled for September, but due to FMOH's busy schedule and competing activities it was delayed until October 2013. MalariaCare anticipates that activities will begin in earnest pending the outcome of this meeting.

**Next steps**

In mid-November 2013, MalariaCare met with ICAP to review the outcomes of the FMOH technical working group meeting on diagnostics in order to link NAMS-based programs to the NAMS database. The team will develop a scope of work for select EHNRI staff working on the NAMS for the purpose of WHO AFRO endorsement of the slide archive. The scope of work will be developed based on recent recommendations made during the WHO AFRO regional meeting on diagnostics held during September 2013, in Harare, Zimbabwe.

# Ghana

The Ghana Mission allocated $2.95 million for MalariaCare to strengthen malaria diagnosis and treatment in seven regions during PY1. The project initiated plans to achieve improved case management of malaria and other febrile illnesses across the continuum of care—from communities to health facilities in both the public and private sectors—over the next four years. The MalariaCare team collaborated with the Government of Ghana and other partners to start up activities that aim to reduce the burden of malaria and make a lasting impact on health systems. Key accomplishments are described by objectives provided by the PMI team in Ghana.

**Key accomplishments**

***Objective 1: Scale up and improve access and availability to quality malaria diagnostic services with a focus on the lower health facility level.***

- Provided assistance for laboratory OTSS to the Clinical Laboratory Unit (CLU) including liaising with the CLU and the USAID Mission, supporting the CLU to develop a budget for OTSS activities, and coordinating plans with ten regions to conduct OTSS activities. This support is building the CLU's management capacity and enabling stronger quality assurance procedures for regulation of diagnostics for malaria and other illnesses.

- Supported the CLU to conduct the first round of laboratory OTSS in 274 health facilities across the country, and monitored the OTSS exercise in two regions during field visits in September 2013.

- Assisted the CLU in developing a proficiency testing program for malaria microscopy. Laboratory supervisors will implement the program during OTSS round 2, following a short training on proficiency testing implementation.

- Participated in a district health information system 2 data set rationalization workshop held by the Ghana Health Service (GHS) in September 2013. During the meeting, MalariaCare contributed to plans for revising data collection tools to include a lab register.

- Discussed preliminary plans to seek WHO evaluation of the Ghana NAMS at the September 2013 WHO AFRO Malaria Microscopy Quality Assurance Meeting in Harare, Zimbabwe. The WHO is considering the Ghana NAMS as a potential training slide set for WHO microscopist accreditation courses throughout Africa. Kintampo Health and Research Centre (KHRC) of the GHS agreed to move forward with WHO AFRO evaluation of the Ghana NAMS and KHRC as a possible NAMS development site for other countries. Moving forward will also require agreement from the CLU, which provides oversight to the NAMS.

- Supported engraving and printing of labels, which include USAID branding, for 160 microscopes and 70 microscopy kits to be distributed to laboratories across the country.

***Objective 2: Scale up and improve access and availability to quality malaria treatment with a focus on the lower health facility level.***

- Held a series of discussions with key stakeholders, including leaders at the GHS Institutional Care Division (ICD), the Policy Planning Monitoring and Evaluation Division (PPME), the Family Health Division, the National Malaria Control Program (NMCP), and several ICD departments to discuss the development of national supervision policy and guidelines. MalariaCare led the stakeholders to outline a preliminary plan and timeline for development of a supportive supervision policy and guidelines document. The team will draft the document in November 2013 and support ICD to hold a stakeholders workshop to review its content during the second quarter of PY2.

***Objective 3: Improve the accuracy, reliability, and availability of health information management systems.***

- Trained 25 district health information officers (HIOs) in Upper West Region on supportive supervision during a one-day workshop. HIOs gained skills needed to participate in joint OTSS teams and provide on-the-job supervision and coaching for health facilities staff on accurate malaria data capture and reporting. In addition, they learned how to use malaria reporting forms and consulting room registers.

- Collaborated with the NMCP and PPME to develop a draft data quality assessment tool to be used by HIOs during joint OTSS visits. The GHS and NMCP are currently reviewing the draft. Once completed, the tool will help facilitate accurate and complete reporting of malaria indicators.

***Objective 4: Strengthen technical management ability at the regional level for implementing programs and activities.***

- Conducted a five-day work planning workshop for 30 regional and district health management teams (RHMTs and DHMTs, respectively) in the Upper West Region in September 2013 and planned workshops in six other regions to take place in October 2013. The Upper West Region and all of its 11 districts now have work plans and teams for implementing OTSS activities. The RHMT will coordinate and monitor activities in each district.

**Region takes inspiration from successful test and treat model**

One district hospital's successful transition to a test and treat approach is serving as a powerful model for health managers in the Upper West Region. MalariaCare presented the case of Enyiresi Hospital during a five-day OTSS regional planning meeting in September 2013, sparking a lively discussion and motivating participants to replicate the hospital's approach.

Without any external financial support, the hospital's dedicated team completely and rapidly switched from using clinical diagnosis and treatment to treatment based on microscopy or RDT results, showing steady improvements over the last two years. Their approach has led to reductions in presumptive treatment, improved care of malaria and other febrile diseases, increased credibility in the community, and a dramatic drop in confirmed malaria cases—all without decreasing treatment revenue.

> "…[Enyiresi] Hospital has demonstrated that with leadership and motivation, significant reduction of presumptive treatment of malaria is possible. I encourage all of us to go back and try this in our health facilities," concluded the Municipal Health Director of Wa.

Inspired by Enyiresi Hospital's success, each district in the Upper West Region has agreed to reduce presumptive treatment for malaria by half over the next six months. Building on the efforts of previous PMI projects, the MalariaCare team will share the story of this successful model to stakeholders in other target regions during PY2.

***Program management***

- Established a project office in Accra and recruited a strong team of nine well-qualified staff to oversee MalariaCare's comprehensive program in Ghana. With strong expertise in diagnostics, clinical care, M&E, and program management, once operational, the team was able to get the project in full implementation mode quickly. This facilitated a smooth transition from the predecessor projects during the last part of the year.
- Finalized the PY1 work plan in July 2013 and submitted a draft PY2 work plan in September 2013. The work plans are aligned with PMI's MOP and scope of work for MalariaCare and include several innovative approaches for improving malaria diagnosis and treatment.

## Challenges

The team did not conduct a planned rapid gap analysis after learning that the NMCP had conducted a National Malaria Review and would release the findings soon. MalariaCare will review the results once they are available and collect any additional information needed to inform program activities. As of the writing of this report, no findings have been presented yet.

The team started up activities under objective 1 later than anticipated due to issues with the execution of government-to-government funding, mostly around allowances for supervisors. This led to a delay in implementing the first round of laboratory OTSS. All activities not completed during PY1 are being carried forward into the project's second year.

**Next steps**

MalariaCare's PY2 work plan will continue and significantly expand upon activities started during PY1. At the outset, the team will continue to support laboratory OTSS and complete six more regional planning meetings, enabling the project to launch clinical OTSS activities and to build the management capacity of stakeholders in target regions and districts. The team also plans to introduce some new approaches for strengthening malaria case management at the community level including piloting a hospital attachment internship program for community health officers.

To effectively implement the full range of activities, the team will continue to recruit key technical and administrative positions, including a chief of party (CoP), during the first quarter of the year (CoP has been recruited and will join the team by December 9, 2013). MalariaCare will also recruit two regional coordinators and open satellite offices in Wa and Kumasi, expanding the project's ability to collaborate with regional and district partners and coordinate activities.

## Guinea

MalariaCare engaged with the Mission to discuss a scope of work and to plan activities funded at $200,000. MalariaCare's PY2 activities will focus on strengthening malaria diagnostic services in Guinea including supporting the NMCP to implement capacity-building efforts related to establishing laboratory quality assurance programs in national and regional hospitals. The team submitted a PY2 work plan in August 2013.

**Key accomplishments**

- Conducted a field visit to Guinea to plan activities for PY2. The team held consultations with key stakeholders from the StopPalu project, the USAID-PMI Mission, the NMCP, the National Reference Laboratory, the Maferinyah Health Center, and other in-country organizations to discuss an implementation plan for MalariaCare.

**Challenges**

Coordinating parallel training of laboratory and clinical supervisors will be a key challenge during PY2. For example, clinical supervisors will be trained through StopPalu activities, and implementation of proposed joint laboratory/clinical supervisory visits will depend on a well-trained pool of supervisors.

MalariaCare will collaborate closely with StopPalu to coordinate training activities so that both cadres of supervisors are ready for OTSS visits. Additionally, MalariaCare and StopPalu will collaborate closely to align supervision methodologies and harmonize tools and approaches.

**Next steps**

Once the work plan is approved, MalariaCare will start up several activities including refresher training for laboratory technicians in malaria diagnostics; harmonization of laboratory/clinical supervision tools and approaches; OTSS supervisor training; and printing and distribution of malaria diagnostic bench aids. MalariaCare will also conduct the first round of OTSS at nine target hospitals, including seven regional hospitals across the country, as well as the Donka University Teaching Hospital and the Ignace Deen Hospital in Conakry.

# Liberia

USAID allocated $200,000 for PY1 activities. During the year, the MalariaCare team helped the NMCP and the Mission set priorities for malaria programming and communicated regularly with the PMI teams in Monrovia and Washington, DC, to identify an appropriate scope of work. The team reached a consensus on the scope of work in July 2013.

**Key accomplishments**

- Submitted a draft PY1 work plan and PMP to the Liberia Mission in December 2012 and sent revised drafts in January 2013 and March 2013 in response to the Mission's comments. Following the revised scope of work, the project submitted a draft PY2 work plan and PMP in August 2013.
- Collaborated with the NMCP Diagnostic Unit in April 2013 to conduct a rapid gap analysis for case management using health management information systems (HMIS). Findings from the exercise assisted the NMCP, the USAID Mission, and MalariaCare in setting priorities for malaria programs. Traveled to Liberia in May 2013 to participate in the MOP FY2014 meeting and to discuss roles and responsibilities for MalariaCare's in-country coordinator (ICC) with the Mission.

**Challenges**

MalariaCare can only conduct country-wide OTSS if the NMCP is able to share costs, as they have done in the past with Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) funds. If this does not materialize, the project may have to wait until PY3 to scale up OTSS efforts. As of the date of writing of this report, the work plan for PY2 has yet to be approved. No activities can be implemented pending this approval.

**Next steps**

Once work plan approval has been granted, MalariaCare will recruit an ICC with the required managerial and technical qualifications to oversee implementation. The project will then also start collaborating with the Liberia Ministry of Health and Social Welfare to develop a decentralized program to support malaria diagnostic quality assurance, training, and data management. Efforts will focus on strengthening the capacity of the county health teams and county health diagnostic services. The team will also work closely with in-country partners, such as the Liberia Rebuilding Basic Health Services Project and the Clinton Health Access Initiative, to integrate a malaria diagnostics component into existing and new supervisory tools, training materials, and relevant policy guidelines.

# Malawi

During PY1, MalariaCare worked with the MOH and NMCP to improve malaria case management in Malawi. USAID allocated $750,000 for activities focused on strengthening quality assured malaria diagnostics through the continuation of the OTSS program. During OTSS round 8, MalariaCare supported on-site training of 640 health workers on topics related to microscopy, RDTs, and case management. The team conducted lessons learned workshops to identify challenges and solutions to scaling up quality diagnostic testing, and MalariaCare used findings from these meetings to inform its PY2 work plan. Key accomplishments are described by each project objective below.

**Key accomplishments**

***Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.***

- Conducted refresher training in malaria diagnostics for 20 laboratory technicians from 18 health districts to improve capacity in malaria microscopy and RDTs at the health facility level.

- Supported OTSS visits (round 8) to 640 health workers at 196 health facilities. Health workers gained knowledge and skills in microscopy, RDT use, and case management. The table below summarizes the means and medians for critical indicators from the last round of OTSS under the IMaD project and round 8 under MalariaCare. Mean scores for critical indicators remained high despite some time lag between the end of the IMaD project and the beginning of MalariaCare activities. An analysis of the last OTSS round shows that, while participants scored highly in parasite detection (mean score of 90 percent), substantial improvement must be made in the percentage of laboratory technicians who score above a 90 percent threshold in the checklist of malaria microscopy (currently 14 percent, as shown in attached performance monitoring plan). However, the mean scores remain relatively high for all steps including slide preparation (mean score of 85 percent), and staining and reading (mean

score of 81 percent). At the facility level, slide validation and adherence to negative malaria tests were also high (means of 92.6 and 85.3 percent, respectively). These data may point to effective capacity-building by the supervision teams. Some deterioration of skills in certain areas may be due to the time lag between IMaD and MalariaCare activities. MalariaCare will work closely with the supervision team and analyze specific indicators to identify gaps that need to be addressed in subsequent OTSS rounds.

**Table 3: Malawi results for outreach training and supportive supervision (OTSS)**

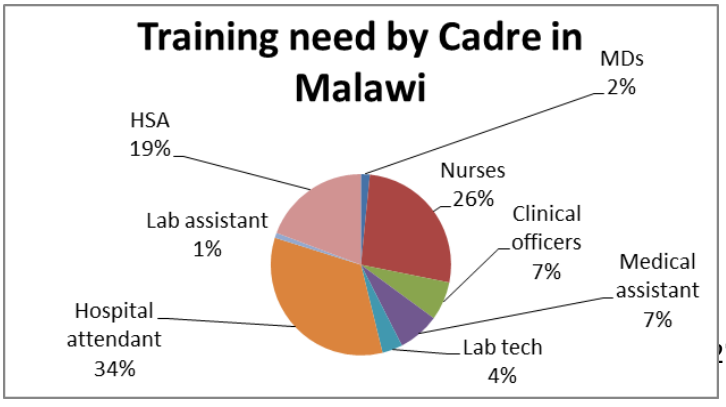
| Indicator | Improving Malaria Diagnostics (IMaD) OTSS Round 7 | | | MalariaCare OTSS Round 8 | | |
|---|---|---|---|---|---|---|
| | Mean | Median | Total Obs | Mean | Median | Total Obs |
| Adherence to negative tests (RDTs + blood slides)* | **88.1%** | **100.0%** | **154** | **85.3%** | **90.0%** | **161** |
| RDTs only | 88.3% | 100.0% | 153 | 85.0% | 100.0% | 159 |
| Blood slides only | 80.2% | 100.0% | 22 | 87.0% | 88.9% | 15 |
| Microscopy slide preparation only | 94.8% | 96.2% | 66 | 85.0% | 88.5% | 56 |
| Microscopy slide staining and reading only | 90.2% | 87.5% | 26 | 81.0% | 81.0% | 20 |
| RDT observation - ***all staff*** | **93.9%** | **96.2%** | **552** | **89.1%** | **92.3%** | **682** |
| RDT observation - ***laboratory staff*** | 94.1% | 96.2% | 261 | 87.8% | 92.3% | 361 |
| RDT observation - ***clinical staff*** | 93.6% | 96.2% | 291 | 90.5% | 92.3% | 321 |
| Slide validation | **94.3%** | **100.0%** | **54** | **92.6%** | **100.0%** | **26** |

*Adherence to negative test is recorded overall by health facility based on a review of 10 records each. The total number of observations for RDT and blood slides represents the total number of health facilities involved in the analysis. This analysis is then disaggregated by those with RDT results and blood slide results with some facilities reporting on both. Therefore the total number of observations for the disaggregated analysis may be greater than the total number of facilities visited.

***Objective 2: Increased percentage of patients suspected to have malaria or a febrile illness who receive a diagnostic test for malaria.***

***Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illness—consistent with the result of the diagnostic test.***

- Collaborated with local projects and organizations working to support scale-up of quality-assured RDT use at the community level—including the Support for Service Delivery Integration (SSDI) project, RACE project, and Save the Children—to identify training and supervision



gaps in 29 health districts. MalariaCare identified nine districts requiring support for RDTs and proposed supporting these health districts during PY2.

- Conducted a rapid assessment of RDT training and supervision needs during a lessons learned workshop for all 29 health districts to address problems resulting from task shifting. The results were analyzed as part of the way forward during day two of the meeting. The chart (above right) shows estimated percentages of untrained staff performing RDTs by cadre.

**Optimizing task shifting of RDTs**

When a patient needs a malaria test, overburdened health providers at hospitals often ask hospital attendants and other untrained workers to conduct a rapid diagnostic test (RDT). Shifting the task to other workers gives health providers time to see more patients. But leaving RDTs in the hands of untrained workers can be harmful—leading to inaccurate test results, less reliable surveillance data, and reduced confidence in test results among providers and patients.

During MalariaCare's lessons learned workshop, lab and clinical supervisors revealed that the problem is widespread in Malawi. Participants indicated that although the NMCP previously trained nurses and health surveillance assistants (HSA) from across the country to accurately conduct RDTs, they are often not the ones performing the tests.

In response, MalariaCare will work with the government to support training and supervision of approximately 600 health care workers in 14 districts who have regularly been performing RDTs at health facilities despite having never been trained in their proper use. Pending an update in the government's policy allowing support staff to perform RDTs, the project will also reach hospital attendants with training and supervision. Addressing this critical gap will help ensure that more families and communities have access to quality malaria diagnosis in Malawi.

***Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.***

- Conducted a microscope evaluation to assess the functional status of electric binocular microscopes in 240 health facilities and devised a distribution plan for 313 microscopes recently purchased by the NMCP.

- Supported two lessons learned workshops for district-level laboratory and clinical supervisors to identify challenges and solutions to scaling up quality assured malaria diagnostics and treatment in health facilities.

- Provided an overview of slide banking protocols to a group of MOH senior planners. The MOH established a technical working group and planned the first meeting to review the protocols in October 2013.

**Challenges**

A key challenge is the delay in diagnostic policy guidelines. In Malawi, as in many countries that recently introduced RDTs as a part of scaling up access to diagnostic testing, defining a clear role for microscopy and RDTs has been a challenge. Now, with the introduction of RDTs at the community level and a plan for introduction to the private sector in 2014, clear guidelines for malaria diagnostics at all levels of health care provision are critical. During PY2 MalariaCare will support the finalization of guidelines for malaria diagnostic testing.

A health surveillance assistant reads rapid diagnostic test results during an OTSS visit to Area 25 Health Centre in Lilongwe. *Photo: Petros Chirambo*

**Next steps**

Upon receiving approval of the PY2 work plan, MalariaCare will begin training approximately 600 health workers on RDTs; pending government approval, training could be expanded to nonclinical health care workers, including hospital and ward attendants. MalariaCare will also work with in-country partners, such as the SSDI project and Save the Children, to revise the malaria diagnostic guidelines for presentation to the NMCP technical working group in October 2013.

# Nigeria

MalariaCare is assisting with planning a pilot program to be implemented by the Expanded Social Marketing Project in Nigeria (ESMPIN), a project of Society for Family Health (SFH). The ESMPIN pilot, to be coordinated as appropriate with the Targeted States High Impact Project (TSHIP), is being designed to determine whether training and support for PPMVs in the introduction and use of malaria RDTs and training in case management (both diagnostics and treatment) of febrile illness will result in a significant change in care seeking and appropriate care for children at a population level. The pilot design will include distinguishing between the effects of training PPMVs in the traditional MOH-sponsored integrated management of childhood illness training, and the effects of a modified training that focuses on fever case management coupled with intensive supervision, followed by supervision based on competence level. MalariaCare will provide a full evaluation of the pilot by conducting household surveys, outlet surveys, and provider competence assessments, which will focus on determining household-level changes in correct case management of fever as well as changes in PPMV case management competence. In addition, MalariaCare will provide technical assistance to the implementation strategy and actual

implementation, focusing on marketing strategies. During PY1, MalariaCare focused on collaborating with PMI and partners and preparing the pilot design, evaluation design, and budget for the pilot.

**Key accomplishments**

- Traveled to Abuja, Nigeria, from February 18 to March 4, 2013, to meet with USAID and partners. The team discussed the concept for the pilot and MalariaCare's potential role.
- Participated in a roundtable meeting organized by Nigeria's Malaria Control Program in Abuja in February 2013 to discuss the country's malaria transition and long-term planning following the ending of the Affordable Medicines Facility program. MalariaCare presented lessons learned and best practices in malaria case management within the private sector during the time slot allocated to PMI.
- Conducted a follow-up visit to Abuja in May 2013 to harmonize protocol documents and determine funding needs.
- Worked with PMI to determine MalariaCare's role in the pilot and evaluation and submitted a scope of work to PMI in July 2013.

**Challenges**

Synthesizing several different research protocols and other documents for the pilot was a major challenge. This included development of a clear and robust study design, synthesis of various protocol(s) for evaluation and implementation into distinct documents with clear procedures, and negotiating roles between (potential) partners. In addition, the original design had to be reconfigured given the continued support of the GFATM in providing subsidized artemisinin-based combination therapies (ACTs) into the private market. After collaborating closely with PMI and partners, the team was able to design a solid single pilot design and robust evaluation as well as provide a plan for targeted technical assistance to the pilot in marketing and commodity management.

**Next steps**

In PY2, MalariaCare will submit a revised scope of work and budget for the implementation and evaluation of the pilots. MalariaCare will then focus on finalizing the implementation plan and evaluation protocol, submitting the evaluation protocol to a PATH as well as a local institutional review board, and beginning rollout of the baseline evaluation and pilot implementation. At the outset, the project will conduct a visit in October 2013 (completed as planned) to redesign the ESMPIN pilot, finalize budgets, and draft the implementation proposal and evaluation protocol. The project will also set up a sub-contract with SFH for pilot implementation, begin baseline measurements, and assist ESMPIN in beginning pilot implementation early in the year.

# Zambia

During PY1, MalariaCare has focused on strengthening malaria case management through a central level TOT and providing regular on-site health facility supervisory visits—activities designed both for expansion of appropriate test-based diagnosis and treatment and for improving quality assurance measures. Major activities included coordinating an OTSS district-level laboratory supervisor refresher training, conducting OTSS rounds 9 and 10, and holding an OTSS lessons learned workshop to review progress to date and identify problems to address in PY2.

**Key accomplishments**

***Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.***

- Printed and distributed 200 copies of the updated national malaria laboratory training manual to approximately 22 health facilities per province throughout the country.
- Conducted an MDRT training for 18 district-level OTSS laboratory supervisors from across the country. Participants had a mean score of 96 percent in microscopy competence. This completes the cycle of biannual MDRT refresher training for laboratory OTSS supervisors (the provincial-level supervisors received a MDRT last year).
- Performed an OTSS database training for five National Malaria Control Centre (NMCC) data managers to improve their skills on analyzing and using OTSS data for national program decision-making.
- Supported 216 health facility visits during OTSS rounds 9 and 10. Visits included facility assessment, review of prior malaria test and treatment results, observation of active case management activities in both the laboratory and outpatient clinic, and on-the-job coaching of laboratory and clinical personnel. In PY1, 10 new health facilities were added to OTSS, and all 162 enrolled facilities have received at least the first four initiation visits. While the percentage of participants scoring above the threshold (a score at or above 90 percent) was low (25 percent scored at or above 90% for malaria microscopy), the mean scores on these checklists remained high, including a mean score of 78 percent for slide preparation and a mean score of 87 percent for slide staining and reading. In addition, slide validation at these facilities was very high (mean score of 98 percent). Table 4 presents the specific means and medians for core indicators in Zambia, comparing the results under the last IMaD round of OTSS and the OTSS rounds under MalariaCare.

**Table 4: Zambia results for outreach training and supportive supervision (OTSS)**

| Indicator | Improving Malaria Diagnostics (IMaD) OTSS Round 8 | | | MalariaCare OTSS Rounds 9&10 | | |
|---|---|---|---|---|---|---|
| | Mean | Median | Total Obs | Mean | Median | Total Obs |
| Adherence to negative tests (RDTs + blood slides)* | **85.8%** | **100.0%** | **109** | **89.8%** | **100.0%** | **40** |
| RDTs only | 85.7% | 100.0% | 97 | 90.8% | 100.0% | 38 |
| Blood slides only | 84.9% | 100.0% | 44 | 81.7% | 100.0% | 12 |
| Microscopy slide preparation only | 85.0% | 85.0% | 123 | 85.7% | 85.0% | 72 |
| Microscopy slide staining and reading only | 86.7% | 90.5% | 120 | 88.4% | 90.5% | 72 |
| RDT observation - ***all staff*** | **89.5%** | **92.3%** | **223** | **88.8%** | **92.3%** | **115** |
| RDT observation - ***laboratory staff*** | 89.7% | 92.3% | 111 | 89.0% | 92.3% | 81 |
| RDT observation - ***clinical staff*** | 89.4% | 92.3% | 112 | 88.2% | 90.4% | 34 |
| Slide validation | **93.7%** | **100.0%** | **59** | **97.8%** | **100.0%** | **37** |

*Adherence to negative test is recorded overall by health facility based on a review of 10 records each. The total number of observations for RDT and blood slides represents the total number of health facilities involved in the analysis. This analysis is then disaggregated by those with RDT results and blood slide results with some facilities reporting on both. Therefore the total number of observations for the disaggregated analysis may be greater than the total number of facilities visited.

***Objective 2: Increased percentage of patients suspected to have malaria or a febrile illness who receive a diagnostic test for malaria.***

No activities under objective 2 during PY1.

***Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illness—consistent with the result of the diagnostic test.***

- Performed an OTSS lessons learned workshop for 28 provincial-level laboratory and clinical OTSS supervisors. Participants reviewed OTSS activities over the last year (including round 9) and identified key problems (see box). MalariaCare plans to address these problems through PY2 activities designed to improve malaria case management and data collection.

**Key problems identified during OTSS lessons learned workshop**

- Diagnostic supply stockouts lead to prolonged periods where malaria diagnostic testing is unavailable.
- Lack of a unified malaria laboratory register leads to difficulty with collecting important facility data during OTSS visits.
- Clinicians often treat febrile patients with negative malaria tests with the less potent anti-malarial medication Fansidar (sulfadoxine/pyrimethamine).

- Held preliminary talks with the National Chest Disease Centre to find ways to integrate the national tuberculosis laboratory supportive supervision program with the NMCC OTSS program.

***Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.***

- Met with the Tropical Diseases Research Centre in Ndola and the University Teaching Hospital of the University of Zambia in Lusaka to discuss the development of a National Archive of Malaria Slides (NAMS). The final development site(s) is yet to be determined.

**Challenges**

In PY1, MalariaCare had planned on increasing health facility enrollment into OTSS from 152 health facilities to 233 health facilities during three rounds of planned OTSS. Two factors led to problems meeting this goal. Due to a delayed project start-up, only two rounds of OTSS were performed. In addition, the government increased the per diem rate paid to government employees by 50 percent, thus effectively reducing the number of health facilities that could be visited by supervisor teams during this budget year. As the per diem rate is the most significant cost for OTSS, MalariaCare has begun to look at ways that OTSS costs can be reduced and where resources may need to be redirected to obtain maximal impact.

Another key challenge is persistent stockouts of diagnostics commodities at health facility level including microscopy reagents, slides, and RDTs. As discussed during the lessons learned workshop, there were extended periods of commodity shortages—up to three months for RDTs—at health facilities throughout the country, affecting clinician compliance to test results. While supply chain issues are not directly part of MalariaCare's mandate, commodity supply problems affect the efficacy of the national diagnostics QA/QC program.

**Next steps**

MalariaCare will hold informal discussions with the NMCC and DELIVER Project to map out the problems with commodity supplies and help formulate solutions to better ensure a steady supply of diagnostics and treatments.

The project will also continue to work on building Zambia's capacity to accurately test and treat all cases of suspected malaria. The short-term strategy will include working with the NMCC and other stakeholders to develop a national malaria and fever QA/QC system framework and restructuring OTSS to better facilitate a decentralized, cascading TOT system of malaria case management supervision. MalariaCare will also continue OTSS site-visits to the currently enrolled 162 health facilities, adding new

sites – selected for high patient volume – throughout the country. Another key strategy will be to improve the quality of data collection, analysis, and use by the project and NMCC.

Several activities described in the PY1 work plan will be carried over as PY2 activities, including finishing the NAMS protocol and selecting implementing institutions and conducting a disease-based OTSS integration workshop. The project will also complete OTSS round 10, started in PY1, and OTSS round 11.

# Appendix A: Performance monitoring plans

**Contents**

# Global performance monitoring plan

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|---|---|---|---|---|---|---|---|
| **GOAL: Contribute to PMI's overall goal 50% reduction in the burden of malaria in 70% of the at-risk population in PMI focus countries.** | | | | | | | |
| **Objective 1:** The accuracy of diagnostic testing for malaria is improved to greater than 90%. | | | | | | | |
| **Objective 2:** Increased percentage of patients suspected to have malaria or febrile illness who receive a diagnostic test. | | | | | | | |
| **Objective 3:** Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses-consistent with the diagnostic test**.** | | | | | | | |
| **Objective 4:** Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases. | | | | | | | |
| | | | | | | | |
| **Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.** | | | | | | | |
| **Description:** The accuracy of diagnostic testing for malaria is improved to greater than 90 percent. The activities described in this section relate to addressing the laboratory technician and health care provider competency related to providing quality diagnostic services. | | | | | | | |
| **Intermediate Objectives** | | | | | | | |
| Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | | | | | | | |
| Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | | | | | | | |
| Reporting on malaria indicators is complete and accurate. | | | | | | | |
| Country has complete national guidelines for the diagnosis of malaria. | | | | | | | |
| Providers demonstrate competence in RDTs and/or microscopy. | | | | | | | |
| **Intermediate Outcomes** | | | | | | | |
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 1 | Percentage of targeted countries with national malaria diagnostics supervision tools whose indicators adhere to global standards. | Number of targeted countries whose national malaria diagnostics supervision tools adhere to global standards/Total number of targeted countries. | | | | | Guidance on supervision tools will be developed in PY2 |
| 2 | Percentage of targeted laboratory technicians demonstrating competence in RDTs. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of lab staff who received a supervisory visit during the reporting period. | **60.60%** | | | | Unable to disaggregate by sex |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 3 | Percentage of targeted laboratory technicians demonstrating competence in malaria microscopy. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklist measuring slide preparation and parasite detection/Total number of laboratory technicians who received a supervisory visit during the reporting period. | **20.54%** | | | | Unable to disaggregate by sex. |
| 4 | Percentage of targeted clinical providers that demonstrate competence in RDTs. | Number of targeted clinical providers who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of clinical providers who received a supervisory visit during the reporting period. | | | | | In PY2 we will be able to disaggregate competence by type of provider. |
| 5 | Percentage of targeted clinics that meet standards (including appropriate materials, documentation, and qualified staff) for quality diagnosis of malaria. | Number of targeted clinics that meet 90% or greater on facility checklists for diagnosis during supervisory visits /Total number of targeted facilities who received a supervisory visit during the reporting period. | | | | | Checklist for clinic standards for diagnostics will be revised in PY2. |
| 6 | Percentage of supervisors demonstrating competence in malaria microscopy. | Percentage of supervisors who score 90% or greater in slide preparation and parasite detection during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | **88.89%** | 30 | 18 | | Unable to disaggregate percentages by sex. |
| 7 | Percentage of supervisors demonstrating competence in RDTs. | Percentage of supervisors who score 90% or greater in preparation and reading of RDTs during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | **100.00%** | 33 | 22 | | Unable to disaggregate percentages by sex. |

| Outputs | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 8 | Percentage of targeted facilities with at least one provider trained in RDTs. | Number of targeted facilities with one or more providers trained in RDT/Total number of targeted facilities. | **76.15%** | | | | |
| 9 | Percentage of targeted facilities with at least one provider trained in malaria microscopy. | Number of targeted facilities with one or more providers trained in malaria microscopy/Total number of targeted facilities. | **60.80%** | | | | |
| 10 | Percentage of targeted facilities with at least one provider who received malaria diagnostic refresher training (MDRT) in the last two years. | Number of targeted facilities with one or more providers who received MRDT in the last two years/Total number of targeted facilities. | **33.52%** | | | | |
| 11 | Percentage of targeted clinical providers trained in RDTs. | Number of clinical providers trained in RDTs/Total number of targeted clinical providers. | | | | | No clinical providers where trained in PY1. |
| 12 | Percentage of targeted laboratory technicians trained in RDTs. | Number of laboratory technicians trained in RDTs/Total number of targeted laboratory technicians. | | | | | Indicator 12 and 13 are a subset of indicator 14. Numbers are reflected in indicator 14. |
| 13 | Percentage of targeted laboratory technicians trained in malaria microscopy. | Number of laboratory technicians trained in microscopy/Total number of targeted laboratory technicians. | | | | | |
| 14 | Percentage of targeted laboratory technicians participating in MDRT. | Number of laboratory technicians participating in malaria diagnostics refresher trainings/Total number of targeted laboratory technicians. | **100.00%** | 34 | 22 | | |
| 15 | Percentage of targeted clinical providers participating in MDRT. | Number of clinical providers participating in malaria diagnostics refresher trainings/Total number of targeted clinical providers. | | | | | No clinical providers where trained in PY1. |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 16 | Percentage of targeted clinical supervisors trained in supervision of malaria diagnostics. | Number of clinical supervisors trained in supervision of malaria diagnostics/Total number of targeted clinical supervisors. | | 1 | 1 | | The MDRT in DRC was not targeted at clinicians but one clinician attended. |
| 17 | Percentage of targeted laboratory supervisors trained in supervision for laboratory diagnosis of malaria. | Number of supervisors trained in supervision for laboratory diagnosis of malaria/Total number of targeted laboratory supervisors. | **100.00%** | 33 | 22 | | |
| 18 | Percentage of targeted providers that received training by supervisors on documented diagnostic errors during the reporting period. | Number of providers that received training by supervisors on documented diagnostics errors (according to team supervision reports) during the reporting period/Total number of providers with documented errors in diagnostics during team supervision during the reporting period. | **1001** | 616 | 291 | 94 | Unable to calculate percentages. Current tools do not collect information on diagnostic errors linked to on-the-job trainings. Results reflect the total number of on-the-job training provided by supervisors. |

| |
|---|
| **Objective 2: Increased percentage of patients suspected to have malaria or febrile illness who receive a diagnostic test.** |
| **Description:** Increased percentage of patients suspected to have malaria or febrile illnesses who receive a diagnostic test for malaria. These activities relate to addressing health care provider performance in the use of diagnostic tools after appropriate training. Emphasis is on supervision and use of performance monitoring tools. |
| **Intermediate Objectives** |
| Providers demonstrate competence in detecting suspected malaria cases. |
| Providers demonstrate competence in ordering/conducting malaria diagnostic tests for suspected cases. |
| Private facilities are linked with the public sector. |

| Intermediate Outcomes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 19 | Country has full national guidelines for determining suspected malaria cases. | Country has full national guidelines for determining suspected malaria cases (including age, duration of fever, fever history) that meet global standards. | | | | | In PY2 guidelines for suspected cases will be assessed. |
| 20 | Percentage of providers demonstrating competence in identifying suspected malaria cases according to global standards. | Number of providers who demonstrate correct procedures for differential diagnosis of possible malarial symptoms according to global standards during team supervision observation/Total number of providers targeted for team supervision during the reporting period. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. |
| 21 | Percentage of providers demonstrating competence in testing suspected patients for malaria. | Number of providers who appropriately order or perform testing of suspected malaria patients according to global standards during team supervision observations/Total number of providers targeted for team supervision observations during the reporting period. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. |
| 22 | Percentage of targeted countries with national clinical supervision tools whose indicators adhere to global standards for determining possible malaria cases. | Number of targeted countries whose national clinical supervision tools adhere to global standards for determining possible malaria cases/Total number of targeted countries. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. |

| Outputs | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 23 | Percentage of targeted providers that received training by supervisors on documented errors in determining suspected malaria patients during the reporting period. | Number of providers that received training by supervisors on documented errors determining suspected patients (according to team supervision reports) during the reporting period/Total number of providers with documented errors in determining suspected patients during team supervision during the reporting period. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. Current tools do not collect information on errors linked to on-the-job trainings. |
| | | | | | | | |
| **Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses-consistent with the diagnostic test.** | | | | | | | |
| **Description:** Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses—consistent with the result of the diagnostic test. The activities described in this section relate to addressing health care provider performance in delivering appropriate treatment after training has occurred. Emphasis is on supervision and ongoing use of performance monitoring tools. | | | | | | | |
| **Intermediate Objectives** | | | | | | | |
| Country has full national policies for malaria treatment. | | | | | | | |
| Health care providers demonstrate competence in malaria treatment. | | | | | | | |
| Country has supervisory structures and implementation of supervision for malaria treatment. | | | | | | | |
| Reporting and monitoring information for malaria is integrated complete and accurate. | | | | | | | |
| **Intermediate Outcomes** | | | | | | | |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 24 | Country has full national guidelines for malaria treatment. | Country has full national guidelines for malaria treatment, incl.QA/QC procedures, training of informal health providers, and recommendations for home treatment of febrile illness, suspected malaria, and recognition of the common danger signs that meet global standards. | | | | | In PY2 guidelines for malaria treatment will be assessed. |
| 25 | Percentage of targeted countries with national clinical supervision tools whose indicators adhere to global standards for malaria treatment. | Number of targeted countries whose national clinical supervision tools adhere to global standards for malaria treatment/Total number of targeted countries. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries in meeting global standards. |
| 26 | Percentage of targeted clinics that meet standards (including appropriate materials, documentation, and qualified staff) for quality treatment of malaria. | Number of targeted clinics that meet 90% or greater on facility checklists during supervisory visits /Total number of targeted facilities who received a supervisory visit during the reporting period. | | | | | Checklist for clinic standards for diagnostics will be revised in PY2. |
| 27 | Percentage of targeted providers demonstrating compliance to treatment with WHO-recommended ACT for cases with positive malaria test results. | Number of providers who comply to treatment with a WHO-recommended anti-malarial for cases with positive malaria test results during clinical assessment visits measured through direct observation during team supervision visits/Total number of providers that received team supervision during the reporting period. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 28 | Percentage of providers demonstrating adherence to negative test results according to global standards. | Number of providers demonstrating adherence to negative test results according to global standards during team supervision measured through direct observation during team supervision visits/Total number of providers that received team supervision during reporting period. | **83.7%** | 210 observations. Unable to disaggregate by sex. | | | |
| 29 | Percentage of supervisors demonstrating competence in malaria treatment. | Number of supervisors who score greater than 80% on a treatment post-test during TOTs/Total number of supervisors who completed a post-test during a TOT. | | | | | There were no treatment trainings for supervisors during the reporting period. |
| **Outputs** | | | | | | | |
| 30 | Percentage of targeted facilities receiving at least two clinical supervisory visits per annum for malaria treatment. | Number of facilities receiving at least two clinical supervisory visits per annum for malaria treatment with WHO-recommended ACTs/Total number of targeted facilities. | | | | | Clinical supervisory visits for treatment were not during the reporting period. |
| 31 | Percentage of targeted providers trained in malaria treatment. | Number of providers trained in malaria treatment with WHO-recommended ACTs/Total number of targeted providers. | | | | | There were no providers trained in malaria treatment during the reporting period |
| 32 | Percentage of targeted providers that received training in malaria treatment by supervisors during the reporting period. | Number of providers that received training in malaria treatment by supervisors based on documented errors during the reporting period/Total number of providers that had documented errors during | | | | | As above |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | team supervision during the reporting period. | | | | | |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 33 | Percentage of targeted clinical supervisors trained in supervision for treatment of malaria. | Number of clinical supervisors trained in supervision for treatment of malaria with WHO-recommended ACTs/Total number of targeted clinical supervisors. | | | | | As above |
| 34 | Percentage of targeted facilities receiving at least two clinical supervisory visits per annum. | Number of facilities receiving at least two clinical supervisory visits per annum/Total number of targeted facilities. | | | | | As above |
| | | | | | | | |
| **Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.** | | | | | | | |
| **Description:** Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases. These activities relate to addressing the health systems issues that are a barrier to achieving universal access to malaria diagnostics and appropriate case management practices such as physical health facilities, human and financial resources, and support systems required to deliver quality diagnosis and treatment services. | | | | | | | |
| **Intermediate Objectives** | | | | | | | |
| Reference laboratories and facilities able to provide high quality diagnostics for malaria and other febrile illness. | | | | | | | |
| Private sector laboratories are integrated into national QA/QC and supervision strategies. | | | | | | | |
| Reporting and monitoring information for malaria is integrated, complete and accurate. | | | | | | | |
| **Intermediate Outcomes** | | | | | | | |
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 35 | Percentage of targeted countries with national laboratory supervision tools whose indicators adhere to global standards for laboratory system analysis. | Number of targeted countries whose national laboratory supervision tools adhere to global standards for laboratory system analysis/Total number of targeted countries. | | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator |

| Outputs | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 36 | Percentage of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards. | Number of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards/Total number of targeted facilities. | **77.24%** | | | | |
| 37 | Percentage of targeted laboratories that meet global standards for quality malaria diagnostics. | Number of targeted laboratories that meet 90% or greater on re-checking of malaria slides during supervisory visits/Total number of targeted who received a supervisory visit during the reporting period. | **88.89%** | | | | |
| 38 | Percentage of targeted laboratory facilities with all the required materials to confirm malaria diagnosis according to global standards. | Number of targeted facilities with all the required materials to confirm malaria diagnosis according to the global standards (including functioning microscope, slides, giemsa stain, and a trained lab technician)/Total number of targeted facilities with labs. | - | | | | Guidance on supervision tools will be developed in PY2 to assist countries assessing this indicator. Currently sub-indicators in data collections tools are not sufficiently robust to calculate this indicator. |
| 39 | Percentage of targeted facilities receiving at least two laboratory supervisory visits per annum. | Number of facilities receiving at least two laboratory supervisory visits per annum/Total number of targeted facilities. | **70.00%** | | | | |

| **Project Management: Assure the visibility and support the mission of PMI through strong partner relationships.** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Description:** Through a strong partnership, MalariaCare will support the mission of PMI and assure the visibility of PMI programs in targeted countries. These activities relate to project management, communications and leadership. | | | | | | | |
| **Intermediate Objectives** | | | | | | | |
| All key MalariaCare partners contribute to and are represented in the annual country workplans. | | | | | | | |
| In-country coordinators are hired/retained in MalariaCare focus countries. | | | | | | | |
| PMI and focus countries are aware of MalariaCare's objectives and buy into the MalariaCare program. | | | | | | | |
| **Intermediate Outcomes** | | | | | | | |
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 40 | Percentage of PMI focus countries with MalariaCare activities during the reporting period. | Number of PMI focus countries with MalariaCare activities during the reporting period/Total number of PMI focus countries. | **8** | | | | |
| **Outputs** | | | | | | | |
| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
| 41 | Number of senior technical committee meetings held during the reporting period. | Number of senior technical committee meetings held during the reporting period. | **3** | | | | |
| 42 | Number of operational advisory group meetings held during the reporting period. | Number of operational advisory group meetings held during the reporting period. | **4** | | | | |
| 43 | Indicator map completed, aligning MalariaCare indicators to partner indicators and data gathering. | Indicator map completed, aligning MalariaCare indicators to partner indicators and data gathering. | | | | | Will be completed in PY2 through a revision data collection tools. |
| 44 | MalariaCare research and evaluation plan for all four objectives completed. | MalariaCare research and evaluation plan for all four objectives completed. | | | | | Will be completed in PY2. |
| 45 | MalariaCare global advocacy plan for expanded diagnostics and treatment developed. | MalariaCare global advocacy plan for expanded diagnostics and treatment developed. | | | | | In process. |

| Indicator # | Indicator | Definition | PY1 RESULTS | Male | Female | Unknown | Notes |
|---|---|---|---|---|---|---|---|
| 46 | Number of technical webinars conducted on issues central to malaria diagnosis and treatment. | Number of technical webinars conducted on issues central to malaria diagnosis and treatment. | **1** | | | | |
| 47 | Number of program activity reports or evaluations disseminated to the global health community through publication, conference papers/posters, listservs or other communication methods. | Number of program activity reports or evaluations disseminated to the global health community through publication, conference papers/posters, listservs or other communication methods. | | | | | Due to start up this activity was delayed. The process will start PY2. |
| | | | | | | | |

# Democratic Republic of Congo performance monitoring plan

**Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.**

**Description:** The accuracy of diagnostic testing for malaria is improved to greater than 90 percent. The activities described in this section relate to addressing the laboratory technician and health care provider competency related to providing quality diagnostic services.

**Intermediate Objectives**

Clear and disseminated laboratory guidelines, procurement policies, supervision structures.

Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs.

Reporting on malaria indicators is complete and accurate.

Providers demonstrate competence in RDTs and/or microscopy.

**Outputs**

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.a | Number of bench aids printed and distributed | Number of training manuals printed and distributed to laboratories | 1.1 | Clear and disseminated laboratory guidelines, curricula and supervision structures | Activity reports | 50 | **50** | |
| 1.b | Number of SOPs printed and distributed | Number of training manuals printed and distributed to laboratories | 1.1 | Clear and disseminated laboratory guidelines, curricula and supervision structures | Activity reports | 350 | **350** | |
| 1.c | Number of MDRT participants trained (basic RT) | Number of laboratory technicians trained in malaria diagnostic refresher trainings. | 1.2 | Lab workers demonstrate competence in RDTs and microscopy | Activity reports | 20 | **21** | |
| 1.d | Number of MDRT participants trained (advanced RT) | Number of laboratory technicians trained in malaria diagnostic refresher trainings. | 1.3 | Lab workers demonstrate competence in RDTs and microscopy | Activity reports | 17 | **16** | |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.e | OTSS database review installation | Installation of an OTSS database, troubleshooting and training of database entry staff | 1.4 | Reporting and monitoring information for malaria is integrated, complete and accurate | Activity reports | Database installation and training completed | **Completed** | |
| 1.f | Number of OTSS visits conducted | Number of OTSS visits conducted at targeted laboratories. Total number including all rounds of OTSS at each facility. | 1.5, 1.6 | Lab workers demonstrate competence in RDTs and microscopy | Team super-vision reports | 29 | **15** | |
| 1.g | Percentage of targeted facilities with at least one provider trained in RDTs. | Number of targeted facilities with one or more providers trained in RDT/Total number of targeted facilities. | 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **50%** | This represents on-site training conducted on RDTs. In PY2 the supportive supervision guidelines will be revised to capture this indicator. |
| 1.h | Percentage of targeted laboratory supervisors trained in supervision for laboratory diagnosis of malaria. | Number of supervisors trained in supervision for laboratory diagnosis of malaria/Total number of targeted laboratory supervisors. | 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **100%** | 20 men<br>17 women |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.i | Percentage of targeted providers that received training by supervisors on documented diagnostic errors during the reporting period. | Number of providers that received training by supervisors on documented diagnostics errors (according to team supervision reports) during the reporting period/Total number of providers with documented errors in diagnostics during team supervision during the reporting period. | 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **10 individuals** | 5 men<br>4 women<br>1 unknown.<br><br>Unable to calculate percentages. Current tools do not collect information on diagnostic errors linked to on-the-job trainings. Results reflect the total number of on-the-job training provided by supervisors. |

| Intermediate Outcomes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 1.j | Percentage of targeted laboratory technicians demonstrating competence in RDTs. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of lab staff who received a supervisory visit during the reporting period. | 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 90% | **66.7%** | 6/9 techs with scores >= 90%<br><br>A single tech may have been observed multiple times.<br><br>Unable to disaggregate by sex. |
| 1.k | Percentage of targeted laboratory technicians demonstrating competence in malaria microscopy. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklist measuring slide preparation and parasite detection/Total number of laboratory technicians who received a supervisory visit during the reporting period. | 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 90% | **Slide Prep: 20%**<br><br>**Stain/Read: 66.7%** | 3/15 techs with scores >= 90% for slide preparation<br><br>10/15 techs with scores >= 90% for slide staining and reading.<br><br>A single tech may have been observed multiple times.<br><br>Unable to disaggregate by sex. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.l | Percentage of supervisors demonstrating competence in malaria microscopy. | Percentage of supervisors who score 90% or greater in slide preparation and parasite detection during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.2, 1.3 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **83.3%** | 30 out of 36 scored >= 90% |
| 1.m | Percentage of supervisors demonstrating competence in RDTs. | Percentage of supervisors who score 90% or greater in preparation and reading of RDTs during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.2, 1.3 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **100%** | 37/37 individuals<br><br>20 men<br>17 women |
| | | | | | | | | |
| **Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.** | | | | | | | | |
| **Description:** Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases. These activities relate to addressing the health systems issues that are a barrier to achieving universal access to malaria diagnostics and appropriate case management practices such as physical health facilities, human and financial resources, and support systems required to deliver quality diagnosis and treatment services. | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Reference laboratories and facilities able to provide high quality diagnostics for malaria and other febrile illness. | | | | | | | | |

| Outputs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 4.e | Percentage of targeted laboratories that meet global standards for quality malaria diagnostics. | Number of targeted laboratories that meet 90% or greater on re-checking of malaria slides during supervisory visits/Total number of targeted who received a supervisory visit during the reporting period. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **75%** | 6 out of 8 HFs scored >= 90% during slide validation exercises. |

# Ethiopia performance monitoring plan

| GOAL: Contribute to PMI's overall goal 50% reduction in the burden of malaria in 70% of the at-risk population in PMI focus countries. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| **Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.** | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| I.1 | Develop a refresher training package for malaria diagnostics. | Develop a training curriculum and training materials for NAMS. | 1 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | Refresher training package developed. | | Activity will be conducted in PY2 |
| I.2 | Develop a National Accreditation Program linked to NAMS | Development of a National Accreditation Program linked to NAMS. | 2 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | National Accreditation Program Developed | | Activity will be conducted in PY2 |
| I.3 | Develop malaria proficiency testing panels | Develop a malaria proficiency testing program for Ethiopia, including a protocol for PT panels, standard forms, grading templates and a database to support PT. | 3 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | Malaria proficiency testing panels developed | | Activity will be conducted in PY2 |
| II | Number of weeks of short-term TA provided to support molecular/parasite culture | Number of weeks of short-term technical assistance provided to a senior ENHRI staff member by UCAD. | 4 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | 3 | | Activity will be conducted in PY2 |

# Ghana performance monitoring plan

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **An * denotes indicators that will be disaggregated by gender during reporting.** | | | | | | | | |
| **Objective 1: Scale up and improve access to availability and quality malaria diagnostic services with focus on the lower health facility level.** | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Providers demonstrate competence in detecting suspected malaria cases. | | | | | | | | |
| Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | | | | | | | | |
| Providers demonstrate competence in RDTs and microscopy. | | | | | | | | |
| Country has supervisory structures and implementation of supervision for malaria treatment. | | | | | | | | |
| Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 1.a | Assignment of OTSS manager to assist the CLU | Assign a laboratory OTSS logistics/data manager to the CLU to build management capacity in the unit | 1.1 | Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | Activity reports | CLU assistant assigned | | Activity will be conducted in PY2. |
| 1.b | PT program developed | Proficiency training (PT) program developed including an operations manual, storage unit, and PT protocols | 1.2 | Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | Activity reports | PT program established | | Activity will be conducted in PY2. |
| 1.c | Number of MDRT participants trained* | Number of laboratory technicians trained in malaria diagnostic refresher trainings. | 1.3, 1.4 | Providers demonstrate competence in RDTs and microscopy. | Activity reports | 21 | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.d | Percentage of targeted clinical supervisors trained in supervision for treatment of malaria.* | Number of clinical supervisors trained in supervision for treatment of malaria with WHO-recommended ACTs/Total number of targeted clinical supervisors. | 1.3, 1.4 | Country has supervisory structures and implementation of supervision for malaria treatment. | Activity reports | 90% | | Activity will be conducted in PY2. |
| 1.e | Percentage of targeted supervisors trained in supervision for case management of malaria. | Number of supervisors trained in supervision for case management of malaria/Total number of targeted supervisors. | 1.3, 1.4 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | Activity will be conducted in PY2. |
| 1.f | Number of participants in stakeholders meeting to revise the laboratory register | Number of participants in stakeholders meeting to revise the laboratory register. | 1.5 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | 25 | | Activity will be conducted in PY2. |
| 1.g | In-Country NAMS protocol developed for malaria microscopy QA and submitted to the relevant IRBs. | Development of a protocol and submission of the protocol for National Archive of Malaria Slides (NAMS) for conducting malaria microscopy quality assurance. | 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Protocol developed and submitted to relevant IRBs | | Activity will be conducted in PY2. |

| Intermediate Outcomes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 1.h | Country has national clinical supervision tools whose indicators adhere to global standards for determining possible malaria cases. | Number of targeted countries whose national clinical supervision tools adhere to global standards for determining possible malaria cases/Total number of targeted countries. | 1.1 | Providers demonstrate competence in ordering/conducting malaria diagnostic tests for suspected cases. | NMCP, review of documents | Clinical supervision tools adhere to national standards | | Activity will be conducted in PY2. |
| 1.i | Percentage of targeted clinical providers demonstrating competence in RDTs.* | Number of targeted clinical providers who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of clinical providers who received a supervisory visit during the reporting period. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.j | Percentage of targeted providers demonstrating competence in malaria microscopy.* | Number of targeted providers who score 90% or greater on supervisory checklist measuring slide preparation and parasite detection/Total number of laboratory technicians who received a supervisory visit during the reporting period. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 90% | | Activity will be conducted in PY2. |
| 1.k | Percentage of providers demonstrating competence in testing suspected patients for malaria.* | Number of providers who appropriately order or perform testing of suspected malaria patients according to global standards during team supervision observations/Total number of providers targeted for team supervision observations during the reporting period. | 2.1 | Providers demonstrate competence in ordering/conducting malaria diagnostic tests for suspected cases. | Team supervision reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.l | Percentage of supervisors demonstrating competence in malaria microscopy.* | Percentage of supervisors who score 90% or greater in slide preparation and parasite detection during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.3, 1.4 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | Activity will be conducted in PY2. |
| 1.m | Percentage of supervisors demonstrating competence in RDTs.* | Percentage of supervisors who score 90% or greater in preparation and reading of RDTs during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.3, 1.4 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | Activity will be conducted in PY2. |
| 1.n | Percentage of targeted clinical supervisors trained in supervision for treatment of malaria. | Number of clinical supervisors trained in supervision for treatment of malaria with WHO-recommended ACTs/Total number of targeted clinical supervisors. | 1.3, 1.4 | Country has supervisory structures and implementation of supervision for malaria treatment. | Activity reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.o | Percentage of supervisors demonstrating competence in malaria treatment.* | Number of supervisors who score greater than 80% on a treatment post-test during TOTs/Total number of supervisors who completed a post-test during a TOT. | 1.3, 1.4 | Country has supervisory structures and implementation of supervision for malaria treatment. | Activity reports, post-test results | 85% | | Activity will be conducted in PY2. |
| 1.p | Percentage of targeted facilities with at least one provider trained in RDTs. | Number of targeted facilities with one or more providers trained in RDT/Total number of targeted facilities. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 80% | | Activity will be conducted in PY2. |
| 1.q | Percentage of targeted facilities with at least one provider who received malaria diagnostic refresher training (MDRT) in the last two years. | Number of facilities with one or more providers trained in malaria diagnosis refresher trainings/total number of targeted facilitates. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 80% | | Activity will be conducted in PY2. |
| 1.r | Percentage of targeted clinics that meet standards (including appropriate materials, documentation, and qualified staff) for quality diagnosis of malaria. | Number of targeted clinics that meet 90% or greater on facility checklists for diagnosis during supervisory visits/Total number of targeted facilities who received a supervisory visit during the reporting period. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.s | Percentage of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards. | Number of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards/Total number of targeted facilities. | 2.1 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness. | Team supervision report | 90% | | Activity will be conducted in PY2. |
| 1.t | Laboratory register revised | Revised laboratory register that is able to capture critical data | 1.5 | Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | Activity reports | Working group established | | Activity will be conducted in PY2. |
| 1.w | Country has full national guidelines for determining suspected malaria cases. | Country has full national guidelines for determining suspected malaria cases (including age, duration of fever, fever history) that meet global standards. | 1.5 | Providers demonstrate competence in detecting suspected malaria cases. | NMCP, Review of documents | Country has full national guidelines | **Guidelines meet global standards.** | |
| 1.x | Country has full national guidelines for malaria treatment. | Country has full national guidelines for malaria treatment, incl.QA/QC procedures, training of informal health providers, and recommendations for home treatment of febrile illness, suspected malaria, and recognition of the common danger signs that meet global standards. | 1.1 | Country has full national policies for malaria treatment. | In-country assessment, NMCP, Review of documents | Complete | | Activity will be conducted in PY2. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Objective 2: Scale up and improve access and availability to quality malaria treatment with focus on the lower health facility level.** | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Country has supervisory structures and implementation of supervision for malaria treatment. | | | | | | | | |
| Providers demonstrate competence in RDTs and/or microscopy. | | | | | | | | |
| Health care providers demonstrate competence in malaria treatment. | | | | | | | | |
| Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 2.a | Rapid assessment conducted of malaria case management in five focus provinces. | Rapid assessment, including document review and key-informant interviews, conducted to understand constraints to malaria case management in five regions. | 2.2 | Country has supervisory structures and implementation of supervision for malaria treatment. | Team supervision reports | Rapid assessment report submitted to stakeholders | | Activity removed from work plan. |
| 2.b | Number of clinical OTSS visits conducted | Number of clinical OTSS visits conducted at targeted facilities. Total number including all rounds of OTSS at each facility. | 2.1 | Providers demonstrate competence in RDTs and microscopy | Team supervision reports | 320 | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 2.c | Percentage of targeted providers that received training by supervisors on case management errors during the reporting period.* | Number of providers that received training by supervisors on documented case management errors (according to team supervision reports) during the reporting period/Total number of providers with documented errors in case management during team supervision during the reporting period. | 2.1 | Providers demonstrate competence in RDTs and/or microscopy. | Team supervision reports | 80% | | Activity will be conducted in PY2. |
| 2.d | Percentage of targeted facilities receiving at least two clinical supervisory visits per annum for malaria treatment. | Number of facilities receiving at least two clinical supervisory visits per annum for malaria treatment with WHO-recommended ACTs/Total number of targeted facilities. | 2.1 | Country has supervisory structures and implementation of supervision for malaria treatment. | Semi-annually | 80% | | Activity will be conducted in PY2. |
| 2.e | Percentage of targeted providers that received training in malaria treatment by supervisors during the reporting period.* | Number of providers that received training in malaria treatment by supervisors based on documented errors during the reporting period/Total number of providers that had documented errors during team supervision during the reporting period. | 2.1 | Health care providers demonstrate competence in malaria treatment. | Team supervision reports | 80% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 2.f | Percentage of targeted facilities receiving at least two clinical supervisory visits per annum. | Number of facilities receiving at least two clinical supervisory visits per annum/Total number of targeted facilities. | 2.1 | Country has supervisory structures and implementation of supervision for malaria treatment. | Team supervision reports | 80% | | Activity will be conducted in PY2. |
| **Intermediate Outcomes** | | | | | | | | |
| 2.g | Percentage of providers demonstrating competence in identifying suspected malaria cases according to global standards.* | Number of providers who demonstrate correct procedures for differential diagnosis of possible malarial symptoms according to global standards during team supervision observation/Total number of providers targeted for team supervision during the reporting period. | 2.1 | Providers demonstrate competence in detecting suspected malaria cases. | Team supervision reports | 90% | | Activity will be conducted in PY2. |
| 2.h | Percentage of targeted clinics that meet standards (including appropriate materials, documentation, and qualified staff) for quality treatment of malaria. | Number of targeted clinics that meet 90% or greater on facility checklists during supervisory visits /Total number of targeted facilities who received a supervisory visit during the reporting period. | 2.1 | Country has supervisory structures and implementation of supervision for malaria treatment. | Team supervision reports | 80% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 2.i | Percentage of targeted providers demonstrating compliance to treatment with WHO-recommended ACT for cases with positive malaria test results.* | Number of providers who comply to treatment with a WHO-recommended anti-malarial for cases with positive malaria test results during clinical assessment visits measured through direct observation during team supervision visits/Total number of providers that received team supervision during the reporting period. | 2.1 | Health care providers demonstrate competence in malaria treatment. | Team supervision reports | 85% | | Activity will be conducted in PY2. |
| 2.j | Percentage of providers demonstrating adherence to negative test results according to global standards.* | Number of providers demonstrating adherence to negative test results according to global standards during team supervision measured through direct observation during team supervision visits/Total number of providers that received team supervision during reporting period. | 2.1 | Health care providers demonstrate competence in malaria treatment. | Team supervision reports | 70% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 2.k | Percentage of targeted facilities receiving at least two clinical supervisory visits per annum for malaria treatment. | Number of facilities receiving at least two clinical supervisory visits per annum for malaria treatment with WHO-recommended ACTs/Total number of targeted facilities. | 2.1 | Country has supervisory structures and implementation of supervision for malaria treatment. | Team supervision reports | 90% | | Activity will be conducted in PY2. |
| 2.l | Percentage of targeted providers trained in malaria treatment.* | Number of providers trained in malaria treatment with WHO-recommended ACTs/Total number of targeted providers. | 2.1 | Health care providers demonstrate competence in malaria treatment. | Activity reports | 90% | | Activity will be conducted in PY2. |
| 2.m | Percentage of targeted providers that received training in malaria treatment by supervisors during the reporting period.* | Number of providers that received training in malaria treatment by supervisors based on documented errors during the reporting period/Total number of providers that had documented errors during team supervision during the reporting period. | 2.1 | Health care providers demonstrate competence in malaria treatment. | Team supervision reports | 85% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 2.n | Percentage of targeted providers that received training by supervisors on documented errors in determining suspected malaria patients during the reporting period.* | Number of providers that received training by supervisors on documented errors determining suspected patients (according to team supervision reports) during the reporting period/Total number of providers with documented errors in determining suspected patients during team supervision during the reporting period. | 2.1 | Providers demonstrate competence in detecting suspected malaria cases. | Team supervision reports | 90% | | Activity will be conducted in PY2. |
| | | | | | | | | |
| **Objective 3: Improve accuracy, reliability and availability of health information management systems.** | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Reporting on malaria indicators is complete and accurate. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indictor ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 | Notes |
| 3.a | Percentage of targeted facilities that receive an M&E OTSS visit in the reporting period | Number of targeted facilities that receive an M&E OTSS visit in the reporting period/Total number of targeted facilities. | 3.1 | Reporting on malaria indicators is complete and accurate. | Team supervision reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 3.b | Development of a plan for a data quality assessment. | Development of a plan for a data quality assessment with input from GHS and the M&E technical working group. | 3.2 | Reporting on malaria indicators is complete and accurate. | Activity Reports | Plan developed for a data quality assessment. | | Activity will be conducted in PY2. |
| **Intermediate Outcomes** | | | | | | | | |
| 3.c | Percentage of information officers who are competent in data collection and reporting.* | Number of information officer who score 90% or greater on supervision checklists/Total number of targeted Information Officers. | 3.1 | Reporting on malaria indicators is complete and accurate. | Team supervision reports | 80% | | Activity will be conducted in PY2. |
| | | | | | | | | |
| **Objective 4: Strengthen technical management ability at regional and district level for implementing programs and activities.** | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Reporting on malaria indicators is complete and accurate. | | | | | | | | |
| Regional workplanning is evidence-based | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 4.a | Percentage of Regional Workplan Workshops conducted | Number of Regional Workplan Workshops conducted/Total number of targeted regions for workplan workshops (target = 5). | 4.1 | Reporting on malaria indicators is complete and accurate. | Activity Reports | 100% | **14%** | 1 workshop of 7 planned workshops was conducted. This activity will continue in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 4.b | Assessment tools for RHMTs developed and disseminated. | Assessment tools to assist RHMTs in assessment, training and supervision of DHMTs developed and disseminated. | 4.2 | Reporting on malaria indicators is complete and accurate. | Activity Reports | Assessment tools developed and disseminated to RHMTs | | Activity will be conducted in PY2. |
| **Project Management: Assure the visibility and support the mission of PMI through strong partner relationships.** | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 5.a | Number of working groups and/or task force meetings attended | Number of working groups and/or task force meetings held or attended with in-country partners | 5.1 | Strong relationships and presence in focus countries. | Activity reports | 4 | **1** | |
| 5.b | Establish a project office in Accra | Establish a project office in Accra including office space, equipment, finance and administrative systems, and personnel. | 5.2 | Strong relationships and presence in focus countries. | Activity reports | Project office established. | **Completed** | |
| 5.c | Develop a Work Plan for PY2 | Develop a workplan for PY2 during a meeting with stakeholders. | 5.3 | Strong relationships and presence in focus countries. | Activity reports | PY2 workplan developed. | **Draft submitted** | |
| 5.d | Develop an environmental mitigation plan | Develop an environmental mitigation plan with GHS to assure compliance with medical waste disposal protocols and tracked through OTSS. | 5.1 | Strong relationships and presence in focus countries. | Activity reports | Environmental mitigation plan developed. | | Activity will be conducted in PY2. |

# Malawi performance monitoring plan

**Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.**

**Description:** The accuracy of diagnostic testing for malaria is improved to greater than 90 percent. The activities described in this section relate to addressing the laboratory technician and health care provider competency related to providing quality diagnostic services.

**Intermediate Objectives**

Clear and disseminated laboratory guidelines, procurement policies, supervision structures.

Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs.

Providers demonstrate competence in RDTs and/or microscopy.

**Outputs**

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.a | Number of MDRT participants trained | Number of laboratory technicians trained in malaria diagnostic refresher trainings. | 1.1 | Providers demonstrate competence in RDTs and microscopy | Activity reports | 20 | **20** | 15 males<br>5 females |
| 1.b | Number of OTSS visits conducted | Number of OTSS visits conducted at targeted laboratories. Total number including all rounds of OTSS at each facility. | 1.2 | Providers demonstrate competence in RDTs and microscopy | Team super-vision reports | 320 | **380** | This total includes round 9 projected numbers. |
| 1.c | Number of finalized National Laboratory Policy Guidelines distributed | Distribution of fully developed and finalized national laboratory guidelines | 1.3 | Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | Activity reports | 2000 | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.d | Working group on RDT QA/QC established | Establishment of a working group to determine short and long term QA/QC of RDT needs and systems | 1.4 | Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | Activity reports | Working group established | | Activity will be conducted in PY2. |
| 1.e | Approved plan for short term RDT QA/QC | Short term plan for RDT QA/QC is approved by the MOH, NMCP and PMI | 1.4 | Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other IDs. | Activity reports | Short term RDT QA/QC plan approved | | Activity will be conducted in PY2. |
| 1.f | Percentage of targeted facilities with at least one provider trained in RDTs. | Number of targeted facilities with one or more providers trained in RDT/Total number of targeted facilities. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **95%** | 129 facilities out of 135 targeted facilities. |
| 1.g | Percentage of targeted laboratory supervisors trained in supervision for laboratory diagnosis of malaria. | Number of supervisors trained in supervision for laboratory diagnosis of malaria/Total number of targeted laboratory supervisors. | 1.1 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | Activity will be conducted in PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.h | Percentage of targeted providers that received training by supervisors on documented diagnostic errors during the reporting period. | Number of providers that received training by supervisors on documented diagnostics errors (according to team supervision reports) during the reporting period/Total number of providers with documented errors in diagnostics during team supervision during the reporting period. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **640 individuals** | Unable to calculate percentages. Current tools do not collect information on diagnostic errors linked to on-the-job trainings. Results reflect the total number of on-the-job training provided by supervisors. |
| **Intermediate Outcomes** | | | | | | | | |
| 1.i | Percentage of targeted laboratory technicians demonstrating competence in RDTs. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of lab staff who received a supervisory visit during the reporting period. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 90% | **61%** | 229 techs with scores >=90% out of 375 total observations.<br><br>A single lab tech may have been observed multiple times.<br><br>Unable to disaggregate by sex. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.j | Percentage of targeted laboratory technicians demonstrating competence in malaria microscopy. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklist measuring slide preparation and parasite detection/Total number of laboratory technicians who received a supervisory visit during the reporting period. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 90% | **slide prep: 17%**<br><br>**stain/read: 25%**<br><br>**Overall: 14%** | 10/58 techs with scores >90% for slide preparation.<br><br>9/36 techs with scores >90% for slide staining and reading.<br><br>A single lab tech may have been observed multiple times.<br><br>Unable to disaggregate by sex. |
| 1.k | Percentage of supervisors demonstrating competence in malaria microscopy. | Percentage of supervisors who score 90% or greater in slide preparation and parasite detection during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.1 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | MDRT was targeted at laboratory technicians for potential inclusion in the supervision program rather than current supervisors. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.l | Percentage of supervisors demonstrating competence in RDTs. | Percentage of supervisors who score 90% or greater in preparation and reading of RDTs during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.1 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | | MDRT was targeted at laboratory technicians for potential inclusion in the supervision program rather than current supervisors.<br><br>The result of the RDT post test for these laboratory technicians was 100%. |
| | | | | | | | | |
| **Objective 2: Increased percentage of patients suspected to have malaria or febrile illness who receive a diagnostic test.** | | | | | | | | |
| **Description:** Increased percentage of patients suspected to have malaria or febrile illnesses who receive a diagnostic test for malaria. These activities relate to addressing health care provider performance in the use of diagnostic tools after appropriate training. Emphasis is on supervision and use of performance monitoring tools. | | | | | | | | |
| **NO ACTIVITIES FOR PY 1** | | | | | | | | |

**Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses-consistent with the diagnostic test.**

**Description:** Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses—consistent with the result of the diagnostic test. The activities described in this section relate to addressing health care provider performance in delivering appropriate treatment after training has occurred. Emphasis is on supervision and ongoing use of performance monitoring tools.

**Intermediate Objectives**

Country has full national policies for malaria treatment.

Country has supervisory structures and implementation of supervision for malaria treatment.

Reporting and monitoring information for malaria is integrated complete and accurate.

**Outputs**

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 3.a | Action plan submitted to broaden case management at the community level | Report and action plan detailing MalariaCare's role in assisting the MOH and NMCC with case management at the community level. | 3.1 | Country has full national policies for malaria treatment | Activity reports | Report with recommendations submitted to the MOH and NMCC | | Activity planned for PY2. |

**Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.**

**Description:** Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases. These activities relate to addressing the health systems issues that are a barrier to achieving universal access to malaria diagnostics and appropriate case management practices such as physical health facilities, human and financial resources, and support systems required to deliver quality diagnosis and treatment services.

**Intermediate Objectives**

Reference laboratories and facilities able to provide high quality diagnostics for malaria and other febrile illness.

| Outputs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 4.a | Number of microscope repair kits distributed | Number of microscope repair kits distributed to supervisors | 4.1 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | 190 | | Activity planned for PY2. |
| 4.b | In-Country NAMS protocol developed for malaria microscopy QA and submitted to the relevant IRBs | Development of a protocol and submission of the protocol for National Archive of Malaria Slides (NAMS) for conducting malaria microscopy quality assurance | 4.3 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Protocol developed and submitted to relevant IRBs | | In progress. |
| 4.c | Curriculum developed for basic microscope repair | Curriculum for basic microscope repair by district supervisors developed. | 4.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Curriculum approved by MOH and NMCC | Microscope Assessment 240 HF visited | This activity was replaced with a microscope assessment. |
| 4.d | Report with recommendations developed from the LLW | Report with recommendations for the laboratory OTSS systems and data collection procedures | 4.4 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Report with recommendations submitted to the MOH and NMCC | | Report will be submitted in PY2. |
| 4.e | Integrated checklist developed for OTSS laboratory visits | An integrated checklist developed from an integration workshop with other programs, including TB and HIV, for OTSS visits. | 4.5 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Integrated checklist developed | | Activity planned for PY2. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 4.f | Action plan developed from stakeholders meeting | An action plan will be developed from a stakeholders meeting to review the results of the LLW and integration workshop. | 4.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Action plan on OTSS developed | | Action plan will be submitted in PY2. |
| 4.g | Percentage of targeted facilities with at least one provider trained in malaria microscopy. | Number of targeted facilities with one or more providers trained in malaria microscopy/Total number of targeted facilities. | 1.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **43%** | 32 out of 75 HFs with >= 1 staff member receiving on-site training on malaria microscopy. |
| **Intermediate Outcomes** | | | | | | | | |
| 4.h | Percentage of targeted facilities with at least one provider who received malaria diagnostic refresher training (MDRT) in the last two years. | Number of targeted facilities with one or more providers who received MRDT in the last two years/Total number of targeted facilities. | 1.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **32%** | 24 out of 75 HFs with >= 1 staff member receiving formal training on malaria diagnostics. |
| 4.i | Percentage of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards. | Number of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards/Total number of targeted facilities. | 1.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision report | 90% | **74%** | 132 out of 179 HFs with complete guidelines present. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 4.j | Percentage of targeted laboratories that meet global standards for quality malaria diagnostics. | Number of targeted laboratories that meet 90% or greater on re-checking of malaria slides during supervisory visits/Total number of targeted who received a supervisory visit during the reporting period. | 1.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **85%** | 22 out of 26 HFs scored >= 90% during slide validation exercises. |
| 4.k | Percentage of targeted facilities receiving at least two laboratory supervisory visits per annum. | Number of facilities receiving at least two laboratory supervisory visits per annum/Total number of targeted facilities. | 1.2 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **70%** | 133 out of 190 targeted HFs received >= 2 supervisory visits during PY1. |

# Zambia performance monitoring plan

| **Objective 1: The accuracy of diagnostic testing for malaria is improved to greater than 90%.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Description:** The accuracy of diagnostic testing for malaria is improved to greater than 90 percent. The activities described in this section relate to addressing the laboratory technician and health care provider competency related to providing quality diagnostic services. | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Clear and disseminated laboratory guidelines, procurement policies, supervision structures. | | | | | | | | |
| Clear and functioning quality assurance procedures for regulation of diagnostics for malaria and other febrile illnesses. | | | | | | | | |
| Reporting on malaria indicators is complete and accurate. | | | | | | | | |
| Providers demonstrate competence in RDTs and/or microscopy. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 1.a | Number of training manuals printed and distributed | Number of training manuals printed and distributed to laboratories | 1.1 | Clear and disseminated laboratory guidelines, curricula and supervision structures | Activity reports | 320 | **200** | |
| 1.b | Number of MDRT participants trained | Number of laboratory technicians trained in malaria diagnostic refresher trainings (male/female). | 1.2 | Lab workers demonstrate competence in RDTs and microscopy | Activity reports | 18 | **18** | 13 men<br>5 women |
| 1.c | OTSS database review and training conducted | Review of the OTSS database, troubleshooting and training of database entry staff | 1.3 | Reporting and monitoring information for malaria is integrated, complete and accurate | Activity reports | Database review and training completed | **Completed** | |
| 1.d | Number of OTSS visits conducted | Number of OTSS visits conducted at targeted laboratories. Total number including all rounds of OTSS at each facility. | 1.4, 1.5, 1.6 | Lab workers demonstrate competence in RDTs and microscopy | Team super-vision reports | 324 | **209** | Round 10 (projected). Changes in per diem rates effected target projections. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.e | Percentage of targeted facilities with at least one provider trained in RDTs. | Number of targeted facilities with one or more providers trained in RDT/Total number of targeted facilities. | 1.4, 1.5, 1.7 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **63%** | **76%**<br>77 out of 101 HFs with at least 1 laboratory staff member trained<br>**47%**<br>39 out of 83 HFs with at least 1 clinical staff member trained |
| 1.f | Percentage of targeted laboratory supervisors trained in supervision for laboratory diagnosis of malaria. | Number of supervisors trained in supervision for laboratory diagnosis of malaria/Total number of targeted laboratory supervisors. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **100%** | 18/18 individuals<br>13 men<br>5 women |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.g | Percentage of targeted providers that received training by supervisors on documented diagnostic errors during the reporting period. | Number of providers that received training by supervisors on documented diagnostics errors (according to team supervision reports) during the reporting period/Total number of providers with documented errors in diagnostics during team supervision during the reporting period. | 1.4, 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 80% | **351 individuals** | 220 men<br>119 women<br>12 unknown<br><br>Unable to calculate percentages. Current tools do not collect information on diagnostic errors linked to on-the-job trainings. Results reflect the total number of on-the-job training provided by supervisors. |
| **Intermediate Outcomes** | | | | | | | | |
| 1.h | Percentage of targeted laboratory technicians demonstrating competence in RDTs. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklists measuring the preparation and reading of the malaria RDTs/Total number of lab staff who received a supervisory visit during the reporting period. | 1.4, 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 90% | **58%** | 48 techs with scores >= 90% out of 83 total observations.<br><br>A single lab tech may have been observed multiple times. Unable to disaggregate by sex. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.i | Percentage of targeted laboratory technicians demonstrating competence in malaria microscopy. | Number of targeted laboratory technicians who score 90% or greater on supervisory checklist measuring slide preparation and parasite detection/Total number of laboratory technicians who received a supervisory visit during the reporting period. | 1.4, 1.5, 1.6 | Providers demonstrate competence in RDTs and/or microscopy. | Team super-vision reports | 90% | **Slide Prep:18%**<br><br>**Stain/Read: 57%**<br><br>**Overall: 25%** | 13 techs with scores >= 90% out of 74 total and complete observations for slide preparation<br><br>44 techs with scores >= 90% out of 77 total and complete observations for slide staining and reading<br><br>17 techs with scores >= 90% out of 68 total observations for combined slide preparation and slide staining and reading<br><br>A single tech may have been observed multiple times. Unable to disaggregate by sex. |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.j | Percentage of supervisors demonstrating competence in malaria microscopy. | Percentage of supervisors who score 90% or greater in slide preparation and parasite detection during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **100%** | 18/18 individuals<br>13 men<br>5 women |
| 1.k | Percentage of supervisors demonstrating competence in RDTs. | Percentage of supervisors who score 90% or greater in preparation and reading of RDTs during the training of trainers post-test/Total number of supervisors who completed a post-test during a training of trainers. | 1.2 | Providers demonstrate competence in RDTs and/or microscopy. | Activity reports | 90% | **100%** | 18/18 individuals<br>13 men<br>5 women |
| | | | | | | | | |
| **Objective 2: Increased percentage of patients suspected to have malaria or febrile illness who receive a diagnostic test.** | | | | | | | | |
| **Description:** Increased percentage of patients suspected to have malaria or febrile illnesses who receive a diagnostic test for malaria. These activities relate to addressing health care provider performance in the use of diagnostic tools after appropriate training. Emphasis is on supervision and use of performance monitoring tools. | | | | | | | | |
| **NO ACTIVITIES FOR PY 1** | | | | | | | | |
| | | | | | | | | |

| Objective 3: Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses-consistent with the diagnostic test. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Description:** Increased percentage of patients who receive appropriate treatment for malaria or other febrile illnesses—consistent with the result of the diagnostic test. The activities described in this section relate to addressing health care provider performance in delivering appropriate treatment after training has occurred. Emphasis is on supervision and ongoing use of performance monitoring tools. | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Country has full national policies for malaria treatment. | | | | | | | | |
| Country has supervisory structures and implementation of supervision for malaria treatment. | | | | | | | | |
| Reporting and monitoring information for malaria is integrated complete and accurate. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| | | | | | | | | |
| **Objective 4: Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases.** | | | | | | | | |
| **Description:** Strengthened laboratory systems at the country level for detecting malaria and other infectious diseases. These activities relate to addressing the health systems issues that are a barrier to achieving universal access to malaria diagnostics and appropriate case management practices such as physical health facilities, human and financial resources, and support systems required to deliver quality diagnosis and treatment services. | | | | | | | | |
| **Intermediate Objectives** | | | | | | | | |
| Reference laboratories and facilities able to provide high quality diagnostics for malaria and other febrile illness. | | | | | | | | |
| **Outputs** | | | | | | | | |
| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
| 4.a | In-Country NAMS is developed for malaria microscopy QA | Development of a National Archive of Malaria Slides (NAMS) for conducting malaria microscopy quality assurance. | 4.1 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Activity reports | Protocol developed and submitted to relevant IRBs | | In progress |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 4.b | Percentage of targeted facilities with at least one provider trained in malaria microscopy. | Number of targeted facilities with one or more providers trained in malaria microscopy/Total number of targeted facilities. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **74%** | 75 out of 101 HFs with >= 1 staff member receiving on-site training on malaria microscopy |
| 4.c | Percentage of targeted facilities with at least one provider who received malaria diagnostic refresher training (MDRT) in the last two years. | Number of targeted facilities with one or more providers who received MRDT in the last two years/Total number of targeted facilities. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **35%** | 35 out of 101 HFs with >= 1 staff member receiving formal training on malaria diagnostics |
| 4.d | Percentage of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards. | Number of targeted facilities with complete and updated guidelines for malaria diagnosis that meet global standards/Total number of targeted facilities. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision report | 90% | **84%** | 75 out of 89 HFs with complete guidelines present |

| Indicator ID | Indicator | Definition | Relevant Activity # | Contributes to the following intermediate objective of MalariaCare | Data source | Targets | PY1 RESULTS | Notes |
|---|---|---|---|---|---|---|---|---|
| 4.e | Percentage of targeted laboratories that meet global standards for quality malaria diagnostics. | Number of targeted laboratories that meet 90% or greater on re-checking of malaria slides during supervisory visits/Total number of targeted who received a supervisory visit during the reporting period. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | **92%** | 34 out of 37 HFs scored >= 90% during slide validation exercises |
| 4.f | Percentage of targeted facilities receiving at least two laboratory supervisory visits per annum. | Number of facilities receiving at least two laboratory supervisory visits per annum/Total number of targeted facilities. | 1.4, 1.5, 1.6 | Reference laboratories and facilities are able to provide high quality diagnostics for malaria and other febrile illness | Team super-vision reports | 80% | | Data still being entered from second round of OTSS (Round 10) under MalariaCare. |


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