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IMPROVING MALARIA DIAGNOSTICS

FY2010 ANNUAL REPORT



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USAID | IMaD Project

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The project is implemented by Medical Care Development International (MCDI) in collaboration with the African Medical and Research Foundation (AMREF), Hydas World Health (HWH) and Cheikh Anta Diop University (UCAD).

ABSTRACT

This Annual Report details IMaD activities from October 1, 2009 through September 30, 2010. Activities covered in this report span four major areas which form the basis of IMaD's program objectives:

- National malaria policy development
- Laboratory baseline assessment
- Training, supervision and quality assurance
- Procurement assistance

This report discusses the major activities associated with each objective, the monitoring and evaluation criteria used to measure success and major accomplishments made throughout the year. In addition, this report highlights constraints and offers potential solutions to overcome program challenges.

USAID | IMaD Project

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ACRONYMS

ACT	Asian Collaborative Training Network
AFRO	Africa Regional Office
AMREF	African Medical and Research Foundation
CDC	Centers for Disease Control and Prevention
CTO	Chief Technical Officer
EQA	External Quality Assurance
FIND	Foundation for Innovative New Diagnostics
GHS	Ghana Health Services
GLP	Good Laboratory Practices
HO	Home Office
HWH	Hydas World Health
ICC	In-Country Coordinator
IMaD	Improving Malaria Diagnostics
INRSP	Institute of Public Health and Sanitation
ITN	Insecticide treated net
JSI	John Snow International
MCDI	Medical Care Development International
MMAC	Malaria Microscopy Accreditation Course
MOH	Ministry of Health
MOP	Malaria Operational Plan
NMCC	National Malaria Control Center
NMCP	National Malaria Control Program
NPHRL	National Public Health Reference Laboratory
OTSS	Outreach Training and Support Supervision
PIH	Partners in Hope
PNLP	National Malaria Control Program
QA/QC	Quality Assurance/Quality Control
RDT	Rapid Diagnostic Tests
SOP	Standard Operating Procedure
UCAD	University of Cheikh Anta Diop
USAID	United States Agency for International Development
UTH	University Teaching Hospital
WHO	World Health Organization



Executive Summary

This annual report describes the FY2010 activities of the Improving Malaria Diagnostics (IMaD) Project under USAID Cooperative Agreement GHS-A-00-07-00022-00. The work detailed in this document covers the period October 1, 2009 through September 30, 2010.

In accordance with individual country Malaria Operational Plans (MOPs), IMaD's activities fall within the following major technical assistance categories as applied to strengthening the laboratory diagnosis of malaria:

Objective 1: NATIONAL GUIDELINES FOR THE LABORATORY DIAGNOSIS OF MALARIA

Objective 2: BASELINE LABORATORY ASSESSMENT

Objective 3: TRAINING LABORATORY PERSONNEL IN MALARIA MICROSCOPY AND RDT

Objective 4: LABORATORY QUALITY ASSURANCE AND SUPERVISION

Objective 5: CAPACITY BUILDING

Objective 6: OTHER ACTIVITIES

The IMaD project is implemented by Medical Care Development International (MCDI) and consortium members: the African Medical and Research Foundation (AMREF), Hydas World Health (HWH), and Cheikh Anta Diop University (UCAD). The consortium also works in partnership with the World Health Organization (WHO) and the Foundation for Innovative Diagnostics (FIND) on development of standard protocols for the validation of malaria slides, RDTs, and malaria microscopy accreditation programs.

The IMaD approach to improving malaria diagnostics is to address the above mentioned objectives in a step-wise fashion. Initial visits begin with a baseline assessment of malaria diagnostic capacity and results in the establishment of quality assurance programs based on on-site supervision and training visits. Activities during the last twelve months largely focused on support for the Outreach Training and Support Supervision (OTSS) program.

IMaD's major accomplishments in FY2010 include:

- ★ More than 3,537 health workers trained in malaria diagnostic methods (OTSS, laboratory assessments, malaria microscopy, and RDT use) in **Angola, Benin, Democratic Republic of Congo (DRC), Ghana, Kenya, Liberia, Malawi, Mali, and Zambia;**
- ★ A total of 710 health facilities visited during Outreach Training and Support Supervisions in **Benin, Ghana, Liberia, Malawi, Mali, and Zambia;**
- ★ 15 individuals from **Benin, Liberia, Mali, Malawi, and Zambia** trained on OTSS data entry to assist in the input of data collected during rounds of OTSS supervisions;
- ★ Eight National Laboratory Trainers and 5 Provincial Laboratory Trainers in the **DRC** trained on malaria microscopy and RDT use;

- ★ Maintained IMaD In-Country Coordinators (ICCs) in **Benin, DRC, Ghana, Liberia, Malawi, Mali, and Zambia**;
- ★ **Malawi's** first National malaria RDT Roll Out Plan drafted;
- ★ Baseline assessments of 8 district hospitals in **Burundi** conducted;
- ★ Preliminary visits to health facilities in four PMI supported States in **Nigeria** made in preparation for the FY2011 baseline assessment;
- ★ IMaD refresher training curriculum for malaria microscopy and RDT use and the refresher training curriculum in clinical methods for malaria case management adapted and strengthened;
- ★ IMaD OTSS Checklists and databases adapted and strengthened based on feedback from OTSS workshops;
- ★ 32 national staff members from **Angola, Ghana, Kenya, Liberia, and Zambia** assessed in the WHO Malaria Microscopy Accreditation Course (MMAC); and,
- ★ 25 Olympus microscopes and thousands of tubes needed to conduct dipstick RDTs (correcting an issue with the RDTs available in-country) in **Liberia** purchased.

This report covers the major implementation phase of FY2010 and is divided into five sections: 1) description of activities; 2) accomplishments; 3) OTSS implementation, 4) challenges, lessons learned and way forward and 5) IMaD core.

Section 1 | DESCRIPTION OF ACTIVITIES

OBJECTIVE 1: NATIONAL GUIDELINES FOR THE LABORATORY DIAGNOSIS OF MALARIA

A. STAKEHOLDERS MEETINGS TO SUPPORT GUIDELINE DEVELOPMENT

National Guidelines for Laboratory Diagnosis of Malaria is a generic document consisting of comprehensive guidelines on all aspects of malaria diagnostic testing, including indications for laboratory testing, principles of laboratory tests, laboratory safety, quality of laboratory testing, selection of RDTs and care of equipment. The document is intended to be used primarily by laboratory personnel including laboratory technicians, technologists and all other health professionals who perform laboratory tests. The document should also be used by any category of person involved in the field of diagnostics such as clinicians, who play an important role in the diagnostic process. The language is intended to be simple and precise, making it easy to read and use as a reference on malaria diagnostic testing.

The generic guidelines are introduced to NMCPs through a series of stakeholder's meetings with the objective of making them country specific and relevant to the local epidemiological situation. During FY10 policy development meetings took place in **Malawi** and **Liberia**.

B. DISSEMINATION OF NATIONAL GUIDELINES



On April 26, 2010, the Deputy Minister of Health of **Ghana** introduced the National Guidelines for Laboratory Diagnosis of Malaria during the annual Health Summit and ceremony celebrating World Malaria Day. On May 4, 2010, the guidelines were officially handed over to the NMCP, with supporting guidelines on case management, malaria in pregnancy, as well as equipment and supplies to support malaria prevention, diagnosis, and treatment. Three thousand copies of the document were printed for nationwide distribution to the health facilities. Regional Laboratory Supervisors supporting the OTSS program will assist in disseminating the document during OTSS Round II visits. Remaining copies of the new guidelines will be distributed by the NMCP and NPHRL through their established channels.

OBJECTIVE 2: BASELINE LABORATORY ASSESSMENT

In FY2010, IMaD conducted a baseline laboratory assessment of 8 district hospitals in **Burundi**. A second assessment to visit 10 health centers will be carried out in the first quarter of FY2011. The IMaD laboratory assessment tool was designed to accurately capture information concerning laboratory infrastructure, diagnostic services, human resources, safety, personnel training, supply chain management, and the presence of quality assurance procedures. The clinical component captures information pertaining to the utilization of diagnostic services by clinicians, sample collection, and the return of results.

OBJECTIVE 3: TRAINING LABORATORY PERSONNEL IN MALARIA MICROSCOPY AND RDTs

A. REFRESHER TRAINING IN LABORATORY DIAGNOSIS OF MALARIA

Refresher Training in Laboratory Diagnosis of Malaria (Annex 1- timetable) is one of IMaD's principle activities for strengthening and maintaining competency of malaria microscopists. In FY2010, refresher trainings in malaria diagnosis were conducted in **Angola, DRC, Ghana, Kenya, Liberia, Mali, and Zambia**. Laboratory technicians from provinces/regions/districts were called to attend this five day workshop. Participating staff are working mainly in the malaria/parasitology section of the laboratory and are expected to take a lead in establishing the relevant laboratory procedures, sharing their updated knowledge with the other staff in their health facilities, and supervising staff in both their own health facilities and surrounding facilities during OTSS visits.

The aim of refresher training was to enable the participants to acquire and develop essential knowledge and competency in both technical and management aspects of malaria diagnosis. On completion of the five day course, participants should be able to:

1. Demonstrate an understanding of the epidemiology of malaria
2. Describe the biology of the malaria vector and parasite
3. Prepare thick and thin blood films and stain films to a high standard
4. Identify all malaria species (*P.f.*, *P. v.*, *P.o.*, *P.m*) microscopically
5. Identify all malaria parasite stages microscopically
6. Differentiate pseudoparasites and artifacts from true malaria parasites
7. Quantify malaria parasites accurately
8. Carry out malaria Rapid Diagnostic Tests (RDTs) correctly
9. Identify sources of errors in malaria diagnosis and implement their remedies
10. Maintain and store microscopes properly
11. Participate in development of national and facility-based plans for QA/QC in malaria diagnosis
12. Monitor the performance of malaria Rapid Diagnostic Tests (RDTs)
13. Participate in development of national plans for regular support supervision and on-site training and mentoring of staff
14. Develop and maintain Standard Operating Procedures (SOPs)
15. Perform technical work according to standards of good laboratory practice (GLP)

Pre- and post-competency assessments were conducted on theory-based knowledge and malaria microscopy. Standard slide sets were provided by Walter Reed and the Malaria Research and Reference Reagent Resource Center to measure microscopist's ability to detect positive and negative slides, perform species identification, and parasite counting. Individual scores for sensitivity ($[\text{True Positive} / (\text{True Positive} + \text{False Negative})] \times 100$), specificity ($[\text{True Negative} / (\text{True Negative} + \text{False Positive})] \times 100$), species identification, and quantitation were measured for each participant. IMAD recommends annual refresher training in malaria microscopy and RDTs for supervisors and national trainers implementing the OTSS program. IMAD has established minimum standards for malaria microscopy sensitivity (90%) and specificity (80%) and tracks scores for species identification and quantitation against baseline.

B. MALARIA MICROSCOPY ACCREDITATION COURSE (MMAC)

Malaria microscopy QA programs, like the MMAC, ensure that microscopy services are carried out by competent and motivated staff (WHO Malaria Microscopy QA Manual, version 1, 2009). Assessment methods and grading schemes recommended by the WHO Western Pacific Regional Office (WPRO) were endorsed by WHO Geneva during a Malaria Microscopy Quality Assurance meeting in Geneva (February 2008) as a model for accreditation. The course has been successfully running in South East Asia for the last six years. It was introduced in Africa through WHO AFRO and the Asian Collaborative Training Network in Malaria (ACT Malaria) and is being rolled out in Africa by WHO AFRO and AMREF. In FY2010, IMaD sponsored the attendance of key staff supporting the OTSS program in **Ghana, Kenya, Liberia, and Zambia**. A Lusophone MMAC was also conducted in **Angola**. IMaD recognizes the contributions these staff make towards their national program's future success and sustainability.

Competency of malaria microscopy (accurate examination and correct reporting of a blood film) was assessed during the five day course using The WHO Standard Slide Panel composed of 55 slides divided into two slide sets:

Slide Set 1 (40 slides): Assessment of presence/absence of parasites, and species identification

- 20 negative slides ('clean' negatives)
- 20 positive slides of low density (80-200 parasites/ μ L)
- 10 *Plasmodium falciparum* slides
 - 4 mixed (2) species slides (Include *P. falciparum*. Each species >40 parasites/ μ L, co-infecting species according to local prevalence)
 - 6 *Plasmodium malariae*, *Plasmodium vivax*, and/or *Plasmodium ovale* slides (include at least 1 of each species, ratio according to local prevalence)

Slide Set 2 (15 positive slides): Assessment of quantitation

- 3-5 *P. falciparum* (200-500 parasites/ μ L)
- 9-10 *P. falciparum* (500-2000 parasites/ μ L)
- 2 *P. falciparum* (>100 000 parasites/ μ L)

OBJECTIVE 4: LABORATORY QUALITY ASSURANCE AND SUPERVISION

A. TRAINING FOR OUTREACH TRAINING AND SUPPORT SUPERVISION

During FY2010, OTSS training (Annex 2- OTSS timetable) was launched in **Kenya, Malawi, and Liberia** to establish standards for support supervision, on-site training and mentoring, and ongoing quality assurance activities in supervised health facilities. Senior laboratory staff attended the five-day OTSS training workshop facilitated by experienced laboratory supervisors and trainers. Pre- and post-tests on general laboratory management issues and on QA concepts were used to measure retention of knowledge. Participants received feedback on pre-test performance to help them address areas that require strengthening. The course also addressed expectations of national supervisors who were asked to brainstorm strategies for overcoming anticipated obstacles to implementing the program. Supervisors were also provided with relevant training materials and checklists to use as a basis for their evaluation of services, and instruction and mentoring of laboratory staff within their area of responsibility.

B. OUTREACH TRAINING AND SUPPORT SUPERVISION

The Outreach Training and Support Supervision (OTSS) program is designed to provide long-term, ongoing support to strengthening diagnostic services in health facilities, by identifying areas that require improvement and providing support to clinicians and laboratory staff.

IMaD has developed a standardized checklist for OTSS that is adapted by NMCPs and laboratory and clinical staff during Stakeholders Meetings and OTSS Workshops in each country. These checklists specifically address malaria-related diagnostic services in support of the Improving Malaria Diagnostics (IMaD) program. A reference manual has been provided to each Supervisor supporting OTSS that contains detailed instructions on how to use and complete the checklists when they visit health facilities.

In order to improve malaria diagnostic services, NMCPs require input from both clinical and laboratory staff. Therefore, the checklist comprises both laboratory and clinical components. The laboratory supervisors may need to visit other departments in the health facility in addition to the laboratory, including the outpatient, inpatient, and medical records departments of the facility, in order to address issues comprehensively. Likewise, the clinical supervisors may need to visit other departments including the laboratory and medical records.

The most effective OTSS occurs when laboratory and clinical supervisors make visits together. Joint visits provide an excellent opportunity to discuss pertinent issues, brainstorm strategies, and encourage cooperation and communication between the two cadres. Using the checklists will allow Supervisors to monitor improvements and continuously assess problems as they arise. During FY10, OTSS visits took place in **Benin, Ghana, Liberia, Malawi, Mali, and Zambia**.

Table 1: FY2010 Status of IMaD OTSS program - Number of HF visits per country, per round

Country	Total # of HFs enrolled*	Round 1	Round 2	Round 3	Round 4	Total # of visits
Benin	60	36	60	60	60	216
Ghana	120	60	120	-	-	180
Liberia	62	62	-	-	-	62
Malawi	60	60	-	-	-	60
Mali	50	36	36	50	-	72
Zambia	53	53	50	-	-	103
Totals	405	307	266	110	60	693

* This figure represents the maximum number of HFs currently enrolled in OTSS

C. DATA ENTRY ACTIVITIES AND TECHNICAL/KNOWLEDGE TRANSFER PLAN

IMaD, through its ICCs and HO staff have engaged a number of consultants to conduct data entry activities to support the OTSS program in **Benin, Ghana, Kenya, Liberia, Malawi, Mali, and Zambia**. In all instances, ICC's have provided training and supervision to the data clerks and were present during data entry to answer questions, translate technical terminology, keep staff on schedule, and improve the performance of the data entry clerks. The IMaD team is currently working with the ICC's in those countries where OTSS visits have

been launched on a technical knowledge transfer manual designed to assist managers of NMCPs and laboratory services to develop and maintain a sustainable malaria QA program. The IMaD team will continue to review quarterly data collected by the National/Regional/Provincial Laboratory Supervisors and provide support to the overall process.

OBJECTIVE 5: CAPACITY BUILDING

A. EQUIPMENT AND SUPPLIES PROCUREMENT

IMaD has been requested to support USAID's DELIVER Project in the procurement of essential laboratory equipment and supplies for diagnosis of malaria. Under USAID DELIVER Task Order 3, JSI has been assigned with the procurement of RDTs, bed nets, anti-malaria pharmaceuticals and laboratory equipment in PMI focus countries. As part of this effort, IMaD provided specifications and quantities for laboratory equipment and supplies to **Ghana** based on the information gathered during the comprehensive laboratory assessment. Thirty CX-21 Olympus microscopes were purchased and distributed throughout the country (Annex 3 – distribution of supplies) and 74,000 RDTs were presented to the NMCP. The RDTs will be consolidated with other procurement orders before distributing to the health facilities. During January 2010, IMaD procured twenty microscopes for **Mali**. The microscopes are currently housed at the INRSP and used during annual refresher training. In March, 2010, IMaD worked with the NPHRL and NMCP in **Liberia** to develop a final list of laboratory supplies to support the NPHRL. In addition to laboratory supplies, twenty-five Olympus CX-21 microscopes and thousands of tubes needed to conduct dipstick RDTs were purchased and distributed.

B. NATIONAL SLIDE BANK OF MALARIA SLIDES

The availability of high quality blood slides to support routine training and assessment of malaria microscopists is essential for malaria program managers. Malaria slide banks can serve as a tool to assess individual competency by measuring sensitivity and specificity, ability to quantitate and perform species identification, in a highly standardized manner. The development of a national slide bank is in keeping with recommendations set forth by the WHO Malaria Microscopy Quality Assurance Manual (version 1, 2009) as seen in this excerpt from Chapter 9 "Setting up a National Slide Bank":

The aims of the national slide bank are to provide:

- *Sets of "known, replicate" slides for QA training in malaria microscopy and quality assurance (QA);*
- *A permanent reference collection of the malaria species present in the country;*
and
- *Sometimes, sets of reference slides on request from outside the country.*

Slide bank production is dependent on developing and implementing a well designed plan that outlines actions for identification of resources, commitment from key staff, finalization of SOPs, ethics approval, and

preparation of material, specimen collection, validation, and storage (WHO Malaria Microscopy Quality Assurance Manual Version 1, 2009).

The lack of such standards of competency and a method for ascertaining individual competency poses one of the primary obstacles to reliable diagnosis. A slide bank is an enabling step to malaria diagnostic QA by offering a “gold standard” for assessments of reader competency as well as sensitivity and specificity for other diagnostic modalities. The rigor in the slide bank creation provides the basis for externally validated competency at national laboratories responsible for compiling and distributing blood films for national and local training and certification programs. In FY2010, IMaD began supporting the development of a National Slide Bank in **Ghana** at Kintampo Health Research Center in collaboration with consortium partner HWH.

OBJECTIVE 6: OTHER ACTIVITIES

A. WORLD MALARIA DAY 2010

On Sunday April 25th, 2010, IMaD supported malaria screening activities held at a lorry station in the business district of Accra, **Ghana**. Malaria screening was performed using RDTs and targeted at porters. A similar screening activity occurred during the Health Summit on April 26th. Seven nurses and 4 biomedical scientists were on-site and performed malaria diagnostic testing to the public. Attendees were counseled on the correct use of ITNs, screened for malaria, and treated appropriately. A total of 500 RDTs were provided by IMaD and divided among the two sites.



Section 2 | ACCOMPLISHMENTS

Malaria Microscopy Refresher Training and Outreach Training and Supportive Supervision training courses and visits were at the forefront of IMaD activities in FY2010. **Liberia, Zambia** and **Malawi** conducted their first rounds of OTSS while OTSS programs launched in FY2009 continued in **Benin, Ghana and Mali**. In **Ghana**, National Guidelines for Laboratory Diagnosis of Malaria was handed over to the NMCP and NPHRL for distribution throughout the laboratory network. Regional supervisors will also be distributing the Guidelines during future OTSS visits.

Highlights of the project’s accomplishments include –

- The Ghana National Guidelines for Laboratory Diagnosis of Malaria presented to the NMCP.
- Refresher Training in Laboratory Diagnosis of Malaria and use of RDTs conducted in **Angola, DRC, Ghana, Kenya, Liberia, Mali, and Zambia**.
- OTSS visits conducted in **Benin, Ghana, Liberia, Malawi, Mali, and Zambia**
- OTSS Data Entry workshops conducted in **Benin, Ghana, Kenya, Liberia, Malawi, Mali, and Zambia**.

- IMaD sponsored **Angolan, Ghanaian, Kenyan, Liberian, and Zambian** MOH laboratory staff to attend Malaria Microscopy Accreditation Courses (MMAC).
- IMaD entered into collaboration with the Kintampo Health Research Center to develop a National Archive of Malaria Slides in **Ghana**.
- Procurement of malaria laboratory equipment and supplies for **Mali, Ghana, and Liberia**.
- Development of Malaria Diagnostic Bench Aids and Job Aids for distribution in all IMaD program countries.

COUNTRY SPECIFIC ACCOMPLISHMENTS

ANGOLA

Refresher Training – Microscopy and RDTs (July, 2010)

- 5-day Malaria Microscopy Refresher Training (MMRT) held in Malanje for 20 laboratory staff. Facilitated in collaboration with the US Centers for Disease Control and Prevention (CDC), the Institut de National de Saúde Pública, and the National Malaria Control Program.
- 5-day WHO Malaria Microscopy Accreditation Course (MMAC) held in Luanda for twelve top performing laboratory staff selected by the NMCP and the INSP

BENIN

OTSS Round 1 Data Entry and Analysis/Report Training (November/December 2009)

- Three consultants and ICC trained to do data entry
- Checklist was revised in response to issues identified by supervisors

OTSS Round 2 (January 2010)

- 60 Health facilities visited
 - 117 lab staff trained
 - 152 clinical staff trained

OTSS Round 3 (April/May 2010)

- 60 Health facilities visited
 - 66 lab staff trained
 - 65 clinical staff trained

OTSS Round 4 (August 2010)

- 60 Health facilities visited
- 51 lab staff trained
- 62 clinical staff trained

Procurement (May 2010)

- 170 laboratory registers and 170 slide boxes for health facilities ordered and distributed

DEMOCRATIC REPUBLIC OF CONGO

Orientation Visit (April/May 2010)

- Preliminary workplan developed for FY2010 & FY2011 activities
- Initial assessment visit to Katanga Province

Training of Trainers (September 2010)

- 5-day Training of Trainers (TOT) in Malaria Microscopy and RDT use held in Kinshasa for 8 provincial-level malaria laboratory supervisors and 5 central-level training facilitators. Phase II training at provincial level (in 4 PMI supported provinces) scheduled for the second quarter of FY2011.

ETHIOPIA

- Submitted a proposal for the development of a National Slide Bank

GHANA

Refresher Training – Microscopy and RDTs (November, 2009)

- 20 laboratory supervisors trained

WHO/AMREF MMAC (January/July/August 2010)

- 6 people trained

OTSS Orientation Workshop (February, 2010)

- 20 laboratory supervisors trained on the revised OTSS checklist

OTSS Round 1 (March 2010)

- 60 Health facilities visited
- 162 lab staff trained
- 3 clinical staff trained

OTSS Round 2 (July 2010)

- 119 Health facilities visited

-319 lab staff trained

-37 clinical staff trained

OTSS Lessons Learned Workshop (September 2010)

- Workshop for district and regional level supervisors held to identify and improve on the OTSS supervision process.

OTSS Training Workshop

- 20 district level laboratory supervisors trained to conduct OTSS visits with regional laboratory supervisors

Guidelines and Policy Documents (April, 2010)

- 3000 copies of the National Guidelines for Laboratory Diagnosis of Malaria presented to NMCP
- Copies given to NPHRL for OTSS supervisors to distribute during Rd 2
- Supported printing of 14,000 copies of the Malaria Case Management Guidelines

Procurement (April 2010)

- 30 CX-21 microscopes distributed (3 microscopes/region)
- 74,000 RDTs presented to NMCP and distributed throughout the country

Malaria screening at World Malaria Day and the Annual Health Summit (April, 2010)

OTSS Round 1 Data Entry (April-May, 2010)

- 3 local consultants trained on data entry
- ICC trained

OTSS Round 2 Data Entry (August, 2010)

- 3 local consultants entered OTSS Round 2 data

National Archive of Malaria Slides

- Established Collaboration with Kintampo Health Research Center (May, 2010)
- Protocol drafted with Kintampo (May, 2010)

KENYA

Needs Assessment

- Final Needs Assessment Report is currently being reviewed by the DOMC

Refresher Training – Microscopy and RDTs (June/September 2010)

- 33 people trained

OTSS Training Workshop (June, 2010)

- 36 people trained
 - 18 lab staff
 - 18 clinical staff

WHO/AMREF MMAC (January/July/August 2010)

- 7 people trained

LIBERIA

Refresher Training – Microscopy and RDTs

- 20 trained (October, 2009)
- 24 trained (February, 2010)
- 11 trained (August, 2010)

Evaluation of Refresher Training (March, 2010)

- 20 laboratory technicians evaluated from October 2009 training

WHO/AMREF MMAC (January/July/August 2010)

- 4 people trained

OTSS Training Workshop (April/June 2010)

- 39 people trained
 - 17 lab staff
 - 22 clinical staff

OTSS Round 1 – RDT Dipstick Training and Supervision (October 2010)

- 62 Health facilities visited
 - 855 health staff trained

Basic renovations made to the Liberian Institute of Biomedical Research (February, 2010)

- Guesthouse
- Conference Room

Stakeholders Meeting (April, 2010)

- Revision of National Guidelines for Laboratory Diagnosis of Malaria
- Revision of OTSS checklist

Procurement (April, 2010)

- 25 Olympus CX-21 Microscopes ordered
- Coordinated with DELIVER to procure equipment and supplies to support the NPHRL

MADAGASCAR

- *ON HOLD UNTIL FURTHER NOTICE*

MALAWI

Refresher Training – Microscopy and RDTs (August, 2010)

- 22 trained

OTSS Training Workshop (August, 2010)

- 39 people trained

OTSS Round 1 (August, 2010)

- 60 Health facilities visited
- 63 lab staff trained
- 131 clinical staff trained

National Guidelines for Laboratory Diagnosis of Malaria (February, 2010)

- Provided Technical Assistance for review of National Guidelines
- Integration of an RDT policy was discussed

Stakeholders Meeting (March, 2010)

- Planned IMaD implementation and operational details with collaborating organizations

In-Country Coordinator (May, 2010)

- Hired Malawi IMaD ICC

MALI

Refresher Training – Microscopy and RDTs (February, 2010)

- 20 persons trained

OTSS Round 1 (March, 2010)

- 36 facilities supervised in 6 of the 9 target regions
- 111 lab staff trained
- 127 clinical staff trained

OTSS Round 2 (April, 2010)

- 36 facilities supervised in 6 of the 9 target regions
 - 102 lab staff trained
 - 133 clinical staff trained

OTSS Round 3 (2010)

- 50 facilities supervised in 6 of the 9 target regions
 - 149 lab staff trained
 - 103 clinical staff trained

Hiring of ICC (May 2010)

- Hired IMaD Mali ICC

Data Entry and Analysis/Report Training (May 2010)

- 5 people trained (members of the INRSP and PNLP)

Finalization of OTSS Manual (May 2010)

- Updates to the manual were made including the addition of graphics specific to Mali

Bench Aid production (May 2010)

- Congolese bench aids were adopted for use in Mali
- PMI/USAID mission suggested that in addition to A4 sized handouts that IMaD produce poster sized bench aids as well

Revision of FY2010 work plan with INRSP and PNLP (May 2010)

- With support from the PNLP and INRSP, IMaD revised its Mali FY2010 work plan
- Corresponding, detailed budgets were created/updated to accompany each major activity in the work plan
- A generalized work plan for FY2011 was designed as well

Checklist revisions with INRSP and PNLP (May 2010)

ZAMBIA

In-Country Coordinator (November, 2010)

- Hired IMaD Zambia ICC

Refresher Training – Microscopy and RDTs (December, 2009)

- 18 persons trained

WHO/AMREF MMAC (January/July/August 2010)

- 5 people trained

OTSS Round 1 (January - February 2010)

- 53 Health facilities visited (targeted 6/province in all 9 provinces)
 - 66 lab staff trained
 - 36 clinical staff trained

OTSS Round 2 (May 2010)

- 54 Health facilities visited (targeted 6/province in all 9 provinces)
 - 96 lab staff trained
 - 142 clinical staff trained

OTSS Data Entry and Analysis/Report Training (March, 2010)

- Three consultants and ICC trained to do data entry
- A brief OTSS Round 1 summary was provided to the Mission for MOP planning and review
- Checklist was revised in response to issues identified by supervisors

OTSS Follow-Up Visits (April 2010)

- IMaD's ICC and Moonga Hawela, NMCC, conducted on-site follow-up visits to remedy issues identified during analysis of the Round 1 data

Section 3 | OTSS IMPLEMENTATION: OUTREACH TRAINING AND SUPPORT SUPERVISION

During FY10 the IMaD project worked with NMCPs and their implementing arms to put into operation the OTSS QA program. Four countries (Ghana, Mali, Malawi, and Zambia) successfully launched OTSS Round I visits country-wide. National QA Teams were mobilized to provide technical and logistical support to the Regional and District level OTSS supervisors. Trained and competency assessed OTSS supervisors provided on-site training and supervision to 3148 health workers in a number of topics including; malaria microscopy techniques, RDT training, fever diagnosis, and good prescriber compliance. Quality assurance protocols were instituted in regional and district laboratories to support RDT quality (sensitivity) and malaria microscopy competency (cross-checking blood films). These health facilities will serve as QA sites for those facilities at the district and community level performing RDTs without laboratory support in the future. IMaD In-country Coordinators worked with NMCPs and OTSS supervisors to reduce costs associated with the OTSS program and in many cases were able to increase facility enrollment by introducing new cost-savings approaches.

OTSS visits are intended to occur on a quarterly basis, the following countries made significant advancement towards this goal during FY10; Benin (Rounds II -IV), Ghana (Rounds I -II), Liberia (Round I – RDT Specific), Mali (Rounds I-III), Malawi (Round I), and Zambia (Rounds I-II). Baseline data was collected during OTSS Round I visits and progress measured towards annual targets during subsequent visits. Below is a summary of country specific progress towards a subset of indicators.

OTSS data presented is up to date.

*Full country OTSS reports available.

Indicator 1: Percent of health facilities to correctly performing malaria diagnosis (on-site observation).

- “Guidance” refers to the ability of the laboratory technician to accurately adhere to the recommended steps for malaria microscopy set forth by the National Malaria Control Program with technical assistance from IMaD. [0=Not done, 0.1-0.5=Poor, 0.51-1.49=Good, 1.5-2=Excellent].

A. Benin (Rounds I-IV)

- *Target: 90% of those health facilities observed score “excellent”.*
- Benin met the target by OTSS Round 3.
- 58.2% of health facilities (55) performed malaria microscopy at a level of “excellent” during OTSS Round 1. By OTSS Round 4, 100% (n= 35) performed at a level of “excellent”.

B. Ghana (Round I-II)

- *Target: 75% of those health facilities observed score “excellent”*
- 48.6% of HF (n=70) scored at the level of “excellent” during their first OTSS visit. 78.6% of HF (n=14) scored at “excellent” during their second OTSS visit.

C. Mali (Rounds I-III)

- *Target: 85% of those health facilities observed score “excellent”*
- 40% of HF (20 facilities; n=50) scored at the level of “excellent” during their first OTSS visit. 90% of evaluated HF (28 facilities; n = 31) scored at “excellent” during their third OTSS visit.

D. Malawi (Round I)

- *Target: 80% of those health facilities observed score “excellent”*
- During OTSS Round I, 90% of HF (n=40) performed at a level of “good” and 5% scored “excellent” on malaria microscopy.

E. Zambia (Rounds I-II)

- *Target: 65% of those health facilities observed score “excellent”*
- Between their first and second visit, there was an increase in health facilities (n=36) performing malaria diagnostics (microscopy) with “excellent” technique – 8.3% to 13.9% of facilities evaluated.
- 100% of evaluated health facilities performed malaria diagnosis (microscopy) with either “good” or “excellent” technique during their second visit. No facilities performed with “poor” techniques.

Indicator 2: Percent of health facilities correctly reading malaria slides (cross-checking blood films).

- Supervisor cross-checks 10 malaria slides (5 weak positives [+] and 5 negative slides) per quarter.
- It was not anticipated that data would be collected for this indicator during the first round of OTSS visits, as it was the supervisors responsibility to introduce the slide re-checking (slide validation) program to the facility. However, some supervisors read a number of slides during the OTSS Round I visit. It should be noted that the number of slides read at these facilities was not standardized nor was it to be considered “slide validation” rather it was classified as a slide re-checking exercise.

A. Benin (Rounds I-IV)

- *Target: 100% of those health facilities observed score 76-100% agreement.*
- During OTSS Round II, 82.8% of facilities (n= 58) scored at 76-100% agreement level. By OTSS Round IV, 97.1% (n=35) of facilities falling into the 76-100% level for correctly read malaria slides.

B. Ghana (Rounds I-II)

- *Target: 90% of those health facilities observed score 76-100% agreement.*
- *Ghana has satisfied target.*
- During their second OTSS visit, 92.2% of health facilities (n=51) scored at 76-100% agreement level. During their first OTSS visit, 100% of health facilities (n=27) of HF scored at 76-100% agreement level.

C. Mali (Rounds I-III)

- *Target: 70% of those health facilities observed score 76-100% agreement.*
- *Mali has satisfied target.*
- During OTSS Round II, 77.1% of health facilities (n=35) that participated in malaria microscopy slide validation scored at 76-100% agreement. 88.2% of health facilities (n=34) scored at 76-100% agreement by OTSS Round III.

D. Malawi (Round I)

- Validation protocols for slide re-checking are introduced to health facilities during OTSS Round I visits. Therefore these data will not be available until OTSS Round II.

E. Zambia (Rounds I-II)

- *Target: 80% of those health facilities observed score 76-100% agreement.*
- *Zambia has satisfied target.*
- IMaD surpassed the target of 80% of health facilities performing at the highest level of slide validation in OTSS Round I-II (88.9% and 85.2% respectively).
- It has taken several rounds for the internal slide storing scheme to be implemented as shown by the increasing number of HF evaluated from Round I - Round II (18 and 27 respectively).

Indicator 3: Percent of health facilities correctly performing RDTs (on-site observation).

- “Guidance” refers to the ability of the laboratory technician to accurately adhere to the recommended steps for RDTs set forth by the National Malaria Control Program with technical assistance from IMaD. [0=Not done, 0.1-0.5=Poor, 0.51-1.49=Good, 1.5-2=Excellent]

A. Benin (Rounds I-IV)

- *Target: 85% of those health facilities observed score “excellent”.*
- During OTSS Round I, 28 of 33 health facilities (85%) performed malaria diagnostics using RDTs at a level of “Excellent”. By OTSS Round III, approximately 75% of health facilities (n=16) scored excellent.

B. Ghana (Rounds I-II)

- *Target: 80% of those health facilities observed score “excellent”.*
- *Ghana has satisfied this target.*
- During their first OTSS visit, 83.8% of health facilities (n=37) scored at the level of “excellent”. During their second OTSS visit, 100% (n=16) scored excellent.

C. Mali (Rounds I-III)

- *Target: 85% of those health facilities observed score “excellent”.*
- *Mali has satisfied this target.*

- During the initial supervision, 19 health facilities (52.8%) were unable to be observed on RDT procedures. Among the facilities that were evaluated, 11 out of 17 (64.7%) were able to perform RDT malaria diagnosis using appropriate procedures at a level of "excellent".
- By their third OTSS visit, 6 of 7 health facilities (85.7%) scored "excellent" on RDT technique.

D. Malawi (Round I)

- RDTs have not yet been systematically rolled out in Malawi. Therefore information was only collected for a total of six health facilities where RDTs were available.

E. Zambia (Rounds I-II)

- *Target: 65% of those health facilities observed score "excellent".*
- 64.7% of health facilities (n=34) scored "excellent" in their ability to perform RDTs during OTSS Round I. During OTSS Round II, 68.6% of HF (n=35) scored "excellent".

Indicator 4: Number of training units provided to laboratory staff during OTSS visits.

A. Benin (Rounds I-IV)

- *Target: 4 health workers per OTSS visit*
- *Benin has satisfied this target.*
- During OTSS Rounds II-IV, 513 health workers received on-site training on topics such as; malaria microscopy techniques, RDTs, stain preparation, and prescriber compliance.

B. Ghana (Rounds I-II)

- *Target: 4 health workers per OTSS visit*
- *Ghana has satisfied this target.*
- During OTSS Rounds I-II, 481 laboratory staff received on-site training on topics such as; malaria microscopy techniques, RDTs, stain preparation, and prescriber compliance.

C. Liberia (Round I –RDT specific)

- During OTSS Round I, 855 health staff received on-site training on dipstick RDTs.

D. Mali (Rounds I-III)

- *Target: 4 health workers per OTSS visit*
- *Mali has satisfied this target.*

- A total of 738 health staff have been trained on-site during OTSS Rounds I-III on topics such as malaria microscopy, fever diagnostics, and prescriber compliance.

E. Malawi (Round I)

- *Target: 4 health workers trained per OTSS visit*

- During OTSS Round I, 194 laboratory staff received on-site training on topics such as; malaria microscopy techniques, RDTs, stain preparation, and prescriber compliance.

F. Zambia (Rounds I-II)

- *Target: 2 laboratory staff and 2 clinical staff trained*
- *Zambia has satisfied this target.*

- During OTSS Rounds I-II, 342 health workers received on-site training on topics such as; malaria microscopy techniques, RDTs, stain preparation, and prescriber compliance.

Indicator 5: Percent of health facilities with clinical staff prescribing anti-malaria drugs to patients with a negative test result.

A. Benin (Rounds I-IV)

- *Target: 35% of health facilities prescribing anti-malaria drugs 0-25% of the time to a negative test result*
- *Benin has satisfied this target.*

- During OTSS Round I, 13.5% of HF (n=52) prescribed anti-malaria drugs 0-25% of the time. By OTSS Round IV, 43% of HF (n=30) were prescribing anti-malaria drugs 0-25% of the time.

B. Ghana (Round I-II)

- *Target: 25% of health facilities prescribing anti-malaria drugs 0-25% of the time to a negative test result*
- *Ghana has satisfied this target.*

- During their first OTSS visit – 26.5% of HF (n=102) prescribed anti-malaria drugs 0-25% of the time. During their second OTSS visit, 45.8% of HF (n=48) were prescribing anti-malaria drugs 0-25% of the time.

C. Mali (Rounds I-III)

- *Target: 25% of health facilities prescribing anti-malaria drugs 0-25% of the time to a negative test result*
- *Mali has satisfied this target.*

- During their first OTSS visit, 22.5% of HF (n=40) prescribed anti-malaria drugs 0-25% of the time. By their third OTSS visit, 36.4% of HF (n=33) prescribed anti-malaria drugs 0-25% of the time.

D. Malawi (Round I)

- *Target: 25% of health facilities prescribing anti-malaria drugs 0-25% of the time to a negative test result*
- 16.2% of HF prescribed anti-malaria drugs to patients with a negative malaria test result 0-25% of the time. Interestingly, four out of the five HFs reporting that clinicians use RDTs all had the best prescriber compliance.

E. Zambia (Rounds I-II)

- *Target: 35% of health facilities prescribing anti-malaria drugs 0-25% of the time to a negative test result*
- *Zambia has satisfied this target.*
- During their first OTSS visit, 43.6% of HF (n=39) prescribed anti-malaria drugs 0-25% of the time. During their second OTSS visit, 34.1% of HF (n=44) prescribed anti-malaria drugs 0-25% of the time.

Section 4 | CHALLENGES, LESSONS LEARNED AND WAY FORWARD

OBJECTIVE 1: NATIONAL GUIDELINES FOR THE LABORATORY DIAGNOSIS OF MALARIA

IMaD has presented generic guidelines for the laboratory diagnosis of malaria to NMCPs for updating and revision. These guidelines provide the audience with up to date recommendations and best practices. Although the objective is to streamline the process by providing a template the team has run into the following issues:

1. Difficulty with gaining consensus among the many stakeholders and TWGs which affects the timeline.

Solution: The NMCP only call on a few key stakeholders to revise or adopt the document during the first meeting. Once the content and subject matter is agreed upon the NMCP may wish to call a greater number of stakeholders to review the document over email. The last stage of the process is to have a final meeting where all stakeholders come together to finalize the document.

OBJECTIVE 2: TRAIN LABORATORY PERSONNEL IN APPROPRIATE USE OF MICROSCOPY AND RDTs

In order for the OTSS program to work effectively and for supervisors to provide quality on-site supervision to health facilities, competency assessments in malaria microscopy is a must. The team has run into the following issues when conducting workshops to support the Laboratory Diagnosis of Malaria and OTSS Training.

1. Availability of standardized slide sets

Solution: HWH, an IMaD partner holds a number of standardized slide sets that were produced with the MR4. Additionally, IMaD has been able to check out a number of slide sets directly from the MR4 to use in IMaD countries. IMaD is also recommending the development of national slide banks to the NMCPs and NPHRLs to support country training and assessment needs.

2. Identifying a large enough number of quality microscopes in country to support training

Solution: IMaD is now supporting procurement of a number of microscopes to countries where it was difficult to identify adequate numbers of good quality microscopes for training. In some countries where the identification of microscopes has been a problem, IMaD has rented them from a reputable supplier.

OBJECTIVE 3: LABORATORY QUALITY CONTROL AND SUPERVISION

The OTSS program requires a well-designed action plan for each round of supervision. This plan includes a schedule of available supervisors, mobilization of resources (printed checklists, distribution of per diems, mode of transport), and support of data entry activities. The OTSS program requires that the NMCP or NPHRL is able to identify a committed staff member to oversee daily activities of the OTSS program.

1. Identification of NMCP or NPHRL staff who can commit time and energy to oversee OTSS activities.

Solution: The IMaD ICC's are working in parallel with NMCP/NPHRL staff to learn the various components of the OTSS program, especially in terms of data entry/data analysis, and how to make basic revisions to the checklist. These staff are committing as much time as their schedules permit and over time will be able to train others to assist them.

2. Implementation of the Technology/Transfer Plan

Solution: A manual is being produced for NMCP/NPHRL managers to address the OTSS program.

OBJECTIVE 4: FINALIZATION OF DATA ENTRY ANALYSIS PACKAGE

In an effort to streamline OTSS data collection and management systems, the IMaD Home Office has created a comprehensive OTSS database, shifting from an Excel database to Microsoft Access. IMaD will take the following steps in April FY2011 to finalize the OTSS database:

MCDI Database GANT Chart

Key:	Scott	Sean	Lou	Other	NA
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Data Entry Database Revisions								
Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Merging Lab and Clinical databases to form master database	X	X						
Login Page: Passwords, Change Comp name to User ID, Admin vs Data Entry Distinction	X	X						
Informal Training Documentation Forms, Tables, Append Query	X							
Data Entry Completion Variable								
Message Box to confirm data entry is complete at end of each form								
Report for non entered checklist								
Remove Annual Checklists								
Master/Reporting Database Revisions								
Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Password Protect	X	X						
Improve Master Database Queries	X							
Complete Link between Ghana Database and Excel Report file	X							
Add Pivot Chart and Table Options to DB								
Add export options to DB for SPSS/excel								
Informal Training Documentation Master Table								
Improve Reports through Masterbase to enable sites: Report Form, Export Data and Printable Reports of queries								
General Updates								
Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Assess all project databases	X	X	X					
Data Entry SOP	X							
Data Receipt SOP	X							
Data Administration SOP	X							
Data Quality SOP	X	X						
Data Dictionary	X	X						
Data Transmission SOP	X	X						
Reporting SOP	X	X						
External Drives for Backup?								

Key
Scott
Sean
Lou
Other
NA

OBJECTIVE 5: SCALE UP OF OTSS PROGRAM

In countries like Ghana and Zambia where IMaD is striving for national OTSS program coverage, IMaD identified significant financial and human resource constraints which limited scale-up efforts. To address these constraints IMaD has taken the following actions:

- 1) Where feasible, IMaD has oriented district-level supervisors to the IMaD project, OTSS procedures, and the OTSS checklist, thereby increasing staff/human resources available to conduct OTSS visits.
- 2) IMaD will reduce OTSS frequency to two annual visits coupled with an Internal Quality Assurance program for health facilities that have received a full cycle (number of visits for a full cycle is country-specific) of OTSS visits. This approach will ensure that facilities will continue to be enrolled in the OTSS program while good laboratory practices are being maintained by the health facilities that will no longer receive quarterly visits. IQA activities will focus on topics such as: QC of stains, record keeping, microscope maintenance, and quality of reagents and supplies.

In the year(s) to come, other IMaD countries are likely to follow suit with a national scale up of the OTSS program. Lessons learned from Ghana will be used to inform and improve scale-up efforts.

OBJECTIVE 6: INTEGRATION

In Liberia, IMaD is currently exploring the creation of a sustainable and integrated laboratory system to provide quality diagnostic services for effective implementation of prevention, case management and surveillance of Malaria, TB, HIV, Other Infections, and other diseases.

In most Liberian laboratories the same technician tests for TB, HIV, malaria, and other conditions. A coordinated approach to training staff in laboratories such as these is beneficial and would reduce costs as implementing partners could streamline their training activities and take advantage of infrastructural improvements made by sister programs. Even when there are multiple technicians in the laboratory, it is in the best interest of the facility to cross train and supervise their laboratory staff in a coordinated manner so as to avoid deficiencies in overall testing capacity should, for example, a technician be absent or transferred to another facility.

One way to streamline this coordinated approach is to provide synchronized supportive supervision for each disease area. Training on common topics such as laboratory management, biosafety and quality assurance would better benefit the facility as a whole if all disease areas are taken into consideration when formulating laboratory strengthening plans.

IMaD proposes to begin implementing project activities at referral laboratories eventually shifting focus and resources to laboratories at tertiary level hospitals and then, during the 2nd year, scale up EQA programs to all hospitals and health centers with the largest service populations for HIV, TB and malaria.

IMaD Way Forward FY2011

The planned performance objectives for IMaD during FY2011 were presented in detail in the IMaD FY2011 Workplans. Table 1 below provides a brief overview of the workplans and planned quarterly activities for each country.

Table 1: FY2011 Activities Matrix

IMAD OVERALL FIELD ACTIVITY WORKPLAN FY11

DRAFT FY2011 Overall Workplan Matrix			Q1		Q2			Q3		Q4				
Country	Objective	Activity	O	N	D	J	F	M	A	M	J	J	A	S
Angola	Refresher Training	Refresher Training in malaria microscopy												
	Follow-up Workshop													
Benin	Refresher Training	Refresher trainings in malaria microscopy												
	Job aids	Printing and Distribution												
	OTSS Round 5	OTSS Visits												
	ICC	ICC												
	OTSS Round 6	OTSS Visits												
	OTSS Round 7	OTSS Visits												
Burundi	Baseline Assessment of RDTs	Conduct an assessment of RDTs in Burundi with IMaD's CTO												
	National Workshop	Case Management and RDT Policy Workshop												
Democratic Republic of the Congo	Pre Phase 2 Training planning meeting	Meeting with key stakeholders to plan for Phase 2 Training												
	Phase 2 Training in 4 provinces	MMRT Training of provincial laboratory staff in 4 PMI supported provinces												
	ICC	ICC												
Ethiopia	MMAC	WHO Malaria Microscopy Accreditation Course												
	National Archive of Malaria Slides (NAMs) Development	Development of a National Slide Archive in collaboration with ICAP												
Ghana	OTSS Round 3	Launch OTSS Round 3 in all regions												
	OTSS Round 4	Launch OTSS Round 4 in all regions												
	OTSS Round 5	Launch OTSS Round 5 in all regions												
	RDT Implementation Meeting	RDT Policy Meetings												
	ICC	ICC												
	National Archive of Malaria Slides (NAMs) Development	Development of a National Slide Archive in collaboration with Kintampo Health Research Centre												
Kenya	Data Entry Training	Training of DOMC staff and AMREF staff on the OTSS database												
	OTSS Round 1	Launch OTSS Round 1												
	Training of Trainers Workshop	A TOT Workshop for 20 Supervisors in Malaria Microscopy												
	National curricula workshop	Finalization of national curricula for Malaria Microscopy Refresher Training and Outreach Training and Support Supervision (OTSS) for clinicians and laboratory staff												
	MMAC	WHO Malaria Microscopy Accreditation Course												
	Sustainability and transition plan	Planning sessions with the DOMC to review sustainability and the handover of program activities.												
	Refresher Training	Refresher training in malaria microscopy												
Liberia	Ongoing Refresher Training in Malaria Dx	Ongoing Refresher Trainings course in Malaria Diagnostics												
	OTSS Round 1	Launch OTSS Round 1												
	Ongoing OTSS	Ongoing OTSS												
	Ongoing EQA of malaria microscopy and RDTs	Conduct External Quality Assurance at JFK and NPHRL												
	Follow-up Workshop	Workshop to review Lessons Learned from OTSS												
	ICC	ICC												
	Technical Assistance	Technical Assistance to reference laboratories and clinicians												
Madagascar	Workplan Development	Workplan Development												

DRAFT FY2011 Overall Workplan Matrix			Q1			Q2			Q3			Q4		
Country	Objective	Activity	O	N	D	J	F	M	A	M	J	J	A	S
Malawi	OTSS Round 2	Launch OTSS Round 2 in 96 HF												
	Refresher Training in Malaria Dx	Refresher Training in malaria microscopy												
	Refresher Training in Malaria Dx	Refresher Training in malaria microscopy												
	OTSS District Training	OTSS Training Workshop												
	SOP and Policy Meeting	SOP/Policy National Review												
	RDT Implementation Meeting	Technical Working Group to develop an RDT implementation plan in Malawi												
	Sustainability and transition plan	Develop and transfer a national QA/QC sustainability plan to the NMCP												
	National Guidelines for Lab Dx of Malaria	Printing and dissemination of National Guidelines												
	Lessons Learned Workshop	Workshop to review Lessons Learned from OTSS												
	Laboratory Registers	Laboratory registers approved by MOH and printed and disseminated												
	Malaria Microscopy Bench Aids	Printing and dissemination of malaria microscopy bench aids												
	MMAC	WHO Malaria Microscopy Accreditation Course TBD												
	ICC	ICC												
	Mali	Malaria Microscopy Bench Aids	Printing and dissemination of malaria microscopy bench aids											
Refresher Training in Malaria Dx		Refresher training in malaria diagnostics												
OTSS Round 4		Launch OTSS Round 4												
SHM for Policy Development		Initial Stakeholders Meeting for National Malaria Policy Development												
SHM 2 for Policy Development		Follow up Stakeholders Meeting for National Malaria Policy Development												
Malaria Diagnostics Policy/Guidelines		Production, printing and distribution of Malaria Diagnostics Policy/Guidelines												
ICC		ICC												
Nigeria	Baseline Assessment													
	Baseline Assessment Part II ICC Hire													
Zambia	OTSS Round 3	Launch OTSS Round 3												
	OTSS Round 4	Launch OTSS Round 4												
	ZISSP Training	47 staff trained in active case managemet												
	Post Round 4 Workshop	Post Round 4 Workshop												
	OTSS Round 5	Launch OTSS Round 5												
	Lab Training Manuals	Printing and dissemination of lab training manuals												
	Refresher Training in Malaria Dx	Outreach training of 18 laboratory/clinical supervisors												
	Malaria Microscopy Bench Aids	Printing and dissemination of malaria microscopy bench aids												
	New In Country Partner													
	ICC	ICC												
	MMAC	WHO Malaria Microscopy Accreditation Course												

Section 5 | IMaD CORE

During FY2010, IMaD Home Office and partner organizations undertook various activities to strengthen and support the IMaD project and country activities. IMaD FY2010 core activities fell into the following categories:

Program Management

During FY2010, IMaD strengthened its program management capacity with the addition of the positions of Associate Project Manager and Program Officer to the project management team, resulting in the acceleration of deliverables and improved communications with PMI Missions and stronger day-to-day management of the IMaD project. A Monitoring and Evaluation Officer and short-term consultants for data entry and analysis were also added to support the project team. A Financial Officer was recruited to strengthen the project finance team and to strengthen financial accounting and reporting of IMaD activities.

In December 2010, IMaD held its Annual Planning Meeting to review FY2009 activities and plan for FY2010. Representatives from partner organizations, field staff, home office staff and PMI were all invited to attend this meeting. This meeting is designed to strengthen program management and planning through discussions among all partners and with PMI.

Quality Assurance/Database Management

In late FY2010, development of a database (based in Microsoft Access) was started to facilitate the analysis of OTSS data in IMaD countries. Because of the need to capture data from upcoming OTSS activities, the data entry system was the first part of the database to be developed. In order to reduce data entry errors, the entry system mirrors the paper forms that are used by the supervisors in the field to collect information from health facilities. By the end of FY2010, a template had been created for the data entry system that would be developed to fit the specifics of each country where IMaD works, including a French-language version for IMaD's francophone countries.

Monitoring and Evaluation

In preparation for the FY2010 Annual Planning meeting, the IMaD project reviewed PMI recommended indicators relating to malaria diagnostics. IMaD's M&E Matrix was edited accordingly to be in line with WHO/PMI indicators. Additionally, OTSS checklists were reviewed and revised to ensure that they were capturing the necessary data for reporting on these indicators.

International Meetings

At the Multilateral Initiative on Malaria, held in November of 2009, IMaD facilitated a symposium entitled "Improving Malaria Diagnostics Quality and Adherence to Results". The symposium was moderated by Dr.

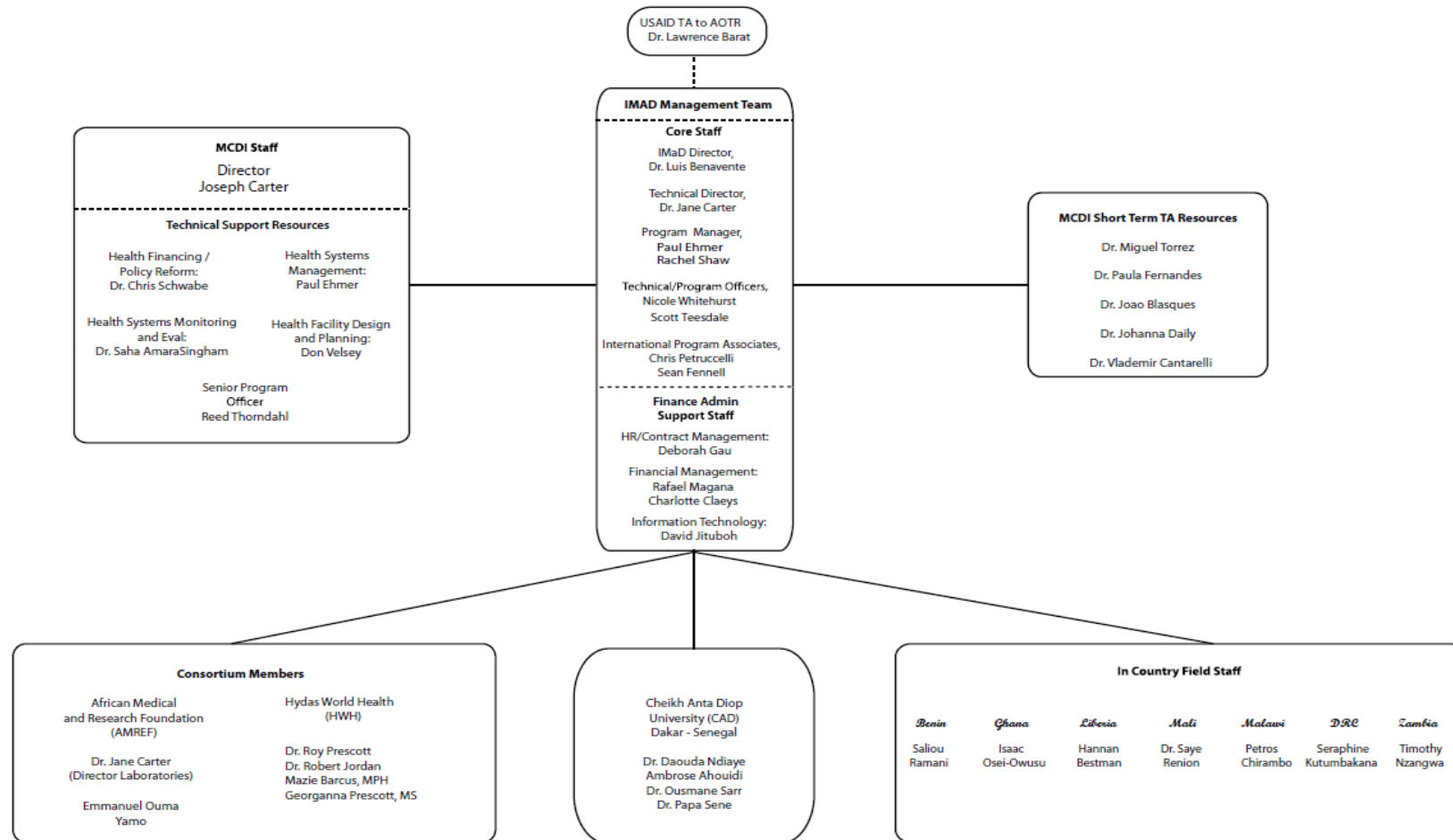
Luis Benavente, IMA's Director, and included presentations from FIND, University of Lagos, WHO AFRO, Swiss Tropical Institute (STI) and AMREF.

In FY2010, IMA supported the development of the Interagency Manual on Universal Access to Diagnostic Testing of Malaria by submitting comments on the 1st and 2nd draft and providing supervisory templates as example of tools to collect data on performance. IMA also participated in WHO/FIND's RDT Implementation Manual and in the CMWG and the Diagnosis Workstream. These activities, which engage multiple cooperating agencies, ensure that health workers around the world receive consistent messages, share standardized approaches, techniques and tools, and make better use of resources by avoiding the duplication of efforts.

Section 6 | APPENDICES

A. IMaD Program Structure and Management

IMAD ORGANIZATIONAL STRUCTURE



B. IMaD Staff, Roles & Responsibilities

The IMaD Core Management team is composed of the following people:

- Dr. Luis Benavente, **IMaD Director**, Medical Care Development International (MCDI).
Responsibilities: Represents IMaD's prime recipient, MCDI, for project management, planning, and coordination; liaises with IMaD partners; tracks progress towards benchmarks based on work plans; liaises with partners in maintaining updated M&E data including oversight of database development, data processing, and data analysis; ensures partner compliance with federal regulations, including making policies; develops overall quality assurance framework for diagnosis with RDTs; coordinates presentations in technical conferences; budgeting; assigns country-specific responsibilities to partners; and, coordinates development of technical scopes of work for consultants.
- Dr. Jane Carter, **Technical Director**, African Medical and Research Foundation (AMREF).
Responsibilities: Point of contact for WHO; supervises the development of assessment and training materials; develops technical scopes of work for consultants; oversees the development of EQA protocols for microscopy; reviews EQA protocols for RDTs; oversees AMREF's staff hired via IMaD; coordinates presentations at technical conferences in Africa; and, oversees technical content of deliverables.
- Rachel Shaw, **IMaD Project Manager**, MCDI.
Responsibilities: Assists Project Director in maintaining communications with country leads and NMCPs; oversees Hydas World Health's staff hired with IMaD funding; and, liaises with Project Director in providing day-to-day technical/logistical/administrative support to selected country teams.
- Paul Ehmer **IMaD Project Manager**, MCDI.
Responsibilities: Assists Project Director in maintaining communications with country leads and NMCPs; oversees Hydas World Health's staff hired with IMaD funding; and, liaises with Project Director in providing day-to-day technical/logistical/administrative support to selected country teams.
- Chris Petruccelli, **IMaD Program Associate**, MCDI.
Responsibilities: Assists with ATPs, contracts, and other administrative activities; assists with the organization of teleconferences, conferences, presentations, and other technical/scientific events; and, works on other project activities as needed.

The IMaD Core Technical Team is composed of the following people:

- Dr. Luis Benavente, **IMaD Director**, MCDI. (*Responsibilities:* see above)

- Dr. Jane Carter, **Technical Director**, AMREF (*Responsibilities: see above*)
- Nicole Whitehurst, **Technical and Administrative Officer**, MCDI.
Responsibilities: Works closely with Project Director to ensure good communication with CTO; liaison between IMaD partners, PMI, and CDC; maintains communication in countries where IMaD has LTTA; ensures timely submission of deliverables to PMI; Supervises interns/temporary staff; and, monitors production of deliverables: semiannual and country reports.
- Roy Prescott, **Slide Archive Director**, Hydas World Health (HWH).
Responsibilities: Leads slide development and provides ongoing technical assistance.
- Scott Teesdale, **Program/M&E Officer**, MCDI.
Responsibilities: Works closely with Project Director to ensure good communication with CTO; liaison between IMaD partners, PMI, and CDC; maintains communication in countries where IMaD has LTTA; ensures timely submission of deliverables to PMI; Supervises interns/temporary staff; and, monitors production of deliverables: semiannual and country reports.
- Sean Fennel, **IMaD Program Associate**, MCDI. *Responsibilities: Supports OTSS Database and M&E initiatives; assist in production of deliverables: semiannual and country reports; conducts Data Entry trainings for data entry personnel.*
- Ouma Yamo, **Laboratory Advisor**, AMREF. *Responsibilities: Lead laboratory trainer and advisor for IMaD technical activities.*

C. IMaD Tracking Sheet

FY10 Activities	1	2	3	4	5	6	7	8	9	11	10	12	
Activity	Angola	Benin	Burundi	DRC	Ethiopia	Ghana	Kenya	Liberia	Madagascar	Malawi	Mali	Zambia	
Baseline Assessment (facilities assessed)			8						Mission postponed due to political unrest				
Training for baseline assessment (local enumerators)													
Diagnostic Policy						1							
Refresher Training in Microscopy and RDTs	20			13		20	33	55			22	20	18
Refresher Training in Clinical Diagnostic Methods													
OTSS Training						20	36	39			39		18
OTSS Supervision (on-site training)		513				521		855			194	725	340
OTSS Rounds		3				2		1			1	3	2
OTSS Visits (number of HF visited)		180				179		62			60	122	107
Procurement (number of orders made)		3				1		2					
Accreditation course participants	12	-		-	2	6	7	4			-	-	5
ICC		1		1		1		1			1	1	1
Total number trained	32	513		13	2	567	76	953		255	745	381	

Section 7 | ANNEXES

Annex 1: Refresher Training in Malaria Diagnostics: Time table

REFRESHER TRAINING IN LABORATORY DIAGNOSIS OF MALARIA: TIME TABLE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<i>8.00-9.00</i>	Introductions Ground rules Expectations	Review of Pre test slides	Review stained slides	Review of Test Slides	Review of Test Slides
<i>9.00-10.00</i>	Module 1 Pre-test (Theory)	Module 6 Collection of capillary & venous blood (Theory)	Module 8 Artefacts, pseudoparasites, other blood parasites, mixed infections (Theory)	Module 11 Use, care & storage of the microscope (Theory)	Module 12 Malaria QA/QC (Theory)
<i>10.00 – 10.30</i>	Module 2 Pre-test (Practical)	Module 7 Malaria diagnosis: microscopy (Theory)	Module 9 Preparation and staining of thick and thin blood films (Theory)	Module 11 Use, care & storage of the microscope (Practical)	Module 13 SOP development (Theory & Practical)
<i>10.30-11.00</i>	Tea break				
<i>11.00-12.00</i>	Module 2 Pre-test (Practical)	Module 5 Parasitological stains & Prep of stains (Practical)	Module 10 Malaria diagnosis RDT (Theory)	Module 10 Malaria diagnosis RDT (Practical)	Module 14 Sources off error in malaria diagnosis (Theory)
<i>12.00-1.30</i>	Module 2 Pre-test (Practical)	Module 6 Collection of capillary & venous blood(Practical)	Module 9 Preparation and staining of thick and thin blood films (Practical)	Module 10 Malaria diagnosis RDT (Practical)	Module 14 Sources off error in malaria diagnosis (Theory)
<i>1.30 – 2.30</i>	Lunch				
<i>2.30- 3.30</i>	Module 3 Epidemiology and overview of progress in malaria eradication	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Module 15 Presentation work plans
<i>3.30-4.30</i>	Module 4 Life cycle of malaria and parasite morphology (Theory)	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Module 15 Presentation work plans
<i>4.30 – 5.30</i>	Module 5 Parasitological stains & Prep of stains (Theory)	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Module 7 Practice slides examination (Practical)	Closing & issuing of certificates
<i>5.30 – 6.00</i>	Tea break				

Annex 2: Sample OTSS Time Table

<i>Time</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
9:00 -10:30	Module 1 Introductions Ground rules Expectations Administrative Issues	Module 5 Standards of laboratory practice	Module 10 Management of chemicals, reagents and supplies	Organize into 2 groups and overview of group visit to health facility	Continue to develop workplans
10:30-11:00	TEA BREAK	TEA BREAK	TEA BREAK	NO TEA BREAK	
11:00-12:00	Module 2 Malaria: programmatic Issues (NMCP)	Module 6 Principles and concepts of QA/QC and review of microscopy and RDT EQA protocols	Module 11 Medical lab equipment	Visit Heath Facility (use checklist and record any questions)	Module 16 (practical) Workplan Presentations
12:00-1:00	Module 3 On-site Training and Support Supervision Overview	Module 7 Essential health facility management <i>(align with checklist)</i>	Module 12 Lab saftey, cleaning, disinfection, sterilization, and waste disposal		
1:00-2:00	LUNCH BREAK				
2:00-2:30	Module 4 OTSS Checklist and scoring overview	Module 8 Laboratory management information systems	Module 13 Sources of error in patient diagnosis	Module 14 Feedback from OTSS Visit	Closing
2:30-3:30		Module 9 (practical) Design a plan as to how data will flow from your county to NMCP	Module 13(practical) Sources of error in patient diagnosis		Module 15 (practical) Develop workplans for OTSS
3:30-5:00		Module 9 (practical) presentation of data flow plan			

Annex 3: Distribution of microscopes in Ghana

Facility name	Region
Regional Hospital, Koforidua	Eastern
Oda District Hospital	Eastern
Suhum Government Hospital	Eastern
Goaso Hospital	Brong Ahafo
St John of God Hospital, DuayawNkwanta	Brong Ahafo
Atebubu Government Hospital	Brong Ahafo
Bolga Regional Hospital	Upper East
Navrongo War Memorial Hospital	Upper East
Bongo District Hospital	Upper East
St Mary Theresa Hospital, Dodi Papease	Volta
St Anthony's Hospital	Volta
Akatsi District Hospital	Volta
Bole Hospital	Northern
Bimbila Hospital	Northern
Zabzugu Hospital	Northern
Ashaiman Polyclinic	G. Accra
Tema Gen Hospital	G. Accra
Dodowa	G. Accra
Suntreso Regional Hospital	Ashanti
Mampong Municipal Hospital	Ashanti
Ejisu District Hospital	Ashanti
Effia Nkwanta Reg Hospital	Western
Tarkwa Hospital	Western
Dixcove Govt Hospital	Western
Wa Regional Hospital	Upper West
Jirapa District Hospital	Upper West
Nadowli District Hospital	Upper West
Central Regional Hospital	Central
Saltpond Govt Hospital	Central
Agona Swedru	Central