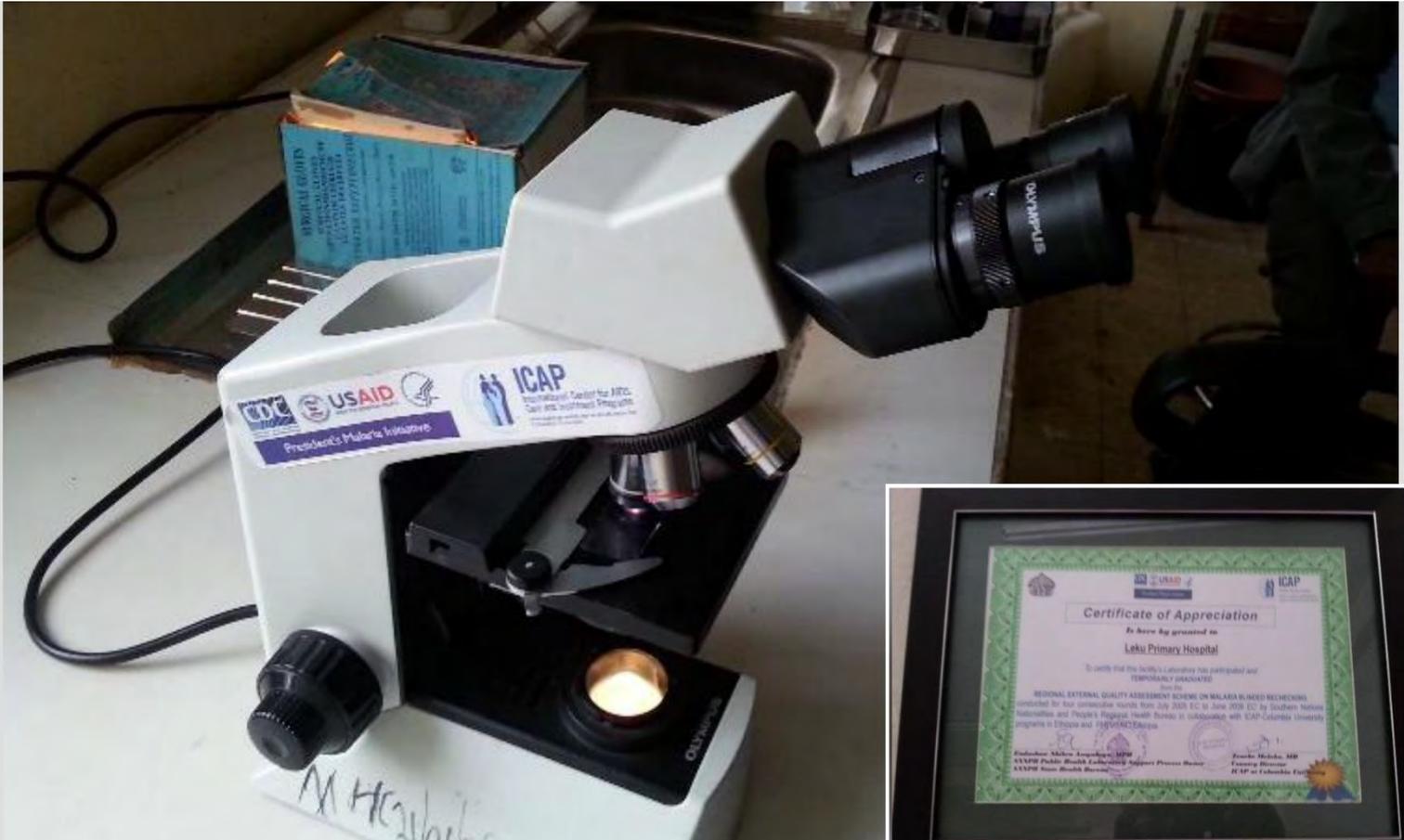




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## EVALUATION

# USAID/Ethiopia Midterm Evaluation of the Malaria Laboratory Diagnosis and Monitoring Project

**December 2015**

This publication was produced for review by the United States Agency for International Development. It was prepared by Fekadu Adugna, Berkie Deremo, William Emmet, Tariku Lambiyu, Eyob Mesfin, and Berhanu Yitayew through the Global Health Technical Assistance Project.

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2. *Graduation certificate of an ICAP/MLDM-Supported Health Facility:* Leku Primary Hospital, SNNP Region, Sidama Zone, Shebedino Woreda, Ethiopia - 9/2/2015 by Colonel Berkie Deremo, evaluation team research ssistant.

# USAID/Ethiopia Midterm Evaluation of the Malaria Laboratory Diagnosis and Monitoring Project

**DECEMBER 2015**

Contract No. AID-OAA-C-14-00067

## **DISCLAIMER**

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# ACRONYMS

ACIPH	Addis Continental Institute of Public Health
ACTs	Artemisinin-based combination therapies
CDC	Centers for Disease Control and Prevention
COAG	Cooperative agreement
DO	Development Objective
EOP	End-of-project
EPHI	Ethiopian Public Health Institute
EQA	External Quality Assessment
FMOH	Ethiopian Federal Ministry of Health
GOE	Government of Ethiopia
HCT	HIV Counseling and Testing
HIV	Human immunodeficiency virus
HSDP	Health Sector Development Plan
IR	Intermediate Result
IRS	Indoor residual spraying of households with insecticide
KII	Key informant interview
LLIN	Long-lasting insecticidal nets
M&E	Monitoring and evaluation
MLDM	Malaria Laboratory Diagnosis and Monitoring Project
MMAC	Malaria Microscopy Accreditation Course
NCAMM	National competency assessment of malaria microscopists
NMCP	National Malaria Control Program
NMMAC	National Malaria Microscopy Accreditation Course
PFSA	Pharmaceutical Fund and Supply Agency
PMI	President's Malaria Initiative
PMP	Project Management Plan
PT	Proficiency testing
QA	Quality assurance
RDTs	Rapid diagnostic tests
REMQAT	Regional Malaria Quality Assurance Team
SNNPR	Southern Nations, Nationalities and Peoples' Region
SOP	Standard operating procedures

TB	Tuberculosis
ToT	Training of trainers
USAID/E	United States Agency for International Development/Ethiopia
WHO	World Health Organization

# EXECUTIVE SUMMARY

## EVALUATION FRAMEWORK

**Objective and Purpose:** The principal objective of the evaluation was to assess whether the activities of the Malaria Laboratory Diagnosis and Monitoring Project (MLDM) improved the quality of malaria and HIV diagnosis at project sites. The evaluation had three purposes and addressed 10 questions:

**Purpose 1:** To explore the extent to which the activity’s investments were associated with increased availability of quality malaria laboratory diagnosis

- Question 1.1: To what extent is the quality of services maintained in facilities that have graduated?
- Question 1.2: What are the main determinants of quality maintenance?
- Question 1.3: What role does or could gender play in quality maintenance?
- Question 1.4: In what ways are project activities integrated with programs related to other diseases, such as HIV?
- Question 1.5: To what extent are the capacity and engagement of the Ethiopian Public Health Institute (EPHI), regional reference laboratories, zones, and district health offices being strengthened to promote sustainability?

**Purpose 2:** To understand barriers to MLDM interventions achieving the intended results

- Question 2.1: For results that fell below targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why were the targets missed?
- Question 2.2: What barriers were there to building the capacity of government agencies and institutions, such as EPHI, regional reference laboratories, zones, and district health offices?
- Question 2.3: Was the program structure appropriate to meet the objectives of the cooperative agreement?

**Purpose 3:** To provide specific programmatic recommendations to the Mission and the Government of Ethiopia (GOE) for consideration in designing future programs to increase access to quality malaria diagnostic services integrated with other disease programs

- Question 3.1: In what ways could collaboration through integration be improved to leverage resources?
- Question 3.2: How could the program structure be more cost-effective for scale-up?

**Audience:** USAID/Ethiopia’s management and program staff, the GOE, and other stakeholders of the President’s Malaria Initiative (PMI) are expected to be key audiences for the findings.

## International and Ethiopian Malaria Epidemiology

The United States President’s Malaria Initiative (PMI 2014) reports that 84.2 million Ethiopians “live in areas at significant risk of malaria as of 2014,” and the Ethiopian Federal Ministry of

Health (MOH) reported malaria as one of the top 10 causes of morbidity, accounting for 55.3% of all reported illnesses and 22.4% of health facility admissions in 2013 (MOH 2013).

### **Malaria Microscopy and Clinical Diagnosis in Ethiopia**

The Ethiopian health laboratory structure has four tiers: Level IV (The National Reference Laboratory in the EPHI); Level III (regional laboratories, federal hospitals, and the Central Blood Bank Laboratory); Level II (regional hospital laboratories and zonal and district hospital laboratories); and Level I (health center laboratories and health posts). Regional laboratories receive referrals from Levels I and II facilities to test for advanced diagnosis. They also serve client facilities by monitoring treatment progress, providing surveillance, and supporting research. All hospital and health center laboratories are expected to perform hematology, microbiology, parasitology, immunology/serology, urinalysis, and clinical chemistry diagnostic tests. Health facilities are also expected to collect data on how patients respond to malaria treatment.

Accurate early diagnosis and prompt treatment of malaria is central to malaria prevention and control. Ethiopia has scaled-up diagnostic testing at all levels, and district health centers and district, zonal, and regional hospitals must all use microscopy in diagnosing malaria. In 2008, the year the MLDM was launched, about 40% of suspected cases were tested; in 2013, WHO (2013) estimates that more than 80% were tested. In 2013, Ethiopia reported 3,259,119 confirmed cases and 299,241 clinical cases of malaria. Of the cases 52.7% were confirmed through microscopy, and the percent confirmed by rapid diagnostic tests (RDT) or microscopy jumped from 67% in 2011 to 97.2% in 2013 (MOH Micro Plan Data 2013).

### **The Malaria Laboratory Diagnosis and Monitoring Project**

The goal of the MLDM 2008–17 Cooperative Agreement (COAG), implemented by Columbia University’s International Center for AIDS Care and Treatment Programs (ICAP-Columbia University), is to build the capacity of Ethiopian health facilities to diagnose malaria by providing technical, strategic, material, managerial, and operational support. By the end of the project, it is expected that MLDM technical support will have expanded to 1,022 health-related beneficiaries, among them 1,004 health centers and hospitals, of which 688 are in malaria hot-spot districts in the Oromia region and 316 in Amhara, the Southern Nations, Nationalities and People’s Region (SNNPR), Tigray, and Dire Dawa states. During the eight-year project, 900 of the 1,004 facilities provided with the full MLDM package of support (supplies, technical support on external quality assurance [EQA], and supportive supervision) were expected to be “graduated” and responsibility for continuing the full pack of support transferred to their regional laboratories. MLDM was also expected to provide technical assistance to the EPHI, 8 regional laboratories, and 10 health posts. This evaluation concentrates on the MLDM’s health facility and regional laboratory beneficiaries.

### **Methods**

This evaluation used a combination of quantitative and qualitative methods of primary data collection. Primary data were supplemented by secondary data from the MLDM project and from U.S. and Ethiopian government documents. Using standardized quality indicator checklists, the team assessed on-site 32 health centers (18 of which had graduated); 5 hospitals (4 graduated); and 3 regional laboratories. Sites in Oromia, Amhara, and SNNP regions, where about 85% of MLDM-assisted health facilities are located, were selected through convenience sampling. In addition, key informant interviews (KIIs) were conducted with 12 groups in which a

total of 22 people participated. All informants were selected based on familiarity with the national malaria program and involvement with and knowledge of MLDM.

### Limitations and Constraints

- Budgetary limitations on the number of analyses available necessarily dictated convenience sampling in selecting sites from the 793 facilities enrolled in MLDM as of September 2015.
- Similarly, constraints associated with logistics and time for site visits necessarily restricted the team's ability to assess more facilities.
- Finally, as the primary focus of this midterm evaluation was implementation, reliance on descriptive methods necessarily reduced the statistical rigor of the evaluation.

## PRINCIPAL FINDINGS

**Laboratory services:** The great majority of MLDM-supported laboratories, measured against 2009 and 2011 baseline indicators, seem to have made substantive progress toward the goal of improving the technical and operational ability of client facilities to provide quality malaria diagnoses. However, one area where improvement is needed is access of the laboratories to systematic regional support and maintenance of an EQA program.

This evaluation's quantitative findings on nine quality indicators indicate positive progress against the 2009 and 2011 baselines. The findings on all but two indicators (availability of standard operating procedures [SOPs] and supply of electricity) compared favorably with the baselines: 36 of the 37 health centers and all 5 hospital laboratories had functional microscopes with trained professionals who actively used the microscopes to diagnose malaria. All had the necessary reagents to perform malaria microscopy, with 92% storing staining solutions as prescribed by the manufacturers, and 32 (89%) prepared both thick and thin blood smears, though 4 (11%) prepared only thick smears. EQA guidelines were available in 21 laboratories (57%) and 32 (86%) had manuals for malaria diagnosis. SOPs were available in 26 (70%); 36 (97%) had malaria laboratory job aids; and 23 (62%) had bench aids. Principally due to supply shortages, in the previous six months 8 (22%) had experienced interruptions in their ability to provide services. Also, 28 (75%) had an operational internal quality process; 21 (59%) were involved in EQA activities; and 29 (79%) had been provided with supportive supervision during the 12 months before the team's visit.

**Clinical Services:** In the 37 facilities surveyed, the evaluation found quantitative evidence that clinicians follow guidelines that incorporate utilization of laboratory microscopy for definitive diagnosis of febrile patients. However, a minority continue to treat suspected malaria cases even when laboratory testing is negative. Continued reliance on their own findings may be due to limited interaction between a facility's clinicians and laboratory professionals.

All clinicians interviewed reported that they use fever as the main criterion for seeking malaria testing, up from 89% in 2009. No clinicians based the decision to test on the ability of the patient to pay for the test; clinicians commented that regardless of financial status a patient is sent for laboratory diagnosis whenever it is indicated. In 2009, ability to pay was a criterion in 9% of the cases.

Febrile patients with negative blood film were treated with artemisinin-based combination therapies (ACT) in 16% of the cases and with chloroquine in 8%—a marked improvement from the baseline when 60% of negative test results were treated with ACT and 25% with

chloroquine. Among clinicians interviewed, 59% said they would repeat the test when the first test was negative. No SOP guides the consultative relationship between clinicians and laboratory professionals, and only 35% of the clinicians indicated they would discuss negative results with lab staff—an adverse contrast with the 2009 baseline of 52%. Thermometers, which are necessary to objectively measure fever, were available in only half the health facilities, and only 21 (57%) had scales to weigh adults.

**Regional Laboratory Services:** The three regional laboratories surveyed were found to be technically equipped to help their client facilities to maintain the quality of microscopy-based malaria diagnoses. However, the three are responsible for 2,332 health facility laboratories, more than twice the number supported by MLDM in their regions. All three are likely to have difficulty financially or logistically in maintaining the considerable support MLDM was providing.

Of the 2,012 clients of the regional laboratories, 86% reportedly were able to offer malaria microscopy diagnostic services. However, in the six months before the evaluation, client facilities of all three laboratories experienced supply shortages. Similarly, the regional laboratories all reported having difficulties in maintaining client equipment. Only one had defined an improvement plan for either malaria or HIV diagnosis for client laboratories, though all three reported having an EQA program for improving malaria diagnosis in client facilities. Affecting their ability to provide quality-assured malaria laboratory diagnosis services to clients were such factors as lack of personnel, shortage of supplies, and poor quality of reagents. All three had the requisite documentation on EQA guidelines for malaria diagnosis, SOPs for malaria, and laboratory safety. However, only two reported that the EQA guidelines for malaria diagnosis had been distributed to client facilities.

**Graduated laboratory maintenance of quality:** Among the 21 graduated laboratories, only 41% had maintained the external quality control mechanisms established as part of MLDM services. However, more than 80% had maintained the quality of malaria diagnosis in terms of indicators for availability of basic equipment, procedures for laboratory safety and waste disposal, storage of staining solutions, and standards for laboratory set-up, such as proper ventilation, natural lighting, and access to water and electricity.

**The role of gender in maintaining quality:** The team found that selection of training applicants was appropriately based on ensuring coverage for laboratory technicians in malaria hot spots without reference to gender. However, it also appears that, since trained female laboratory professionals are more likely than male to remain rather than transfer, investment in training women could heighten the long-term prospects for sustaining quality post-training.

**Integration of MLDM malaria activities with other disease programs:** The project has been effective in integrating malaria and HIV training for laboratory and clinical health facility staff. Moreover, in monitoring the quality of HIV rapid testing at the point of care, 29 (78%) of the laboratories surveyed were observed to have fulfilled this responsibility. In 8 facilities (21%), malaria-supportive supervision was provided without integration with HIV and TB programs, but in the rest, malaria supervision was integrated with at least one other disease program.

**Capacity and engagement at national, zonal, and district health office levels:** MLDM achieved significant progress in facilitating capacity and engagement throughout the GOE health system. National examples are collaboration with the National Malaria Control Program/ Ethiopian Public Health Institute (NMCP/EPHI) in drafting malaria laboratory diagnosis and treatment policy guidelines, manuals, standard training material, registers, SOPs, and job aids; in technical and

material assistance in setting up the nation's first malaria slide bank; and in operations research. Subnationally, the most significant example of collaboration was the project's regional training of trainers courses, after which regional laboratory staff who had been trained took the lead in training health center and hospital laboratory professionals and clinicians.

**Achievement of targets:** MLDM has exceeded its Performance Management Plan (PMP) targets for 8 indicators and achieved excellent progress (75–100 percent) on 12. MLDM has also made manageable (50–75 percent) progress on 11 targets. However, the project has achieved less than 50 percent or no progress on 8 of the 39 PMP indicators. The main problems were associated with government staff turnover, which made it difficult to enlist qualified government mentors for project activities, accreditation issues (associated with enhancement of the EPHI malaria slide bank), government clearance of imported items, and the fact that scheduled research studies have yet to be completed. However, from communications with MLDM senior management and detailed examination of MLDM's plans for its remaining two years it appears that the project has a high probability of reaching its intended targets.

**Program structure:** The MLDM has responded professionally and technically to the terms of the cooperative agreement. However, the project design could have been more effectively structured as a central/regional project while still responding to the COAG objectives.

**Conclusions:** MLDM interventions and technical assistance have improved the quality of malaria diagnosis in client facilities. Based on the quantitative data collected, the project has professionally addressed most technical challenges. It also appears from the document review and the qualitative interviews that the MLDM can meet the majority of its end-of-project targets. The one qualification to an otherwise positive evaluation is that currently, as MLDM facilities are graduated, regional laboratories do not have adequate budgetary, logistical, and personnel resources to maintain the extensive EQA schemes essential to the long-term sustained maintenance of the quality of malaria microscopy.

## **PRINCIPAL RECOMMENDATIONS**

### **2015 – 2017: In the next 18 months:**

- As planned, MLDM should evaluate the quality of regional support for graduated facilities to address realistic ways to address gaps in regional support. The assessment can serve as the basis of a jointly-developed plan for regional action after MLDM ends.
- To further address the sustainability problem, MLDM should facilitate joint meetings or symposiums between regional laboratory and health facility directors so that they can draft joint long-term action plans. Activating such plans would increase the capacity of health center directors to work with regional laboratories to actively monitor and maintain basic standards of quality. Finally, during the final six months of operations, MLDM staff should dedicate time and resources to documenting lessons learned.

### **Goals for a Future Project**

It is recommended that any future project

- Plan from the outset to ensure long-term sustainability.
- Balance the center and the regions in the project structure:
- **At the central level**, it is recommended that the project

- Provide technical support to the national government, especially the EPHI and the National Technical Advisory Committee, in updating national standards to align with international best practices and support the new slide bank.
- Support pre-service training on malaria quality diagnosis to avoid the necessity for extensive postgraduate training.
- Update and disseminate to outpatient departments algorithms to promote quality clinical services for outpatient departments.
- Exchange with partners in other areas up-to-date technical guidelines and expertise.
- **At the regional level**, it is recommended that the project
  - Provide enough financial support for the required technical assistance, transport, equipment, and training for regional initiatives, centered on a scaled-up, integrated, innovative, and effective approach to the promotion of quality malaria, HIV, and TB diagnosis and treatment.
  - Facilitate formation and help build the capacity of a permanent Regional Malaria Quality Assurance Team (REMQAT) to
    - Establish a regionally-based EQA Center of Excellence.
    - Develop a pool of regional laboratory consultants whose principal responsibility will be to give technical support for EQA of health facilities.
    - Establish a three-tier system of supervision (regional-hospital-health center) and ensure that all tiers have adequate resources to supervise the next lower tier.
    - Put in place a regional hot spot quality improvement plan to assess and respond to the malaria microscopy capacity needs of hospitals and health centers.
    - Integrate training, supportive supervision, and EQA across malaria, HIV, and TB programs to leverage limited resources.
    - Provide equipment for facilities based on assessed needs.
    - Within each region develop and support a defined number of health center models of excellence to each serve as a focal point for continuing education and support for neighboring health centers.
    - Define an action plan to respond to regional malaria-related supply management.
    - Support regional operations research.
    - Put in place and monitor a regional project exit plan to promote the long-term sustainability of initiatives introduced by the REMQAT.

# I. BACKGROUND

## MALARIA IN ETHIOPIA

For 2015 the U.S. Government's President's Malaria Initiative (PMI) reports that 84.2 million Ethiopians "live in areas at significant risk of malaria as of 2014" (PMI 2014). The Ethiopian Federal Ministry of Health (MOH 2013) reported that in 2013 malaria accounted for 55.3 percent of all reported illnesses and 22.4 percent of health facility admissions in Ethiopia.

## MALARIA CLINICAL DIAGNOSIS AND MICROSCOPY IN ETHIOPIA

The Ethiopian health laboratory structure is part of the general health system, which comprises public, private, and faith-based and other nonprofit organizations. There are four tiers of laboratories: Level IV (the National Reference Laboratory in the Ethiopian Public Health Institute [EPHI]); Level III (regional laboratories and federal hospitals, including Uniformed Forces hospitals and the Central Blood Bank Laboratory); Level II (regional, zonal, and district hospital laboratories); and Level I (health center laboratories and health posts). Health Posts, the lowest level of health services, do not have laboratories *per se* but, instead confirm their clinical diagnoses via rapid diagnostic tests (RDTs). Regional, zonal, and district hospital laboratories and health centers refer cases to regional laboratories for advanced diagnostic testing. Regional laboratories also support health facilities by monitoring treatment progress, providing surveillance, and supporting research. All hospital and health center laboratories are expected to perform diagnostic hematology, microbiology, parasitology, immunology/serology, urinalysis, and clinical chemistry tests. Health facilities are also expected to provide and monitor treatment and to provide data on malaria diagnosis and treatment in their facilities.

To prevent and control malaria, accurate early diagnosis and prompt treatment is critical. Following the WHO recommendation of universal diagnostic testing for all suspected malaria cases, Ethiopia has scaled up testing throughout the public health service system: community health posts use rapid diagnostic tests (RDTs) and district health centers and district, zonal, and regional hospitals use malaria microscopy. According to MOH, 2013 saw 3,331,599 confirmed cases and 299,241 clinical cases. Of the confirmed cases, 40 percent were diagnosed using microscopy. The percentage of all malaria cases reported confirmed by either RDT or microscopy went up from 67 percent in 2011 to 83 percent in 2012.

Microscopy requires a functional laboratory and trained personnel. In 2009, MLDM-supported assessment of malaria diagnosis capacity in 69 health facilities in the Oromia Region found that although 51 (88 percent) did provide microscopy services, they had to deal with myriad challenges, such as shortages of trained personnel, functional laboratory equipment, and microscopes; limited availability of standard operating procedures (SOPs) and guidelines; and problems in ensuring a continuous supply of reagents and other essential materials. A similar assessment later found that of 122 health facilities only 8% met minimum requirements for reagents and equipment for malaria microscopy.

## THE MALARIA LABORATORY DIAGNOSIS AND MONITORING PROJECT

Through a U.S. Agency for International Development/Ethiopia (USAID/E), the Malaria Laboratory Diagnosis and Monitoring Project (MLDM), a \$10,280,000 cooperative agreement

(COAG) for October 1, 2008, to November 30, 2017, awarded to Columbia University's International Center for AIDS Care and Treatment Programs (ICAP),<sup>1</sup> has assisted the MOH in building the capacity of the National Malaria Prevention and Control Program (NMCP).

The explicit goal of MLDM is to strengthen the capacity of laboratories in Ethiopia to diagnose malaria by building the technical capacity of microscopists and clinicians through hands-on training, onsite mentorship, external quality assessment (EQA), and supportive supervision. In all supported sites, MLDM was also expected to provide the necessary equipment and supplies.

Achieving the MDLM goal was to be enhanced by reviewing, updating, and drafting laboratory policy guidelines and training materials; training clinical and laboratory health professionals on malaria/HIV diagnosis; supporting establishment of an EQA system; and conducting research, such as assessing the therapeutic efficacy of antimalarial drugs, to inform evidence-based decisions about malaria diagnosis and treatment.

By the end of the project, it is expected that MLDM technical support will have expanded to 1,022 beneficiaries, 1,004 of which would be health centers and hospitals. Of these, 688 were to be in malaria hot-spot districts in Oromia region and the other 316 in Amhara, SNNPR (Southern Nations, Nationalities, and People's Region), Tigray, and Dire Dawa states. It was expected that during the project, 900 of the 1,004 health facilities that would be provided with a full package of MLDM support (supplies, technical support on EQA, and supportive supervision) would be progressively "graduated" from MLDM support with responsibility for continuing the full pack of support transferred to regional laboratories. MLDM was also expected to provide technical assistance to the EPHI, 8 regional laboratories, and 10 health posts. This evaluation centers on its health facility and regional laboratory beneficiaries.

To enhance the long-term sustainability of quality malaria diagnostic services at supported sites, MLDM was also expected to help build the technical and managerial capacity of regional reference laboratories, the EPHI, and the MOH. It was also expected that MLDM would support USAID/E's Development Objective (DO) 2: *Increased utilization of quality health services through improving the quality of malaria diagnosis and building the trust of clinicians and patients* and USAID/E Intermediate Result (IR) 2.2: *Improved health systems management and integration at the national and community level, through capacitating the national and regional reference laboratories to integrate HIV, malaria and TB diagnosis quality assurance.*

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<sup>1</sup> The acronym *ICAP*, although referenced in the COAG, is no longer used; the correct term is ICAP-Columbia University.

## II. PURPOSE AND METHODS

### EVALUATION PURPOSE AND QUESTIONS

The evaluation's principal objective was to assess the impact of MLDM on the quality of malaria and HIV diagnosis at the project sites. Thus, the evaluation had three purposes and, within these three, 10 questions:

**Purpose 1:** To explore whether the activity's investments were associated with an improved quality of malaria and HIV diagnosis at project sites.

Question 1.1: To what extent is the quality of services maintained in facilities that have graduated?

Question 1.2: What are the main determinants of quality maintenance?

Question 1.3: What role does or could gender play in quality maintenance?

Question 1.4: In what ways are project activities integrated with programs related to other diseases, such as HIV?

Question 1.5: To what extent are the capacity and engagement of EPHI, regional reference laboratories, zones, and district health offices being strengthened to promote sustainability?

**Purpose 2:** To understand barriers to MLDM interventions achieving the intended results.

Question 2.1: For results that fell below anticipated targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why were the targets missed?

Question 2.2: What barriers were there to building the capacity of government agencies and institutions, such as EPHI, regional reference laboratories, zones, and district health offices?

Question 2.3: Was the program structure appropriate to meet the objectives of the cooperative agreement?

**Purpose 3:** To provide specific programmatic recommendations to the Mission and the Government of Ethiopia (GOE) for consideration in designing future programs to scale up and increase access to quality malaria diagnostic services integrated with other disease programs.

Question 3.1: In what ways could collaboration through integration be improved to leverage resources?

Question 3.2: How could the program structure be more cost-effective for potential scale-up?

### METHODS

On September 17, 2015, USAID/E approved the methodology for the MLDM midterm evaluation (Annex B). The principal components were:

#### Data Collection

A combination of quantitative and qualitative methods of primary data collection were applied in this midterm evaluation. Primary data were supplemented by secondary data from the MLDM

project and from relevant United States government and Ethiopian government documents (Annex D.)

### **Quantitative Data Collection**

Quantitative data were collected from both graduated and non-graduated health facilities and regional laboratories using separate questionnaires (Annex D1–D3) for health facility laboratories, health facility clinical settings, and regional laboratories. The questionnaires were field-tested and the findings incorporated before site visits began.

Oromia, Amhara, and SNNP regions, where about 85 percent of MLDM-assisted health facilities are located, were selected for the evaluation. Given logistical and time constraints, it was agreed with USAID-E to survey 5 hospitals, 32 health centers, and 3 regional laboratories. The 37 health facilities were allocated to the three regions in proportion to the number of project-assisted health facilities in each. Because the team had only 19 days for site visits, convenience sampling was applied to select the sites in each region. Finally, to address issues related to sustainability of the quality of services, 22 graduated (60 percent) and 15 full-package sites were selected.

Three field teams of two experts each administered the questionnaires and the field team leaders checked the completeness and quality of the data. To facilitate entry and analysis, notations on all hand-filled questionnaires were converted to electronic copies formatted in MS Word.

### **Qualitative Data Collection**

Key informant interviews (KIIs) were conducted with, among others, MOH representatives familiar with the project and staff of USAID/E-PMI, ICAP-Columbia, EPHI, the World Health Organization (WHO), regional laboratories, regional health bureaus, and the Malaria Consortium. All informants were selected based on familiarity with the National Malaria Program and involvement with and knowledge of MLDM.

KIIs used open-ended questions (Annex D4) to help the team understand to what extent the capacity and engagement of different government offices had been strengthened to promote the sustainability of malaria microscopy quality. Evaluator notes on informant responses were electronically recorded using MS Word. To respect informant anonymity, responses were then entered into an electronic master file for all responses with the identity of respondents effectively masked. The resultant master file is available on the compact disk that accompanies this report.

### **Review of Secondary Sources**

The team reviewed MLDM project and national documents to supplement primary data collected. Among documents reviewed were the MLDM contract and project management reports; technical, financial, and administrative reports; and the USAID-approved MLDM Monitoring and Evaluation Plan (M&EP), the USAID/CDC PMI-supported Malaria Operational Plan FY 2014, and USAID's vision for the future as documented in USAID/Ethiopia's *Laboratory Activity Harmonization Roadmap*. Also reviewed were GOE reports and narratives, especially the reviews of the Five-year National Malaria Prevention and Control Strategic Plans for the Control of Malaria in Ethiopia for both 2010–14 and 2015–20. Finally, the team reviewed published research that addressed progress in improving the quality of malaria diagnosis and treatment in Ethiopia and reports of progress in assessing the efficacy of drugs used to treat

malaria. Data from these sources were systematically triangulated with data collected through quantitative and qualitative methods.

### Data Analysis

**Quantitative data** drawn from the electronic version of 40 facility-based data collection instruments were entered into an Excel spreadsheet. As data were entered and cleaned, cross-tabulations for each of 222 quantitative questions were generated for issue-focused analyses and illustrative tables and figures.

**KII qualitative data** were summarized for each interview and compiled in a master file that was organized thematically based on the questions posed in the scope of work to inform the evaluation. An analysis of the thematic summaries was also used to expand upon and validate findings from the quantitative analysis. Table I summarizes the evaluation’s data collection, entry, and analytical process.

**Table I. MLDM Evaluation Data Collection, Data Entry, and Analytical Process**

Survey Focus	Lab Assessment	Clinician Practice	Regional Lab Assessment	Key Informant Interviews
Quantitative Process				
Number of quantitative questions	126	30	66	Not applicable
Number of possible responses to quantitative questions	2 to 8	2 to 8	2 to 8	Not applicable
Data entry method for tabulating responses to quantitative questions	Responses to each question entered into question-specific Excel spreadsheets	Responses to each question entered into question-specific Excel spreadsheets	Responses to each question entered into question-specific Excel spreadsheets	Not applicable
Analytical method for quantitative responses	Descriptive with Summary graphs and tables	Summary graphs and tables	Summary graphs and tables	Not applicable
Qualitative Process				
Number of qualitative questions	4	3	3	22
Data entry method for tabulating responses to qualitative questions	Summary in master	Summary in master	Summary in master	Summary in master
Analytical method for qualitative responses	Identification of common themes	Identification of common themes	Identification of common themes	Identification of common themes

## Ethical Considerations

Because this evaluation is concerned with program management, no approval was required from any ethical review body. However, MLDM obtained formal approval from the three regional health bureaus and the health facilities surveyed. No patient information or identifiers were retained after the evaluation. Also, before beginning any interview during site visits or KIs, oral consent was obtained from all respondents using a standardized form (Annex E). Finally, in respecting the consent form's assurance of confidentiality, all identifiers of respondents are excised from information in this report, its annexes, and the compact disk that accompanies this report.

## Limitations and Constraints

- Due to budgetary constraints, the limited number of analysts available necessarily dictated use of convenience sampling<sup>2</sup> in selecting a sample of the 793 facilities enrolled in the MLDM program as of September 2015.
- Similarly, logistical and time constraints necessarily restricted the evaluation team's ability to assess more than the 40 facilities in the convenience sample.
- Finally, as this evaluation is mainly concerned with implementation issues, the evaluation team's reliance on descriptive methods necessarily limits the evaluation's statistical rigor.

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<sup>2</sup> In applying convenience sampling, "the most common of all sampling techniques," the evaluation team makes no claim that the statistics apply to all MLDM client facilities. As agreed to by USAID/E, the team used convenience sampling to help in "documenting that a particular quality of a substance or phenomena [e.g. laboratory and clinical attainment of quality malaria microscopy services] occurs within a given sample" (<https://explorable.com/convenience-sampling>).

### III. FINDINGS

As noted in the previous chapter (Purpose and Methods), the midterm evaluation's central objective was *to evaluate MLDM activity on improving the quality of malaria and HIV diagnosis at the project sites*. As also noted, the evaluation's technical approach was to

1. Review documents for background information on the environment in which the MLDM has functioned and the extent to which it has met the conditions in the COAG.
2. Use standardized instruments to collect largely quantitative data on the quality of services at MLDM-supported laboratory and clinical settings in health centers, hospitals, and regional laboratories.
3. Use standardized KII instruments to collect qualitative data that, once summarized, would validate and expand upon the quantitative data collected.

In what follows, the report provides findings associated with the evaluation's three expressed purposes and the 10 associated questions:

**Purpose 1:** To explore the extent to which the activity's investments were associated with increased availability of quality malaria and HIV diagnosis at project sites

Question 1.1: To what extent is the quality of services maintained in facilities that have graduated?

Question 1.2: What are the main determinants of quality maintenance?

Question 1.3: What role does or could gender play in quality maintenance?

Question 1.4: In what ways are project activities integrated with programs related to other diseases, such as HIV?

Question 1.5: To what extent are the capacity and engagement of EPHI, regional reference laboratories, zones, and district health offices being strengthened within the health sector to promote sustainability?

**Purpose 2:** To understand barriers to MLDM interventions achieving the intended results.

Question 2.1: For results that fell below targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why were the targets missed?

Question 2.2: What barriers were there to building the capacity of government agencies and institutions, such as EPHI, regional reference laboratories, zones, and district health offices?

Question 2.3: Was the program structure appropriate to meet the objectives of the cooperative agreement?

**Purpose 3:** To provide specific recommendations to the Mission and the Government of Ethiopia (GOE) for consideration in designing future programs to scale up and increase access to quality malaria diagnostic services integrated with other disease programs.

Question 3.1: In what ways could collaboration through integration be improved to leverage resources?

Question 3.2: How could the program structure be more cost-effective for potential scale-up?

## PURPOSE I, PART I: QUANTITATIVE ANALYSIS

**Summary:** Only one of the 37 laboratories surveyed was not providing malaria microscopy-based diagnoses due to the technician’s self-reported heavy client workload and his decision to avoid the time associated with preparing and analyzing slides. The other 36 all prepared thick blood smears to aid in diagnoses, and 32 (94 percent) provided evidence that, at the time of the assessment both thick and thin smears were prepared as SOPs required; the other four facilities (11 percent) could not provide such evidence despite having been trained on the importance of doing both preparations.

Of the 37 laboratories surveyed (Table 2a), 36 (97%) used microscopes in diagnosing malaria; of these, 32 (89%) prepared thin and thick blood smears and 4 (11%) prepared only thick smears. Finally, of the 36 laboratories performing microscopy diagnoses (Table 2b), in the previous six months 8 (22%) had experienced significant interruptions in their ability to provide services for periods of an estimated 1 to 150 days because of shortages of general supplies, staining solutions, or staff and because of power supply interruptions. The evaluation team was able to identify the general presence of solar microscopy, provided by MLDM, as a principal reason why interruptions in power supply, common to all laboratories surveyed, did not have as great an impact as they might have on the ability to provide malaria microscopy diagnoses.

**Table 2a. Malaria Laboratory Microscopy Diagnostic Services in 37 Laboratories**

	Service Performed	Service not Performed
Performing microscopy diagnosis	36 (97%)	1 (3%)
Preparing blood smears (n=36)	36 (100%)	0%
Preparing both thick and thin blood smears (n=36)	32 (89%)	4 (11%)
Preparing only thick blood smears (n=36)	4 (11%)	Not applicable

**Table 2b. Reasons for Interruption in Diagnostic Services in 8 Laboratories**

Service Interrupted (n=36)	28 (78%)
General shortage in supplies (n=8)	6 (75%)
Shortages in staining solutions (n=8)	3 (38%)
Shortage of staff (n=8)	7 (88%)
Power supply interruptions (n=8)	7 (88%)

## Laboratory Functionality

**Summary:** Except for substandard maintenance of laboratory monitoring records, most of the 37 laboratories surveyed were observed to have met general functionality standards (Petti et al. 2006) for health centers providing microscopy-based malaria diagnoses.

Of the 26 facilities surveyed (70%) that had access to electricity (24-hour supply or access to a standby generator), 20 (77%) reported power interruptions sufficient to impact service delivery. While it would be desirable for all facilities to have 24-hour access to an uninterrupted power supply, given Ethiopia's infrastructure that is clearly not realistic. However, access to solar microscopy effectively mitigated the adverse effects of power outages. Although 34 (92%) had access to water for cleaning instruments and slides, 18 of those (53%) reported interruptions in their access to water for cleaning purposes. Of all 37 laboratories surveyed, 36 (97%) had well-ventilated work environments, 33 (89%) had access to natural lighting sufficient to support solar microscopy should there be power outages, and 33 (89%) had adequate manufacturer-mandated storage for supplies and reagents. Finally, 29 (78%) of the 37 laboratories were equipped with a chemical-resistant work bench and all had a malaria staining area.

### Laboratory Equipment and Consumables

All 37 of the laboratories surveyed had microscopes whose functional illumination capacity was verified by the evaluation team as effective at an x100 objective setting, and all were able to document adherence to manufacturers' microscope maintenance guidelines. Moreover, 15 (40%) had spare bulbs for the microscopes; 33 (89%) had functional timers; 21 (57%) had functional tally counters; 33 (89%) had staining racks; 35 (95%) had drying racks; 33 (89%) had graduated cylinders; 15 (40%) had wash bottles; 36 (97%) had slide boxes; and 30 (81%) had hematocrit centrifuges. A communication from MLDM senior management stated that all 272 facilities enrolled before FY13 had received "all essential lab equipment and consumables,"<sup>3</sup>

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<sup>3</sup> MLDM Senior Staff—Response to GH Pro preliminary evaluation report draft: October 27, 2015

Table 3. Functional Equipment in Laboratory Facilities Surveyed <sup>4</sup>		
Equipment	Facilities with Functional Equipment	Facilities without
Laboratory with functional microscope	37 (100%)	0 (0%)
Microscope with good illumination at x100 objective setting	37 (100%)	0 (0%)
Preventive maintenance for the microscope	37 (100%)	0 (0%)
Spare bulb for microscope	15 (40.5%)	22 (59.5%)
Timer	33 (89%)	4 (11%)
Tally counter	21 (57%)	16 (43%)
Staining rack	33 (89%)	4 (11%)
Drying rack	35 (95%)	2 (5%)
Graduated cylinders	33 (89%)	4 (11%)
Wash bottles	15 (40.5%)	22 (59.5%)
Slides box	36 (97%)	1 (3%)
Hematocrit centrifuge	30 (81%)	7 (19%)

With reference to how malaria staining solutions are kept, 34 laboratories (92%) kept the solution in brown bottles stored in a dark place; 10 (27%) had stocks of staining solutions beyond their expiration dates; and 100% were clearly labeled; 23 labs (62%) kept inventory records (bin cards) up-to-date.

Asked whether they had encountered shortages of supplies in the six months before the evaluation, 25 laboratory respondents (68%) reported shortages of at least one item, and some had more than one shortage: 6 (24%) reported shortages in malaria staining solutions; 5 (20%) shortages of slides; 3 (12%) shortages of alcohol and cotton for blood collection; 4 (16%) shortages of lancets; 7 (28%) shortages of methanol; 13 (52%) shortages of buffer salts; 2 (8%) shortages of immersion oil; and 6 (24%) shortages of lens paper.

### Biosafety

**Summary:** The evaluation observed on average 88% adherence to the five biosafety protocols in the 37 laboratories surveyed. The one lapse in adherence to protocol (separation of infectious and non-infectious waste) was reportedly due to staff misunderstanding of this requirement.

Protective gloves and coats were worn in 36 (97%) of the 37 laboratories, and there were hand-washing areas in 31 (84%). All 37 (100%) had containers for disposal of sharp materials and 28 (76%) had a biohazard bag for non-sharp materials (Table 4). Finally, 25 (68%) had separate waste disposal receptacles for infectious and noninfectious media. While all laboratory professionals were aware of the need for biohazard bags and separate waste disposal for

<sup>4</sup>Although all 37 facilities had microscopes that functioned, the laboratory technician at one facility reported that the microscope was not being used because of the heavy client workload and the time it took to prepare and examine slides. It seems good to describe what other mechanism this facility is using to diagnose malaria?

infectious and noninfectious media, they reported during regional supervisory visits that adherence was not strictly enforced.

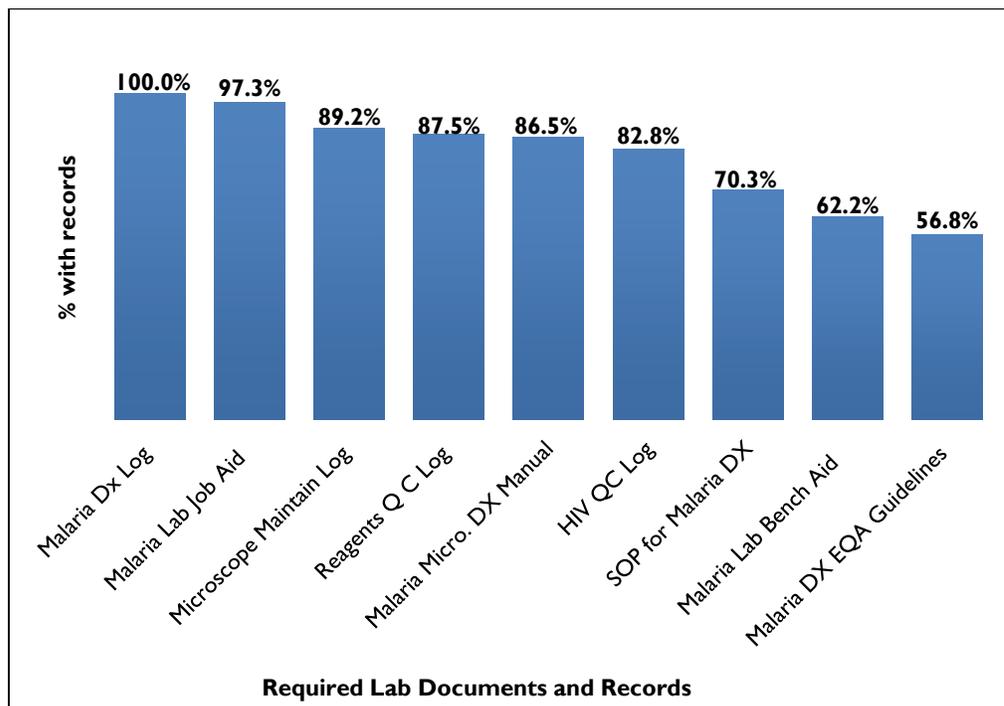
Table 4. Laboratory Safety Practice		
Safety Practice	Observed	Not available
Box/sharp container for sharp materials	37 (100%)	0 (0%)
Biohazard bag for non-sharp materials	28 (76%)	9 (24%)
Laboratory staff wear protective laboratory coats or gowns	36 (97%)	1 (3%)
Hand-washing facilities in the laboratory	36 (97%)	1 (3%)
Waste separated into infectious and noninfectious	25 (68%)	(32%)

### Guidelines, Records, and Bench Aids

**Summary:** More than 80% of the laboratories surveyed had ready access to six of nine malaria and HIV-related documents, guidelines, records, or job aids necessary for laboratories to fulfill their responsibilities. However, the lack of ready access to malaria diagnosis EQA guidelines in 16 (43%) of the 37 facilities is a concern in terms of their ability to maintain the quality of malaria microscopy.

All facilities surveyed kept up-to-date logs on their malaria microscopy diagnosis results (Figure 1). More than 80% kept up-to-date logs on microscope maintenance (89%), reagent quality control (87%), and HIV quality control (82%). Similarly, more than 80% had visible access to malaria job aids (97%) and to the government’s malaria microscopy diagnosis manual (86%). While the laboratories surveyed had access to most of the documents, records, and job aids essential to their ability to maintain laboratory quality, the fact that 30% lacked ready access to government SOPs for malaria diagnosis, 38% lacked posted laboratory bench aids, and, most critically, 44% lacked ready access to malaria diagnosis EQA guidelines should be of concern in terms of their ability to maintain the quality of malaria microscopy. In communications on the first draft of this report, senior MLDM management indicated that MLDM “has provided EQA guideline, Manual & Standard Operating Procedures to all supported HFs. However, EQA guidelines were not distributed to new HFs enrolled to the project in FY13 & FY14 in essence to provide them with the revised version which is [in the] hands of EPHI. Furthermore, when lab staffs transfer to another HF they take the guidelines with them.”

**Figure I. Observed Availability of Malaria Laboratory Diagnosis Documents and Records among 36 Surveyed Facilities**



### Internal Quality Control

An internal quality control process was confirmed by reported or observed practice of the preparation of smear slides from known positive and negative samples (to check for the quality of the reagent) in 28 (75%) of the 37 laboratories surveyed. However, despite the relatively high percentage of laboratories (86%) that reported they performed internal quality control of stain reagents from smear slides prepared, only 20 (54%) reported that the stained slides were rechecked by another person. While obviously a breach of standard protocol for internal quality control, the fact is that many of the laboratories have access only to a single laboratory professional.

### External Quality Assurance

**Summary:** Ideally, all of the facilities visited, whether graduated or full service, should have benefited from EQA. However, in the previous 12 months, only 11 (52%) of the 21 graduated facilities had had any EQA though 11 (69%) of the 16 full-service facilities had. Moreover, of the 11 graduated facilities provided with EQA support, only 2 (18%) had benefited from on-site evaluations while 6 (55%) of the 11 full-service facilities had similarly benefited from on-site evaluations.

**MLDM full-service facilities:** As of September 2015 (Table 5), 11 (69%) of the 16 surveyed laboratories that continued to receive full service support from the MLDM had participated in one or more of the three EQA schemes: 3 (27%) had participated in PT; 8 (73%) in blind rechecking of slides; and only 6 (55%) had on-site evaluations.

**MLDM graduated facilities:** As of September 2015 (Table 5), 11 (52%) of the 21 MLDM graduated facilities had participated in one or more EQA schemes: 4 (36%) in the PT scheme; 10 (91%) in blind rechecking of slides; and 2 (18%) had on-site evaluations by the regional bureau.

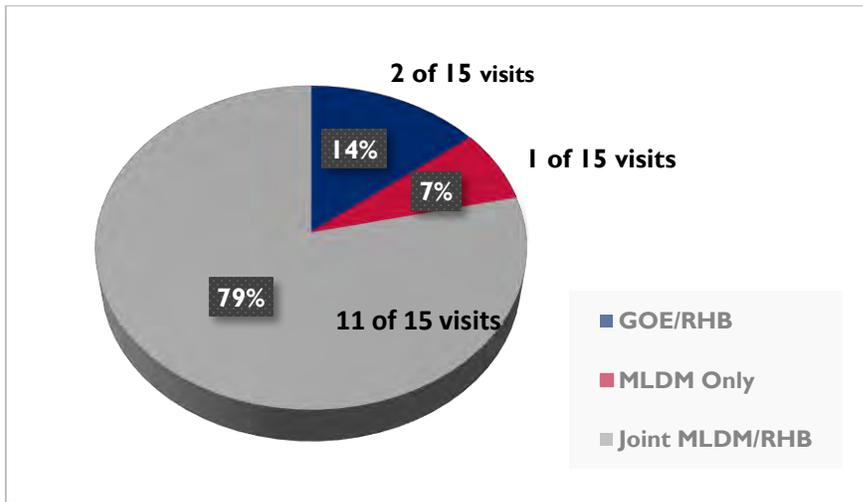
<b>Table 5. Participation of Facilities in the External Quality Assistance (EQA) Program</b>		
<b>MLDM Full Package Facilities (n=16)</b>	<b>Percent</b>	<b>Number</b>
Participation in an EQA process	69%	11
Proficiency testing	27%	3
Blind rechecking	73%	8
On-site evaluations	55%	6
<b>MLDM Graduated Facilities (n=21)</b>	<b>Percent</b>	<b>Number</b>
Participation in an EQA process	52%	11
Proficiency testing	36%	4
Blind rechecking	91%	10
On-site evaluations	18%	2

Based on self-reporting, all three regional laboratories understood the importance of providing EQA for client facilities. Yet in the 12 months before the evaluation, only 52% of graduated facilities had participated in any EQA scheme, compared with 69% of MLDM client facilities. Asked to comment on reasons why they had been unable to provide more EQA support, senior MLDM staff cited budget limitations, resultant limitations on the number of staff (both MLDM and regional) available to provide EQA support, and the workload associated with recruiting and assisting an increased number of facilities as primary reasons for the less-than-optimal EQA support. Informants from regional laboratories and the EPHI had similar explanations for the shortfall in EQA support for graduated client facilities.

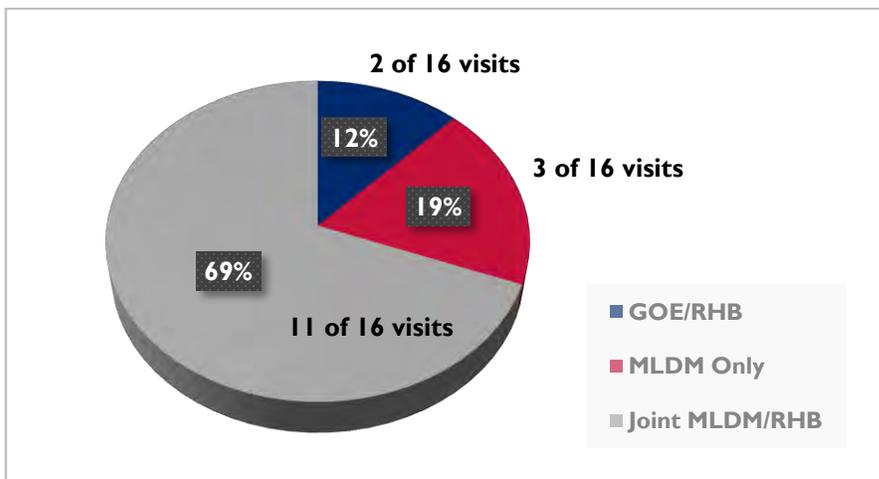
### **Laboratory Supportive Supervision**

**Summary:** Of the 16 MLDM full-service laboratories, 93% reported having received supportive supervision in the previous 12 months, as did 76% of the 21 graduated facilities. Among the reasons cited for the difference in supervision were shortages in personnel, responsibility for an ever-growing number of facilities, and limited budgets. Key informants from the regional bureaus, the MOH, and EPHI also noted that the terms of MLDM support for both logistics and provision of regional laboratory staff allowances during joint supervision visits may have contributed to the inability of regional laboratories to continue the level of supervision once MLDM withdrew support for graduated facilities.

**Figure 2a. Supportive Supervision Visits by Government, MLDM, or Jointly to 15 of 16 Full-Package Laboratories**



**Figure 2b. Supportive Supervision Visits by Government, MLDM, or Jointly to 16 of 21 Graduated Laboratories**



**Full-service laboratories:** Supportive supervision<sup>5</sup> was reportedly provided within the 12 months up to the evaluation to 15 (93%) of the 16 full-service laboratories surveyed. The 16<sup>th</sup> laboratory professional had recently transferred into the laboratory so could not state with any certainty that supervision had taken place. As illustrated in Figure 2a, 11 (79%) of the 15

<sup>5</sup> Evaluation questions on supportive supervision were intended to assess whether, during the previous 12 months, a laboratory technician was visited and by what entity (government, MLDM, or both) to support laboratory professionals in addressing their concerns. In other words, “supportive supervision is a facilitative approach that promotes mentorship, joint problem-solving, and communication between supervisors and supervisees.” (cf. Marshall 2014). The evaluation team’s collection of data in on-site evaluations related to visits to the laboratory as part of the region’s or MLDM’s more formal EQA program and whether at that time the technician had been apprised of and responded to issues affecting the quality of laboratory services; the distinction was discussed with all technicians.

supportive supervisions were carried out jointly by MLDM and the regional bureaus, one (7%) solely by the MLDM, and two (14%) solely by the GOE/RHB. Based on self-reporting, most supportive supervision visits were either integrated for malaria and HIV or were for malaria only.

**Graduated laboratories:** Supportive supervision was reportedly provided within the 12 months before the evaluation to 16 (76%) of the 21 graduated laboratories surveyed (Figure 2b): for 11 (69%) supportive supervision was carried out jointly by MLDM and the regional bureaus, for 2 (12%) solely by the GOE/RHB, and for 3 (19%) solely by the MLDM.

The fact that only 16 of the 21 graduated facilities had benefited from supportive supervision during this period indicates that supervision could be a problem for sustaining quality after the project ends. KIIIs confirmed a general understanding within the government that regional laboratories were to supervise facilities that graduated from the MLDM support program but cited logistical and personnel shortages, responsibility for an ever-growing number of facilities, and limited budgets are making it difficult for regional laboratories to respond to the need for regular supervision of all their client facilities.

### Staffing in MLDM-supported Health Centers and Hospitals

Together the health facilities surveyed employed 905 professionals to provide clinical services (Table 6). The fact that 402 of them were providing malaria diagnosis and treatment suggests the demand.

**Table 6. Clinical Workforce in Surveyed Health Facilities (n=36)**

Profession	Total		Health Center Employees		Hospital Employees	
	Number	%	Number	%	Number	%
Medical specialists	48	5	0	0	48	100
General practitioners	64	7	2	3	62	97
Health officers	116	13	106	91	10	9
Nurses	677	75	301	44	376	56
<b>Total</b>	<b>905</b>	<b>100</b>	<b>409</b>		<b>496</b>	

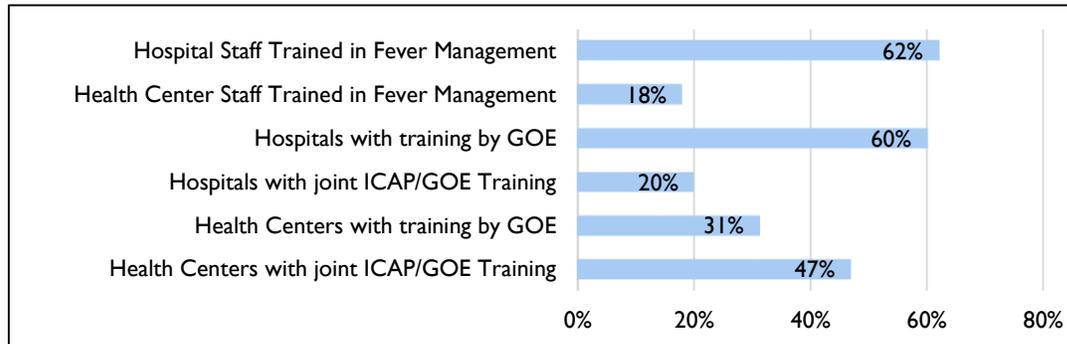
### Clinical Training in Fever Management

**Summary:** Of those providing malaria diagnosis and treatment, 62% of hospital and 18% of health center staff had been trained in fever management. One hospital (20%) and 47% of health centers reported that staff had been trained in fever management during a joint MLDM/GOE training course.

**Hospitals:** Of 496 staff (Table 6) working in four of the five hospitals for which staff data were available, 129 (26%) were involved in malaria diagnosis and treatment; Of these (Figure 3), 80 (62%) had been trained in fever management. Of the 5 hospitals, 3 (60%) had had GOE training and 1 (20%) joint MLDM/GOE training.

**Health Centers:** Of the 409 health center staff (Table 6), 273(67%) were providing malaria diagnoses, and 49 (18%) of these had been trained in fever management. Of the 32 health facilities, 10 (31%) had received training by the government alone and 15 (47%) during joint ICAP/GOE training.

**Figure 3. Training in Fever Management for Clinicians**



### Clinical Practice

**Summary:** All clinicians reported using fever as the main criterion for ordering malaria testing. When laboratory tests yield negative results, 24% reported they would continue to treat malaria with ACT or chloroquine. Although the practice is obviously far from eliminated, this is a marked improvement in practice from the 2009 baseline, when 75% of clinicians so reported. However, NMCP guidelines (MOH 2012) require that at health centers and above all laboratory-confirmed cases be treated in accordance with established protocols rather than empirically. Accordingly, as recommended below, MLDM should distribute clear clinical algorithms to reinforce the importance of adhering to national treatment guidelines.

All clinicians interviewed reported using fever as the main criterion for ordering malaria testing, up from 89% in 2009. Fourteen (38%) used epidemiologic history (residence and travel to malaria area) as an additional criterion, a decided improvement over the 6% baseline findings. Five (14%) also used patient age as an additional criterion, with comments indicating that a child with fever is more likely to be tested than an adult. No clinician considered ability of the patient to pay for the test; some commented that a patient is sent for laboratory diagnosis when it is indicated, regardless of financial status; in 2009 ability to pay was a criterion in 9% of the cases.

Clinicians interviewed (Table 7) reported that 18% of febrile patients with negative blood film were treated with ACT and 8% with chloroquine, again a marked improvement from 2009 when 60% were treated with ACT and 25% with chloroquine. When the test was negative, 39% of the clinicians indicated that their practice is to investigate the patient for other acute febrile illnesses—up from 19% of the patients in 2009 and another indication of improved treatment—and 59% said they would repeat the test if the first test was negative. However, only 35% stated that they would discuss results with the laboratory technician compared with the 2009 baseline in which 52% would do so. There seems to be significant room for improvement in the working relationship between clinician and laboratory technician.

Although 5 (14%) of the health facilities surveyed did not have laboratory request forms readily available at the time of the evaluation, this is a decided improvement from the baseline, where 45% had no forms. The forms called for patient identifiers (name, age, sex, clinic number and clinician's name) but none called for the clinician to enter a diagnosis; as a best practice to support the objectivity of microscopy examinations, all clinicians indicated that they do not write clinical impressions on the form.

**Table 7. Clinical Practice Indicators**

Condition	Action	Baseline 2009 (%) n=58	Midterm (%) n=37
Criterion for malaria testing	Use fever as the main criterion to do malaria testing	51 (89%)	37 (100%)
	Use epidemiologic history	2 (3%)	14 (38%)
	Use ability to pay for the test	5 (9%)	0 (0%)
Negative malaria test	Empirically treated with ACT	35 (60%)	5 (16%)
	Empirically treated with chloroquine	14 (25%)	3 (8%)
	Investigate for other conditions	11 (19%)	14 (39%)
	Discuss with laboratory staff	30 (52%)	35 (13%)
Laboratory request form	Available in the health facility	31 (55%)	31 (86%)
	Filled for every patient when test is requested	19 (34%)	31 (86%)

### Clinical Guideline and Manuals, Equipment, and Supervisory Visits

**Summary:** On average, 70% of the required malaria-related guidelines were not available, reportedly because departing clinicians took the guidelines to their new assignments. On average, 55% of equipment essential to clinical practice was available, but 70% of clinicians reported they had had no supervisory visit in the previous six months.

Malaria treatment guidelines were available in 12 (32%) of the surveyed facilities (Table 8); in 2009 the finding had been 31%. In discussing this lapse in SOP, it was reported that when clinicians are assigned to another post, they take the guidelines and job aids with them. There is little that can be done to eliminate this practice other than the MOH issuing a directive that all such documents are the property of the health facility not the resident clinicians.

**Table 8. Availability of Essential Guidelines and Job Aids**

Material	Available and Observed	Not available
Malaria treatment national guidelines	12 (32%)	25 (68%)
Job aid: Approaches to diagnosis of acute fever	6 (16%)	31 (84%)
Flow chart of diagnosis and treatment of malaria	10 (27%)	27 (73%)
Treatment schedule for artemether-lumefantrine, chloroquine, artesunate, and quinine	16 (43%)	21 (57%)

## Clinical Equipment

The evaluation team confirmed the availability of essential equipment for diagnosis and treatment of malaria at every health facility through observations rather than self-reports (Table 9). Only half the facilities had thermometers and only 16% had otoscopes. Just 5 (14%) of the clinicians were provided with flashlights to use in examinations during power outages. Pressed on what happened when back-up lighting was not available, all clinicians showed remarkable ingenuity, often using lighting from their mobile phones. Adult weighing scales were observed in only 21 (57%) of the outpatient services surveyed and in other instances other standard clinical equipment was lacking, but in no instance did it appear that the respondent was unaware of the importance of such equipment. The standard, realistic, explanation was too small a budget.

**Table 9. Availability of Essential Clinical Equipment**

Equipment	Available and Observed	Not Working/not Available
Otoscope	6 (16%)	31 (84%)
Stethoscope	33 (89%)	4 (11%)
BP apparatus	30 (81%)	7 (19%)
Thermometers	19 (51%)	18 (49%)
Torch/flashlight	5 (14%)	32 (86%)
Weighing scale (adult)	21 (57%)	16 (43%)
Weighing scale (pediatric)	30 (81%)	7 (19%)

**Table 10. Supportive Supervision and Feedback**

Supportive Supervision Indicator	Yes	No
Did you receive external supportive supervision visits for malaria case management in the last 6 months? (n=37)	11 (30%)	26 (70%)
Was written feedback received from supervision? (n=11)	7 (64%)	4 (36%)
Was the feedback useful? (n=7)	7 (100%)	0 (0%)
Did the supervision include HIV diagnosis and treatment? (n=11)	9 (82%)	2 (18%)
Did the supervision include TB diagnosis and treatment? (n=11)	7 (64%)	4 (36%)

Clinicians in 11 facilities surveyed (30%) reported that external supportive supervisory visits in the last six months included a review of malaria diagnosis and management (Table 10); just 7 (64%) reported receiving written feedback.

## ASSESSMENT OF THE QUALITY OF SUPPORT FOR MLDM-SUPPORTED REGIONAL LABORATORIES

### Regional Laboratories: Operational Environment

**Summary:** The three regional laboratories visited provide technical support for the laboratories of 2,332 health centers and hospitals. Within the three, 91 staff were reported to be working in a professional capacity (a ratio of 1 professional staff member for 25 client facilities). All three, as well as informants from regional bureaus and the EPHI, cited a shortage of trained personnel as limiting the ability of regional laboratories to provide sustained oversight of client facilities. Managerial staff in the three regional bureaus called for creation of regional quality assurance officers dedicated solely to sustaining the quality of malaria microscopy.

The evaluation covered the regional laboratories in Oromia (Adama Regional Laboratory), Amhara (Bahir Dar Regional Laboratory), and SNNPR (Hawassa Regional Laboratory). The three provide technical support for 2,332 laboratories in health centers and hospitals, but together have only 91 staff available to provide support (a ratio of 1 staff member for 25 facilities). KIs of representatives of all three laboratories, regional bureaus, and the EPHI all cited a shortage of trained personnel as making it difficult for regional laboratories to sustainably oversee client facilities. Also, acknowledging the significant workload associated with training, supervision, and mentoring for client facilities, informants from all three regional laboratories called for creation of regional laboratory quality assurance officers dedicated solely to ensuring the quality of malaria microscopy not only for the projected 900 MLDM program graduates but also for facilities that had not benefited from MLDM support. In sum, although thorough analysis of regional laboratory human resource requirements was beyond the scope of this evaluation, it appears that a needs-based analysis of such requirements and an action plan to respond to the findings would be appropriate next steps to identify and address Ethiopia's HR challenges in this area.

On average, each regional laboratory employed 6 females for every 25 males. In the three together, 17 (19%) of the laboratory professionals were female and 74 (81%) were male. Their qualifications varied considerably: 34 (37%) of the 91 staff total had master's degrees in medical laboratory science, 30 (33%) bachelor's degrees in medical laboratory science, 5 (6%) diplomas, and 22 (24%) certificates commensurate with their responsibilities. Based on an MLDM project progress report, in the eight MLDM client regional reference laboratories, the project has trained 187 professionals (76% of the EOP target) in training of trainers (TOT) in malaria microscopy; 24 (40% of the target) were trained to lead malaria microscopy accreditation courses (MMAC); and 2,437 (126% of the EOP target) were trained in malaria/HIV laboratory diagnosis and quality assurance. However, given staff turnover, it was not possible to determine how many current staff had been trained by MLDM. Also, while MLDM documents indicate that all three regional laboratories were equipped with standard microscopes, with staff trained in blind rechecking, supportive supervision, and mentoring, only one of the three had an annual training plan to maintain the quality of malaria microscopy in client facilities.

## Regional Laboratories: Status of Equipment, Reagents, and Supplies

**Summary:** While the three regional laboratories evaluated generally reported having sufficient supplies to respond to the needs of client facilities, all had experienced periodic, though not service-disruptive, shortages in slides. Moreover, all three reported concerns about being able to equip client hospitals and health centers with functional microscopes. As MLDM moves to transfer oversight responsibility to regional laboratories, their ability to ensure the continued operability of functional microscopes is a major problem for long-term sustainability.

Regional laboratory respondents reported that 2,012 (86%) of client health facilities had the capacity (defined as having functional microscopes) to provide malaria microscopy diagnostic services. However, it was reported (Figure 4) that, in the six months before the evaluation, clients of all three laboratories had experienced shortages of slides; two reported client shortages of buffer salts, alcohol and cotton for blood collection, and lens cleaner solution; and one reported client shortages in lancets, methanol, immersion oil, lens paper, or malaria staining solution. Here, again, this is not an evaluation of MLDM performance but of the current quality environment. One senior MLDM manager asked that it be noted that “MLDM provides one-time lab supplies that the health facilities may use for one year or so. ICAP MLDM [does not have a] sufficient budget to provide supplies continuously.”<sup>6</sup>

**Figure 4. Regional Laboratories Reporting Supply Shortages for Malaria Diagnosis among Client Hospital and Health Center Laboratories during the Last 6 Months**

Description of supplies	Number and percent of regional laboratories reporting supply shortages in client health centers and hospitals		
	Only 1	2 out of 3	All 3
Slides			100%
Buffer salts or buffer tablets		67%	
Alcohol & cotton for blood collection		67%	
Lens cleaner solution		67%	
Lancets	33%		
Methanol	33%		
Immersion oil	33%		
Lens paper	33%		
Malaria staining solution	33%		

<sup>6</sup> Communication received from MLDM Senior Staff – October 27, 2015.

All regional laboratory respondents indicated that their facilities found it difficult to maintain client equipment, reportedly even the microscopes used for diagnoses. All three laboratories identified shortages in trained personnel, maintenance instruments, and spare parts as major challenges (Table 5). Two laboratories identified a budget shortfall and one identified lack of an equipment maintenance workshop as additional maintenance challenges. Again, this is an assessment not of MLDM’s performance but of the current environment in which the laboratories operate. A senior MLDM manager requested that it be noted that “all laboratory equipment maintenance, including microscopes, is the mandate of EPHI and it is not permitted to contract out maintenance services to any firm. However, the project provided brand-new microscopes to all project sites and as part of the quality assurance activity the technical staff train and regularly mentor facility lab staff on care and handling of microscopes and preventive maintenance.”<sup>7</sup> As reported earlier, all but one of the facilities surveyed had access to a functional microscope, supplied in 33 facilities (90%) either by ICAP/MLDM or by ICAP/CDC. In the other three facilities, respondents were uncertain about the source of the microscope. In discussing the issue of availability and maintenance of basic equipment with national and regional respondents, there was general recognition that continued procurement and maintenance of essential laboratory equipment and supplies were beyond current GOE financial resources.

<b>Figure 5. Challenges to Regional Laboratories in Providing Equipment Maintenance Support to Client Health Facilities</b>			
<b>Challenges</b>	<b>Only 1</b>	<b>2 out of 3</b>	<b>All 3</b>
<b>Shortage of trained personnel</b>			<b>100%</b>
<b>Shortage of spare parts</b>			<b>100%</b>
<b>Lack of maintenance instruments</b>			<b>100%</b>
<b>Shortage of budget</b>		<b>67%</b>	
<b>Absence of equipment maintenance workshop</b>	<b>33%</b>		

<sup>7</sup> Communication received from MLDM Senior Staff – October 27, 2015.

## Regional Laboratories: Quality Improvement Activities

Only one of the three regional laboratories had a defined improvement plan for either malaria or HIV diagnosis, whether or not client facilities had or had not graduated from MLDM's technical assistance program. Even within that region, recommended action was taken only in the case of the malaria improvement plan.

## Regional Laboratories: External Quality Assurance (EQA)

**Summary:** Although the three regions reported an average of three focused EQA initiatives a year for all client facilities, this reported regularity is at decided variance with the records the evaluation team reviewed during visits to the 37 client health facilities. Rather, EQA assistance is provided once a year. This finding, supported by informants from EPHI and regional health bureaus, would be consistent with the reality that regional responsibility for over 2,000 client facilities, coupled with budget and personnel shortages, would necessarily limit ability to provide more sustained EQA.

All three regional laboratories reported having an EQA program encompassing all three standard methodologies (PT, blind rechecking of slides, and on-site evaluations) to build up malaria diagnosis in client health facilities. On average, respondents from all three regional laboratories reported carrying out PTs and onsite evaluations three times a year and blind rechecking four times a year. The reported number of days for providing findings to client facilities averaged 10 days for PT and 24 days for blind rechecking. The frequencies of regional laboratory application of EQA methodologies and feedback on them was self-reported and could not be confirmed, and both were at decided variance with reports from the hospitals and health centers surveyed. Records from the 37 facilities evaluated, all of which were affiliated with one of the regional laboratories assessed, indicate that regional EQA occurred on average perhaps once a year; reports from health facility respondents also indicate that feedback took significantly longer (records suggest at best 60 days) than the estimates of regional laboratory respondents. MLDM requested that it be noted that "ICAP/PMI/MLDM has been supporting regional laboratories to implement EQA three times a year. The delay in providing feedback may vary. It is true that ICAP/MLDM do not visit the graduated facilities on a regular basis after they graduate."<sup>8</sup> In our examination of MLDM quarterly reports, summaries on progress toward contractual targets,<sup>9</sup> and communications on implementation issues,<sup>10</sup> the evaluation team concluded, as discussed later, that MLDM has met its contractual responsibilities for EQA oversight for those facilities that had not yet graduated, but according to informants, its ability to provide sustained, effective, and more intensive EQA oversight could have been enhanced had the project been structured from the outset as a region-centric project with a small policy and management-oriented core central staff.

Asked to identify factors that might impact their ability to provide quality-assured malaria laboratory diagnosis services for client facilities, all three regional laboratories cited lack of personnel, shortage of supplies, and poor quality of reagents as problems; two also identified a

<sup>8</sup> Communication received from MLDM Senior Staff – October 27, 2015.

<sup>9</sup> *IBID.*

<sup>10</sup> *IBID.*

budget shortage, and one cited poor microscope quality as limiting the ability to assure the quality of malaria laboratory services.

### **Regional Laboratories: Supportive Supervision**

**Summary:** Records from two of the three laboratories assessed indicate that supervision to support laboratory professionals at client facilities is provided at least once a year and that, during the visits, the performance of microscopists is observed directly. Although regional laboratory respondents reported that integration of malaria, HIV, and TB work is technically feasible, visits to laboratories are not systematically integrated due to scheduling conflicts, budget availability, poor coordination of programs, and the single-program orientations of technical assistance partners. However, based on its records and on communications during the evaluation, it appears that MLDM has exceeded its EOP targets for integrating malaria with HIV.

While all three regional laboratories reported having an annual plan for supervision, only two indicated that the plans had been implemented. Of those, the records showed that one provides supportive supervision to client facilities twice a year and the other does so once a year; both reported that their supportive supervision visits universally applied protocols that include direct observance of the performance of microscopists. One also reported that written feedback was always provided to client laboratories, the other that written feedback is sometimes provided. Asked about integration of supervisory visits for malaria, HIV, and TB, the respondent from one of the two laboratories with a written record of supervision said that such visits were sometimes integrated and the other said they were never integrated.

### **PURPOSE I, PART II: RESPONSE TO FIVE EVALUATIVE QUESTIONS**

**Summary for Questions 1.1 and 1.2:** On average the quality of malaria services was equal to 70% across all 11 indicators for the 21 graduated facilities. At least 80% of those facilities had maintained quality for the indicators measuring availability of basic equipment, procedures for laboratory safety and waste disposal, storage of staining solutions, and standards for laboratory set-up (which covers such items as proper ventilation, availability of natural lighting, and access to water and electricity). But only 51% of the 21 graduated facilities had an operational quality plan, only 50% had had supportive supervision in the previous 12 months, and only 41% reported participating in malaria EQA schemes. Since MOH guidelines call for HIV services to be maintained by the clinicians responsible for administering RDTs with HIV counselling and testing (HCT), this aspect of the question was beyond the scope of this evaluation.

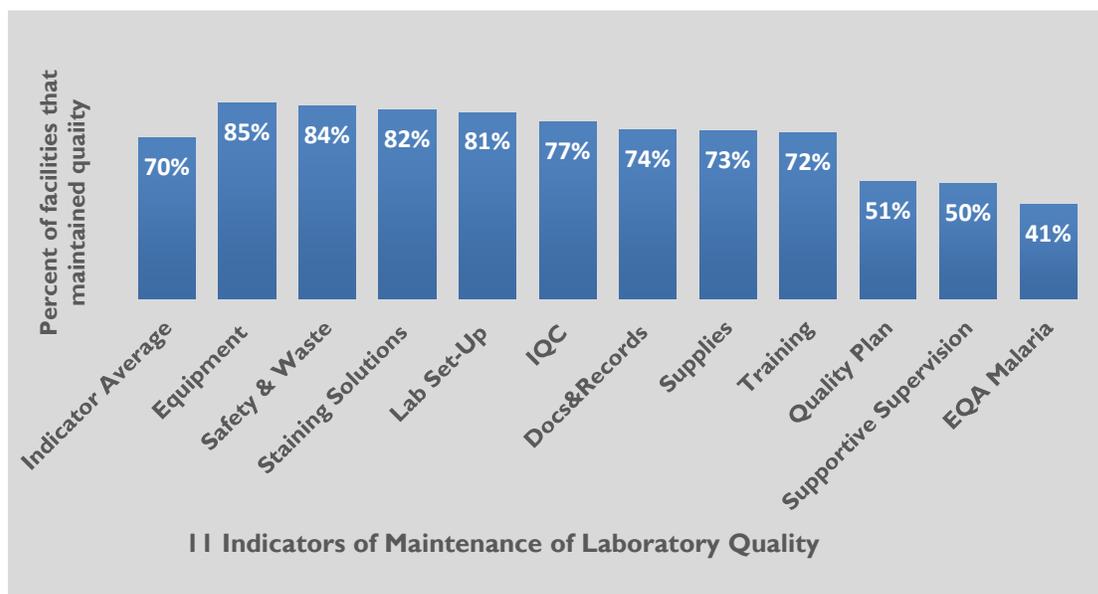
#### ***Question 1.1: To what extent is the quality of services maintained in facilities that have graduated?***

Between 2009 and 2015, the MLDM project enrolled 793 facilities (766 health centers and hospitals, 10 health posts, 9 regional laboratories, and 8 sites affiliated with the Addis Continental Institute of Public Health [ACIPH]), and has by now graduated 203 (26%) of the 766

health facility beneficiaries of full-package support and transferred to regional health bureaus responsibility for continued support and maintenance of quality.

The evaluation team applied a standardized survey instrument (Annex D) in evaluating the 21 graduated facilities that received site visits and collected and analyzed documentation on 11 indicators of quality maintenance (Figure 6).<sup>11</sup> On average graduated facility maintenance of malaria services was equal to 70% across all 11 indicators, which was 10 percentage points below the 80% average that was an MLDM criterion for graduation. From a positive perspective, more than 80 percent of surveyed facilities had maintained quality in terms of indicators measuring the availability of basic equipment, procedures for laboratory safety and waste disposal, storage of staining solutions, and standards for laboratory set-up, such as proper ventilation, availability of natural lighting, and access to water and electricity.

**Figure 6. Quality Maintenance Following Graduation**



While the positive findings are evidence that graduated facilities have been directing attention to maintaining the quality of their malaria services, the low averages for maintenance of EQA, which is a cornerstone of MLDM's approach to maintaining quality, the limited amount of supportive supervision, and the absence of an operational QA plan all raise concerns about how committed and capable the regions are to maintaining the level of malaria services achieved with ICAP/MLDM's technical assistance.

Although the evaluation SOW refers to graduated laboratories' maintenance of the quality of HIV services, because MOH guidelines (2007) assign responsibility for HIV testing to the clinicians who administer RDTs within their HIV HCT units, not the facility's laboratory, this aspect of the question was beyond the scope of this evaluation.

<sup>11</sup> Except for the indicators the evaluation used to assess the availability of personnel trained during the previous 12 months and the supportive supervision provided to the laboratories, all indicator categories were those MLDM used to certify that a client laboratory had attained the 80% quality required to graduate to regional oversight.

**Question 1.2: What are the main determinants of quality maintenance?**

Within the 11 indicators, there were multiple questions (see Annex D) related to what determines whether graduated laboratories maintain the quality of malaria diagnosis. Except for the availability of trained personnel and the provision of supportive supervision, these were the same indicators MLDM used in certifying that a facility was qualified for graduation.

**Question 1.3: What role does or could gender play in quality maintenance?**

**Summary:** There was no evidence to suggest that the 78 trained women providing malaria microscopy services at the 37 facilities surveyed were any less or more effective in maintaining quality than the 99 trained men. However, the evaluation’s literature review and discussions with informants indicated that, given the concern of regional laboratories about attrition rates, the availability of the professionally-trained microscopists necessary to maintain a laboratory’s quality could be enhanced through a focused effort to train more women.

The evaluation team acknowledges that “employing diverse people gives us access to a range of perspectives to make the best decisions.”<sup>12</sup> In on-site observations and discussions with informants, the team could find no reason to conclusively determine that gender plays or could play a role in quality maintenance, and saw no evidence that the 78 trained female professionals providing microscopy services at the 37 facilities surveyed were any less or more effective in maintaining quality than their 99 male counterparts.

However, a study of workforce deployment in Ethiopia that the team reviewed stated that “attrition rate for [trained] males was two times higher as compared to [trained] females.” (Hailemichael et al. 2010). This gives credence to the opinion of respondents from WHO and UNICEF that, for reasons primarily associated with their lack of socioeconomic mobility, trained women tend to stay at their assigned posts rather than seek transfers to other posts. The logical conclusion of this line of reasoning is that, in responding to the obvious concern about attrition rates, a focused effort to train women would heighten the availability of professionally-trained microscopists necessary to maintain a laboratory’s quality.

**Question 1.4: In what ways are project activities integrated with programs related to other diseases, such as HIV?**

**Summary:** Of 36 facilities surveyed, 72% reported that training on malaria laboratory diagnosis was integrated with training on HIV diagnosis. While testing for malaria was not integrated, as per national guidelines the quality of HIV RDTs was randomly verified by 29 laboratories (78%), and 78% similarly reported that malaria-supportive supervision is integrated with HIV supervision.

**Integrated training:** The project’s integration of malaria and HIV services is best exemplified by MLDM’s approach to training: 26 (72%) of respondents for the 36 facilities reported that training in malaria diagnosis was integrated with training in HIV diagnosis using RDTs.

<sup>12</sup> [http://www.riotinto.com/documents/ReportsPublications/Rio\\_Tinto\\_gender\\_guide.pdf](http://www.riotinto.com/documents/ReportsPublications/Rio_Tinto_gender_guide.pdf).

**Integrated laboratory services:** As national HIV program guidelines and policy require that HIV testing be done at the point of care, it was never intended that the MLDM would work to integrate *testing* for malaria and HIV at the facility level. Nevertheless, as laboratories are expected to verify the quality of HIV RDT, 29 (78%) of surveyed facilities reported that the quality of HIV RDTs was randomly verified.

“Integrated malaria/HIV training has increased lab techs’ and clinicians’ awareness of the linkage between malaria and HIV.”

EPHI

**Integrated supervision:** Integrated malaria-supportive and HIV supervision was reported by 29 (78%) of surveyed facilities, and 4 of the 29 (14%) reported that malaria-supportive supervision was integrated with TB and other disease programs as well as HIV.

**Question 1.5: To what extent are the capacity and engagement of EPHI, regional reference laboratories, zones, and district health offices being strengthened to promote sustainability?**

Here it should be acknowledged that “policy-makers and practitioners in global health do not agree upon what is meant by sustainable (Maes 2010) and in examining MLDM project management documents, the evaluation team found no mention of sustainability except in the inference that MLDM facilities, once graduated and transferred to regional oversight responsibility, are by definition sustainable. Therefore, to formulate a response to Question 1.5, the team first turned to its 22 KII respondents to help define the concept. While their definitions of sustainability differed in degrees of specificity and detail, a list of common themes would include the elements in Box 1.

**Box 1. Definition of Sustainability**

- There should be a government commitment and evidence that the government supports project activities after a project ends;
- Initiatives introduced as part of the investment should have a high probability of being able to continue with the same level of quality and impact; and
- There should be effective transfer of knowledge and practice.

**Strengthening National Capacity**

**Summary: Capacity Strengthening at the National Level**

MLDM’s technical assistance in revising national malaria guidelines; establishing the nation’s first malaria slide bank; design, conduct, and analysis of malaria-related operations research; and training of EPHI-based trainers and university and health science instructors all offer solid evidence of the sustainability of an enhanced Ethiopian malaria control program.

Based on the common themes identified for sustainability, the review of project-related documentation, field observations, and discussions with key informants, the team identified the following evidence of GOE capacity and engagement, or lack thereof.

## I. National Malaria Control Program/ Ethiopian Public Health Institute (NMCP/EPHI)

- The GOE has accepted malaria laboratory diagnosis and treatment policy guidelines, manuals, standard training materials, registers, SOPs, and job aids drafted by MLDM in collaboration with EPHI, and they are widely distributed to standardize operations in health facilities throughout the country.
 

“ICAP is the lead technical source for guideline revisions.” EPHI
- QA guidelines for malaria laboratory practice drafted by MLDM in collaboration with the EPHI have been incorporated into the NMCP’s National Strategic Plan for 2014–20.
 

“ICAP’s technical assistance was timely and they always delivered what they were supposed to deliver.” EPHI
- MLDM technical and material assistance in establishing Ethiopia’s first malaria slide bank as a source for EQA proficiency training within the EPHI represents a source for WHO standard training and external competency training of malaria microscopists.
- MLDM capacity-building and skills transfer in the design, conduct, and analysis of operations research has enhanced GOE capacity to address issues critical to the diagnosis and treatment of malaria. Among such issues are the efficacy of artemether-lumefantrine and chloroquine against plasmodium vivax; laboratory capacity for malaria diagnosis; and the burden of malaria among clients enrolled in HIV care and treatment.
- TOT on malaria laboratory diagnosis and QA for EPHI laboratory personnel has helped ensure a sustainable national pool of trained personnel.
- Malaria microscopy and quality assurance TOT for 32 universities and 40 health science instructors has been directed to building a sustainable pool of qualified pre-service instructors whose expertise would reportedly reduce the need for in-service training.

## 2. Regional, Zonal, and District Achievements

**Summary: Strengthening Regional and Zonal Capacity**

MLDM’s facilitative approach to regional laboratory and clinical training and supervision; its management training for regional, zonal, and district office managers; its assistance in joint planning and review workshops; and the progressive graduation of its client facilities to full regional support has laid the foundation for sustaining the region-based malaria control program.

- Through its training courses for health center and hospital laboratory microscopists and clinicians, MLDM has served as a facilitator, allowing regional laboratories, after TOT, to take the lead in actual training.

- MLDM provided training to regional health bureau, zonal, and district health office managers in program management.
- With MLDM facilitation, technical assistance, and logistical assistance, regional health bureaus provided training in fever case management to zonal health department staff in all zones of Oromia, 6 zones in Amhara, and 9 zones in SNNPR. The objective was to enhance their knowledge of malaria laboratory diagnosis and quality assurance.
- MLDM technical and logistical assistance facilitated joint planning and review workshops for regional laboratories and zonal and district managers. The workshops dealt with building human resource capacity and expanding QA beyond MLDM-supported facilities.
- With the graduation of MLDM-supported health centers and hospitals, responsibility for maintaining the EQA program was transferred to the regions.

“Partnership with the regions has been a true success story.” Regional Bureau

### Challenges to Sustainability

#### **Summary: Challenges to Sustainability**

The main challenges to the long-term sustainability of MLDM’s initiatives are how well regional laboratories can maintain support for MLDM graduated facilities; the project’s limited investment in health systems development; and lack of consideration in the project design of the need to address the human resources for health.

Although the MLDM made positive progress toward building capacity sustainably, the evaluation identified a number of significant challenges to the long-term sustainability of MLDM:

- The transition from full-service to graduated status of hospitals and health facilities was too abrupt to allow regions to commit support for long-term maintenance of the quality of malaria microscopy. While informants would generally agree with MLDM senior management that “PMI/MLDM doesn’t have the luxury of resources to include 100s of new sites while continuing to support already graduated facilities,”<sup>13</sup> they realistically acknowledged that regional laboratories could also not be expected to maintain the same level as MLDM support for 1,022 facilities when they had to support over 2,000 facilities.
- There was limited investment in health systems development: As one regional informant noted (and national informants echoed): “If you do not develop basic management systems, the investment is only with the project, and progress achieved will be temporary.” Although health systems development was not integrated into MLDM project design or its contractual obligations, informant comments on systems development centered more on such issues as human resource development, supplies and logistics, financial and budgetary management, data decision making, and communications. The lack of project design attention to basic systems requirements suggests that the sustainability of MLDM’s remarkable achievements could be short-lived.

<sup>13</sup> Communication received from MLDM Senior Staff – October 27, 2015

- As there are still only a limited number of professionals at the regional level, regional informants suggested that it is probable that, when MLDM ends, many of them will shift their work emphasis from support for MLDM facilities to meeting the demands of all their client health facilities. Their concern was that while MLDM has devoted significant effort to TOT and involvement of regional laboratory staff in supportive supervision, the lack of any project attention to such human resources for health issues as attrition, motivation, job definitions, and career development will grow in importance in terms of the long-term prospects for sustaining quality.

## **PURPOSE 2: BARRIERS TO MLDM INTERVENTIONS**

### **Summary: Gaps in Achieving Intended Results**

The evaluation found that the MLDM can be expected to achieve its targets except for those related to (1) provision of supplies to laboratories; (2) provision of technical and logistic support to EPHI to conduct National Malaria Microscopy Accreditation Courses (NMMAC); and (3) orienting health workers on fever case management and malaria/HIV laboratory diagnosis, and QA and quality control. Among the reasons for shortfalls are difficulties with currency control (purchase of supplies), the lengthy GOE/WHO accreditation process for NMMAC training, and shortages of clinical mentors for training in fever management. However, MLDM senior management has indicated that only the EOP target for training in fever case management requires adjustment if the project is to meet all of its EOP intended targets. Yet even though MLDM will cease enrolling facilities at the end of 2016, meeting its ambitious target of graduating 697 facilities in the remaining two years will be a technical resource and management challenge if the project is to responsibly address sustainability for all graduated facilities.

### **Question 2.1: For results that fell below anticipated targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why were the targets missed?**

- From a *quantitative* perspective, the evaluation examined the initial MLDM project proposal and contract and allied documents, particularly the PMP and its quarterly and annual reports.
- From a *qualitative* perspective, the team asked MLDM senior managers to prepare an evidence-based analysis of its performance in meeting the EOP targets (Annex F). The analysis included narratives giving the managers' perspective on factors that contributed to the project's success in achieving and exceeding anticipated targets and on reasons that the project might not achieve specific PMP targets. The MLDM analysis was then validated and adjusted based on information from the KIs.
- MLDM's documented progress on its 39 targets (Table 10) indicates that the project has exceeded its PMP targets for 8 indicators and has made excellent progress (75–100%) on 12 indicators, manageable (50–75%) progress on 11, and limited (less than 50%) or no progress on 8.

	Table 11. MLDM Documented Progress on 39 PMP Indicator Targets					
	No Progress	< 50 % Achieved	50-75% Achieved	> 75% but <100% Achieved	100% Achieved	> 100% Achieved
# of indicators	3	5	11	5	7	8
% of all indicators	7.7%	12.8%	28.2%	12.8%	17.9%	20.5%

From a project management perspective, and considering that the project is scheduled for completion in November 2017, less than two years from now, the fact that progress on 19 of the project's 39 indicator targets is less than 75% should convince the project and USAID/E to ensure that the project directs its attention to achieving all its targets.

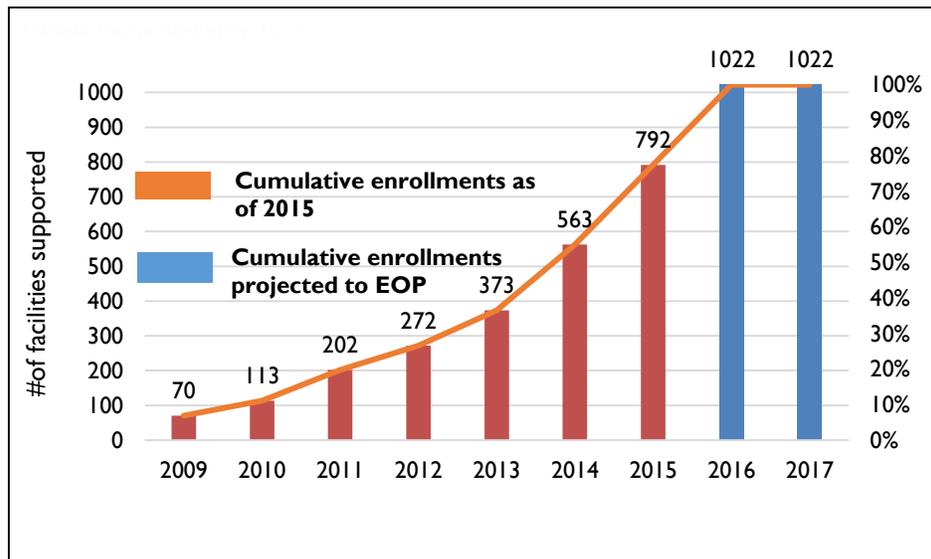
In an analysis prepared by MLDM senior managers on project progress on defined objectives (Appendix F), the reasons cited for gaps in achievement of targets were as follows:

- Supplies for laboratories:** As of September 2015, only 252 (25%) of 1,013 facilities had received the requisite supplies because of a shortage of hard currency to purchase them. Although this impacted the scheduled provision of laboratory commodities, discussions with MLDM senior management indicated that they will be delivered, although not on the scheduled timetable.<sup>14</sup>
- Technical and logistical support to EPHI to conduct NMMACs:** As of September 2015, none of the 108 laboratory professionals from peripheral health facilities scheduled to participate in the NMACC had been trained due to the lengthy MOH/WHO accreditation process. Now that the process has been accelerated, however, EPHI and MLDM believe that the target can be met.
- Orienting health workers on fever case management, malaria/HIV laboratory diagnosis, and QA and quality control:** As of September 2015, only 1,110 (44%) of the targeted 2,500 health workers have been trained in fever management and malaria/HIV laboratory diagnosis. Reportedly, the problem was a shortage of mentors, high mentor turnover, and the fact that mentorship was shifted to more problematic sites in Western Oromia. Based on discussions with MLDM senior management, the target for this indicator should be adjusted to reflect the shift to Western Oromia.
- Facility enrollment targets:** The project's ability to meet its EOP enrollment target of 1,022 facilities appears to be well on track, with a cumulative enrollment of 792 facilities between 2009 and 2015 (Figure 7). The project expects to meet its EOP enrollment target of 1,022 facilities during 2016 and plans to dedicate the final year of the project to maximizing supportive supervision and mentorship so that the rest of the health facilities can meet the standards for graduating from project support.<sup>15</sup>

<sup>14</sup> Email communication from MLDM Senior Staff, MLDM Acting Director, November 25, 2015.

<sup>15</sup> Communication received from MLDM Senior Staff – October 27, 2015

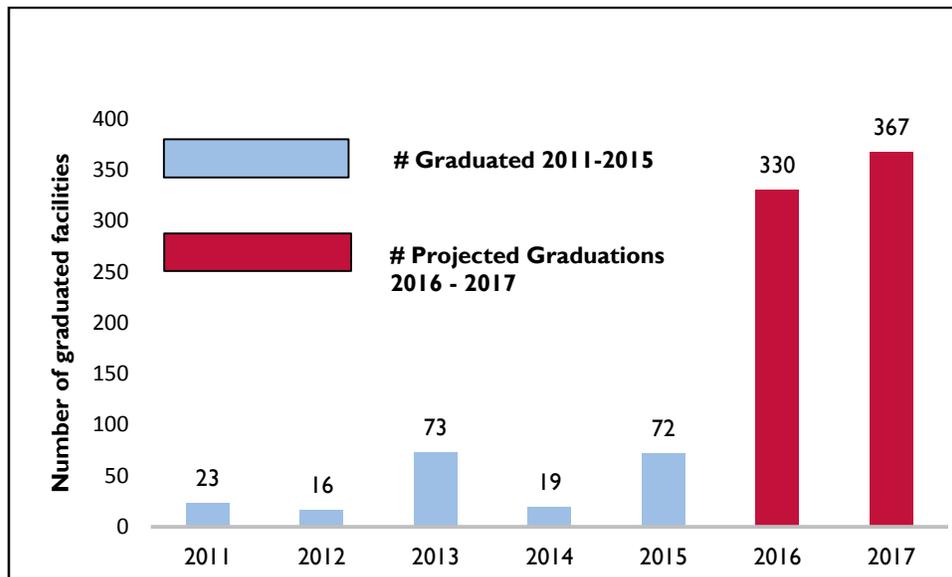
**Figure 7. Cumulative Enrolment of MLDM-Supported Facilities**



- Facility graduation targets:** As a concept that was established by USAID/E and agreed upon by MLDM in 2011, “graduating” facilities was intended to ensure that MLDM client facilities, after meeting specific criteria, could be transferred to regional support. As discussed with USAID/E and MLDM informants, the rationale was that, through progressive graduation of qualifying facilities, the project would make room to serve more facilities while remaining within its fixed budget of \$10 million.

Initially, to qualify for graduation facilities had to meet stringent quality standards judged through blind rechecking of slides. In 2013, USAID/E and MLDM agreed to accelerate the number of graduations by using less onerous on-site evaluations: a client facility would be required to receive four supervisory visits; achieve 80% accuracy of average slide reading on consecutive supervisory visits; and score at least 80% on check-list indicators designed to measure a laboratory’s consistent maintenance of quality standards. Despite these changes, however, as Figure 8 illustrates, to meet its projections for EOP graduations, the project would have to graduate 330 facilities in 2016 and 367 in 2017, even though the 73 graduations in 2013 were the most in any year to date.

**Figure 8. MLDM Facilities Graduated between 2011 and 2017**



Thus, even though the project will cease enrolling facilities at the end of 2016, graduating 697 facilities in the project’s remaining two years is a significant barrier to realistically addressing the issues of sustainability associated with the long-term maintenance of client facility quality standards.

**Question 2.2: What barriers were there to building the capacity of government agencies and institutions such as EPHI, regional reference laboratories, zones, and district health offices?**

**Summary: Barriers to Building Capacity**

Three MLDM objectives have direct relevance to building the capacity of government agencies and institutions (Question 2.2). In reviewing the MLDM PMP, its quarterly and annual reports, and the progress report MLDM prepared for the evaluation, and in discussing Question 2.2 with staff of national EPHI and regional offices, the team has assessed that the project encountered no significant barriers to reinforcing national partnerships and coordinating national malaria diagnosis and monitoring activities (PMP Objective 1). With reference to PMP Objective 2 (scaling up QA activities and laboratory systems), the limited number of MLDM technical staff has made it difficult to carry out the required number of joint supervision visits. With reference to PMP Objective 3 (Training clinical and laboratory health professionals in malaria diagnosis and laboratory QA/QC systems), MLDM’s ability to facilitate MMACs and NCAMMs has been constrained by the time-consuming process associated with MMAC and, in the case of NCAMM, by delays in getting the EPHI malaria slide bank accredited.

As already noted, analysis of the PMP indicates that the project is well on track to meeting most of its objectives. In response to Question 2.2, the evaluation worked with MLDM staff, EPHI respondents, and MLDM regional counterparts to identify barriers to the project's ability to respond to the PMP objectives most directly related to building institutional capacity:

**PMP Objective 1:** To strengthen partnerships and coordination of national malaria diagnosis and monitoring activities involving all important stakeholders in Ethiopia.

- The targets associated with all five Objective 1 activities are on track for EOP attainment. No barriers were identified in either review of MLDM's program progress<sup>16</sup> or interviews with EPHI representatives or the USAID/E technical officer overseeing the project.

**PMP Objective 2:** To scale up and strengthen the QA activities and laboratory systems related to malaria laboratory diagnosis in collaboration with the regional reference laboratories and EPHI.

- Of the 10 PMP Objective 2 activities, MLDM's response to one required activity hit a barrier:
  - *Conduct joint supervision and mentoring to supported health facilities at least two times a year:* As of September 2015, the project had conducted 2,945 (51%) of the PMP's 5,756 specified joint supervisions. Based on discussions with MLDM management and representatives from EPHI and the three regional bureaus, the project has not been able to carry out the required number of joint supervisions because there were not enough MLDM lab experts to facilitate joint supervisions. MLDM has since received USAID/E approval to increase the seven current experts to a number that will allow the project to achieve the target.

**PMP Objective 3:** To train selected malaria program, clinical, and laboratory health professionals in malaria diagnosis and laboratory QA/QC systems.

- Of the eight PMP Objective 3 activities, two have encountered barriers:
  - *Provide technical and logistic support to EPHI to conduct MMACs for laboratory personnel from the national and regional reference laboratories:* As of September 2015, 24 (40%) of the required 60 regional reference laboratory personnel have participated in MMACs. According to both MLDM and EPHI staff, the lengthy process of bringing slides and staff from the WHO accredited laboratory in Manila has made it difficult for the project to facilitate MMACs. Nevertheless, the MLDM projects that it will train 12 more lab personnel, which would bring the EOP target within reach.
  - *Provide technical and logistical support to EPHI to conduct NCAMMs for laboratory personnel from peripheral health centers:* As of September 2015, none of the required 108 peripheral health facility personnel have participated in NCAMMs, although 60 regional reference laboratory personnel have. According to EPHI and MLDM respondents, the project was unable to meet this ambitious target because there was a delay in getting the EPHI malaria slide bank accredited. However, the team was informed by senior

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<sup>16</sup> ICAP/PMI/MLDM project progress table, 9/11/2015 and subsequent discussions with MLDM management.

management that MLDM plans to train 24 peripheral laboratory professionals in 2016 and 48 professionals in 2017. Assuming that MLDM is able to do so, it will have trained 72 (66%) of its EOP goal of 108.

**Question 2.3: Is the program structure appropriate to meet the objectives of the cooperative agreement?**

**Summary: Program Structure**

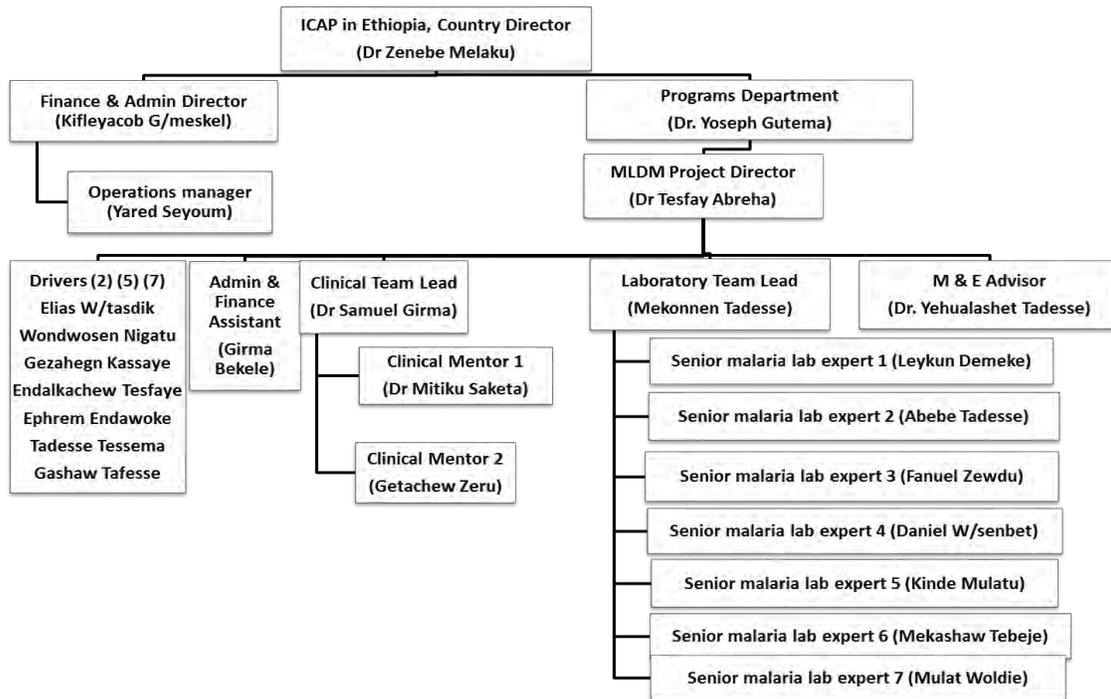
The program structure emphasizes the COAG's focus on strengthening the malaria diagnostic capacity of laboratories, but it fails to incorporate technical positions responsive to the project elements of development of national capacity, commodity procurement, and operations research. As a result, clinical and laboratory advisers have been required to fulfill dual functions at the expense of their designated functions. Also, in adopting a highly centralized rather than a more balanced central/regional structure, the project missed opportunities for more effectiveness, efficiency, and regional ownership.

As noted earlier, the MLDM's unifying focus is to strengthen the malaria diagnostic capacity of laboratories in Ethiopia by capacitating staff using hands-on training, onsite mentorship, and supervision. Its structure (Figure 9) was therefore designed to incorporate a clinical team (currently comprised of a team lead and two clinical mentors) and a laboratory team (currently comprised of a laboratory team lead and seven senior malaria lab experts). The structure's concentration on providing laboratory expertise is appropriate to meeting the defined goal, but because the structure does not explicitly incorporate personnel to respond to national development priorities (COAG Objectives 1 and 3), the commodity needs of facilities, or the need to facilitate operations research (Objective 4), personnel designated as clinical mentors and laboratory experts were required to fulfill dual functions.

This is not to imply that the project did not fulfill its national requirements. On the contrary, as discussed earlier, the MLDM response to these objectives resulted in technical advances that represent the best prospects for long-term sustainability.

Rather, the importance of this finding rests with the fact that, in expecting laboratory and clinical experts to fulfill functions beyond their designated role, the project failed to meet the expectations associated with that role. This finding is reinforced by MLDM's acknowledgement (under Question 2.2) that the shortage of technical advisers meant it could not meet all supportive supervision requirements. While this weakness in the structure is certainly linked to competing technical requirements and a limited budget, an equally important explanation is that the project's structure from the outset was not responsive to the project's full range of technical responsibilities.

**Figure 9. MLDM Organogram (August 2015)**



The evaluation team’s discussions with KII respondents representing a cross-section of stakeholders (Annex C) also suggests that because the project was so centralized, the structure neglected the financial and technical potential for effectiveness and efficiency that a more balanced central/regional structure would have had.

**Missed Opportunities for Greater Effectiveness**

As reflected in informants’ comments (Box 2), MLDM’s centralized approach to program management and to the provision of technical services appears not to have been fully effective. With a balanced central-regional structure, advisers responsible for providing regional technical assistance could have been assigned or seconded to work full-time with regional bureaus. Moreover, providing regional laboratories with full-time technical advisers would have expanded opportunities for an informed, needs-based approach to scale-up. For example, had even four of the seven laboratory experts been physically located, with supporting transport and budgets, in regional laboratories, each could have been much more effective in identifying and responding to the continuing technical support needs of health centers. Since each of the seconded experts would have had more opportunity to provide hands-on daily

**Box 2**

“The least successful approach by the project—largely a design fault—was the project’s centralized management.” Regional Health Bureau

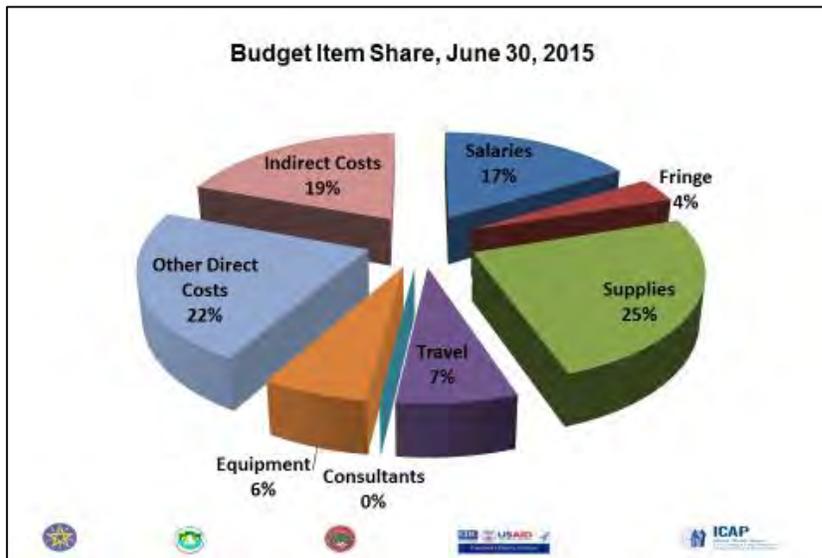
“It would have been better if the project had more presence in the region since the geographic coverage of the project is too big.” Regional Laboratory

assistance, the project would have been more effective in preparing for the transfer of oversight responsibilities for graduated facilities to regions.

### Missed Opportunities for Greater Efficiency

Allocation of funds (Figure 10)<sup>17</sup> to centralized program management, logistics, and administrative overhead underscores the extent to which funding was dedicated to centralized requirements. Had the budget and the structure been more dedicated to providing regional technical assistance without the overhead required to support a centralized structure, funding could have been more efficiently directed to the project’s stated focus on regional scale-up of higher-quality malaria diagnostic microscopy.

**Figure 10. Allocation of Budget**



Although acknowledging these implications of centralized management, MLDM maintains that “practically/functionally the technical advisor[s] work like a decentralized project.”<sup>18</sup> The evaluation team respects MLDM’s assessment of its approach, but that analysis is at decided variance with project beneficiary assessments (Box 2). Moreover, from a sustainability perspective, the centralized structure undercut any sense of regional ownership, with the result that respondents from regional bureaus, the MOH, and the EPHI all stated their concern about whether the health facilities would be able to maintain quality standards once the MLDM project ends its technical assistance.

<sup>17</sup> MLDM Project, *ICAP PMI-MLDM Y09-15 Accomplishments*, PowerPoint Presentation, 8/24/15

<sup>18</sup> Communication received from MLDM Senior Staff – October 27, 2015

## IV. CONCLUSIONS

### PURPOSE I: TO EXPLORE WHETHER THE ACTIVITY'S INVESTMENTS WERE ASSOCIATED WITH AN INCREASED AVAILABILITY OF QUALITY MALARIA LABORATORY DIAGNOSIS IN ETHIOPIA

#### Summary Conclusions: Operational and technical environment for health facilities and regional laboratories

- **Positive progress against baselines:** In comparison with the baseline findings in 2009 and 2011, MLDM has achieved positive progress on the 11 quality indicators common to all three assessments.
- **Positive adherence to testing guidelines:** Although all 36 of the 37 facilities with functioning microscopes were seen to use thick blood smears to assist them in diagnosis of suspected malaria cases, 30 (89%) used both thick and thin blood smears. Because staining solutions were not available, 4 laboratories were unable to use both.
- **Positive adherence to laboratory infrastructure, biosafety, and documentation requirements:**
  - Except for laboratory monitoring records, all 37 facilities were seen to have maintained established quality standards for malaria laboratory infrastructure.
  - The evaluation observed 88% average adherence to five biosafety protocols in the 37 laboratories. The one lapse in adherence to protocol (for separation of infectious and noninfectious waste) was reportedly due to laboratory staff misunderstanding of the requirement.
  - The one notable lack of access to required laboratory documentation (EQA guidelines for malaria diagnosis) was reportedly because standard guidelines are currently being revised and because when transferred to another facility, laboratory staff reportedly take the guidelines with them.
- **Observed shortfalls in EQA availability:** Over the previous 12 months, participation by the 21 graduated facilities in any EQA scheme had declined to 52% of the facilities, compared with MLDM's EQA support for 69% of its 16 full-service facilities. On-site visits to 55% of the full-service facilities and 91% of the 11 graduated facilities were reportedly provided with on-site EQA during the same period.
- **Observed shortfalls in supportive supervision:** Reportedly, 93% of the 16 MLDM full-service laboratories and 76% of the 21 graduated facilities had received supportive supervision in the previous 12 months. Reasons cited for the difference were shortages in personnel, responsibility for an ever-growing number of facilities, and limited budgets.
- **Positive clinical staff engagement in malaria diagnosis and treatment:** A total of 905 health professionals provided clinical health services in the facilities surveyed. The fact that 402 of these were providing malaria diagnosis and treatment indicates the extent of the demand.

- **Shortfalls in clinical staff training in fever management:** Of hospital clinical staff engaged in providing malaria diagnosis and treatment, 62% had been trained in fever management, as were 18% of their health center counterparts; 9% of hospital staff and 29% of health center clinical staff had been trained jointly by MLDM and the GOE.
- **Continued clinician use of empirical treatment of malaria:** All clinicians reported using fever as the main criterion for ordering malaria testing. When test results are negative, 24% of the clinicians reported that they would continue to treat malaria cases with ACT or chloroquine. Although there is still significant room for improvement if the practice is to be eliminated, the evaluation findings are a marked improvement in practice: in the 2009 baseline assessment, 75% of clinicians reported they would continue to treat patients despite negative results.
- **Malaria-related guidelines unavailable in clinics:** On average, in 70% of the facilities surveyed malaria-related guidelines were not available, reportedly because departing clinicians took them to their new assignments. On average, 55% of equipment essential to clinical practice was available. However, 70% of clinicians reported that they had not received a supervisory visit in the previous six months.
- **Shortage of technical personnel in regional reference laboratories:** Together the three regional laboratories surveyed provide technical support to 2,332 health center and hospital laboratories. All three, as well as informants from regional bureaus and the EPHI, cited a shortage of trained personnel as limiting their ability to provide sustained oversight of client facilities.
- **Gaps in access of regional reference laboratories to supplies and equipment maintenance capacity:** While the three regional laboratories evaluated generally reported having enough supplies to respond to the needs of client health facilities, all reported experiencing periodic, though not service-disruptive, shortages in access to slides. All three also expressed concern about their ability to provide client hospitals and health centers with functional microscopes. As MLDM moves forward to transfer oversight responsibility to regional laboratories, their ability to ensure maintenance of functional microscopes could be a significant problem for long-term sustainability.
- **Gaps in the ability of regional laboratories to oversee required EQA:** Although the three regions reported an average of three focused EQA initiatives a year for all client facilities, their report is at decided variance with records the evaluation team reviewed during site visits to 37 client health facilities, which found that they received EQA assistance once a year. This finding, supported by EPHI and regional health bureau respondents, seems consistent with the reality that each regional laboratory has more than 2,000 client facilities, which, coupled with budget and personnel shortfalls, would necessarily constrain their ability to provide more sustained EQA.
- **Gaps in the ability of regional laboratories to maintain required supervisory schedules:** Records from two of the three laboratories indicate that supervision to support laboratory professionals at client health facilities is provided at least once a year and that supervisory protocols for visits include direct observance of the performance of microscopists. Although regional laboratory respondents reported that integration of

malaria, HIV, and TB supervision is technically feasible, visits to laboratories are not systematically integrated due to scheduling conflicts, budgets, poor coordination of programs, and the single-program orientations of technical assistance partners. However, MLDM has indicated that the project itself has exceeded its EOP targets for integrating malaria with HIV.

### **Summary Conclusions: Purpose 1, Questions 1.1 and 1.2**

**Question 1.1: To what extent is the quality of services maintained in facilities that have graduated?**

**Question 1.2: What are the main determinants of their maintaining quality?**

**Gaps in the maintenance of quality by graduated facilities:** Average maintenance of quality malaria services was scored at 70% across all 11 indicators for the 21 graduated facilities. At least 80% of them had maintained the quality of malaria laboratory services for indicators measuring availability of basic equipment, procedures for laboratory safety and waste disposal, storage of staining solutions, and standards for laboratory set-up. However, only 51% of the 21 graduated facilities had an operational quality plan, only 50% had access to supportive supervision in the previous 12 months, and only 41% reported participating in malaria EQA schemes. Since MOH guidelines call for HIV services to be maintained by the clinicians responsible for administering RDTs with HIV counselling and testing, this aspect of the question was beyond the scope of this evaluation.

### **Summary Conclusions: Purpose 1, Question 1.3**

**Question 1.3: What role does or could gender play in quality maintenance?**

**Potential role for gender in quality maintenance:** There was no evidence to suggest that the 78 trained female professionals providing malaria microscopy services at the 37 facilities surveyed were any less or more effective in maintaining quality than were 99 male counterparts. However, it may be that given regional laboratory concerns about attrition rates, the availability of professionally-trained microscopists necessary to maintain a laboratory's quality could be enhanced by training more women.

### **Summary Conclusions: Purpose 1, Question 1.4**

**Question 1.4: In what ways are project activities integrated with programs related to other diseases, such as HIV?**

**Positive integration of malaria and HIV activities:** Of the 36 facilities, 72% reported that training on malaria laboratory diagnosis and on HIV diagnosis were integrated. While testing for malaria was not integrated, as per national guidelines, with testing for HIV, the quality of HIV RDTs was randomly verified by 29 (78%) of the 37 laboratories surveyed. And 78% reported that malaria-supportive supervision is integrated with HIV supervision.

### **Summary Conclusions: Purpose 1, Question 1.5**

**Question 1.5: To what extent are the capacity and engagement of EPHI, the regional reference laboratories, zones, and district health offices being strengthened to promote sustainability?**

**Positive prospects for sustained strengthening of national capacity:** MLDM's technical assistance to revision of national malaria guidelines; establishment of Ethiopia's first malaria slide

bank; design, conduct, and analysis of malaria-related operations research; training of EPHI-based trainers; and training of university and health science instructors all provide strong evidence that the enhanced national-level malaria control program is sustainable.

**Prospects for maintenance of regional and zonal capacity:** MLDM's facilitative approach to regional laboratory and clinical training and supervision, its training of regional, zonal, and district office managers, its assistance in joint planning and review workshops, and its progressive graduation of client facilities from MLDM-provided technical and material support to full regional support has set up the structure for the sustainability of the regional malaria control program. However, many informants cited the workloads of regional laboratories, their limited access to a stable and sufficient workforce, and their limited budgets for supervision and supplies as jeopardizing their ability to maintain the quality of services facilitated by the MLDM.

## **PURPOSE 2: TO UNDERSTAND BARRIERS TO MLDM INTERVENTIONS ACHIEVING THE INTENDED RESULTS**

### **Summary Conclusions: Purpose 2, Question 2.1**

**Question 2.1: For results that fell below targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why were the targets missed?**

**Gaps in achieving intended results:** The evaluation found that the MLDM can be expected to achieve the intended results except for the targets for (1) provision of supplies to laboratories; (2) provision of technical and logistical support to EPHI to conduct NMMACs; and (3) orienting health workers on fever case management, malaria/HIV laboratory diagnosis, and QA and quality control. However, MLDM senior management has indicated that only the EOP target for training in fever case management requires adjustment so that the project can meet all of its EOP targets. Also, even though the project will cease enrolling facilities at the end of 2016, meeting its ambitious targets for graduating 697 facilities in the final two years constitutes a technical resource and management barrier to its ability to realistically address the issues of sustainability associated with long-term maintenance of client facility quality standards.

### **Summary Conclusions: Purpose 2, Question 2.2**

**Question 2.2: What barriers are there to building the capacity of government agencies and institutions such as EPHI, regional reference laboratories, zones, and district health offices?**

**Positive prospects for the dismantling of barriers:** The project has encountered no significant barriers to strengthening national partnerships and coordinating national malaria diagnosis and monitoring activities (PMP Objective 1). With reference to Objective 2 (scaling up QA activities and laboratory systems), its limited number of technical staff has constrained its ability to carry out the required number of joint supervision visits. However, MLDM expects to address this constraint, having recently hired additional technical personnel, with reference to PMP Objective 3 (training clinical and laboratory health professionals in malaria diagnosis and laboratory QA/QC systems), MLDM's ability to facilitate MMACs and NCAMMs has been limited by the time-consuming MMAC process and, for NCAMM, by delays in getting the EPHI malaria slide bank accredited. Though it is behind schedule in achievement of EOP targets, the project has reported that the problems related to MMAC and NCAMM have been resolved and it expects to meet its EOP targets.

## Summary Conclusions: Purpose 2, Question 2.3

**Question 2.3:** *Is the program structure appropriate to meet the objectives of the cooperative agreement?*

**Problem with designation of key technical positions:** As designed, the program structure reflects an appropriate emphasis on the COAG focus on building up the capacity of laboratories to diagnose malaria. However, the structure fails to incorporate technical positions responsive to three project elements: development of national capacity, commodity procurement, and operations research. As a result, the clinical and laboratory advisers have been required to fulfill dual functions at the expense of their designated functions.

**Problems associated with the centralized structure:** The project's highly centralized structure resulted in missed opportunities for greater effectiveness, efficiency, and regional ownership. A more balanced central/regional structure would be preferable.



## V. RECOMMENDATIONS

**Purpose 3: To provide specific programmatic recommendations to the Mission and the Government of Ethiopia (GOE) for consideration in designing future programs to scale up and increase access to quality malaria diagnostic services in an integrated manner with other disease programs.**

Question 3.1: In what ways could collaboration through integration be improved to leverage resources?

Question 3.2: How could the program structure be more cost-effective for potential scale up?

### PURPOSE 3, QUESTION 3.1

**Question 3.1: In what ways could collaboration through integration be improved to leverage resources?**

#### **Recommendations:**

1. **Integrate training:** Integration could be more effective if comprehensive training and health service management plans integrate malaria, tuberculosis (TB), and HIV programs. A curriculum for both clinical and laboratory staffs that covers all three disease programs would heighten their ability to approach delivery of services through multitasking. As a result, the efficiency and cost-effectiveness of both training and service delivery would benefit. However, if training is to be effectively integrated, respondents stressed, regions should give priority to drafting a management plan that addresses all the budgetary, technical, programming, and material aspects of a truly integrated training program.
2. **Use more integrated checklists during supportive supervision:** Integrated checklists to enhance the quality of supportive supervision for malaria and other disease programs were occasionally but not consistently used in the sites surveyed. Where used, integrated checklists effectively leveraged resources across multiple programs. However, the evaluation found that different disease programs often carry out their own supportive supervision. This promotes inefficiency by employing multiple supervisors and vehicles. Program-specific supervision for malaria, HIV, and TB also requires separate and costly allocations of supervision budgets and other resources. Consistently integrated supervision visits could make a significant contribution to technical linkages (and thereby better care) between the three programs and enhance efficiency, resulting in significant cost savings for all programs.
3. **Integrate EQA:** Finally, integration of initiatives to support the EQA of malaria, HIV, and TB programs promotes cost-effective and leveraged use of resources, thus enhancing the sustainability of national and regional EQA programs. Supporting separate EQA programs wastes limited human, financial, logistical, material, and time resources. Lack of EQA integration, especially with reference to malaria, HIV and TB, also results in missed opportunities to identify systemic QA challenges within regional laboratories and health facilities. It is therefore recommended that the future project promote national and regional

initiatives to integrate all EQA-focused initiatives (on-site evaluations, PT, and blind rechecking). Any new project should therefore support the drafting of plans of action and training programs as well as preparation and nationwide distribution of policies, guidelines, and manuals whose content would reinforce and promote EQA integration across the three programs.

### **PURPOSE 3, QUESTION 3.2**

#### **Question 3.2: How could the program structure be more cost-effective for potential scale-up?**

In response to this final question of the evaluation, recommendations center on two points:

3.2.1 *What does the evaluation's analysis of data from all sources suggest as recommendations for the MLDM's remaining two years (2016–17)?*

#### **Recommendations**

1. **Assess graduated facilities:** MLDM should act on its plan to evaluate the quality of regional support for graduated facilities and use the results to inform an MLDM-facilitated strategy to address identified gaps in regional support.
2. **Address the need for hands-on management of health center laboratories:** MLDM should facilitate joint meetings/seminars/symposiums between regions and health facility directors to draw up joint programs of action so that health center directors are better prepared to actively monitor and maintain basic standards of quality within their laboratories and among clinicians.
3. **Engage partners in crafting quality maintenance strategies:** As projected by MLDM senior management and project planning documents, at the EOP 122 MLDM full-package facilities will not yet have qualified for graduation. MLDM should therefore ensure that current plans to facilitate regional assumption of supportive supervision and mentoring is clearly documented and agreed to by the regional laboratories.
4. **Draw up comprehensive end-of-project documentation:** Since October 2008, MLDM has achieved remarkable progress in promoting the quality of malaria microscopy. Starting at least six months before the project's contract end, MLDM staff should therefore ensure that the project fully meets its contractual obligation to dedicate significant time and resources to reflecting upon and documenting lessons learned. USAID/E should encourage and facilitate MLDM's flexibility in this essential EOP responsibility.

3.2.2 *What does the evaluation's analysis of data from all sources suggest as recommendations to enhance a future project's potential for scale-up?*

In responding to this final evaluation question, recommendations deal with three central issues:

#### **Recommendations for the goal of a future project:**

1. **Support:** Ensure sufficient USAID budgetary and management resources to provide the required level of technical assistance, transport, equipment, and training for central and regionally-based initiatives for a scaled-up, integrated, innovative, and effective approach to promoting quality malaria, HIV, and TB diagnosis and treatment.
2. **Sustain:** Focus immediately and directly on issues of sustainability by ensuring that all aspects of the new project incorporate the government's approval of the project's design

and its execution as well as the government's commitment to long-term support at project completion.

3. **Scale-up:** Increase the number of hospitals and health centers whose quality in malaria microscopy meets the standards of international best practices.
4. **Integrate:** Put in place an integrated approach to training, QA, and supportive supervision for malaria, HIV, and TB.
5. **Assist:** Contribute to the government's evolving policy on the elimination of malaria through support for assessments and operations research and by providing technical guidance.

#### **Recommendations for operational and technical parameters of a future project:**

Addressing the future project's scale-up of MLDM's current outreach was central to the evaluation's recommendations for the future. The evaluation's analysis yielded a significant amount of data that crystalized around one central theme: **If the goal is to build upon and significantly scale up MLDM's current outreach, the future project should be significantly regionalized.**

The principal operational and technical parameters of regionalization are as follows:

- **Maintain only a small central office in Addis:** The MLDM has made a significant contribution to laying a sustainable technical foundation of quality-focused malaria microscopy policies and guidelines. In the interest of continuing to influence central policy and of maintaining national technical guidelines and standards, the central office should focus on providing
  - **Technical support to the national government**, especially the EPHI and the National Technical Advisory Committee, on updating national standards to align with international best practices and on providing support to the new slide bank; and
  - Technical, logistical, financial, and managerial support to technical advisers assigned to regional offices.
- **Assign technical advisers to regional laboratories:** Each technical adviser would be responsible for facilitating the formation and capacity development of a permanent Regional Malaria Quality Assurance Team (REMQAT) comprised of the technical adviser and one permanently assigned regional counterpart. REMQAT should be responsible for
  - Establishing a regional EQA Center of Excellence;
  - Assessing and responding, through a defined action plan, to regional challenges to malaria-related supply management;
  - Putting in place a regional hot-spot quality improvement plan of action to assess and respond to hospital and health center needs to develop malaria microscopy capacity;
  - Developing and supporting, within the region, a defined but limited number of Health Center Models of Excellence, each of which will be a focal point for continuing education and support for other health centers in its area; and

- Developing, implementing, and monitoring a regional project exit plan that emphasizes promoting the long-term sustainability of initiatives introduced by the REMQAT.

### **Recommendations for key activities of a future project:**

In addressing its final issue, the evaluation’s analysis of data from all sources resulted in recommendations for future project activities that coalesced around eight themes:

- **Pre-service training:** Collaborate with other projects, such as USAID/E’s planned TRANSFORM Project, to support
  - Pre-service training on malaria quality diagnosis to avoid the necessity for postgraduate training-from-scratch; and
  - Updating and distributing algorithms to promote quality clinical services for outpatient departments.
- **Quality assurance:** Support national and regional laboratory capacity with a continued emphasis on quality assurance.
- **Focus on hot spots:** Proactively address promoting quality diagnosis and treatment of malaria and HIV in hot spots (areas of high prevalence).
- **Three-tier system of supervision:** Establish a three-tier system of supervision with each level (e.g., regional-hospital-health center) being provided with the resources to adequately supervise the following level.
- **Regional pool of expertise:** Develop a pool of regional laboratory consultants whose principal responsibility will be to technically support EQA of health centers.
- **Needs-based provision of equipment:** Provide equipment for facilities based on assessed needs.
- **Operations research:** Support collaborative national and regional operations research to both expand the pool of trained research personnel and extend the body of knowledge about issues of immediate regional importance, such as health systems management, supervision, and program integration.
- **Working with development partners:** Support partners working in other zones and regions through an exchange of up-to-date technical guidelines and expertise.

# ANNEX A: SCOPE OF WORK

## GLOBAL HEALTH PROGRAM CYCLE IMPROVEMENT PROJECT—GH PRO

Contract No. AID-OAA-C-14-00067

Evaluation or Analytic Activity Statement of Work (SOW)

Date of Submission: 7/31/2015

**Note:** When submitting this SOW, please also include relevant background documents that would assist in planning the analytic activity, such as project descriptions, contract/agreements, and implementing partner PMPs/reports.

### I. TITLE: MIDTERM EVALUATION OF MALARIA LABORATORY DIAGNOSIS AND MONITORING PROJECT (065)

### II. REQUESTER / CLIENT

USAID/Washington  
Office/Division: /

USAID Country or Regional Mission  
Mission/Division: USAID/ Ethiopia, Health, AIDS, Population, & Nutrition Office

### III. FUNDING ACCOUNT SOURCE(S): (CLICK ON BOX(ES) TO INDICATE SOURCE OF PAYMENT FOR THIS ASSIGNMENT)

- |  |   |
|--|---|
| <input type="checkbox"/> 3.1.1 HIV                         | <input type="checkbox"/> 3.1.6 MCH              |
| <input type="checkbox"/> 3.1.2 TB                          | <input type="checkbox"/> 3.1.7 FP/RH            |
| <input checked="" type="checkbox"/> 3.1.3 Malaria          | <input type="checkbox"/> 3.1.8 WSSH             |
| <input type="checkbox"/> 3.1.4 PIOET                       | <input type="checkbox"/> 3.1.9 Nutrition        |
| <input type="checkbox"/> 3.1.5 Other public health threats | <input type="checkbox"/> 3.2.0 Other (specify): |

### IV. COST ESTIMATE: NOTE: GH PRO WILL PROVIDE A FINAL BUDGET BASED ON THIS SOW

### V. PERFORMANCE PERIOD

Expected Start Date (on or about): o/a August 2015

Anticipated End Date (on or about): o/a October 2015

### VI. LOCATION(S) OF ASSIGNMENT: (INDICATE WHERE WORK WILL BE PERFORMED)

Addis Ababa, Ethiopia

### VII. TYPE OF ANALYTIC ACTIVITY (CHECK THE BOX TO INDICATE THE TYPE OF ANALYTIC ACTIVITY)

**Evaluation:**

**Performance Evaluation** (Check timing of data collection)

Midterm  Endline  Other (specify):

*Performance evaluations focus on descriptive and normative questions: what a particular project or program has achieved (either at an intermediate point in execution or at the conclusion of an implementation period); how it is being implemented; how it is perceived and valued; whether expected results are occurring; and other questions that are pertinent to program design, management and operational decision making. Performance evaluations often incorporate before-after comparisons, but generally lack a rigorously defined counterfactual.*

**Impact Evaluation** (Check timing(s) of data collection)

Baseline  Midterm  Endline  Other (specify):

*Impact evaluations measure the change in a development outcome that is attributable to a defined intervention; impact evaluations are based on models of cause and effect and require a credible and rigorously defined counterfactual to control for factors other than the intervention that might account for the observed change. Impact evaluations in which comparisons are made between beneficiaries that are randomly assigned to either a treatment or a control group provide the strongest evidence of a relationship between the intervention under study and the outcome measured.*

## OTHER ANALYTIC ACTIVITIES

**Assessment**

*Assessments are designed to examine country and/or sector context to inform project design, or as an informal review of projects.*

**Costing and/or Economic Analysis**

*Costing and Economic Analysis can identify, measure, value and cost an intervention or program. It can be an assessment or evaluation, with or without a comparative intervention/program.*

**Other Analytic Activity** (Specify)

## PEPFAR EVALUATIONS (PEPFAR Evaluation Standards of Practice 2014)

**Note:** If PEPFAR funded, check the box for type of evaluation

**Process Evaluation** (Check timing of data collection)

Midterm  Endline  Other (specify):

*Process Evaluation focuses on program or intervention implementation, including, but not limited to access to services, whether services reach the intended population, how services are delivered, client satisfaction and perceptions about needs and services, management practices. In addition, a process evaluation might provide an understanding of cultural, socio-political, legal, and economic context that affect implementation of the program or intervention. For example: Are activities delivered as intended, and are the right participants being reached? (PEPFAR Evaluation Standards of Practice 2014)*

**Outcome Evaluation**

*Outcome Evaluation determines if and by how much, intervention activities or services achieved their intended outcomes. It focuses on outputs and outcomes (including unintended effects) to judge program effectiveness, but may also assess program process to understand how outcomes are produced. It is possible to use statistical techniques in some instances when control or comparison groups are not available (e.g., for the evaluation of a national program). Example of question asked: To what extent are desired changes occurring due to the program, and who is benefiting? (PEPFAR Evaluation Standards of Practice 2014)*

**Impact Evaluation** (Check timing(s) of data collection)

Baseline  Midterm  Endline  Other (specify):

*Impact evaluations* measure the change in an outcome that is attributable to a defined intervention by comparing actual impact to what would have happened in the absence of the intervention (the counterfactual scenario). IEs are based on models of cause and effect and require a rigorously defined counterfactual to control for factors other than the intervention that might account for the observed change. There are a range of accepted approaches to applying a counterfactual analysis, though IEs in which comparisons are made between beneficiaries that are randomly assigned to either an intervention or a control group provide the strongest evidence of a relationship between the intervention under study and the outcome measured to demonstrate impact.

**Economic Evaluation (PEPFAR)**

*Economic Evaluations* identifies, measures, values and compares the costs and outcomes of alternative interventions. Economic evaluation is a systematic and transparent framework for assessing efficiency focusing on the economic costs and outcomes of alternative programs or interventions. This framework is based on a comparative analysis of both the costs (resources consumed) and outcomes (health, clinical, economic) of programs or interventions. Main types of economic evaluation are cost-minimization analysis (CMA), cost-effectiveness analysis (CEA), cost-benefit analysis (CBA) and cost-utility analysis (CUA). Example of question asked: What is the cost-effectiveness of this intervention in improving patient outcomes as compared to other treatment models?

## VIII. BACKGROUND

Background of project/program/intervention:

**Project/Activity Name:** Malaria Laboratory Diagnosis and Monitoring Project (MLDM)

**Contract Number:** AID-663-A-00-08-00433

**Award Dates:** October 01, 2008 - November 30, 2017

**Project/Activity Funding:** \$10,280,000 (PMI and PEPFAR funds)

**Implementing Organization:** Columbia University's International Center for AIDS Care and Treatment Programs (ICAP) in Ethiopia

**Project/Activity COR/AOR:** Hiwot Teka

The Malaria Laboratory Diagnosis and Monitoring (MLDM) Activity, implemented by Columbia University's International Center for AIDS Care and Treatment Programs (ICAP) aims to strengthen the malaria diagnostic capacity of laboratories in Ethiopia, by providing technical, strategic, managerial and operational support.

The aim of the MLDM Project is to strengthening the malaria diagnostic capacity of laboratories in Ethiopia through capacitating the human resource using hands on training, onsite mentorship and supervision. In addition, in all supported site necessary equipment and supply is provided and are involved in External Quality Assessment scheme

The goal of the MLDM activity is accomplished through reviewing, updating and developing of malaria laboratory diagnosis policy guidelines and training materials; conducting training of clinical and laboratory health professionals on quality malaria/HIV laboratory diagnosis; support for the establishment of External Quality Assurance/Quality Control system (EQA); and finally conducting research activities such as assessing the therapeutic efficacy of anti-malarial drugs to inform evidence-based decisions regarding malaria diagnosis and treatment

## Development Context

Malaria is one of the world's leading causes of morbidity and mortality. It is estimated that 3.4 billion people are living in areas of malaria transmission. According to WHO, 207 million cases of malaria and 627 000 deaths occurred globally in 2012. Most cases and deaths occurred in Africa accounting for 80% and 90% respectively [1].

Malaria prevention and control is a major U.S. foreign assistance objective, launched in 2005. The President's Malaria Initiative (PMI) aimed to rapidly scale up malaria prevention and treatment interventions and reduce malaria-related mortality by 50% in selected high-burden countries in sub-Saharan Africa. Other goals include removing malaria as a major public health problem, promoting development in the Africa region, strengthening malaria control activities, and containing the spread of antimalarial drug resistance. PMI is also core component of the Global Health Initiative (GHI), along with other health programs for HIV/AIDS and Tuberculosis, thus its activities follows the core principles of GHI: encouraging country ownership and investing in country-led plans and health systems; increasing impact and efficiency through strategic coordination and programmatic integration; strengthening and leveraging key partnerships, multilateral organizations, and private contributions; implementing a woman- and girl-centered approach; improving monitoring and evaluation; and promoting research and innovation [2].

The Ethiopian Federal Ministry of Health (FMOH) reported malaria as one of the top 10 causes of morbidity, accounted for 17% of all cases and 8% of health facility admissions in Ethiopia in 2012 [3]. Approximately 75% of the country's landmass is endemic for malaria transmission, with 58 million people at risk of infection and disease [4].

Among the core FMOH strategies to prevent and control malaria, accurate early diagnosis and prompt treatment of malaria is the critical component [6]. Following the WHO recommendations of universal diagnostic testing for all suspected malaria cases [7], Ethiopia scaled-up diagnostic testing for malaria at all levels of the public sector's health service delivery system: multi-species rapid diagnostic tests (RDTs) are used at community-level health posts and malaria microscopy is carried out at district-level health centers as well as district-, zonal- and regional-level hospitals [8]. According to the micro planning, 3,654,690 confirmed cases and 1,883,715 clinical cases occurred in 2012. Among the confirmed cases the proportion of cases tested by microscope is 40% [5]. The percentage of all malaria cases reported confirmed by RDT or microscopy increased from 67% in 2011 to 83% in 2012 [9].

Microscopy requires a functional laboratory set-up and trained laboratory personnel [10]. In 2009, MLDM supported baseline assessment of malaria diagnosis capacity in 69 health facilities in Oromia Regional State showed that although most facilities (i.e. 51 [88%]) did provide malaria microscopy services, they faced a myriad of challenges, including limitations in trained personnel, functional laboratory equipment and microscopes; standard operating procedures (SOP) and guideline availability; and continuous supply of necessary reagents and materials [11]. In a subsequent, similar assessment showed that among 122 health facilities only 8% has minimum set of reagent and equipment for malaria microscopy [12].

## MLDM Description

In the past five years of the MLDM project, ICAP has contributed to the capacity building of the National Malaria Prevention and Control Program by supporting activities including:

Development of Malaria Laboratory Diagnosis Manual, Malaria Laboratory Diagnosis External Quality Assessment (EQA) Scheme Guidelines and related materials (e.g. SOPs, job aids for malaria light microscopy and rapid diagnostic tests), developed training materials for microscopists, clinicians, and health extension workers (HEWs)

Training of 2339 health workers (i.e. microscopists, clinicians, and program managers) have been trained on malaria and HIV laboratory diagnosis, fever case management, and approaches to managing malaria in HIV-infected patients.

Enrolled 345 health facilities in routine EQA programs for malaria, of which 99 were graduated from the support achieving greater than >90% of performance in blind rechecking EQA.

In addition, ICAP conducted a therapeutic efficacy study of currently used anti-malarial drugs in two sites in Oromia, and completed an assessment of adherence to the anti-malarial drug artemether-lumefantrine for treatment of uncomplicated *P. falciparum* infection, and completed an assessment of the burden of malaria-HIV co-infection in patients attending health facilities.

At the end of the project comprehensive support will have expanded to all facilities in malaria hot spot districts of Oromia (706 health facilities), and total of 313 selected health facilities from Amhara, SNNPR, Tigray and Dire Dawa regional states.

Because of the very large number of health facilities in Ethiopia, to date only 53% of facilities in Oromia and a small number of facilities in other states are getting routine supervision for malaria diagnosis. In collaboration with PEPFAR and other partners, opportunities are being explored to integrate supervision of malaria microscopy into their laboratories activities at their focus areas. In addition, ICAP will closely work to assist regional states to strengthen sub regional reference laboratories and pilot the use of laboratory staff from graduated hospitals to supervise nearby facilities that are not currently receiving supportive supervision.

In order to sustain the quality malaria diagnostic capacity at the supported sites ICAP will capacitate the Regional Reference Laboratories, Ethiopian Public Health Institute, Pharmaceutical Fund and Supply Agency and Federal Ministry of Health. Through the above mentioned activities MLDM project results will contribute to development objective (DO) 2, increased utilization of quality health services through improving the quality of malaria diagnosis and build the trust of clinicians and patients; and to intermediate result (IR) 2.2: improved health systems management and integration at the national and community level, through capacitating the national and regional reference laboratories to integrate HIV, malaria and TB diagnosis quality assurance.

Describe the theory of change of the project/program/intervention.

**If:**

- The skills of Laboratory technicians or technologists are enhanced through practical training on malaria microscopy and RDT,
- Adequate and quality supplies, equipment and reagents provided at all times
- There is a regular internal and external quality assurance/quality control activities implemented
- Effective communication and coordination is created among the national and regional reference laboratories; and health centers and hospitals.

**Then:**

- Availability of quality of malaria laboratory diagnosis is ensured at the project sites

Strategic or Results Framework for the project/program/intervention (*paste framework below*)

The goal of MLDM project is to strengthen the laboratory malaria diagnostic capacity in Ethiopia. The specific project objectives are to:

- Strengthen the partnerships and coordination of the national malaria laboratory diagnosis and monitoring activities involving all important malaria stakeholders in Ethiopia
- Scale up and strengthen the quality assurance (QA) activities and laboratory systems related to malaria laboratory diagnosis in collaboration with Regional Reference Laboratories and EHNRI
- Train selected malaria program, clinical and laboratory health professionals in malaria laboratory diagnosis and laboratory quality assurance and quality control (QA/QC) systems
- Conduct operation research projects as directed by PMI
- Improve fever/malaria case management at PMI project sites and in Ethiopia
- Strengthen the linkages between malaria, HIV and TB diagnostic and treatment services at health centers and hospitals in Ethiopia

What is the geographic coverage and/or the target groups for the project or program that is the subject of analysis?

At the end of the project comprehensive support will have expanded to all facilities in malaria hot spot districts of Oromia (706 health facilities), and total of 313 selected health facilities from Amhara, SNNPR, Tigray and Dire Dawa regional states. Target groups have included: microscopists, clinicians, and health extension workers

## IX. SCOPE OF WORK

- A. **Purpose:** Why is this evaluation or analysis being conducted (purpose of analytic activity)? Provide the specific reason for this activity, linking it to future decisions to be made by USAID leadership, partner governments, and/or other key stakeholders.

The overall objective of the evaluation is to evaluate the MLDM activity on improved quality of malaria and HIV diagnosis at the project sites

The purposes of the midterm evaluation are:

- (P1) To explore the association of the activity's investments and increased availability of quality malaria laboratory diagnosis in Ethiopia.
- (P2) To understand barriers the MLDM interventions have had to achieving the intended results as articulated in the cooperative agreement.
- (P3) To provide specific programmatic recommendations to the Mission and the Government of Ethiopia (GOE) for consideration in designing future programs to scale up and increase access to quality malaria diagnostic services in an integrated manner with other disease programs.

- B. **Audience:** Who is the intended audience for this analysis? Who will use the results? If listing multiple audiences, indicate which are most important.

The main users of the evaluation will be USAID/Ethiopia management and program staff who will use the evaluation to make programmatic decisions for most effective use of resources for public health impact. Additionally, the GOE and other PMI stakeholders should learn from the evaluation about efficiently leveraging resources for scale-up.

- C. **Applications and use:** How will the findings be used? What future decisions will be made based on these findings?

See above

- D. **Evaluation questions:** Evaluation questions should be: a) aligned with the evaluation purpose and the expected use of findings; b) clearly defined to produce needed evidence and results; and c) answerable given the time and budget constraints. Include any disaggregation (e.g., sex, geographic locale, age, etc.), they must be incorporated into the evaluation questions. USAID policy suggests 3 to 5 evaluation questions.

### Evaluation Question

1. (Purpose 1) To what extent is the quality of services maintained in facilities that have graduated, and what are the main determinants of their maintaining quality?
2. What role does gender play, or could gender play, in quality maintenance?
3. (P2) For results which were below anticipated targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why are there gaps in their achievement?
4. (P3) In what ways are project activities currently integrated with other disease programs such as HIV, and in what ways could collaboration be improved to leverage resources?

5. (P3) To what extent is the capacity and engagement of EPHI, Regional Reference Laboratories, zones and districts health offices being strengthened within the health sector to promote sustainability, and what are any barriers to this capacity-building?

6. (P3) Is the geographic program structure appropriate to meet the objectives of the cooperative agreement, and how could it be more cost-effective for potential scale-up?

Other Questions [OPTIONAL]

(**Note:** Use this space only if necessary. Too many questions leads to an ineffective evaluation.)

- E. **Methods:** Check and describe the recommended methods for this analytic activity. Selection of methods should be aligned with the evaluation questions and fit within the time and resources allotted for this analytic activity. Also, include the sample or sampling frame in the description of each method selected.

The Evaluation Contractor is expected to propose an evaluation design and methodology which is as rigorous as possible to answer the evaluation questions, while considering realistic time and budget constraints. The following section provides illustrative suggestions for evaluation design and methodology which an Evaluation Team may take into consideration, or propose alternative methods.

The overarching design of the evaluation is a case study of certain aspects of the activity such as integration with other disease programs, capacity building, and geographic program structure in order to understand barriers to and potential for scale-up. In order to examine determinants of sustained quality of services in facilities which have graduated, the evaluation may employ a simple before and after design. The Evaluation Team should also consider appropriate sex disaggregated data collection and analyses

This evaluation is a non-experimental design without a comparison group or randomized assignment. As it focuses primarily on implementation issues using descriptive methods, it is limited in statistical rigor. The Evaluation Team is expected to produce conclusions based on the available evidence, in consideration that much of the evidence will be self-reported through key informant interviews. The Evaluation Team must produce recommendations which combine an analysis of the findings with their own technical expertise.

■ **Document Review** (list of documents recommended for review)

MLDM Agreement document with ICAP's Proposal

MLDM Workplans

Baseline and other assessment reports

Progress reports on facility performance

MLDM Quarter and Annual activity report

MLDM Activity Monitoring & Evaluation Plan with PMP

MLDM routine indicator reporting data

MLDM Training reports

Publications and reports of research activities

Review Meeting Minutes of TWG and with other relevant stockholders

DQA assessment report

Micro-planning data

Ethiopia DHS (2011 & 2014 [if published])

Ethiopia Malaria Operational Plans (2008-2015) (<http://www.pmi.gov/where-we-work/ethiopia>)

■ **Secondary analysis of existing data** (*list the data source and recommended analyses*)

Data Source (existing dataset)	Description of data	Recommended analysis
Activity M&E plans	Indicator results	Trends analysis

■ **Key Informant Interviews** (*list categories of key informants, and purpose of inquiry*)

PMI Staff

IP staff

PEPFAR Partners

MOH Representatives familiar with MLDM

**Focus Group Discussions** (*list categories of groups, and purpose of inquiry*)

■ **Group Interviews** (*list categories of groups, and purpose of inquiry*)

Facility staff

**Client/Participant Satisfaction or Exit Interviews** (*list who is to be interviewed, and purpose of inquiry*)

■ **Facility or Service Assessment/Survey** (*list type of facility or service of interest, and purpose of inquiry*)

Graduated and non-graduated facilities

**Verbal Autopsy** (*list the type of mortality being investigated (i.e., maternal deaths), any cause of death and the target population*)

**Survey** (describe content of the survey and target responders, and purpose of inquiry)

**Observations** (list types of sites or activities to be observed, and purpose of inquiry)

**Data Abstraction** (list and describe files or documents that contain information of interest, and purpose of inquiry)

**Case Study** (describe the case, and issue of interest to be explored)

**Rapid Appraisal Methods** (ethnographic / participatory) (list and describe methods, target participants, and purpose of inquiry)

**Other** (list and describe other methods recommended for this evaluation, and purpose of inquiry)

### If Impact Evaluation—

Is technical assistance needed to develop full protocol and/or IRB submission?

Yes     No

List or describe case and counterfactual”

Case	Counterfactual
------	----------------

## X. ANALYTIC PLAN

Describe how the quantitative and qualitative data will be analyzed. Include method or type of analyses, statistical tests, and what data it to be triangulated (if appropriate). For example, a thematic analysis of qualitative interview data, or a descriptive analysis of quantitative survey data.

All analyses will be geared to answer the evaluation questions. Additionally, the evaluation will review of both qualitative and quantitative data related to MLDM’s achievements as it pertains to the project’s objectives and targets.

Quantitative data will be analyzed primarily using descriptive statistics. Whenever possible, the data will be stratified by demographic characteristics, such as sex, age, and location. Other statistical test of association (ie, odds ratio) and correlations will be run as appropriate. In the report the Evaluators will describe the statistical tests used.

Thematic and trend reviews of qualitative data will be performed. Qualitative data will be used to substantiate quantitative findings, provide more insights than quantitative data can provide, and answer questions where other data do not exist.

Use of multiple methods that are quantitative and qualitative, as well as existing data (e.g., project performance indicator data, and DHS) will allow the Team to triangulate findings to produce more robust evaluation results.

## XI. ACTIVITIES

List the expected activities, such as Team Planning Meeting (TPM), briefings, verification workshop with IPs and stakeholders, etc. Activities and Deliverables may overlap. Give as much detail as possible.

**Background reading** – Several documents are available for review for this evaluation. These include MLDM’s annual work plans, M&E plans, quarterly progress reports, and other project reports. USAID/Ethiopia and MLDM will make all relevant documents available to GH Pro and the Evaluation Team. This desk review will provide background information for the Evaluation Team, and will also be used as data input and evidence for the evaluation.

**Team Planning Meeting (TPM) in Ethiopia** – A three-day team planning meeting (TPM) will be held in Ethiopia before the evaluation begins. The TPM will:

- Review and clarify any questions on the evaluation SOW;

- Clarify team members' roles and responsibilities;
- Establish a team atmosphere, share individual working styles, and agree on procedures for resolving differences of opinion;
- Review and finalize evaluation questions;
- Review and finalize the assignment timeline and share with other units.
- Develop data collection methods, instruments, tools and guidelines;
- Review and clarify any logistical and administrative procedures for the assignment;
- Develop a data collection plan;
- Draft the evaluation work plan for USAID's approval
- Develop a preliminary draft outline of the team's report; and
- Assign drafting/writing responsibilities for the final report.

**Briefing and Debriefing Meetings** – Throughout the evaluation the Team Lead will provide briefings to USAID. The In-Brief and Debrief are likely to include the all Evaluation Team experts, but will be determined in consultation with the Mission. These briefings are:

- Evaluation **launch**, a call among the USAID/Ethiopia, GH Pro and the Team Lead to initiate the evaluation activity and review expectations. The Mission will review the purpose, expectations, and agenda of the assignment. GH Pro will introduce the Team Lead, and review travel schedule.
- **In-brief** with USAID/Ethiopia Health Office and M&E team representatives. The Evaluation Team will present an outline and explanation of the design and tools of the evaluation. Also discussed at the in-brief will be the format and content of the Evaluation report(s). It is recommended that the in-brief be split into two parts, one that occurs on the first day of the TPM for USAID to set expectations with the Evaluation Team; and the second round of the in-brief to occur at the end of the TPM for the Evaluation Team to share the workplan, methods, and schedule with the Mission. The in-brief that occurs at the end of the TPM should include a brief power point presentation of no more than 15 slides to give an overview of the Evaluation Team's understanding the evaluation purpose and questions. At this time, the Team will present the Evaluation workplan to USAID/Ethiopia staff for feedback. The presentation should be approximately 45 minutes, followed by 30 minutes of discussion. A draft of the presentation slides must be provided to the Evaluation Contracting Officer's Representative (COR) no later than 24 hours before the presentation if this meeting is held at the USAID office.
- The Team Lead will brief the Mission **weekly** to discuss progress on the evaluation. As preliminary findings arise, the TL will share these during the routine briefing, and in an email. (Note: preliminary findings are not final and as more data sources are developed and analyzed these finding may change.) During fieldwork, the TL should send USAID updates (not to exceed 2 pages of text) that cover:

- a. Sites visited
  - b. Data collection completed (e.g. number of interviews and surveys completed)
  - c. Trends observed, if any
  - d. Evaluation implementation challenges
  - e. Proposed changes to the Evaluation workplan (**Note:** major changes will require permission from USAID/Ethiopia).
- A final **debrief** will be held approximately 2 days before departure, between USAID/Ethiopia and the Evaluation Team. During this meeting a summary of the data will be presented, along with high level findings and draft recommendations. For the debrief, the Team will prepare a **PowerPoint Presentation** (no more than 25 slides with USAID branding) of the key findings, issues, and recommendations. Slides should be sent electronically to USAID/Ethiopia point of contact the day before the presentation, and should be accompanied by a brief written summary not to exceed 4 pages. These slides should include links between evaluation questions to findings (based on clear evidence), findings to conclusions, and conclusions to recommendations. The Evaluation recommendations should have clear decision-making steps which are actionable for USAID/Ethiopia. The debrief is estimated to take 90 minutes (45 minutes presentation; 45 minutes discussion), but Evaluation Team Lead will confirm this with USAID/Ethiopia when setting the appointment. The evaluation team shall incorporate comments received from USAID during the debrief in the evaluation report.

**Fieldwork, Site Visits and Data Collection** – The evaluation team will conduct site visits to MLDM support sites for data collection. Selection of sites to be visited will be finalized during TPM in consultation with USAID/Ethiopia. The evaluation team will outline and schedule key meetings and site visits prior to departing to the field.

## XII. DELIVERABLES AND PRODUCTS

Select all deliverables and products required on this analytic activity. For those not listed, add rows as needed or enter them under “Other” in the table below. Provide timelines and deliverable deadlines for each.

Deliverable / Product	Timelines & Deadlines
<input checked="" type="checkbox"/> Launch briefing/Kick-off call	August 7, 2015
<input checked="" type="checkbox"/> Workplan with timeline	August 14, 2015
<input checked="" type="checkbox"/> Analytic protocol with data collection tools	August 14, 2015
<input checked="" type="checkbox"/> In-brief with Mission or organizing business unit	August 17-21, 2015
<input checked="" type="checkbox"/> In-brief with target project / program	August 24-26, 2015
<input checked="" type="checkbox"/> Routine briefings (written)	Weekly
<input type="checkbox"/> Findings review workshop with stakeholders with Power Point presentation	
<input checked="" type="checkbox"/> Out-brief with Mission or organizing business unit with Power Point presentation	September 21, 2015
<input checked="" type="checkbox"/> Draft report	October 7, 2015

Deliverable / Product	Timelines & Deadlines
<input checked="" type="checkbox"/> Final report	October 23, 2015 (5 business days after receipt of comments from USAID/Ethiopia)
<input checked="" type="checkbox"/> Raw data	October 23, 2015 (same time of submission of the final report)
<input type="checkbox"/> Dissemination activity	
<input type="checkbox"/> Other (specify):	

### Estimated USAID Review Time

Average number of business days USAID will need to review deliverables requiring USAID review and/or approval? 5 Business days

### XIII. TEAM COMPOSITION, SKILLS AND LEVEL OF EFFORT (LOE)

**Evaluation team:** When planning this analytic activity, consider:

- Key staff should have methodological and/or technical expertise, regional or country experience, language skills, team lead experience and management skills, etc.
- Team leaders for evaluations must be an external expert with appropriate skills and experience.
- Additional team members can include research assistants, enumerators, translators, logisticians, etc.
- Teams should include a collective mix of appropriate methodological and subject matter expertise.
- Evaluations require an Evaluation Specialist, who should have evaluation methodological expertise needed for this activity. Similarly, other analytic activities should have a specialist with methodological expertise related to the
- Note that all team members will be required to provide a signed statement attesting that they have no conflict of interest, or describing the conflict of interest if applicable.

**Team Qualifications:** Please list technical areas of expertise required for this activities

- At least 10 years' experience in managing, designing and implementing evaluations
- Experience serving as the Evaluation Team lead in at least two similar performance evaluations related to health system in a cross-cultural setting
- Strong technical background on laboratory projects and/or malaria programming
- Excellent English communication skills (written and oral)
- Experience with the issues affecting genders differently in health programs
- Knowledge of the country context of the laboratory health system and malaria.

- At least 5 years' experience in qualitative data collection and analysis, preferably in Ethiopia
- Fluency in Amharic and English (Level 4)
- Strong English writing skills

List the key staff needed for this analytic activity and their roles. You may wish to list desired qualifications for the team as a whole, or for the individual team members.

**Key Staff 1 Title:** Team Lead (Note: This person should have strong technical skills duplicate other key staff positions; therefore, the Team Lead will be recruited fill both roles.)

**Roles & Responsibilities:** The team leader will be responsible for (1) managing the team's activities, (2) ensuring that all deliverables are met in a timely manner, including the final report, (3) serving as a liaison between the Mission and the evaluation team, and (4) leading briefings and presentations. The Team Lead will facilitate the TPM and assure evaluation methods are designed to illicit data and information needed to address the evaluation questions. S/He will oversee the development of all data collection instruments, data collection, data, analysis and report writing.

- Team management, coordination and supervision
- Ensure technical soundness of evaluation
- Ensure timeliness and quality of deliverables
- Advise and train local data collectors, as appropriate

**Qualifications:**

- At least 10 years' experience in managing, designing and implementing evaluations
- Experience serving as the Evaluation Team lead in at least two similar performance evaluations related to health system in a cross-cultural setting
- Strong technical background on laboratory projects and/or malaria programming
- Excellent English communication skills (written and oral)
- Experience with the issues affecting genders differently in health programs

**Key Staff 2 Title:** Laboratory and Diagnosis Specialist

**Roles & Responsibilities:** Serve as a member of the evaluation team, and provide technical expertise on laboratory diagnosis for malaria and HIV, as well as capacity building for laboratory workers

**Qualifications:**

- Strong technical background on laboratory projects and malaria programming
- At least 5 years' experience working in laboratory environment in Ethiopia or similar settings

- Experience in capacity strengthening in laboratory settings in Ethiopia or similar settings
- Excellent English communication skills (written and oral)
- Experience with the issues affecting genders differently in health programs

**Number of consultants with this expertise needed: 1**

**Key Staff 3 Title:** Evaluation specialist

Roles & Responsibilities: Serve as a senior member of the evaluation team, providing quality assurance in the field on issues related to evaluation protocols, standards and implementation, including methods, development of data collection instruments, protocols for data collection, data management and data analysis.

**Qualifications:**

- At least 10 years of experience in USAID M&E procedures, project and organizational management
- Strong knowledge, skills, and experience in qualitative and quantitative evaluation tools
- Experience in design and implementation of evaluations

Number of consultants with this expertise needed: 1

**Key Staff 4 Title:**

Roles & Responsibilities:

Qualifications:

Number of consultants with this expertise needed:

Other Staff Titles with Roles & Responsibilities (include number of individuals needed):

- 2 Research Assistants (local) will be hired to assist with qualitative and quantitative data collection, data entry, data analyses, and transcription of qualitative data.
- 1 Logistics/Program Assistant (local) will be hired to assist the team with arrangements for transportation, lodging, venues (as needed), setting appointments, and other assistance as needed.

**Note:** As the Team is recruited, it may be possible to hire a Research Assistant who can provide Logistic Support to the Team.

Will USAID participate as an active team member or designate other key stakeholders to as an active team member? This will require full time commitment during the evaluation or analytic activity.

Yes – If yes, specify who:

No

### Staffing Level of Effort (LOE) Matrix (Optional):

This optional LOE Matrix will help you estimate the LOE needed to implement this analytic activity. If you are unsure, GH Pro can assist you to complete this table.

- For each column, replace the label "Position Title" with the actual position title of staff needed for this analytic activity.
- Immediately below each staff title enter the anticipated number of people for each titled position.
- Enter Row labels for each activity, task and deliverable needed to implement this analytic activity.
- Then enter the LOE (estimated number of days) for each activity/task/deliverable corresponding to each titled position.
- At the bottom of the table total the LOE days for each consultant title in the 'Sub-Total' cell, then multiply the subtotals in each column by the number of individuals that will hold this title.

### Level of Effort in days for each Evaluation/Analytic Team member

Activity / Deliverable		Evaluation/Analytic Team			
		Lab Specialist	Evaluation Specialist	Data Collectors	Lead Data Collector / Logistics
		1	1	2	1
1	Launch Briefing	1	1		
2	Desk review & Data Synthesis	5	5		
3	Preparation for Team convening in-country				2
4	Travel to country	2	2		
5	Team Planning Meeting	3	3	1	3
6	In-brief with Mission	1	1		.5
	In-brief with target project/program w/ prep	1	1		1
7	Training data collectors	2	2	2	2
8	Prep / Logistics for Site Visits				2
9	Data collection / Site Visits	18	18	18	18
10	Data analysis	5	5	3	3
11	Debrief with Mission w/ prep	1.5	1.5		1.5
12	Review Mission feedback	1.5	1.5		1.5
13	Depart country	2	2		.5
14	Draft report(s)	8	8		2
15	GH Pro Report QC Review & Formatting				
16	Submission of draft report(s) to Mission				
17	USAID Report Review				

Activity / Deliverable		Evaluation/Analytic Team			
		Lab Specialist	Evaluation Specialist	Data Collectors	Lead Data Collector / Logistics
		1	1	2	1
18	Revise report(s) per USAID comments	4	4		1
19	Finalization and submission of report(s)				
20	508 Compliance Review				
21	Upload Eval Report(s) to the DEC				
<b>Sub-Total LOE</b>		<b>55</b>	<b>55</b>	<b>24</b>	<b>38</b>
<b>Total LOE</b>		<b>55</b>	<b>55</b>	<b>48</b>	<b>38</b>

If overseas, is a 6-day workweek permitted  Yes  No

**Travel anticipated:** List international and local travel anticipated by what team members.

Team Lead—travel DC—Addis

Team Lead & 2 Local Consultants – PMI sites within Ethiopia

#### XIV. LOGISTICS

**Note:** Most Evaluation/Analytic Teams arrange their own work space, often in their hotels. However, if Facility Access is preferred GH Pro can request it. GH Pro does not provide Security Clearances. Our consultants can obtain **Facility Access** only.

Check all that the consultant will need to perform this assignment, including USAID Facility Access, GH Pro workspace and travel (other than to and from post).

USAID Facility Access

Specify who will require Facility Access: All non-USAID staff

Electronic County Clearance (ECC) (International travelers only)

GH Pro workspace

Specify who will require workspace at GH Pro:

Travel -other than posting (specify):

Other (specify):

#### XV. GH PRO ROLES AND RESPONSIBILITIES

GH Pro will coordinate and manage the evaluation team and provide quality assurance oversight, including:

- Review SOW and recommend revisions as needed

- Provide technical assistance on methodology, as needed
- Develop budget for analytic activity
- Recruit and hire the evaluation team, with USAID POC approval
- Arrange international travel and lodging for international consultants
- Request for country clearance and/or facility access (if needed)
- Review methods, workplan, analytic instruments, reports and other deliverables as part of the quality assurance oversight
- Report production - If the report is public, then coordination of draft and finalization steps, editing/formatting, 508ing required in addition to and submission to the DEC and posting on GH Pro website. If the report is internal, then copy editing/formatting for internal distribution.

## **XVI. USAID ROLES AND RESPONSIBILITIES**

Below is the standard list of USAID’s roles and responsibilities. Add other roles and responsibilities as appropriate.

### **USAID Roles and Responsibilities**

**USAID** will provide overall technical leadership and direction for the analytic team throughout the assignment and will provide assistance with the following tasks:

#### **Before Field Work**

- **SOW.**
  - Develop SOW.
  - Peer Review SOW
  - Respond to queries about the SOW and/or the assignment at large.
- **Consultant Conflict of Interest (COI).** To avoid conflicts of interest or the appearance of a COI, review previous employers listed on the CV’s for proposed consultants and provide additional information regarding potential COI with the project contractors evaluated/assessed and information regarding their affiliates.
- **Documents.** Identify and prioritize background materials for the consultants and provide them to GH Pro, preferably in electronic form, at least one week prior to the inception of the assignment.
- **Local Consultants.** Assist with identification of potential local consultants, including contact information.

- Site Visit Preparations. Provide a list of site visit locations, key contacts, and suggested length of visit for use in planning in-country travel and accurate estimation of country travel line items costs.
- Lodgings and Travel. Provide guidance on recommended secure hotels and methods of in-country travel (i.e., car rental companies and other means of transportation).

### **During Field Work**

- Mission Point of Contact. Throughout the in-country work, ensure constant availability of the Point of Contact person and provide technical leadership and direction for the team's work.
- Meeting Space. Provide guidance on the team's selection of a meeting space for interviews and/or focus group discussions (i.e. USAID space if available, or other known office/hotel meeting space).
- Meeting Arrangements. Assist the team in arranging and coordinating meetings with stakeholders.
- Facilitate Contact with Implementing Partners. Introduce the analytic team to implementing partners and other stakeholders, and where applicable and appropriate prepare and send out an introduction letter for team's arrival and/or anticipated meetings.

### **After Field Work**

- Timely Reviews. Provide timely review of draft/final reports and approval of deliverables.

## **XVII. ANALYTIC REPORT**

Provide any desired guidance or specifications for Final Report. (See *How-To Note: Preparing Evaluation Reports*)

- The **Evaluation Final Report** must follow USAID's Criteria to Ensure the Quality of the Evaluation Report (found in Appendix I of the USAID Evaluation Policy, and copied below).
  - a. The report must not exceed 35 pages, not including appendices.
  - b. The structure of the report should follow the Evaluation Report template, including branding found here.
  - c. Draft reports must be provided electronically, in English, to the Evaluation COR.
  - d. The final report must be provided in English in both an electronic version and five (5) bound, hard copies to the Evaluation COR. The electronic and hard-copy versions of the Evaluation Report must be sent to the Evaluation COR before the end of the Evaluation period of performance. If the reports are being mailed from overseas, it is understood that there may be time delays before the report is received in hard-copy form.

- e. For additional Guidance, please see the Evaluation Reports to the How-To Note on preparing Evaluation Draft Reports found [here](#).

**Reporting Guidelines:** The draft report should be a comprehensive analytical evidence-based evaluation report. It should detail and describe results, effects, constraints, and lessons learned, and provide recommendations and identify key questions for future consideration. The report shall follow USAID branding procedures. ***The report will be edited/formatted and made 508 compliant as required by USAID for public reports and will be posted to the USAID/DEC.***

The preliminary findings from the evaluation will be presented in a draft report at a full briefing with USAID/Tanzania and possibly at a follow-up meeting with key stakeholders. The format for the evaluation report is as follows:

- Executive Summary: concisely state the most salient findings, conclusions, and recommendations (not more than 4 pages);
- Table of Contents (1 page);
- List of Acronyms
- Introduction: purpose, audience, and synopsis of task (1 page);
- Background: brief overview of BCC/social marketing program in Tanzania, USAID strategies and priorities, brief description of the program(s) purpose of the evaluation (2-3 pages);
- Methodology: describe evaluation design and data collection methods, including constraints and gaps (1 page);
- Findings/Conclusions/Recommendations: for each objective area (15-20 pages);
- Issues: provide a list of key technical and/or administrative issues identified (1-2 pages);
- Future Directions/Recommendations based on un gaps or innovation model to be scaled up (2-3 pages);
- References (including bibliographical documentation, meetings, interviews and focus group discussions);
- Annexes, which should include:
  - The Evaluation Scope of Work
  - Any “statements of differences” regarding significant unresolved difference of opinion by funders, implementers, and/or members of the evaluation team
  - Evaluation methods and all tools used in conducting the evaluation, such as questionnaires, checklists, survey instruments, and discussion guides
  - Sources of information, properly identified and listed

- Disclosure of conflicts of interest forms for all evaluation team members, either attesting to a lack of conflict of interest or describing existing conflict of interest.

**The evaluation methodology and report will be compliant with the USAID Evaluation Policy and Checklist for Assessing USAID Evaluation Reports**

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All data instruments, data sets, if appropriate, presentations, meeting notes and report for this evaluation will be presented to USAID electronically to the Evaluation Program Manager. All data will be in an unlocked, editable format.

**XVIII. USAID CONTACTS**

	<b>Primary Contact</b>	<b>Alternate Contact</b>	<b>Other Contact</b>
Name:	Josephine Francisco	Hiwot Teka	Gunawardena Dissanayake
Title:	Program Officer / Monitoring & Evaluation Advisor	Malaria Advisor	PMI Team Leader/Malaria Advisor
USAID Office/Mission	USAID/Ethiopia	USAID/Ethiopia	USAID/Ethiopia
Email:	jofrancisco@usaid.gov	hteka@usaid.gov	
Telephone:	+251-111-306427	+251-111-306753	+251-111-306259
Cell Phone (optional)			+251-911-249520

**XIX. REFERENCE MATERIALS**

Documents and materials needed and/or useful for consultant assignment, that are not listed above

1. WHO 2013. World Malaria Report 2013. Accessed on March 24, 2014 [www.who.int/malaria](http://www.who.int/malaria)
2. USAID. Lantos-Hyde United States Government Malaria Strategy 2009–2014. Accessed on March 24, 2014 [http://www.pmi.gov/resources/reports/usg\\_strategy2009-2014.pdf](http://www.pmi.gov/resources/reports/usg_strategy2009-2014.pdf)
3. Federal Ministry of Health Policy Planning Directorate: Health and Health Related Indicators 2011. Addis Ababa, Branna Press 2013.
4. Federal Ministry of Health: National Strategic Plan for Malaria Prevention, Control and Elimination in Ethiopia 2010-2015. Addis Ababa March 2009
5. World Health Organization: Guidelines for the treatment of malaria. Second Edition. Geneva, 2010.

6. Federal Ministry of Health: National Malaria Guidelines. Second Edition Addis Ababa, 2011.
7. FMOH 2013 Malaria Micro Plan.
8. President's Malaria Initiative, Malaria Operational Plan 2014. Accessed on March 25 2014. [http://www.pmi.gov/countries/mops/fy14/ethiopia\\_mop\\_fy14.pdf](http://www.pmi.gov/countries/mops/fy14/ethiopia_mop_fy14.pdf)
9. Petti CA, Polage CR, Quinn TC, Ronald AR, Sande MA: Laboratory Medicine in Africa: A Barrier to Effective Health Care. CID 2006; 42: 377–82
10. Hailegiorgis B, Girma S, Melaku Z., Teshi T, Demeke L, Gebresellasi S, Yadeta D, Tibesso G, Whitehurst N, Yamo E, Carter J, Reithinger R: Laboratory malaria diagnostic capacity in health facilities in five administrative zones of Oromia Regional State, Ethiopia. Trop Med Int Health 2010, 15 (12): 1449-57
11. Abreha T, Alemayehu B., Tadesse Y., Gebresillasi S., Tadesse A., Demeke L., Zewde F., Habtamu M., Tadesse M., Yadeta D., Teshome D., Mekasha A., Goben K., Bogale H., Melaku Z., Reithinger R., Teka H.: Malaria Diagnostic Capacity in Health Facilities in Ethiopia. Submitted to Malaria Journal 2014

## XX. EVALUATION DESIGN MATRIX

This design matrix may be helpful for connecting your evaluation methods to questions. Often more than one method can be employed in an analytic activity to obtain evidence to address more than one question. A method should be listed by question when it will include specific inquiries and/or result in evidence needed to address this specific question.

### Evaluation Matrix

S/ N	Evaluation Questions	Type of Answer Needed (e.g. descriptive, normative, cause-effect)	Data Collection Method(s)	Types of Respondents/ Participants/ Informants
I	(Purpose I) To what extent is the quality of services maintained in facilities that have graduated, and what are the main determinants of their maintaining quality? What role does gender play, or could gender play, in quality maintenance?	Normative, descriptive	<ul style="list-style-type: none"> <li>• Document review</li> <li>• Key informant interviews</li> <li>• Semi-structured interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing partner staff</li> <li>• PMI staff</li> </ul>

S/ N	Evaluation Questions	Type of Answer Needed (e.g. descriptive, normative, cause-effect)	Data Collection Method(s)	Types of Respondents/ Participants/ Informants
2	(P2) For results which were below anticipated targets related to scale-up, including intended scale-up of diagnostic capacity and coverage, why are there gaps in their achievement?	Descriptive	<ul style="list-style-type: none"> <li>• Direct observation; Survey of randomly selected graduated and non-graduated facilities using structured check-list</li> <li>• Key informant interviews</li> <li>• Semi-structured interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Facility staff</li> </ul>
3	(P3) In what ways are project activities currently integrated with other disease programs such as HIV, and in what ways could collaboration be improved to leverage resources?	Descriptive	<ul style="list-style-type: none"> <li>• Document review</li> <li>• Key informant interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing partner staff</li> <li>• PMI staff</li> <li>• PEPFAR partners</li> </ul>
4	(P3) To what extent is the capacity and engagement of EPHI, Regional Reference Laboratories, zones and districts health offices being strengthened within the health sector to promote sustainability, and what are any barriers to this capacity-building?	Descriptive	<ul style="list-style-type: none"> <li>• Key informant interviews</li> <li>• Desk review of reports, assessments and publications</li> </ul>	<ul style="list-style-type: none"> <li>• Beneficiaries from EPHI, Regional Reference Laboratories, zones and districts health offices</li> </ul>
5	(P3) Is the geographic program structure appropriate to meet the objectives of the cooperative agreement, and how could it be more cost-effective for potential scale-up?	Descriptive	<ul style="list-style-type: none"> <li>• Key informant interviews</li> <li>• Review of project documents</li> </ul>	<ul style="list-style-type: none"> <li>• Program staff</li> </ul>

# ANNEX B: METHODOLOGY

## ETHIOPIA MALARIA LABORATORY DIAGNOSIS AND MONITORING PROJECT (MLDM)

### Midterm Evaluation

August 11– October 23, 2015

Managed by Global Health Program Cycle Improvement Project (GH Pro)

### Methodology

(Revised for final publication on December 4, 2015)

In consultation with the United States Agency for International Development (USAID) / Ethiopia's Evaluation Contracting Officer's Representative (COR) for the MLDM Project and other members of the President's Malaria Initiative (PMI) USAID/Ethiopia (USAID/E) team, the GH Pro evaluation team will implement the following thirteen-step methodology with reference to the MLDM Project evaluation's scope of work (see Annex 1):

1. **Document Review** (August 11, 2015 and onwards): The evaluation team will review all relevant documents associated with the MLDM Project. The documents will be made available by Columbia University's International Center for AIDS Care and Treatment Programs (ICAP), ICAP partners, and by USAID/E. As a minimum, the documents will include the MLDM Contract and project management reports, technical, financial and administrative reports and data and USAID reports including, *inter alia*, the USAID-approved MLDM Monitoring and Evaluation Plan (M&E P), the USAID/CDC PMI-supported Malaria Operational Plan FY 2014 and USAID's vision for the future as documented in USAID/Ethiopia's *Laboratory Activity Harmonization Roadmap*. In addition, the document review will include reports and narratives prepared by the Government of Ethiopia with specific attention being directed toward a review of the Federal Democratic Republic of Ethiopia's Five-year National Malaria Prevention and Control Strategic Plan for the Control of Malaria in Ethiopia. As final component of the evaluation's review of documents, the evaluation team will reference published research documents that address progress in improving the quality of malaria diagnosis and treatment in Ethiopia as well as documents that report on progress achieved in assessing drug efficacy in the treatment of malaria.
2. **Team Planning** (August 17–20): Once assembled in Addis Ababa, the evaluation team undertook a four-day planning process in which it was first briefed by USAID/E's PMI team overview of the MLDM project, objectives of the midterm evaluation and overall expectations. The evaluation team then met internally before meeting again with USAID/E staff to discuss and agree upon the team's draft methodology, selection of sites, schedule and other issues associated with the team's technical approach to the evaluation. As part of this process of consultation with USAID/E's PMI Team and in consultation with the ICAP team, the evaluation team agreed upon the selection of respondents to be included in key informant interviews (KII) and upon the selection of MLDM sites to be assessed.
  - 2.1 Given the scope of work's limited three-week time frame for data collection (i.e. site visits and key informant interviews) and the logistics involved, the evaluation team and USAID/E PMI's team agreed on the initial limitation to 30 as the number of sites (health centers, hospitals, and regional laboratories) that could be realistically visited . At the

- same time, it was agreed that, should time and logistics permit, the total number of sites would be increased.
- 2.2 In selecting the 30 target sites and in recognition of time and logistical constraints associated with a three-week survey window, the team worked with USAID/E PMI and ICAP staff to apply a convenience sampling method in the selection of facilities that included health centers and hospitals that had graduated (e.g. met specific quality standards to be graduated from MLDM support) and those that had not yet graduated. In selecting specific sites to be visited, the evaluation team, working in consultation with USAID/E PMI and ICAP, determined that the evaluation would place an emphasis on facilities in Oromia region where much of MLDM's technical assistance had been focused. In addition, it was also agreed that the evaluation site visits would include a limited number of facilities in the regions of Amhara and SNNPR, both of which regions could be reached within the evaluation's data collection time frame.
  - 2.3 Based upon these criteria and on time and logistical constraints that necessarily and regrettably limited the number and geographic outreach of the evaluation's site visits, the evaluation team, working again in consultation with USAID/E PMI and ICAP, settled on a final list of 21 health centers, six hospitals and three regional laboratories. For a list of all sites selected and of alternative sites, please see Annex 2.
  - 2.4 With reference to KIIs, the evaluation team, with the assistance and advice of USAID/E PMI and ICAP, determined that, given the limited time frame, the most efficient way to proceed with key informant interviews was to focus on key representatives of institutions or agencies (e.g. the Ministry of Health, the Ethiopian Public Health Institute (EPHI), the Malaria Consortium, etc.) who could facilitate bringing together a group of informed individuals for joint interviews. Accordingly, twelve key respondent "groupings" were selected for the key informant interviews. For a list of individuals selected for key informant interviews, please see Annex 3.
  - 2.5 Finally, with reference to survey instruments, the evaluation developed four such standardized instruments for use in data collection in visits to (1) selected laboratories at health centers and hospitals; (2) clinical settings at health centers and hospitals; (3) regional laboratories and (4) for key informant interviews. The format and content of each of the instruments were reviewed by USAID/E PMI and modified based on USAID/E PMI's feedback prior to being tested in the field.
  - 2.6 **Field Testing of evaluation instruments and training (August 21-22):** Following the team planning sessions, the evaluation team, joined by the USAID/E PMI team, field tested the three site visit instruments in Bishoftu Hospital in Oromia. Following the visit to Bishoftu, the instruments were revised and submitted to USAID/E PMI for approval. All three site visit instruments and the standardized KII instrument were approved for use by USAID/E PMI on August 26th prior to the team's departure for the site visits. Templates for each of these instruments and for the KII are provided in Annex 4A – 4D. Following the revision of the instruments, the evaluation team facilitated an evaluation orientation for the three research assistants who will be responsible for data collection.
  - 2.7 **ICAP Briefing (August 24):** Before beginning the evaluation's data collection phase, ICAP provided the evaluation team with a 3-hour technical briefing and discussion. Supported by a PowerPoint presentation, the briefing provided ICAP's perspective on the MLDM's progress on achieving MLDM objectives with a discussion on the MLDM's strengths and weaknesses, its technical and managerial constraints focused on prospects

for sustainability, its plans for the remainder of the project and its vision on the future direction of technical assistance associated with further strengthening of Ethiopia's capacity for quality malaria laboratory diagnosis and monitoring.

3. **Data Collection: Key informant interviews, and Field Visits** (August 26-September 11): To facilitate the collection of data, the evaluation team was divided into three separate sub-teams, with each team consisting of a team leader and a research assistant. Based on the schedules for each team (please see Annex 5A-5C for the schedules of each team), the evaluation sub-teams are scheduled to meet with key respondents and to undertake field visits using the above standardized instruments. As a general objective, the goal of the interviews and site visits is to respond to the scope of work's central objective: "To evaluate the MLDM activity on improved quality of malaria and HIV diagnosis at the project sites" and, as such, to assess the extent to which the MLDM has accomplished its stated objectives. During the interviews and the field visits, the evaluation team will also assess technical, managerial, and administrative constraints and challenges associated with ICAP's implementation of the MLDM. In all instances, the evaluation team will approach interviews through the use of the approved standardized instruments. At the completion of each data collection day, the three sub-teams will summarize the results of their daily assessments. At the end of each work week, summaries of progress achieved in adhering to the data collection schedule, including constraints and adjustments to the schedule, will be emailed to the evaluation's team lead with the summaries being used as the basis for weekly emailed progress reports to USAID/E's PMI team. In addition, the summaries and data from the actual site visits and interviews will be used as input during the data analysis phase leading to the preparation of the preliminary draft report.
4. **Data Analysis** (September 12-21): Following the completion of the data collection and interview stage of the evaluation, the team will assemble in Addis Ababa to analyze data collected and the results of the KII. The analysis will serve as the basis for the preparation of an out-briefing for USAID/E's PMI team, and of the subsequent preparations of the preliminary draft report as well as the final report. The analysis will be both quantitative in nature (based on data collected on site and from documentation) and qualitative in nature (based on the findings associated with KIIs) with the qualitative findings used to expand upon and triangulate those of a quantitative nature. With reference to the data analysis process, the evaluation team will develop Excel-based data entry spreadsheets to record data collected using the standardized survey instruments employed during the site visits to health centers, hospitals and regional laboratories. In turn, the Excel-based spreadsheets will be used to generate tables and graphs that will serve as the basis for a presentation of descriptive statistics gathered through the use of the standardized health facility survey instruments. The presentation of descriptive statistics that will be quantitative in nature will, in turn, be supported by an analysis of the key informant interviews that while qualitative in nature, will be used to substantiate and expand upon the quantitative data. Where applicable, the qualitative and quantitative data will be applied to the development of tests for association to address linkages between the two sets of data. Finally, where applicable and where relevant to an evaluation of the project's enhancement of the quality of laboratory and clinical diagnosis and treatment of malaria, data will be stratified by demographic characteristics such as sex, age and location. In all instances, the analysis of data, whether qualitative or quantitative in nature will be employed to support evidence-based findings presented in the evaluation team's out-briefing to USAID/E PMI and in the preliminary draft report to be prepared following USAID/E PMI's feedback during the out-briefing. During this phase of the evaluation, the evaluation team will work with GH Pro's Washington-based technical officer to receive input on the analysis and the preparation of

out-briefing documentation. Toward the end of this phase of the evaluation, the evaluation team will prepare a USAID/E PMI out-briefing PowerPoint presentation, in consultation with GH Pro's Washington-based technical officer.

5. **Out-Briefing of USAID/E's PMI Team** (September 21): The evaluation team will facilitate the presentation of a focused PowerPoint-supported review and discussion of the team's preliminary findings. As specified in the scope of work, the out-briefing will provide a summary of data with high-level findings as well as draft action-oriented recommendations on ways in which, during the MLDM's remaining two years, the project can both build upon progress already achieved during the past seven years as well as to address issues identified during the evaluation. Finally, the out-briefing will present the team's recommendations on ways by which, in future years, to scale up the current outreach of quality improvements in laboratory diagnosis of malaria. While recommendations for the future will be significantly based on the results of discussions with key informants, the evaluation team will also draw on its own collective experience and expertise to expand and inform the recommendations' substantive content. Based on USAID/E's preference and the potential for the inclusion of procurement-sensitive information, USAID-E will determine whether ICAP and other MLDM partners will be invited to attend the out-briefing presentation and discussion.
6. **Revision of preliminary findings and agreement on preliminary draft writing assignments** (September 22-23): Based on clarifications and modifications suggested by the USAID/E during the out-briefing, the evaluation team will meet prior to the TL's departure from Ethiopia on September 24 to agree upon the technical content and focus of the evaluation's preliminary draft. During these final two days of its time together in Addis, the team will discuss the outline, writing assignments and schedules that will constitute the team's agreement on working parameters associated with the scope of work's "virtual" approach to the team's development of the evaluation report.
7. **Preparation and submission of 1<sup>st</sup> Draft** (September 28 – October 10): During this period, the evaluation team will work together via email consultations and, if feasible, via *Skype* or *Viber* in the preparation of the 1<sup>st</sup> draft report. The 1<sup>st</sup> draft will document and expand upon items covered in the September 21 out-briefing while incorporating comments and feedback from the USAID/E PMI team during the out-briefing. Depending upon direction from USAID/E's PMI team, the final 1<sup>st</sup> draft will be prepared in two versions, one for USAID/E that includes procurement sensitive findings and a second version for MLDM partners that is limited to the evaluation team's assessment of the MLDM's progress through September 2015. During this phase of the evaluation, the evaluation team will again work with GH Pro's Washington-based technical officer to receive input on the 1<sup>st</sup> draft. The evaluation team will submit the final 1<sup>st</sup> draft report to GH Pro on October 7 by close-of-business (US) for GH Pro's review and submission to USAID/E's PMI team by close-of-business (US) on October 10.
8. **USAID/E and ICAP Review of the 1<sup>st</sup> Draft** (October 9 – November 8): During this period, USAID/E and ICAP will review their separate versions (if indicated by USAID/E) of the final 1<sup>st</sup> draft of the evaluation report with comments and requests for modifications and clarification submitted to the evaluation team no later than November 8, close-of-business (Ethiopia).
9. **Preparation of the Evaluation Team's Final Draft** (October 29 – December 11): During this period, the evaluation team will prepare the final version of the evaluation report incorporating modifications and clarifications proposed by USAID/E PMI and, if indicated and approved by USAID/E PMI, by ICAP. During this phase of the evaluation, the

evaluation team will once more work with GH Pro's Washington-based technical officer to receive input on the final draft. This final contribution by the evaluation team will be provided to GH Pro on December 4<sup>th</sup> by close-of-business (US) for GH Pro's submission to USAID/E on December 7<sup>th</sup> by close-of-business (US). As an integral part of the final submission, the evaluation team will provide USAID/E-PMI with electronic copies of all approximately 80 surveys (40 facilities – 2 surveys each – one for lab techs and one for clinicians) and a master summary results of the key informant interviews, with identities of respondents masked to protect their anonymity. Finally, the evaluation team will provide an electronic copy of all Excel sheets used for data entry and for the preparation of graphs and charts. All such electronic data will be provided in a compact disk during the week of December 7-11.

10. **USAID/E Review of Evaluation Team's Final Draft** (Dates TBD): Upon submission of the evaluation team's final draft by GH Pro, USAID/E PMI will review the final team draft with comments forwarded to GH Tech on/about (Date TBD).
11. **GH Tech Preparation of Final Evaluation Report** (Dates TBD): Upon receipt of USAID/E PMI comments of the evaluation team's final report, GH Tech will prepare the final version of the report for submission to USAID on/about (Date TBD).



# ANNEX C: LIST OF MLDM MIDTERM EVALUATION RESPONDENTS

Annex C: Ethiopia ICAP/MLDM Midterm: List of Respondents Interviewed (* Key informants interview participants)					
Name	Organization	Position	Location	Email or Telephone	Date
USAID Ethiopia					
Dr. Gunawardena Dissanayake	USAID/Ethiopia	PMI Team Leader/Malaria Adviser	Addis Ababa	gdissanayake@usaid.gov	9/21/2015 (Present at in-briefing and out-briefing)
Ms. Hiwot Teka*	USAID/Ethiopia	Malaria Adviser	Addis Ababa	hteka@usaid.gov	9/8/2015
Mr. Gebeyehu Abelti*	USAID/Ethiopia	Malaria Adviser	Addis Ababa	gabelti@usaid.gov	9/8/2015
Ministry of Health - Government Health Officers					
Dr. Kebede Etana*	Ministry of Health	Case management coordinator	Addis Ababa	etanake@ gmail.com	9/8/2015
Mr. Tilahun Kebede*	Ministry of Health	Vector Control Officer	Addis Ababa	tilahunk93@ gmail.com	9/8/2015
Dr. Seife Bashaye*	Ministry of Health	Technical assistant for malaria and Global Fund Coordinator	Addis Ababa	s_bashaye @ yahoo.com	9/8/2015
Mr. Gashie Fentie*	Ministry of Health	Health Specialist-UNICEF-Seconded to the MOH	Addis Ababa	gashie_fentie @ yahoo.com	9/8/2015
Dr. Wasihun Edossa Toli*	Oromia Regional Health Bureau	Malaria and neglected tropical diseases Team Leader	Addis Ababa	wasihunchnage@ gmail.com	9/9/2015
Dr. Fitsume Kibert*	Oromia Regional Health Bureau	Malaria and neglected tropical diseases officer seconded by WHO	Addis Ababa	fitsumekibret@ gmail.com	9/9/2015
Gonfa Ayana Guta*	Ethiopia Public Health Institute	Director, Regional Laboratories Capacity Building Directorate	Addis Ababa	911215743	9/11/2015
Abeba Gebretsadik Reda*	Ethiopia Public Health Institute	Research Associate, malaria and neglected diseases	Addis Ababa	911455647	9/11/2015

<b>Annex C: Ethiopia ICAP/MLDM Midterm: List of Respondents Interviewed (* Key informants interview participants)</b>					
Name	Organization	Position	Location	Email or Telephone	Date
Ashenafi Assefa*	Ethiopia Public Health Institute	Researcher, Lead GGPD and Serology Project	Addis Ababa	911612555	9/11/2015
<b>Donor Agencies</b>					
Dr. Dereje Muluneh*	UNICEF	Health Specialist for Malaria	Addis Ababa	911239995	9/7/2015
Dr. Worku Bekele*	WHO	National Professional Officer/Malaria	Addis Ababa	workub@who.int	9/7/2015

<b>Collaborating Agencies</b>					
Dr. Agonafer Tekalegne	Malaria Consortium	Country Director	Addis Ababa	911216102	9/5/2015
Dr. Ayele Zwede	SMMES Project	Chief of Party	Addis Ababa	911764018	9/14/2015
<b>ICAP Staff</b>					
Zenebe Melaku, MD	ICAP	Country Director	Addis Ababa	zy2115@cumc.columbia.edu>	8/24/2015
Abreha Tesfay*	ICAP	MLDM Project Director and HIV/AIDS Adviser	Addis Ababa	ta2265@columbia.edu	9/14/2015
Tadesse Mekonnen*	ICAP	Malaria Laboratory Team Leader	Addis Ababa	mt2758@cumc.columbia.edu	9/14/2015
Tadesse Yehart*	ICAP	M&E Adviser - Operations Research	Addis Ababa	yt2362@columbia.edu	9/14/2015
Girma Samuel*	ICAP	Malaria Clinician	Addis Ababa	sg2643@columbia.edu	9/14/2015
<b>Health Facility Staff</b>					
Dama Muleta*	Adama regional Laboratory	Capacity Building Process owner	East Shoa	911388820	8/26/2015
Girma H/Mariam	Asgori Health Center	Clinician	South West Shoa	911763491	8/26/2015
Bethlehem Megerssa	Asgori Health Center	Lab Head	South West Shoa	113510301	8/26/2015
Eyael Desalegn	Bole Health Center	Quality Control Officer	East Shoa	945808622	8/27/2015
Kedir Borda	Bole Health Center	Health Center Head	East Shoa	945170471	8/27/2015
Fikru Uma Bati	Ejere Health Center	Laboratory Technologist	West Shoa	912103955	8/27/2015

Collaborating Agencies					
Nebiyu Seifu	Ejere Health Center	Nurse and Head of Health Center	West Shoa	0112830027	8/27/2015
Shewaye Tariku	Butajira Health Center	Clinician	Gurage	0926 99 67 13	8/27/2015
Adanech Mitiku	Butajira Health Center	Clinician	Gurage	0912 10 44 66	8/27/2015
Elfenes Subralla	Butajira Health Center	Lab Technician	Gurage	461150014	8/27/2015
Weliyu Awel	Butajira Health Center	Lab Head	Gurage	461150014	8/27/2015
Awol Bobaso	Koshe Health Center	A/ Head of Health Center	Gurage	922726816	8/27/2015
Hussen Janfa	Koshe Health Center	Clinician	Gurage	941088768	8/27/2015
Aklilu Nigatu	Koshe Health Center	Lab head	Gurage	913989984	8/27/2015
Wegayhu Wangoru	Koshe Health Center	Lab Technician	Gurage	913989984	8/27/2015
Tariku Lemma	Adama Hospital Medical college	Laboratory Head	East Shoa	9121415651	8/28/2015
Health Facility Staff					
Gemechu Gudissa	Adama Hospital Medical college	Quality Officer	East Shoa	921152299	8/28/2015
Dr Legese Alemayehu	Adama Hospital Medical college	Medical Director	East Shoa	911125199	8/28/2015
Dr Herana Arausa	Adama Hospital Medical college	Clinician (GP)	East Shoa	910029802	8/28/2015
Semir Bekir	Chiro Zonal Hospital	Laboratory Head	west Hararghe	910485353	8/31/2015
Dr Hammed	Chiro Zonal Hospital	Medical Director	West Hararghe	921160214	8/31/2015
Dr Mezigebu Dawit	Chiro Zonal Hospital	Clinician	West Hararghe	912310336	8/31/2015
Shewaye Nigussie	Ginchi Health Center	Laboratory Technologist	West Shoa	913716109	8/31/2015
Geleta Gemechu	Ambo Hospital	Acting Laboratory Head	West Shoa	913341172	8/31/2015
Tesfaye Girma	Ginchi Health Center	Woreda Hlth. Off. Technical Head	West Shoa	911824529	8/31/2015
Getachew Buko	Ginchi Health Center	Director of Health Center	West Shoa	910023950	8/31/2015
Dr. Tamene Taye	Ambo Hospital	Medical Director	West Shoa	912048710	8/31/2015
Mr. Mohamed Mieso	Arsi Negele Health Center	Head of Health Center	West Arsi	916872870	8/31/2015
Mr. Degu Ashene	Arsi Negele Health Center	Clinician	West Arsi	938960489	8/31/2015
MS Momina Abdela	Arsi Negele Health Center	Clinician	West Arsi	913488254	8/31/2015
Ebsa Dalecha	Arsi Negele Health Center	Lab Head	West Arsi	461161353	8/31/2015

Collaborating Agencies					
Ahemed Tulisa	Arsi Negele Health Center	Lab Technologist	West Arsi	461161353	8/31/2015
Orof Jemal	Hirna Health Center	Health Center Head	West Hararghe	920910505	9/1/2015
Selamawit Abebe	Hirna Health Center	Laboratory Head	West Hararghe	923960615	9/1/2015
Awol Jemal	Kuni Health Center	Laboratory Head	West Hararghe	927787922	9/1/2015
Eyasu Kebede	Kuni Health Center	Clinician	West Hararghe	9357346	9/1/2015
Dereja Leta	Awaro Health Center	Laboratory Technologist	West Shoa	913974497	9/1/2015
Getenesh Fidhesa	Awaro Health Center	Health Officer	West Shoa	911751044	9/1/2015
Bedilu Nigussie	Awaro Health Center	Head of Health Center	West Shoa	926760965	9/1/2015
Lema Seboka	Shashemene Referral hospital	Clinician	West Arsi	912259717	9/1/2015
Ahemed Adem	Shashemene Referral hospital	Lab Head	West Arsi	461180149	9/1/2015
Motama Amenu	Shashemene Referral hospital	Lab Quality Officer	West Arsi	461180149	9/1/2015
Abdurrahman Kureba	Doba Health Center	Laboratory Staff	West Hararghe	920449491	9/2/2015
Abdulhamid Mohammed	Doba Health Center	Clinician	West Hararghe	920899230	9/2/2015
Abebe Nigussie	Bedessa Health Center	Laboratory Staff	West Hararghe		9/2/2015
Gemeda Dechasa	Bedessa Health Center	Health Center Head	West Hararghe	915167590	9/2/2015
Health Facility Staff					
Abebe Dawud	Bedessa Health Center	Laboratory Head	West Hararghe	911033609	9/2/2015
Tamrat Wakuma	Woliso Health Center 2	Laboratory Technologist	West Shoa	t.wakuma @yahoo.co.uk	9/2/2015
Birhanu Tolera	Woliso Health Center 1	Laboratory Technologist	Southwest Shoa	925299163	9/2/2015
Hailu Dugassa	Woliso Health Center 1	Head of Health Center	Southwest Shoa	920821322	9/2/2015
Abdulkadir Oumar	Woliso Health Center 2	Health Officer	West Shoa	912177778	9/2/2015
Beyene Tadiwos	Dore Bafeno Health Center	Clinician	Sidama	0924 64 73 22	9/2/2015
Tesfay Tadesse	Dore Bafeno Health Center	Clinician	Sidama	0913 04 35 84	9/2/2015
Yegnawoyn Begene	Dore Bafeno Health Center	Clinician	Sidama	0916 02 92 42	9/2/2015
Lemlem Abay	Dore Bafeno Health Center	Lab Head	Sidama		9/2/2015
Gebreab Nega	Leku Health Center	Clinician	Sidama	920173439	9/2/2015
Adato Adela	Leku Health Center	Lab Head	Sidama	462260373	9/2/2015
Aklilu Tibebu	Measo Health Center	Laboratory Head	West Hararghe	911034828	9/3/2015

Collaborating Agencies					
Abate Reta	Measo Health Center	Laboratory Staff	West Hararghe	911070596	9/3/2015
Endalkachew Birhanu	Measo Health Center	Health Center Head	West Hararghe	930312976	9/3/2015
Bashir Adem	Measo Health Center	Clinician	West Hararghe	912311146	9/3/2015
Sintayehu Teshale	Derba Health Center	Laboratory Technologist	Finefine Zuria	910346665	9/3/2015
Abdulmelik Abda	Dukem Health Center	Laboratory Technologist	East Shoa	911049254	9/3/2015
Shimels Tolera	Derba Health Center	Health Officer	Finefine Zuria	942747656	9/3/2015
Kelemua Guta	Dukem Health Center	ART Provider and Health Officer	East Shoa	911340126	9/3/2015
Berkenehe Tilahun	Hawassa Referral Hospital	Clinician	Sidama	911551807	9/3/2015
Eshetu Neguse	Hawassa Referral Hospital	Lab Quality Officer	Sidama	462211916	9/3/2015
Hadis Abebe	Hawassa Referral Hospital	Lab technologist	Sidama	462211916	9/3/2015
Merihun Dawit	Hawassa Regional Lab	Acting lab head	Sidama	462120282/84	9/3/2015
Biniam Tamerat	Hawassa Regional Lab	Lab Technologist	Sidama	462120282/84	9/3/2015
Habtamu Ketema	Hawassa Regional Lab	Medical Parapsychologist	Sidama	462120282/84	9/3/2015
Beza T/Haimanot	Asebot Health Center	Laboratory Staff	West Hararghe	913417465	9/4/2015
Gemeda Bulti	Asebot Health Center	Health Center Head	West Hararghe	913284054	9/4/2015
Misganaw Muchi	Asebot Health Center	Clinician	West Hararghe	91128998	9/4/2015
Keshaun Biru	Wonji Showa Health Center	Laboratory Staff	East Shoa	910941114	9/7/2015
Sintayehu Tadesse	Wonji Showa Health Center	Health Center Head	East Shoa	911628469	9/7/2015
Health Facility Staff					
Elfesh Fanta	Wonji Showa Health Center	Clinician	East Shoa	913079231	9/7/2015
Yosef Gudeta	Awash Melkasa Health Center	Health Center head	East Shoa	911050971	9/7/2015
Kasim Aman	Awash Melkasa Health Center	Laboratory Staff	East Shoa	927229775	9/7/2015
Addis Abera	Awash Melkasa Health Center	Clinician	East Shoa	911832966	9/7/2015
Berihun Alem	Adet Health Center	Clinician	West Go jam	0918 80 11 66	9/7/2015
Mizan Nigeru	Adet Health Center	Clinician	West Go jam	0918 80 19 24	9/7/2015
Welelaw Beze	Adet Health Center	Lab Safety Officer	West Go jam	583380115	9/7/2015
Emebet Chalachew	Kimbaba Health Center	Clinician	Bahirdar Zuria	918130840	9/7/2015

Collaborating Agencies					
Mandefro Mekonnen	Kimbaba Health Center	Lab Technician	Bahirdar Zuria	588900292	9/7/2015
Tegegn Zewge	Dubisa Health Center	Laboratory Staff	East Shoa	927218047	9/8/2015
Dejene Mekonnen	Dubisa Health Center	Clinician	East Shoa	912858093	9/8/2015
Beshatu Futasa	Dubisa Health Center	Clinician	east Shoa	921361934	9/8/2015
Abdissa Ayele	Meki Health Center	Health Center head	East Shoa		9/8/2015
Tenaye Gessese	Meki Health Center	Laboratory Staff	East Shoa	911977036	9/8/2015
Abdisa Ayele	Meki Health Center	Health Center Head	East Shoa	913072730	9/8/2015
Feye Debele	Meki Health Center	Clinician	East Shoa	927274060	9/8/2015
Mulat Melese	Bahir Dar Regional Laboratory	Process Owner	Bahirdar Zuria	582201698	9/8/2015
Ermias Adamu	Wonji Kuriftu Health Center	Laboratory Staff	East Shoa	913192300	9/9/2015
Aster Mekoya	Wonji Kuriftu Health Center	Health Center Head	East Shoa	920399007	9/9/2015
Fasil Gebreyesus	Wonji Kuriftu Health Center	Clinician	East Shoa	911840034	9/9/2015
Yetemegn Abebe	Addis Zemen Health Center	Clinician	South Gondar	0918 04 85 03	9/9/2015
Tazeb Mola	Addis Zemen Health Center	Laboratory Head	South Gondar	584440008	9/9/2015
Getachew Antenehe	Merawi Health Center	Clinician	West Go jam	963761186	9/9/2015
Yalgaw Kumlachew	Merawi Health Center	A/ Head of Health Center	West Go jam	935859280	9/9/2015
Shegaw Belay	Merawi Health Center	Lab Head	West Go jam	583300489	9/9/2015
Tihitina Hailu	Modjo Health Center	Laboratory Staff	East Shoa	911046048	9/10/2015
Ayele Shishigu	Modjo Health Center	Clinician	East Shoa	911336256	9/10/2015
Wondim Anile	Durbete Health Center	Head of Health Center	West Go jam	0918 13 01 62	9/10/2015
Shirishu Kindu	Durbete Health Center	Clinician	West Go jam	0918 20 74 79	9/10/2015
Getachew Mengistu	Durbete Health Center	Lab Head	West Go jam	918024020	9/10/2015
Health Facility Staff					
Abita Alem	Wetet Abay Health Center	Clinician	West Go jam	918713344	9/10/2015
Birkua Neguse	Wetet Abay Health Center	Clinician	West Go jam	918494875	9/10/2015
Admasu Yalew	Wetet Abay Health Center	Lab Head	West Go jam	588900222	9/10/2015
Number of Respondents		123			

# ANNEX D: SURVEY INSTRUMENTS

## D.1—HEALTH FACILITY LABORATORY EVALUATION CHECKLIST

### ICAP/MLDM Evaluation: Health Facility Malaria Laboratory Evaluation Checklist

#### *Instructions*

Evaluator will complete this assessment instrument by utilizing the methods below to evaluate ICAP/MLDM-supported laboratory operations

- **Review laboratory records:** Verify that the laboratory and EQA manual, logs, SOPs and other manuals are complete, current, accurate, and regularly reviewed.
- **Observe laboratory operations to ensure that:**
  - practice matches written procedures in all phases of malaria/HIV examination;
  - processes are appropriate for the malaria/HIV testing performed;
  - Identified problems have been adequately investigated and resolved.

**Ask open ended questions:** To clarify observed documentation and on-site observations. Ask questions like, “show me how...” or “tell me about...” It is often not necessary to ask all the checklist questions verbatim. Evaluator can often learn the answers to multiple checklist questions through open-ended dialogue with the laboratory staff.

**Confirm that:** IQC results are recorded for all IQCs performed and that results are reviewed for validation.

**Review EQA:** Evaluate whether EQA results are documented and reviewed for corrective action.

#### **Evaluation Process**

This laboratory evaluation checklist contains different questions and responses to all questions with a range of possible responses including “yes”, “no”, don’t know or other responses.

- Items that receive a “yes” should be present and, in most cases, verified by observation by the evaluator;
- Items should be marked “no” based on the respondent’s answer or if a “yes” cannot be verified through observation;
- As indicated in selected questions, the evaluator should “tick” the appropriate answer from listed choices or write the answer under the “other specify”
- Finally an “NA” response may be applicable if the question is “not applicable” to a specific laboratory.

Date of the facility enrolled to ICAP/MLDM Project support \_\_\_\_\_

## INFORMED CONSENT (TO BE COMPLETED FOR EACH RESPONDENT)

### Introduction

“My name is.....I am collecting information that will help the evaluation team assess the ICAP/MLDM Project’s implementation. I will be talking with you in order to find out what supports provided to this health facility by MLDM in order to strengthen malaria diagnostic and treatment capacity and related activities. Information collected from this interview will be used to improve services of this project. Your participation in this survey is voluntary and no remuneration or any form of benefit is provided for this.

### Confidentiality and Consent

“I am going talk to you for a while about MLDM project implementation, its benefits, challenges, and areas for improvement for this and similar projects in the future. Your responses will be completely confidential and anonymous. You do not have to answer any questions that you do not feel comfortable with, and you may end this talk at any time you want to. However, your honest answers to these questions will help us accurately and responsibly evaluate the project. We would greatly appreciate your help in responding to this interview. The interview will take about **60 minutes**. Would you be willing to participate?”

1. **Yes:** Thank him/her and continue with the interview
  2. **No:** Note his reason briefly, thank him/her and proceed to the next respondent
- 

### CHECKED BY FIELD SUPERVISOR:

Signature \_\_\_\_\_ Date \_\_\_\_\_

Health Facility Profile				
Name of health facility			Date of Evaluation	
Type of health facility	Hospital	Health center	Other specify	
Address of health facility Region: Zone: Woreda:				
Telephone: Fax: Email:				
Facility Status (tick one)	<input type="checkbox"/> Graduated	<input type="checkbox"/> Non graduated		
Name of Laboratory Respondent(s) <i>(include all respondents)</i>			Title (s)	
Sex: _____ Qualification _____ Work experience at the facility _____				
Name of Evaluator(s):				
Laboratory Staffing Summary				
Profession	Number of Staff	Male	Female	Remarks
Laboratory Technologist (degree)/MSC				
Laboratory Technician (diploma)				
Malaria/ Laboratory Assistant (certificate)				
Other , specify				

I.	Training	Total	Male	Female	Remarks
1.1.	Number of laboratory staff who attended <b>ICAP</b> training for malaria microscopy and Malaria Rapid Diagnostic Test malaria (RDT) (indicate in Remarks who else providing training)	<input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (Tick one)			If records exist, the answer to this question will be based on the record. If not, this will be self-reporting. In either case, this information will be verified with ICAP during data analysis stage.
1.2.	Number of laboratory staff who attended <b>ICAP</b> training for HIV diagnostics (indicate in Remarks who else providing training)	<input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (Tick one)			If records exist, the answer to this question will be based on the record. If not, this will be self-reporting. In either case, this information will be verified with ICAP during data analysis stage.
1.3.	Is training provided by ICAP in malaria microscopy and RDT integrated with ICAP training in HIV diagnostics?	1. Yes 2. No 3. Don't know			
2.	Laboratory Set up				Remarks
2.1.	Does the laboratory have a work bench that is chemically resistant (laminated bench) <i>To be observed if possible</i>	1. Yes 2. No			
2.1.	Does the laboratory have a staining area? <i>To be observed if possible</i>	1. Yes 2. No			
2.2.	Does the laboratory have access to a water supply? <i>To be observed if possible</i>	1. Yes 2. No		If the answer is "No" skip to Q 2.5	
2.3.	If yes Q 2.3, is the water constant without interruption? <i>To be observed if possible</i>	1. Yes 2. No			
2.4.	Does the laboratory have a 24-hour power supply or a backup generator? <i>To be observed if possible</i>	1. Yes 2. No		If the answer is "No" skip to Q 2.7	
2.5.	If yes, do you ever experience interruption in the supply of power?	1. Yes 2. No			
2.6.	Is the laboratory facility ventilated? (e.g. open window) <i>To be observed if possible</i>	1. Yes 2. No			
2.7.	Does the laboratory have access to natural lighting? <i>To be observed if possible</i>	1. Yes 2. No			

2.8.	Does the laboratory have space for storage of supplies and reagents as per the manufacturer instruction? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, but not able to be observed 3. No	
<b>3.</b>	<b>Equipment</b>		<b>Remarks</b>
3.1.	Does the laboratory have a functional microscope? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is “No” skip to Q 3.7
3.2.	If the microscope is functional, does the microscope’s lamp have sufficient power to provide good illumination when the condenser aperture is set at the correct setting (x100 objective)? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
3.3.	Do you perform preventive maintenance for the microscope according to standard procedures prescribed in the operational manual? <b>Record to be observed if possible</b>	1. Yes 2. No	If not observed, skip to Q.3.5
3.4.	Is the microscope’s preventive maintenance log sheet maintained? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.5.	Who provided the microscope?	1. ICAP-CDC project 2. ICAP/MLDM project 3. Other, specify _____	
3.6.	Is there a spare bulb stored in the laboratory? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.7.	Does the laboratory have a functional timer? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.8.	Does the laboratory have a functional tally counter? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.9.	Does the laboratory have a staining rack? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.10	Does the laboratory have a drying rack? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.11	Does the laboratory have graduated cylinders? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.12	Does the laboratory have wash bottles? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	

3.13	Does the laboratory have a storage box for slides? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
3.14	Does the laboratory have a functional hematocrit centrifuge?	1. Yes, observed 2. Yes, not observed 3. Not available	
<b>4.</b>	<b>Supply and reagent</b>		<b>Remarks</b>
4.1.	During the last 6 months have you encountered shortage of supplies in any of the following laboratory supplies? (Tick where applicable)	1. Yes, 2. No 3. I don't know	If the answer is "No" or I don't know skip to Q 5
	4.1.1. Malaria staining solution	<input type="checkbox"/>	
	4.1.2. Slide	<input type="checkbox"/>	
	4.1.3. Alcohol and cotton (or similar) for blood collection	<input type="checkbox"/>	
	4.1.4. Lancet	<input type="checkbox"/>	
	4.1.5. Methanol	<input type="checkbox"/>	
	4.1.6. Buffer salts or buffer tablets	<input type="checkbox"/>	
	4.1.7. Immersion oil	<input type="checkbox"/>	
	4.1.8. Lens paper	<input type="checkbox"/>	
	4.1.9. Other (specify in remarks)	<input type="checkbox"/>	
<b>5.</b>	<b>Staining solutions</b>		<b>Remarks</b>
5.1.	Are staining solutions stored in a brown bottle? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
5.2.	Are stocks of staining solutions stored in a dark place and not close to a heat source? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
5.3.	Are staining solutions within the manufacturer's expiry date as indicated on the botte? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
5.4.	Are reagents/ staining solutions clearly labeled? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
5.5.	Are inventory records for the laboratory's malaria staining solution complete and accurate, with minimum and maximum stock levels noted? <b>(check bin card or record against the available staining solution)</b>	1. Yes, observed 2. Yes, not observed 3. No	

6. Malaria RDT/HIV Kits		Remarks
6.1.	Are malaria RDT kits stored according to the manufacturer's instructions? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No 4. Not applicable because facility does not store kits.
6.2.	Are expired malaria RDT kits still available? <b>To be observed if possible</b>	1. Yes, 2. No
6.3.	Are HIV kits stored according to the manufacturer's instructions? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No 4. Not applicable because facility does not store kits.
6.4.	Are expired HIV kits still available? <b>To be observed if possible</b>	1. Yes 2. No
6.5.	Is fridge temperature recorded daily?( If available ) <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No
6.6.	Is room temperatures monitored and recorded daily? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No
7. Laboratory Services		Remarks
7.1.	Does the laboratory preform malaria microscopy?	1. Yes, 2. No
7.2.	Does the laboratory prepare blood films for malaria microscopy? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No
7.3.	If yes (Q 7.2), does the laboratory perform thin blood smears for laboratory diagnosis? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No
7.4.	If yes (Q 7.2), does the laboratory perform thick blood smears for laboratory diagnosis? <b>To be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No
7.5.	Does the laboratory perform malaria rapid diagnostic tests (RDT)?	1. Yes, 2. No
7.6.	Does the laboratory perform rapid HIV tests?	1. Yes, 2. No
7.7.	Have malaria laboratory services been interrupted during the past 6 months?	1. Yes, 2. No
7.8.	If yes, for approximately how many days in the last 6 months?	_____

7.9.	If malaria laboratory service was interrupted within the last 6 months what was /were the reason/s?	1. Shortage of Staining solution 2. Shortage of supplies 3. microscope problem 4. Shortage of trained staff 5. Interruptions in power supply 6. other, specify _____	
<b>8.</b>	<b>Document and Record</b>		<b>Remarks</b>
8.1.	Does the laboratory have the following malaria laboratory diagnosis documents and records in place? <b>Observe document and records for the following</b>		
8.1.1.	EQA Guideline for malaria laboratory diagnosis	1. Yes, observed 2. Not available	
8.1.2.	Guideline for malaria microscope laboratory diagnosis	1. Yes, observed 2. Not available	
8.1.3.	SOP for malaria laboratory diagnosis <b>(check which SOPs available)</b>	<input type="checkbox"/> Sample collection <input type="checkbox"/> Staining, examination <input type="checkbox"/> Quality control <input type="checkbox"/> Reporting	
8.1.4.	Malaria Laboratory result logbook maintained	1. Yes, observed 2. Not available	
8.1.5.	Malaria Laboratory job aid displayed	1. Yes, observed 2. Not available	
8.1.6.	Malaria Laboratory bench aid displayed	1. Yes, observed 2. Not available	
8.1.7.	QA protocol in place for malaria RDTs (if done)	1. Yes, observed 2. Not available 3. Not applicable	
<b>9.</b>	<b>Quality Assurance</b>		<b>Remarks</b>
9.1.	<b>Internal Quality Control</b>		3
9.1.1.	Do you prepare smear slides from known positive and negative samples to check the quality of reagent? <b>Observe</b>	1. Yes, observed 2. Yes, not observed 3. No	
9.1.2.	Do you perform internal quality control of the stain reagents for the smear slides prepared? <b>Self-reporting</b>	1. Yes 2. No	<b>If no, skip to Q. 9.1.4</b>
9.1.3.	If yes, are quality control results for malaria microscopy documented? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
9.1.4.	Are stained slides rechecked by another person in the laboratory? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	

9.1.5.	Do you perform internal quality control for Malaria RDTs? <b>Self-reporting</b>	1. Yes 2. No 3. Not applicable because RDTs are not performed.	If no or not applicable skip to Q. 9.1.7
9.1.6.	Are quality control results for malaria RDT documented? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
9.1.7.	Do you perform internal quality control for HIV tests? <b>Self-reporting</b>	1. Yes 2. No	If no, skip to Q. 9.2
9.1.8.	Are Quality control results for HIV documented? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. Not available	
<b>9.2.</b>	<b>External Quality Assurance (EQA)</b>		<b>Remarks</b>
9.2.1.	Does the laboratory participate in a malaria EQA program?	1. Yes 2. No	If the answer is "No", skip to Q 9.2.7
9.2.2.	If yes, in which malaria EQA programs did the laboratory participate? (tick all that apply)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blind Rechecking <input type="checkbox"/> On-site evaluation	
9.2.3.	If the laboratory participated in malaria Proficiency testing(PT) (Q. 9.2.2) <b>Record to be observed if possible for the following)</b>		
9.2.3.1	How many times did the laboratory participate in a malaria PT EQA program within last 12 months?	_____	
9.2.3.2	Did you receive feedback from the provider of the program on the results of all malaria PT EQA programs carried out?	1. Yes, all, observed 2. Yes, partially observed 3. Yes, all not observed 4. Yes, partially not observed 5. No	If the answer is "No", skip to Q 9.2.4
9.2.3.3	If yes, how long on average has it taken to receive feedback on the results from the provider who performed the PT EQA program?	_____ days	
9.2.3.4	Was the documentation on all PT EQA results within acceptable range? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is "Yes", skip to Q 9.2.4
9.2.3.5	If not, was corrective action taken & documented for unacceptable PT EQA results? Record to be observed if possible	1. Yes, observed 2. Yes, not observed 3. No	

	9.2.4. If the laboratory did not participate in malaria blinded rechecking (Q 9.2.2), did it participate before graduation? <i>(for graduated facility only)</i>	1. Yes 2. No	
	9.2.5. If the laboratory participated in malaria blinded rechecking (Q 9.2.2): <i>(For the following record to be observed if possible):</i>		
	9.2.5.1 How many times did the laboratory participate in the Malaria Blinded Rechecking EQA program within last 12 months?	_____	
	9.2.5.2 Did you receive feedback on the results on all malaria EQA Blinded Rechecking undertaken?	1 Yes, all, observed 2 Yes, partially observed 3 Yes, all not observed 4 Yes, partially not observed 5 No	If the answer is “No”, skip to Q 9.2.6
	9.2.5.3 If yes, how long on average did it take to get a feedback from the provider on the results of the blinded rechecking?	_____ days	
	9.2.5.4 Was the documented Malaria EQA result for all blinded rechecking within acceptable range? <i>Record to be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is “Yes”, skip to Q 9.2.6.
	9.2.5.5 If not, was corrective action taken & documented for unacceptable Malaria EQA results? <i>Record to be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	
	9.2.6. If the laboratory was provided with a Malaria On-site evaluation (Q.9.2.2). <i>Record to be observed if possible for the following:</i>		
	9.2.6.1 Was the onsite-evaluation integrated with one for HIV?	1 Yes, always 2 Yes, but not always 3 No	
	3.2.6.1 How many times was the laboratory provided with an on-site malaria-evaluation within the last 12 months?	_____	
	3.2.6.2 Did you receive feedback during the on-site evaluation?	1. Yes, always 2. Yes, but not always 3. No	If the answer is “no”, skip to Q.9.2.7
	3.2.6.3 Were differences during on-site evaluation discussed and agreed upon?	1. Yes, always 2. Yes, but not always 3. No	

	3.2.6.4 Was corrective action taken & documented as per on-site evaluation feedback? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
	9.2.7. Did the laboratory participate in an HIV EQA program?	1. Yes 2. No	If the answer is "No", skip to Q 9.3
	9.2.8. If yes, which HIV EQA schemes, (tick all that apply)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blind Rechecking <input type="checkbox"/> On-site evaluation	
	9.2.9. If the laboratory participated in HIV Proficiency testing (Q. 9.2.8) <b>Record to be observed if possible for the following:</b>		
	9.2.9.1 How many times did the laboratory participate in the HIV PT EQA program within the last 12 months?	_____	
	9.2.9.2 Did you receive feedback from the HIV PT EQA program provider for all tests?	1 Yes, all, observed 2 Yes, partially observed 3 Yes, all not observed 4 Yes, partially not observed 5 No	If the answer is "No", skip to Q 9.2.10
	9.2.9.3 If yes, how long on average did it take to get a feedback on the results from HIV PT EQA program provider?	_____ days	
	9.2.9.4 Were the documented HIV PT EQA results within acceptable range? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is "Yes", skip to Q 9.2.10.
	9.2.9.5 If not, was corrective action taken & documented for unacceptable HIV EQA results? <b>Record to be observed if possible</b>	1. Yes, observed 2. Yes, not observed 3. No	
	9.2.10. If the laboratory participated in HIV Blinded Rechecking. (Q. 9.2.8) <b>Record to be observed if possible for the following:</b>		
	9.2.10.1 How many times did the laboratory participate in HIV Blinded Rechecking for EQA within last 12 months?	_____	
	9.2.10.2 Did you receive feedback on the results for all HIV Blinded Rechecking EQA program during the past 12 months?	1 Yes, all, observed 2 Yes, partially observed 3 Yes, all not observed 4 Yes, partially not observed 5 No	If the answer is "No", skip to Q 9.2.11

	9.2.10.3 If yes, how long on average did it take to receive feedback from the provider on the results of the blinded rechecking?	_____ days	
	9.2.10.4 Was the documented EQA result within acceptable range for all blinded rechecking? <i>Record to be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is "Yes", skip to Q 9.2.11
	9.2.10.5 If not, was corrective action taken & documented for all unacceptable EQA results? <i>Record to be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	
	9.2.11. If the laboratory participated in HIV- on-site evaluation (Q. 9.2.8). <i>Record to be observed if possible for the following:</i>		
	9.2.11.1 How many times was the laboratory provided with an on-site HIV evaluation within the last 12 months?	_____	
	9.2.11.2 Did you receive feedback during the HIV on-site evaluation?	1. Yes, always 2. Yes, but not always 3. No	
	9.2.11.3 Were differences during HIV on-site evaluation discussed and agreed upon?	1. Yes, always 2. Yes, but not always 3. No	
	9.2.11.4 Was corrective action taken & documented for as per on-site evaluation feedback? <i>Record to be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	
<b>9.3. Supportive supervision</b>			<b>Remarks</b>
9.3.1	Did you receive support supervision during the last 12 months?	1. Yes 2. No	If no, skip to Q 9.4
9.3.2	If yes, who provided? <i>(tick all that apply)</i>	<input type="checkbox"/> Government/RHB <input type="checkbox"/> ICAP/ MLDM <input type="checkbox"/> Joint (ICAP & Government)	
9.3.3	If yes (Q 9.3.1) how many times were support supervisions provided during the last 12 months?	_____	
9.3.4	What programs were covered during the last supportive supervision? <i>(tick all that apply)</i>	<input type="checkbox"/> Malaria <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> TB <input type="checkbox"/> Other ( <i>specify</i> ) _____	

9.4. Quality indicator			
9.4.1	Does the laboratory have indicators for quality maintenance related to malaria? <i>To be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is "No", skip to Q 10
9.4.2	If yes, are they reviewed monthly? <i>To be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	
9.4.3	Does the laboratory have an improvement plan? <i>To be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	If the answer is "No", skip to Q 10
9.4.4	If yes, have the required actions have been acted upon? <i>Plan to be observed if possible</i>	1. Yes 2. Yes, not observed 3. No	
10. Safety and Waste Disposal Practice			Remarks
10.1	Is a safety box/sharp container available and placed next to working station? <i>To be observed</i>	1. Yes, observed 2. No	
10.2	Is a biohazard bag for non-sharp materials available and placed next to working station? <i>To be observed</i>	1. Yes, observed 2. No	
10.3	Do laboratory staff wear protective laboratory coats/gowns? <i>To be observed if possible</i>	1. Yes, observed 2. Yes, not observed 3. No	
10.4	Are hand washing facilities with soap (or similar) available? <i>To be observed</i>	1. Yes, observed 2. No	

	Malaria Diagnosis Data	Total Tested cases	Total # positive cases	Remarks
	Hamle 2006			
	Nehase 2006			
	Meskerem 2007			
	Tikimt 2007			
	Hidar 2007			
	Tahsa 2007			
	Tir 2007			
	Yekatit 2007			
	Megabit 2007			
	Miazia 2007			

	Ginbot 2007			
	Sene 2007			

**Summary of Visit**

Do you have any comments not covered in our discussion that you believe would be useful to improve the ICAP's services during the project's remaining two years?

If you were provided with integrated Malaria/HIV training, what has been the impact of the integrated training on the quality of laboratory diagnostic services?

**For Graduated Facilities:** What is your opinion about the sustainability of quality malaria and HIV laboratory services for those services that have graduated from ICAP malaria project support?

Do you have any comments not covered in our discussion that you believe would be useful as we consider ways in which continue to support the development of quality malaria and HIV laboratory services following the November 2017 completion of the ICAP Project? What is your opinion on mechanisms for effective scale-up?

**Thank you**

Evaluator signature \_\_\_\_\_

Date \_\_\_\_\_

## D.2—HEALTH FACILITY CLINICAL PRACTICE EVALUATION CHECKLIST

### ETHIOPIA MALARIA LABORATORY DIAGNOSIS AND MONITORING PROJECT (MLDM) MIDTERM EVALUATION

#### QUANTITATIVE QUESTIONNAIRE

#### QUESTIONS FOR CLINICIANS AND HEAD OF HEALTH FACILITY

##### Identification Data

Q01 QUESTIONNAIRE IDENTIFICATION NUMBER |\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|

Q02 Region \_\_\_\_\_

Q03 Zone \_\_\_\_\_

Q04 Woreda \_\_\_\_\_

Q05 Name of health facility \_\_\_\_\_

Q06 Type of HF: \_\_\_\_\_

Q07 Graduation Status (tick one):  Graduated  Full Service

Q07 Telephone: \_\_\_\_\_

Q08 Name of interviewer: \_\_\_\_\_

Q09 Date of interview: \_\_\_\_\_

Q010 Time interview started: \_\_\_\_\_

**a. Informed Consent (to be completed for each respondent)**

**b. INTRODUCTION**

“My name is.....I am collecting information that will help us understand how ICAP/MLDM Project is being implemented. I will be talking with you in order to assess the quality of support for strengthening malaria diagnostic and treatment capacity and related activities provided by ICAP to this health facility. Information collected from this interview will be used to improve services of this project and future projects. Your participation in this survey is voluntary and no remuneration or any form of benefit is provided for this.

#### CONFIDENTIALITY AND CONSENT

“I am going talk to you for a while about MLDM project implementation, its benefits, challenges, and opportunities for improvement for this and similar projects in the future. Information you provide will be strictly confidential and will not be analyzed as having come from your health facility. You do not have to answer any Page 97 of 154 questions that you do not feel comfortable with and you may end this discussion at any time. Your frank and open response to our questions will help us better understand the project. We would greatly appreciate your help in responding to this interview. The interview will take about **60 minutes**. Would you be willing to participate?”

1. **Yes:** Thank him/her and continue with the interview
  
2. **No:** Note his reason briefly, thank him/her and proceed to the next household \_\_\_\_\_

**CHECKED BY FIELD SUPERVISOR:**

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Instruction to the interviewer:** These questions should be responded to by the head of health facility if available and/or by health professionals working on patient diagnosis and management at the outpatient department of the health facility. If there is more than one health professional working on patient diagnosis and management, the one(s) who are most knowledgeable about the ICAP malaria and HIV programs should be selected and interviewed together with the head of health facility or his/her representative.

No.	Questions And Filters	Coding Categories	Skip To	Remarks
Q101	Name(s) of respondent (s)	1. _____ 2. _____ 3. _____		
Q102	Sex of the respondent(s)	1. M _____ F _____ 2. M _____ F _____ 3. M _____ F _____		
Q103	Position(s) in the health facility	1. _____ 2. _____ 3. _____		
Q104	Contact telephone number(s)	_____ _____ _____		
Q105	Catchment population	_____		
Q106	Admission bed capacity at this facility (total)	_____		
Q107	Number of clinical staff in the health facility	Specialist doctors _____ General practitioner doctors _____ Health officers _____ Medical interns _____ Nurses _____ Health assistants _____ _____ Others (specify)		
Q108	Number of above clinical staff that perform clinical malaria diagnoses?	_____		
Q109	Number of above clinical staff that perform clinical HIV diagnoses.	_____		

No.	Questions And Filters	Coding Categories	Skip To	Remarks
Q110	Number of clinical staff that have attended training in malaria/fever management by category	Specialist doctors _____ General practitioner doctors _____ Health officers _____ Medical interns _____ Nurses _____ Health assistants _____ _____ Others (specify)		If no trained persons skip to Q113
Q111	Who provided/supported the training? (Circle all that apply)	Woreda Health Office 1 RHB 2 ICAP/MLDM staff 3 RHB/ICAP 4 _____ Other (specify) 5		
Q112	Did the training include managing malaria in HIV-infected patients?	Yes 1 No 2 Don't know 3		
Q113	What criteria are used to do malaria testing (age, symptoms, and ability to pay, other) for a patient? (Circle all that apply)	Symptom 1 Age 2 Ability to pay 3 Epidemiology (coming from malarious area) 4 _____ Other (Specify) 5		
Q114	Is National Malaria Treatment Guideline available in the room where patients are treated for malaria?	Yes, observed 1 Not available 2		
Q115	Are the following bench aids available in your clinic? approaches to diagnosis of acute fever in adults	Yes, observed 1 Yes, but not observed 2 Not available 3		
	flow chart of diagnosis and treatment of malaria	Yes, observed 1 Yes, but not observed 2 Not available 3		
	treatment schedules for artemether-lumefantrine, chloroquine, artesunate and quinine	Yes, observed 1 Yes, but not observed 2 Not available 3		
Q116	How do you manage febrile patients with negative test result for malaria? (more than one answer is possible)	Request for repeat blood test 1 Treat empirically with ACT 2 Treat empirically with Chloroquine 3 Investigate for other AFI 4 _____ Other (specify) 5		

No.	Questions And Filters	Coding Categories	Skip To	Remarks
Q117	If the malaria lab result does not go with your clinical findings, what would you do? <i>(more than one answer is possible)</i>	Treat the patient empirically for malaria 1 Discuss with lab staff and repeat the test 2 Treat/test patient for other conditions 3 _____other (specify) 4		
Q118	Are laboratory request forms completed for every patient?	Yes, always 1 Yes, sometimes 2 Not at all 3 Not available in the facility 4		
Q119	What information is included in the lab request form? <i>(circle all that are applicable)</i>	Patient name 1 Patient age 2 Patient sex 3 Clinic number 4 Clinical impression 5 Clinician's name 6 _____ Other (specify) 7		
Q120	Do you (clinicians) include the clinical history/impression on the request form?	Yes 1 No 2		
Q121	Have there been any external supportive supervision visits for malaria case management during the last six months?	Yes 1 No 2	If "no" skip to Q127	
Q122	If yes, who visited?	Woreda Health Office 1 RHB 2 ICAP/MLDM staff 3 Joint MOH/ICAP 4 _____ Other (specify) 5		
Q123	If yes, did you receive written feedback on your performance about malaria diagnosis and management from the supervisors?	Yes 1 No 2		
Q124	If yes, was the feedback useful?	Very useful 1 Somewhat useful 2 Not useful 3		

No.	Questions And Filters	Coding Categories	Skip To	Remarks
Q125	If yes, did the supervision include HIV diagnosis and treatment?	Yes No	1 2	
Q126	If yes, did the supervision include TB diagnosis and treatment?	Yes No	1 2	
Q127	Is the following clinical equipment functioning/working in the facility (inpatient/outpatient departments) (If possible, observe for each of the following items.)			
	Otosopes	Observed Not working Not available	1 2 3	
	Stethoscopes	Observed Not working Not available	1 2 3	
	BP machines	Observed Not working Not available	1 2 3	
	Thermometers	Observed Not working Not available	1 2 3	
	Torches/flashlights	Observed Not working Not available	1 2 3	
	Weighing scales (adults)	Observed Not working Not available	1 2 3	
	Weighing scales (infants)	Observed Not working Not available	1 2 3	

Q129. Do you have any comments not covered in our discussion and think would be useful to improve the project's services?

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Q130. **For Graduated Facilities:** What is your opinion about the sustainability of quality malaria and HIV laboratory services for those services that have graduated from ICAP malaria project support?

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Q131. If you were provided with integrated Malaria/HIV training, what has been the impact of the integrated training on the quality of laboratory diagnostic services?

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Q132. Do you have any comments not covered in our discussion that you believe would be useful as we consider ways in which continue to support the development of quality malaria and HIV laboratory services following the November 2017 completion of the ICAP Project? What is your opinion on mechanisms for effective scale-up?

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Time interview ended: \_\_\_\_\_

## D.3—REGIONAL REFERENCE LABORATORY EVALUATION CHECKLIST

### MLDM Evaluation: Regional Laboratory Malaria Evaluation Checklist

#### *Instruction*

Assessors will complete this assessment by utilizing the methods below to evaluate laboratory operations with regard to the checklist items.

- **Review laboratory records:** To verify that the laboratory malaria and EQA manual, logs, SOPs and other manuals are complete, current, accurate, and regularly reviewed.
- **Observe laboratory operations to ensure:**
  - Practice matches written procedure in all phases of examination;
  - Processes are appropriate for the testing performed;
  - Identified problems have been adequately investigated and resolved.
- **Ask open ended questions:** to clarify documentation seen and observations made. Ask questions like, “show me how...” or “tell me about...” It is often not necessary to ask all the checklist questions verbatim. Assessor can often learn the answers to multiple checklist questions through open ended dialogue with the laboratory staff. .
- **Confirm that:** IQC results are recorded for all IQC runs and reviewed for validation.
- **Review EQA:** EQA results are documented and reviewed for corrective action.

#### **EVALUATION**

This laboratory assessment checklist contains different questions and responses to all questions must be either, “yes” or “no” or if there is another choice.

- Items marked “yes” receive the corresponding point value all elements of a question must be present in order to indicate “yes” for a given item and thus award the corresponding points.
- Items marked “no” all elements of a question are not present in order to indicate “no” for a given item.
- Items marked “NA” all elements of a question are not applicable in laboratory in order to indicate “Na” for a given item.
- Or tick the appropriate answer from listed choices or write your answer under the “other specify” section

## INFORMED CONSENT (TO BE COMPLETED FOR EACH RESPONDENT)

### INTRODUCTION

“My name is.....I am collecting information that will help the evaluation team assess the ICAP/MLDM Project’s implementation. I will be talking with you in order to find out what supports provided to this health facility by MLDM in order to strengthen malaria diagnostic and treatment capacity and related activities. Information collected from this interview will be used to improve services of this project. Your participation in this survey is voluntary and no remuneration or any form of benefit is provided for this.

### CONFIDENTIALITY AND CONSENT

“I am going talk to you for a while about MLDM project implementation, its benefits, challenges, and areas for improvement for this and similar projects in the future. Your responses will be completely confidential and anonymous. You do not have to answer any questions that you do not feel comfortable with, and you may end this talk at any time you want to. However, your honest answers to these questions will help us accurately and responsibly evaluate the project. We would greatly appreciate your help in responding to this interview. The interview will take about **60 minutes**. Would you be willing to participate?”

3. **Yes:** Thank him/her and continue with the interview
  
4. **No:** Note his reason briefly, thank him/her and proceed to the next interview \_\_\_\_\_

### CHECKED BY FIELD SUPERVISOR:

Signature \_\_\_\_\_ Date \_\_\_\_\_

Regional Laboratory Profile				
Name of Regional Laboratory				Date of Evaluation
Address of Regional Laboratory Region: Zone: District/Woreda:				
Telephone: Fax: Email:				
Name of Laboratory Representative				Title
Sex: _____ Qualification _____ Work experience at the facility _____				
Name of Evaluator(s):				
Laboratory Staffing Summary				
Profession	Number of Staff	Male	Female	Remark
Laboratory professionals (MSc)				
Laboratory Technologist (degree)				
Laboratory Technician (diploma)				
Laboratory Assistant (certificate)				
Others specify				

S.N	Activities		
I.	Laboratory Equipment, Reagents and Supplies		Remarks
I.1.	Total number of laboratories in the region for which you are responsible.	_____	
I.2.	Number of health facilities with the capacity to perform malaria diagnosis in the region	Malaria RDT_____	
I.3.	What percent of government health facilities have functional microscopes for malaria diagnosis? (self-reporting)	_____	
I.4.	Is support available in the regional laboratory for maintenance of laboratory equipment in the health facilities in the region?	1. Yes 2. No	If "No", skip to Q I.6
I.5.	If yes, what type of support is available? (Tick all that apply)	<input type="checkbox"/> Technician <input type="checkbox"/> Budget <input type="checkbox"/> Transport	
I.6.	What are the challenges to providing laboratory equipment maintenance support to the health facilities in the region?	1. Shortage of trained personnel 2. Shortage of maintenance instruments 3. Shortage of spare parts 4. Shortage of budget 5. Other, specify_____	
I.7.	Does the regional lab prepare staining solution for malaria diagnosis for health facilities?	1. Yes, always 2. Yes, sometimes 3. No	
I.8.	If not always, can you describe the problem,		
I.9.	Have the laboratories in health facilities encountered shortages of malaria diagnostic supplies within the past 6 months? If yes, where have there been shortages? (Tick all that apply in the list below and add comments from respondent)	4. Yes, 5. No 6. I don't know	If the answer is "No" or "I don't know" skip to Q I.10
I.9.1.	Malaria staining solution	<input type="checkbox"/>	
I.9.2.	Slide	<input type="checkbox"/>	
I.9.3.	Alcohol and cotton (or similar) for blood collection	<input type="checkbox"/>	
I.9.4.	Lancet	<input type="checkbox"/>	
I.9.5.	Methanol	<input type="checkbox"/>	
I.9.6.	Buffer salts or buffer tablets	<input type="checkbox"/>	
I.9.7.	Immersion oil	<input type="checkbox"/>	

S.N	Activities		
1.9.8.	Lens paper	<input type="checkbox"/>	
1.9.9.	Other (specify in remarks)	<input type="checkbox"/>	
1.10.	If yes (Q 1.9) did you get any support from ICAP/ MLDM malaria project to respond to the challenges?	1. Yes 2. No 3. I don't know	
1.11.	If yes to 1.10), what kind of support did you receive? (Tick all that apply)	1. Financial 2. Material 3. Technical 4. Other specify _____	
1.12.	What challenges did you face in providing quality assured malaria laboratory diagnosis in health facility in the region? (Tick all that apply)	1. Lack of trained man power 2. Shortage of Budget 3. Shortage of supplies 4. Quality of reagents 5. Other specify _____	
<b>2.</b>	<b>External Quality Assessment Program</b>		<b>Remark</b>
2.1.	Do you apply an EQA program for strengthening malaria diagnoses in malaria laboratories within the region?	1. Yes 2. No	If the answer is "No", skip to Q 2.7
2.2.	If yes, which EQA program(s) do you implement for Malaria diagnosis within the region? (tick all that apply)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	
2.3.	If proficiency testing is provided for malaria, how long on average does it take for the feedback on the results to be provided to participating laboratories?	_____ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 month's data and take an average number of days. If records are not available, the answer should be based on the respondent's self-reporting.

S.N	Activities		
2.4.	If Blinded rechecking is provided for malaria, how long on average does it take for the feedback on the results to be provided to participating laboratories?	_____ _ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 month's data and take an average number of days. If records are not available, the answer should be based on the respondent's self-reporting.
2.5.	Do you provide each laboratory that participates in a malaria on-site evaluation with written feedback during each site visit?	1. Yes, always 2. Yes, sometimes 3. No	The answer should be based on the respondent's self-reporting.
2.6.	What is the average annual frequency for each Malaria EQA program to participating laboratories? (The answer to this question is self-reporting)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	<u>Average Annual Frequency</u> _____ _____ _____ _____
2.7.	Do you have an EQA program for HIV?	1 Yes 2 No	If the answer is "No", skip to Q 2.13
2.8.	If yes, which EQA program do you have for HIV diagnosis? (tick all that apply)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	
2.9.	If proficiency testing is provided for HIV, how long on average does it take for feedback on the results to be provided to participating laboratories?	_____ _ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 months data and take an average number of days. If records are not available, the answer should be based on the respondent's self-reporting.
2.10.	If Blinded rechecking is provided for HIV, how long on average does it take for the feedback on the results to be provided to participating laboratories?	_____ _ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 months data and take an average number of days. If records are not available, the answer should be based on the respondent's self-reporting.
2.11.	Do you provide each laboratory that participates in an HIV on-site evaluation with written feedback during each site visit?	1. Yes, always 2. Yes, sometimes 3. No	The answer should be based on the respondent's self-reporting.

S.N	Activities		
2.12.	What is the average annual frequency for each HIV EQA program to participating laboratories? (The answer to this question is self-reporting)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	<u>Average Annual Frequency</u> <hr/> <hr/> <hr/> <hr/>
2.13.	Do you have an EQA program for TB?	1. Yes 2. No	If the answer is “No”, skip to Q 2.19
2.14.	If yes, which EQA program do you have for TB diagnosis? (tick all that apply)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	
2.15.	If proficiency testing is provided for TB, how long on average does it take for feedback on the results to be provided to participating laboratories?	<hr/> _ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 months data and take an average number of days. If records are not available, the answer should be based on the respondent’s self-reporting.
2.16.	If Blinded rechecking is provided for TB, how long on average does it take for the feedback on the results to be provided to participating laboratories?	<hr/> _ days <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are available, check 12 months data and take an average number of days. If records are not available, the answer should be based on the respondent’s self-reporting.
2.17.	Do you provide each laboratory that participates in a TB on-site evaluation with written feedback during each site visit?	1. Yes, always 2. Yes, sometimes 3. No	The answer should be based on the respondent’s self-reporting.
2.18.	What is the average annual frequency for each TB EQA program to participating laboratories? (The answer to this question is self-reporting)	<input type="checkbox"/> Proficiency testing (PT) <input type="checkbox"/> Blinded Rechecking <input type="checkbox"/> On-site evaluation	<u>Average Annual Frequency</u> <hr/> <hr/> <hr/>
2.19.	As an operating principle, are on site evaluations for malaria. HIV and TB integrated? (The answer to this question is self-reporting)	1. Yes, always 2. Yes, sometimes 3. Never	

S.N	Activities		
2.20.	As an operating principle, are on site evaluations for Malaria and HIV integrated? (The answer to this question is self-reporting)	1. Yes, always 2. Yes, sometimes 3. Never	
2.21.	What are the challenges for expansion of the malaria EQA program in the region? (tick all that apply)	1. Shortage of competent personnel 2. Attrition 3. Shortage equipment 4. Shortage of supplies and reagents 5. Other, specify _____ _____	
2.22.	What are the challenges for expansion of the HIV EQA program in the region? (tick all that apply)	1. Shortage of competent personnel 2. Attrition 3. Shortage equipment 4. Shortage of supplies and reagents 5. Other, specify _____ _____	
<b>3.</b>	<b>Supportive Supervision</b>		<b>Remark</b>
3.1.	Do you have annual plan for supportive supervision to provide technical support for health facility laboratories?	1. Yes, observed 2. Yes, not observed 3. Yes, but not implemented 4. No	Check plan If the answer is “No” skip to Q.3.9
3.2.	If yes, how often on average do you visit health facility laboratories for supportive supervision per year?	_____ <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If the plan is available, check for the number of supportive supervision visits and divide by the number of health facilities in the region. If records are not available, the answer should be based on the respondent’s self-reporting.
3.3.	Are your supportive supervision visits generally integrated for Malaria, HIV and TB laboratories?	1. Yes, always 2. Yes, sometimes 3. Never	
3.4.	If supportive supervision visits are not always integrated for Malaria, HIV, and TB what are the challenges to an integrated approach to supportive supervision? (Tick all that apply)	<input type="checkbox"/> Poor Coordination between programs <input type="checkbox"/> Different assessment schedules <input type="checkbox"/> Budgets <input type="checkbox"/> Other specify _____ <input type="checkbox"/> I don’t know	
3.5.	During supportive supervision do you monitor the competence of malaria test performers by direct observation of microscopists?	1. Yes, always 2. Yes, sometimes 3. No	
3.6.	During supportive supervision, do you give a written feedback for laboratories?	1. Yes, always 2. Yes, sometimes 3. No	

S.N	Activities		
3.7.	Are supervision reports/feedbacks documented?	1. Yes, observed 2. Yes, not observed 3. No	
3.8.	What mentoring checklist do you use for graduated facilities during supporting supervision?	1. Jointly developed with ICAP 2. Developed by the region 3. Other (Specify) _____ 4. None <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If the check list is available, circle the appropriate item. If the checklist is not available but the respondent indicates that one is used, the answer should be based on the respondent's self-reporting.
3.9.	Do you have a joint plan with ICAP/MLDM for management of malaria laboratory diagnosis services? (The answer to this question is based on self-reporting)	1. Yes, observed 2. Yes, not observed 3. Never	
3.10.	Do you have joint activity review meetings with ICAP/MLDM to discuss malaria laboratory diagnosis services? (The answer to this question is based on self-reporting)	4. Yes, on a regular basis 5. Yes, but not frequently 6. Never	
<b>4.</b>	<b>Quality Improvement Activities</b>		<b>Remarks</b>
4.1.	Is there an improvement plan for Malaria diagnosis?	1. Yes, observed 2. Yes, not observed 3. No	If "no", skip to Q. 4.3
4.2.	If yes, have the required actions to improve malaria diagnosis been acted upon? <i>Plan to be observed if possible</i>	4. Yes 5. Yes, not observed 6. No	If the plan is available, check to assess if required actions have been taken and documented. If records are not available, the answer should be based on the respondent's self-reporting.
4.3.	Is there an improvement plan for HIV diagnosis?	1. Yes, observed 2. Yes, not observed 3. No	If "no", skip to Q 5

S.N	Activities		
4.4.	If yes, have the required actions to improve HIV diagnosis been acted upon? <i>Plan to be observed if possible</i>	1. Yes 2. No	If the plan is available, check to assess if required actions have been taken and documented. If records are not available, the answer should be based on the respondent's self-reporting.
4.5.	Do all graduated facilities maintain a quality management program?	1. Yes all 2. Yes partial 3. None <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If records are not available, the answer should be based on the respondent's self-reporting.
4.6.	If partial or none, what are the challenges?	1. Staff turnover 2. Poor management commitment 3. Limited follow up 4. Poor staff motivation 5. Lack of competent staff 6. Laboratory Supplies 7. Lack of equipment maintenance 8. Other specify _____	
<b>5.</b>	<b>Training</b>		<b>Remark</b>
5.1.	Do you have joint annual training plan for Malaria microscopy/RDT diagnosis	1. Yes, observed 2. Yes, not observed 3. No	
5.2.	Is the training plan for laboratory and health professionals on Malaria microscopy & RDT implemented?	1. Yes, fully 2. Yes, partially 3. No <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If the plan is available, check to assess if the plan has been implemented and documented. If records are not available, the answer should be based on the respondent's self-reporting.
5.3.	Do you have joint annual training plan for HIV diagnosis	1. Yes, observed 2. Yes, not observed 3. No	

S.N	Activities		
5.4.	Is the training plan for laboratory and health professionals on HIV implemented?	1. Yes, fully 2. Yes, partially 3. No <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If the plan is available, check to assess if the plan has been implemented and documented. If records are not available, the answer should be based on the respondent's self-reporting.
5.5.	Do you provide integrated training (HIV and Malaria) for laboratory and health professionals?	1. Yes, always 2. Yes, sometimes 3. Never <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If the plan is available, check to assess if the plan has been implemented and documented. If records are not available, the answer should be based on the respondent's self-reporting.
<b>6.</b>	<b>Documentation and Records</b>		<b>Remarks</b>
6.1.	Are EQA Guidelines for malaria diagnosis available and up-to-date at the regional laboratory	1. Yes, available and up-to-date 2. Yes, available but not up-to-date 3. Not available	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level. (If not available, skip to Q 6.3)
6.2.	Are up-to-date EQA Guideline for malaria diagnosis distributed to health facilities	1. Yes, distributed fully 2. Yes, partially distributed 3. No up-to-date guidelines distributed 4. No record	Evaluator should cross-check with latest guidelines and the facility distribution list to assess whether they have been sent to health facilities.
6.3.	Are EQA Guideline for HIV diagnosis available and up-to-date at the regional laboratory?	1. Yes, available and up-to-date 2. Yes, available but not up-to-date 3. Not available	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level. (If not available, skip to Q 6.5)

S.N	Activities		
6.4.	Are up-to-date EQA Guideline for HIV diagnosis distributed to health facilities	<ol style="list-style-type: none"> <li>1. Yes, distributed fully</li> <li>2. Yes, partially distributed</li> <li>3. No up-to-date guidelines distributed</li> <li>4. No record</li> </ol>	Evaluator should cross-check with latest guidelines and the facility distribution list to assess whether they have been sent to health facilities.
6.5.	Are training guidelines for Malaria diagnosis available and up-to-date?	<ol style="list-style-type: none"> <li>1. Yes, available and up-to-date</li> <li>2. Yes, available but not up-to-date</li> <li>3. Not available</li> </ol>	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level.
6.6.	Are SOP for Malaria diagnosis available and up-to-date?	<ol style="list-style-type: none"> <li>1. Yes, available and up-to-date</li> <li>2. Yes, available but not up-to-date</li> <li>3. Not available</li> </ol>	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level.
6.7.	Are training guidelines for HIV diagnosis available and up-to-date?	<ol style="list-style-type: none"> <li>1. Yes, available and up-to-date</li> <li>2. Yes, available but not up-to-date</li> <li>3. Not available</li> </ol>	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level.
6.8.	Are SOP for HIV diagnosis available and up-to-date?	<ol style="list-style-type: none"> <li>1. Yes, available and up-to-date</li> <li>2. Yes, available but not up-to-date</li> <li>3. Not available</li> </ol>	Evaluator should cross-check with latest guidelines to assess whether they are available at regional level.
6.9.	Is Malaria EQA Result/Feedback documented?	<ol style="list-style-type: none"> <li>1. Yes, fully</li> <li>2. Yes, partially</li> <li>3. No</li> </ol> <p> <input type="checkbox"/> Based on records  <input type="checkbox"/> Self-reporting            (tick one of the above)         </p>	If documentation exists, evaluator should check to assess the extent to which Malaria EQA program feedback is documented. If records are not available, the answer should be based on the respondent's self-reporting.

S.N	Activities		
6.10.	Is HIV EQA Result/Feedback documented?	1. Yes, fully 2. Yes, partially 3. No <input type="checkbox"/> Based on records <input type="checkbox"/> Self-reporting (tick one of the above)	If documentation exists, evaluator should check to assess the extent to which HIV EQA program feedback is documented. If records are not available, the answer should be based on the respondent's self-reporting.

### Summary of Visit

Do you have any comments not covered in our discussion that you believe would be useful to improve the ICAP's services during the project's remaining two years? We would appreciate your comments on ways in which integration of malaria, HIV, and TB diagnostic programs can be enhanced over the next two years.

What is your opinion about the sustainability of quality malaria and HIV laboratory services for those facilities that have graduated from ICAP MLDM project support?

Do you have any comments not covered in our discussion that you believe would be useful as we consider ways in which continue to support the development of quality malaria and HIV laboratory services following the November 2017 completion of the ICAP Project? We would appreciate your comments on the development of strategies that will focus on future scale up of diagnostic capacity for malaria and HIV.

**Thank you**

**EVALUATOR'S SIGNATURE** \_\_\_\_\_

## D.4—KEY INFORMANT INTERVIEW EVALUATION INSTRUMENT

### Ethiopia Malaria Laboratory Diagnosis and Monitoring Project (ICAP/PMI/MLDM)

#### *Midterm Evaluation*

August 11 – October 23, 2015

Managed by Global Health Program Cycle Improvement Project (GH Pro)

Key Informant Interview Guidelines

#### *Background for Moderator's Reference*

**Instructions to Moderator:** Familiarize yourself with the following background information that can be used to respond to informant's questions about the ICAP/PMI/MLDM and the evaluation's background.

The goal of the USAID/Ethiopia's Malaria Laboratory Diagnosis and Monitoring (ICAP/PMI/MLDM) Project (2008-2017), implemented by Columbia University's International Center for AIDS Care and Treatment Programs (ICAP) is to strengthen malaria diagnostic capacities of laboratories in Ethiopia, by providing technical, strategic, managerial and operational support. Implemented in November 2008 and scheduled for completion in late 2017, the project was designed to meet its stated goal through reviewing, updating and developing malaria laboratory diagnosis policy guidelines and training materials; conducting training of clinical and laboratory health professionals on quality malaria/HIV laboratory diagnosis; supporting the establishment of an External Quality Assurance/Quality Control system (EQA); and finally conducting research activities such as assessing the therapeutic efficacy of anti-malarial drugs to inform evidence-based decisions regarding malaria diagnosis and treatment. At its completion, the project will have extended support to all facilities in malaria hot spot districts of Oromia (706 health facilities), to a total of 313 selected health facilities from Amhara, SNNPR, Tigray and Dire Dawa regional states, to the nation's eight regional laboratories and to a selected number of hospitals in Oromia, Dire Dawa and SNNPR.

In collaboration with USAID/Ethiopia, the Global Health Program Cycle Improvement Project (GH Pro) has contracted a three-person evaluation team to undertake a midterm evaluation. The overall objective of the evaluation is to assess the ICAP/PMI/MLDM's progress in improving the quality of malaria and HIV diagnosis at the project sites. In addressing this objective, the evaluation team will:

- (Purpose 1) Explore the association of the activity's investments and increased availability of quality malaria laboratory diagnosis in Ethiopia;
- (Purpose 2) Identify the impact of barriers on ICAP/PMI/MLDM interventions and on the ability of the project to achieve intended results as articulated in the cooperative agreement;
- (Purpose 3) Provide specific programmatic recommendations to the USAID Mission in Ethiopia and to the Government of Ethiopia (GOE) for consideration in designing future programs to scale up and increase access to quality malaria diagnostic services in an integrated manner with other disease programs;
- As part of the ICAP/PMI/MLDM evaluative process, interviews with key informants, all of whom have been selected based on their knowledge and involvement with the

ICAP/PMI/MLDM, will establish a knowledge base critical to the evaluation team's ability to respond to the evaluation's three established purposes. Accordingly, the following questions are designed to promote the development of a dialogue between key informants and the evaluation team. The objective of the dialogue is to enhance the capacity of the evaluation team to reliably document the extent to which the ICAP/PMI/MLDM has progressively contributed to the improved quality of malaria and HIV diagnosis at ICAP/PMI/MLDM project sites

## Midterm Evaluation of the Ethiopia Malaria Laboratory Diagnosis and Monitoring Project (ICAP/PMI/MLDM)

### Key Informant Interview

#### INFORMED CONSENT STATEMENT

**Instructions to Moderator:** Fill out the following information before meeting with informant

**Respondent Name:**

**Respondent Position:**

**Respondent Sex: Male / Female**

**Date of Interview:**

**Moderator(s):**

**Location of interview:**

**Instructions to Moderator: Read the following to the respondents.**

Good day. My name is \_\_\_\_\_, and we are conducting an evaluation of USAID/Ethiopia's Malaria Laboratory Diagnosis and Monitoring the ICAP/PMI/MLDM Project. The overall objective of the evaluation is to assess the ICAP/PMI/MLDM's progress in improving the quality of malaria and HIV diagnosis at the project sites.

You have been selected as a Key Informant to provide information that will establish a knowledge base critical to the evaluation team's ability to respond to the evaluation's objective. The information collected will only be used for the above purpose. All the information is strictly confidential.

*I would also like to clarify that this interview is entirely voluntary and that you have the right to **withdraw** from interview at any point without consequence.*

At this time, do you have any questions? (*Instructions to Moderator:* If required, reference the above background information to respond to questions from the informant).

Are you willing to participate in this interview and to allow me to take notes?

Yes 1) *Instructions to Moderator:* Proceed

No 2) *Instructions to Moderator:* Thank the KI and STOP HERE

May I begin the discussion now?

Yes 1) *Instructions to Moderator:* Thank the KI and continue with the Key Informant Interview

No 2) *Instructions to Moderator:* Thank the KI and STOP HERE

Start Time: \_\_\_\_: \_\_\_\_ Time of conclusion: \_\_\_\_: \_\_\_\_

Thank you

## Key Informant Interview

### Question Guidelines

#### Instructions to Moderator:

- A. Use the following questions to guide the flow of the interview;
- B. Give the informant sufficient time to respond to each question;
- C. If indicated, allow the discussion to expand to issues introduced by the informant;
- D. If the respondent does not seem to have an answer to a question, record no response and move on to the next question;
- E. When taking notes, maintain eye contact with the respondent as much as possible

**Instructions to Moderator:** The informant's answer to the following question will help you determine the extent to which you can proceed with subsequent questions. For example, if the informant indicates that s (he) has limited knowledge of the ICAP/PMI/MLDM, you will need to find a way to politely end the interview.

1. **How would you describe your experience working with the ICAP/PMI/MLDM program and your knowledge of the ICAP/PMI/MLDM?** If you have a working knowledge of ICAP/PMI/MLDM Project activities, could you describe the extent of your knowledge and how you have been involved with the project?

(Note to evaluator: The respondent's answers to this question will help determine the extent to which the following questions can be addressed. Evaluator should spend some time on this question and work with the respondent to obtain as detailed an answer as possible. Also, the respondent's answers to this question will help the evaluator determine where it is appropriate to skip subsequent questions based on the respondent's knowledge of the ICAP/PMI/MLDM Project.)

**Instructions to Moderator:** Based on the respondent's experience, knowledge and engagement with the ICAP/PMI/MLDM, proceed with the following questions.

2. **Under the evaluation's statement of purpose, we are being asked to address:**

*To what extent has the ICAP/PMI/MLDM resulted in increased availability of quality malaria and HIV laboratory diagnosis in Ethiopia?*

Accordingly, your response to the following questions will assist the evaluation team in assisting USAID and the Federal Government of Ethiopia in accurately and reliably evaluating the ICAP/PMI/MLDM project and in defining ways in which to build on progress achieved under the project.

- 2.1 In what way has the ICAP/PMI/MLDM contributed to capacity building and sustainability within the National Malaria Prevention and Control Program, Ethiopian Public Health Institute (EPHI), Regional Reference Laboratories, and zone and district health offices?
- 2.2 From your perspective, what aspects of the ICAP/PMI/MLDM Project have been most effective? In what ways have they been effective? Why have they been effective?
- 2.3 From your perspective, what, if anything, is innovative about the ICAP/PMI/MLDM's approach to improving the quality of malaria and HIV laboratory diagnosis? What has been the innovations' impact on the quality of laboratory diagnosis?

- 2.4 From your perspective, what is your assessment of “**best practices**” instituted by the ICAP/PMI/MLDM in addressing strategy as well as technical and management issues associated with the enhancement of quality malaria and HIV laboratory diagnosis?
- 2.5 From your perspective with reference to the ICAP/PMI/MLDM, what are the least successful approaches applied by the program towards improving the quality of malaria and HIV laboratory diagnosis? If something did not work well, why not?
- 2.6 Have you observed that ICAP/PMI/MLDM incorporated principles of gender equality and empowerment in the design and implementation of activities, such as through ensuring an inclusive approach and addressing any gender specific barriers to accessing quality malaria and HIV diagnosis and treatment?

**3. As a second line of inquiry, we are being asked to address the following issue:**

*To what extent have barriers impacted on the ability of the ICAP/PMI/MLDM to effectively address the quality of malaria and HIV laboratory diagnosis in Ethiopia?*

Accordingly, your response to the following questions will assist the evaluation team in assisting USAID and the Federal Government of Ethiopia in accurately and reliably evaluating the ICAP/PMI/MLDM project and in defining ways in which to build on progress achieved under the project.

- 3.1 From your perspective with reference to the ICAP/PMI/MLDM, have there been any barriers to the ability of the ICAP/PMI/MLDM to impact the quality of malaria and HIV laboratory diagnoses in Ethiopia? If so, how would you describe these barriers and their impact, actual or potential, on the project’s execution?
- 3.2 What has the project done to respond to the barriers?
- 3.3 From your perspective with reference to the ICAP/PMI/MLDM, what issues or barriers to improving the quality of malaria and HIV diagnosis have remained unresolved in the ICAP/PMI/MLDM’s execution of its project? How could these issues and barriers be resolved?

**4. As a third line of inquiry, we are being asked to address the following issue:**

*To what extent does the experience associated with the ICAP/PMI/MLDM’s execution provide USAID with a knowledge base that can be used to design future programs to scale up and increase access to quality malaria diagnostic services?*

Accordingly, your response to the following questions will assist the evaluation team in assisting USAID and the Federal Government of Ethiopia in accurately and reliably evaluating the ICAP/PMI/MLDM project and in defining ways in which to build on progress achieved under the project.

- 4.1 How would you define integration and its importance, if any, on HIV and malaria services at patient diagnosis and management levels?

*(Note to evaluator: This is an important question as it will help the evaluator determine how different respondents (i.e. the MOH and other agencies of the government, USAID, implementing partners, donor agencies, etc. view the question of integration. Answers to this question will inform and clarify the evaluations comments on the future. )*

- 4.2 To what extent has the program been effective in promoting malaria and HIV at patient diagnosis and management levels? In what way collaboration could be improved to leverage resources needs to be addressed?

- 4.3 What has been the impact of this program integration?
- 4.4 What steps should be taken in the future to increase effective integration of HIV and malaria services at patient diagnosis and management levels?
- 4.5 In the context of the ICAP/PMI/MLDM, how would you define sustainability?
- (Note to evaluator: As with the question on integration (4.1) this is an important question as it will help the evaluator determine how different respondents (i.e. the MOH and other agencies of the government, USAID, implementing partners, donor agencies, etc. view the question of sustainability. Answers to this question will inform and clarify the evaluations comments on the future. )
- 4.6 As the ICAP/PMI/MLDM-supported laboratory sites progressively move towards “graduation” from ICAP/PMI/MLDM support, what evidence would suggest that these sites are equipped to sustain the level of quality that was required for them to graduate?
- 4.7 Based upon your definition of sustainability, do you have an example of a graduated site (s) that is truly sustainable? What are the major contributing factors to sustain quality services?
- 4.8 Based upon your definition of sustainability, do you have an example of a graduated site that is not sustainable? What aspects of the graduated site would suggest that the site has not or will not sustain quality achieved at graduation? What is needed to make this site and other similar sites sustainable?
- 4.9 With reference to the ICAP/PMI/MLDM-supported laboratory sites, what actions or interventions would you recommend to build upon and improve the sustainability of ICAP/PMI/MLDM sites following the 2017 completion of the ICAP/PMI/MLDM contract?
- 4.10 If you were to be involved in the design of a project to continue after the ICAP/PMI/MLDM is completed in November 2017:
- 4.10.1 What would be your principal goals and objective for such a project?
- 4.10.2 What parameters (e.g., geographical, focus, technical components, cost, staffing, etc.) would define such a project?
- 5. The overall objective of the evaluation is to evaluate the ICAP/PMI/MLDM activity’s impact on improved quality of malaria and HIV diagnosis at the project sites and to provide recommendations for the design of a successor to the ICAP/PMI/MLDM project.** In addition to points that we have already discussed, do you have additional observations or recommendations that will assist the evaluation team in responding to the overall evaluation objective?
- 5.1** What do you recommend for effective scale up to areas not yet reached by ICAP/PMI/MLDM?

# ANNEX E: INFORMED CONSENT FORM

## INFORMED CONSENT (TO BE COMPLETED FOR EACH RESPONDENT)

### INTRODUCTION

“My name is.....I am collecting information that will help the evaluation team assess the ICAP/MLDM Project’s implementation. I will be talking with you in order to find out what supports provided to this health facility by MLDM in order to strengthen malaria diagnostic and treatment capacity and related activities. Information collected from this interview will be used to improve services of this project. Your participation in this survey is voluntary and no remuneration or any form of benefit is provided for this.

### CONFIDENTIALITY AND CONSENT

“I am going talk to you for a while about MLDM project implementation, its benefits, challenges, and areas for improvement for this and similar projects in the future. Your responses will be completely confidential and anonymous. You do not have to answer any questions that you do not feel comfortable with, and you may end this talk at any time you want to. However, your honest answers to these questions will help us accurately and responsibly evaluate the project. We would greatly appreciate your help in responding to this interview. The interview will take about **60 minutes**. Would you be willing to participate?”

1. **Yes:** Thank him/her and continue with the interview
2. **No:** Note his reason briefly, thank him/her and proceed to the next respondent

\_\_\_\_\_

### CHECKED BY FIELD SUPERVISOR:

Signature \_\_\_\_\_ Date \_\_\_\_\_



# ANNEX F. MLDM PERFORMANCE REVIEW

## ICAP/PMI/MLDM PROJECT PROGRESS TABLE—SEPTEMBER 11, 2015

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Specific objective I: To strengthen the partnerships and coordination of the national malaria laboratory diagnosis and monitoring activities involving all important malaria stakeholders in Ethiopia.					
Develop/Review National Malaria EQA guideline	# of guidelines reviewed/developed	2	100	2	
Reviewing and development of training materials	# of training materials reviewed/developed	13	163	8	Due to the changing nature of science ( in the field), national guidelines, strategic plan,... frequent revision was mandatory
Facilitate the mass slide production for the slide bank	# of slides produced	9178	76	12000	On track
Facilitate the validation and archiving of the slides	# of donors validated	30	50	60	On track
	# of slides sent for validation	600	50	1200	On track
Facilitate the development of MOU for slide exchange between countries	MOU developed	1	100	1	

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Specific objective 2: To scale up and strengthen the QA activities and laboratory systems related to malaria laboratory diagnosis in collaboration with Regional Reference Laboratories and EPHI.					
Conduct joint supportive supervision and mentoring to supported health facilities at least two times per year	# of joint supportive supervisions conducted	2945	51	5756	We hoped to achieve our target by the end of the project, as we are planning to increase number of lab experts thus the number of supervisions per year.
Provide technical and logistic support for regional and sub-regional reference laboratories to cascade quality malaria diagnostics to health facilities not directly supported by MLDM project	# of facilities supported through the government system with minimal support from ICAP	441	79	560	On track
Provide logistic support for availability of laboratory EQA guidelines, SOPs, registers, quality control record forms, reporting and communication blank forms and distribute to the project sites	# of facilities received QA program related manual and provider support materials	563	56	1002	On track
Conduct rapid needs assessment in the selected new health facilities	# of baseline assessment conducted	8	89	9	On track
Specific objective 2: To scale up and strengthen the QA activities and laboratory systems related to malaria laboratory diagnosis in collaboration with Regional Reference Laboratories and EPHI.					

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Provide malaria laboratory commodities to new health facilities added to the support	# of facilities received malaria laboratory commodities	252	25	1013	The under achievement is due to delay in procurement process due lack of hard currency. The project was unable to get the required equipment and supplies from vendors on time.
Develop supportive supervision and mentoring checklists used to assess the malaria laboratories of supported health facilities	# of supportive supervision and mentoring checklist developed	12	150	8	The team made frequent development with the changing project needs and demand from the regional labs
Graduate old health facilities from the project support and transfer to respective regional health bureaus	# of facilities graduated and transferred to the respective regional health bureaus	203	23	900	The under achievement is due to delay in procurement process due lack of hard currency. The project was unable to get the required equipment and supplies from vendors on time to provide it to facilities and implement EQA and graduate them from project support as planned.
Specific objective 2: To scale up and strengthen the QA activities and laboratory systems related to malaria laboratory diagnosis in collaboration with Regional Reference Laboratories and EPHI.					

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Facilitate blinded rechecking and onsite evaluation of the health facilities remained in the support during the previous years	# of facilities involved in EQA for malaria laboratory diagnosis	521	52	1004	FY15 enrolled 230 new facilities will start EQA by the beginning of year 8. Additional 230 facilities will be enrolled into the project by the same year. In total, we hope, by project year 8, a total of 460 facilities will be added to this number.
	Proportion of slides correctly read by health facility staff		95.1	> 90%	On track
Collect coordinates of the supported health facilities	# of facilities geo-referenced	530	52	1022	FY15 enrolled 230 facilities & another 230 new facilities to be enrolled in FY16 will be georeferenced in the years to come. Some facilities were not georeferenced due to inaccessibility issues
Facilitate the organization of geospatial information and development of map	# project site maps updated	6	67	9	
Specific objective 3: To train selected malaria program, clinical and laboratory health professionals in malaria laboratory diagnosis and laboratory QA/QC systems					
Provide technical and logistic support to RHBs to provide malaria laboratory diagnosis trainings to program managers	# of malaria program managers trained in malaria lab diagnosis	293	182	161	Need from FMOH and RHBs contributed to this performance

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Provide technical and logistic support to EPHI to conduct TOT for laboratory personnel from the national and regional reference laboratories	# of regional reference laboratory personnel who received TOT on malaria microscopy	187	76	245	On track
Provide technical and logistic support to EPHI to conduct MMAC for laboratory personnel from the national and regional reference laboratories	# of regional reference laboratory personnel who participated in MMAC	24	40	60	The training needs collaboration with WHO accredited laboratory in Manila, Philippines. Bringing slides and personal from outside is a very slow process. We are planning to conduct addition training for 12 participants around the end of 2015.
Provide technical and logistic support to the respective regional health bureaus to conduct training to laboratory professionals on basic malaria laboratory diagnosis and quality assessment	# of laboratory professionals trained in Malaria/HIV laboratory diagnosis and QA	2437	126	1937	The over achievement is due to the inclusion of minimal support facilities from emerging regions.
Specific objective 3: To train selected malaria program, clinical and laboratory health professionals in malaria laboratory diagnosis and laboratory QA/QC systems					
Provide technical and logistic support to EPHI to conduct TOT on Malaria Microscopy for instructors from universities with medical laboratory schools	# of university instructors received TOT in Malaria Microscopy and QA/QC	99	71	140	On track

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Provide national lab diagnosis manual, the EQA manual, job aides and bench aides for the laboratory schools to be used as teaching and reference resources.	# of Universities received QA program related manual and provider support materials	20	286	7	The addition of regional health science colleges teaching medical laboratory sciences contributed to this figure
Support EPHI to develop a new training materials/approaches for National Competency assessment of malaria microscopists (NCAMM) of peripheral health facilities	# of modules developed for conducting NCAMM	1	100	1	
Provide technical and logistic support to EPHI to conduct NCAMM to laboratory personnel selected from peripheral health facilities	# of laboratory professionals participated in NCAMM	0		108	The under achievement is due to the lack of accredited slide bank
Specific objective 4: To conduct operations research projects as directed by PMI					
Conduct anti-malarial drug efficacy study	# of drug efficacy studies conducted	2	50	4	
Facilitate the training of EPHI staff on molecular techniques related to drug efficacy study at CDC Atlanta for 6 weeks	# of lab experts trained on molecular techniques related to DES	1	100	1	
Conducting a study on G6PD enzyme deficiency	# of G6PD studies conducted	1	100	1	
Facilitate the training of laboratory expert of EPHI on G6PD serological and molecular tests at CDC Atlanta for 6 weeks	# of lab experts trained on molecular techniques related to DES	1	100	1	
Conducting malaria serological study	#of serological studies conducted	0		1	The study is underway at EPHI

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Developing a protocol for evaluating performance of RDT	# RDT study protocol developed	0		1	The protocol will be developed and study to be conducted by year 8
Specific objective 5: To improve fever/malaria case management at PMI project sites and in Ethiopia					
Support health facilities to improve the fever case management	# provider support tools developed	6	120	5	
	# of facilities provided with provider support tools for fever case	270	27	1002	The distribution of provider support tools not yet completed. We will continue to distribute to the rest of facilities.
	# of facilities supervised and mentored on fever case management	254	51	500	The mentorship didn't proceed as planned due high staff turnover and the fact that direction was given to the neediest areas such as western Oromia.
Provide technical and logistic support to the regional health bureaus to conduct offsite training to health care providers	# of health workers trained on fever case management and Malaria/HIV laboratory diagnosis and QA/QC	1722	152	1136	Regional health bureaus also plan for this training and invite ICAP-MLDM to give the training. This made the number to increase more than we planned. Many trainees from non-MLDM sites may also get invitation if the training is facilitated by regional health bureaus.

Objectives/activities	Indicators	Current achievement		End of project (EOP) target	Reasons for over/under achievement
		Number	Percent		
Specific objective 5: To improve fever/malaria case management at PMI project sites and in Ethiopia					
Develop a module for onsite facility based orientation on fever case management	Module for onsite orientation developed	1	100	1	
	# of health workers oriented onsite on fever case management and Malaria/HIV laboratory diagnosis and QA/QC	1110	44	2500	Lack of adequate clinical mentors with high turnover and the fact that mentorship was directed to the more problematic districts of the project sites (Western Oromia) where same facilities/health workers receive the onsite orientation repeatedly.
Specific objective 6: To strengthen the linkages between malaria and HIV and TB diagnostic and treatment services at health centers and hospitals in Ethiopia.					
Support the regional health bureaus to ensure the SOPs for RHT is fulfilled at all point of care in the health facilities	# of facilities received SOPs on RHT	422	58	722	On track
Facilitate the implementation of HIV EQA in selected health facilities integrated to TB and Malaria	# of facilities implementing HIV & TB EQA integrated with Malaria EQA	439	176	250	The need from regional health bureaus to do the job at non project sites has significantly contributed to this achievement

## ANNEX G: REFERENCES

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# **ANNEX H: DOCUMENTATION ON COMPACT DISK (CD)**

- I. SUPPLEMENTAL TABLES AND GRAPHS**
- II. ELECTRONIC COPIES OF FACILITY-BASED INTERVIEWS**
- III. THEMATIC SUMMARY OF KEY INFORMANT INTERVIEWS**
- IV. DATA ANALYSIS SPREADSHEETS**
- V. EVALUATION SCHEDULE**
- VI. KEY REFERENCE DOCUMENTS**
- VII. SITE LIST**



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