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FY2012 Semi-Annual Report

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USAID FROM THE AMERICAN PEOPLE

PRESIDENT'S MALARIA INITIATIVE

Task Orders 3 and 7 (Malaria)

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The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

USAID | DELIVER PROJECT, Task Order 3
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USAID | DELIVER PROJECT, Task Order 7
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Abstract
This annual report documents the activities of Task Orders 3 /7 (Malaria) during FY2012 (October 1, 2011–March 31, 2012). Key sections highlight the major activities under each objective—the accomplishments, the implementation issues, and proposed solutions.

Cover photo: Women with their new long-lasting insecticide-treated bed nets in Madagascar during a nationwide bed net distribution. 2010. USAID | DELIVER PROJECT.

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Acronyms

ACT	artemisinin-based combination therapy
AL	artemether-lumefantrine
AMFm	Affordable Medicines Facility for malaria
AMP	Alliance for Malaria Prevention
AutoDRV	automated system
CA	collaborating agency
CCB	Change Control Board
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CMAM	*Central de Medicamentos e Artigos Médicos*
CMS	Central Medical Stores
CPIR	commodity procurement information request
DFID	Department for International Development
DHO	District Health Office
DRC	Democratic Republic of Congo
EMEA	European Medicines Agency
EMLIP	Essential Medicines Logistics Improvement Program
EMMP	Environmental Mitigation and Monitoring Plan
ENRI	Ethiopian Health and Nutrition Research Institute
EOI	expression of interest
ERP	Enterprise Resource Planning
EUV	End-use verification
FDC AS/AQ	fixed-dose combination artesunate/amodiaquine
FCT	Federal Capital Territory
FIND	Foundation for Innovative Diagnostics
GFATM	Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria
GMP	good manufacturing practices
HMIS	health management information system
HR	human resources
IDA	International Dispensary Association

IIC	Intelligent Insect Control
ILS	integrated logistics system
IQC	Indefinite Quantity Contract
IRS	indoor residual spraying
IPTp	intermittent preventative treatment in pregnancy
JSI	John Snow, Inc.
LGA	local government area
LLIN	long-lasting insecticide-treated bed net
LLIHN	long-lasting insecticide-treated hammock bed nets
LMIS	logistics management information system
MIS	management information system
MMV	Medicines for Malaria Ventures
MOH	Ministry of Health
MOHCW	Ministry of Health and Child Welfare
MOHSW	Ministry of Health and Social Welfare
MOP	Malaria Operational Plan
MSD	medical stores department
MSH	Management Sciences for Health
MSL	Medical Stores Limited
NDS	National Drugs Service
NMCP	National Malaria Control Program
OAA	Office of Acquisition and Assistance
PHCP	Primary Health Care Packages
PMI	President's Malaria Initiative
PMP	Performance Monitoring Plan
POD	proof of delivery
PPMRm	Procurement Planning and Monitoring Report for malaria
PSI	Population Services International
PSM WG	Procurement and Supply Chain Management Working Group
PSU	Pharmaceutical Supply Unit
QASP	Quality Assurance Surveillance Plan
R&R	Report and Request (forms)
RBM	Roll Back Malaria
RDT	rapid diagnostic test
RFP	Request for Proposal

RFQ	Request for Quote
SAICM	Strategic Approach to International Chemicals Management
SDLC	System Development Life Cycle
SDP	service delivery point
SCMU	Supply Chain Management Unit
SLA	service level agreement
SOP	standard operating procedure
SOW	scope of work
SP	sulphadoxine-pyrimethamine
SPS	Strengthening Pharmaceutical Systems project
STTA	short-term technical assistance
TO	task order
TOM	Task Order Malaria
TWG	technical working group (generic)
UNICEF	United Nations Children's Fund
UPS	United Parcel Service
USAID	U.S. Agency for International Development
USAID/W	U.S. Agency for International Development/Washington Office
USG	United States Government
USP	United States Pharmacopeia
WHO	World Health Organization
WHO/FIND	World Health Organization/Foundation for Innovative Diagnostics
WHOPES	World Health Organization Pesticide Evaluation Scheme

Executive Summary

This annual report covers the period from October 1, 2011 to March 31, 2012; it describes the activities of Task Order 3 (TO3) and Task Order 7 (TO7), jointly called Task Order Malaria (TO Malaria), under the USAID | DELIVER PROJECT Indefinite Quantity Contract with John Snow, Inc. TO Malaria is part of the U.S. Government's effort to fight malaria in sub-Saharan Africa through the President's Malaria Initiative (PMI). The initiative works in 19 African focus countries, and the Mekong region; it is led by the U.S. Agency for International Development (USAID). TO Malaria has a long-term presence in 11 of the PMI-focus countries, the Mekong region, and in two USAID malaria countries.

TO Malaria has three main objectives, under which all its activities are organized: (1) to improve, implement, and expand USAID's provision of antimalarial commodities to country programs, (2) to strengthen in-country supply systems and their capacity for managing antimalarial commodities, and (3) to improve global supply and the availability of antimalarial commodities. The level of effort varies across the objectives: 50–60 percent for Objective 1, 30–40 percent for Objective 2, and 5–7 percent for Objective 3. To achieve these objectives, TO Malaria works in partnership with PATH; Crown Agents Consultancy, Inc.; Abt Associates; Ralit Total Transportation (RTT).; UPS Supply Chain Solutions; Logenix International, LLC; MEBS Global Reach, LLC; FHI 360; The Manoff Group, Inc.; 3i Infotech; Center for International Health and Development (Boston University School of Public Health); U.S. Pharmacopeia (USP); Foundation for Innovative New Diagnostics (FIND); Social Sectors Development Strategies, Inc. (SSDS); VillageReach; and Population Services International (PSI).

Objective 1: Improve, Implement, and Expand USAID's Provision of Malaria and Related Commodities to Programs Worldwide

Procurement

A primary activity of TO Malaria is to support PMI by procuring malaria commodities in response to requests placed by the USAID Missions; the requests are based on the needs outlined in the yearly Malaria Operational Plans (MOPs). During the first six months of FY2012, the project processed 107 requests for procurement assistance from 21 countries: Angola, Benin, Burkina Faso, Burundi, the Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe. This compares to 123 requests for all of FY2011(see figure 1).

During a six-month reporting period, 97 orders were placed with vendors, for a total value of U.S. $91.5 million (commodity cost only).

Major procurement items included—

- 4 million long-lasting insecticide-treated bed nets (LLINs)

- 46 million artemisinin-based combination therapy (ACT) treatments—25.1 million treatments of Coartem®, 8.6 million treatments of generic artemether-lumefantrine (AL), and 12.2 million treatments of fixed-dose combination artesunate/amodiaquine (FDC AS/AQ)
- 21.4 million rapid diagnostic tests (RDTs)
- 250 microscopes and kits for malaria-testing laboratory upgrades.

Only vendors and manufacturers that pass internal requirements (good manufacturing practices [GMP], product stability data, previous supply record, etc.) and are included on the PMI preselected list, are invited to bid or quote. The selection of a vendor/manufacturer is based on established criteria, in response to the Request for Quote (RFQ). These criteria include, but are not limited to, overall responsiveness, timeliness of deliveries, product price, and quality of product. Expressions of interest (EOI) were conducted for RDTs and LLINs.

Challenges and Innovations

Demand for all ACTs, including Coartem (AL), and Winthrop® FDC AS/AQ, has continued to grow beyond the current production capacity. PMI has been asked to fund an increasing number of *emergency* requirements when, for a variety of reasons, deliveries funded by other donors have been delayed. These factors, with production delays, have exacerbated the already extended lead times. To address this, the project has adopted the following strategies:

1. Source generic AL to meet country program requirements.
2. Request country programs and missions to submit ACT forecasts for 12 months.
3. Based on these forecasts, place consolidated orders with ACT manufacturers.
4. Continue to operate a virtual stockpile and use it to meet immediate country needs. Actual stock of Coartem and FDC AS/AQ is expected to be held in May 2012, as production backlogs are cleared.[1]

Quality Assurance

The project, through the quality assurance team, consistently works to ensure that high-quality, safe, and effective malaria products are provided. From October 2011–March 2012, the quality assurance team managed pre-shipment inspection and testing for all products. For RDTs, the World Health Organization/Foundation for Innovative Diagnostics (WHO/FIND) laboratories, Research Institute for Tropical Medicine (Philippines), and *Institut Pasteur* (Cambodia) conducted the lot testing for PMI, including initial testing for 57 batches of RDTs and 18-month stability testing of 55 batches.

During this reporting period, the first three orders of generic artemether-lumefantrine were placed. Crown Agents performed sampling and inspection, after which FHI 360 released the orders for shipment, concurrently with testing at an independent laboratory.

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[1] When this report was finalized, actual stocks of Coartem and AS/AQ were being held as stockpile in the Roermond warehouse.

Management Information Systems

The management information systems (MIS) team continued to provide management information necessary for decisionmakers and interested parties for order, shipment, and account status; both current and historical. The MIS is available continuously to authorized users from John Snow, Inc. (JSI), the U.S. Government (USG) and partners, both centrally and in the field; via a secure web-based user interface, through the USAID | DELIVER PROJECT website. The ORION Enterprise Resource Planning (ERP), Oracle database, and website software were upgraded in February. One significant improvement is that ORION can now be accessed through an Internet browser, rather than through software running on a desktop and server.

Objective 2: Strengthen In-Country Supply Systems and Capacity for Effective Management of Malaria Commodities

TO Malaria works to ensure that commodities reach those in need by strengthening in-country supply system and building greater capacity for management of malaria commodities. Areas of focus include improving system performance, improving visibility of stock data at all levels, strengthening accountability, bridging the gap between key supply chain entities (National Malaria Control Programs (NMCPs) and Central Medical Stores (CMSs), and building capacity to sustain performance.

Improve System Performance

Country Highlights

Burundi:

To improve the management of LLINs at the facility level, Burundi launched a pilot program for the routine LLIN distribution system. In the 10 pilot districts, Population Services International (PSI) delivers the district's quota of bed nets to the District Health Office (DHO). Each district uses a *pull* system for storing and delivering the bed nets to health centers; health centers submit a requisition for bed nets to the DHO for the number of bed nets needed. The pilot system is already collecting much-needed data on LLIN consumption by the target population; LLIN commodity security is improving at the facility level.

Malawi:

The project assisted the NMCP in developing the countrywide monthly distribution list of ACTs and RDTs, at all levels. As per the NMCP's request, quantities distributed were calculated based on both reported morbidity and the logistics management information system (LMIS). The application of this policy resulted in a significant reduction of quantities of ACTs distributed to health facilities (25 percent). The list of health facilities was updated using the information on functional facilities provided by DHOs, through the NMCP.

Mali:

The project procured LLINs for a community health center distribution campaign that targeted pregnant women and children less than 1 year of age. PSO distributed the bed nets to eight districts within the two regions of Segou and Mopti. To ensure that the LLINs and other commodities were distributed free of charge, the USAID | DELIVER PROJECT contracted the central medical stores (PPM) to store and distribute these commodities at the district level.

Both PSI and PPM successfully began distributing their respective commodities. However, on March 21, there was a military coup in Mali. At the end of March, both the ongoing distribution of LLINs by PSI and the distribution of other commodities, currently being warehoused by PPM, were on hold.

Launch of PMI-funded activities in Asia

The project recently launched activities in the Greater Mekong Sub-Region (GMS) of Asia—in the six countries of Burma, Cambodia, China (Yunnan Province), Laos, Thailand, and Vietnam. STTA trips were made by a TO Malaria technical advisor in order to become directly acquainted with the activities of PMI-funded partners, national authorities, and collaborating agencies; and to familiarize the project with the peculiarities of cross-border activities, as this will be the principal target area for procurements carried out by the project.

As of March 31, 2012, procurements of LLINs and LLIHNs (long-lasting insecticide-treated hammock bed nets) for Laos, as well as microscopes, RDTs, LLINs, and LLIHNs for Cambodia were underway. Meanwhile, the project has assisted PMI's implementing partners in Burma with developing specifications and quantities of commodities to be used for the prevention, diagnosis, and treatment of malaria.

Mozambique:
At Mozambique's CMS's (CMAM) Zimpeto central warehouse, project staff used bulk ACTs of AL 6×1, 6×2, 6×3, and 6×4 weight bands to assemble two types of ACT kits, which were destined for either community-based health workers (APE) or health facilities (U.S.). From October 2011 through March 2012, the project assembled 9,999 APE and 14,205 U.S. ACT kits, which have been distributed to every province in the country.

Zambia:
In March 2012, project staff visited nine health facilities in seven districts. During these visits, 122 patient records were examined. Of these records, 28 percent (34 cases) were uncomplicated. The project used EpiSurveyor software to gather and analyze the data. Results showed that most fever cases did not have diagnostic testing for confirmation of malaria before treatment; more cases were treated symptomatically in the facilities visited. Out of 122 patient records examined during the review period, 62 had fever as the main presentation. Of those 62 records with fever as the main presentation, 32 records (52 percent) showed malaria as the final diagnosis. Of the total malaria cases recorded, 16 (50 percent) were confirmed for malaria before treatment, while 16 (50 percent) were treated symptomatically.

Zimbabwe:
In September, the project supported the MOHCW, DPS, and NMCP in assessing the interim logistics system for resupplying community health workers (CHW) with ACTs and RDTs. Informed by the findings of the assessment, the system was redesigned during this period. Standard operating procedures (SOPs) and training curricula were also developed. The project, with PMI funding, is supporting a percentage of the rollout trainings for CHWs, which cover case management and resupply procedures.

Improve Visibility at All Levels of the Supply Chain from Central Down to the Facility and Community Health Worker Levels

End-Use Verification

Task Order 7 implements the End-Use Verification activity in PMI countries that have a project office. This activity improves the visibility of malaria systems in-country, particularly at the health-facility level, by using survey methodology to capture and report data pertinent to the supply and management of malaria products, as well as information about how malaria is being diagnosed and

treated. Since October 2011, the project has continued quarterly rounds of data collection and reporting in Ghana, Malawi, Mozambique, Tanzania, and Zambia. Preparations are currently under way to begin the End-Use activity in Zimbabwe and Nigeria before the end of FY2012.

In addition to ongoing data collection efforts, project staff met with PMI during the previous quarter to revise the methodology for the activity—including updated sampling strategies, analysis, and reporting. A more succinct, streamlined version of the report was developed in an effort to focus on key indicators and to improve readability.

Procurement Planning and Monitoring Report for Malaria

The Procurement Planning and Monitoring Report for Malaria (PPMRm) provides data on central-level stock availability for malaria commodities, including ACTs, SP, and RDTs. Eighteen countries, including eight Nigerian states, provide data for the PPMRm. During the second quarter of FY2012, Guinea was added. In the first quarter of FY2012, data forms were redesigned for a more streamlined report. The tool continues to play a critical role in identifying current or impending shortages, stockouts, and expiries.

Using LMIS data to provide insight into the context of antimalarial commodity availability in Malawi:
As part of PMI's impact evaluation, TO7 analyzed the LMIS data in Malawi—from 2007 to the present—to provide insight into longitudinal antimalarial commodity availability. The team found that stockouts of antimalarials at treating facilities increased during 2007–2010; reporting rates also substantially increased. The increase in reporting rates, over time, is likely due to increased investments in system strengthening efforts, including increased funding and technical assistance for logistics reporting and accurate stock card completion. The stockout data will be compared to out-patient malaria cases captured in the WHO Integrated Disease Surveillance and Response (IDSR) database.

Burkina Faso:
The project worked with NMCP to analyze the facilities' malaria database reports for October–December 2011, and for all of 2011. The analyses considered reporting rates, the number of uncomplicated malaria cases; the percentage of health facilities without a stockout of ACTs; and, it also, compared service data to logistics data.

Liberia:
In the first quarter of FY2012, in collaboration with the International Rescue Committee (IRC) and the Montserrado County Health Team, the project facilitated the roll-out of the integrated LMIS tools in James N. Davis Memorial Hospital, one of the referral hospitals in the Montserrado region. Having LMIS forms in a large hospital, which is responsible for more complex case management, ensures that the National Drugs Service (NDS) and the Supply Chain Management Unit (SCMU) will develop a better understanding of the regular commodity needs of a large referral hospital, and the public health system, in general.

Rwanda:
The project collected and analyzed logistics data to improve overall availability and assess system functionality. More specifically, the project collected information from approximately 30 district pharmacies and 533 health facilities. Assessing system performance, the project indicated that the average reporting rate from October 2011–March 2012 is 100 percent for districts and 95.22 percent

for health facilities. Stockouts vary from 0.74 percent for quinine 100 mg/ml to 7.24 percent for Coartem (AL 6×3), in February

Tanzania:
The project received overwhelming support from the Ministry of Health and Social Welfare (MOHSW) with the continued rollout of the ILS Gateway, which is a mobile phone-based tool used to improve reporting rates and increase commodity availability. The evaluation results revealed that 94 percent of the piloted districts believe that the ILS Gateway has improved the timeliness with which facilities submit their report and requisition forms. The pilot phase of ILS Gateway implementation was conducted in Mtwara and Dar es Salaam; evaluation results were shared with the MOHSW and USAID for continued support.

Strengthen the Accountability of In-Country Supply Chains that Manage Malaria Products

Mozambique:
The project is in the process of procuring 1,200,000 LLINs with special labeling specifications—which were developed in coordination with USAID, PMI, the Ministry of Health (MISAU), and the NMCP. Each bed net will have a sequential numerical code stitched into its label, each bale will show the range of numbers contained within that bale, and the individual plastic bags will have the ministry's brand and *not for commercial sale* imprinted on them. These labeling specifications will make it possible to track individual bed nets or bales, thereby providing greater visibility and control of the LLIN supply chain in Mozambique.

Photo Credit: USAID | DELIVER PROJECT 2012

An RDT with a patient's blood sample. Mozambique. 2012.

Nigeria:
Project staff in Nigeria provided support to the NMCP in training 202 state, local government areas (LGA), and service delivery point (SDP) personnel in how to use the new Malaria Commodities Logistics System (MCLS). The new system will improve the collection and collation of data from the lower levels of the system and will enable informed decisionmaking by program managers.

From February 29 to March 10, 2012, project staff trained and certified 54 master trainers during the MCLS capacity building officer's training for states supported by USAID/MAPS and DFID/SuNMaP. These certified master trainers (MTs), in collaboration with other project certified master trainers, will roll out the MCLS health facility trainings across their respective states. The MTs will serve as resource pools in the states and will troubleshoot challenges when they arise.

Tanzania:
With the End-Use Verification activity, the project also conducted the Anti–Malaria Commodity Monitoring Activity two times. Data collection was conducted in 40 percent of End-Use facilities. The activity tracked the movement of ACTs through each level of the supply chain, noting any discrepancies observed and reasons for those discrepancies. The activity that was conducted in

February found that 93 percent of health facilities received the exact quantity of ACTs issued. This is an improvement over the 72 percent reported in August 2011.

Bridge the Gap between NMCPs and Supply Chain Operators (e.g., Central Medical Stores) to Improve Core Supply Chain Functions (i.e., Quantification, Monitoring and Supervision, and Use)

Ghana:
The USAID | DELIVER PROJECT, with short-term technical assistance (STTA) from the home office, supported the Ministry of Health, through a technical working group (TWG), to develop a set of strategic interventions that will frame a soon-to-be-developed 5-Year Supply Chain Master Plan. One key proposal is that a new agency of the Ministry of Health (Supply Chain Management Unit–SCMU) be formed. The SCMU would join various supply chain functions; provide a direct supervisory and organizational relationship between the central and mid-level of the supply chain; strengthen information systems and build data visibility; emphasize accountability, efficiency, and cost-effectiveness; and increase the value of the supply chain for end users.

Tanzania:
The project conducted a workshop to design the structure and function for the logistics management unit (LMU). The LMU will serve both a strategic purpose—for example, acting as a focal point for attracting and managing resources for supply chain strengthening interventions—and for operational purposes—approving quantities to be resupplied by MSD to facilities. The LMU will play a key coordination role, working across MOHSW agencies and units, development partners, the MSD, and other implementing agencies.

Zimbabwe:
The project continues to support a malaria logistics focal person who is part of the NMCP. Integrated supportive supervision visits are conducted that focus on both service provision and logistics management.

After systems meet performance levels, build local capacity to sustain system performance

Ghana:
The project supported the NMCP to complete the training of more than 900 district and sub-district supervisors, pre-positioning site attendants and volunteers in basic logistics management to support the planned distribution and hang-up of over 2.5 million LLINs (1,834,100 LLINs from Global Fund and 665,900 LLINs from PMI) in the Ashanti region. Participants were trained how to use inventory control cards to record, issue, track, and report on the use of campaign commodities (LLINs, ropes, nails, scissors, hammers, and stamp pads).

Liberia:
In quarter 1 of FY2012, Programs and Pharmacy Division staff were trained to do a quantification review of essential drugs and the supply plan review, including use of the PipeLine database for supply planning and monitoring. The project also provided capacity building and oversight for the NMCP focal person in managing the PipeLine database. This activity helped achieve the building programs' capacities in quantification review and supply planning.

Madagascar:
The project conducted field supervision of nongovernmental organizations (NGO) health facilities in the north, west, southeast, east, and highlands. Except for the east, supervision teams consisted of representatives from the project and four NGOs. Additionally, the project developed a comprehensive training database to document and manage all the health services individuals trained in logistics. The database stores information on all the individuals that have received training, a map of the health facilities where each of the individuals works, the date of training, their associated NGO, and so on.

Zambia:
The roll out of the Essential Medicines Logistics Improvement Program (EMLIP) in the four *Saving Mothers, Giving Life* target districts started in February 2012. To date, Lundazi, Nyimba, and Mansa districts have been trained. EMLIP roll-out trainings for Kalomo district are expected to be complete in May 2012, for a total number of 20 out of 74 districts, nationwide, under EMLIP.

Objective 3: Improve the Global Supply of Malaria Commodities

Support to the Roll Back Malaria (RBM) Procurement and Supply Management Working Group (PSM WG):
TO7 is an active member of the Roll Back Malaria (PSM) WG; the Task Order Director is the co-chair for the PSM Bottleneck Workstream. TO7 provides management support to one of the key activities within the workstream—a mapping of Global Fund PSM-related grant delays. The assessment visits took place between mid-March until the beginning of April in the Democratic Republic of the Congo (DRC) and Tanzania. In addition to the country assessment reports, the consultants are writing a report that summarizes the findings from both countries and draws common lessons learned and best practices on GF PSM-related bottlenecks and grant delays. The synthesis report will be available by the end of May.

Participated in the RBM Harmonization Working Group workshop on the GF Transitional Funding Mechanism:
In response to the Global Fund's announcement that it was postponing Round 11 and would provide some gap funding through the Transitional Funding Mechanism (TFM), the Harmonization Working Group (HWG) sponsored a workshop for Round 11 eligible countries that may be interested in the TFM. TO Malaria provided expertise in procurement and supply chain management (PSM) during the workshop—including facilitating a session on quantifying ACT and RDT requirements, and reviewing individual country gap analyses and PSM plans.

Photo Credit: USAID | DELIVER PROJECT

Conduct Analysis of Demand, Supply, and Pricing Issues Affecting the Global Market for Malaria Products

Support to the Interagency ACT Supply Task Force:

TO Malaria is an active member of the Interagency ACT Supply Task Force. The project provides data collection, and management and analysis support, to the task force—including designing a database to manage and analyze country and manufacturing data, collecting data from PMI countries, analyzing data and maintaining the database, validating the analysis with the countries, and providing regular updates of PMI-funded procurement.

Develop Tools to Address Common Supply Chain Bottlenecks

Quantification of ACTs and RDTs:

The project participated in developing a manual for quantifying ACTs and RDTs. The effort was led by Management Sciences for Health (MSH), with input from the project, RBM, Global Fund, PMI, the World Bank, Medicines for Malaria Ventures (MMV), and FIND. During this period, TO Malaria conducted a field test of the manual in Zimbabwe and provided detailed feedback to MSH that they will incorporate into the final version.

Madagascar:

The project, in collaboration with World Health Organization/ Strategic Approach to International Chemicals Management (WHO/SAICM) project has carried out qualitative research on the use, maintenance, disposal, recycling, and replacement of bed nets at the community level. The field study, was conducted with the Focus Development Association, took place in four districts: two of the districts (in the south) had previously participated in a collection of used bed nets in 2010; whereas, the other two districts in the northeast have not. The project ensured the quality of the field study by supervising the two northern districts.

LLIN Recycling Pilot Project—Report on Phase III

The final phase (phase III) of the Madagascar LLIN Recycling Pilot Project closed during FY2011, and the project prepared a report detailing the outcomes of the study; it was finalized in March 2012. Trex, the plastics recycling company with whom the USAID | DELIVER PROJECT had developed a public-private partnership to implement the final phase of the pilot, conducted tests on the old LLINs. Ultimately, they were able to recycle the PE LLINs into a bio-composite plastic-wood board. There is a potential to explore future partnerships for recycling in the future.

Implementation Challenges and Solutions

Increased ACT Lead Times:

Increased global demand for ACTs has placed pressure on manufacturers; it appears that the manufacturers no longer have the capacity to meet the demand. During the last six months, ACT supply was complicated with more delays, leading to longer-than-expected lead times. In the short- to medium-term, the project is working proactively to plan requirements and reserve production slots for country needs and the emergency stockpiles. Looking long term, the project's participation in the Global ACT Task Force, and the recent three-year ACT gap analysis, enabled TO Malaria to use more accurate information when planning strategically for the future. While the ACT supply landscape remains dynamic, the project is actively positioning itself to respond preemptively and flexibly.

Managing Increased Orders:
During the last six months, the project has received as many ACT orders, and three- to four-times as many RDT orders, as in the entire preceding year. During the same period, the procurement team lost two senior procurement specialists and one new specialist. While working diligently to manage these orders in an efficient and coherent fashion, the increased work load, coupled with a reduction in staff, has strained the project's ability to respond as rapidly as desired. Recognizing this, TO Malaria is working to increase procurement staffing; provide additional management and operational support to the team; and streamline processes across procurement, finance, and contracts.

Data quality and availability:
Real data on consumption, stock on hand, and shipment information are necessary to effectively plan for each country's commodity needs. The project relies on central- and facility-level data from various sources, such as the PPMRm, End-use verification (EUV), and LMIS. Data availability, over time, as well as the quality of the data, varies significantly by country. The number of requests received for longitudinal commodity data analysis is increasing, both from PMI (particularly for the Impact Evaluation) and other key partners, such as WHO and RBM. To deal with this challenge, the project is focused on strengthening information systems to ensure the visibility of data up and down the supply chain. Another way that TO Malaria is working to address data quality and availability issues is through supporting countries as they create more scientific and efficient EUV samples. Generating nationally representative data facilitates analysis, over time, within countries; and facilitates analysis and comparison across countries, as well.

Governance Challenges to In-Country Activities:
Governance issues at the country level continue to present significant barriers to project implementation in many countries. Both political and practical challenges result from these situations, which have a direct impact on TO Malaria's ability to both work with host country systems and support their supply chains. High-value malaria commodities in-country remain vulnerable to pilferage. The project continues to develop and implement warning systems, both to prevent and identify leakage as early as possible. For example, in Tanzania, the ACT monitoring activity tracks ACTs to the clinic level to ensure their safe arrival at the periphery of the health system.

Improving Processing Goods' Arrival in Country:
Clearing project-procured commodities through customs still remains a challenge in specific countries. For example, in Nigeria, challenges with identifying and contracting with clearing agents has slowed the overall procurement process of much-needed commodities. In Mozambique, it took 93 days from the day ACTs were available to the time when the country sent the approval to ship. The project is working with PMI, its field offices, and in-country partners to expedite clearance.

Budgeting for Quality Programming:
Given the current environment of fiscal austerity, TO Malaria is cognizant of the need to allocate resources wisely for maximum impact. That being said, increasingly slim operational budgets hamper the project's efforts to provide quality technical assistance to support nascent and growing in-country supply chains. Without adequate resources to complement malaria commodity distributions with monitoring and capacity building activities, the project struggles to ensure a reliable, continuous supply of essential commodities to clients. TO Malaria continues to work with PMI and NMCPs to prioritize interventions and manage expectations about what can be achieved with available funding levels.

Objective 1: Improve, Implement, and Expand USAID's Provision of Malaria and Related Commodities to Programs Worldwide

Timely, Transparent, Cost-Effective Procurement of Quality Malaria Products

Procurement

The principal activity of TO3 and TO7 is to support the President's Malaria Initiative (PMI) by procuring malaria commodities in response to requests placed by the U.S. Agency for International Development (USAID) Missions; the requests are based on the needs outlined in the yearly Malaria Operational Plans (MOPs). During the first six months of FY2012, TO Malaria processed requests for procurement assistance from 21 countries: Angola, Benin, Burkina Faso, Burundi, the Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.

Review and Refine Procurement Systems and Procedures

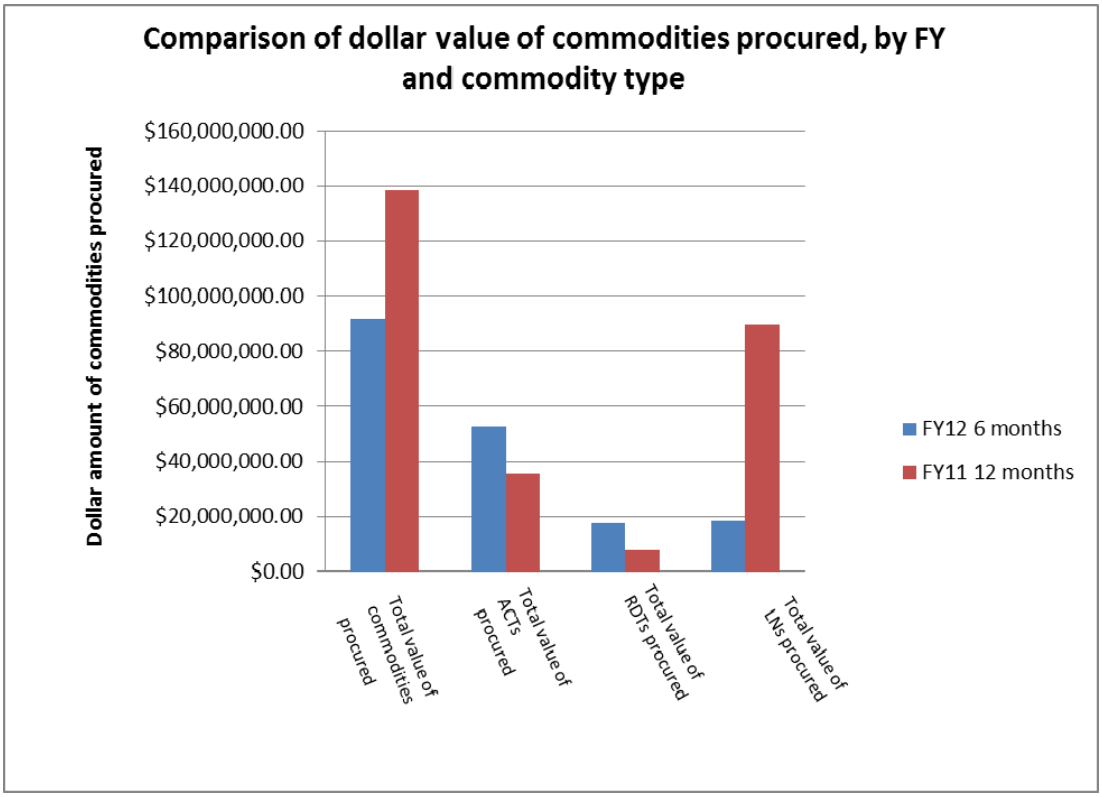
To officially place an order, TO Malaria must receive a commodity procurement information request (CPIR) form, which is included in the procurement guide and can also be accessed on the project's website. The CPIR contains the relevant information needed to initiate an order, including product specifications, requested delivery dates, consignee information, etc.

Seven CPIR forms are now in use, each designed to cover a specific commodity or commodity group; these also accommodate new or revised product presentations, i.e., the Coartem Dispersible. The forms remain as *live* documents that can be, and are being, completed to reflect the tailored approach of TO Malaria's procurement business model with PMI.

Operational Scale

From October 1, 2011, to March 30, 2012, TO Malaria received 107 procurement requests from 21 countries, compared to a total of 123 requests for all of FY2011. A total of 97 orders were placed with vendors for a total value of U.S.$138.3 million (commodity cost only). This six-month figure is approximately 70 percent of the total value of commodities procured in FY2011 (see figure 1).

Figure 1. Dollar Value of Commodities Procured, by Fiscal Year and Commodity Type



Major procurement items included—

- 4 million LLINs
- 46 million ACT treatments—25.1 million treatments of Coartem, 8.6 million treatments of generic AL and 12.2 million treatments of FDC AS/AQ
- 21.4 million RDTs
- 250 microscopes and kits for malaria-testing laboratory upgrades.

For a complete list of commodities procured, see appendix A.

During this period, TO Malaria continued procuring commodities for Zambia, using funding from the U.K. Department for International Development (DFID). With DFID funding to-date in FY2012, TO Malaria procured 1,350,000 ACTs, for a total value of U.S. $567,000 (commodity cost only). These amounts are included in the total procurement figures above. A complete report of DFID-funded procurement is included in appendix B.

Sources and Suppliers of Commodities

The selection of a vendor/manufacturer is based on one or more of the following criteria, in response to the Request for Quote (RFQ):

- overall responsiveness

- conformance to product specifications
- conformance to quality certifications and standards
- conformance to packing and marking requirements
- product price
- timeliness of deliveries
- quality of product
- product registration in-country.

Only vendors and manufacturers that pass internal requirements are invited to bid or quote (good manufacturing practices [GMP], product stability data, previous supply record, etc.) and be included on the PMI preselected list.

Rapid Diagnostic Tests

The last EOI was published in October 2010, TO Malaria, FHI 360, and PATH evaluated the responses. Seven manufacturers were selected, based on meeting the technical criteria defined and the performance of the RDTs under Round 2 of the WHO/FIND product testing. The WHO/FIND lot testing report can be found in appendix C, and the current list of selected manufacturers can be found in appendix D.

WHO/FIND published results of the round 3 RDT product testing in October 2011. The timing of the next EOI is still being determined, in consultation with PMI.

Long-Lasting Insecticide-Treated Bed Nets

A call for expressions of interest from LLIN manufacturers was last issued in May 2011. TO Malaria was interested in expanding its sourcing base after new manufacturers entered the LLIN marketplace. The results of the EOI are summarized in the preselected LLIN manufacturers list in appendix E.

In June 2011, the World Health Organization Pesticide Evaluation Scheme (WHOPES) issued approvals by extending specifications to two new manufacturers. PMI is considering the acceptability of the basis for these approvals.

Challenges and Innovations

The demand for all ACTs, including Coartem (AL) and Winthrop FDC AS/AQ, has continued to grow beyond production capacity. PMI has been asked to fund an increasing number of *emergency* requirements when, for a variety of reasons, deliveries funded by other donors have been delayed. These factors, with production delays, have exacerbated the already extended lead times.

In collaboration with PMI and with the agreement of Novartis, TO Malaria agreed on a strategy to source generic AL, so they could meet country program requirements. The project pre-selected three WHO pre-qualified generic manufacturers after they submitted product and site master files, company profiles, and financial reports. In November 2011, PMI asked missions to submit forecasts for ACT demands up to December 2012. Based on the forecasts provided, we issued an RFQ in

December 2011 to all pre-selected ACT manufacturers. Orders were placed with the successful manufacturers in January 2012.

The TO3/7 stockpile continues to operate as virtual stock; stock has been used to meet immediate country needs, as it became available. Moving forward, we anticipate having actual stock of Coartem in May 2012, as production backlogs are cleared. We will continue to monitor the supply and demand situation, in conjunction with other partners and donors.

In response to this challenging market dynamic, we continued to build on our tactical approach of requesting countries to provide future ACT needs for six to 12 months in advance. This has enabled the project to further refine our demand planning tools and to provide manufacturers with as much advance notice as possible of future ACT needs.

Photo Credit: USAID | DELIVER PROJECT 2012

RDT handover in Burkina Faso. From left: The Director of NMCP, the Director of DGPML, the Minister of Health and the U.S. Ambassador to Burkina Faso. 2012.

Task Order Malaria continues to work in close collaboration with other donors and procurement service agencies to coordinate the timing of orders and delivery needs. In this way, TO Malaria tries to avoid overloading production at any given time. It also has the benefit of phasing delivery arrivals in-country, thus further easing the burden on host-country supply and distribution facilities.

Procurement Scorecard and PMP Indicators

During the reporting period, the project has continued to monitor system performance monthly, using the scorecard to show results. Given the high level of system performance last year, we raised the target levels this year from 80 to 85 percent or higher (green), from 50 to 65 percent (yellow), and from 50 to 64 percent or lower (red). During this reporting period, orders received in-country by the desired receipt date were below the target performance level (64 percent).

The overall indicator results were at or slightly below the target levels, taking into account increased levels of procurement activity during this period. A number of external factors affected the project's ability to meet target levels, including production issues, customs clearance delays, and transportation issues.

The project will continue to compile and report on monthly scorecard results and provide summaries in the semi-annual and annual reports.

Figure 2. Percentage of On-Time Shipments, by Month

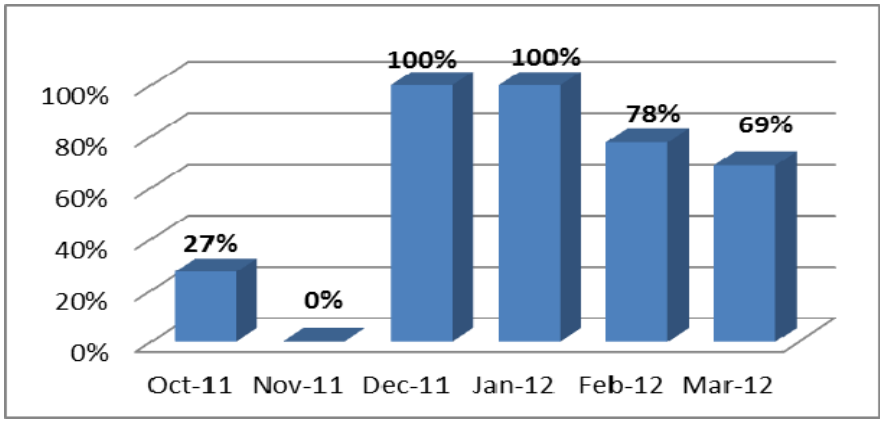


Table 1. PMP for the Procurement Process, October 1, 2011–March 31, 2012

Operational Area	Indicator	Status
Monthly system scorecard implemented	Monthly scorecard available	Available monthly
Orders shipped and received on time (data from October 2011 to March 2012)	% of orders available for shipping within 10 working days of contracted date with vendors	51%
	% of orders received by countries within a month of agreed date with the Mission	64%
Suppliers deliver ordered commodities to satisfy contractual requirements	Supplier fill rate (contracted quantity on time)	69%
Respond to emergency orders	Percentage of emergency orders responded to during the previous six months	5/5 = 100% *

*Emergency orders were fulfilled for the following countries: Senegal, Tanzania (one order for the mainland and one for Zanzibar), Burkina Faso, and Ghana.

Efficient and Secure Delivery of Procured Commodities

Under TO3, UPS Supply Chain Solutions did all freight forwarding. However, TO7 completes its freight needs between three freight forwarders: Logenix International, LLC; MEBS Global Reach, LLC; and UPS Supply Chain Solutions. TO7 has awarded shipments to all three freight forwarders.

Freight Forwarding

From October 2011–March 2012, the task order successfully forwarded commodities to support malaria programs in 20 countries. The freight team coordinated the in-country distribution of LLINs to several districts in Benin, and ACTs and RDTs in Angola.

Photo Credit: USAID | DELIVER PROJECT 2009

Ensuring the six rights in a clinic in Zimbabwe. 2009.

Shipment execution tasks include freight quote preparation, vendor door pickup, freight booking, shipment tracking, customs clearance, and final recipient delivery. The team will continue to update the country-specific shipping instructions in ORION, which is part of the project's management information system (MIS).

To maintain cost effectiveness, avoid shipping delays due to obtaining insurance coverage, and ensure that TO Malaria shipments are adequately insured, the Indefinite Quantity Contract (IQC) and TO Malaria management teams worked with Zurich, JSI's insurance company, to continue our coverage for all TO Malaria shipments.

The relatively large shipment sizes and limited airline capacity continued to present challenges, but the freight team responded effectively and will continue to research strategies to ensure timely and complete deliveries. Angola continues to be one of the most challenging countries for freight forwarding, however; during the first half of FY2012, the project continued its practice of obtaining exemptions from several Angolan government agencies, which allowed the shipment to bypass the customs warehouse and be delivered directly to the recipient.

Preclearance continues to be a challenge in a number of countries. Mozambique faces significant delays due to its required preclearance process; it took 93 days to receive the green light to ship the most recent ACT order. The time to process preclearance for DRC, Kenya, and Tanzania is also significant. For example, the time to process Kenya's preclearance increased from two weeks, on average, to four weeks.

Angola

The project continues to secure government permissions and exemptions that allow PMI cargo to be immediately cleared at the airport and loaded onto contracted vehicles. Rather than warehousing the products at the central warehouse, deliveries to consignees in 18 provinces begins directly from the airport. The most recent shipment was in November 2011 and consisted of 1.8 million treatments of ACTs. Deliveries to two provinces were completed within hours after the charter aircraft landed, and distribution to the remaining 16 provinces was completed within four days.

Finally, shipment security remains a priority. The freight team worked with the task order management and in-country contacts to provide security escorts, when necessary.

Provision of High-Quality, Safe, and Effective Malaria Products

Quality Assurance

LLINs

From October 2011–March 2012, the quality assurance team managed pre-shipment inspection and testing for seven orders, from four different suppliers. Crown Agents performed sampling and inspection of all consignments at the manufacturing sites. FHI 360 reviewed the inspection results and released the orders for shipment, while concurrently performing laboratory testing.

Complete test reports were available within the target of 90 days of sampling (median 26 days, ranging from 21–34 days). FHI 360 prepared and sent Certificates of Conformance for each consignment to representatives at JSI and USAID shortly thereafter. During this period, no out-of-specification results or product complaints were reported.

Rapid Diagnostic Tests

The QA team managed sampling, inspection, and testing of 14 orders from five different suppliers. Crown Agents executed most samplings and inspections. In some cases, the supplier sent the samples, if their internal QA system had been found acceptable during an earlier inspection or audit.

TO Malaria continued to contract with FIND for lot testing services. Lot testing for PMI included initial testing for 57 batches of RDTs and 18-month stability testing of 55 batches; they were conducted by the WHO/FIND laboratories, Research Institute for Tropical Medicine (Philippines), and *Institut Pasteur* (Cambodia). FIND's quarterly reports on its lot testing program are provided in appendix C.

Testing for one order to Senegal was performed concurrently, because of the urgency of this order. Test results for this order were available 12 days after sampling.

Testing for all other orders was performed non-concurrently; FHI 360 released each order after reviewing the test results. Test results were available after 4–18 (median 12) days of sampling.

All test results were compliant and no complaints have been reported during this period.

Pharmaceuticals

Coartem

FHI 360 reviewed the manufacturer's Certificates of Analysis for all batches of Coartem procured by PMI (155 batches over 18 orders). Coartem does not require routine pre-shipment analytical testing because the product is regulated by the U.S. Food and Drug Administration (FDA). FHI 360 continued to perform identity testing using near-infrared spectroscopy and chemical testing for the amount of active ingredients.

FDC AS/AQ

The QA team released shipments of this product (32 batches over 12 consignments, based on a review of the Certificates of Analysis. Shipping concurrent with testing is allowed because FDC AS/AQ is a WHO-pre-qualified medicine.

Test results were available 23–37 days (median 31) days after sampling. FHI 360 reviewed all results; all were compliant with the manufacturer's specifications.

In March, FHI 360 completed a method transfer from the manufacturer, Sanofi-Aventis, for the testing of FDC AS/AQ. This enables the laboratory at FHI 360 to conduct testing of this product for future orders.

Generic artemether-lumefantrine

During this reporting period, the first three orders of generic artemether-lumefantrine were placed. Crown Agents performed sampling and inspection, after which FHI 360 released the orders for shipment concurrently with testing at an independent laboratory. Concurrent shipment was allowed because this is also a WHO pre-qualified medicine.

Test results were available between 57–75 days after sampling. Factors that caused these long times include unfamiliarity with the laboratory's documentation requirements (purchase orders, etc.), initial unfamiliarity of the laboratory with the test method, one sample shipping delay, and the high number of batches to be tested. It is expected that these turn-around times will decrease with future orders. Regardless, no batch of generic artemether-lumefantrine failed testing, indicating a good quality product. If these delays continue, the QA/QC team—which includes direct input from PMI—will re-evaluate the concurrent shipment testing protocol to consider pre-shipment, given the lengthy receipt of results in the past.

Other pharmaceuticals

The QA team reviewed test results for two orders of sulphadoxine-pyrimethamine (SP). The International Dispensary Association (IDA) organized the sampling and testing internally, before the product was made available. FHI 360 reviewed the test results, before the orders were released for shipment. All test results were compliant with accepted pharmacopeial standards.

Table 2. Performance Monitoring Plan Indicators for the Quality Assurance Process, October 1, 2011–March 31, 2012

Support Area	Operational Area	Indicator	Status
Quality assurance and quality control	Quality assurance and quality control procedures established and implemented	% of LLIN shipments with pre-shipment test reports available	100%
		Median time (in days from sampling) and range of days required for pre-shipment LLIN test reports to be available	26 days Range: 21–34 days
		% of RDT shipments with up-to-date stability test reports available	100%
		Median time (in days) and range required from sampling date for pre-shipment RDT test reports	12 days Range: 4–18 days
		% of pharmaceutical shipments with pre-shipment certificates of conformance	100%
		Median time (in days) and range required from sampling date for pre-shipment pharmaceutical test reports (AS/AQ)	31 days Range: 23–37 days
		Median time (in days) and range required from sampling date for pre-shipment pharmaceutical test reports (artemether-lumefantrine)	58 days Range: 57–75 days

Supporting Commodity Procurement, Ordering, Reporting, Financial Accounts, Deliveries, and Management; and Providing Commodity-Specific Information through the MIS System

The MIS team continued to provide management information necessary for decisionmakers and interested parties for order, shipment, and account status, both current and historical. The MIS is designed to be available continuously to authorized users from JSI, the USG, and partners; both centrally and in the field via a secure web-based user interface: the USAID | DELIVER PROJECT website.

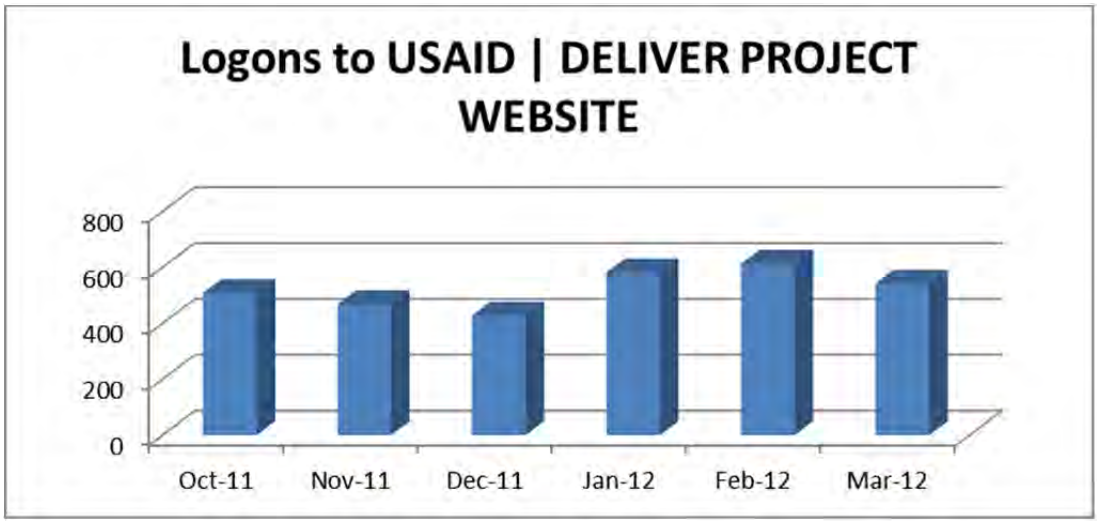
The MIS is managed according to project management standards identified by the Project Management Institute (PMI), using a standard System Development Life Cycle (SDLC). Periodic updates of the MIS are provided to ensure customer satisfaction, based on requests from internal and USG sources. These periodic updates are directed and prioritized by the Change Control Board (CCB). The CCB process provides for input from USAID and other stakeholders, and assesses the impacts of individual issues and prioritizes resource allocation.

MIS reliability, availability, and ease of secure access are measured against a service level agreement (SLA); we met or exceeded all standards in the reporting year. Following are a set of figures that show key MIS measurements from the last six months.

Performance and Key Statistics

The USAID | DELIVER PROJECT website has an average of approximately 525 unique logon sessions per month. Each successful logon and data access by an authorized user increases the count.

Figure 3. Number of Logons to the Website



My Commodities Visits shows the number of times per month that authorized users have accessed the USAID | DELIVER PROJECT website My Commodities web page for access to

shipment or financial information. The average monthly visits are about 1,100; the trend over the past six months shows no significant increase or decrease in use.

To provide the most current status, the shipment data is updated three times during each business day.

Figure 4. Number of Visits to My Commodities

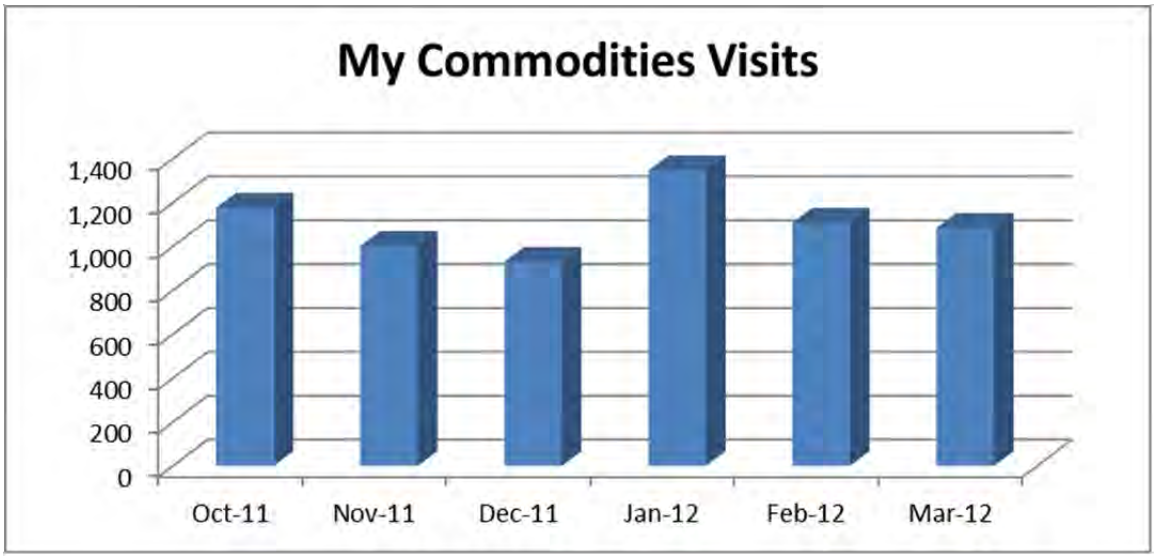
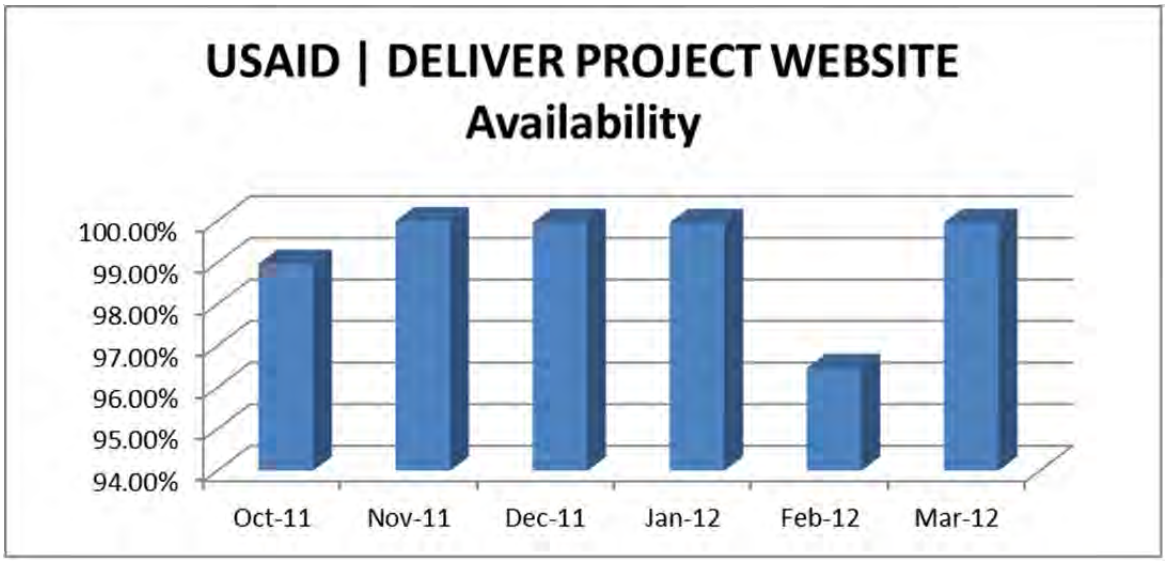


Figure 5 is a measurement of the amount of time per month that the USAID | DELIVER PROJECT website is available for access, excluding scheduled maintenance on the weekends. The standard is 99.5 percent, which was not achieved in October, due to a software change; and in February, due to a major system upgrade. These incidents have been reviewed and improvements made to prevent a reoccurrence.

Figure 5. Project Website Availability



Maintenance Work Completed

Order Alerts

The capability to add *Order Alerts* to the My Commodities *Order Detail* report area was implemented in November. An *Order Alert* is a manually entered status message for an order that is helpful or explanatory to the field staff and other parties interested in an up-to-date status of that order.

Shipment Transportation Segment (Leg) Display Enhancement

In case of a planned (prior to shipment) shipment leg status on the USAID |DELIVER PROJECT website, an *est.* was added. This more accurately reflects that future ship dates may be planned for a certain date, but the actual date may vary by several days because of transportation variability.

Sales Return Automation

The automation of the sales return process was implemented in December. By automating returns and adjustments this change will reduce the amount of time required to close out deliveries; leading to more accurate reporting of delivery status, while also saving labor hours for more important tasks. This change included all financial and inventory adjustments.

Loan Information Added to Account Status and Account History Reports

The *Account Status* and *Account History* reports have been changed to show loan information for each country. Concurrently, as part of the same package, a new management report showing a summary of all country loans was also implemented.

Project Work Completed

ERP System Upgraded

The ORION ERP (Enterprise Resource Planning), Oracle database, and website software were upgraded in February. This upgrade provides for improved support from the software development companies (ORACLE, 3i Infotech), both now and into the foreseeable future. One significant improvement is that ORION can now be accessed through an Internet browser, rather than through software running on a desktop and server. For staff working remotely, this improves response time considerably. Only minor issues were encountered and they were resolved rapidly. However, one issue did cause Internet uptime to drop below the standard in February.

Conclusion

The MIS is a key support element for Task Order Malaria in providing management information and detailed reports to aid in procurement, supply chain management, and all other aspects of ensuring that the correct commodity is in the correct place, at the correct time, at the lowest possible price.

Table 3. PMP Indicators for the Management Information System, October 1, 2010–September 31, 2011

Support Area	Operational Area	Indicator	Status
Management information system	Availability of USAID | DELIVER PROJECT website	Percentage of time the USAID | DELIVER PROJECT website is available.	99.22%
	Total number of visits	Total number of visits to the USAID | DELIVER PROJECT website	6,646
	Number of log-ins	Total number of logins to the USAID | DELIVER website	3,141

Objective 2: Strengthen In-Country Supply Systems and Capacity for Effective Management of Malaria Commodities

Strengthening in-country supply systems and building greater capacity for improved management of malaria commodities at the local level are critical to the success of Task Order Malaria and to reaching the goals of the PMI. These actions ensure that commodities procured and delivered under Objective 1 activities, and through other key malaria partners, reach those in need.

TO Malaria received FY2011 field support TA funding from 14 countries and the Mekong region. Ten of the countries and the Mekong region have a long-term presence; one TO Malaria country will subcontract implementation to a local partner, and three will receive short-term technical assistance to support MOP priorities and implementation.

This section focuses on the critical areas of supply chain assistance: improving system performance, improving visibility of stock data at all levels, strengthening accountability for the products managed, bridging the gap between key supply chain entities (NMCPs and CMSs), and building capacity to sustain performance. It also highlights core products and country achievements organized by these key areas.

Improve System Performance Thereby Ensuring that Malaria Products Are Available When and Where They Are Needed

Country Highlights

Liberia:
The PipeLine software was introduced to the NMCP to monitor supply plans in quarter 1 of FY2012. As part of continued capacity building efforts, the project worked with the logistics focal person at the program in November to update the malaria PipeLine database. NMCP and the project worked together to draft a CPIR for ACTs totaling $1 million. This was critical for ensuring that health facilities continued to receive ACTs, considering the delay in the release of Global Fund (GF) funding.

Malawi:
The project assisted NMCP with developing the countrywide monthly distribution list of ACTs and RDTs, for all levels. As per the NMCP's requirement, quantities distributed were calculated based on available data from both reported morbidity and from the LMIS. The application of this policy resulted in a significant reduction of quantities of ACTs distributed to health facilities (25 percent). However, later spot checks found that 80 percent of stock records were out of date and/or inaccurate. The evidence collected in Malawi overwhelmingly indicates that not only are some health facilities continuing to be stocked out of ACTs, but the percentage of facilities being stocked out is increasing at a time when there is sufficient stock at central level to meet all national needs. The effect of this adherence to NMCP policy is being closely monitored and the central challenge continues to be an improved understanding of demand across all health facilities. Proposals are being considered that are principally designed to improve LA distribution planning, reduce stockouts in the short-term, and obtain more accurate estimates of demand.

Mali:
The project procured LLINs for free distribution by Population Services International (PSI) for a community health center distribution campaign targeting pregnant women and children less than 1 year of age. Bed nets were distributed to eight districts within the two regions of Segou and Mopti.

Launch of PMI-funded activities in Asia

The project recently launched activities in the Greater Mekong sub-region (GMS) of Asia, which consists of the six countries: Burma, Cambodia, China (Yunnan Province), Laos, Thailand, and Vietnam. Although considerable progress has been made in malaria control in the GMS, malaria remains a major concern due to increasing resistance to artemisinin, the primary component in the combination therapy treatments that are used throughout the world.

A Burmese migrant worker in her home with an LLIN

When the project's activities began in the GMS, a TO Malaria technical advisor made two STTA trips in order to become directly acquainted with the activities of PMI-funded partners, national authorities, and collaborating agencies. Trips to the Cambodia–Thai border region (on the Cambodia side) and the Thai–Burma region (from the Thailand side) were conducted to familiarize the project with the peculiarities of cross-border activities, as this will be the principal target area for procurements carried out by the project. These trips reinforced the need for interventions that are not generalized, but rather are country-specific and performed with a high degree of precision and accuracy. An example of this is the wide array of LLINs that will need to be procured. Hammock bed nets will be procured for the Thai–Cambodia border, since hammock use is very prevalent in those areas, while it is almost non-existent in Burma.

As of March 31, 2012, procurements of LLINs and LLIHNs (long-lasting insecticide-treated hammock bed nets) for Laos, as well as microscopes, RDTs, LLINs, and LLIHNs for Cambodia were underway. Meanwhile, the project has assisted PMI implementing partners in Burma with developing specifications and quantities of commodities to be used for the prevention, diagnosis, and treatment of malaria.

The primary objective of the LLIN distribution campaign was to increase ownership and improve the use of LLINs by achieving universal coverage in Segou and Mopti.

The project also procured a variety of other malaria commodities to support Mali's Malaria Operational Plan (MOP). To ensure that these commodities were distributed free of charge, the USAID | DELIVER PROJECT contracted the central medical stores (PPM) to store and distribute these commodities to the district level.

Both PSI and PPM were able to successfully begin distributing their respective commodities. However, on March 21, there was a military coup in Mali; at the end of March, both the ongoing distribution of LLINs by PSI and the distribution of other commodities currently being warehoused by PPM were on hold.

Burundi

Burundi has a routine LLIN distribution system which includes a total of 45 districts—10 pilot districts and 35 non-pilot districts.

The project, in collaboration with the NMCP, supports the distribution of LLINs to all 45 districts. PMI is the largest supporter of LLINs nationally and provided 415,000 bed nets during the reporting period. These LLINs were all successfully distributed to the district level, with 94 percent of them at the facilities for distribution, or in the hands of the target population. The project continues to work in close collaboration with the NMCP to plan for the next consignment of 530,000 LLINs, due in June.

Burundi recently commenced a pilot program for the routine LLIN distribution system. The pilot was initiated as part of an effort to improve the management of LLINs at the facility level. The program is based on the principle of treating LLINs as essential commodities and managing them with the same controls as essential medicines.

In pilot districts, PSI delivers the district's quota of LLINs to the District Health Office (DHO). Each district is responsible for storing the LLINs and delivering them to health centers through a 'pull' system, where health centers submit a requisition to the DHO for the number of bed nets needed. The district then delivers bed nets to the health center, confirmed through a signed delivery note. Districts submit monthly reports and receive financial support for the additional fuel used.

The pilot system is already collecting much needed data on LLIN consumption by the target population and is working towards improving LLIN commodity security at the facility level. There are currently ten pilot districts in nine provinces and the pilot's proposed trial period is one year.

Mozambique:

At Mozambique's Central Medical Store's (CMAM) Zimpeto central warehouse, project staff use bulk ACTs of AL 6×1, 6×2, 6×3, and 6×4 weight bands to assemble two types of ACT kits destined for either community based health workers (APE) or health facilities (US). From October 2011 through March 2012, the project assembled a total of 9,999 APE and 14,205 U.S. ACT kits, which have been distributed to every province in the country. Standard operating procedures (SOPs) have been developed for ACT kit making, providing more structure and control in the process. The movement of ACTs—from the bulk receivers to the APE and US kits that are issued from the warehouse—is closely monitored using the MACS electronic warehouse management system and associated LMIS forms.

Zambia:

In March, project staff visited nine health facilities in seven districts—Petauke, Lundazi, Solwezi, Kabompo, Gwembe, Kasungula, and Sesheke. During these visits, 122 patient records were examined. Of these records, 28 percent (34 cases) were uncomplicated. The project used EpiSurveyor software to gather and analyze the data. Results showed that most fever cases did not have diagnostic testing for confirmation of malaria before

treatment; more cases were treated symptomatically in the facilities visited. Out of 122 patient records examined during the review period, 62 had fever as the main presentation. Out of those 62 records with fever as the main presentation, 32 records (52 percent) showed malaria as the final diagnosis. Of the total malaria cases recorded, 16 (50 percent) were confirmed for malaria before treatment, while 16 (50 percent) were treated symptomatically.

During the month, the project conducted nine malaria case management assessments in seven selected districts: Petauke, Lundazi, Solwezi, Kabompo, Gwembe, Kasungula, and Sesheke. Results showed that all the facilities visited had stocked out of AL 2×6. However, all facilities had other pack sizes of AL. Of the 34 recorded malaria cases, 25 (74 percent) were treated with ACTs, and five (26 percent) were treated with an antibiotic. This showed continued adherence to diagnosis and treatment of malaria in Zambia.

Zimbabwe:
In September, the project supported the MOHCW, DPS, and NMCP in assessing the interim logistics system for resupplying community health workers (CHW) with ACTs and RDTs. Informed by the findings of the assessment, the system was redesigned during this period. SOPs and training curricula were also developed. The project, with PMI funding, is supporting a portion of the rollout trainings for CHWs covering case management and resupply procedures.

Improve Visibility at All Levels of the Supply Chain from Central Down to the Facility and Community Health Worker Levels

End-Use Verification

Task Order 7 implements the End-Use Verification activity in PMI countries that have a project office. This activity helps provide improved visibility of malaria systems in-country, particularly at the health-facility level, by using survey methodology to capture and report data pertinent to the supply and management of malaria products; as well as information about how malaria is being diagnosed and treated.

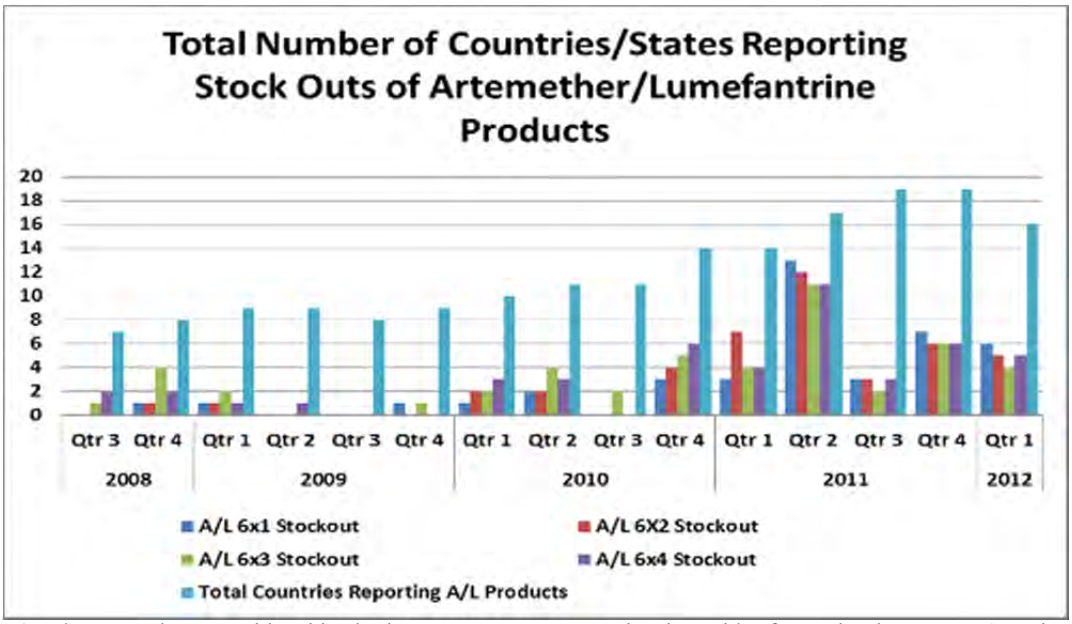
Since October 2011, the project has continued quarterly rounds of data collection and reporting in Ghana, Malawi, Mozambique, Tanzania, and Zambia. In FY2011, Mozambique became the most recent country to implement End-Use. During the reporting period, staff in the project office led data collection for the first time, with support from TO7 staff in the home office. Preparations are currently under way to begin the End-Use activity in Zimbabwe and Nigeria before the end of FY2012.

In addition to ongoing data collection efforts, project staff met with PMI during the previous quarter to make revisions to the methodology for the activity, including updated sampling strategies, analysis, and reporting. To focus on key indicators and improve readability, a more succinct, streamlined version of the report was developed. TO7 will provide individual support to each End-Use country to promote changes to country processes in line with the new requirements. Accordingly, an STTA to carry out End-Use revisions in Tanzania is planned for next quarter.

The tool continues to play a critical role in identifying current or impending shortages, stockouts, and expiries. Figure 6 shows the total number of countries/states, by quarter and by year, that reported stockouts of AL through the PMMRm. Quarter 2 of 2011 shows the highest percentage of countries stocked out. In quarter 4 of 2011 and quarter 1 of 2012, which is covered in this report,

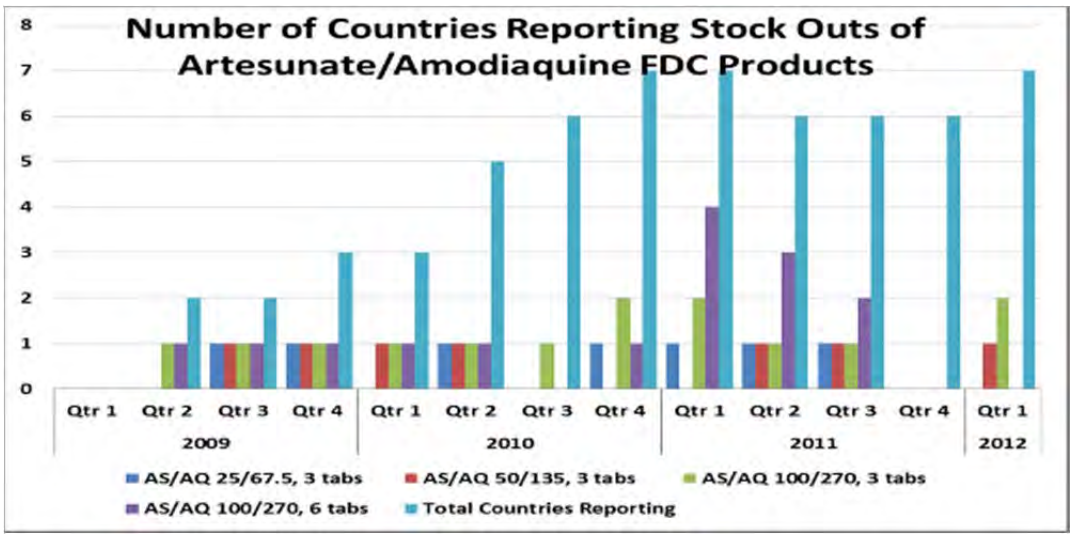
central level stockouts are included in four Nigerian states: Angola, Ghana, Mozambique, and Zambia. Figure 7 shows the number of countries, by quarter and by year, that reported stockouts of AS/AQ. For countries using AS/AQ, central level stockouts have become less frequent. For the quarters covered in this report, there were no stockouts reported in quarter 4 of 2011. For quarter 1 of 2012, Ghana and Burkina Faso reported stockouts.

Figure 6. Total Number of Countries/States Reporting Stockouts of AL through PPMRm



*Stockouts at the central level in the last two quarters were dominated by four Nigerian states: Angola, Ghana, Mozambique, and Zambia.

Figure 7. Number of Countries Reporting Stockouts of FDC AS/AQ



*Of the countries using FDC AS/AQ, central level stockouts have become less frequent. In quarter 4 of 2011, no stockouts were reported. In 2012, Ghana and Burkina Faso reported stockouts.

New sampling strategies are being developed to strengthen the original methods by creating more nationally representative statistics, while working within financial, logistical, and political constraints. Work first began on adapting the Mozambique sampling strategy, which employs a stratified, multi-stage sampling design; to the unique country contexts of Tanzania, Ghana, and Zimbabwe. This work will continue throughout quarter 3, with plans to provide support to all countries to develop more scientific and efficient sampling strategies.

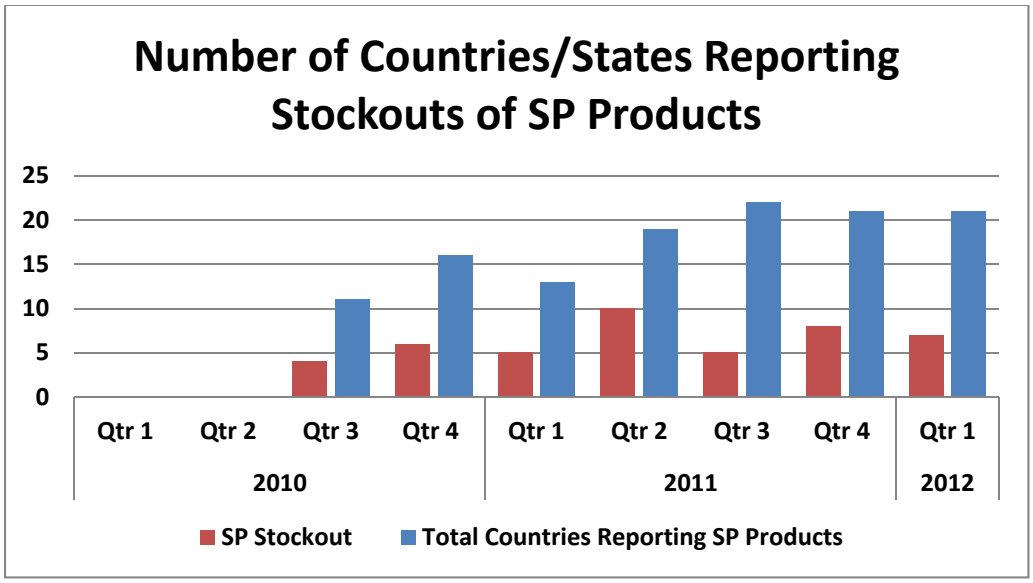
PPMRm

During the first quarter of the fiscal year, the newly redesigned data forms were rolled out in all 18 countries; the streamlined report was produced for the first time for dissemination to PMI. The second quarter of FY2012 saw the addition of one country—Guinea.

The Procurement Planning and Monitoring Report for Malaria (PPMRm) provides data on central-level stock availability for malaria commodities: ACTs, SP, and RDTs. The PPMRm was first piloted in October 2008 in 10 countries in sub-Saharan Africa. It has since expanded to 18 countries, including eight Nigerian states. Of these countries, TO7 is responsible for collecting data in nine, while SIAPS (Systems for Improved Access to Pharmaceuticals and Services) at Management Sciences for Health (MSH) is responsible for collecting data in the other nine countries. The project is still unable to access data from Rwanda and Madagascar.

During FY2011, PMI used the PPMRm to address stockout situations in a number of countries through the provision of critical emergency shipments, and to highlight potential supply problems before they happen.

Figure 8. Number of Countries Reporting Stockouts of SP



*The availability of SP for the preventive treatment of women during pregnancy is of increasing concern among PMI countries, with stockouts of this product slightly higher than AL products. Stockouts in the last two quarters were in several Nigerian states, as well as Guinea and Uganda.

Contributing to the PMI Impact Evaluation: Using LMIS data to provide insight into commodity availability in Malawi

During the reporting period, TO7 conducted an analysis of LMIS data in Malawi—from 2007, when malaria data became available nationally, to the present. In many countries in sub-Saharan Africa, health information systems, such as the LMIS, are often non-existent or non-functional. The Ministry of Health in Malawi, with support from the project, has made significant investments in strengthening the country's LMIS. While country data are often examined at a single point in time—providing a snapshot of commodity availability—examining logistics data over time offers a better and broader picture of commodity availability, including the fitness of the logistics system.

Photo Credit: USAID | DELIVER PROJECT

Training of the district data managers on the use of the malaria database in Burkina Faso.

The team found that stockouts of antimalarials at treating facilities increased during 2007–2010, although reporting rates also substantially increased. Periods of low reporting levels can be distorting, as facilities that do not report may be facilities that are probably stocked out. The increase in reporting rates, over time, is likely due to increased investments in system strengthening efforts, including increased funding and technical assistance for logistics reporting and accurate stock card completion. From this analysis, other lessons learned included insight into the components that comprise an effective LMIS system—including the need for number of days stocked out—to address the issue of chronic stockouts in a country.

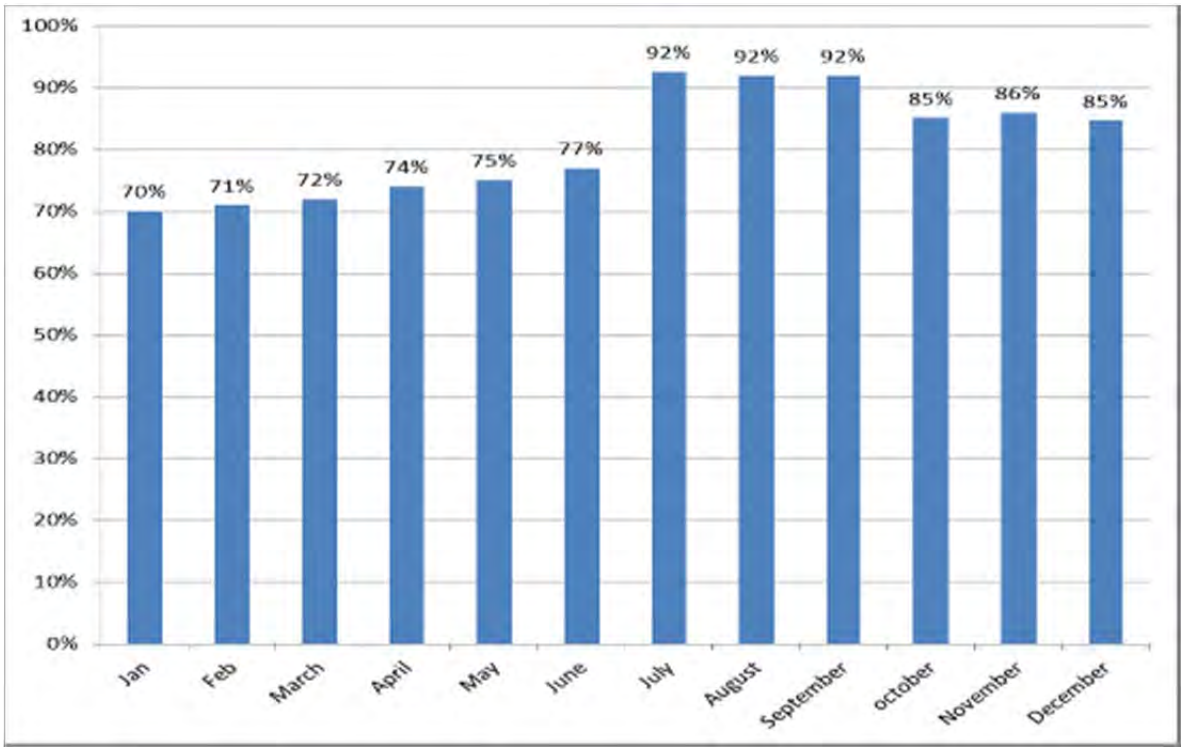
The next steps of this analysis will include research to examine the impact of stockouts, including an analysis with out-patient malaria cases captured in the WHO Integrated Disease Surveillance and Response (IDSR) database, as well as to determine the underlying factors for which facilities are more likely to be stocked out.

Country Highlights

Burkina Faso:

Burkina Faso rolled out a malaria database that collects and reports case management and logistics data. The project worked with NMCP to analyze the facilities' reports for the quarter of October–December 2011, and for all of 2011. The analysis indicated that the facility reporting rate has increased from an average of 71 percent in January–March 2011 to an average of 85 percent in October–December 2011 (figure 9).

Figure 9. Facility Reporting Rate Per Month, Burkina Faso, 2011

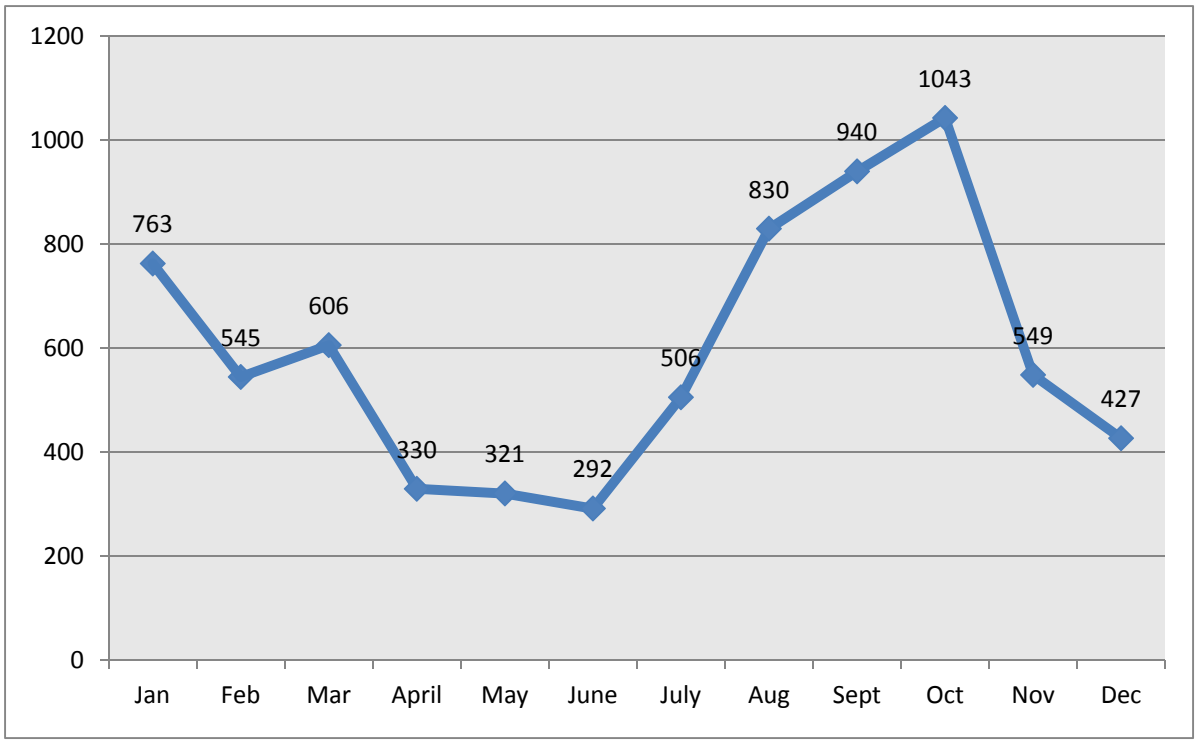


In March 2012, the project provided technical and financial support to the NMCP to organize a workshop in Tenkodogo, Ouagadougou, and Bobo-Dioulasso. The objectives of this workshop were to orient district data managers and pharmacists on how to analyze the data in the malaria database; and how to use the results of the analysis to improve the health facility reporting rate, timeliness of reports, data quality and availability of malaria commodities.

In addition, the analysis of the 2011 data from the malaria database received from the districts showed that—

- The number of uncomplicated malaria cases has decreased slightly from 5,723,481 in 2010 to 5,570,612 in 2011. Most of the cases registered as malaria cases were unconfirmed cases, because there was a stockout of RDTs during most of 2011.
- The most malaria-related deaths were recorded during the rainy season (July–October) (see figure 10).

Figure 10. Number of Deaths Due To Malaria Per Month, Burkina Faso, 2011

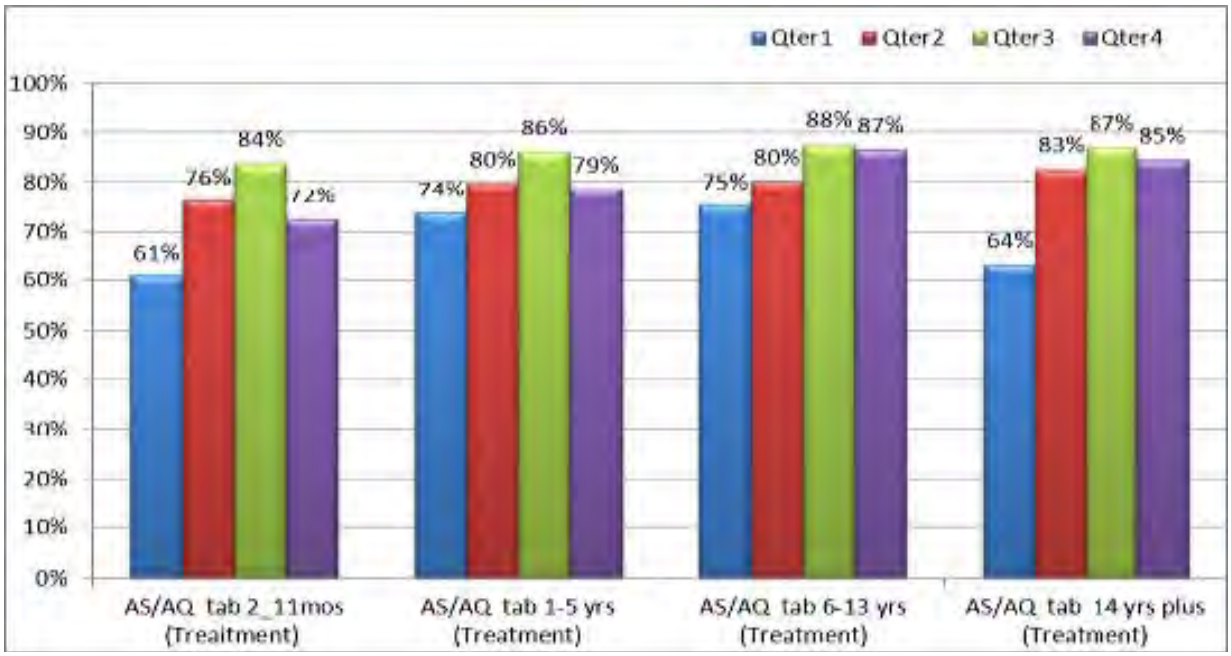


Boucle du Mouhoun, Hauts Bassins, Centre-Ouest, Est, and Centre–Est have reported the highest number of deaths due to malaria. The NMCP plans to visit those regions to determine the causes and take necessary action.

By comparing service statistics data to logistics data, it was observed that the number of malaria cases treated with ACTs is still higher than the number of ACTs dispensed to patients in the health facilities. This discrepancy could be because some patients are recorded at the health facility as having been treated with an ACT when, instead, they sought treatment outside the health facility. The NMCP is aware of this and will address this issue during supervision visits.

The percentage of health facilities without an ACT stockout increased from the quarter of January–March 2011 to July–September 2011 for all four presentations of FDC AS/AQ (see figure 11).

Figure 11. Percentage of Health Facilities without Stockouts of ACT, by Presentation and Quarter, Burkina Faso, 2011



During the 4th quarter of 2011, the percentage of health facilities without a stockout of ACTs decreased, because of low stock levels for the majority of the ACT presentations at the central and district level. The quantity of ACTs to purchase for 2011, using World Bank (WB) funds, was not ordered because of problems with WB procurement procedures. During the workshop, all the district data managers/pharmacists were asked to complete the following tasks to ensure continued data quality:

- Assess the completeness and quality of the monthly health facility data received at the district level.
- Analyze the data entered into the database before sending the file to the regional level.
- Use BD Malaria data for the quarterly data validation meetings, which are held at the regional level with NMCP.

A nurse checks lab slides for malaria in Mozambique, October 2011. Picture taken by Arturo Sanabria.

Photo Credit: USAID | DELIVER PROJECT 2011

Liberia:
In the 1st quarter of FY2012, in collaboration with the International Rescue Committee (IRC) and the Montserrado County Health Team, the project facilitated the roll-out of the integrated LMIS tools in the James N. Davis Memorial Hospital, one of the referral hospitals in the Montserrado region. Having LMIS forms in such a large hospital, which is responsible for more complex case management, ensures that the National Drugs Service (NDS) and the Supply Chain Management Unit (SCMU) will develop a

better understanding of the regular commodity needs of other large referral hospitals, and the public health system, in general.

Madagascar:
The project, in collaboration with World Health Organization/ Strategic Approach to International Chemicals Management (WHO/SAICM) project has carried out qualitative research on the use, maintenance, disposal, recycling, and replacement of bed nets at the community level. The field study was conducted in collaboration with the Focus Development Association. The study took place in four districts: two of the districts (in the south) already participated in a collection of used bed nets in 2010, but the other two districts in the northeast have not. The project ensured the quality of the field study through supervision in the two northern districts.

Rwanda:
The project collected and analyzed logistics data to improve overall availability and assess system functionality. More specifically, the project collected information from approximately 30 district pharmacies and 533 health facilities. Assessing system performance, the project indicated that the average reporting rate from the period of October 2011–March 2012 is 100 percent for districts and 95.22 percent for health facilities. Stockouts vary from 0.74 percent for quinine 100 mg/ml to 7.24 percent for Coartem (AL 6×3) in February.

Tanzania:
The project received overwhelming support from the Ministry of Health and Social Welfare with the continued rollout of the ILS Gateway, a mobile phone-based tool developed to improve reporting rates and increase commodity availability. The evaluation results revealed that 94 percent of the piloted districts believe that the ILS Gateway has improved the timeliness with which facilities submit their report and requisition forms. The pilot phase of ILS Gateway implementation was conducted in Mtwara and Dar es Salaam; evaluation results were shared with the Ministry of Health and USAID for continued support.

Strengthen the Accountability of In-Country Supply Chains That Manage Malaria Products

Country Highlights

Mozambique:
The project is in the process of procuring 1,200,000 LLINs with MOP2011 funding; they have a new requirement for special labeling specifications—developed in coordination with USAID, PMI, the Ministry of Health (MISAU), and the NMCP. Each bed net will have a sequential numerical code stitched into its label, each bale will show the range of numbers contained within that bale, and the individual plastic bags will have the ministry's brand and *not for commercial sale* imprinted on them. These labeling specifications will make it possible to track individual bed nets or bales, and provide greater visibility and control of the bed net supply chain in Mozambique.

Nigeria:
Project staff in Nigeria provided support to the NMCP in training 202 state, local government areas (LGA), and SDP personnel in the use of the new Malaria Commodities Logistics System (MCLS). The new MCLS will improve the collection and collation of data from the lower levels of the system and will enable program managers to make informed decisions.

From February 29–March 10, 2012, project staff trained and certified 54 master trainers during the MCLS capacity building officer's training for states supported by USAID/MAPS and DFID/SuNMaP. These certified master trainers (MTs), in collaboration with other project certified master trainers, will roll out the MCLS health facility trainings across their respective states. The MTs will serve as resource pools in the states and will troubleshoot when challenges arise.

Rwanda:
The USAID | DELIVER PROJECT in Rwanda conducted a training-of-trainers (TOT) for 17 teachers in six different nursing schools. The TOT was a 10-day competency-based supply chain management course that used the principles of the adult learning theory. The training certification required that participants pass a course competency test with a minimum score of 85 percent, as well as conduct practice teaching sessions. The objective of the course was to teach future health professionals about the importance of supply chain management to achieve commodity availability and, ultimately, improve health services. While this intervention was supported by TO4 funds, it enhances the entire logistics system, including malaria products. As a result of the TOT, the project empowered and reinforced local capacity by certifying 12 health professionals to become facilitators of the Rwanda Health Commodities Logistics Management System.

Tanzania:
In conjunction with the End-use verification activity, the project also conducted the Anti–Malaria Commodity Monitoring Activity twice. Data collection was conducted in 40 percent of End-use facilities. This activity tracked the movement of ACTs through each level of the supply chain, noting any discrepancies observed and reasons for those discrepancies. The activity that was conducted in February found that 93 percent of health facilities received the exact quantity of ACTs issued. This is an improvement over the 72 percent reported in August 2011.

Bridge the Gap between NMCPs and Supply Chain Operators (e.g., Central Medical Stores) to Improve Core Supply Chain Functions (i.e., Quantification, Monitoring and Supervision, and Use)

Country Highlights

Ghana:
The USAID | DELIVER PROJECT, with STTA support from the home office, supported the Ministry of Health, through a TWG, to develop a set of strategic interventions that will frame a soon-to-be-developed 5-Year Supply Chain Master Plan. Among other proposals, the TWG has proposed that a new agency of the Ministry of Health (Supply Chain Management Unit–SCMU) be formed. The SCMU would join various supply chain

Unloading LLINs from a truck in Ghana. March 2012.

Photo Credit: USAID | DELIVER PROJECT 2012

functions; provide a direct supervisory and organizational relationship between the central- and mid-level of the supply chain; strengthen information systems and build data visibility; emphasize accountability, efficiency, and cost-effectiveness; and increase the value of the supply chain for end users. A stakeholders' meeting was held to review all proposed strategic interventions. The proposals were well received and were endorsed by the Minster of Health and the Chief Director of the Ministry.

Tanzania:
The project conducted a workshop to design the structure and functions for the logistics management unit (LMU). The LMU will serve both a strategic purpose (such as acting as a focal point for attracting and managing resources for supply chain strengthening interventions) and operational purposes (approving quantities to be resupplied by MSD to facilities). The LMU will play a key coordination role, working across MOHSW program agencies and units (i.e., NMCP), development partners, MSD, and other implementing agencies.

Zimbabwe:
A midterm review of the 2012–2013 Malaria Strategic Plan was held during the reporting period and was attended by the MOHCW, NMCP, and other directorates, including pharmacy, laboratory services, and the provinces. PSI, PLAN International, and UNDP also attended the meeting. The purpose of the meeting was to review progress and challenges in implementing the current plan and to determine the way forward for the remaining two years. The following successes of the first term were highlighted:

Rapid diagnostic tests at a clinic in Mozambique. 2011.

Photo Credit: USAID | DELIVER PROJECT

- decreased incidence of malaria, from 95/1000 cases in 2007 to 49/1000 cases in 2010
- increased malaria testing rate, from 60 percent in 2009 to 89 percent in 2011
- increased the intermittent preventative treatment in pregnancy (IPTp2), from 28 percent in 2009 to 63 percent in 2011.

The review meeting resolved to—

- reduce the incidence of malaria to 10/1000 cases in 2013
- continue to strengthen the supply chain management of malaria commodities
- train more primary care nurses on good medicines management practices
- strengthen community case management of malaria.

The project-seconded malaria logistics focal person participated in an integrated supportive supervision visit to nine health facilities in Midlands province. The visit was made to assess the management of malaria, tuberculosis, HIV, and other essential medicines and medical supplies. The support teams found the stock management practices to be, generally, satisfactory and in line with the malaria products available at all the facilities visited. Some facilities were overstocked and on-the-job training was provided to assess stock status using the set minimum, maximum, and emergency order point inventory levels. Despite IPTp being restricted to malaria endemic areas, SP was available in all the districts visited.

Additionally, eight health facilities were visited in Manicaland province. On average, the availability of malaria medicines was >94 percent, with RDTs out of stock at two facilities. Only one site, a mission hospital, had implemented all the recommendations from a previous support visit, while feedback reports were either unavailable or recommendations were not followed at other facilities. Three out of the eight sites visited were conducting physical counts consistently, every month, for all the products.

After Systems Meet Performance Levels, Build Local Capacity to Sustain System Performance

Country Highlights

Ghana:
The project supported the NMCP to complete the training of more than 900 district and sub-district supervisors, pre-positioning site attendants, and volunteers in basic logistics management, to support the planned distribution and hang-up of over 2.5 million LLINs (1,834,100 LLINs from Global Fund and 665,900 LLINs from PMI) in the Ashanti region. Participants were trained in how to use inventory control cards to record, issue, track, and report on the use of campaign commodities (LLINs, ropes, nails, scissors, hammers, and stamp pads).

Liberia:
In quarter 1 of FY2012, Programs and Pharmacy Division staff were trained on the quantification review of essential drugs and the supply plan review, including use of the PipeLine database for supply planning and monitoring. The project also provided capacity building and oversight for the NMCP focal person in managing the PipeLine database. This activity contributed to the achievement of building programs' capacities in quantification review and supply planning.

Madagascar:
The project developed a comprehensive training database in order to document and manage all of the health services individuals trained in logistics. The database stores information on all of the individuals that have received training, a map of the health facilities where each of the individuals works, the date of training, their associated NGO, etc. This will enable the project to track trainings and assess attrition rates and supervision needs.

The project conducted field supervision of NGO health facilities in the north, west, southeast, east, and highlands. With the exception of the east, supervision teams consisted of representatives from the project and four NGOs. Three major recommendations were to be addressed at the end of the joint supervision: (1) improvement of the information system at central level of each NGO; (2) improvement in the waste management, starting from the sorting of waste; and (3) stronger coordination regarding NGO supply chains, especially for the clinics that are supplied by the public

health system. In light of the irregularity of commodity deliveries from public health facilities, the project is working to create stronger partnerships with NGOs to avoid stockouts.

The project has supported PMI's partnership with the Peace Corps and we have recruited one Peace Corps volunteer to reinforce the team. In addition, the project is working with NMCP to identify areas of collaboration with the Peace Corps, in terms of information, education, and communication/behavior change communication (IEC/BCC) for the 2012 LLIN campaign.

Nigeria:
The project conducted a joint planning workshop with MAPS to harmonize the work plans of the two projects, at both the central and state levels; and to ensure effective collaboration, efficient resource utilization, and synergistic achievement of PMI targets in focus states. One of the key supply chain challenges identified during this collaboration was warehousing of health commodities. Project staff conducted assessments of the CMS in Cross River, Nasarawa, Zamfara, Ebonyi, Oyo, and Sokoto states; which considered infrastructure, operations, and personnel. Reports have been prepared and recommendations are pending for specific improvements geared toward securing PMI commodities, maintaining their quality, and assuring their availability for distribution. After they are finalized, these reports will be used as an advocacy tool among partners and the various state governments to standardize the warehouses to pharma-grade status.

Rwanda:
To document the state of Rwandan public health supply chain human resource capacity and management, the USAID | DELIVER PROJECT Rwanda conducted a human resource assessment. In addition to this, the assessment documented the professional efforts made by personnel working across Rwanda's public health supply chains; they developed recommendations for a strategy and implementation roadmap to build the organizational and individual capacity of the country's supply chain human resources. While this intervention is supported by TO4 funds, it enhances the entire logistics system, including malaria products.

Zambia:
In February 2012, the roll out of the Essential Medicines Logistics Improvement Program (EMLIP) in the four Saving Mothers, Giving Life target districts started. To date, Lundazi, Nyimba, and Mansa districts have been trained. EMLIP roll-out trainings for Kalomo district are expected to be complete in May 2012, bringing the total number of districts under EMLIP to 20 out of 74 districts, nationwide.

Table 4. PMP Indicators for Objective 2, October 1, 2011–March 31, 2012

Support Area	Operational Area	Indicator	Status
Monitoring of in-country supply chain performance	Providing information about in-country supply chain performance	Facility stockout rate: the percentage of facilities that experienced a stockout of a product expected to be provided or issued by that site on the day of the visit	See appendix H

Support Area	Operational Area	Indicator	Status
		Country stockout rate: the percentage of countries experiencing a stockout at the central warehouse(s) at the time of reporting	See appendix H
		Functioning LMIS: percentage of countries where an LMIS is present that routinely collects and reports stock status data (i.e., stock on hand and consumption data) from all service delivery points (SDPs) in the country	**6/11 = 55%** For a full list of the countries and further explanation about the LMIS, see appendix H.
Short-term technical assistance (STTA)	Respond to STTA needs as per mission request to strengthen in-country supply chain management for antimalarial commodities	Timely response to ad hoc TA needs: % of STTA trips per Mission's/PMI | Washington ad hoc request conducted on time	**Total: 5/5 = 100%** Malawi had two timely responses, Tanzania had two timely responses and Zimbabwe had one timely response.
Long-term technical assistance (LTTA)	In-country supply chain strengthened or improved	Quantity of antimalarial commodities (LLINs, SP tablets, ACT treatments, RDTs) distributed in-country using funds obligated to USAID | DELIVER PROJECT	Angola: - 1,800,000 ACTs Benin: - 250,000 LLINs Burundi - 415,000 LLINs Burkina Faso: N/A DRC: N/A Ghana: - 4,870,000 LLINs Kenya: N/A Liberia: N/A Madagascar: - 540,610 RDTs - 1,025 safety boxes - 987,620 gloves - 35,564 ACTs Mali: - 1,310,040 ACTs - 600,000 RDTs - 1,500,000 (PSI), 167,000 (UNICEF) and 123,340 (GF) Malawi: - 5,303 ACTs

Support Area	Operational Area	Indicator	Status
			Mozambique: - 4,229,610 ACTs Nigeria: - 1,094,900 LLINs Rwanda: - 390,000 LLINs Southern Sudan: N/A Tanzania Uganda: N/A Zambia : N/A Zimbabwe*: - 97,398 ACTs - 67,387 RDTs - 541,286 SP tablets - 47,900 quinine tablets - 16,735 quinine ampoules
		Percentage of countries receiving field support TA funds reporting on supply chain performance via the End-use verification activity	**5/9 = 55%** Burkina Faso: No Liberia: N/A Ghana: Yes Madagascar: No Malawi: Yes Mozambique: Yes Nigeria: No Rwanda: N/A Tanzania: Yes Zambia : Yes Zimbabwe: No For further explanation, see appendix H.
		Number of individuals trained in the supply chain management of malaria commodities	**TOTAL: 5,980** Burkina Faso: 5 Ghana: 1,889 Liberia: 184 Madagascar: 25 Malawi: 2,181 Mozambique: 100 Nigeria: 492 Rwanda: 29 Tanzania: 636 Zambia : 160 Zimbabwe: 279
		Percentage of countries	**8 /11 = 82%**

Support Area	Operational Area	Indicator	Status
		with field support TA funds reporting central-level stock levels of select malaria products in quarterly stock monitoring reports	Burkina Faso = yes Ghana: yes Liberia: yes Madagascar**: no Malawi: yes Mozambique: yes Nigeria: yes Rwanda**: no Tanzania: yes Zambia : yes Zimbabwe: yes
		Functioning Coordination Committee: percentage of countries that have a logistics coordination mechanism in place that includes participation of NMCP and CMS (or their equivalents), with a meeting that takes place at a specifically appointed time (e.g., during a reporting quarter)	**TOTAL: 10/11 = 90%** Burkina Faso: yes Ghana: no Liberia: yes Madagascar: yes Malawi: yes Mozambique: yes Nigeria: yes Rwanda: yes Tanzania: yes Zambia: yes Zimbabwe: yes
		Available supply plans: Percentage of countries that have developed supply plans for PMI-funded commodities*	**TOTAL: 10/11 = 91%** Burkina Faso: yes Ghana: yes Liberia: yes Madagascar: yes Malawi: yes Mozambique: yes Nigeria: N/A Rwanda: yes Tanzania: yes Zambia: yes Zimbabwe: yes
		Number of technical reports or tools developed to support malaria supply chain performance	**TOTAL: 52** Core: 0 Burkina Faso: 2 Ghana: 9 Liberia: 2 Madagascar: 3 Malawi: 17 Mozambique: 9 Nigeria: 1

Support Area	Operational Area	Indicator	Status
			Rwanda: 5 Tanzania: 4 Zambia: 0 Zimbabwe: 0

*In-country distribution is supported by a number of partners; it is challenging to determine what portion of these distributed commodities was funded by the project.

** TO7 is responsible for collecting PPMRm data in ten countries. As previously stated, the project cannot access data for Rwanda and Madagascar.

Objective 3: Improve the Global Supply of Malaria Commodities

Strengthen International Collaboration

Support to the Roll Back Malaria Procurement and Supply Management Working Group

TO7 is an active member of the Procurement and Supply Chain Management Working Group (PSM WG). The Task Order Director is serving as the co-chair for the PSM Bottleneck Workstream. TO7 provides management support to one of the key activities within the workstream—a mapping of Global Fund (GF) PSM-related grant delays. The support provided during the reporting period includes identifying consultants, developing an assessment tool with the consultants, selecting two countries for the mapping exercise with input from workstream members, and fielding the consultants. The assessment visits took place in the Democratic Republic of Congo (DRC) and Tanzania from mid-March to early April; other workstream members are currently reviewing the individual country assessment reports. In addition to the country assessment reports, the consultants are writing a synthesis report that summarizes the findings from both countries and draws upon common lessons learned and best practices on GF PSM-related bottlenecks and grant delays. The synthesis report will be available at the end of May.

Participated in the RBM Harmonization Working Group Workshop on the Global Fund Transitional Funding Mechanism

In response to the Global Fund's announcement that it was postponing round 11 and would provide some gap funding through the Transitional Funding Mechanism (TFM), the Harmonization Working Group (HWG) sponsored a workshop for round 11 eligible countries that may be interested in the TFM. TO Malaria provided expertise in PSM during the workshop, including facilitating a session on quantifying ACT and RDT requirements and reviewing individual country gap analyses and PSM plans.

Conduct Analysis of Demand, Supply, and Pricing Issues Affecting the Global Market for Malaria Products

Support to the Interagency ACT Supply Task Force

In September 2011, WHO/GMP established an interagency task force whose mandate is to collect and analyze a holistic set of data to identify countries at risk of ACT shortfalls and to provide recommendations to mitigate the risk. Led by WHO/GMP, task force members include PMI, Global Fund (Affordable Medicines Facility–malaria and Voluntary Pooled Procurement), United Nations Children's Fund (UNICEF), Clinton Health Access Initiative (CHAI), and ALMA. The task force was formed in response to concerns that peaks in demand might strain existing production capacity and result in supply shortages at the country level.

Through its members, the task force collects data from countries, manufacturers and funders; then analyzes it, validates it, identifies ACT supply shortage risks; and works to mitigate the risks. The task force collects the data quarterly; currently, it is in its third round of data collection. TO Malaria is providing data management and analysis support to the task force.

Since October, TO7 has—

- worked with task force members to develop and revise country data collection forms for ACTs and RDTs
- worked with WHO and CHAI to develop the analytic metrics
- designed and managed a database that automatically imports country and manufacturer data, analyzes it based on defined metrics (using both country and manufacturers data), and produces country specific metrics reports, supply plans and supply graphs
- established and managed Smartsheets to share data and track actions with all task force members
- facilitated the collection of country data from PMI countries for three rounds
- analyzed country data, first manually and then through a database
- validated data with all PMI countries
- participated in weekly task force phone calls to discuss potential ACT supply shortages at the country level and to identify strategies to resolve them.

The task force met in February 2012 to review progress to-date and to discuss whether and how the work should continue. It was agreed that the task force would remain active until the RBM board meeting in May, when a more permanent home would be identified.

The country analysis identified countries at risk of a stockout. Black indicates a current stockout; red indicates that a stockout is expected within the next six months; yellow indicates that after six months, less than six months of stock remains; green indicates that after six months, between 6–12 months of stock remains; blue indicates that after six months, more than 12 months of stock remains; and white indicates either no report or incomplete data. Incompletes designate that a country has submitted some data, but not enough to draw meaningful conclusions. See figure 12.

Figure 12. Summary of AL Data Received from Priority Countries

Round 1	AL 6 X 1	AL 6 X 2	AL 6 X 3	AL 5 X 4
Cote D'Ivoire	Nov-11	N/A	Apr-11	Mar-12
Ethiopia				
Ghana		Mar-12	Mar-12	Mar-12
Kenya	Nov-11			
Malawi				
Mozambique				
Niger	Oct-11	Oct-11		
Nigeria	Dec-11	Dec-11		Dec-11
Tanzania				Nov-11
Uganda				Nov-11
Zambia		Nov-11	Nov-11	Nov-11

Round 2	AL 6 X 1	AL 6 X 2	AL 6 X 3	AL 5 X 4
Cote D'Ivoire	May-12	N/A		
Ethiopia			Jun-11	
Ghana	Jun-12	Apr-12	Mar-12	May-12
Kenya				
Malawi				
Mozambique				
Niger				
Nigeria				
Tanzania			Jan-11	
Uganda				Dec-12
Zambia	Jan-12	Jan-12		

Round 3	AL 6 X 1	AL 6 X 2	AL 6 X 3	AL 6 X 4
Cote D'Ivoire	incomplete			
Ethiopia				
Ghana	incomplete			
Kenya				
Malawi		May-12		
Mozambique				
Niger	incomplete			
Nigeria				
Tanzania	incomplete			
Uganda				
Zambia				

Figure 13. Summary of AS/AQ Data Received from Priority Countries

Round 1	AS-AQ infant	AS-AQ toddler	AS-AQ child	AS-AQ adult
Burkina Faso				Jan-12
Burundi				
Cameroon		Nov-11		
Cote D'Ivoire	Jan-12	Apr-12	Jan-12	Apr-12
DRC				
Ghana	Oct-11	Mar-12	Dec-11	Dec-11
Nigeria	Nov-11	Nov-11	Nov-12	Nov-11
Sierra Leone	Nov-11	Nov-11	Nov-11	Nov-11
S. Sudan				

Round 2	AS-AQ infant	AS-AQ toddler	AS-AQ child	AS-AQ adult
Burkina Faso				Feb-12
Burundi				
Cameroon				
Cote D'Ivoire	May-12		Jun-12	Apr-12
DRC				
Ghana	May-12	Apr-12	Jan-12 Mar-12	May-12
Nigeria				
Sierra Leone				
S. Sudan			Feb-12	Feb-12

Round 3	AS-AQ infant	AS-AQ toddler	AS-AQ child	AS-AQ adult
Burkina Faso				Jan-12
Burundi				
Cameroon				
Cote D'Ivoire				
DRC				
Ghana	incomplete			
Nigeria				
Sierra Leone				
S. Sudan				

Develop Tools to Address Common Supply Chain Bottlenecks

Quantification of ACTs and RDTs

The project participated in the development of a manual for quantifying ACTs and RDTs. The effort was led by Management Sciences for Health (MSH), with input from the project, Roll-Back Malaria (RBM), Global Fund, PMI, the World Bank, Medicines for Malaria Ventures (MMV), and FIND. During this period, TO Malaria conducted a field test of the manual in Zimbabwe and provided detailed feedback to MSH that they would incorporate into the final version.

LLIN Recycling Pilot Project–Report on Phase III

The final phase (phase III) of the Madagascar LLIN Recycling Pilot Project ended during FY2011; the project prepared a report detailing the outcomes of the study, which was finalized in March 2012. Trex, the plastics recycling company with whom the USAID | DELIVER PROJECT had developed a public-private partnership to implement the final phase of the pilot, conducted tests on the old LLINs and was ultimately able to recycle the PE LLINs into a bio-composite plastic-wood board.

Other lessons learned from phase III of the pilot include—

- At this time, PE (polyethylene) bed nets can be recycled but PET (polyester) bed nets cannot (see photograph below).
- Recycling LLINs may reduce the amount of waste in landfills, may reduce the risk of water/soil contamination and air pollution, and may decrease dependency on the use of harmful chemicals to treat bio-composite plastic wood.
- At this time, it is not cost effective to recycle old PE LLINs.

Photo Credit: USAID | DELIVER PROJECT

On the left: bio-composite plastic wood board created out of recycled PE LLINs by Trex.
On the right: recycled PET bed nets that cannot be manufactured into a board.

Country Highlights

Madagascar:

In Madagascar, the project, in collaboration with the World Health Organization/ Strategic Approach to International Chemicals Management (WHO/SAICM) project has carried out qualitative research on the use, maintenance, disposal, recycling, and replacement of bed nets at the community level. The field study was conducted in collaboration with the Focus Development Association. The study took place in four districts: two of the districts (in the south) already participated in a collection of used bed nets in 2010, whereas the other two districts in the northeast have not. The project ensured the quality of the field study through supervision in the two northern districts.

Table 5. PMP Indicators for Supporting Global Supply and Availability Initiatives

Operational Area	Indicators	Status
Support global and regional stakeholders/forums of SCM technical issues	Number of global and regional malaria initiatives with USAID | DELIVER PROJECT technical participation	3

*There were three initiatives during the report period—the Interagency ACT Supply Task Force (weekly calls and a meeting in February), the Nairobi Workshop, and the GF PSM bottlenecks mapping

Performance Monitoring

TO7 monitors performance using a set of indicators outlined in the Performance Monitoring Plan (PMP) and detailed in the Quality Assurance Surveillance Plan (QASP) and Environmental Mitigation Monitoring Plan (EMMP). The indicators, calculated for this reporting period, are included in the relevant sections throughout this document. For additional information, see appendices J–K. For the first time, the EMMP is included in this reporting period with the full extent of TO7 objectives and activities. In the FY2011 annual report, the EMMP only pertained to procurement-related objectives and activities.

In addition to the PMP indicators, a set of deliverables have been agreed upon during the work planning process for the fiscal year, including dates of submission. During the reporting period, the project routinely assessed the status of these deliverables at weekly TO7/USAID meetings.

Other less formal methods for performance monitoring and management are also in place, such as weekly TO7/USAID meetings and the distribution of an updated Current Actions Table—which outlines the current status of all TO7 procurements. During weekly meetings with USAID personnel and principal project staff, the TO7 team discusses all issues related to upcoming procurements and technical activities, and determines the best way to address any problems. The project conducts a country-by-country review of all ongoing procurement actions; their status is updated on the Current Actions Table, which is made available every week to all PMI and project managers.

Implementation Challenges and Solutions

Increased ACT Lead Times

Increased global demand for ACTs has placed pressure on qualified manufacturers and it appears to have outstripped their capacity to meet the demand. During the last six months, ACT supply was complicated with more delays, leading to longer-than-expected lead times. These manufacturing delays confounded already existing supply challenges, which resulted from the rapid uptake in the use of ACTs; this led to an increase in the number of orders placed for ACTs, as well as limiting the availability of artemisinin. As the project moves toward consolidated orders, additional procurement challenges arise in coordinating the timely submission and production of these orders.

The limited global supply of ACTs will continue to be a challenge for the foreseeable future. In the short- to medium-term, the project is working proactively to plan requirements and reserve production slots for country needs and the emergency stockpile. The project is juggling available commodities to meet the most pressing country needs by realigning the available commodities with country needs, where possible. Using data from the PPMRm and other reports on consumption and in-country stock on hand, this approach has helped alleviate supply imbalances, in some instances.

From more long-term, the project's participation in the Global ACT Task Force and the recent three-year ACT gap analysis have enabled TO Malaria to use better information to plan strategically for the future. While the ACT supply landscape remains dynamic, the project is actively positioning itself to respond preemptively and flexibly.

Managing Increased Orders

During the last six months, the project has received as many ACT orders, and three to four times as many RDT orders, as we received in the entire preceding year. During the same period, the procurement team lost two senior procurement specialists and one new specialist. While working diligently to manage these orders in an efficient and coherent fashion, the increased work load, coupled with the reduction in staff, has strained the project's ability to respond as rapidly as desired. Recognizing this, TO Malaria is working to increase procurement staffing, provide additional management and operational support to the team, and streamline processes across procurement, finance, and contracts.

Data Quality and Availability

Real data on consumption, stock on hand, and shipment information are necessary to effectively plan for the country's commodity needs. The project relies on central- and facility-level data from various sources, such as the PPMRm, EUV, and LMIS. Data availability over time, as well as quality of the data, varies significantly by country. The number of requests received for longitudinal

commodity data analysis is increasing, both from PMI (particularly for the Impact Evaluation) and other key partners, such as WHO and RBM.

To deal with this challenge, the project is focused on strengthening information systems to ensure visibility of data up and down the supply chain. The project has also advocated supplementing available quantitative data with additional methods of analysis, including qualitative approaches that would provide further context. Key informant interviews are another way to gather more information on data quality challenges and current perceptions of commodity availability.

The project is also addressing data quality and availability issues by supporting countries as they create more scientific and efficient EUV samples. During the past three years, a sampling process was used to produce a snapshot of local conditions for program monitoring and evaluation. While the process for sampling varied somewhat by country, they all choose facilities in the same supply chain, using a mix of random and purposeful sampling. As a result, the data gathered were not considered representative of the country as a whole; therefore, generalizations could not be made about a given country's facility-level availability. The new sampling strategy—a stratified, multi-stage sampling design—strengthens the original methods by creating more nationally representative statistics; while still working within budgetary, logistical, and political constraints. Generating nationally representative data facilitates analysis, over time, within countries, facilitates analysis and comparison across countries, as well.

Additional steps to improve data availability are ongoing at the country level. There are still significant sensitivities around the sharing of Ministry of Health-*owned* data in multiple countries. In Rwanda, the project has had ongoing difficulties accessing key supply chain indicators for malaria commodities. While it appears that negotiations have been successful in accessing these data, the MOH is still reluctant to have these figures shared widely beyond project staff. Progress toward data access has also been made in Tanzania. In Tanzania, an eLMIS is currently being developed, which—after it is operational—will improve the prospect of accessing more routine and reliable data on stock levels and stockouts for malaria and other commodities, moving forward.

Governance Challenges to In-Country Activities

Governance issues at the country level continue to present significant barriers to project implementation in a variety of countries. Both political and practical challenges result from these situations; they have a direct impact on TO Malaria's ability to both work with host country systems and support their supply chains. A recent coup in Mali and ongoing prohibitions against working directly with the Government of Madagascar have posed real challenges to commodity distribution. In Madagascar, it prevented the project from responding to the increased threat of malaria after a natural disaster. In Malawi, to continue ongoing national commodity distributions, the ongoing fuel crisis has pushed the project to seek creative solutions for sourcing fuel internationally.

High-value malaria commodities in-country are still at risk for pilferage. The project continues to develop and implement warning systems, both to prevent and identify leakage, as early as possible. For example, in Tanzania, the ACT monitoring activity tracks ACTs to the clinic level to ensure their safe arrival at the periphery of the health system.

Improving Arrival and Processing Goods In-Country

Clearing project-procured commodities through customs remains a challenge in certain countries. In Nigeria, challenges with identifying and contracting with clearing agents has slowed the overall procurement process of the much-needed commodities. In Mozambique, it took 93 days from the day ACTs were available to the time when the green light to ship was received from the country. In Angola, PMI requires that the transfer of custody to the Angolan Ministry of Health of PMI commodities only occur at the provincial level. As such, Angola continues to be one of the more difficult places for freight forwarding. The project continues to obtain exemptions from several Angolan government agencies, which allows consignments to bypass the customs warehouse and be delivered directly to the recipient. With the most recent delivery in November, this process been streamlined and the amount of days required to coordinate this has been significantly reduced.

Budgeting for Quality Programming

Given the current environment of fiscal austerity, TO Malaria is cognizant of the need to allocate resources wisely for maximum impact. That being said, increasingly slim operational budgets hamper the project's efforts to provide quality technical assistance to support nascent and growing in-country supply chains. Capacity building, a key component of successful supply chains, is unduly touched by budget shortfalls, particularly in countries like Burkina Faso, Liberia, and Rwanda. In Rwanda, the project continues to invest a great deal in supporting key supply chain strengthening activities under TO4, such as the recent supply chain human resources (HR) assessment. However, without complementary TO Malaria activities, the project still struggles to gain access to malaria supply chain–related data. Without adequate resources to complement malaria commodity distributions with monitoring and capacity building activities, the project struggles to ensure a reliable, continuous supply of essential commodities to clients. We continue to work with PMI and NMCPs to prioritize interventions and manage expectations about what can be achieved with the available funding levels.

Appendices

Appendix A

Commodities Procured October 1, 2011–March 31, 2012

Country	PO Date	Sub Category	Total Value	Quantity
Angola	1-Nov-11	Coartem	$3,240,000.00	3,600,000
Angola	16-Feb-12	MMKs	$169,384.79	125
Angola	28-Mar-12	RDTs	$603,505.00	862,150
Benin	17-Nov-11	Severe Malaria Pharma	$48,191.60	various
Benin	29-Nov-11	Severe Malaria Pharma	$4,570.00	various
Benin	30-Nov-11	Severe Malaria Pharma	$30,875.40	various
Benin	16-Dec-11	Coartem	$1,279,969.80	1,058,010
Benin	20-Jan-12	ALu Generic	$590,431.20	483,180
Benin	20-Jan-12	Coartem	$630,600.00	54,000
Burkina Faso	28-Oct-11	Severe Malaria Pharma	$422,602.50	various
Burkina Faso	17-Nov-11	RDTs	$333,500.00	575,000
Burkina Faso	22-Nov-11	RDTs	$188,500.00	325,000
Burkina Faso	19-Jan-12	ASAQ FDC	$660,590.00	1,367,500
Burkina Faso	28-Feb-12	Severe Malaria Pharma	$360,750.00	various
Burundi	6-Jan-12	AS/AQ FDC	$187,443.70	542,100
Burundi	28-Feb-12	RDTs	$155,000.00	310,000
Burundi	2-Mar-12	LLINs	$526,845.74	190,817
Burundi	4-Mar-12	LLINs	$936,484.26	339,183
DRC	19-Dec-11	RDTs	$2,380,000.00	3,500,000
DRC	25-Jan-12	ASAQ FDC	$3,571,080.00	7,000,000
Ethiopia	12-Jan-12	Microscopes	$43,875.00	50
Ethiopia	12-Jan-12	Lab Supplies	$8,107.50	various
Ghana	7-Dec-11	MMKs	$136,534.41	70
Ghana	7-Dec-11	Lab Supplies	$166,805.80	various
Ghana	21-Mar-12	RDTs	$1,859,280.00	3,048,000
Kenya	5-Jan-12	RDTs	$49,995.60	81,960

Kenya	19-Jan-12	RDTs	$1,014,527.60	1,663,160
Kenya	25-Jan-12	ALu Generic	$4,071,881.40	2,664,420
Kenya	25-Jan-12	Coartem	$1,674,463.80	2,773,200
Liberia	19-Jan-12	AS/AQ FDC	$278,554.46	561,775
Liberia	30-Jan-12	Severe Malaria Pharma	$85,533.58	various
Liberia	9-Feb-12	AS/AQ FDC	$799,705.30	1,813,750
Madagascar	5-Oct-11	Lab Supplies	$1,302.63	various
Madagascar	28-Oct-11	Lab Supplies	$63,666.60	various
Malawi	28-Oct-11	LLINs	$2,667,168.00	705,600
Malawi	2-Dec-11	ALu Generic	$1,713,098.40	1,492,260
Malawi	2-Dec-11	Coartem	$1,752,471.00	2,523,150
Malawi	25-Jan-12	Coartem	$2,986,926.60	3,676,560
Malawi	31-Jan-12	RDTs	$59,337.50	118,675
Malawi	21-Mar-12	RDTs	$1,424,000.00	2,848,000
Mali	3-Oct-11	Coartem	$774,039.00	850,050
Mali	24-Oct-11	SP Tablets	$42,803.91	1,593,000
Mali	24-Oct-11	RDTs	$365,000.00	600,000
Mali	17-Nov-11	MMKs	$68,047.02	65
Mali	22-Mar-12	RDTs	$241,000.00	400,000
Mali	24-Jan-12	ALu Generic	$1,223,495.70	1,549,980
Mozambique	24-Oct-11	RDTs	$460,000.00	1,000,000
Mozambique	25-Jan-12	Coartem	$4,916,572.80	4,777,200
Nigeria	7-Oct-11	ASAQ FDC	$420,279.78	677,000
Nigeria	7-Oct-11	ALu Generic	$687,351.00	677,100
Nigeria	22-Dec-11	LLINs	$1,010,160.00	315,675
Rwanda	11-Nov-11	Malaria Pharma	$15,792.70	1,000
Rwanda	11-Nov-11	Malaria Pharma	$47,400.00	20,000
Rwanda	19-Dec-11	RDTs	$475,009.50	500,010
Rwanda	1-Mar-12	Lab Supplies	$27,168.00	various
Rwanda	1-Mar-12	Microscopes	$159,120.00	200
Rwanda	12-Mar-12	Severe Malaria Pharma	$71,200.00	40,000
Rwanda	23-Mar-12	LLINs	$2,252,250.00	500,500
Senegal	18-Nov-11	RDTs	$406,000.00	700,000
Senegal	25-Jan-12	Coartem	$42,300.00	60,000
Senegal	25-Jan-12	ASAQ FDC	$167,870.00	295,000
South Sudan	7-Dec-11	RDTs	$77,000.00	140,000
Tanzania	22-Dec-11	Coartem	$1,590,820.80	1,481,820

Tanzania	28-Feb-12	Coartem	$563,695.68	741,870
Tanzania	2-Mar-12	RDTs	$170,000.00	212,500
Uganda	2-Nov-11	RDTs	$1,154,160.00	2,061,000
Uganda	24-Jan-12	Coartem	$394,470.00	441,000
Uganda	8-Mar-12	LLINs	$2,041,000.00	650,000
Zambia	18-Oct-11	Coartem	$1,801,296.00	1,456,200
Zambia	14-Nov-11	LLINs	$2,598,109.00	833,000
Zambia	7-Dec-11	ALu Generic	$537,616.80	640,020
Zambia	16-Dec-11	ALu Generic	$750,000.00	600,000
Zambia	21-Dec-11	RDTs	$340,000.00	1,000,000
Zambia	24-Feb-12	Coartem	$1,910,046.00	1,481,040
Zimbabwe	4-Jan-12	ALu Generic	$516,385.20	501,660
Zimbabwe	21-Feb-12	Coartem	$185,040.00	190,800
Zimbabwe	28-Feb-12	RDTs	$745,524.00	1,433,700
Zimbabwe	27-Mar-12	LLINs	$2,353,550.00	457,000

Appendix B

DFID-Funded Procurement

DFID Funded Procurements FY 2012					
Item Description	**PO#**	**Vendor Name**	**Quantity**	**Total Value**	**Delivery Status**
Artemether/Lumefantrine 20mg/120mg, 6x1 Blister Pack, 30 Treatments	**Zam 1-2012 DFID**	**IPCA LABS**	**45,000**	**$567,000.00**	**Delivered**
			Total	**$567,000.00**	

Appendix C

WHO/FIND Lot Testing Report

LOT test summary from January 26th, 2011 to March 25th, 2012 (Q1 2012):

- 53 RDT lots submitted to both testing laboratories for routine initial testing, including 24 from PMI.
- 89 RDT lots processed at both testing laboratories for routine initial and interval testing, including 38 from PMI.
- 4 "deferred" reports were issued; the primary results showed an absence of a positive line on Pv at 200p/µl; the RDTs were deferred to the other testing laboratory (RITM - Philippines) for confirmatory testing.
- 45 percent of the routine lots (initial testing) tested were directly requested by PMI.
- In total, 43 percent of the lots tested for initial and interval (routine) were directly requested by PMI.

Appendix D

Preselected RDT Manufacturers

Manufacturer	Test Name	Target Antigen	Species	Comments
Access Bio	CareStart	HRP2	Pf	
	CareStart	HRP2/pLDH	Pf	
	CareStart Combo	HRP2/pLDH	Pf/PAN	PAN = All Plasmodium species
	CareStart Combo	HRP2/pLDH	Pf/Pv	
	CareStart Combo	HRP2/pLDH	Pf/VOM	VOM = Vivax, Ovale, Malariae,
Alere-Inverness	Binax Now	HRP2	Pf/PAN	
ICT	Malaria Pf Cassette	HRP2	Pf	
	Malaria Combo Cassette	HRP2/pLDH	Pf/PAN	
Orchid Biomedical	Paracheck Pf Device	HRP2	Pf	
Premier Medical	First Response Mal Ag	HRP2	Pf	
	First Response Mal Ag Combo	HRP2/pLDH	Pf/PAN	

Manufacturer	Test Name	Target Antigen	Species	Comments
	First Response Mal Ag PAN	pLDH	PAN	
Span Diagnostics	ParaHit Dipstick	HRP2	Pf	Dipstick only
Standard Diagnostics	Bioline Malaria Ag	HRP2	Pf	
	Bioline Malaria Ag Pf/PAN	HRP2/pLDH	Pf/PAN	
	Bioline Malaria Ag Pf/Pv	HRP2/pLDH	Pf/Pv	
	Bioline Malaria Ag Pv	pLDH	Pv	

Appendix E

Preselected LLIN Manufacturers

Brand	Manufacturer	Polyester	Polyethylene	Polypropylene	Denier	Pesticide	WHOPES Status
Interceptor®	BASF	√			75 & 100	Alpha-cypermethrin	Interim
Netprotect®	Bestnet		√		115	Deltamethrin	Interim
DuraNet®	Clarke Mosquito Control				145+/-5% (138–152)	Alpha-cypermethrin	Interim
Olyset®	Sumitomo Chemical				150	Permethrin	Full
DawaPlus®2.0	Tana Netting	√			75 &100	Deltamethrin	Interim
Permanet®2.0	Vestergaard Frandsen	√ √			75 & 100	Deltamethrin	Full
LifeNet®	Bayer	√		√	100	Deltamethrin	Interim

Appendix F

Objective 2 PMP Indicators Supplemental Information

Indicator 1

Facility Stockout Rate: the percentage of facilities that experienced a stockout of a product expected to be provided or issued by that site on the day of visit

Country	Quarter	% Stocked out of All ACTs	N	Comments
Ghana	Oct-Dec 2011	10%	41	
	Jan -Mar 2012	3%	37	
Malawi	Oct-Dec 2011			
	Jan -Mar 2012	NA	NA	End Use could not be collected this quarter; End Use will be conducted May, 2012.
Mozambique	Oct-Dec 2011	0%	10	
	Jan -Mar 2012	0%	13	
Tanzania	Oct-Dec 2011	6%	308	
	Jan -Mar 2012	24%	297	
Zambia	Oct-Dec 2011	0%	25	
	Jan -Mar 2012	0%	26	

Note: "Stocked out of all ACTs" indicates an absence of all four AL presentations: AL 6x1, AL 6x2, AL 6x3, and AL 6x4. Data for Ghana are an exception, and reflect an absence of all seven ACTs available in the country: AL 6x1, AL 6x2, AL 6x4, AS AQ 3+3, AS AQ 6+6, AS AQ12+12, and DHP.

This indicator could not be calculated for the following TO7 presence countries, as the requisite data are not reported through an LMIS and/or these countries did not implement the End-Use Verification activity: Burkina Faso, Burundi, Liberia, Madagascar, Nigeria, Rwanda and Zimbabwe.

Indicator 2

Country stockout rate: the percentage of countries experiencing a stockout at the central warehouse(s) at the time of reporting

October-December 2011

Commodity	% stocked out	N	Countries/States stocked out
AL 6x1	**39**	**18**	**Angola, Ghana, Nigeria-Benue, Nigeria-Ebonyi, Nigeria-Cross River, Nigeria-Oyo, Nigeria-Zamfara**
AL 6x2	**32**	**19**	**Angola, Nigeria-Benue, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Zamfara, Zambia**
AL 6x3	**32**	**19**	**Angola, Nigeria-Benue, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Oyo, Nigeria-Zamfara**
AL 6x4	**32**	**19**	**Angola, Ghana, Nigeria-Benue, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Zamfara**
AS/AQ FDC 25/67.5mg	**0**	**6**	
AS/AQ FDC 50/135mg	**0**	**6**	
AS/AQ FDC 100/270mg, 3 tabs	**0**	**6**	
AS/AQ FDC 100/270mg, 6 tabs	**0**	**6**	
SP	**42**	**19**	**Guinea, Nigeria-Benue, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Nassarawa, Nigeria-Zamfara, Uganda**
RDTs	**11**	**9**	**Angola**

Jan – March 2012

Commodity	% stocked out	N	Countries/States stocked out
AL 6x1	**38**	**16**	**Ghana, Nigeria-Bauchi, Nigeria-Ebonyi, Nigeria-Cross River, Nigeria-Oyo, Nigeria-Sokoto**
AL 6x2	**29**	**5**	**Nigeria-Bauchi, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Oyo, Nigeria-Zamfara**
AL 6x3	**25**	**16**	**Mozambique, Nigeria-Bauchi, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Zamfara**
AL 6x4	**31**	**5**	**Nigeria-Bauchi, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Oyo, Nigeria-Zamfara**
AS/AQ FDC 25/67.5mg	**0**	**7**	
AS/AQ FDC 50/135mg	**14**	**7**	**Ghana**

Commodity	% stocked out	N	Countries/States stocked out
AS/AQ FDC 100/270mg, 3 tabs	**29**	**7**	**Burkina Faso, Ghana**
AS/AQ FDC 100/270mg, 6 tabs	**0**	**7**	
SP	**41**	**17**	**Guinea, Nigeria-Benue, Nigeria-Cross River, Nigeria-Ebonyi, Nigeria-Nassarawa, Nigeria-Zamfara, Uganda**
RDTs	**22**	**9**	**Ghana, Guinea**

Indicator 3

Functioning LMIS: Percentage of countries where an LMIS is present that routinely collects and reports stock status data (i.e., stock on hand and consumption data) from all SDPs (service delivery points) in the country

Country	Functioning LMIS	Note
Burkina Faso	Yes	There is a combined Logistics and Statistics data reporting system for malaria activities in Burkina. Stock on hand and consumption data are reported monthly from health facilities and from community health workers. At the district level, the district data manager enters the health facility data into a database designed to report malaria activities, and the data are sent to the central level through the region via Internet. The database has been in use since December 2010 with technical and financial support from the project.
Ghana	Yes	Ghana does eventually get SDP-level data, but it is often 6 months old by the time it is received at the central level and often incomplete.
Liberia	No	The project, in collaboration with the Montserrado County Health Team, facilitated the rollout of the LMIS training within Montserrado County. An output from this activity is to strengthen the supply system, avoid stockouts and ensure that health facilities report for decision making. As a result of Zonal Feedback Meetings to discuss LMIS performance, there has been an improvement in the reporting rate from 70% in June-July 2011 to 77% in October-November 2011. The number of incomplete LMIS forms has reduced from about 50 to less than 20 in the last reporting period.
Madagascar	No	Madagascar has a semi-functioning LMIS. Currently, the project staff in Madagascar do not monitor the public sector system. The LMIS for malaria commodities is run via the NGOs. Reports from NGOs are

Country	Functioning LMIS	Note
		often late or incomplete, so they had to be combined with data collected at the health facilities during field supervision. The project is now trying to implement an outreach strategy to improve the NGOs' data entry. According to the most recent assessment – - 4/4 NGOs sent reports with stock on hand or consumption data - 78/118 health facilities sent data on stock on hand or consumption through reports - 44/44 health facilities provided data on stock on hand or consumption through supervision visits.
Malawi	Yes	Each health facility in the country fills out an LMIS form on a monthly basis and submits to its respective district office. The district office captures data with the Supply Chain Manager Software and sends a compiled monthly LMIS report to the central level (MOH/HTSS office). From the MOH/HTSS office, a copy of each district's compiled monthly LMIS report is shared with the project's field office for analysis and production of summary report for each health program.
Mozambique	No	Mozambique has an LMIS but it does not routinely provide data from all SDPs in the country. There is a paper-based LMIS that includes standard data points such as stock on hand, quantity distributed, quantity requested, etc., and is used by facilities to reorder from the districts monthly. The districts aggregate these orders and order monthly from the provinces. Individual SDP data remains at the district level. Provinces order quarterly from the central level. The percentage of facilities not included in the district aggregations is unknown, as is the percentage of districts not included in the provincial aggregations. An automated system (SIMAM) is being implemented at the provincial level. The system allows for provinces to enter district data (SOH, quantity requisitioned, quantity received) as well as the same data from the provincial level. These data are posted to Drop Boxes visible at the central level. All provinces now use SIMAM when making their quarterly requisitions; however, all provinces do not yet post complete data from the districts.
Nigeria	No	The Malaria Commodities Logistics System has been designed and is in the process of being implemented. Training at the service delivery point level has been done in zero states, but training has been carried out in seven states by the national master trainers (trained by project staff). The total number of states trained since the roll out of the SDP trainings is 14 (out of a total of 37). Bimonthly reporting has commenced in five of these states.
Rwanda	Yes	Rwanda has a functioning LMIS with an average reporting rate of 93.48% for districts and 95.2% for health facilities.

Country	Functioning LMIS	Note
Tanzania	No	Tanzania does not currently have an LMIS that routinely collects and reports stock status data from all SDPs in the country. DELIVER currently has several mechanisms in place to collect stock status data from the SDPs (End Use, ACT monitoring, etc.); however, this is done on an integral basis, does not cover all SDPs, and is funded by the project. Tanzania currently collects stock status data from approximately 315 SDPs per quarter through the End-Use Verification tool and from approximately 104 SDPs through the ILS gateway per month. While the country is collecting SDP level data through the Report and Requisition forms, it generally stops at the zonal level and is only used for product re-supply requests. The country is not currently collecting data from all SDPs through either a national or integrated LMIS. The project also collects monthly stock status data from the MSD central and zonal levels and gathers stock status information on a monthly basis from 104 SDPs.
Zambia	Yes	The newly approved Essential Medicines Logistics Improvement Program (EMLIP) system recommenced rollout in February 2012 with four additional districts having been trained to-date. This brings the number of districts under EMLIP to 20 out of the 82 districts nationwide. Under this demand driven system, facilities collect and report stock data to the LMU on a monthly basis. Data from each facility is entered individually facility and order quantities are determined by an automated system called the Supply Chain Manager (SCMgr) Software. The Medical Stores Limited (MSL) then packs the essential drugs, including antimalarials, for each individual facility. Rollout to the rest of the country is currently one district per month. At this rate, the project – in conjunction with the ministry and partners – plans to implement EMLIP in seven new additional districts by the end of the calendar year 2012.
Zimbabwe	Yes	An automated (AutoDRV) system exists for routine collection of LMIS data from SDPs. A rollout training is in progress. A central LMIS (TOP UP) exists to analyze and report stock status data. The TOP UP upgrade in Navision (NatPharm WMS) is almost complete.

Indicator 6: Percentage of countries receiving field support TA funds reporting on supply chain performance via the End-Use Verification activity

Country	End-Use carried out by the project	Note
Burkina Faso	No	Although a TO3 presence country, Burkina Faso was not considered a PMI focus country during this fiscal year, and the project has not been tasked with implementing the End-Use activity.
Ghana	Yes	Ghana has been carrying out the End-Use activity quarterly since July 2009
Liberia	NA	Although Liberia does receive TO7 field support, and initially rolled out the End-Use activity for two quarters in FY10, responsibility for the End-Use activity in this country was transferred to the SPS project at the conclusion of FY10, as per the FY10 MOP, and it is thus not included in the denominator for this activity.
Madagascar	No	The End-Use activity has been unable to proceed in Madagascar, as per the prohibition on partnering with the host government.
Malawi	Yes	The project assumed responsibility for the End-Use activity in FY2011, and has carried out quarterly data collection since that time.
Mozambique	Yes	The project successfully began the first round of End-Use Verification in Mozambique at the end of September 2011, and as of reporting, has carried out data collection on two occasions.
Nigeria	No	During this quarter, plans for initiation of the activity were put together to take place later in FY2012.
Rwanda	NA	Although Rwanda is a TO7 presence country, responsibility for the End-Use activity was transferred to the SPS project, as per the FY10 MOP, and it is thus not included in the denominator for this indicator.
Tanzania	Yes	Tanzania has been carrying out the End-Use activity quarterly since January 2009. During the reporting period, plans were made for an STTA to support revisions to the activity in Tanzania to bring it in line with new requirements.
Zambia	Yes	Zambia has been carrying out the End-Use activity quarterly since November 2009.
Zimbabwe	No	During the reporting period, plans were made to initiate End-Use Verification during the third quarter of FY2012.

Indicator 9: Functioning Coordination Committee: percentage of countries that have a logistics coordination mechanism in place that includes participation of NMCP and CMS (or their equivalents), with a meeting that takes place at a specifically appointed time (e.g., during a reporting quarter)

Country	Functioning Coordination Committee	Note
Burkina Faso	Yes	In Burkina, there is a coordination body named the "ACT Committee." It is led by the Director General of the Pharmacy Department. The committee meets on monthly basis, and as often as ACT issues arise. ACT and other malaria commodity issues are discussed during the meetings and recommendations are made to address them. Centrale D'Achat des Medicaments Essentiels Generiques et des Consommables Medicaux (CAMEG), NMCP, the Pharmacy department, the project, and other partners involved in malaria activities are members of this committee.
Ghana	No	There is no committee for logistics coordination. There is only a Supply Chain TWG. The project has proposed the establishment of a committee in the current work plan and hopes to achieve this through the Master Plan. The TWG that is currently in place is specifically for the Supply Chain Master Plan development (but will hopefully be institutionalized as a coordination committee once the master plan is finalized and institutionalized). There is a coordination mechanism for logistics, but only for LLINs – and primarily focused on the hang-up campaigns. It does not include other malaria commodities.
Liberia	N/A	
Madagascar	Yes	Yes, there are functioning committees. The Malaria Coordination Committee meets regularly (sometimes monthly and sometimes bi-weekly) to discuss all national malaria-related programming activities. This committee is responsible for coordination of all malaria-related activities and shipments. There is also a Supply & Stock Management Committee that meets bi-weekly and manages all malaria commodities at the national level, and there is a National Coordination Committee for the LLIN campaigns that meets weekly.
Malawi	Yes	The NMCP in Malawi has a TWG with regular meetings between the NMCP and all partners involved in malaria. The USAID | DELIVER project is always invited. This group does not have an official name. The TWG met twice during the past 6 months. Frequent ad hoc meetings are called as needed.

Mozambique	Yes	There is a Malaria Commodities Working Group that was established in May 2011 to conduct a funding gap analysis at the request of Global Fund. The Central Medical Stores developed an operational plan in January 2012 which calls for the re-establishment of this group and its being made a permanent body. It is expected to resume activity in April and report quarterly on pipeline status and potential stock status issues.
Nigeria	Yes	Yes, there is the National Malaria Control Partners Meeting.
Rwanda	Yes	There is a functioning committee – the Malaria and Other Parasites Disease Division facilitates a stakeholder meeting on a quarterly basis in order to review ongoing malaria related programming activities and upcoming shipments.
Tanzania	Yes	Yes, there is a functioning committee. The 'ACT Working Group' meets on a quarterly basis to discuss all areas around malaria programming, procurements, and interventions.
Zambia	Yes	A logistics coordination committee, headed by the Drugs and Logistics Officer from NMCC, is in place. The committee interfaces with NMCP and CMS on a regularly scheduled basis. It coordinates the annual forecast and quantification meetings, as well as the quarterly review meetings. Ad hoc meetings are also called to address matters arising from monthly pipeline monitoring of stock status and/or supply plans.
Zimbabwe	Yes	The MMSCT Technical and Policy Committee meetings are held quarterly.

Indicator 10: Available supply plans: Percentage of countries that have developed supply plans for PMI funded commodities

Country	Available supply plans	Note
Burkina Faso	Yes	In Burkina Faso, a quantification team for malaria commodities completes a quantification every year; the result is a coordinated supply plan that integrates all the partners working with malaria commodities funding/procurement. They develop a one-year supply plan for each malaria commodity. The updated supply plan is always presented and discussed at the ACT committee meeting for validation in presence of all donors involved in malaria commodities funding/procurement.
Ghana	Yes	A supply plan is currently being developed in April 2012 during the malaria quantification.
Liberia	Yes	There is a supply plan in place. It was recently reviewed against the current stock status and updated.
Madagascar	Yes	Madagascar has a supply plan.
Malawi	Yes	Malawi has a supply plan, which was reviewed by stakeholders after the quantification.

Mozambique	Yes	A supply plan is developed during the annual quantification exercise and is updated as additional shipping and stock on hand data becomes available. Though this has primarily been the task of the project, this supply plan monitoring and updating function will become part of the terms of reference of the Malaria Commodities Working Group (see Indicator #7).
Nigeria	N/A	
Rwanda	Yes	Yes, Rwanda has a national malaria supply plan, but the supply plan is not shared with the project.
Tanzania	Yes	Yes, Tanzania has a national malaria supply plan.
Zambia	Yes	Following the 2012-2016 annual forecast and quantification review exercise for malaria commodities undertaken from 15th -16th March 2012, a national supply plan for 2012/2013 was developed. The supply plans are for ACTs, RDTs, SP and LLINs using PMI, DFID, GF and MOH funds. It is important to note that Zambia also conducted the first formalized forecast and quantification for LLINs.
Zimbabwe	Yes	National supply plans that inform all MOHCW and partner (including PMI & GFATM) supported procurements were updated through February 2012.

Indicator 11: Number of technical reports or tools developed to support malaria supply chain performance

Country	Number of technical tools	Note
Burkina Faso	2	1 - The project prepared the October-December 2011 quarter report on the malaria database analysis. The report was shared with the NMCP and recommended actions were proposed to improve malaria supply chain performance. 2- The project assisted the NMCP with updating the malaria database to improve the reporting system for malaria activities and commodities.
Ghana	9	During the reporting period, the country produced 6 monthly updates, 1 Quarterly Report (Oct-Dec), 1 post-campaign validation forms for the LLIN distributions in the Central, Western, and Ashanti regions, and 1 report on the Supply Chain Master Plan progress.
Liberia	2	Zonal LMIS Performance Feedback Reports were shared during the Monteserrado County Stakeholders meeting. Feedback reports from counties' SBRR were shared during the Supply Chain Management data review meeting.
Madagascar	3	3 tools were produced for the LLIN distribution campaign: A census guide, a household census booklet and an sms data sending guide.

Malawi	17	During the reporting period, 6 PSC stock status reports (one per month), 6 monthly updates, 2 quarterly reports for the HO, 2 quarterly reports for the Mission and 1 Essential Health Products Kit report were developed.
Mozambique	4	4 tools or reports were developed in the past six months – the USAID-CMAM Performance Based Financing Design Report; The Drug Management Procedures Manual; The ACT Kitting Standard Operating Procedures; the Round II WHO ACT Estimates
Nigeria	1	An MCLS (excel-based) Data Aggregation Tool was developed.
Rwanda	5	3 tools and 2 narrative reports were prepared and submitted to the malaria division.
Tanzania	4	4 tools were developed: The ILS Gateway, a revised sampling strategy for End-Use Verification, an ACT monitoring activity and Quantimed for quantifications
Zambia	0	
Zimbabwe	0	

Appendix G

Environmental Monitoring and Mitigation Plan (EMMP)

Indicator	
Number of instances when The USAID | DELIVER PROJECT, TO7 has been requested to provide guidelines or training	0
Recipients receive product-specific information documenting disposal requirements	Yes
Percentage of disposed products under project control returned to supplier or dealt with according to WHO guidelines	N/A *There were no disposed products under project control.
Percentage of LLIN shipments with pre-shipment test reports available	100 percent
Percentage of LLINs procured that are registered in accordance with country policies (if required by the country)	100 percent
Recorded instances of assistance provided for development/distribution of BCC materials	0

Appendix H

Performance Monitoring Plan (PMP)

USAID | DELIVER PROJECT Task Order Malaria
Performance Monitoring Plan
Jan-11

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
Objective 1. Improve and expand USAID's provision of malaria commodities to programs (50-60 percent LOE)								
Direct procurement services								
	Monthly procurement scorecard implemented	Monthly scorecard available which includes the following the indicators: Orders available for shipping on time; Orders shipped on time; Orders received on time; Supplier fill rates; Right quantity received; Goods arrived in right condition	Number of scorecards with 80% of the indicators available / number of months	DelPHi, Management reports	Monthly		X	
	Orders shipped on time	Percentage of orders available for shipping within 10 working days of contracted date with the vendors	Number of orders available for shipping within 10 working days of contracted date with the vendor / Total number of orders placed to the vendor	DelPHi	Semi-annual		X	X
	Orders received on time	Percentage of orders received by consignee countries within a month of agreed date with the mission	Number of orders received by consignee countries within a month of agreed date with the mission / Total number of orders	DelPHi	Semi-annual	The CPIR has been received and the money is available for the order	X	X

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
			placed by consignee countries					
	Suppliers deliver ordered commodities to satisfy contractual requirements	Supplier fill rate (contracted quantity on time) (by products)	Number of on-time delivery of the agreed upon quantity / Total number of orders placed	DelPHi	Semi-annual	Full quantity means agreed upon quantity with mission at the time of order placement		X
	Respond to emergency orders as per PMI/USAID requests	Percentage of emergency orders responded to during the previous 6 months	Number of emergency orders for which a purchase order was placed / number of emergency orders	DelPHi	Semi-annual	The PMI/USAID team must formally acknowledge a request as an "emergency, " which signifiies initiation of the request	X	
Management information system								
	Availability of functioning MIS to USAID PMI staff	Percentage of time the USAID | DELIVER PROJECT website is available	Amount of time the USAID | DELIVER PROJECT website was available/Total amount of service hours	Performance Metrics Report	Monthly	For service hours see Service Level Agreement	X	
	Total number of visits	Total number of visits to the USAID | DELIVER PROJECT website	N/A	Performance Metrics Report	Monthly		X	X

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
	Number of logins	Total number of logins for the Oracle Portal	N/A	Performance Metrics Report	Monthly	Logins include MMIS and SDG websites.	X	
Quality assurance and quality control								
	Quality assurance and quality control procedures established and implemented	Percentage of LN shipments with pre-shipment test reports available	Number of LN shipments with pre-shipment test report available / Number of LN shipments for which a pre-shipment test report should be available	QA/QC Report Cards, inspection reports, certificates of conformation	Semi-annual		X	
		Median time (in days) and range required for pre-shipment LN tests reports	N/A				X	X
		Percentage of RDT shipments with up-to-date post-shipment test reports available	Number of RDT shipments with up to date post-shipment test reports available / Number of RDT shipments	QA/QC Report Cards, RDT post-shipment test report, certificates of conformation	Semi-annual	Based on SOPs	X	
		Median time (in days) and range required for up to date post-shipment RDT test reports	N/A		Semi-annual		X	X

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
		Percentage of pharmaceutical shipments with pre-shipment certificates of conformance	Number of pharmaceutical shipments with pre-shipment certificates of onformance / Number of pharmaceutical shipments	QA/QC Report Cards, certificates of conformation	Semi-annual		X	X
		Median time (in days) and range required for pre-shipment pharmaceutical test reports	N/A		Semi-annual		X	X
Objective 2: Strengthen in-country supply systems and capacity for management of malaria commodities (30-40 percent LOE)								
	Monitoring of in-country supply chain performance	Facility stockout rate: by product, the percentage of facilities that experienced a stockout on the day of the visit/report	In TO3 presence countries, number of facilities experiencing a stockout of a given product on the date of visit or at the time of reporting / In TO3 presence countries, the total number of facilities reporting via LMIS, or End-Use reports	LMIS, End-Use Verification reports	Semi-annual			X

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
		Country stockout rate: by product, the percentage of countries experiencing a stockout at the central warehouse(s) at the time of reporting	In TO3 presence countries, number of countries experiencing a stockout of a given product at the central warehouse(s) at time of reporting / In TO3 presence countries, the total number of facilities reporting data for the PPMRm	PPMRm	Semi-annual			X
		Functioning LMIS: Proportion of project-presence countries with an LMIS that routinely reports stock status from SDP level	In TO3 presence countries, number of countries with a functioning LMIS / Total number of TO3 presence countries	Country reports	Semi-annual			X
	Respond to STTA needs as per mission requests	Percentage of STTA trips per Mission's or PMI | Washington ad hoc request conducted on time (within 14 days of the requested date)	Number of ad hoc STTA requests filled within 14 days of requested date/ Total number of ad hoc STTA requests	Program documents	Semi-annual	Ad hoc is outside of workplan	X	
	In-country supply chain data management system developed or improved	Quantity of malaria commodities (LNs, SP tablets, ACT treatments, RDTs) distributed in country using funds obligated to USAID |	N/A	Management reports, Delphi3, LMIS, program	Semi-annual		X	

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
		DELIVER PROJECT		records/reports				
		Percentage of countries receiving field support TA funds reporting on supply chain performance via the End-Use Verification Activity	Number of TO3 presence countries participating in the end-use monitoring activities / TO3 presence countries that have been tasked with leading the End-Use activity	End use verification reports	Semi-annual	Countries where the project is leading PMI's end use monitoring	X	X
		Number of individuals trained on the supply chain management of malaria commodities	N/A	Activity reports	Semi-annual	Anyone who was trained other than USAID | DELIVER PROJECT staff	X	
		Percentage of countries with field support TA funds reporting central level stock levels of select malaria products in quarterly stock monitoring reports	Number of TO3 presence countries providing data for the PPMRm/Number of TO3 presence countries	Quarterly stock monitoring report	Semi-annual	Countries where the project is leading PMI's PPMRm reporting	X	

	Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
		Functioning Coordination Committee: Percentage of countries that have a logistics coordination mechanism in place that includes participation of NMCP and CMS (or their equivalents), with a meeting that takes place at a specifically appointed time (e.g. during a reporting quarter)	Number of TO3 presence countries with a functioning malaria logistics coordination committee / TO3 presence countries	Quarterly country reports	Semi-annual		X	X
		Available supply plans: Percentage of countries that have developed supply plans for PMI funded commodities	Number of TO3 presence countries that have developed supply plans for PMI-funded commodities / TO3 presence countries	Quarterly country reports	Semi-annual		X	X
		Number of technical reports or tools developed to support malaria supply chain performance	N/A	Program reports	Semi-annual		X	
Objective 3: Improve global supply and availability of malaria commodities (5-7 percent LOE)								

		Outcome	Indicators	Numerator / Denominator	Source	Frequency	Comments	Measures project performance	Measures factors beyond project control
		Support global and regional stakeholders/forums of SCM technical issues	Number of global, regional and country level malaria initiatives with DELIVER technical contributions	N/A	Program reports	Semi-annual		X	

Appendix I

Deliverables Status for FY2012

TO7 FY12 Workplan

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
Objective 1: Improve, implement and expand USAID's provision of malaria and related commodities to programs worldwide, contributing to a reduction in disease burden.																
Total Project Management to Support Objective 1																
Timely, transparent, cost-effective procurement of quality malaria products																
	Review and Refine Procurement Systems and Procedures							**Procurement scorecard**	X		X			X	Alex	Included in annual and semi-annual reports
	Maintain List of Pre-Selected Vendors							**Updated list of pre-approved vendors for malaria commodities**							Paul	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Order Plans							**Order Plans**							Alex	
	Develop a Combined 12-month PMI Rolling ACT supply plan							**12-Month Supply Plan**							Laila	
	Send Bi-Weekly Procurement Status Update to Each PMI Country							**TOM Current Actions Table**							Alex	
Efficient and secure delivery of procured commodities																
	Freight Forwarding							**Freight reasonablenes s study**					X		Eduardo	
	Review and Update Project Risk Management Measures							**Updated Guidance/Too ls/Insurance**		X		X		X	Chris / Allen	
Procurement Excellence for Artemisinin-Based Combined Therapy medicines (ACTs)																

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Analysis to determine the project's value for money in terms of procurement services							**Procurement Strategy Report**				X			PATH / Kate	
	Developing and maintaining an ACT stockpile							**Stock available**							Paul	
Provision of high quality, safe and effective malaria products																
	Quality Assurance/US AID PMI Policy Meetings							**Meeting notes**			X		X		Steve	
	Quality Assurance Oversight							**QA Report Card**			X		X		Steve	
	Quality Assurance Testing															
	Internal Process and Product Quality Improvement Activities															
	Supplier Audits							**Audit Reports**			X			X	Steve	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Wholesaler Audits							**Audit Reports**		X					Steve	
	FIND RDT-Lot Testing							**RDT LOT Testing reports**	X					X	FIND	
Management Information System (MIS)								**MIS Maintenance status report showing completed and in-progress projects as directed by the Change Control Board**	X	X	X	X	X	X	Larry	
								MIS Performance Metrics Report	X	X	X	X	X	X	Larry	

Objective 2: Strengthen in-country supply systems and capacity for effective management of malaria commodities, to the lowest levels of the health system, including beneficiaries, contributing to the gradual development of sustainable malaria commodities and, ultimately, a more robust health system.

Total Project Management to Support Objective 2

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Provision of support to country programs for technical assistance							**Improved responsiveness of country programs to PMI requirements**							Various	
Improve system performance ensuring that malaria products are available when and to where they are needed																
	Pilot innovative approaches to malaria product distribution and data management at the community level in collaboration with TO4							**Paper on community level logistics best practices**				X			Naomi	
	Options for addressing short term supply shortages							**Technical Guidance Document**			X				Michelle / Naomi / Laila	
	Provide support to develop/analyze/review in-country supply plans							**STTA on supply planning**							Naomi	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Develop and Disseminate an Inventory of Supply Chain Augmentation Options							**Document on supply chain augmentation options**			X				Chris / Kate	
	Regional Meeting							**Regional Meeting in Africa**							Johnnie	Planning in progress
	Support the Junior Officer Course on Supply Chain Management							**2 JO courses conducted jointly with TO4**	X		X				Mike / Michelle	Materials were submitted for first JO course.
Improve visibility at all levels of the supply chain from central down to the facility and community health worker levels																
	Identifying LMIS Bottlenecks and Monitoring Progress to Address Them							**Development of LMIS tool and finalized report on each country's LMIS**							Naomi / Michelle / Loren	
	End-Use Verification Tool							**Quarterly End-Use Reports**	X	X	X	X	X	X	Mike / Loren	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	PPMRm							**Quarterly PPMRm reports**	X	X	X	X	X	X	Michelle	
								Re-designed PPMRm report	X						Michelle	Completed
	Support PMI's Impact Evaluation															
	a. Provide facility-level data analysis through the End Use Verification Activity							**Quarterly Data Analysis**	X	X	X	X	X	X	Mike / Loren / Michelle	
	b. Provide analysis of central level commodity availability through the use of PPMRm data							**Quarterly Data Analysis**	X	X	X	X	X	X	Loren / Michelle	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	c. Investigate possible connections between mortality, malaria case management indicators, and ACT commodity availability in Malawi							**A longitudinal analysis of linkages between child mortality and stockout rates of ACTs**		X					Loren	Completed
	d. Support country offices in the analysis and interpretation of locally generated data							**Provide routine support to country offices to analyze data**							Loren	
Strengthen the accountability of in-country supply chains that manage malaria products																
	Develop indicators and guidance on measuring leakage							**Development of a leakage tool**			X				Kate	
Bridge the gap between NMCPs and supply chain operators to improve core supply chain functions																

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	Document best practices in bringing NMCPs and other supply chain partners together to strengthen the supply chain							**Document on recommendations for bridging the gap between CMS' and programs**		X		X		X	Naomi	
Objective 3: Improve global supply and long-term availability of malaria commodities																
								Total Project Management to Support Objective 3								
Strengthen international collaboration																
	Participation in International Malaria Control Forums							**Meeting presentations and reports**							Various	
	Support WHO to develop an ACT nerve center															

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	a. Develop metrics with WHO and the Clinton HIV/AIDS Initiative (CHAI) to categorize countries based on their supply situation							**Final metrics for identifying countries at risk of under or over stock**	X	X	X	X	X	X	Lisa	Ongoing
	b. Facilitate the collection and reporting of country level data in PMI-presence countries							**Country templates completed and submitted quarterly**	X	X	X	X	X	X	STA	
	c. Review all country forms to identify missing data and data quality issues							**Feedback reports for countries**	X	X	X	X	X	X	Laila	
	d. Analyze country data and apply the metrics to the data							**Countries are prioritized**	X	X	X	X	X	X	Laila	

Objective/Activity		FY 2012						Deliverable (Output of activity)	Q1	Q2	Q3	Q4	Q5	Q6	Person Responsible	Comments
		Q1	Q2	Q3	Q4	Q5	Q6									
		10/1/11 - 12/31/11	1/1/12 - 3/30/12	4/1/12 - 6/30/12	7/1/12 - 9/30/12	10/1/12 - 12/31/12	1/1/13 - 3/31/13									
	e. Develop a database to help manage the data							**Database developed**	X	X	X	X	X	X	Ashraf	
	f. Provide additional data entry support, as needed							**Database populated**	X	X	X	X	X	X	Lisa	
Conduct analysis of demand, supply and pricing issues impacting the global market for malaria products																
	Produce Briefing Papers Semi-Annually							**Two briefing papers**		X		X		X	Chris / Allen	Allen is working on first briefing paper; it's behind schedule.
Objective 4																
	Other							**Workplan for FY12, Annual Report FY11, Semi-Annual Report FY12, Annual Report FY12**	X	X		X		X	Lisa	FY12 workplan, FY11 annual report completed

Appendix J

TO7-Funded Short-Term Technical Assistance, October 1, 2011–March 31, 2012

Name	Destination	Travel Date
Amenyah, Johnnie	Tanzania	10/01/11–10/14/11
Warren, Chris	SE Asia	10/07/11–11/07/11
Alt, David	Washington, DC	10/24/11–11/02/11
Hauslohner, Peter	Washington, DC	10/24/11–11/06/11
Pehe, Norbert	Washington, DC	10/24/11–11/02/11
Proper, Walter	Washington, DC	10/24/11–11/02/11
Lubinski, David	Zambia	11/12/11–11/20/11
Warren, Chris	Angola	11/13/11–12/09/11
Rosche, Sadio	Mozambique	11/07/11–01/02/12
Ferguson, Allen	Benin	11/22/11–12/06/11
Chovitz, Barry	pre-shipment	12/01/11–12/31/11
Howard, Shanon	R&R	12/01/11–12/15/11
Chovitz, Elina	R&R	12/01/11–12/15/11
Martins, Helder	Ghana	12/05/11–12/16/11
Hare, Lisa	Kenya	12/11/11–12/17/11
Edah, Parfait	Kenya	12/12/11–12/17/11
Waweru, Jayne	R&R	12/14/11–01/09/12
Dia, Ousmane	R&R	12/28/11–01/13/12
Fabre, Bernard	Home Leave	01/14/12–02/04/12
Lubinski, David	Zambia	01/21/12–01/31/12
Martins, Helder	Mozambique	01/30/12–02/10/12
Ross, Joseph	Mozambique	01/30/12–02/10/12
Warren, Chris	Zimbabwe	02/06/12–02/12/12

Name	Destination	Travel Date
Hare, Lisa	Geneva, Switzerland	02/07/12–02/11/12
Akhlaghi, Laila	Geneva, Switzerland	02/07/12–02/11/12
Kabuya, Willy	South Africa	02/07/12–02/21/12
Olivi, Elena	Burundi	02/16/12–02/25/12
Clark, Annie	South Africa	02/17/12–02/27/12
Warren, Chris	SE Asia	03/05/12–03/24/12
Lubinski, David	Zambia	03/25/12–03/30/12

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