



USAID | DELIVER PROJECT

Task Orders 3 and 7 (Malaria):

FY2013 Annual Report

October 2012–September 2013



NOVEMBER 2013

This publication was produced for review by the U.S. Agency for International Development. It was prepared by the USAID | DELIVER PROJECT, Task Order 7.



USAID
FROM THE AMERICAN PEOPLE

PRESIDENT'S MALARIA INITIATIVE



Task Orders 3 and 7 (Malaria):

FY2013 Annual Report

October 2012–September 2013

USAID | DELIVER PROJECT, Task Orders 3 and 7

This document was prepared by staff of the USAID | DELIVER PROJECT, Task Order 7, which is funded by the U.S. Agency for International Development (USAID) under contract number GPO-I-00-06-0007-00, order number AID-OAA-TO-11-00012, beginning on March 28, 2011. Task Order 7 is implemented by John Snow, Inc., in collaboration with 3i Infotech, Inc.; Crown Agents USA, Inc.; FHI 360; Foundation for Innovative New Diagnostics; Logenix International, LLC; The Manoff Group, Inc.; MEBS Global Reach, LC; PATH; PHD International (a division of the RTT Group); Population Services International; Social Sectors Development Strategies, Inc.; UPS Supply Chain Solutions, Inc.; and VillageReach. Task Order 7 supports USAID's goal of reducing the malaria burden in sub-Saharan Africa by procuring and delivering safe, effective, and high-quality malaria commodities; by providing technical assistance and on-the-ground logistics expertise to strengthen in-country supply systems and build capacity for managing commodities; and by improving the global supply and long-term availability of malaria commodities.

Recommended Citation

USAID | DELIVER PROJECT, Task Order 7. 2013. *Task Orders 3 and 7 (Malaria): FY2013 Annual Report, October 2012–September 2013*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 7.

Abstract

This annual report documents the activities of Task Orders 3 and 7 (Malaria) during FY2013 (October 1, 2012–September 30, 2013). Key sections highlight the major activities under each objective—the accomplishments, 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 photo credit: USAID | DELIVER PROJECT.

USAID | DELIVER PROJECT

John Snow, Inc.
1616 Fort Myer Drive, 16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: askdeliver@jsi.com
Internet: deliver.jsi.com

Contents

- Acronyms..... vii
- Executive Summary xi
 - Objective 1: Improve, Implement, and Expand USAID’s Provision of Malaria and Related Commodities to Programs Worldwide..... xi
 - Objective 2: Strengthen In-Country Supply Systems and Capacity for Effective Management of Malaria Commodities xiii
 - Objective 3: Improve the Global Supply of Malaria Commoditiesxix
- Objective 1: Improve, Implement, and Expand USAID’s Provision of Malaria and Related Commodities to Programs Worldwide 1
 - Timely, Transparent, Cost-Effective Procurement of Quality Malaria Products..... 1
 - Efficient and Secure Delivery of Procured Commodities 7
 - Quality Assurance..... 8
 - Management Information Systems..... 10
 - Close Out of Task Order 3 13
- Objective 2: Strengthen In-Country Supply Systems and Capacity for Effective Management of Malaria Commodities 15
 - Strategic Leadership Summit..... 15
 - Improve System Performance Ensuring That Malaria Products Are Available When and Where They Are Needed 16
 - Improve Visibility at All Levels of the Supply Chain from Central Down to the Facility and Community Health Worker Levels..... 24
 - Strengthen the Accountability of In-Country Supply Chains That Manage Malaria Products..... 33
 - Bridge the Gap between NMCPs and Supply Chain Operators to Improve Core Supply Chain Functions..... 36
 - After Systems Meet Performance Levels, Build Local Capacity to Sustain System Performance 38
- Objective 3: Improve the Global Supply of Malaria Commodities 47
 - Strengthen International Collaboration..... 47
 - Conduct Analysis of Demand, Supply, and Pricing Issues Affecting the Global Market for Malaria Products..... 47
- Performance Monitoring..... 49
- Implementation Challenges and Solutions 51
 - Long Lead Times for LLINs..... 51
 - Managing Expectations around Lead Times..... 51
 - Customs Clearance Challenges..... 51
 - In-Country Registration 52

| | |
|--|-----|
| ACT Production Problems..... | 53 |
| Recruitment of Country Directors in Field Offices | 53 |
| In-country Storage Concerns | 53 |
| Data Quality and Availability..... | 54 |
| Governance Challenges to In-Country Activities..... | 54 |
| RDMA Technical Assistance | 54 |
| Managing Augmented Supply Chains..... | 54 |
| References..... | 57 |
| Appendices | |
| A. Commodities Procured October 1, 2012–September 30, 2013 | 59 |
| B. DFID-Funded Procurement..... | 85 |
| C. Preselected RDT Manufacturers | 89 |
| D. Preselected LLIN Manufacturers..... | 91 |
| E. WHO-Prequalified Manufacturers of ACTs..... | 93 |
| F. Objective 2 PMP Indicators Supplemental Information | 95 |
| G. Environmental Monitoring and Mitigation Plan (EMMP)..... | 109 |
| H. Performance Monitoring Plan (PMP)..... | 115 |
| I. TO7-Funded Short-Term Technical Assistance, October 1, 2012–September 30, 2013 | 117 |
| J. EUV Summary Table..... | 119 |
| K. EUV Commodities Collected by Country..... | 121 |
| Figures | |
| 1. Total Value of Commodities Procured, by Type, FY2013..... | 2 |
| 2. Comparison of Commodities Procured by Value, FY2012–FY2013..... | 3 |
| 3. Total Commodities Procured, 2007–2013 | 3 |
| 4. Reasons for Late Delivery of Commodities | 6 |
| 5. Log-Ons to the USAID DELIVER PROJECT Website | 11 |
| 6. My Commodities Visits..... | 11 |
| 7. USAID DELIVER PROJECT Website Availability | 12 |
| 8. Percentage of Facilities Stocked Out of All Artemether-Lumefantrine AL..... | 20 |
| 9. Total Number of Countries and Nigerian States Reporting Stockouts of AL Products..... | 26 |
| 10. Total Number of Countries Reporting Stockouts of AS/AQ at the Central Level (source: PPMRm)..... | 27 |
| 11. Total Number of Countries/Nigerian States with More Than Three Months of AL at the Central Level (source: PPMRm)..... | 28 |
| 12. Total Number of Countries with More Than Three Months of FDC AS/AQ at the Central Level (source: PPMRm)..... | 28 |
| 13. Completion Rate for 15 Districts..... | 29 |
| 14. Completion Rate for All Districts | 29 |
| 15. Percentage of Districts Reporting Malaria Product Consumption, by Month..... | 30 |

Tables

| | |
|--|----|
| 1. PMP for the Procurement Process, October 1, 2012–September 30, 2013 | 6 |
| 2. Savings from Bidding Out Shipments to Vendors | 7 |
| 3. PMP for the Quality Assurance Process, October 1, 2012–September 30, 2013 | 9 |
| 4. PMP Indicators for the MIS, October 1, 2010–September 30, 2011 | 13 |
| 5. PMP Indicators for Objective 2, October 1, 2012–September 30, 2013 | 40 |

Acronyms

| | |
|---------|--|
| ACT | artemisinin-based combination therapy |
| AIDS | acquired immune deficiency syndrome |
| AL | artemether-lumefantrine |
| ALu | generic artemether-lumefantrine |
| ALMA | African Leaders Malaria Alliance |
| APE | community health worker |
| ART | antiretroviral therapy |
| AS/AQ | artesunate/amodiaquine |
| AutoDRV | Automated Delivery/Receipt Voucher |
| BCC | behavior change communication |
| CAMEG | <i>Centrale d'Achat des Médicaments Essentiels Génériques et des Consommables Médicaux</i> |
| CCB | Change Control Board |
| CNC | National Coordination Committee |
| CMAM | <i>Central de Medicamentos e Artigos Médicos</i> |
| CMM | Capability Maturity Model |
| CMS | Central Medical Store |
| CPIR | commodity procurement information request |
| DDIC | direct delivery and information capture |
| DFID | Department for International Development |
| DHO | District Health Office |
| DRC | Democratic Republic of Congo |
| EDI | electronic data interface |
| eLMIS | electronic logistics management information system |
| EMLIP | Essential Medicines Logistics Improvement Program |
| EMMP | Environmental Mitigation and Monitoring Plan |
| ERP | Enterprise Resource Planning |
| EUV | End-Use verification |
| EWS | Early Warning System |
| FBO | faith-based organization |
| FCT | Federal Capital Territory |
| FDA | U.S. Food and Drug Authority |

| | |
|-------|---|
| FDC | fixed-dose combination |
| FIND | Foundation for Innovative Diagnostics |
| FY | fiscal year |
| GAS | National Committee of Acquisition, Supply and Stock Management (<i>Gestion de l'Acquisition de Stock</i>) |
| GFATM | Global Fund to Fight HIV and AIDS, Tuberculosis and Malaria |
| GHS | Ghana Health Service |
| GMP | good manufacturing practice |
| HIV | human immunodeficiency virus |
| HNI | Health Network International |
| HTSS | Health and Technical Support Services |
| IDIQ | Indefinite Delivery Indefinite Quantity contract |
| IEE | Initial Environmental Examination |
| ILS | integrated logistics system |
| IQC | Indefinite Quantity Contract |
| IPTp | intermittent preventive treatment in pregnancy |
| JSI | John Snow, Inc. |
| KHI | Kigali Health Institute |
| KPI | key performance indicator |
| LGA | local government area |
| LLIN | long-lasting insecticide-treated bed net |
| LMIS | logistics management information system |
| LMO | Logistics Management Office |
| LMU | logistics management unit |
| LTTA | long-term technical assistance |
| MCLS | Malaria Commodity Logistics System |
| MIS | management information system |
| MISAU | Ministry of Health (Mozambique) |
| MMSCT | Medicines and Medical Supplies Coordination Team |
| MOH | Ministry of Health |
| MOHCC | Ministry of Health and Child Care |
| MOHSW | Ministry of Health and Social Welfare |
| MOP | Malaria Operational Plan |
| MSD | medical stores department |
| MSL | Medical Stores Limited |

| | |
|--------|---|
| NDS | National Drug Service |
| NGO | nongovernmental organization |
| NMCC | National Malaria Control Center |
| NMCP | National Malaria Control Program |
| OAA | Office of Acquisition and Assistance |
| PMI | President's Malaria Initiative |
| PMP | Performance Monitoring Plan |
| PMPB | Pharmacy Medicines and Poison Board |
| PPMRm | Procurement Planning and Monitoring Report for malaria |
| PSC | parallel supply chain |
| PSM WG | Procurement and Supply Chain Management Working Group |
| QA | quality assurance |
| QASP | Quality Assurance and Surveillance Plan |
| RBM | Roll Back Malaria (project) |
| RDMA | Regional Development Mission Asia |
| RDT | rapid diagnostic test |
| RFP | Request for Proposal |
| RFQ | Request for Quote |
| SDLC | Software Development Life Cycle |
| SDP | service delivery point |
| SCMgr | Supply Chain Manager |
| SCMP | Supply Chain Master Plan |
| SCMS | Supply Chain Management System (project) |
| SCMU | Supply Chain Management Unit |
| SIAPS | Systems for Improved Access to Pharmaceuticals and Services |
| SIMAM | (MOH logistics management information system) |
| SLA | service-level agreement |
| SMS | short message service (text messaging) |
| SOP | standard operating procedure |
| SP | sulphadoxine-pyrimethamine |
| SRA | stringent regulatory authority |
| STTA | short-term technical assistance |
| TA | technical assistance |
| TB | tuberculosis |
| TO | task order |

| | |
|--------|---|
| TOM | Task Order Malaria |
| TOT | training-of-trainers |
| TWG | technical working group |
| UNICEF | United Nations Children’s Fund |
| USAID | United States Agency for International Development |
| USG | United States Government |
| WHO | World Health Organization |
| WHOPES | World Health Organization Pesticide Evaluation Scheme |
| ZILS | Zanzibar Integrated Logistics System |
| ZIP | Zimbabwe Informed Push |

Executive Summary

This annual report covers the period from October 1, 2012 to September 30, 2013; it describes the activities of Task Order 7 (TO7), called Task Order Malaria (TO Malaria), under the USAID | DELIVER PROJECT Indefinite Quantity Contract (IQC) 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; the PMI is a joint initiative led by the U.S. Agency for International Development (USAID) and the Centers for Disease Control and Prevention. TO Malaria has a long-term presence in 12 of the PMI-focus countries, the Mekong region, and two USAID malaria countries. These are Ghana, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Regional Development Mission Asia (RDMA), Rwanda, Tanzania, Zambia, and Zimbabwe. John Snow, Inc., has additional offices in non-PMI focus countries: Burkina Faso, Burundi, and South Sudan.

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.; Imperial Health Science (IHS, formerly called RTT); UPS Supply Chain Solutions; Logenix International, LLC; MEBS Global Reach, LLC; FHI 360; The Manoff Group, Inc.; 3i Infotech; Foundation for Innovative New Diagnostics (FIND); Social Sectors Development Strategies, Inc. (SSDS); VillageReach; and PSI.

Task Order 3 successfully closed out on October 5, 2012. The Task Order 3 contract was awarded on April 6, 2007 and was implemented for 5.5 years. The contract ceiling was \$418,962,628, with total obligations matching the ceiling amount. Total contract expenditures (both technical assistance and commodity) were \$418,942,941, leaving an accrued balance remaining on the task order of \$19,688.

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

Procurement

A principal activity of Task Order 7 (TO7) is to support the 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 FY2013, we processed requests for procurement assistance from 26 countries: Angola, Benin, Burkina Faso, Burma, Burundi, Cambodia, the Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Guinea, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe. During FY2013, we received 231 procurement requests

from these countries. A total of 372 orders were placed with vendors, for a total value of U.S.\$185.100 million (commodity cost only). The value of the products procured during this period was 23 percent higher than in FY2012.

Major items procured include—

- 34.5 million long-lasting insecticide-treated bed nets (LLINs)
- 54.5 million artemisinin-based combination therapy (ACT) treatments—39.6 million treatments of artemether-lumefantrine (AL), 2.5 million treatments of generic ALu, and 12.4 million treatments of fixed-dose combination artesunate/amodiaquine (FDC AS/AQ)
- 55.8 million rapid diagnostic tests (RDTs)
- 39.1 million sulphadoxine-pyrimethamine (SP) tablets for intermittent preventive treatment in pregnancy (IPTp)
- 1.25 million vials of artesunate injection and 2 million quinine tablets for treatment of severe malaria
- 265 microscopes and laboratory kits for malaria.

Only vendors and manufacturers that pass internal requirements (good manufacturing practices [GMP], product stability data, previous supply record, etc.) and/or are included on the PMI preselected list, are invited to bid or quote. (This does not apply to ACTs that have been approved through stringent regulatory authorities or approved through the World Health Organization [WHO] Prequalification Program.)

Challenges and Innovations

RDTs purchased on a sole source basis are more costly than competed procurements. In response, the project has adopted a procurement strategy of executing Indefinite Delivery Indefinite Quantity (IDIQ) contracts with pre-qualified manufacturers of RDTs. These agreements set ceiling prices for specific RDTs (established through a competitive request for proposal [RFP] process), which the supplier may not exceed for both competed and sole source orders. It is anticipated that these prices will reduce the cost for RDTs by 26 percent from the 2012 prices.

The high demand for ACTs, including Coartem® (AL), and Winthrop® FDC AS/AQ, and a number of *emergency* requirements contribute to increased lead times. In response, TO7 manages its own inventory of Coartem and Winthrop FDC AS/AQ at the UPS Roermond warehouse in the Netherlands to enable it to respond quickly to countries' emergency orders, obtain better pricing, and mitigate supplier production risk.

In addition to ACTs, the demand for LLINs has grown substantially in FY2013. In response to this heightened demand, TO7 has adopted the strategic approach of asking countries to provide future LLIN needs for a 12-month period.

Efficient and Secure Delivery of Procured Commodities

From October 2012 to September 2013, the task order successfully forwarded commodities to support malaria programs in 26 countries. Countries shipped to include Angola, Benin, Burkina Faso, Burma, Burundi, Cambodia, DRC, Ethiopia, Ghana, Guinea, Kenya, Laos, Liberia,

Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe.

The freight team coordinated the in-country distribution of LLINs to all health zones in Benin, ACTs and LLINs in Nigeria, ACTs in DRC, and ACTs and RDTs in Angola. The freight team also coordinated warehousing for LLINs in Guinea.

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

The project, through the quality assurance team, consistently works to ensure that high-quality, safe, and effective malaria products are provided. During the reporting period, the quality assurance team managed pre-shipment inspection and testing for 56 LLIN orders, and 46 orders of RDTs. TO7 contracted with the Foundation for Innovative New Diagnostics (FIND) to support all lot testing of RDTs through the WHO laboratories. FHI 360 reviewed the manufacturer's Certificates of Analysis for all batches of Coartem that were procured by the project (443 batches over 74 orders). They subjected batches to analysis using near-infrared technology to further ensure the delivery of good quality products. FHI 360 managed sampling, inspection, and testing of all generic artemether-lumefantrine (AL) from IPCA Laboratories. A total of 133 batches, divided over five orders, were tested. FHI 360 reviewed Certificates of Analysis for every batch of AS/AQ procured from Sanofi-Aventis, and also subjected these batches to near-infrared technology analysis before releasing the orders for shipment. One-hundred ten batches were tested, for 34 orders.

Management Information Systems

The management information system (MIS) supports commodity procurement, ordering, reporting, financial accounts, deliveries, and management; and provides commodity-specific information. The MIS team supported the ongoing operations of Task Order 7 in FY2013 through continual MIS availability. Day-to-day operations are supported by recording and providing for management review commodity needs by country and recipient program, shipment requests by country and recipient program, financial accounts by country and funding source, and the status of shipments.

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 reach the PMI's goals.

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

Core-funded activities

- *Pilot innovative approaches to malaria product distribution and data management at the community level, in collaboration with TO4.* This activity provided local and global insights related to process strengthening and logistics management information system (LMIS) interventions at the community-health level of a public health supply chain. Most important, this activity tested an innovative LMIS approach using mobile scanning and submission, capturing a near real-time perspective of community-level consumption and stock status for the first time in Mozambique.

- *Managing LLIN packaging—procurement considerations.* Included in this document is procurement guidance for donors, programs, and the malaria prevention community; with additional details regarding the necessary considerations and potential ramifications to malaria prevention activities for each of the potential packaging options.
- *Malaria in pregnancy—matrix of SP commodity availability.* The project provided a matrix of currently available SP commodity availability data and knowledge, covering PMI-supported countries and answering fundamental questions on available information and country policies and status.
- *Seasonality and calculating resupply—country applications.* Through collaboration with a senior academic researcher, the team identified an approach for enhancing the simple average monthly consumption (AMC) rule—which is currently utilized to determine resupply quantities in many countries—to handle seasonal commodities, while maintaining some of its simplicity to continue meeting the needs of the developing country settings where it would be used. The approach operationally involves multiplying the AMC by indices that compensate for seasonality—referred to as *Look-ahead Seasonality Indices (LSI)*—before multiplying by the maximum stock level. This was applied in three country case studies. In all cases, the simple AMC rule was outperformed for addressing seasonality, compared to the LSI approach.

Country Highlights

Benin

The project provided short-term technical assistance (STTA) to facilitate the distribution of 510,000 LLINs to all provincial Ministry of Health (MOH) departments, health zones, and health facilities across Benin.

Ghana

In Ghana, the project has supported LLIN distributions in the Greater Accra region, Eastern region, Volta region, and Central regions. Over 2.4 million LLINs were distributed, which achieved the National Malaria Control Program's (NMCP's) objective of universal coverage and ownership of LLINs in homes through door-to-door distribution and hang-up campaigns. The project supported the NMCP as they completed the collection and disposal of 12 million empty LLIN plastic bags—resulting from the hang-up campaigns—by identifying a plastics recycling plant.

Liberia

Due to ongoing weaknesses in the supply chain—inaccurate, incomplete, and untimely reporting; poor storage conditions and recordkeeping; diversion of commodities; and consistent breakdowns of the IT system at the National Drug Service [NDS]), USAID suspended the distribution of donated commodities in May 2013. Based on the development of an interim distribution system, agreed-to by the Ministry of Health and Social Welfare (MOHSW), NDS, USAID and partners, this ban was lifted in September 2013. This interim approach instills stronger accountability of health commodities, improves the accuracy and availability of logistics data, and enhances commodity availability at facilities.

Madagascar

In the first half of FY2013, the project managed the distribution of 2,085,671 LLINs to 19 districts in Madagascar. The project sub-contracted PSI to implement the distribution, which began in November 2013.

Malawi

The project supported the implementation of the parallel supply chain (PSC) for storage and monthly last-mile delivery of malaria products to service delivery points (SDPs). During FY2013, 3,908,910 ACTs and 6,209,000 RDTs were distributed through the PSC.

Mozambique

Some 3,161,490 treatments of ACTs and 6,508,950 RDTs were kitted up by the project and transported to all provinces during the year. Project staff have rebalanced the composition of the ACT kits to include RDTs. As better distribution data became available, the composition of the kits was modified to better reflect the proportions of weight bands being *pulled* (as opposed to simply pushed down, based on prior volumes of ACTs).

Nigeria

In two of the PMI-supported states (Ebonyi and Bauchi) integrated distribution of malaria commodities with family planning and reproductive health commodities was implemented through the direct delivery and information capture (DDIC). In the DDIC model, consumption data and stock on hand are captured, resupply quantities are calculated, and deliveries are made at the same time, making data immediately available for decisionmaking

Tanzania

The project supported the development of a network strategy analysis in Zanzibar aimed at establishing the most efficient location for a new warehouse in Pemba, in terms of inbound (port to warehouse) and outbound (warehouse to health facilities), using Llamasoft's Transportation Guru.

Zimbabwe

Malaria commodities are managed through the Zimbabwe Informed Push (ZIP) logistics system, which also includes tuberculosis medicines and essential medicines and medical supplies. Delivery teams completed three runs of deliveries to all districts in the country. TO7 provides ongoing technical and operational support to the ZIP system, including printing of LMIS forms, hardware and software maintenance, delivery trucks, monitoring vehicles, and driver support. Delivery coverage was above 98 percent for all three delivery rounds.

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

Core-funded activities

- *End-Use verification (EUV)*: This activity is a routine monitoring survey implemented by TO7 in PMI-focus countries that have a project office (in PMI countries without a project office, the EUV is implemented by another partner). Using site visits to public-health facilities, especially those at lower levels of the supply chain, this activity gathers valuable information about the functioning of the malaria supply chain and the diagnosis and treatment of malaria. Core funding support the establishment, country introduction, and monitoring of the EUVs. Field support covers the routine data collection. During the reporting period, routine data collection for the EUV continued in Ghana, Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe. In addition to field-supported data collection, the activity was initiated in Nigeria and was supported by an STTA visit from TO7 staff from headquarters.

- *Data dashboards:* The project constructed a dashboard template to be used and updated for all countries and to provide an opportunity to triangulate and analyze each country's various data sources, including EUV, the Procurement Planning and Monitoring Report for malaria (PPMR_m), and LMIS data as reported in the quarterly reports.
- *PPMR_m:* This report provides quarterly visibility of stock levels of ACTs, SP, and RDTs at the central level of the supply chain. Data are reported from 20 countries and Nigerian states, including nine countries by project staff, as well as nine countries from staff on the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) project. Two countries report through USAID bilateral projects. This year, the PPMR_m was upgraded to allow online data submissions, and enables users to run their own reports on historical data submitted through the PPMR_m.

Country Highlights

Burkina Faso

The project continues to provide technical support in the management of the malaria database. Data available from the database include the following:

- The facility reporting rate has increased from 85 percent in October 2011 to 96 percent in September 2012; and decreased slightly to 91.75 percent in June 2013, due to the increase in number of health facilities reporting from 2013.
- The percentage of health facilities with stock available of all four presentations of ACTs has increased from 11 percent in October 2011 to 68 percent in September 2012 and 75 percent in June 2013.
- The reporting rate for RDTs went from 1 percent in October, 2011; to 82 percent in September, 2012; and dropped to 72 percent in June 2013.

Ghana

With numerous partners, including the National AIDS Control Program and the NMCP, the project expanded the Early Warning System (EWS). The EWS uses text messages to report product availability for tracer products. During the EWS pilot, between 79 percent and 92 percent of the 201 facilities participating reported on 27 tracer products weekly; providing significantly greater insight into facility-level stock status than the current paper-based system.

Madagascar

The project contracted with Health Network International (HNI)—a private company that specializes in submitting data through the short message service (SMS)—to develop a tool that will help increase the speed and efficiency of data collection, as part of the LLIN distribution campaign. Data included (1) household census, (2) essential data for micro-planning, (3) number of LLINs received at distribution sites, (4) number of LLINs distributed and remaining stock, and, (5) hang-up visit data. At the end of the reporting period, 15 of the 19 targeted districts had achieved a combined reporting rate of 85.8 percent.

Rwanda

As part of systems strengthening, the government of Rwanda has decided to procure and make available an electronic logistics management information system (eLMIS) nationwide. To review and validate the eLMIS functional requirements and identify issues that require further effort, the project

organized a requirements validation workshop from October 1 to 5, 2012. The outcomes included validation of the system's functional requirements; review and validation of the *As-Is* processes; recommendations for process optimization; verification of the current system configuration status; and a clear understanding of the objectives and benefits of the eLMIS and its intended use.

Tanzania

On the mainland, the project continues to implement the integrated logistics system (ILS), and the ILSGateway reporting system. The ILSGateway, an SMS-based facility-level stock status data collection tool, was rolled out to half the 5,000 health facilities in Tanzania. The ILSGateway provides real-time stock status information on malaria commodities for decisionmakers throughout the supply chain. Results from the ILSGateway evaluation in November 2011 indicated that 97 percent of facilities improved their on-time submission rates for stock reports. Another 93 percent improved their stock counting exercises because of the routine mobile alerts they received. Of importance, 45 percent of facilities reported improved product availability, indicating the overall positive contribution the ILSGateway has made toward improving the medicine supply system in Tanzania.

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

Country Highlights

Angola

The project continued to provide STTA to secure government permissions that allow PMI cargos of ACTs and RDTs to arrive by charter aircraft, be immediately cleared at the airport and then loaded onto contracted vehicles, for direct distribution to the provinces, ensuring efficient delivery with designated quantities.

Malawi

The project supported the Pharmacy Medicines and Poison Board (PMPB) to conduct quarterly post marketing surveillance activities in all three regions of Malawi in FY2013. The surveillance ensures that quality medicines are circulating in the public and private systems. Teams of PMPB inspectors who participate in this activity visit health facilities and collect samples from a tracer list of products for quality analysis at the National Drug Quality Control Laboratory. Follow-up is made through regulatory action by the PMPB for any of the products that fail quality control tests.

Nigeria

The project conducted assessments of five of the seven states where PMI malaria commodities are stored and distributed, including Cross River, Oyo, Kogi, Benue, and Nasarawa. The assessments enable the project to review the storage conditions and warehouse management of the state Central Medical Store (CMS) and provide an opportunity to advise the state governments or directly introduce needed interventions.

Zambia

The project supported MOH/National Malaria Control Center (NMCC) in conducting joint monitoring and supportive supervisory visits to health facilities; specifically assessing how malaria cases are diagnosed or managed and availability of antimalarial drugs and RDTs at SDPs. This helped build capacity in MOH and NMCC staff in management of anti-malarial commodities at the

facility level. With Medical Stores Limited (MSL) staff, project staff conduct monthly physical inventories at MSL. Through these routine counts, stock on hand is compared to quantities recorded on stock cards and in the warehouse management information system, so that any discrepancies can be reconciled.

Zimbabwe

In February, a technical working group, of which the USAID | DELIVER PROJECT is a member, met and through a series of small- and large-group discussions, agreed on an outline to integrate the management of several sets of health commodities that are currently managed using different systems into a single *assisted ordering* system.

Bridge the Gap between NMCPs and Supply Chain Operators to Improve Core Supply Chain Functions

Country Highlights

Burkina Faso

The project has assisted the ACT committee for better coordination of donor and government funding to secure the availability of malaria commodities. Through this coordination, the project also assisted the ACT committee in using the entire budget amount allocated by the Government of Burkina for malaria commodity procurement for 2013, which was difficult to do in the past.

Liberia

The project provided assistance in planning for the annual quantification exercise planned for the 3rd quarter of FY2013. This included supporting the NMCP and the Supply Chain Management Unit (SCMU) in collecting data from the last 12 months from clinics, health centers, hospitals, and county depots in 11 of the 15 counties.

Rwanda

Project staff supported the Logistics Management Office (LMO) with the development of a 5-year strategic plan, while utilizing evidence-based diagnostic tools for targeted intervention. Data was collected using the Capability Maturity Model (CMM) tool and key performance indicators (KPIs) to measure the maturity of the supply chain.

Nigeria

In October 2012, following the National Quantification Training-of-Trainers that took place in September, a state-specific quantification exercise was conducted for all the geo-political regions of the country. Source data from each state and consumption data, where applicable, were used to build assumptions and quantify for ACT's needs of the states in FY2013. Thirty-six states, including the Federal Capital Territory (FCT), participated in the exercise.

Tanzania

The project conducted a strategic review of the national supply chain to identify systemic strengths and weakness within the medical stores department's (MSD's) operation and at other levels of the national healthcare system. Practical and implementable interventions were identified that address gaps and improve efficiencies in order to ensure increased availability of commodities within Tanzania's public sector health system.

The increased use of logistics data to inform decision making is a system strengthening objective of Tanzania's Ministry of Health and Social Welfare (MOHSW). To aid that, the project is supporting the MOHSW to establish a logistics management unit (LMU). The LMU is the management structure responsible for coordinating logistics management activities of different commodity categories under one unit. LMU staff identify supply chain problems, develop solutions for those problems, and implement those interventions.

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

Country Highlights

Ghana

In FY2013, the project completed a pre-service training assessment, introduced supply chain courses at the School of Public Health at the University of Ghana, and conducted a training-of-trainers (TOT) for supply chain modules to be taught at selected schools of pharmacy.

Rwanda

Following the TOT for the nursing schools lecturers that took place in March 2012, the project drafted the instructor guide, the student syllabus, and supporting PowerPoint presentation for the health logistics management course.

Zambia

The project supported the MOH/NMCC in rolling out the MOH-approved national Essential Medicines Logistics Improvement Program (EMLIP) to three additional districts. As of the end of FY2013, EMLIP was rolled out in 27 of the official 106 districts countrywide. Specifically, the project trained health workers at the District Health Office (DHO) and SDP-level in EMLIP; provided support in data capturing and analysis, and monitoring, via facility visitation. A total of 104 health staff were trained in the three districts, bringing the total number of health staff trained in EMLIP from January 2009 to-date to 1,814. This helped build and strengthen health workers capacity in supply chain management at both the district and SDP level. In the second half of FY2013, the EMLIP was put on hold for further implementation, as the MOH wants to re-evaluate the system; however, information from health facilities still flows up to the central level on a monthly basis, enabling visibility into stock status at SDPs.

Objective 3: Improve the Global Supply of Malaria Commodities

Strengthen International Collaboration

TO Malaria is an active member of the Procurement and Supply Chain Management Working Group (PSM WG). The Task Order Director served as the co-chair for the PSM Bottleneck workstream and is currently serving as the co-chair for the LMIS workstream.

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

The project provides support to the Interagency ACT Supply Task Force, led by the WHO/Global Malaria Program, 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. TO7 shared the plans for upgrading the PPMRm to a web-based tool. Task force members agreed that, with some modifications, it could also serve as a platform for task force data collection and analysis.

The task order analyzed its RDT procurements since 2008. The price analysis looked at variations over time, by quantity, by country, and by product; and compared competed and sole-source prices. Based on this analysis, the project revised its RDT procurement approach to lock in low-ceiling prices, while still competing where country protocol allows. Contracts with ceiling prices significantly less than the sole-source prices were signed with each of the prequalified vendors.

Objective I: 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

A principal activity of Task Order 7 (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 FY2013, we processed requests for procurement assistance from 26 countries: Angola, Benin, Burkina Faso, Burma, Burundi, Cambodia, DRC, Ethiopia, Ghana, Guinea, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe.

Review and Refine Procurement Systems and Procedures

To officially place an order, we must receive a commodity procurement information request (CPIR) form. The CPIR contains the relevant information needed to initiate an order, including product specifications, requested delivery dates, consignee information, and other details.

There are now seven CPIR forms in use, each designed to cover a specific commodity, i.e, Coartem, rapid diagnostic tests (RDTs), and long-lasting insecticide treated bed nets (LLINs). The forms remain *live* documents that can be modified to reflect the nature of our procurement business model with the President's Malaria Initiative (PMI).

Operational Scale

During FY2013, we received 231 procurement requests from 26 countries. A total of 372 orders were placed with vendors for a total value of U.S.\$185.100 million (commodity cost only). The value of the products procured during this period is 23 percent higher than in FY2012.

Major items procured include—

- 34.5 million LLINs
- 54.5 million artemisinin-based combination therapy (ACT) treatments—39.6 million treatments of artemether lumefantrine (AL), 2.5 million treatments of generic ALu, and 12.4 million treatments of fixed-dose combination artesunate/amodiaquine (FDC AS/AQ)
- 55.8 million RDTs
- 39.1 million sulphadoxine-pyrimethamine (SP) tablets for intermittent preventative treatment in pregnancy (IPTp)
- 1.25 million vials of artesunate injections and 2 million quinine tablets for the treatment of severe malaria
- 265 microscopes and laboratory kits for malaria.

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

The total value of commodities procured by type is shown in figure 1. Figure 2 shows the comparison of the value of commodities procured between FY2012 and FY2013. Figure 3 shows the value of commodities procured between 2007 and 2013.

Figure I. Total Value of Commodities Procured, by Type, FY2013

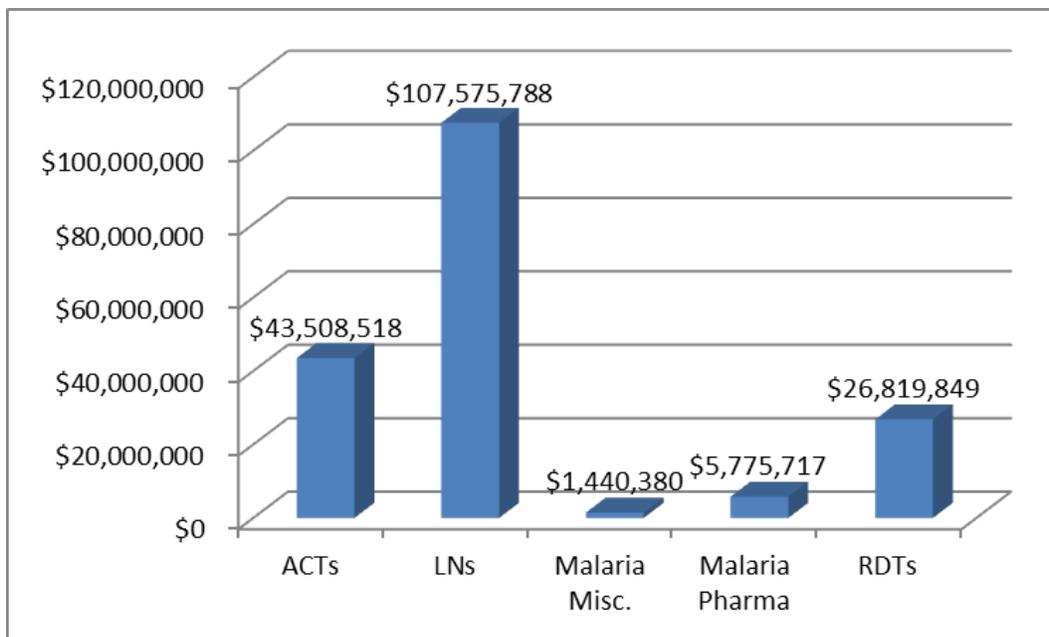


Figure 2. Comparison of Commodities Procured by Value, FY2012–FY2013

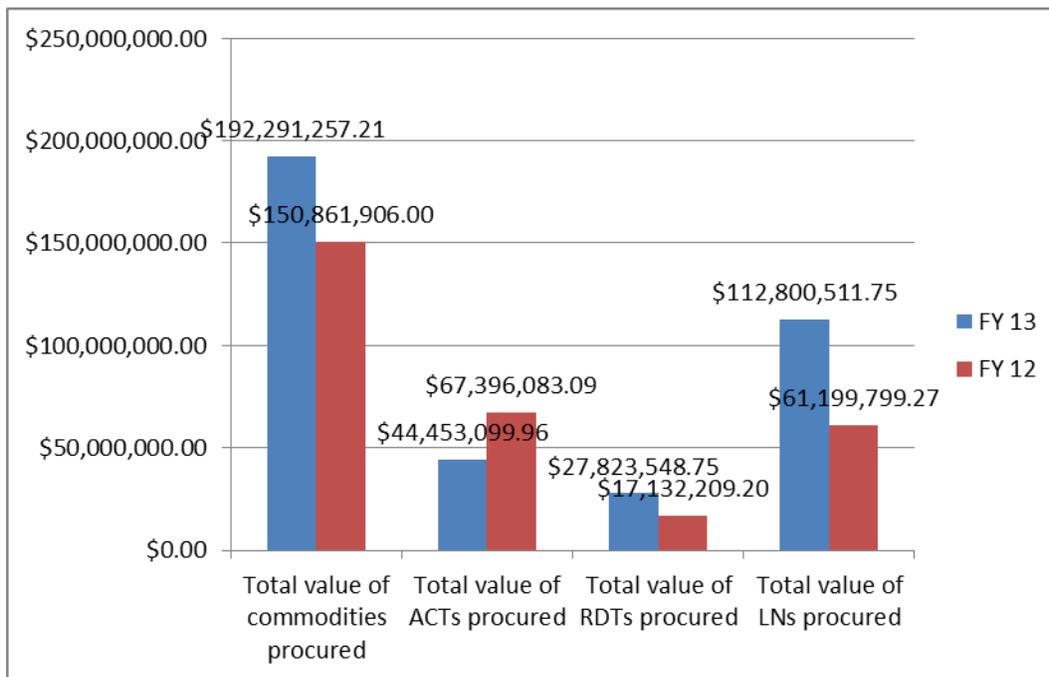
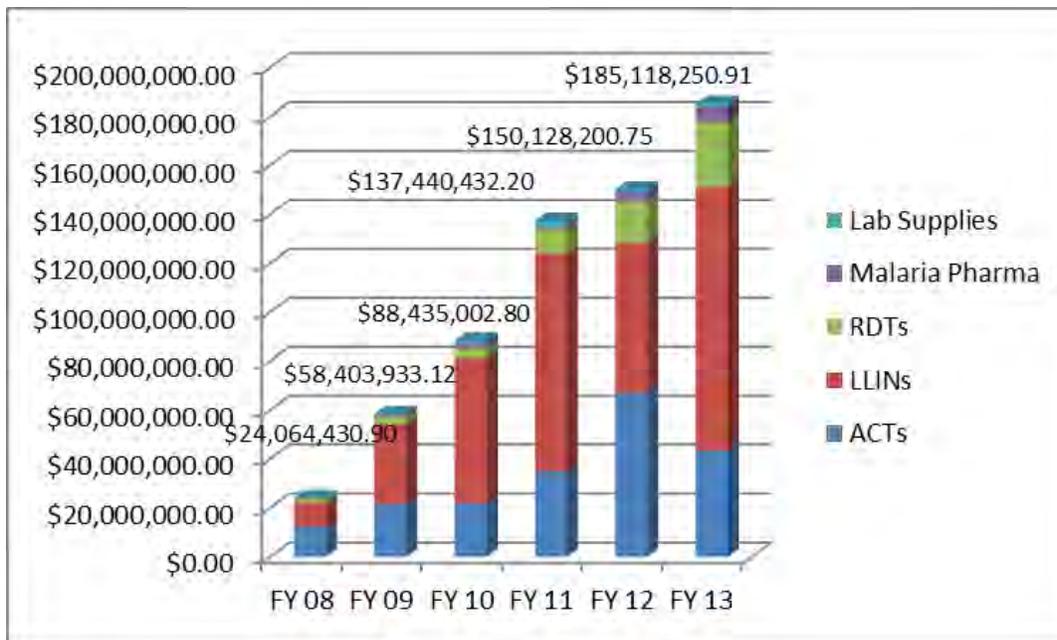


Figure 3. Total Commodities Procured, 2007–2013



During this period, we also continued procuring commodities for Zambia using funding from the U.K. Department for International Development (DFID). With DFID funding in FY2013, we procured: 4,432,140 ACTs; 2,000,000 RDTs; 271,945 LLINs, and a variety of essential medicines,

for a total value of U.S.\$5.2 million (commodity cost only). These figures 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 (if applicable).

Only vendors and manufacturers that pass internal requirements (good manufacturing practice [GMP], product stability data, previous supply record, etc.) and/or are included on the PMI preselected list, are invited to bid or quote. The current list of selected manufacturers for RDTs and LLINs can be found in appendix C and D. The list of World Health Organization (WHO) prequalified manufacturers of ACTs can be found in appendix E.

Challenges and Innovations

Competitive pricing—rapid diagnostic tests

During FY2013, TO7 conducted a price analysis for RDTs that concluded that the average price for RDTs purchased on a sole source basis is 30-48 percent higher than when procurements are competed. Programmatic considerations typically justify sole source selection, which limits opportunities to compete awards.

In response to this challenge, the project has established a cap on the price of RDTs by negotiating competitive pricing that is 13-42 percent lower than weighted average 2012 sole source price for most RDTs. This strategy is estimated to lower RDT spend by 26 percent, or almost \$4.9 million, in comparison to 2012. Ceiling prices are now established in Indefinite Delivery Indefinite Quantity (IDIQ) contracts with pre-qualified manufacturers of RDTs. These agreements set ceiling prices for specific RDTs (established through a competitive RFP process), which may not be exceeded by the supplier for both competed and sole source orders. Competition continues to be employed in order to provide the best value to the U.S. Government. This process has also shortened the overall procurement lead-time for this commodity.

Demand of ACTs

The high demand for ACTs, including Coartem® (AL), and Winthrop® FDC AS/AQ, and increasing number of *emergency* requirements (where deliveries funded by other donors have been delayed for a variety of reasons) have contributed to increased lead times.

In response, TO7 manages its own inventory of Coartem and Winthrop FDC AS/AQ at the UPS Roermond warehouse in the Netherlands; this enables the project to respond quickly to countries' emergency orders, obtain better pricing, and mitigate supplier production risk. We will continue to monitor the supply and demand situation, in conjunction with other partners and donors. In FY2013, we responded to 34 orders for 13 countries from the stockpile. The fastest lead time was for ACTs in Rwanda, which was less than three weeks from notification of emergency to the receipt of the proof of delivery¹.

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 for future ACT needs.

Demand of LLINs

In addition to ACTs, demand for LLINs has grown substantially in FY2013. A global comparison of demand shows that worldwide deliveries of LLIN in the first two quarters of FY2013 were equal to 80 percent of all LLIN deliveries in FY2012. The project procured 92 percent more LLINs in FY2013 than FY2012. As a result of the increased global demand, production lead times for LLINs have doubled, increasing by an average of 47 days per order.

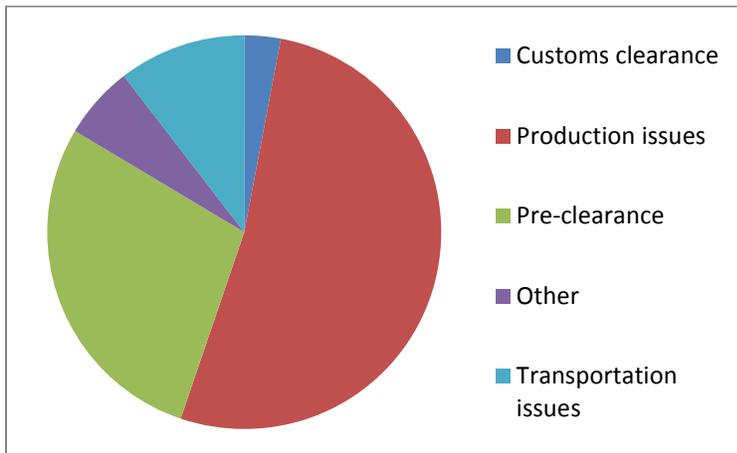
In response, TO7 has adopted the strategic approach of asking countries to provide future LLIN needs for a 12-month period. This approach is currently being implemented and will enable the project to better schedule production with vendors in advance. We are also collaborating with other donors in order to better understand how their procurement approaches and anticipated needs may complement our procurement strategy and timing of orders in FY2014.

Procurement Scorecard and PMP Indicators

During the reporting period, the project has continued to monitor system performance monthly, using the scorecard to show results. The targets this year are reflected as follows: 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, the orders shipped on-time rate was 49 percent. The received in-country by desired receipt date was below the target performance level (77 percent). Figure 4 details the specific reasons why shipments were delivered later than the desired receipt date. Production issues accounted for most of the delays followed by lengthy preclearance requirements.

¹ Proof of delivery (POD) is a signed document submitted by the recipient; it is confirmation that the quantity dispatched by the sender matches the quantity received by the recipient.

Figure 4. Reasons for Late Delivery of Commodities



In addition to the reasons displayed in figure 4, for delayed shipments, the procurement team was faced with data quality issues carried over from the previous reporting period. To remedy this situation, a standard lead time table was implemented in early 2013 and rolled out to the field offices. The lead time table incorporates the average lead time, by commodity type, from receipt of a CPIR to delivery in-country. This assists in setting realistic expectations and desired delivery dates from the beginning of the procurement. In addition, procurement specialists and supply operations team received additional training to ensure that the data entry into the Enterprise Resource Planning (ERP) system followed the standard operating procedures.

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

Table I. PMP for the Procurement Process, October 1, 2012–September 30, 2013

| Operational Area | Indicator | Status |
|---|--|-------------------|
| Monthly system scorecard implemented | Monthly scorecard available | Available monthly |
| Orders shipped and received on time (data from October 2012 to August 2013) | Percentage of orders available for shipping within 10 working days of contracted date with vendors | 49% |
| | Percentage of orders received by countries within a month of agreed date with the mission | 77% |
| Suppliers deliver ordered commodities to satisfy contractual requirements | Supplier fill rate (contracted quantity on time) | 80% |
| Respond to emergency orders | Percentage of emergency orders responded to during the previous 12 months | 11/11 = 100% |

Efficient and Secure Delivery of Procured Commodities

Freight Forwarding

From October 2012 to September 2013, the task order successfully forwarded commodities to support malaria programs in 26 countries. Countries shipped to include Angola, Benin, Burkina Faso, Burma, Burundi, Cambodia, DRC, Ethiopia, Ghana, Guinea, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe. The freight team coordinated the in-country distribution of LLINs to several districts in Benin, ACTs and LLINs in Nigeria, ACTs in DRC, and ACTs and RDTs in Angola. The freight team also coordinated warehousing for LLINs in Guinea.

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 MIS. The project continues to use and improve the Electronic Data Interface (EDI) with the contracted freight forwarders (Logenix, MEBS, and UPS Supply Chain Solutions) in order to update shipment milestones in ORION. Shipment milestones provide shipment visibility to users of the MIS website.

Per the freight strategy for Task Order 7, shipments are being completed and bids provided by the contracted freight forwarders for all shipments, except those in which the vendor is expected to provide freight services; for shipments from a vendor to a UPS warehouse (these shipments will be handled exclusively by UPS); for shipments where USAID Washington concurs with the project's recommendation and justification for exclusive use of a freight forwarder to a specific country; and for *emergency* 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. In November 2012, the freight manager travelled to Kenya, with the deputy director of procurement, to discuss the challenges of importing PMI commodities into the country and establishing a strategy to improve the process for upcoming shipments. Furthermore, the Freight team has also hired a staff associate to work exclusively on shipments for Task Order 7.

Table 2 shows results from the freight analysis. Calculated figures are based on the difference between the highest bid received and the lowest bid received. Through continued bidding of shipments, we obtained a cost savings of \$1,248,826.15 in FY2013. These savings were obtained by reviewing all bid shipments during the year and taking the difference between the highest and lowest bids during that time.

Table 2. Savings from Bidding Out Shipments to Vendors

| | Total Savings | Percentage Savings Over All |
|-----------------------|----------------------|------------------------------------|
| October–December 2012 | \$697,684.10 | 23% |
| January–March 2013 | \$366,252.05 | 27% |
| April–June 2013 | \$78,948.36 | 20% |
| July–September 2013 | \$105,941.64 | 16% |

Quality Assurance

LLINs

From October 2012 to September 2013, the quality assurance team managed pre-shipment inspection and testing for 56 orders from Vestergaard Frandsen, Sumitomo, Bestnet, BASF, AtoZ Textile Mills, and Tana Netting. Crown Agents performed sampling and inspection of all consignments at the manufacturing sites. FHI 360 reviewed the inspection reports and released the orders for shipment, concurrently with laboratory testing. All test results were compliant with USAID and World Health Organization Pesticide Evaluation Scheme (WHOPES) specifications. One supplier offered bed nets that were manufactured in 2010 for 11 (sub) orders for DRC, affecting 1.3 million bed nets. After discussions with USAID, the task order procurement team and the mission, these bed nets were rejected, and the supplier agreed to produce new bed nets to fill these orders. No other product complaints were reported.

Complete test results were available within 3 to 94 days after sampling (median 27 days). The longest delays occurred early in the reporting period. After FHI 360 moved into a new space (FHI 360 is the laboratory where analytical testing on LLINs is performed), testing could be performed much more efficiently and lead times to obtain final test results were reduced to less than 34 days for all orders. FHI 360 continues to create Certificates of Conformance for each consignment, after a final review of all results.

RDTs

During the reporting period, the quality assurance (QA) team managed pre-shipment inspection and testing for 46 orders of RDTs from Standard Diagnostics, Orchid, AccessBio, and Premier Medical. FHI 360 reviewed all test results before clearing an order for shipment.

TO7 contracted with FIND to support all lot testing of RDTs through the WHO laboratories. Lot testing for PMI included initial testing of 321 batches and 18-month stability of 83 batches; they were conducted by the Malaria RDT Quality Assurance Laboratory at the Research Institute for Tropical Medicine (Philippines) and the Laboratory of Molecular Epidemiology at the *Institut Pasteur du Cambodge* (Cambodia).

Results of initial preshipment testing were available after 6–45 days from sampling (median 14 days), and all results were compliant with WHO standards. The longest delays were caused by sample shipment and customs delays. Consignments are not release until passing test results are obtained by FHI 360.

Pharmaceuticals

Coartem

FHI 360 reviewed the manufacturer's Certificates of Analysis for all batches of Coartem that were procured by the project (443 batches over 74 orders). Under the PMI policy, Coartem does not require routine preshipment testing because the product is approved for marketing by the U.S. Food and Drug Administration (FDA), a stringent regulatory authority. FHI 360 continued to perform identity testing using near-infrared spectroscopy and limited chemical content testing, which determines the amount of active ingredients.

Generic fixed-dose artemether-lumefantrine

FHI 360 managed sampling, inspection, and testing of all generic artemether-lumefantrine (AL) from IPCA Laboratories. Crown Agents performed sampling and inspection and Vimta Labs performed all testing. Because this product is WHO pre-qualified, FHI 360 released orders for shipment upon completion of sampling, concurrently with laboratory testing. A total of 133 batches, divided over five orders were tested.

Test results were available 47 to 63 days after sampling (median 52 days) and all results were compliant with US Pharmacopeia specifications.

Fixed-dose artesunate/amodiaquine

Because the product does not have stringent regulatory authority (SRA)-approval, FHI 360 reviewed Certificates of Analysis for every batch of AS/AQ procured from Sanofi-Aventis, before releasing the order for shipment. The supplier sent samples of every batch, and FHI 360 performed concurrent testing, using the manufacturer's test method. One-hundred ten batches were tested, for 34 orders. Test results were available between 4 and 68 days from sample receipt (median 22 days). All results were compliant with the specifications.

Oral rehydration salts

One order contained oral rehydration salts (ORS). This product was manufactured by KBI *Kunststoffbeutel Produktions* in Germany. FHI 360 reviewed the manufacturer's Certificates of Analysis before releasing the product for shipment. Independent testing was not required because the manufacturer is regulated by a local SRA.

Other pharmaceuticals

Other pharmaceuticals procured by the project included SP tablets, quinine injectables and quinine sulfate tablets, artemether injectables, artesunate powder for injection, artesunate suppositories, and others.

These products are not WHO-prequalified and were tested pre-shipment by independent laboratories, non-concurrent with shipping. FHI 360 reviewed all results before releasing the orders for shipment. All tested samples were compliant with the applicable specifications and no product complaints were reported. Table 3 shows the Performance Monitoring Plan indicators for the QA process.

Table 3. PMP for the Quality Assurance Process, October 1, 2012–September 30, 2013

| Support Area | Operational Area | Indicator | Status |
|---------------------------------------|--|---|-----------------------------|
| Quality assurance and quality control | Quality assurance and quality control procedures established and implemented | Percentage of LLIN shipments with pre-shipment test reports available | 100% |
| | | Median time and range (in days from sampling) required for pre-shipment LLIN test reports | 27 days Range: 3–94 days |
| | | Percentage of RDT shipments with pre-shipment test reports available | 100% |
| | | Median time and range (in | 14 days |

| Support Area | Operational Area | Indicator | Status |
|--------------|------------------|--|------------------------------|
| | | days from sampling) for up-to-date RDT test reports | Range: 6–45 days |
| | | Percentage of generic Artemether/Lumefantrine shipments with pre-shipment certificates of conformance | 100% |
| | | Median time and range (in days from sampling) required for pre-shipment generic artemether-lumefantrine test reports | 52 days Range: 47–63 days |
| | | percent of ASAQ shipments with pre-shipment certificates of conformance | 100% |
| | | Median time and range (in days from sample receipt) required for pre-shipment AS/AQ test reports | 22 days Range: 4–68 days |
| | | Percentage of other pharmaceuticals shipments with pre-shipment certificates of conformance | 100% |
| | | Median time and range (in days from sampling) required for pre-shipment test reports for other pharmaceuticals | 38 days Range: 12–86 days |

Management Information Systems

The MIS supports commodity procurement, ordering, reporting, financial accounts, deliveries, and management; and provides commodity-specific information. The MIS team supported the ongoing operations of Task Order 7 in FY2013 through continual MIS availability. Day-to-day operations are supported by recording and providing for management review commodity needs by country and recipient program, shipment requests by country and recipient program, financial accounts by country and funding source, and the status of shipments. The MIS is designed to be and is available continuously to authorized users from JSI, the United States Government (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, as identified by the project Management Institute 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 is measured against an service-level agreement (SLA); we met or exceeded all standards in the reporting year. Following are a set of graphs showing key MIS measurements from the past year.

Performance and Key Statistics

This section includes key statistics on the performance of the MIS. Figure 5 shows the log-ons to the USAID | DELIVER PROJECT website by month. The website is accessed by an average of 584 unique log-on sessions per month.

Figure 5. Log-Ons to the USAID | DELIVER PROJECT Website

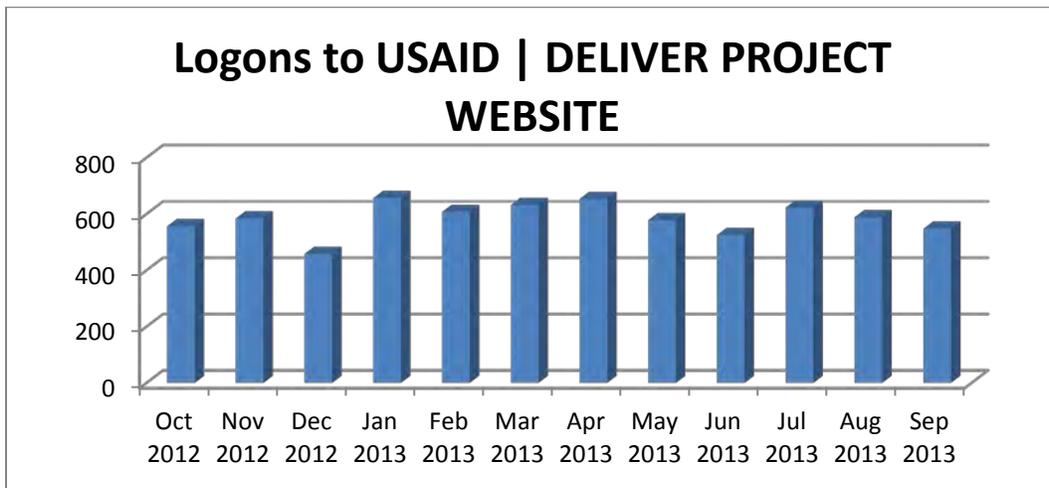


Figure 6 shows the number of times per month that users have visited the *My Commodities* section of the website. The *My Commodities Visits* shows the number of times per month that authorized users have accessed the USAID | DELIVER PROJECT website, My Commodities web page, in order to ascertain shipment or financial information. The average monthly visits are about 4,643, but the trend over the year is generally an increase in use. The shipment data updated three times during each business day in order to provide the most current status.

Figure 6. My Commodities Visits

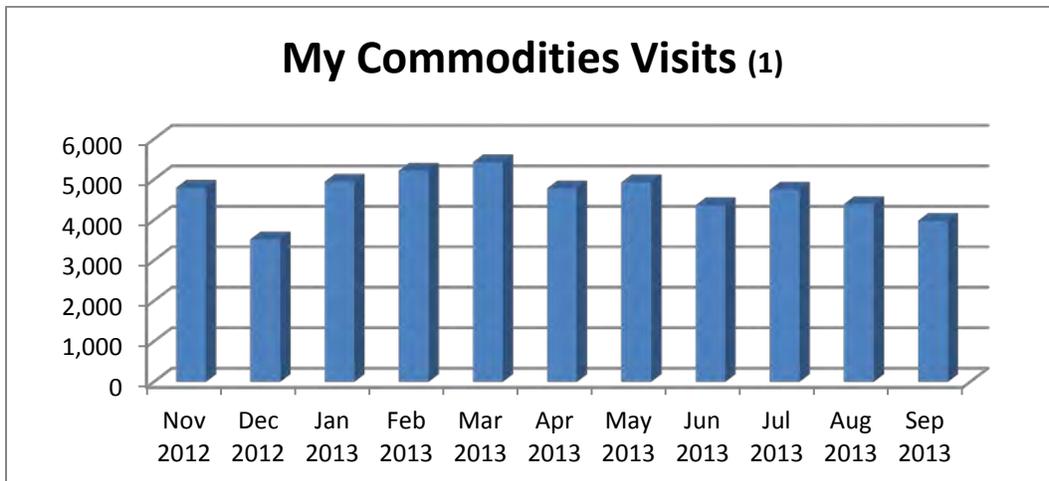
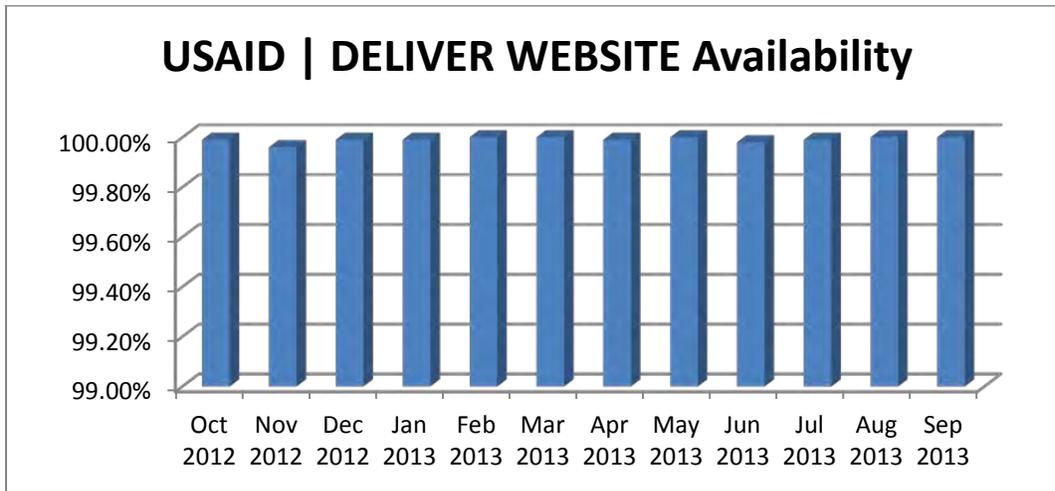


Figure 7 shows the availability of the USAID | DELIVER PROJECT website. This chart is a measurement of the amount of time per month that the USAID | DELIVER PROJECT website is available for access, excluding scheduled maintenance on the weekends. The standard is 99.5 percent availability; it was exceeded each month during the reporting period, with the full year average being 99.99 percent availability.

Figure 7. USAID | DELIVER PROJECT Website Availability



Maintenance Work Completed

The MIS team modified the ORION Enterprise Resource Planning (ERP) system and the USAID | DELIVER PROJECT website in order to enrich management data availability and operational productivity. This is an ongoing effort and is completed along with day-today maintenance support of operations, including ad hoc queries, user assistance, anomaly research and resolution, and pre-project definition and estimation. The following are the highlights of the past year’s enhancements.

Improved USAID | DELIVER PROJECT website security

The task order implemented numerous software upgrades to the database and client access software to improve security. These changes increased the *hardening* of the website against malicious web attacks and unauthorized penetration.

Automated vendor returns

We replaced a manual process for vendor returns with a system-based automated return process for inventory and finance. This compliments the sales return automation implemented last year.

Upgraded ORION ERP and USAID | DELIVER PROJECT website management reports

Numerous My Commodities reports were updated, based on user requests in order to better provide management information in the various formats required. ORION ERP reports were also upgraded to improve productivity for supporting organizations such as Procurement and Supply Operations.

The MIS is a key support element for Task Order Malaria, providing management information and detailed reports to aid in procurement, supply chain management, and all other aspects of ensuring

the correct commodity in the correct place, at the correct time, at the lowest possible price. PMP indicators for the MIS are included in table 4.

Table 4. PMP Indicators for the MIS, October 1, 2010–September 30, 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 | 99.99% |
| | Total number of visits | Total number of visits to the USAID DELIVER PROJECT website | 55,713 |
| | Number of log-ons | Total number of logins to the USAID DELIVER PROJECT website | 7,007 |

Close Out of Task Order 3

Task Order 3 was successfully closed out on October 5, 2012. The Task Order 3 contract was awarded on April 6, 2007, and was implemented for 5.5 years. The contract ceiling was in the amount of \$418,962,628.50, with total obligations matching the ceiling amount. During this time, technical assistance was provided for 16 countries, for a total amount of \$42,255,445, in cumulative expenditures. Malaria commodities were procured for 25 countries in the amount of \$376,687,496, or 90 percent of the total cumulative expenditures. Total contract expenditures (both technical assistance [TA] and commodity) were \$418,942,941, leaving an accrued balance remaining on the task order of \$19,688.

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 TO Malaria and to reaching the goals of PMI. These actions ensure that commodities procured and delivered under Objective 1 activities, and through other key malaria partners, reach those in need. This section focuses on the critical areas of supply chain assistance: improving system performance, improving visibility of data at all levels, strengthening accountability for the products managed, bridging the gap between programs and key supply chain entities (NMCPs and Central Medical Store [CMS]), and building capacity to sustain performance. It also highlights core-funded deliverables and country achievements organized by these key areas.

Strategic Leadership Summit

From March 11–19, 2013, the Supply Chain Management System (SCMS) project and the USAID | DELIVER PROJECT held their first joint summit, bringing together a cross-section of staff from the field and the headquarters of the two projects. The main objectives of the event were to (1) identify how best to achieve patient-centric health supply chains for family planning, HIV, malaria, and other health areas; and to synthesize lessons that will support achievement of the global health objectives; (2) identify areas and mechanisms for harmonizing how we operate across the two projects; and (3) identify ways we can build country supply chain ownership through leadership, commitment, and capability.

Summit participants identified broad strategic approaches to improving access to health commodities; and they discussed how to apply lessons learned to implement them, as well as how to identify barriers. A large part of the meeting was dedicated to understanding commonalities and synergies of the two projects and identifying areas and mechanisms for harmonizing how they operate. Country ownership and sustainability was an overarching theme of the summit, and one of the key concepts of the U.S. Government vision, which focuses on leadership as a critical component for the projects' success.

The summit also included a tech fair that showcased information and communications technologies being developed and used by staff across the USAID | DELIVER PROJECT.

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

Core-Funded Activities

Pilot innovative approaches to malaria product distribution and data management at the community level, in collaboration with TO4

Increased attention has been given to ensuring commodities flow down to the community level. This activity focused on designing a pilot system for resupplying community health workers (APEs) in Mozambique, and for managing the flow of necessary data to and from that level. Job aids and training materials were developed, and the APEs were trained on the new approach. Once a month, until May 2013, VillageReach collected performance data using a new monitoring report form. TO Malaria supported in-country implementation of the project, as well as the endline assessment.

As documented in a technical brief and a full report, this activity provided local and global insights related to process strengthening and LMIS interventions at the community health-level of a public health supply chain. Most important, this activity tested an innovative LMIS approach using mobile scanning and submission, capturing a near real-time perspective of community-level consumption and stock status for the first time in Mozambique. During the six-month testing period, this approach achieved an average on-time, complete reporting rate of 68 percent among the APEs, with reasonable levels of data quality as measured by internal consistency of submitted forms. Results and conclusions are being disseminated at several international venues.

Managing LLIN packaging—procurement considerations

Worldwide efforts to protect people from malaria by using LLINs are meeting with success, but these efforts have also left some communities with an accumulation of LLIN packaging waste that, if managed incorrectly, can potentially expose human populations and the environment to harmful waste and pesticides. Stakeholders and partners in the malaria prevention community are responding to this concern by having manufacturers provide a choice in packaging materials that can contribute to easier disposal of individual LLIN bags. Also being examined is the option of having manufacturers provide bed nets in bulk, rather than in individual bags, when they are to be distributed through campaigns rather than through continuous distribution channels. However, as more attention has been directed toward examining LLIN packaging options that address waste, the complexities involved with their use in the field has become more apparent. The available packaging options were detailed by the project in a paper titled, *Long-Lasting Insecticide-Treated Net Packaging Considerations*. Included in this document is procurement guidance for donors, programs, and the malaria prevention community, with additional details regarding the necessary considerations and potential ramifications to malaria prevention activities for each of the potential packaging options. The project will continue to participate in the Alliance for Malaria Prevention (AMP)-facilitated global discussions on LLIN packaging.



Malaria in pregnancy

In contrast to overall increases in ACT availability and treatment, the proper use of SP to prevent malaria during pregnancy (two doses after the first trimester²) has largely stagnated in sub-Saharan Africa. Why rates of SP uptake have not comparably improved is an area of increasing concern. Questions remain as to whether this is an issue of SP availability at facilities, or if it is an issue of access to SP, with women not returning for or receiving from their provider a second dose of SP for reasons other than availability.

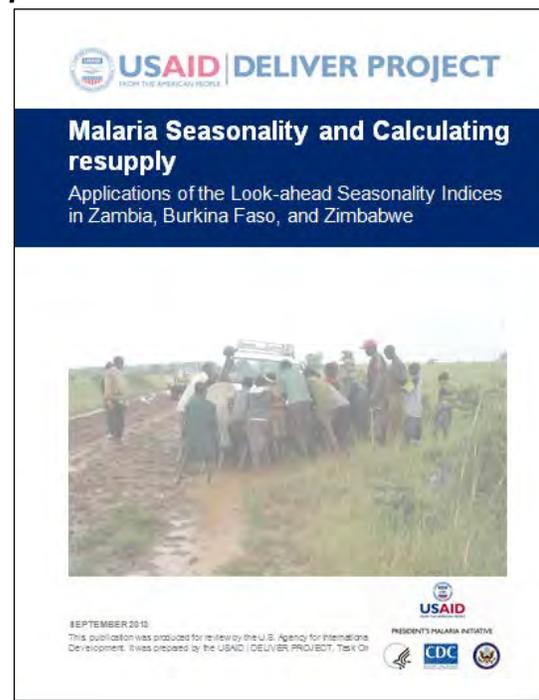
Increasingly clear is the dearth of knowledge and data currently available on SP availability, use, and access. To address these knowledge and data gaps, the project provided a matrix of currently available SP commodity availability data and knowledge, covering PMI-supported countries and answering fundamental questions on available information and country policies and status. The matrix findings were presented to all PMI country teams at the 2013 PMI retreat in Tanzania. In addition, the project also provided periodic updates on trends in SP availability at the central level, as well as contextual country information; these data and information were used in presentations and for discussion purposes at the Roll Back Malaria Malaria in Pregnancy working group meetings.

Seasonality and calculating resupply: country applications

Objectives for this analysis were two-fold: (1) To determine whether using alternate calculations for resupply, based on seasonality patterns, results in fewer stockouts at the facility level; and (2) to provide lessons learned/implications for Zambia, Zimbabwe, and Burkina Faso, as well as other countries' inventory control systems.

This fiscal year, TO7 staff, in close collaboration with the Zambia, Zimbabwe, and Burkina Faso field office staff; engaged in the data collection, cleaning, and management process of historical data, as well as gathered important contextual information for data interpretation and analysis. The team worked to identify seasonality patterns across time and space, using mapping techniques and focusing on differences in seasonality consumption across groups of facilities and considering other factors that could impact consumption patterns.

Through collaboration with a senior academic researcher, the team identified an approach for enhancing the simple average monthly consumption (AMC rule)—which is currently utilized to determine resupply quantities—to handle seasonal commodities, while maintaining some of its simplicity to continue to meet the needs of the developing country settings where it would be used. The approach operationally involves multiplying



² WHO recently updated its guidance on IPTp-SP. It now recommends treatment be provided at every antenatal visit. WHO recommends a schedule of four antenatal visits.

the AMC by indices that compensate for seasonality—referred to as Look-ahead Seasonality Indices (LSI)—before multiplying by the maximum stock level.

For three country case studies (Zambia, Zimbabwe, and Burkina Faso), the LSI approach was evaluated, in comparison to four other common models (the simple AMC rule, simple exponential smoothing, triple exponential smoothing, and triple exponential smoothing with fixed seasonality index), and evaluated in two ways: (1) as an inventory replenishment mechanism using the allocated inventory costs, and (2) as a forecasting method using the mean absolute percentage error (MAPE). As a result of this process, each country case study provides an estimate of the seasonality index and corresponding LSI that could support application of the LSI approach; or similar approaches, based on seasonality indices within these countries.

In all country case studies, the LSI approach's performance could be recommended, both as an inventory replenishment mechanism, as well as a forecasting method. In all cases, the simple AMC rule was outperformed for addressing seasonality, in comparison to the LSI approach.

Country Highlights

Angola

In mid-December, project staff traveled to Angola to facilitate the arrival to and quick release from customs, as well as the provincial distribution of 1,915,080 ACT treatments and 900,000 RDTs. One week after their arrival in Luanda, their subsequent delivery to provincial-level warehouses in all 18 provinces was completed. In January, the project delivered 125 malaria microscopy kits to destinations in 18 provinces.

Based on the success of the previous LLINs distribution by the project, national stakeholders and PMI/Angola agreed that the distribution of 423,000 LLINs in Zaire, Malange, and Kwanza Norte, by the task order's principal subcontractor, PSI would serve as a model/pilot for the national mass distribution that will be rolled out throughout 2013. The project then supported the training for national- and provincial-level staff who would be managing the distribution in other provinces, as part of the national mass distribution campaign. Distribution of the LLINs was successful and lauded by partners as having reached very isolated communities where access to health services is extremely limited. In one particular municipality, 7,000 LLINs were ferried across a river to reach 165 villages, so remote that even national vaccination campaign efforts had been unable to reach them before.

Burkina Faso

In October 2012, the project identified a shortage of RDTs in districts, starting in November 2012. The project was able to deliver 2,000,000 RDTs, with PMI funding, with a lead time of 3.5 months—two months shorter than the average lead time—in order to resolve the shortage in January 2013.

As part of the planning process for the national LLIN campaign, the project provided technical and financial support to the NMCP to develop the campaign implementation plan and forms used for management of the LLINs during the 2013 national campaign. The project also provided technical and financial support for training of the district supervisors on national campaign of the LLIN distribution and supervision visits during the household census.

Burundi

The project developed and launched a social marketing program for LLINs to improve access to the commodity. The project distributed 10,004 LLINs via social marketing sales points and conducted regular follow up. The project also conducted an emergency LLIN distribution in at-risk districts, targeting communities with 55,300 LLINs in four districts.

LLIN Delivery in Benin

In Benin, the project was asked to support the delivery of LLINs down to the health facilities. In February 2013, TO Malaria assisted with the procurement and distribution of 510,000 bed nets to 817 health facilities; in collaboration with partners, most notably UPS's agent in Benin, SIMTRAM.

During this campaign, the LLINs were delivered to three different types of recipients: 385,000 LLINs to the National Malaria Control Program, 100,000 LLINs to ARM-3, and 25,000 LLINs to the Peace Corps.



USAID | DELIVER PROJECT

Ghana

In Ghana, the project has supported LLIN distributions in the Greater Accra region, Eastern region, Volta region, and Central regions. Over 2.4 million LLINs were distributed, which achieved the NMCP's objective of universal coverage and ownership of LLINs in homes through door-to-door distribution and hang-up campaigns. In the Eastern and Volta regions, the project and partners have supported continuous distribution of LLINs through schools and antenatal and child welfare clinics.

Over 200,000 of the LLINs distributed were given directly to high-risk populations through continuous distribution.

The project supported the NMCP to complete the collection and disposal of 12 million empty LLIN plastic bags—the result of hang-up campaigns—by identifying a plastics recycling plant. Currently, using NMCP resources, all 10 regions have collected and dispatched the empty plastic bags to the recycling plant. The project complemented this national effort in the Eastern, Volta, and Ashanti regions.

Madagascar

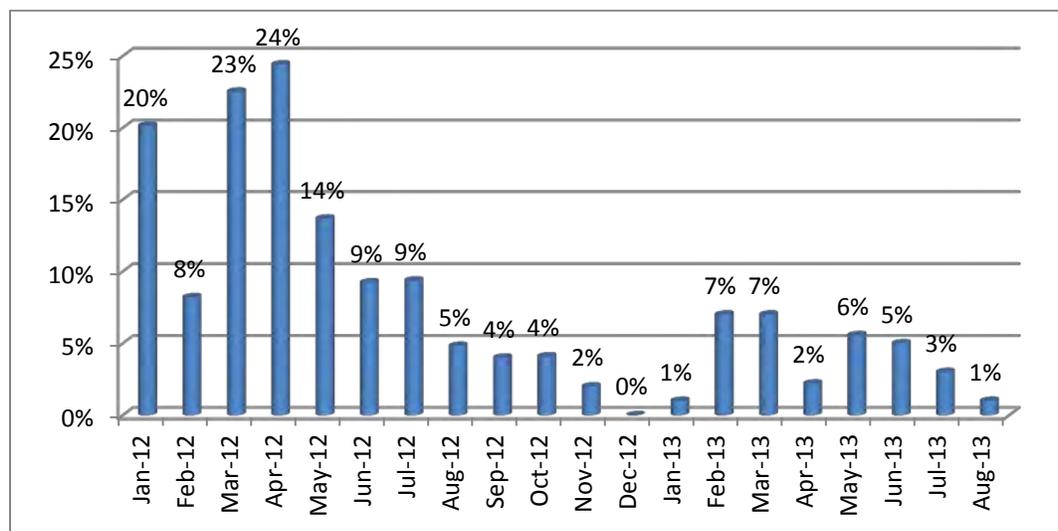
In the first half of FY2013, the project managed the distribution of 2,085,671 LLINs to 19 districts in Madagascar. The project subcontracted PSI to implement the distribution, which began in November 2013. Project staff visited 12 districts and oversaw 81 distribution sites.

The program conducted a training workshop in April 2013 to train nongovernmental organization/faith-based organization (NGO/FBO) partner organization staff in logistics management, enabling staff to accurately calculate average monthly consumption of commodities and develop better estimates for quantities of commodities needed during ordering periods. Additionally, the project has conducted supervision visits in 93 health facilities to improve supply chain management practices.

Malawi

The project supported the implementation of the parallel supply chain for storage and monthly last mile delivery of malaria products to service delivery points. During FY2013, the parallel supply chain (PSC) distributed 3,908,910 ACTs and 6,209,000 RDTs. The project also supported the MOH LMIS team to identify and resolve challenges faced by district pharmacy technicians (DPT), and provided support for calls to be conducted in all districts, every month, before reports are due to encourage reporting. As a result, a major increase in reporting was witnessed. The trend of facilities stocked out of all AL is shown in figure 8.

Figure 8. Percentage of Facilities Stocked Out of All Artemether-Lumefantrine AL



Mali

In August 2013, two project advisors traveled to Mali to help assist in the planning for the LLIN distribution, and to work with our sub-contractor, PSI, in defining and clarifying their role in the LLIN distribution plan. At the time of the visit, a shipment of approximately 2,470,000 LLINs from the task order, split between routine distribution (600,000) and mass campaign (1,870,000), arrived in port and were currently awaiting customs clearance. A coordination meeting was held between USAID/PMI, Abt Associates, the USAID | DELIVER PROJECT, and PSI, to identify specific mandates for each organization involved into the operational research (OR) of LLINs and insecticide resistance. Microplanning for the mass campaign will be developed, in collaboration with PMI and NMCP. An allocation plan, approved by counterparts at the NMCP, will be a deliverable for this activity.

RDMA, Cambodia, Burma

The task order moved from working with a part-time consultant to having a solidified regional presence with the placement of a resident logistics advisor, based in Phnom Penh, Cambodia; and with the contracting of a short-term consultant, based in Vientiane, Laos. With a regional focus, the logistics advisor has developed relationships with the government and nongovernmental organization partners across the region, facilitated the collection of data for the PPMRm, and supported procurement activities in Cambodia, Laos, Thailand, and Burma.



USAID | DELIVER PROJECT

In Laos, the task order provides focused assistance to the Center for Malaria, Parasitology, and Entomology, with a focus on building the capacity of the logistics unit through training that emphasizes data collection, interpretation, and dissemination. MOH staff in Laos have also learned how to better utilize technologies: Dropbox, Excel, an SMS data collection system, as well as forecasting and quantification tools.

Mozambique

Some 3,161,490 treatments of ACTs and 6,508,950 RDTs were kitted up by the project and transported to all provinces during the year. Project staff have rebalanced the composition of the ACT kits and included RDTs. As better distribution data became available, the composition of the kits was modified to better mirror the proportions of weight bands being *pulled*. This should help avoid stockouts and accumulation. Including RDTs in the same box (with the consumption data collection forms), in the right proportion to the ACTs, should help ensure that fewer ACTs are being distributed without confirmed diagnosis. These proportions will continue to be monitored and kit compositions rebalanced, as necessary. The Ministry of Health (Mozambique) (MISAU) also continues to distribute the ACTs and RDTs by via Classica, the requisition system used by higher-level facilities and to supplement the essential drug kits that they receive.



Kitting ACTs and RDTs in Mozambique.

USAID | DELIVER PROJECT

In April, project staff provided technical assistance to MISAU's preparation to transition from injectable quinine to injectable artemether as the first line treatment for severe malaria. This assistance included quantification, pipeline monitoring, distribution planning, and brokering a donated supply of excess quinine from Zimbabwe to cover a gap for the treatment of pregnant women in the first trimester. In addition, the project procured boxes for malaria kitting; the amount of boxes being procured will cover nine months of producing the kits.

Nigeria

The project provided technical support for the continued roll out of the Malaria Commodity Logistics System (MCLS) in the country: coordinated the trainings conducted at national, states, local government area (LGA), and the health facility levels; and printed and deployed the tool to the CMS and health facilities. The final phase of the national roll out of the MCLS was completed in FY2013. Project staff, in conjunction with NMCP and SMOH staff, carried out MCLS training in Ebonyi state, targeting the outstanding Global Fund to Fight HIV and AIDS, Tuberculosis and Malaria (GFATM)-supported sites. A total of 325 health personnel were trained. Personnel were drawn from 13 LGAs in the state.



USAID | DELIVER PROJECT

In two of the PMI states (Ebonyi and Bauchi), integrated distribution of malaria commodities with family planning and reproductive health commodities was implemented through the direct delivery

and information capture (DDIC) system. The DDIC was first piloted in Ebonyi state in January 2013; the first run was to 45 health facilities; and, by the fifth run, 205 health facilities were reached with malaria commodities. In Bauchi state, the first run started in July and reached 80 health facilities; by the second run, 119 health facilities received malaria commodities. In all these health facilities supported by the DDIC model, consumption data, and stock on hand and routing information are captured simultaneously, making data immediately available for decisionmaking.

Project staff supported the government of Nigeria in flood disaster relief intervention through the provision and distribution of LLINs to flood victims in Anambra (150,000) and Borno (10,000) states.

Rwanda

Upon PMI request, the project distributed 408,500 LLINs to 415 health facilities in May 2013. The project outsourced the transport, coordinated the activity using a dedicated project manager, and closely monitored the activity with distribution monitors provided by the transporter. The project had cost savings from implementing this distribution using a competitive bidding process, using less than half the funds originally budgeted by PMI.

South Sudan

Task Order 7 is engaged in a major project to provide essential medical supplies, diagnostics, and pharmaceuticals to the Republic of South Sudan. This large and complex effort represents a significant partnership between donors and coordination across multiple USAID | DELIVER PROJECT task orders. Funding is provided by USAID, DFID, and the Norwegian Ministry of Foreign Affairs. It is anticipated that overall funding for the procurement, storage, and distribution of these essential health commodities will exceed \$25 million. Implementation is being managed by a cross task order team, including Task Order 7, Task Order 5, and Task Order 4. Commodities will be provided in kits appropriate for different levels of health facility in South Sudan and will be delivered to the county level on a quarterly basis.

Task Order 7 is responsible for the procurement and distribution of antimalarial commodities, including ACTs, RDTs, and severe malaria drugs. Commodities will be delivered to 81 county destinations in South Sudan. The task order is contracting with suppliers of quality-assured pharmaceuticals and third party packaging and logistics organizations to produce kits for six levels of health facilities in South Sudan, ranging from referral hospitals to primary health care units. Ultimately the kits will be utilized in 1,401 facilities across the country.

Tanzania

The project supported the development of a network strategy analysis in Zanzibar aimed at establishing the most efficient inbound (port to warehouse) and outbound (warehouse to health facilities) location for a new warehouse in Pemba using LLamasoft's Transportation Guru. A Chake Chake warehouse was estimated to be at least 10 percent less expensive and have 10 percent shorter total distances traveled than either Wete or Mkoani. A transportation strategy analysis was also undertaken to model the planned distribution routes after all facilities have been integrated into the Zanzibar Integrated Logistics System (ZILS), which is expected to be completed by December 2013. Further analysis was also conducted to examine and develop an ideal transportation model that can respond to 10 percent, 20 percent, and 30 percent increases in shipment volumes, respectively. The optimized routing showed costs saving opportunities over the baseline scenario in—

- the fewest number of routes to deliver all shipments
- the shortest total distance traveled to deliver to all facilities
- the most out of 8-hour working day
- room for growth in shipment volume, without major changes in route structures.

The project also procured computers for the CMS to use a warehouse management system known as mSupply.

Zimbabwe

Malaria commodities are managed through the Zimbabwe Informed Push (ZIP) logistics system, which also includes tuberculosis medicines and essential medicines and medical supplies. Delivery teams completed three runs of deliveries to all districts in the country. TO7 provides ongoing technical and operational support to the ZIP system, including printing of LMIS forms, hardware and software maintenance, delivery trucks, monitoring vehicles, and driver support. Delivery coverage was above 98 percent for all three delivery rounds.

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

Core-Funded Activities

End-Use verification

The EUV activity is a routine monitoring survey implemented by TO7 in PMI-focus countries that have a project office. The activity obtains valuable information about the functioning of the malaria supply chain and the diagnosis and treatment of malaria, by way of site visits to public health facilities, especially those at the lower levels of the supply chain. Site visits are typically done once a quarter, conducted by teams comprised of staff from the USAID | DELIVER PROJECT, MOH, and other in-country partners. Data are analyzed and shared with the USAID Mission, USAID/Washington, the MOH, and other in-country partners, using a short, graphical report of 10 key indicators. Core funding supports the establishment, country introduction, and monitoring of the EUV. Field support covers the routine data collection.

During the reporting period, routine data collection for the EUV continued in Ghana, Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe. In addition, the activity was initiated in Nigeria, supported by short-term technical assistance (STTA) visits from TO7 staff from headquarters, with two reports completed during FY2013. Arrangements were made for the ongoing biannual implementation of the EUV in Nigeria, partnering with eight state ministries of health, the NMCP, and in close collaboration with two other USAID-funded projects—the Malaria Action Program for States (MAPS) and the Targeted States High Impact Project (TSHIP).

A summary of EUV activities can be found in appendix J. The commodities collected through EUV, by country, can be found in appendix K.

Coordination among partners

During FY2013, the EUV was launched in Nigeria. Unique in its scope and complexity, the EUV in Nigeria is reporting results on all 10 PMI-supported states, which are largely autonomous. In order

to accomplish this activity, at this scale, coordination was necessary among other key partners, including TSHIP and MAPS. Gaining outside project buy-in to the activity, coordinating busy project schedules, and providing reliable staff from all projects—staff, critical to the success of survey implementation—were real challenges. Addressing these issues, the project provided leadership necessary to implement the EUV in Nigeria with regularity this past year, producing results on a semi-annual basis that are valued and used by the larger malaria and maternal and child health communities.

Data dashboards

Building on and complementing the project’s data analysis and synthesis activities (including EUV and PPMRm data analysis, as well as LMIS country profiles), the project developed data dashboards for each country, which included longitudinal data analysis presented in a concise, user-friendly, largely graphical data dashboard. This fiscal year, the project constructed a dashboard template to be used and updated for all countries; two iterations of the dashboards have been completed for 10 countries: Burkina Faso, Ghana, Liberia, Malawi, Madagascar, Nigeria, Rwanda, Tanzania, Zambia, and Zimbabwe. The goal is to provide a more complete, nuanced profile of commodity availability and to provide a way to triangulate and improve the quality of various data sources.

Procurement Planning and Monitoring Report for malaria

The Procurement Planning and Monitoring Report for malaria (PPMRm) provides quarterly visibility of stock levels of ACTs, SP, and RDTs at the central level of the supply chain. The report covers all central-level stock, regardless of the source of supply (e.g., GFATM, PMI). Data are reported from 20 countries and Nigeria states, including from nine countries by project staff, as well as nine countries from staff on the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) project. Two countries report through USAID bilateral projects.

PMI uses the PPMRm to work with other donors and host-country governments to address stockout situations in a number of countries by providing critical emergency shipments, and to highlight potential supply problems and address them before large-scale stockouts can occur.

In addition, this fiscal year, staff collaborated with a development team in a major upgrade to the PPMRm. The number of products and number of countries reporting has been consistently expanding, significantly increasing the workload for managing the data and running PPMRm reports. The upgrade of the PPMRm was modeled after the successful PPMR for reproductive health commodities. Detailed user requirements for the new system were developed in close collaboration with USAID, and *Phase One* development requirements have now been completed. One significant improvement is that users enter data through a secure website—www.ppmrm.org—rather than completing separate forms. Offline data entry is maintained, as well, in case of connectivity challenges from countries. Other features included are linking forms with the database; enabling users’ ability to view previously reported, historical data in a variety of formats; and data available on-demand in multiple formats, including Excel, PDF, and online. *Phase two* development activities will focus on the data analysis capabilities of the database, as well as incorporating user feedback.

Figures 9 and 10 show central-level stockouts of AL and FDC AS/AQ, by calendar year, as reported through the PPMRm. When interpreting this data, it is important to note that central-level stockouts do not necessarily translate to stockouts at lower levels of the supply chain, where patients are actually seeking healthcare services and receiving medicines. A country with zero product at the central level may have pushed product out to meet country needs, leading to available stock at

regional warehouses and health facilities. For a general snapshot of availability at lower levels of the supply chain, please see appendix F (facility stockout rates).

For AL, the percentage of countries (and Nigerian states) stocked out reached a high at the start of 2011, with significantly reduced central-level stockouts reported from mid-2012 onward. Figures 11 and 12 show the number of countries with more than three months of stock at the central level for AL and FDC AS/AQ, by calendar year, as reported through the PPMRm. For AL, the figures illustrate an upward trend, following a low point at the start of 2011. With the exception of a dip during 2012, AS/AQ has also experienced a general increase overall since 2011.

Figure 9. Total Number of Countries and Nigerian States Reporting Stockouts of AL Products

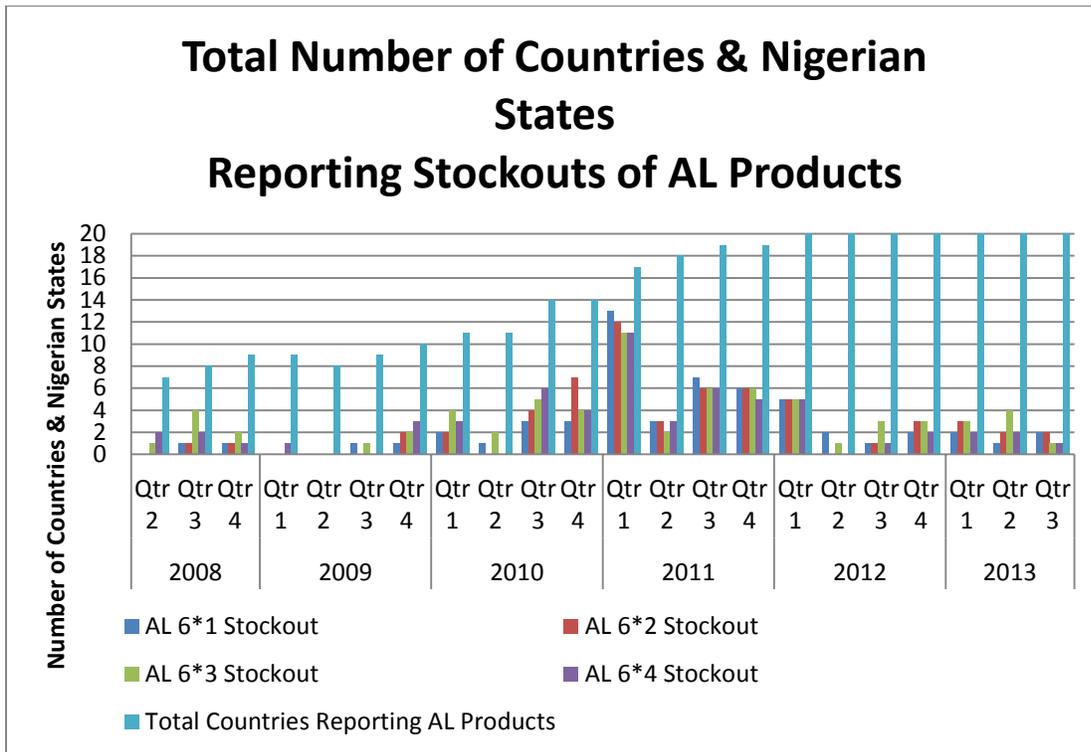
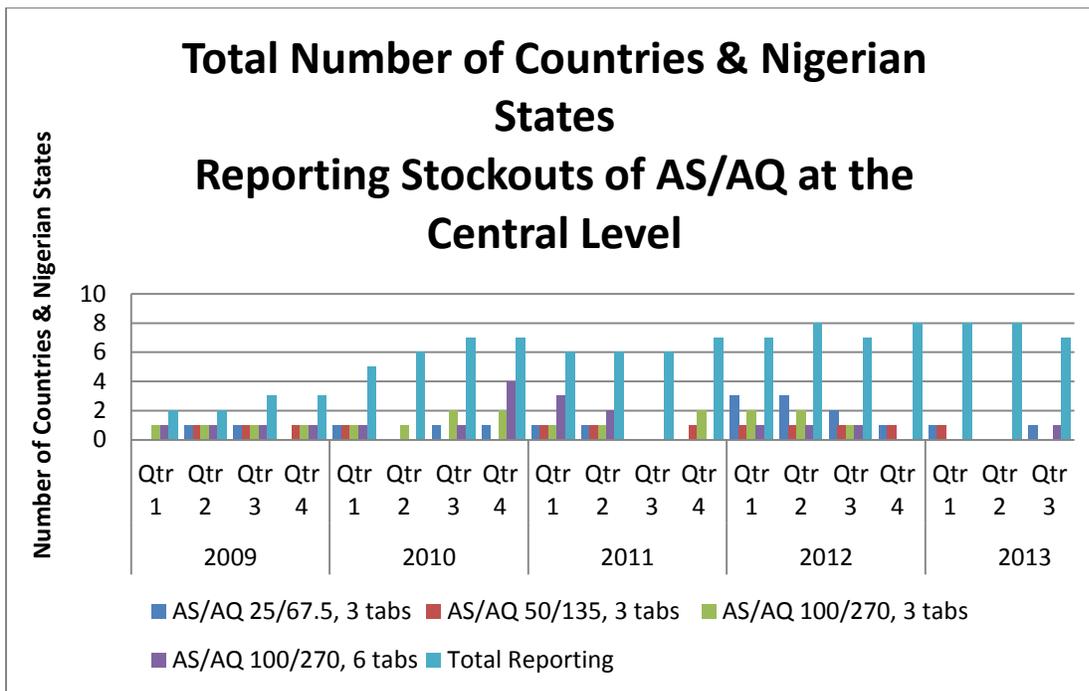


Figure 10. Total Number of Countries Reporting Stockouts of AS/AQ at the Central Level (source: PPMRm)



Figures 11 and 12 show the number of countries with more than three months of AL and AS/AQ at the central level. Each country has set minimum and maximum stock levels. Having three months of stock at the central level shows that countries are in a better position to fulfill some resupply to lower levels of the system, and would not be in an emergency situation. Since 2011, the number of countries with more than three months of AL has steadily increased. There has also been an increase with respect to AS/AQ, though not as sharp.

Figure 11. Total Number of Countries/Nigerian States with More Than Three Months of AL at the Central Level (source: PPMRm)

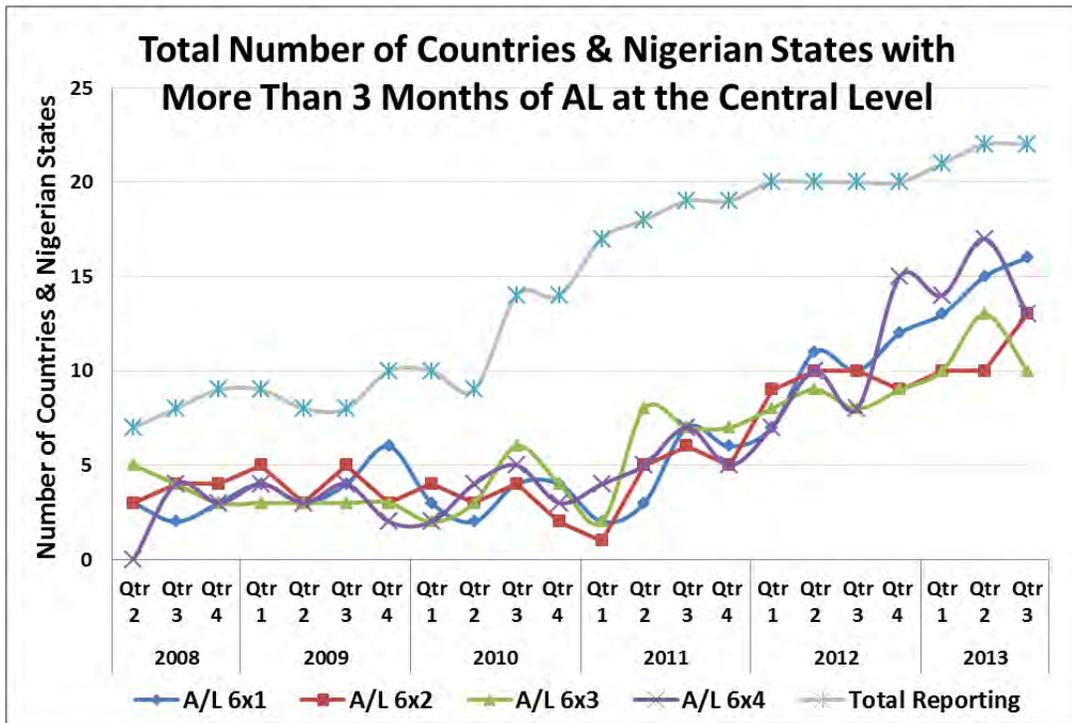
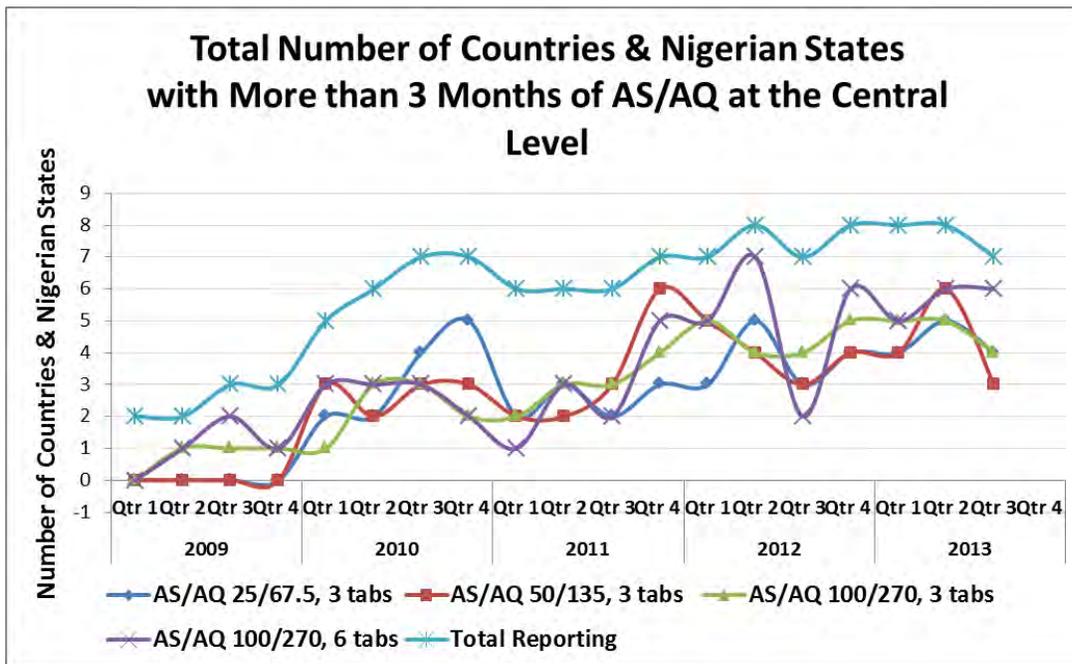


Figure 12. Total Number of Countries with More Than Three Months of FDC AS/AQ at the Central Level (source: PPMRm)



Country Highlights

Burkina Faso

The project continues to provide technical support in the management of the malaria database, a locally developed tool for capturing and analyzing malaria logistics and patient data. During this FY, the project aligned the database to the recent changes made to the health facility monthly reporting form, including new indicators on commodity management at the community level. Project staff, with the NMCP, conducted monitoring visits and provided assistance to 27 districts presenting data quality issues or encountered difficulties with the malaria database. Information from the database was analyzed and included in the newspaper, *PaluInfo*, which the project supported with production and dissemination. Indicators—such as the health facility reporting rate by district, and the percentage of health facilities with no stockout in all presentations of AS/AQ and RDT by district—were presented in the issues to create competition between districts. The project provided support to the NMCP to contact the districts by phone on a monthly basis for timely reporting.

The analysis of the data from malaria database with technical support from the project showed that—

- The facility reporting rate increased from 85 percent in October 2011 to 96 percent in September 2012, and decreased slightly to 91.75 percent in June 2013; due to the increase in number of health facilities reporting from 2013 in the malaria database.
- The percentage of health facilities with stock available for all four ACT presentations increased from 11 percent in October 2011 to 68 percent in September 2012, and 75 percent in June 2013.
- The percentage of health facilities with stocks of RDTs available increased from 1 percent in October 2011 to 82 percent in September 2012, and decreased to 72 percent in June 2013; due to the increase in number of health facilities reporting from 2013 in the malaria database.

Madagascar

The project contracted with Health Network International (HNI), a private company that specializes in submitting data through a short message service (SMS), to develop a tool to help increase the speed and efficiency of data collection, as part of the LLIN distribution campaign. Data included (1) household census, (2) essential data for microplanning, (3) number of LLINs received at distribution sites, (4) number of LLINs distributed and remaining stock, and, (5) hang-up visit data.

At the end of the reporting period, 15 of the 19 targeted districts had achieved a combined reporting rate of 85.81 percent. The rate was a little low due to delays in the reporting for phase 5. Challenges included network coverage, motivating data senders, and insufficient training of data senders. In the end, the average completion rate for all phases of the activity was 78 percent.

Figure 13. Completion Rate for 15 Districts

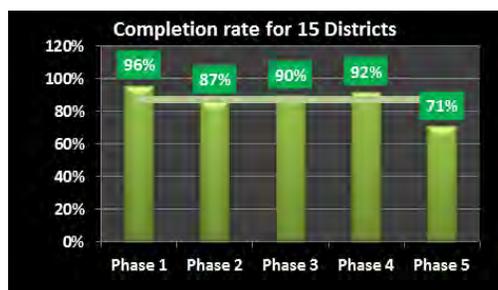
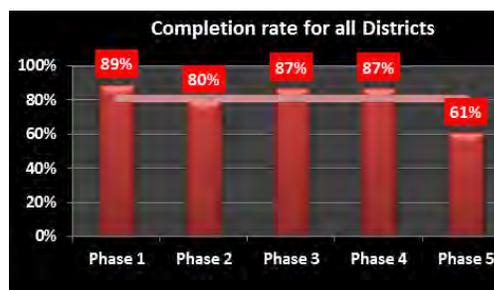


Figure 14. Completion Rate for All Districts



Malawi

Public-sector facilities submit LMIS reports on medicines in the PSC once a month. Supply Chain Manager (SCMgr) is the tool used at the central level for data aggregation and analysis; it is supported by the project. Since January 2012, the monthly LMIS reporting rate has been lower than 70 percent. In addition, the quality of data is sometimes poor; the project verifies the data with the reporting districts, when possible. The NMCP will often follow up with districts that have not reported.

The project is supporting the MOH/Health and Technical Support Services (HTSS) in the evaluation of the current LMIS system and discussion of options for modification and improvement of data quality. The assessment was conducted in February. A requirements gathering exercise was completed in FY2013. The integrated quarterly supportive supervision is also targeting the LMIS improvement by identifying immediate constraints and giving feedback at the facility level.

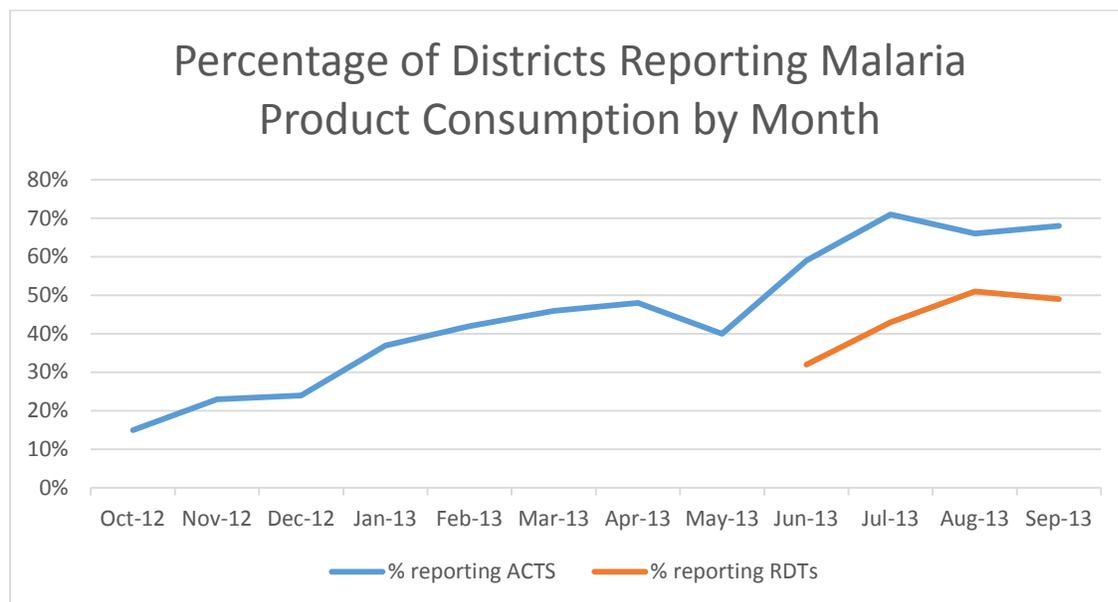
The project supported the MOH to conduct the Integrated Supportive Supervision and Peer Mentorship program. This is a two week long activity undertaken in every quarter. A total of 501 health facilities were visited by supervision teams during the FY. The project also assisted the MOH with the preparation of monthly stock status reports and pipeline review, which provided data for decisionmaking to key in-country stakeholders.

Mozambique

The project monitors district reporting rates on ACT consumption and stock on hand. For the past six months, district reporting rates have averaged 26 percent (see figure 15). The figure illustrates the overall positive trend in the number of districts reporting routinely.

To improve the reporting rate, the project introduced new forms during the training that took place in 2012. Since then, a specific module for the collection of this data has been included in a new version of the LMIS-SIMAM version 2.0 (the MOH logistics management information system), which will soon be rolled out nationwide. The project also printed the forms in booklets for distribution to all service delivery points (SDPs), instead of photocopies in the ACT/RDT kits.

Figure 15. Percentage of Districts Reporting Malaria Product Consumption, by Month



In FY2013, project staff created a module in SIMAM v.2, with a module specifically designed to facilitate capturing ACT and RDT consumption data. Although reporting this data was possible in the earlier version of SIMAM, a module now specifically focuses the operators' attention on these products. Efforts to collect actual ACT and RDT consumption data have been underway since before this issue became central to the relationship with GFATM. Consumption data forms were widely and uniformly disseminated for the first time with the procedures manual training in 2012. Now, with the strengthening of SIMAM implementation and the roll out of SIMAM v.2 to all provinces, these efforts are beginning to bear fruit in the form of increasing reporting rates. Implementing partners will support the roll out of SIMAM v.2 to selected districts during the next year, which will bring a whole new dimension to data availability.

Nigeria

The project is supporting the NMCP in the review and modification of the current Excel tool used for the national aggregation of malaria logistics data. The review of the tool is being done by the project's MIS team, with the aim to improve visibility of malaria commodities at all levels of the supply chain, from the national down to the facility and community health worker levels.

Review and resupply meetings as a strategy for malaria consumption data collection/verification and resupply model was introduced in FY2013. Review meetings were held bimonthly in seven of the PMI focus states (Benue, Cross River, Kogi, Nasarawa, Oyo, Zamfara, and Sokoto), as defined by the MCLS design; the reports from the health facilities are brought to the cluster meetings and verified. The outcome of this meeting is immediately followed with the development of the corresponding distribution plans; last mile distribution of malaria commodities is conducted through third party logistics providers to all the health facilities. Through this mechanism, 3,719 drops of malaria commodities were executed in FY2013 to 504 health facilities.

Rwanda

The project conducted its second quarterly feedback in the November monitoring, training, and planning meeting for 30 district pharmacies. The objective of the meeting was to identify the cause of no reporting for some facilities, delays in reports' submission and data quality, and to agree on practical solutions to ensure that health facilities are providing timely LMIS reports and accurate data for decisionmaking. Representatives from all district pharmacies and the LMO attended the workshop. During the meeting, participants developed and agreed on a template that the heads of district pharmacies will use to monitor the reporting timelines and reporting rate, and to check data quality once a month. More than 80 percent of the district pharmacies are using the tool to monitor these indicators. Moreover, there have been significant improvements on reporting from health facilities to district pharmacies.

As part of systems strengthening, the government of Rwanda has decided to procure and make available an eLMIS system nationwide. To review and validate the eLMIS functional requirements and identify issues that require further effort, the project organized a requirements validation workshop from October 1–5, 2012. The outcomes included validation of the system’s functional requirements; review and validation of the *As-Is* processes; recommendations for process optimization; verification of the current system configuration status, and a clear understanding of the objectives and benefits of the eLMIS and its intended use.

Tanzania

On the mainland, the project continues to implement the Integrated Logistics System (ILS), and the ILSGateway reporting system. The ILSGateway, an SMS-based facility-level stock status data collection tool, was rolled out to half the 5,000 health facilities in Tanzania. The ILSGateway provides real-time stock status information on malaria commodities for decisionmakers throughout the supply chain. Results from the ILSGateway evaluation in November 2011 indicated that 97 percent of facilities improved their on-time submission rates for stock reports. A further 93 percent improved their stock counting exercises because of the routine mobile alerts they received. Of importance, 45 percent of facilities reported improved product availability, indicating the overall positive contribution the ILSGateway has made toward improving the medicine supply system in Tanzania.

In partnership with the MOHSW, the project has supported the development of an effective and sustainable electronic logistics management information system (eLMIS) to provide a common technology platform to improve the collection, management, and use of logistics data. In preparation for the roll out of this system, user acceptance testing has been conducted to introduce future users to the system and to determine and fix challenges prior to implementation. An initial version of training materials has been developed and roll out commences in October 2013.

Early Warning System in Ghana

With numerous partners, including the National AIDS Control Program (NACP) and the NMCP, the USAID | DELIVER PROJECT expanded the Early Warning System (EWS) between October 2012 and March 2013. The EWS uses text messages to report product availability for tracer products. During the EWS pilot, between 79% and 92% of the 201 facilities participating reported on 27 tracer products weekly, providing significantly greater insight into facility-level stock status than the current paper-based system. Based on the lessons learned from implementing the EWS pilot, the project is working with the Ghana Health Service (GHS) stakeholders to expand coverage of the EWS to include all antiretroviral therapy (ART) centers in-country and to add tracer malaria commodities. Consequently, the project has commenced training commodity managers in the selected facilities to enable them use the EWS. A total of 61 GHS staff from the Volta region, 61 GHS staff (commodity managers) from ART sites in Greater Accra, 105 health commodity managers from 33 selected facilities in the Western and Eastern regions, 23 commodity managers from facilities in Brong Ahafo region, 30 facilities in the Ashanti region, and 10 commodity managers in the Central Medical Stores (CMS), have been trained on the EWS. This has improved the visibility of stock status for tracer HIV and malaria commodities at the facility level, regional medical stores, and the CMS, in real time. The project, in collaboration with the Focus Region Health Project, disseminated the findings of the assessment of the EWS pilot at the senior managers' meeting of the GHS; they agreed on the need to scale up and develop a broad policy on mHealth for the GHS.

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

Country Highlights

Angola

The project continued to provide STTA to secure government permissions that allow PMI cargos of ACTs and RDTs to arrive by charter aircraft, be immediately cleared at the airport, and then loaded onto contracted vehicles. Centrally staging freight in Europe for assembling provincial consignments has eliminated the need for any warehousing at the central level; it has also facilitated the immediate dispatch of commodities to the provinces where, in some cases, delivery is made on the same day as the air charter's arrival.

Burundi

This year saw a full supply chain for LLINs for routine distribution, where districts received bed nets based on average monthly consumption. Distribution reports for LLINs were submitted to the central level regularly. Among populations targeted for routine distribution, 87 percent of pregnant women attending their first pre-natal consultation and 92.7 percent of vaccinated children under 9 months received LLINs.

For the routine distribution system, 10 additional *pilot* districts were identified, bringing the total to 20 pilot districts, where LLINs are dispatched from the district via a *pull* system to health centers, where they are treated and tracked as essential medicines. An external evaluation of the pilot program was conducted and showed that 73.5 percent of pilot districts' health center target population visits matched the number of LLINs distributed; 100 percent of stock counts matched stock records, although only 26.5 percent of districts followed the MOH's policy on the targeted population to receive LLINs.

Liberia

In May 2013, USAID and GFATM suspended the distribution of their donated commodities due to lack of accountability in the public health supply chain. Based on the development of an interim distribution system agreed to by the MOHSW, National Drug Service (NDS), USAID and partners, this ban was lifted in September 2013. This interim approach is designed to instill stronger accountability of health commodities, improve the accuracy and availability of logistics data, and enhance commodity availability at facilities. The approach involves manual stock counts at each level (SDPs and county depots), prior to or in tandem with each distribution; it is expected to greatly improve control over commodities. It should also ensure accurate information on consumption and stock levels used as the basis for ordering; and, hopefully, will yield some of the most reliable data yet for understanding consumption and analyzing future distribution options. Support for implementation comes from USAID through the USAID | DELIVER PROJECT, GFATM, and the MOHSW. This has now led to the roll-out of this interim approach in five counties, plus Montserrado.

In February, the project, with the MOH, the Supply Chain Management Unit (SCMU), NMCP, the Family Health Department (FHD), and county health teams; facilitated a monitoring, supervision, and feedback exercise in two counties. The objective was to use LMIS data to assess system performance. The teams conducted physical inventories of tracer products and updated commodities bin cards at county depots. They also defined both electronic and manual filing

systems. At most health facilities, the teams also conducted inspections of the stores, did physical counts, and reviewed warehouse and transaction records

Ghana

The project, working in conjunction with central- and regional-level stakeholders, conducted logistics management supportive supervision and on-the-job training (OJT) to health facilities in 7 out of 10 regions (Ashanti, Brong Ahafo, Eastern, Northern, Upper East, Upper West, and Volta regions). This was aimed at strengthening logistics management practices at the SDPs. The exercise assessed storage conditions, LMIS use, and inventory management practices. Staff in supervised health facilities had their capacity improved through OJT and were supported to develop facility-based action plans to ensure continuous improvements. The availability of tracer preventing mother-to-child transmission; ART, malaria, family planning, tuberculosis, and opportunistic infections medicines were monitored to determine level of access to critical health commodities by clients. Results from the supportive supervision and EUV were shared at a National Peer Review Meeting of Logistics and Supply Chain Practitioners in the Ghana Public Health Sector to disseminate findings and stimulate the development of regional-based plans for logistics management supportive supervision to SDPs.

Madagascar

To address a lack of coordination and supply chain management skills among partners, the project was tasked with leading the National Committee of Acquisition, Supply and Stock Management (GAS Committee). As the lead facilitator for this group, the project has assisted with improving the accuracy of stock status data and, in turn, the ability of partners to place timely orders for sufficient numbers of commodities. These improved systems and skills have led to better availability of malaria products, especially at the community level.

Specifically, the project has assisted the GAS Committee develop tools to better track stock on hand, consumption, orders, and deliveries, which has greatly improved the coordination of supply chain management among the partners. This careful coordination has brought the group closer to their goal of strengthening the overall management of malaria commodities for the country, particularly procurement planning. With these new tools, the committee has been able to highlight unmet needs and has successfully forecasted ACT, RTD, and SP needs for the next three years.

Malawi

The project supported the PMPB to conduct quarterly post-marketing surveillance activities in all three regions of Malawi in FY2013. The surveillance ensures that quality medicines are circulating in the public and private systems. Teams of PMPB inspectors who participate in this activity visit health facilities and collect samples from a tracer list of products for quality analysis at the National Drug Quality Control Laboratory. Follow up is made through regulatory action by the PMPB for any of the products that fail quality control tests.

The project has implemented quarterly monitoring visits, particularly to districts that reported difficulty with the SCMgr; we visited 168 SDPs this year. During these visits, project staff offered solutions to various problems with logistics practices and SCMgr. Regular supervision of SDPs has allowed for continuous monitoring and targeted support for improvement.

Mozambique

In April, the project hired one of the three regional advisors planned for the year—for the northern region (Nampula, Niassa and Cabo Delgado provinces)—as well as an advisor for Zambezia province. Their main duty is to support the smooth flow of products and data from the health facilities through the districts to the provinces; and, above all, reinforcing the link between the provinces and the central warehouses. Both advisors participated in the logistics training workshop conducted by the project in May 2013. As part of their training and post-induction, they spent two weeks in Maputo and, later on, participated in the supervision activity in Cabo Delgado (TOT and supervision) where they supported the provincial warehouse (DPM) and the Pemba's hospital warehouse supervision. In August, the regional advisor for the central region (Sofala, Manica and Tete) was hired and oriented, leaving only the advisor for the the Southern region as yet to be recruited.

Nigeria

The project conducted assessments of five of the seven states where PMI malaria commodities are stored and distributed, including Cross River, Oyo, Kogi, Benue, and Nasarawa. The assessments enable the project to review the storage conditions and warehouse management of the state CMS and provided an opportunity to advise the state governments or directly introduce needed interventions. In Cross River state, the state government is funding the re-roofing of the store, with an estimated completion date sometime in the third quarter of FY2013. The materials being used in the roofing are of poor quality and the project is looking into replacing the sheet metal with a higher grade steel. In Oyo state, it was discovered that the fence around the Hungarian store, where PMI LLINs are held, had been pulled down by the state government in order to expand the road. A formal report has been submitted by the store officer; the state ministry of health has deployed private security agents to bridge the security gap around the warehouse. The LLINs were found in good condition in the warehouse.

Rwanda

In collaboration with the MOH and SCMS, the project conducted the 2012 annual physical inventory of public health commodities from December 17–21, 2012. There were 90 data collectors—55 pharmacy students who benefited from the pre-service training in the Supply Chain Management Course from the National University of Rwanda; 10 teachers from six nursing schools, who attended the nursing school pre-service training TOT; and 25 laboratory technician. They visited 574 health facilities: 30 district pharmacies, 41 district hospitals, and 503 SDPs.

Tanzania

The project conducted a strategic review of the national supply chain to identify systemic strengths and weakness within the medical stores department's (MSD's) operation and at other levels of the national healthcare system. Practical and implementable interventions were identified that address gaps and improve efficiencies in order to ensure increased availability of commodities within Tanzania's public-sector health system. Recognizing the importance of the context in which MSD operates, the assessment also examined and synthesized broader systems issues affecting the availability of commodities, the performance of the supply chain, and the ability of MSD to fulfill its responsibilities. Recommendations from this assessment will be used to develop a supply chain master plan.

Zambia

The project supported MOH/National Malaria Control Center (NMCC) in conducting joint monitoring and supportive supervisory visits to health facilities; specifically assessing how malaria cases are diagnosed or managed, and the availability of antimalarial drugs and RDTs at SDPs. This helped build capacity for the MOH and NMCC staff in managing antimalarial commodities at the facility level. The project also, jointly with MOH/NMCC, conducted EUV of malaria products on a monthly basis; the results of this activity provided a quick, adaptable, and informative *snapshot* of product availability and malaria case management at the facility level and helped identify strengths and weaknesses in the areas of supply chain management of malaria medicines and malaria case management. The project used data collected from monthly EUV exercises to inform the NMCP and stakeholders about malaria program implementation at the SDP level. This data enhanced program development and provided directional information about potential gaps, such as stock availability and how malaria cases are managed at the SDP level.

With MSL staff, project staff conduct monthly physical inventories at MSL. Through these routine counts, stock on hand is compared to quantities recorded on stock cards and in the warehouse management information system, so that any discrepancies can be reconciled.

Zimbabwe

In February, a technical working group (TWG), of which the USAID | DELIVER PROJECT is a member, met; through a series of small- and large-group discussions, they agreed on an outline to integrate the management of several sets of health commodities that are currently managed using different systems into a single *assisted ordering* system. The TWG proposed a timeline for developing the specific procedures that would be used to pilot the system in one province, as well as rolling out the system nationwide, if the pilot is successful. These meetings served as the genesis for a pilot system, known as the Zimbabwe Assisted Pull System (ZAPS), which was awarded USAID | DELIVER PROJECT core funding, to be piloted and evaluated in FY2014.

Bridge the Gap between NMCPs and Supply Chain Operators to Improve Core Supply Chain Functions

Country Highlights

Burkina Faso

The project has assisted the ACT committee for better coordination of donor and government funding to secure the availability of malaria commodities. The project worked with the malaria commodities quantification committee to prepare presentations on malaria commodities logistics issues: commodities needs and gap analysis, stock situation, and proposed recommendations. Through this coordination, the project also assisted the ACT committee in using the entire budget amount allocated by the Government of Burkina for malaria commodity procurement for 2013, because it has been difficult to do so in the past. This year, the project advised the ACT committee to place orders for malaria commodities totaling the entire amount allocated for 2013, as soon as the budget amount was approved by the MOH financial department.

Due to the long lead time for severe malaria kits funded by USAID (over 12 months) and the fact that the *Centrale d'Achat des Médicaments Essentiels Génériques et des Consommables Médicaux* (CAMEG) (Central Medical Stores) can produce the same kits locally, the project, with USAID and NMCP, agreed that CAMEG should procure severe malaria kits. In turn, USAID agreed to shift part of its resources for severe malaria kits to purchase ACTs and additional quantities of RDTs with the

resources. This change has helped the NMCP increase the availability of ACTs, RDT and severe malaria kits throughout the year.

Ghana

In November, 2012, the Minister of Health signed the Supply Chain Master Plan (SCMP) to signify the completion of its development and he constituted an SCMU within the MOH to assist with its implementation. However, the implementation phase has experienced challenges expressed in the form of protests from the regional directors and regional pharmacists groups; and non-conformance to the recommended organizational framework arrangements, coupled with changes in leadership at the Ministry. However, the project, with the support of the MOH, has implemented certain key activities to facilitate decisionmaking toward allocation of resources for system changes. The project completed a warehouse assessment, warehouse reorganization and dejunking exercise, LMIS landscape analysis, and EWS sustainability assessment.

The project has also supported the MOH in its communication effort with stakeholders by developing comprehensive communication plan, policy brief, and frequently asked questions (FAQS) on the SCMP. We have continually engaged the MOH and the minister to advance the implementation of the SCMP.

Liberia

The project provided assistance in planning for the annual quantification exercise during the 3rd quarter of FY2013. This included supporting NMCP and the SCMU in collecting data from the last 12 months from clinics, health centers, hospitals, and county depots in 11 of the 15 counties. In addition, the project assisted the NMCP commodity security team to facilitate meetings to discuss the quantification, malaria commodities stock status, and the community-based distribution system implementation.

Mozambique

Project staff participated in the Medicines Working Group to discuss the current stock situation of malaria commodities, in particular the transitioning from injectable quinine to injectable artesunate for severe malaria. As the program will continue to need small amounts of injectable quinine for women in their first trimester of pregnancy, project staff worked with staff from the project's field office in Harare, Zimbabwe, to transfer 200,000 vials of injectable quinine from excess stock in that country to replace soon-to-expire stocks in Mozambique. These vials will be received prior to the expiry of the current stock in Mozambique.

Nigeria

In October 2012, following the National Quantification Training of Trainers that took place in September, a state-specific quantification exercise was conducted for all the geo-political regions of the country. Four representatives from each state attended the meeting. Source data from each state and consumption data, where applicable, were used to build assumptions and quantify for ACTs needs of the states in FY2013. Thirty-six states, including the Federal Capital Territory (FCT), participated in the exercise.

The project continues to support the PSM coordination forum to foster information sharing, capacity building in supply chain management, and strengthening the coordination role of the states to ensure harmonization malaria program implementation, while reducing duplication of efforts and wastages. Project staff, with other partners, participated in the development of the National Malaria

Strategic Plan 2014–2020, provided support and made technical inputs to the PSM component of the plan in forecast, supply planning, distribution, gap analysis, costing and capacity, and capability development of NMCP in malaria commodity management.

Project staff provided technical assistance to the PSM component of NMCP in the review of the national malaria commodities distribution model, and worked with Roll Back Malaria partners to develop a long term and sustainable strategy on commodity distribution in Nigeria using the existing state distribution structure of health commodities to health facilities and/or the use of third party logistics through framework contracting.

Rwanda

Project staff supported the Logistics Management Office (LMO) with the development of a 5-year strategic plan, while utilizing evidence-based diagnostic tools for targeted intervention. Data was collected using the Capability Maturity Model (CMM) tool and key performance indicators (KPIs) to measure the maturity of the supply chain. The data collected was used during the development of a strategic planning exercise in September 2013. The project and SCMS supported a five-day workshop to develop a 5-Year National Pharmaceutical Supply Chain Strategic Plan that brought together 33 participants from the MOH, RBC divisions, and districts.

Tanzania

The increased use of logistics data to inform decisionmaking is a system strengthening objective of Tanzania's MOHSW. To aid that, the project is supporting the MOHSW in establishing a logistics management unit (LMU), which is the management structure responsible for coordinating logistics management activities of different commodity categories under one unit. LMU staff identify supply chain problems, develop solutions for those problems, and implement those interventions. The LMU will have both a strategic focus and an operational focus. The LMU is administratively under the MOHSW, but physically located at MSD zonal stores. In FY2013, the project supported the MOHSW and MSD in the design of the LMU and expects to roll out the LMU in October 2013. The project also helped advocate for funds from GFATM to help fund certain positions within the LMU.

Zimbabwe

The project, in collaboration with SCMS, assisted the Ministry of Health and Child Care (MOHCC) to conduct the national quantification. The exercise generated a 24-month forecast and an 18-month supply plan for malaria products, as well as other selected essential medicines and medical supplies. The supply plans will inform orders to be placed by the MOH CW and all partners, including PMI and the GFATM. Recommendations were also made to address funding gaps, improve forecast accuracy, and ensure commodity security.

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

Country Highlights

Ghana

The project is working with the MOH and the Ghana Health Service (GHS) to develop a standard operating procedure (SOP) manual for quantification of health commodity requirements and costs. This guide will provide a systematic, step-by-step approach to quantification and supply planning, as

well as dissemination and updating of quantification results and other data associated with forecasting and quantification. Draft versions of the manual have been prepared for sharing with stakeholders in the MOH/GHS and will be followed by extensive stakeholder consultations to ensure the document meets the needs of the Ghana supply system.

In FY2013, the project completed a pre-service training assessment, introduced supply chain courses at the School of Public Health at the University of Ghana, and conducted a TOT for supply chain modules, which will be taught at selected schools of pharmacy.

Following the success of the LLIN continuous distribution, the project collaborated with the USAID's NetWorks Project, and the Focus Region Health Project to train 564 health workers (district-level supervisors, nurses, disease control officers) in all districts of the Western region and 679 health personnel (district-level supervisors, nurses, disease control officers) in all districts of the Central region; and to support the future implementation of continuous distribution of LLINs through antenatal and child welfare clinics. The project's efforts focused on training the health personnel in logistics management to ensure a continuous availability of the LLINs for the program.

Liberia

The project assisted the NMCP in creating a supply chain management team (SCM team) to support the 10-year Supply Chain Management Plan. Project staff met weekly with the SCM team to build their capacity in reviewing and revising LMIS malaria data and measuring selected supply chain performance indicators. This enabled the team to identify and act on issues that are affecting the performance of the malaria supply chain.

Malawi

The project supported the MOH with the training of 52 pharmacy diploma students at Malawi College of Health Sciences in the use of SCMgr and PipeLine software. The graduates will later be employed in the public- and private health-sectors. The project supported reporting by providing districts with modems, thereby enhancing data availability for decisionmaking. The project also supported the MOH to keep a backup of SCMgr databases at the central level. The databases are backed up once every quarter from each of the 28 districts.

Rwanda

From March 11-22, 2013, two of ESAMI's management consultants and a senior public health logistics advisor from the JSI Tanzania office trained 20 participants (4 females and 16 males) from the LMO and other government departments in the quantification of health commodities. The training was conducted to build capacity of LMO staff and the national quantification team in principles of quantification and the use of the Quantimed software and PipeLine.

Following the TOT of the nursing schools lecturers that took place in March 2012, and referring to the course outline that was developed, the USAID | DELIVER PROJECT drafted the instructor guide, the student syllabus, and supporting PowerPoint presentation for the health logistics management course. The materials were presented to the lecturers of the five nursing schools and Kigali Health Institute (KHI) for review and finalization. Representatives from the MOH Nursing Department (1), KHI (one academic registrar and four lecturers) and nursing schools (10) attended the review workshop. Now, corrected versions of the materials are available and ready for use. The participants agreed on when the logistics course would start and at what level. Apart from the five nursing schools, KHI will present the curriculum to the Senate for final approval and they hope to begin teaching the next academic year.

Tanzania

The project is supporting the MOHSW in building capacity of healthcare workers at different levels of the supply chain, as well as top-level managers; by integrating supply chain management in pre-service training for health cadres. This concept was seconded by the MOHSW and work started with a pre-service training assessment of the supply chain management components in schools of health in Tanzania. The project trained Muhimbili University, School of Pharmacy, to start teaching supply chain to bachelor of pharmacy students, diploma of pharmaceutical sciences, and masters of pharmaceutical management students in the coming semesters. This initiative will help produce a healthcare work force with supply chain management skills straight from school and ready to work in country supply chains.

In collaboration with the MOH Zanzibar, the project continued with the roll out training of ZILS for health facilities from Pemba and Unguja Islands for health-facility personnel, with the goal of improving commodity availability. A total of 105 of 140 facilities were trained in the first two quarters of FY2013. The training is divided over several months and the plan is to complete the trainings by the end of 2013.

Zambia

In FY2013, the project supported the MOH/NMCC in rolling out the MOH-approved national EMLIP to three districts: Kaputa, Gwembe, and Lukulu. As of the end of FY2013, EMLIP was rolled out in 27 of the official 106 districts countrywide. Specifically, the project trained health workers at the DHO and SDP level in EMLIP, provided support in data capturing and analysis, and monitored via facility visitation. A total of 104 health staff were trained in the three districts, bringing the total number of health staff trained in EMLIP from January 2009 to-date to 1,814. This helped build and strength health workers capacity in supply chain management at both the district and SDP level. In the second half of FY2013, the EMLIP was put on hold at the request of the MOH for further implementation; however, information from health facilities still flows up to the central level on a monthly basis, enabling visibility into stock status at SDPs.

Table 5 shows the PMP indicators for objective 2. Supplemental information can be found in appendix F.

Table 5. PMP Indicators for Objective 2, October 1, 2012–September 30, 2013

| 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 had a stockout of a product expected to be provided or issued by that site, on the day of the visit | See appendix F |
| | | Country stockout rate: the percentage of countries with a stockout at the central warehouse(s), at the time of reporting | See appendix F |
| | | Functioning LMIS: | 9/14 = 64% |

| Support Area | Operational Area | Indicator | Status |
|--|--|--|--|
| | | percentage of countries where an LMIS routinely collects and reports stock status data (i.e., stock on hand and consumption data) from all SDPs in the country | For a full list of the countries and further explanation about the LMIS, see appendix F. |
| 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 technical assistance (TA) needs: percentage of STTA trips per mission's/PMI Washington ad hoc request conducted on time | Total: 8/8 = 100% |
| 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 | <p>Angola:</p> <ul style="list-style-type: none"> - 862,150 RDTs - 3,600,000 ACTs <p>Benin:</p> <ul style="list-style-type: none"> - 499,300 LLINs <p>Burundi</p> <ul style="list-style-type: none"> - 415,000 LLINs <p>Burkina Faso: N/A</p> <p>DRC:</p> <ul style="list-style-type: none"> - 4,465,000 ACTs - 3,500,000 RDTs <p>Ghana:</p> <ul style="list-style-type: none"> - 1,715,000 RDTs from the central level to the regional medical stores. - 1,218,430 LLINs from the central level to districts for school based distribution - 323,800 LLINs from central level for health facility based distribution <p>Kenya: N/A</p> <p>Laos:</p> <ul style="list-style-type: none"> - 28,900 LLINs - 6,673 LLINs (hammock) <p>Liberia:</p> <ul style="list-style-type: none"> - 2,596,500 ACTs - 1,500,00 RDTs - 993,000 SP <p>Madagascar:</p> <ul style="list-style-type: none"> - 105,555 Infant ACT - 281,480 Toddler ACT - 10 Child ACT |

| Support Area | Operational Area | Indicator | Status |
|--------------|------------------|-----------|---|
| | | | <ul style="list-style-type: none"> - 10 Adult ACT - 1,040,622 RDTs - 1,559,750 gloves - 2,040 safety boxes - 2,085,671 LLINs <p>Mali:</p> <ul style="list-style-type: none"> - 2,596,770 ACTs - 1,100,000 RDTs - 1,593,000 SP <p>Malawi:</p> <ul style="list-style-type: none"> - 3,908,910 ACTs - 6,209,000 RDTs - SP is part of the essential medicines kits <p>Mozambique:</p> <ul style="list-style-type: none"> - 1,512,320,ACTs - 3,113,600 RDTs <p>Nigeria:</p> <ul style="list-style-type: none"> - 3,184,730 ACTs - 655,100 SPs - 1,084,425 test of RDT - 2,886,021 LLINs <p>RDMA:</p> <ul style="list-style-type: none"> -Thailand: 110,000 <p>Rwanda</p> <ul style="list-style-type: none"> - 408,950 LLINs <p>Southern Sudan: N/A</p> <p>Tanzania:</p> <p>485,340 ACTs</p> <p>389,200 RDTs</p> <p>2,480,000 SP</p> <p>510,400 LLINs for Mainland</p> <p>50,000 LLINs for Zanzibar</p> <p>Uganda: N/A</p> <p>Zambia :</p> <ul style="list-style-type: none"> - 3,080,170 ACTs PMI - 2,374,260 ACTs DFID - 3,530,000 RDTs PMI - 2,000,000 RDTs DFID - 1,460,000 LLINs PMI - 970,975 LLINs DFID <p>Zimbabwe: (Oct–Dec 2012...Jan–Mar 2013 not yet avail)</p> <ul style="list-style-type: none"> - 560,493 ACTs |

| Support Area | Operational Area | Indicator | Status |
|--------------|------------------|---|--|
| | | | <ul style="list-style-type: none"> - 1,239,140 RDTs - 398,895 SP - 51,062 quinine tablets - 29,093 quinine ampoules |
| | | Percentage of countries receiving field support TA funds reporting on supply chain performance via the End-Use verification activity | <p>7/9 = 77%</p> <p>Burkina Faso: No Liberia: N/A Ghana: Yes Madagascar: No Malawi: Yes Mozambique: Yes Nigeria: Yes Rwanda: N/A Tanzania: Yes Zambia : Yes Zimbabwe: Yes</p> <p>For further explanation, see appendix F.</p> |
| | | Number of individuals trained in the supply chain management of malaria commodities | <p>TOTAL: 17,790</p> <p>Burkina Faso: 0 Ghana: 4,925 Liberia: 0 Madagascar: 38 Malawi: 1,719 Mozambique: 0 Nigeria: 1,818 RDMA: Cambodia: 1 Laos: 4 Rwanda: 1837 Tanzania: 7,353 Zambia: 1,814</p> |
| | | Percentage of countries with field support TA funds reporting central-level stock levels of select malaria products in quarterly stock monitoring reports (PPMRm) | <p>7/12 = 58%</p> <p>Burkina Faso: no Ghana: yes Liberia: N/A Madagascar: no Malawi: yes Mozambique: yes Nigeria: yes Regional Development Mission Asia (RDMA): yes Rwanda: N/A</p> |

| Support Area | Operational Area | Indicator | Status |
|--------------|------------------|---|---|
| | | | 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: 9/12 = 90% Burkina Faso: yes Ghana: no Liberia: N/A Madagascar: yes Malawi: yes Mozambique: yes Nigeria: yes RDMA: no Rwanda: yes Tanzania: yes Zambia: yes Zimbabwe: yes |
| | | Available supply plans: percentage of countries that have developed supply plans for PMI-funded commodities* | TOTAL: 12/14 = 86% Burkina Faso: yes Ghana: yes Liberia: yes Madagascar: yes Malawi: yes Mozambique: yes Nigeria: Yes RDMA: -Cambodia: No -Laos: Yes -Burma: no Rwanda: yes Tanzania: yes Zambia: yes Zimbabwe: yes |
| | | Number of technical reports or tools developed to support malaria supply chain performance | TOTAL: 51 Core: 1 Burkina Faso: 21 Ghana: 4 Liberia: 2 Madagascar: 12 Malawi: 4 Mozambique: 2 Nigeria: 5 Rwanda: 1 Tanzania: 6 Zambia: 6 |

| Support Area | Operational Area | Indicator | Status |
|--------------|------------------|-----------|-------------|
| | | | Zimbabwe: I |

Objective 3: Improve the Global Supply of Malaria Commodities

Strengthen International Collaboration

Support to Roll Back Malaria Procurement and Supply Management Working Group

TO Malaria is an active member of the PSM WG. The task order director served as the co-chair for the PSM Bottleneck workstream and is currently serving as the co-chair for the LMIS workstream. During the report period, TO7 participated in the 9th PSM WG meeting in Geneva, November 19–21. We presented on the results of a GFATM bottleneck assessment conducted in DRC and Tanzania. We also chaired a sub-group that focused on LMIS, sharing project experience from several countries. The subgroup recommended key areas to include in the PSM WG work plan. These included a broad partner meeting to agree on key elements of LMIS and to gather success stories around LMIS implementation and a LMIS workshop for country delegations.

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, GFATM (Affordable Medicines Facility–malaria and Voluntary Pooled Procurement), United Nations Children’s Fund (UNICEF), Clinton Health Access Initiative, and African Leaders Malaria Alliance (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. TO7 provides support in data collection, analysis, and management for the task force.

Task force members met in November to discuss its future mandate and operations. We agreed to move the data collection and analysis to the Situation Room, a WHO initiative focused on the top ten high-burden countries. TO7 shared the plans for upgrading the PPMRm to a web-based tool. Task force members agreed that with some modifications, it could also serve as a platform for task force data collection and analysis. Until the PPMRm upgrades are complete—currently estimated for September 2013—TO7 continued to support the task force in collecting country data for the 10 high-burden countries using the original template and providing the quarterly analysis. With the launching of Situation Room in May 2013, and fewer challenges with ACT supply, the task force

dissolved. TO7 remains in contact with members of the task force and the Situation Room on the use of the PPMRm for their data collection requirements.

During this period, the GFATM hired a new chief procurement officer and is changing its approach toward procurement. It is revising its procurement strategy to leverage the volume available through its grants and is rolling this out for all its core product categories, beginning with LLINs. The project participated in two meetings on the GFATM's procurement strategy and provided PMI with data on past LLIN orders and future forecasts. GFATM recently issued an RFP under its new strategy and has begun the bid analysis.

RDT Procurement Analysis

The task order analyzed its RDT procurement since 2008. The price analysis looked at variation over time, by quantity, by country, and by product; and compared competed and sole-source prices. The main findings were—

- The volume of procurement has almost doubled each year.
- The competed prices were between 30-48 percent lower than sole-source prices.
- Prices were reduced for all RDTs, except two brands.
- There was significant variability in prices for the same test across countries.

Based on this analysis, we revised our RDT procurement approach to lock in low ceiling prices, while still competing where country protocol allows. Contracts with ceiling prices significantly less than the sole-source prices were signed with each of the prequalified vendors.

Table 7. 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 | Five (ACT Task Force, AMP meeting, PSM WG, GF LLIN procurement meetings) |

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). During the reporting period, an annex was added to the EMMP, which covers instances in which the project is involved with LLIN distribution. As part of this process, project offices were asked to complete a form that indicated the responsible parties for ensuring the dissemination of appropriate behavior change communication (BCC) information during LLIN distribution (see appendix H).

In addition to the PMP indicators, a set of deliverables have been agreed to 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

Long Lead Times for LLINs

The project is experiencing long lead times for LLINs. Currently, lead times for LLINs are 9–11 months. There are several reasons for this. The first is demand from the country level. Countries continue to implement universal LLIN coverage campaigns, which require significant quantities of LLINs; at the same time, many countries are implementing continuous distribution of LLINs. Globally, vendors are operating at close to full capacity, as demonstrated by their responses to RFQs posted by the project. Second, each LLIN procurement is unique: clients must carefully review all branding requirements, specifications, and packaging. There are often several different parties in-country that must review each specification. When requests for changes to logos, or specifications, come in late, this can significantly delay the lead time for an order. In response to these challenges, the project is engaging with vendors to verify their proposed lead times, and negotiating for better lead times, encouraging countries to submit their CPIRs as soon as possible, and providing feedback on realistic lead times for planning purposes. During this FY, the project also planned for consolidated LLIN orders from countries, to better secure production slots and times from manufacturers.

Managing Expectations around Lead Times

The project continues to receive CPIRs with desired receipt dates that are not feasible given the steps in the procurement and shipping processes. This applies to a range of products—from ACTs to RDTs, to LLINs, to essential medicines. To manage expectations and provide good service to missions and country programs, the project developed and disseminated a lead time table, which provides estimates of lead times, by commodity; as well as estimated shipping time, including both air and sea, for each country. Additionally, a revised Current Actions Table was developed and disseminated. It utilizes the lead time table to estimate when an order could arrive in-country, based on the receipt of the completed and signed CPIR from the PMI country team. It also includes a column that shows whether the order is expected to be on time or late, relative to agreed upon delivery dates by the PMI country team in question.

Customs Clearance Challenges

Clearing project-procured commodities through customs remains a challenge in certain countries. In Nigeria, demurrage³ and port costs for LLINs were incurred due to a variety of challenges in communication. The vendor paid a significant percentage of these costs.

³ Demurrage is a cost related to the use of a vessel or container beyond the time allowed.

Challenges have also become apparent in DRC, where the clearance process is lengthy, with an estimated lead time of 129 days for delivery from the date the goods are available until the preclearance approval to ship is provided. Previously, the project had sent products directly into DRC, where they were held until clearing customs; however, this made products susceptible to pilferage. In response, the project now packs ACT orders for DRC by their ultimate delivery destination, and the goods are kept in secure warehousing in Europe (or for RDTs in Korea) while the customs clearance is being obtained.

Mozambique is another country with lengthy clearance procedures. It took 95 days from the day ACTs were available to the time when the green light to ship was received from the country. In response, the project ships orders to Mozambique to South Africa; from there, once the green light is obtained, transit time for the goods is far less.

In Angola, PMI requires that the transfer of custody of PMI commodities to the Angolan MOH 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. This process has been streamlined, significantly reducing the number of days required for coordination.

In Kenya this past year, a railway levy has significantly impacted the flow of commodities (specifically, ACTs, RDTs, and LLINs) into the country. Historically, donated health commodities are supposed to be exempt from this levy; however, so far, it has been difficult (for all partners, not only PMI) to secure the necessary clearance to ensure a smooth delivery of commodities. For example, about 2.3 million ACT treatments were being held at a bonded warehouse in Kenya for many days because of the levy, but they were successfully released when the MOH paid the levy. At the time of writing, another 1.6 million ACT treatments are being held in Roermond; 1.7 million LLINs are being held in China and in Tanzania; and 4,500,000 RDTs are being held in the UPS warehouse in New Jersey—all are waiting for the green light to ship. At this point, the project continues to wait for resolution, pending discussions between Kenyan government authorities and the mission in Kenya.

In-Country Registration

Products procured by the project must be registered in the countries where they are to be delivered. This is a challenge for some products, such as essential medicines, SP, rectal artesunate, and artesunate for injection. Regulatory policy continues to evolve in many of the countries where we work; which makes it difficult for the project, suppliers, and the original manufacturers to routinely track and update registration information. Registration lead times can be very long—more than two years in some countries. Because the project primarily works through wholesalers; who typically, but not always, rely on a third party to advise them of current registration status, it adds another layer of complexity and often leads to supply delays or failure. Furthermore, the registration waiver process is often not clear, or conflicting information is given. In Zambia, for example, procurement of various essential medicines was long, largely due to the lack of registration for needed essential medicines. In Ghana, the procurement of SP has been complicated by registration issues, which has affected other donors, as well, and has prevented the procurement of much-needed SP. Finally, the Nigerian National Agency for Food and Drug Administration and Control requires ACTs to have a Mobile Authentication Technology code as part of national-level efforts to combat the proliferation

and sale of counterfeit medicines. We have been working with our ACT vendors to ensure that products procured by the project adhere to local regulations and policies.

The project continues to work closely with field offices in-country and drug regulatory boards and agencies in an effort to maintain accurate and up-to-date registration information; however, the changing landscape of both pharmaceuticals needed and available manufacturers/suppliers makes this process a consistent challenge. We are also mapping out registration by the main manufacturers for products like SP to determine if direct procurement from a few key manufacturers might help address access to registered products.

ACT Production Problems

In August 2013, an ACT vendor notified the project that they were experiencing a backlog at the production level. This backlog affected all presentations, but the 6 × 2's were the most severely impacted because of the delay in the QA release process. At the time, the vendor said that they anticipated delays of the July and August orders—potentially, into September. In reality, some ripple effects of this delay continue to be experienced in November. Given this production delay, the project took several steps. The project communicated with all countries that could be affected by the delay to determine the urgency of their orders. Based on this, a prioritization exercise was completed, in collaboration with PMI. Close communication with the vendor was maintained, and the vendor let us know each week the quantities that were available; the project allocated those quantities, based on needs. Many orders were split into two separate deliveries, and the vendor assumed the freight costs for the split orders. Finally, the stockpile was strategically used to help meet the countries that were most in need.

Recruitment of Country Directors in Field Offices

During the past year, several field offices (Liberia, Nigeria, Zambia, and Malawi) saw a change in leadership, with new country directors. Filling country director positions continues to be challenging, as the position requires that the individuals have the right mix of technical skills and management experience. To this end, recruitment processes are often lengthy. The home office provided management coverage in the case of any gaps; they have successfully identified new country directors for each country.

In-country Storage Concerns

In many countries, challenges remain around securing appropriate storage space. Often, host country governments require that products destined for public-sector facilities be stored in their government or parastatal warehouses; i.e., a CMS. At the same time, these warehouses may be limited in size and unable to appropriately store all commodities and/or lack appropriate security measures consistent with acceptable warehousing practices. In Zambia, the MSL continues to have challenges with securing sufficient storage space. However, because of the low stock status of most malaria products, including ACTs, these have been prioritized for clearing customs and receipt at the MSL. Storage challenges are also faced in Nigeria; products are sent to Abuja, which is more centrally located, but appropriate warehousing options are limited. Warehousing is also limited in South Sudan, especially at the CMS, where the project has been directed to deliver commodities. Finally, in Senegal, where storage has also been a challenge, the project has stored products destined for Senegal at the UPS warehouse in Singapore, until appropriate local storage is available.

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. Unfortunately, for a variety of reasons, the quantity, quality, and regularity of the data provided is sometimes questionable; this diminishes overall confidence in the system. Where LMISs are already in place, the project is focused on strengthening these existing systems to ensure that the data moving up and down the supply chain is reliable. In other countries, the project continues to work hand-in-hand with government counterparts to put practical and reliable information systems into place. There are still significant sensitivities around the sharing of MOH-owned data in multiple countries. The seasonality analysis has provided additional insight into the issue of data quality, including issues about how we backup and manage the large volume of LMIS data the project has collected across countries, and how we determine the rigor of these data before they are used in published reports and materials. Future work will address common data quality issues encountered, regarding database development and data collection and quality checks (for example, in Burkina Faso).

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. While support has resumed in Mali, following a recent coup, ongoing political and security challenges prevent the scale of operations originally planned for the country under the TO. In Madagascar, continuing prohibitions against working directly with the Government of Madagascar have posed significant challenges to commodity distribution, which cannot be organized or managed in collaboration with government-owned health facilities. 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.

RDMA Technical Assistance

The project continues to provide some technical assistance to the RDMA mission and the countries that it supports, primarily through the presence of one *resident logistics advisor*, based in Phnom Penh. The project works with *missions* directly in Burma and Cambodia, as well as the regional mission in Bangkok; and it has been working to harmonize an approach to TA, while at the same time accommodating country-specific considerations. The project also faces challenges in aligning objectives across different clients, in terms of balancing national-level supply chain strengthening efforts with a focus on the malaria-resistant areas.

Managing Augmented Supply Chains

In most countries, the CMS is integral to the in-country supply system; it is responsible for storage, distribution, order management, and other logistics functions for the public sector. CMSs face many challenges—including weak management, poor infrastructure, insufficient human resources, low capacity, or poor policies or procedures. CMS's must be accountable for the products they

manage—including PMI commodities—by reporting on commodities delivered, providing proofs of delivery, etc.

In some countries—notably Malawi and Angola—local missions have opted to have the project run commodities through an augmented system outside the CMS. In both cases, both accountability of products delivered and availability of information on products managed through the system were improved. In the short term, running augmented systems can result in products getting to where they need to go. At the same time, thought should be placed as to how and when, and under what conditions, the responsibility for moving products from the central- to the facility-level can be transferred back to government authorities.

References

- Allen, Michael T. 2005. *Health, Nutrition, and Population Sector Programs*. Washington, DC: World Bank.
- Health II Project. 2009. *Medical Supplies for Malawi*. Boston: Health II Project (accessed on May 3, 2009: [http://health II project/portal/page/portal/604BBCDC49C97](http://health%20II%20project/portal/page/portal/604BBCDC49C97)).
- Moore, Allen, Barbara Jahari, and David Klem. 2006. Vitamin A–Fortified Grain: A New Idea for an Old Problem. *American Journal of Clinical Nutrition*. 48:1265–70.
- Office of Technology Assessment (OTA). 2009. *Technology Transfer to the Middle East*. Publication no. OTA-ISC-173. Washington, DC: Government Printing Office.
- USAID | DELIVER PROJECT, Task Order 1. 2007. *Implementing Multiple Health Commodities Logistics Management Information Systems*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1.

Appendix A

Commodities Procured October 1, 2012–September 30, 2013

| Country | PO Date | Sub Category | Total Value | Total |
|--------------|-----------|---------------------------|----------------|---------|
| Angola | 4-Sep-13 | Coartem | \$16,320.00 | 12000 |
| Angola | 4-Sep-13 | Coartem | \$26,649.00 | 56700 |
| Angola | 4-Sep-13 | Coartem | \$47,376.00 | 50400 |
| Angola | 12-Sep-13 | Coartem | \$789,427.20 | 519360 |
| Angola | 12-Sep-13 | Coartem | \$143,640.00 | 342000 |
| Angola | 12-Sep-13 | Coartem | \$174,182.40 | 138240 |
| Angola | 12-Sep-13 | Coartem | \$353,052.00 | 420300 |
| Angola | 23-Jul-13 | LLINs | \$2,807,060.00 | 890000 |
| Angola | 12-Jun-13 | Malaria Misc. Commodities | \$48,534.00 | 60 |
| Angola | 25-Sep-13 | RDTs | \$1,200,000.00 | 2000000 |
| Angola | 27-Sep-13 | RDTs | \$18,000.00 | 30000 |
| Angola | 22-Oct-12 | RDTs | \$612,000.00 | 900000 |
| Benin | 4-Oct-12 | ALu Generic | \$110,880.00 | 132000 |
| Benin | 15-Aug-13 | LLINs | \$2,723,200.00 | 740000 |
| Benin | 15-Aug-13 | LLINs | \$2,502,400.00 | 680000 |
| Benin | 21-May-13 | Malaria Pharmaceuticals | \$104,760.00 | 2700000 |
| Benin | 6-May-13 | RDTs | \$182,000.00 | 700000 |
| Benin | 6-May-13 | RDTs | \$78,000.00 | 300000 |
| Burkina Faso | 10-Dec-12 | AS/AQ FDC | \$82,940.00 | 319000 |
| Burkina Faso | 10-Dec-12 | AS/AQ FDC | \$86,580.00 | 166500 |
| Burkina Faso | 10-Dec-12 | AS/AQ FDC | \$200,340.00 | 572400 |
| Burkina Faso | 10-Dec-12 | AS/AQ FDC | \$200,340.00 | 572400 |
| Burkina Faso | 14-Feb-13 | LLINs | \$193,480.00 | 69100 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|-----------|---------------------------|----------------|----------------|
| Burkina Faso | 14-Feb-13 | LLINs | \$786,520.00 | 280900 |
| Burkina Faso | 18-Dec-12 | RDTs | \$980,000.00 | 2000000 |
| Burkina Faso | 15-Feb-13 | RDTs | \$490,000.00 | 1000000 |
| Burundi | 5-Dec-12 | AS/AQ FDC | \$140,175.00 | 400500 |
| Burundi | 5-Dec-12 | LLINs | \$1,781,875.00 | 625000 |
| Burundi | 14-Aug-13 | LLINs | \$1,677,000.00 | 650000 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$12,960.00 | 40 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$300.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$1,230.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$120.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$4,455.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$2,025.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$1,350.00 | 100 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$30,930.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$3,060.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$14,145.00 | 20 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$4,600.00 | 40 |
| Burundi | 22-Feb-13 | Malaria Misc. Commodities | \$375.00 | 20 |
| Burundi | 19-Sep-13 | Malaria Pharmaceuticals | \$65,200.00 | 40000 |
| Burundi | 29-Aug-13 | RDTs | \$430,000.00 | 1000000 |
| Cambodia | 11-Jun-13 | LLINs | \$38,180.00 | 20000 |
| Cambodia | 11-Jun-13 | LLINs | \$99,400.00 | 35000 |
| Cambodia | 7-May-13 | RDTs | \$9,120.00 | 24000 |
| Congo, Democratic Republic of | 6/21/2013 | AS/AQ FDC | \$187,200.00 | 360000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|-----------|--------------|--------------|----------------|
| Congo, Democratic Republic of | 6/21/2013 | AS/AQ FDC | \$256,320.00 | 288000 |
| Congo, Democratic Republic of | 6/21/2013 | AS/AQ FDC | \$18,876.00 | 72600 |
| Congo, Democratic Republic of | 6/21/2013 | AS/AQ FDC | \$168,210.00 | 480600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$30,420.00 | 58500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$41,652.00 | 46800 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$3,146.00 | 12100 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$27,405.00 | 78300 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$43,524.00 | 83700 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$59,274.00 | 66600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$4,290.00 | 16500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$39,060.00 | 111600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$8,424.00 | 16200 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$11,214.00 | 12600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$858.00 | 3300 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$7,560.00 | 21600 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|----------------|---------------------|--------------------|-----------------------|
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$43,992.00 | 84600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$60,342.00 | 67800 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$4,290.00 | 16500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$39,690.00 | 113400 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$16,380.00 | 31500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$22,428.00 | 25200 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$1,716.00 | 6600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$14,805.00 | 42300 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$7,020.00 | 13500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$10,146.00 | 11400 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$858.00 | 3300 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$6,615.00 | 18900 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$2,340.00 | 4500 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$3,204.00 | 3600 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$286.00 | 1100 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|-----------|--------------|--------------|----------------|
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$1,890.00 | 5400 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$12,636.00 | 24300 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$17,088.00 | 19200 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$1,144.00 | 4400 |
| Congo, Democratic Republic of | 8/12/2013 | AS/AQ FDC | \$11,340.00 | 32400 |
| Congo, Democratic Republic of | 3-Oct-12 | AS/AQ FDC | \$42,313.00 | 47500 |
| Congo, Democratic Republic of | 17-Oct-12 | AS/AQ FDC | \$7,875.00 | 22500 |
| Congo, Democratic Republic of | 17-Oct-12 | AS/AQ FDC | \$7,020.00 | 13500 |
| Congo, Democratic Republic of | 17-Oct-12 | AS/AQ FDC | \$32,040.00 | 36000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$399,000.00 | 140000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$223,300.00 | 70000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$225,000.00 | 100000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$337,500.00 | 150000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$517,500.00 | 230000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$45,000.00 | 20000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|----------------|---------------------|--------------------|-----------------------|
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$135,000.00 | 60000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$156,750.00 | 55000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$171,000.00 | 60000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$225,000.00 | 100000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$472,500.00 | 210000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$292,500.00 | 130000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$156,750.00 | 55000 |
| Congo, Democratic Republic of | 13-Mar-13 | LLINs | \$270,000.00 | 120000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$366,000.00 | 120000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$396,500.00 | 130000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$297,600.00 | 80000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$45,750.00 | 15000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$244,000.00 | 80000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$91,500.00 | 30000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$427,000.00 | 140000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|-----------|-------------------------|--------------|----------------|
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$205,500.00 | 75000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$191,800.00 | 70000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$150,700.00 | 55000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$685,000.00 | 250000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$150,700.00 | 55000 |
| Congo, Democratic Republic of | 8-May-13 | LLINs | \$274,000.00 | 100000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$11,490.00 | 500000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$13,788.00 | 600000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$4,596.00 | 200000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$16,086.00 | 700000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$6,894.00 | 300000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$2,298.00 | 100000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$2,298.00 | 100000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$4,596.00 | 200000 |
| Congo, Democratic Republic of | 23-Sep-13 | Malaria Pharmaceuticals | \$6,894.00 | 300000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------------------------|-----------|---------------------------|--------------|----------------|
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$105,000.00 | 210000 |
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$125,000.00 | 250000 |
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$90,000.00 | 180000 |
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$425,000.00 | 850000 |
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$175,000.00 | 350000 |
| Congo, Democratic Republic of | 9-Apr-13 | RDTs | \$80,000.00 | 160000 |
| Congo, Democratic Republic of | 11-Apr-13 | RDTs | \$205,500.00 | 411000 |
| Congo, Democratic Republic of | 11-Apr-13 | RDTs | \$395,000.00 | 790000 |
| Congo, Democratic Republic of | 11-Apr-13 | RDTs | \$77,500.00 | 155000 |
| Congo, Democratic Republic of | 11-Apr-13 | RDTs | \$47,000.00 | 94000 |
| Congo, Democratic Republic of | 11-Apr-13 | RDTs | \$275,000.00 | 550000 |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$114.80 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$10.50 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$33.60 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$215.60 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,121.40 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,173.20 | |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|----------|-----------|---------------------------|-------------|----------------|
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,122.80 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,079.40 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,848.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,654.80 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$63.70 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,197.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$143.50 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$357.70 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$45,937.50 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,960.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,187.20 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$266.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$424.90 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$22,050.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$585.90 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$478.10 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$192.50 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$250.60 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$758.80 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$420.00 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$93,489.20 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$149.10 | |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|----------|-----------|---------------------------|----------------|----------------|
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$123.20 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,517.60 | |
| Ethiopia | 25-Oct-12 | Malaria Misc. Commodities | \$1,051.40 | |
| Ethiopia | 13-Dec-12 | Malaria Misc. Commodities | \$6,510.00 | |
| Ethiopia | 13-Dec-12 | Malaria Misc. Commodities | \$3,444.00 | |
| Ethiopia | 13-Dec-12 | Malaria Misc. Commodities | \$3,444.00 | |
| Ghana | 2/4/2013 | AS/AQ FDC | \$38,376.00 | 73800 |
| Ghana | 2/4/2013 | AS/AQ FDC | \$69,420.00 | 78000 |
| Ghana | 2/4/2013 | AS/AQ FDC | \$37,466.00 | 144100 |
| Ghana | 2/4/2013 | Coartem | \$120,918.00 | 86370 |
| Ghana | 2/4/2013 | Coartem | \$98,361.60 | 90240 |
| Ghana | 2/4/2013 | Coartem | \$107,520.00 | 76800 |
| Ghana | 26-Sep-13 | Coartem | \$45,225.00 | 60300 |
| Ghana | 17-Jul-13 | Coartem | \$225,459.00 | 239850 |
| Ghana | 11-Jun-13 | LLINs | \$752,400.00 | 240000 |
| Ghana | 11-Jun-13 | LLINs | \$1,823,360.00 | 560000 |
| Ghana | 11-Jun-13 | LLINs | \$1,139,600.00 | 350000 |
| Ghana | 11-Jun-13 | LLINs | \$470,250.00 | 150000 |
| Ghana | 20-Aug-13 | LLINs | \$2,028,000.00 | 650000 |
| Ghana | 20-Aug-13 | LLINs | \$1,930,500.00 | 650000 |
| Ghana | 13-Aug-13 | Malaria Pharmaceuticals | \$49,375.00 | 12500 |
| Ghana | 13-Aug-13 | Malaria Pharmaceuticals | \$35,000.70 | 16667 |
| Ghana | 28-Aug-13 | Malaria Pharmaceuticals | \$83,520.00 | 2700000 |
| Guinea | 21-Jun-13 | AS/AQ FDC | \$78,078.00 | 300300 |
| Guinea | 21-Jun-13 | AS/AQ FDC | \$267,000.00 | 300000 |
| Guinea | 21-Jun-13 | AS/AQ FDC | \$140,175.00 | 400500 |
| Guinea | 21-Jun-13 | AS/AQ FDC | \$208,260.00 | 400500 |
| Guinea | 11-Mar-13 | LLINs | \$2,097,931.00 | 779900 |
| Guinea | 14-Mar-13 | Malaria Misc. Commodities | \$3,952.00 | 20 |
| Guinea | 14-Mar-13 | Malaria Misc. Commodities | \$30,780.00 | 20 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|---------|-----------|---------------------------|----------------|----------------|
| Guinea | 25-Mar-13 | Malaria Misc. Commodities | \$7,000.00 | 10000 |
| Guinea | 25-Mar-13 | Malaria Misc. Commodities | \$9,750.00 | 5000 |
| Guinea | 25-Mar-13 | Malaria Misc. Commodities | \$12,650.00 | 5000 |
| Guinea | 25-Mar-13 | Malaria Misc. Commodities | \$12,826.65 | 1101 |
| Guinea | 25-Mar-13 | Malaria Misc. Commodities | \$45,532.80 | 1860 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$15,000.00 | 1000 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$3,276.25 | 125 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$10,425.00 | 2500 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$3,000.00 | 300 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$2,364.00 | 300 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$10,105.00 | 500 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$900.00 | 150 |
| Guinea | 29-Mar-13 | Malaria Misc. Commodities | \$4,271.00 | 100 |
| Guinea | 12-Nov-12 | Malaria Pharmaceuticals | \$10,200.00 | 300 |
| Guinea | 30-Jan-13 | Malaria Pharmaceuticals | \$10,447.50 | 375000 |
| Guinea | 30-Jan-13 | Malaria Pharmaceuticals | \$10,728.00 | 40000 |
| Guinea | 28-Aug-13 | Malaria Pharmaceuticals | \$14,177.85 | 465000 |
| Guinea | 28-Aug-13 | Malaria Pharmaceuticals | \$240,500.00 | 130000 |
| Guinea | 19-Feb-13 | RDTs | \$590,000.00 | 1000000 |
| Kenya | 23-Apr-13 | Coartem | \$2,497.50 | 6750 |
| Kenya | 23-Apr-13 | Coartem | \$14,175.00 | 18900 |
| Kenya | 23-Apr-13 | Coartem | \$101,376.00 | 57600 |
| Kenya | 23-Apr-13 | Coartem | \$19,358.40 | 17760 |
| Kenya | 20-Dec-12 | Coartem | \$353,203.20 | 280320 |
| Kenya | 20-Dec-12 | Coartem | \$1,702,886.40 | 1120320 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|---------|------------|---------------------------|----------------|----------------|
| Kenya | 20-Dec-12 | Coartem | \$504,252.00 | 600300 |
| Kenya | 20-Dec-12 | Coartem | \$450,225.00 | 600300 |
| Kenya | 20-Dec-12 | Coartem | \$305,548.80 | 280320 |
| Kenya | 20-Dec-12 | Coartem | \$1,568,448.00 | 1120320 |
| Kenya | 8-Apr-13 | LLINs | \$76,680.00 | 20000 |
| Kenya | 12-Apr-13 | LLINs | \$3,124,380.00 | 860000 |
| Kenya | 12-Apr-13 | LLINs | \$3,035,800.00 | 860000 |
| Kenya | 5-Aug-13 | Malaria Pharmaceuticals | \$129,737.52 | 589716 |
| Kenya | 19-Feb-13 | RDTs | \$1,168,608.00 | 1947680 |
| Kenya | 12-Apr-13 | RDTs | \$67,000.00 | 100000 |
| Kenya | 16-May-13 | RDTs | \$3,015,000.00 | 4500000 |
| Laos | 11/28/2012 | Coartem | \$40,320.00 | 28800 |
| Laos | 11/28/2012 | Coartem | \$5,755.20 | 5280 |
| Laos | 2/1/2013 | Coartem | \$1,165.50 | 3150 |
| Laos | 2/1/2013 | Coartem | \$2,700.00 | 3600 |
| Laos | 8/15/2013 | Coartem | \$7,132.50 | 9510 |
| Laos | 8/15/2013 | Coartem | \$2,819.40 | 7620 |
| Laos | 8/15/2013 | Coartem | \$8,305.80 | 7620 |
| Liberia | 10/25/2012 | AS/AQ FDC | \$78,078.00 | 300300 |
| Liberia | 10/25/2012 | AS/AQ FDC | \$35,910.00 | 102600 |
| Liberia | 4/19/2013 | AS/AQ FDC | \$65,208.00 | 250800 |
| Liberia | 4/19/2013 | AS/AQ FDC | \$35,280.00 | 100800 |
| Liberia | 30-Nov-12 | AS/AQ FDC | \$34,335.00 | 98100 |
| Liberia | 30-Nov-12 | AS/AQ FDC | \$234,000.00 | 450000 |
| Liberia | 30-Nov-12 | AS/AQ FDC | \$1,246,356.00 | 1400400 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$550.00 | 100 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$7,975.00 | 250000 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$3,337.50 | 750 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$2,902.50 | 150000 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$870.00 | 50000 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$345.80 | 200 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$10,690.92 | 75024 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|------------|-----------|---------------------------|----------------|----------------|
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$12,720.00 | 750 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$3,390.00 | 100000 |
| Liberia | 22-Apr-13 | Malaria Misc. Commodities | \$1,250.25 | 3750 |
| Liberia | 13-Nov-12 | Malaria Pharmaceuticals | \$18,423.04 | 389 |
| Liberia | 13-Nov-12 | Malaria Pharmaceuticals | \$5,745.56 | 239000 |
| Liberia | 13-Nov-12 | Malaria Pharmaceuticals | \$222,324.80 | 113200 |
| Liberia | 4-Jun-13 | Malaria Pharmaceuticals | \$21,168.00 | 756000 |
| Liberia | 30-Nov-12 | RDTs | \$1,110,000.00 | 1500000 |
| Liberia | 30-Nov-12 | RDTs | \$740,000.00 | 1000000 |
| Madagascar | 25-Mar-13 | LLINs | \$95,700.00 | 30000 |
| Madagascar | 25-Mar-13 | LLINs | \$5,741,202.50 | 1799750 |
| Madagascar | 25-Mar-13 | LLINs | \$2,871,000.00 | 900000 |
| Madagascar | 13-May-13 | Malaria Misc. Commodities | \$8,083.00 | 19200 |
| Madagascar | 25-Apr-13 | Malaria Misc. Commodities | \$69,200.00 | 2000000 |
| Madagascar | 26-Apr-13 | RDTs | \$225,000.00 | 750000 |
| Madagascar | 26-Apr-13 | RDTs | \$75,000.00 | 250000 |
| Malawi | 10-Apr-13 | Coartem | \$235,215.00 | 313620 |
| Malawi | 20-Dec-12 | Coartem | \$513,408.00 | 366720 |
| Malawi | 20-Dec-12 | Coartem | \$600,075.00 | 800100 |
| Malawi | 20-Dec-12 | Coartem | \$366,763.20 | 336480 |
| Malawi | 20-Dec-12 | Coartem | \$185,148.00 | 500400 |
| Malawi | 29-Aug-13 | Coartem | \$874,790.40 | 575520 |
| Malawi | 29-Aug-13 | Coartem | \$362,880.00 | 864000 |
| Malawi | 29-Aug-13 | Coartem | \$386,694.00 | 460350 |
| Malawi | 29-Aug-13 | Coartem | \$254,016.00 | 201600 |
| Malawi | 29-Aug-13 | Coartem | \$345,262.50 | 460350 |
| Malawi | 29-Aug-13 | Coartem | \$805,728.00 | 575520 |
| Malawi | 29-Aug-13 | Coartem | \$319,680.00 | 864000 |

| Country | PO Date | Sub Category | Total Value | |
|---------|-----------|---------------------------|----------------|---------|
| Malawi | 29-Aug-13 | Coartem | \$219,744.00 | 201600 |
| Malawi | 14-Feb-13 | LLINs | \$742,998.80 | 251864 |
| Malawi | 14-Feb-13 | LLINs | \$796,500.00 | 270000 |
| Malawi | 14-Mar-13 | Malaria Misc. Commodities | \$34,200.00 | 60000 |
| Malawi | 14-Mar-13 | Malaria Misc. Commodities | \$11,400.00 | 20000 |
| Malawi | 5-Apr-13 | Malaria Misc. Commodities | \$121,680.00 | 3600000 |
| Malawi | 5-Apr-13 | Malaria Misc. Commodities | \$105,996.80 | 3136000 |
| Malawi | 5-Apr-13 | Malaria Misc. Commodities | \$121,680.00 | 3600000 |
| Malawi | 5-Apr-13 | Malaria Misc. Commodities | \$101,400.00 | 3000000 |
| Malawi | 28-May-13 | Malaria Pharmaceuticals | \$1,575.00 | 700 |
| Malawi | 28-Aug-13 | Malaria Pharmaceuticals | \$141,859.24 | 6211000 |
| Malawi | 28-Aug-13 | Malaria Pharmaceuticals | \$888,465.00 | 485500 |
| Malawi | 9-Nov-12 | RDTs | \$1,404,500.00 | 2809000 |
| Malawi | 29-Mar-13 | RDTs | \$850,000.00 | 1700000 |
| Malawi | 1-Apr-13 | RDTs | \$850,000.00 | 1700000 |
| Malawi | 1-Apr-13 | RDTs | \$1,509,000.00 | 3018000 |
| Mali | 2/28/2013 | Coartem | \$190,444.80 | 174720 |
| Mali | 2/28/2013 | Coartem | \$74,092.50 | 200250 |
| Mali | 2/28/2013 | Coartem | \$150,187.50 | 200250 |
| Mali | 2/28/2013 | Coartem | \$27,729.60 | 25440 |
| Mali | 18-Apr-13 | Coartem | \$165,564.00 | 118260 |
| Mali | 12-Aug-13 | Coartem | \$37,129.50 | 100350 |
| Mali | 12-Aug-13 | Coartem | \$75,262.50 | 100350 |
| Mali | 12-Aug-13 | Coartem | \$109,348.80 | 100320 |
| Mali | 12-Aug-13 | Coartem | \$8,736.00 | 6240 |
| Mali | 21-Dec-12 | Coartem | \$823,200.00 | 588000 |
| Mali | 21-Dec-12 | Coartem | \$205,617.60 | 188640 |
| Mali | 21-Dec-12 | Coartem | \$83,749.50 | 226350 |
| Mali | 21-Dec-12 | Coartem | \$195,412.50 | 260550 |
| Mali | 28-Jan-13 | LLINs | \$2,026,200.00 | 600000 |
| Mali | 2-May-13 | LLINs | \$8,250,168.15 | 2470850 |
| Mali | 28-Jun-13 | LLINs | \$4,680.00 | 1500 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|------------|-----------|-------------------------|----------------|----------------|
| Mali | 28-Jun-13 | LLINs | \$7,875.00 | 1500 |
| Mali | 28-Jun-13 | LLINs | \$9,000.00 | 1500 |
| Mali | 28-Jun-13 | LLINs | \$5,730.00 | 1500 |
| Mali | 27-Nov-12 | Malaria Pharmaceuticals | \$30,760.00 | 1000000 |
| Mali | 4-Jun-13 | Malaria Pharmaceuticals | \$108,000.00 | 225000 |
| Mali | 4-Jun-13 | Malaria Pharmaceuticals | \$20,556.00 | 900000 |
| Mali | 26-Mar-13 | RDTs | \$510,000.00 | 1000000 |
| Mali | 3-May-13 | RDTs | \$430,000.00 | 1000000 |
| Mali | 3-May-13 | RDTs | \$430,000.00 | 1000000 |
| Mozambique | 22-Oct-12 | Coartem | \$537,600.00 | 384000 |
| Mozambique | 5-Dec-12 | Coartem | \$1,311,744.00 | 936960 |
| Mozambique | 5-Dec-12 | Coartem | \$235,098.00 | 635400 |
| Mozambique | 5-Dec-12 | Coartem | \$265,440.00 | 189600 |
| Mozambique | 5-Dec-12 | Coartem | \$163,003.50 | 440550 |
| Mozambique | 5-Dec-12 | Coartem | \$688,837.50 | 918450 |
| Mozambique | 5-Dec-12 | Coartem | \$300,037.50 | 400050 |
| Mozambique | 5-Dec-12 | Coartem | \$365,634.00 | 988200 |
| Mozambique | 5-Dec-12 | Coartem | \$1,808,352.00 | 1291680 |
| Mozambique | 26-Sep-13 | Coartem | \$226,800.00 | 302400 |
| Mozambique | 26-Sep-13 | Coartem | \$308,688.00 | 283200 |
| Mozambique | 26-Sep-13 | Coartem | \$258,741.00 | 699300 |
| Mozambique | 24-Apr-13 | LLINs | \$449,500.00 | 125000 |
| Mozambique | 24-Apr-13 | LLINs | \$809,100.00 | 225000 |
| Mozambique | 24-Apr-13 | LLINs | \$899,000.00 | 250000 |
| Mozambique | 24-Apr-13 | LLINs | \$449,500.00 | 125000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|------------|-----------|-------------------------|--------------|----------------|
| Mozambique | 24-Apr-13 | LLINs | \$809,100.00 | 225000 |
| Mozambique | 24-Apr-13 | LLINs | \$899,000.00 | 250000 |
| Mozambique | 14-Aug-13 | Malaria Pharmaceuticals | \$101,090.40 | 1731000 |
| Mozambique | 4-Dec-12 | RDTs | \$652,500.00 | 2250000 |
| Mozambique | 4-Dec-12 | RDTs | \$652,500.00 | 2250000 |
| Mozambique | 14-Mar-13 | RDTs | \$687,785.00 | 2456375 |
| Mozambique | 14-Mar-13 | RDTs | \$840,000.00 | 3000000 |
| Myanmar | 4-Mar-13 | Coartem | \$1,332.00 | 3600 |
| Myanmar | 4-Mar-13 | Coartem | \$2,700.00 | 3600 |
| Myanmar | 4-Mar-13 | Coartem | \$35,616.00 | 25440 |
| Myanmar | 4-Mar-13 | Coartem | \$4,185.60 | 3840 |
| Myanmar | 11-Apr-13 | Essential Medicines PH | \$365.40 | 210000 |
| Myanmar | 11-Apr-13 | Essential Medicines PH | \$6,435.00 | 1500000 |
| Myanmar | 17-Apr-13 | Essential Medicines PH | \$2,268.00 | 210000 |
| Myanmar | 21-May-13 | LLINs | \$571,200.00 | 160000 |
| Myanmar | 24-Sep-13 | LLINs | \$293,000.00 | 100000 |
| Myanmar | 17-Apr-13 | Malaria Pharmaceuticals | \$4,100.00 | 500 |
| Myanmar | 11-Jun-13 | Malaria Pharmaceuticals | \$14,928.00 | 800000 |
| Myanmar | 21-May-13 | RDTs | \$172,000.00 | 400000 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$50,730.00 | 57000 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$9,828.00 | 18900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$3,465.00 | 9900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$16,874.00 | 64900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$28,028.00 | 107800 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$5,985.00 | 17100 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$16,380.00 | 31500 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$84,906.00 | 95400 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$9,828.00 | 18900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$50,730.00 | 57000 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$16,874.00 | 64900 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|---------|-----------|--------------|--------------|----------------|
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$3,465.00 | 9900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$11,154.00 | 42900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$34,176.00 | 38400 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$2,520.00 | 7200 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$6,552.00 | 12600 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$19,734.00 | 75900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$59,274.00 | 66600 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$4,095.00 | 11700 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$11,700.00 | 22500 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$1,260.00 | 3600 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$5,720.00 | 22000 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$17,088.00 | 19200 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$3,276.00 | 6300 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$50,730.00 | 57000 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$9,828.00 | 18900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$3,465.00 | 9900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$16,874.00 | 64900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$11,154.00 | 42900 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$2,520.00 | 7200 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$6,552.00 | 12600 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$34,176.00 | 38400 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$4,725.00 | 13500 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$22,308.00 | 85800 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$67,818.00 | 76200 |
| Nigeria | 28-Dec-12 | AS/AQ FDC | \$13,104.00 | 25200 |
| Nigeria | 28-Dec-12 | Coartem | \$53,760.00 | 38400 |
| Nigeria | 28-Dec-12 | Coartem | \$14,126.40 | 12960 |
| Nigeria | 28-Dec-12 | Coartem | \$5,062.50 | 6750 |
| Nigeria | 28-Dec-12 | Coartem | \$15,984.00 | 43200 |
| Nigeria | 28-Dec-12 | Coartem | \$39,627.00 | 107100 |
| Nigeria | 28-Dec-12 | Coartem | \$133,056.00 | 95040 |
| Nigeria | 28-Dec-12 | Coartem | \$34,531.20 | 31680 |
| Nigeria | 28-Dec-12 | Coartem | \$12,487.50 | 16650 |
| Nigeria | 28-Dec-12 | Coartem | \$2,700.00 | 3600 |
| Nigeria | 28-Dec-12 | Coartem | \$7,324.80 | 6720 |
| Nigeria | 28-Dec-12 | Coartem | \$26,880.00 | 19200 |
| Nigeria | 28-Dec-12 | Coartem | \$7,992.00 | 21600 |
| Nigeria | 28-Dec-12 | Coartem | \$7,425.00 | 9900 |
| Nigeria | 28-Dec-12 | Coartem | \$79,968.00 | 57120 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|---------|-----------|--------------|----------------|----------------|
| Nigeria | 28-Dec-12 | Coartem | \$20,928.00 | 19200 |
| Nigeria | 28-Dec-12 | Coartem | \$23,809.50 | 64350 |
| Nigeria | 28-Dec-12 | Coartem | \$20,928.00 | 19200 |
| Nigeria | 28-Dec-12 | Coartem | \$23,809.50 | 64350 |
| Nigeria | 28-Dec-12 | Coartem | \$7,425.00 | 9900 |
| Nigeria | 28-Dec-12 | Coartem | \$79,968.00 | 57120 |
| Nigeria | 28-Dec-12 | Coartem | \$5,062.50 | 6750 |
| Nigeria | 28-Dec-12 | Coartem | \$14,126.40 | 12960 |
| Nigeria | 28-Dec-12 | Coartem | \$53,760.00 | 38400 |
| Nigeria | 28-Dec-12 | Coartem | \$15,984.00 | 43200 |
| Nigeria | 28-Dec-12 | Coartem | \$19,813.50 | 53550 |
| Nigeria | 28-Dec-12 | Coartem | \$6,412.50 | 8550 |
| Nigeria | 28-Dec-12 | Coartem | \$17,265.60 | 15840 |
| Nigeria | 28-Dec-12 | Coartem | \$66,528.00 | 47520 |
| Nigeria | 28-Dec-12 | Coartem | \$93,408.00 | 66720 |
| Nigeria | 28-Dec-12 | Coartem | \$27,805.50 | 75150 |
| Nigeria | 28-Dec-12 | Coartem | \$8,775.00 | 11700 |
| Nigeria | 28-Dec-12 | Coartem | \$24,067.20 | 22080 |
| Nigeria | 28-Dec-12 | Coartem | \$20,928.00 | 19200 |
| Nigeria | 28-Dec-12 | Coartem | \$7,425.00 | 9900 |
| Nigeria | 28-Dec-12 | Coartem | \$23,809.50 | 64350 |
| Nigeria | 28-Dec-12 | Coartem | \$79,968.00 | 57120 |
| Nigeria | 28-Dec-12 | Coartem | \$10,125.00 | 13500 |
| Nigeria | 28-Dec-12 | Coartem | \$31,801.50 | 85950 |
| Nigeria | 28-Dec-12 | Coartem | \$27,729.60 | 25440 |
| Nigeria | 28-Dec-12 | Coartem | \$106,848.00 | 76320 |
| Nigeria | 19-Apr-13 | Coartem | \$21,542.40 | 15840 |
| Nigeria | 19-Apr-13 | Coartem | \$83,635.20 | 47520 |
| Nigeria | 19-Apr-13 | Coartem | \$8,037.00 | 8550 |
| Nigeria | 19-Apr-13 | Coartem | \$26,846.40 | 57120 |
| Nigeria | 29-Apr-13 | Coartem | \$382,310.40 | 251520 |
| Nigeria | 29-Apr-13 | Coartem | \$105,235.20 | 83520 |
| Nigeria | 29-Apr-13 | Coartem | \$36,666.00 | 43650 |
| Nigeria | 29-Apr-13 | Coartem | \$119,070.00 | 283500 |
| Nigeria | 27-Dec-12 | LLINs | \$894,000.00 | 300000 |
| Nigeria | 27-Dec-12 | LLINs | \$745,000.00 | 250000 |
| Nigeria | 27-Dec-12 | LLINs | \$447,000.00 | 150000 |
| Nigeria | 27-Dec-12 | LLINs | \$1,266,500.00 | 425000 |
| Nigeria | 27-Dec-12 | LLINs | \$596,000.00 | 200000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|---------|-----------|---------------------------|----------------|----------------|
| Nigeria | 27-Dec-12 | LLINs | \$447,000.00 | 150000 |
| Nigeria | 27-Dec-12 | LLINs | \$298,000.00 | 100000 |
| Nigeria | 27-Dec-12 | LLINs | \$447,000.00 | 150000 |
| Nigeria | 27-Dec-12 | LLINs | \$447,000.00 | 150000 |
| Nigeria | 23-Apr-13 | LLINs | \$445,500.00 | 150000 |
| Nigeria | 23-Apr-13 | LLINs | \$742,500.00 | 250000 |
| Nigeria | 23-Apr-13 | LLINs | \$297,000.00 | 100000 |
| Nigeria | 23-Apr-13 | LLINs | \$297,000.00 | 100000 |
| Nigeria | 23-Apr-13 | LLINs | \$297,000.00 | 100000 |
| Nigeria | 23-Apr-13 | LLINs | \$297,000.00 | 100000 |
| Nigeria | 23-Apr-13 | LLINs | \$4,529,250.00 | 1525000 |
| Nigeria | 2-May-13 | Malaria Pharmaceuticals | \$8,240.00 | 4000 |
| Nigeria | 2-May-13 | Malaria Pharmaceuticals | \$12,360.00 | 6000 |
| Nigeria | 16-May-13 | Malaria Pharmaceuticals | \$306,800.00 | 6000000 |
| Nigeria | 27-Aug-13 | Malaria Pharmaceuticals | \$153,400.00 | 3000000 |
| Nigeria | 27-Aug-13 | Malaria Pharmaceuticals | \$153,400.00 | 3000000 |
| Nigeria | 7-Feb-13 | RDTs | \$290,000.00 | 1000000 |
| Nigeria | 12-Jun-13 | RDTs | \$260,000.00 | 1000000 |
| Nigeria | 12-Jun-13 | RDTs | \$260,000.00 | 1000000 |
| Nigeria | 12-Jun-13 | RDTs | \$260,000.00 | 1000000 |
| Rwanda | 30-Apr-13 | Coartem | \$61,105.50 | 165150 |
| Rwanda | 30-Apr-13 | Coartem | \$94,680.00 | 126240 |
| Rwanda | 12-Aug-13 | Coartem | \$6,570.00 | 8760 |
| Rwanda | 23-Jan-13 | Malaria Misc. Commodities | \$18,287.12 | 402800 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$70,004.30 | 85 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$780.30 | 510 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$7,620.25 | 85 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$980.05 | 85 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$393.55 | 85 |
| Rwanda | 29-Apr-13 | Malaria Misc. Commodities | \$69,600.00 | 150000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------|-----------|-------------------------|----------------|----------------|
| Rwanda | 29-Jul-13 | RDTs | \$325,006.50 | 500010 |
| Senegal | 16-Jul-13 | AS/AQ FDC | \$26,700.00 | 30000 |
| Senegal | 5-Nov-12 | Coartem | \$107,520.00 | 76800 |
| Senegal | 5-Nov-12 | Coartem | \$82,142.40 | 75360 |
| Senegal | 5-Dec-12 | Coartem | \$53,760.00 | 38400 |
| Senegal | 12-Aug-13 | Coartem | \$ 18,648.00 | 50400 |
| Senegal | 12-Aug-13 | Coartem | \$ 56,362.50 | 75150 |
| Senegal | 18-Sep-13 | LLINs | \$468,451.50 | 146850 |
| Senegal | 18-Sep-13 | LLINs | \$1,097,008.00 | 202400 |
| Senegal | 19-Sep-13 | LLINs | \$183,872.00 | 33800 |
| Senegal | 19-Sep-13 | LLINs | \$170,014.00 | 33800 |
| Senegal | 19-Sep-13 | LLINs | \$14,255.00 | 5000 |
| Senegal | 19-Sep-13 | LLINs | \$59,150.00 | 16900 |
| Senegal | 19-Sep-13 | LLINs | \$45,865.80 | 12450 |
| Senegal | 19-Sep-13 | LLINs | \$3,207,040.65 | 911350 |
| Senegal | 14-Jun-13 | Malaria Pharmaceuticals | \$10,296.00 | 2400 |
| Senegal | 14-Jun-13 | Malaria Pharmaceuticals | \$6,750.00 | 3000 |
| Senegal | 1-Jul-13 | Malaria Pharmaceuticals | \$265,514.07 | 1154409 |
| Senegal | 1-Jul-13 | Malaria Pharmaceuticals | \$57,720.00 | 2308800 |
| Senegal | 5-Dec-12 | RDTs | \$147,000.00 | 300000 |
| South Sudan | 9-May-13 | AS/AQ FDC | \$48,672.00 | 93600 |
| South Sudan | 9-May-13 | AS/AQ FDC | \$113,208.00 | 127200 |
| South Sudan | 9-May-13 | AS/AQ FDC | \$19,734.00 | 75900 |
| South Sudan | 9-May-13 | AS/AQ FDC | \$31,815.00 | 90900 |
| South Sudan | 16-Jul-13 | AS/AQ FDC | \$3,718.00 | 14300 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$5,616.00 | 10800 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$16,020.00 | 18000 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$1,404.00 | 5400 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$4,252.50 | 12150 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|----------------|----------------|---------------------|--------------------|-----------------------|
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$4,914.00 | 9450 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$15,619.50 | 17550 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$2,457.00 | 9450 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$4,252.50 | 12150 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$19,188.00 | 36900 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$54,735.00 | 61500 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$6,396.00 | 24600 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$19,372.50 | 55350 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$17,784.00 | 34200 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$57,071.25 | 64125 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$8,892.00 | 34200 |
| South Sudan | 20-Aug-13 | AS/AQ FDC | \$14,962.50 | 42750 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$53,586.00 | 103050 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$168,143.25 | 188925 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$26,793.00 | 103050 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$48,090.00 | 137400 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$124,254.00 | 238950 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$212,665.50 | 238950 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$62,127.00 | 238950 |
| South Sudan | 12-Sep-13 | AS/AQ FDC | \$55,755.00 | 159300 |
| South Sudan | 30-Jul-13 | Coartem | \$51,795.79 | 177120 |
| South Sudan | 30-Jul-13 | Coartem | \$34,234.34 | 88560 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------|-----------|-------------------------|--------------|----------------|
| South Sudan | 30-Jul-13 | Coartem | \$34,234.34 | 88560 |
| South Sudan | 30-Jul-13 | Coartem | \$51,795.79 | 177120 |
| South Sudan | 30-Jul-13 | Coartem | \$34,234.34 | 88560 |
| South Sudan | 30-Jul-13 | Coartem | \$51,795.79 | 177120 |
| South Sudan | 30-Jul-13 | Coartem | \$34,234.34 | 88560 |
| South Sudan | 30-Jul-13 | Coartem | \$51,795.79 | 177120 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$59,593.36 | 246600 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$31,366.61 | 1032000 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$47,471.52 | 1001 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$47,471.52 | 1001 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$59,593.36 | 246600 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$31,366.61 | 1032000 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$59,593.36 | 246600 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$47,471.52 | 1001 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$31,366.61 | 1032000 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$31,366.61 | 1032000 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$47,471.52 | 1001 |
| South Sudan | 30-Jul-13 | Malaria Pharmaceuticals | \$59,593.36 | 246600 |
| South Sudan | 19-Jun-13 | RDTs | \$243,184.50 | 935325 |
| South Sudan | 19-Jun-13 | RDTs | \$243,184.50 | 935325 |
| South Sudan | 19-Jun-13 | RDTs | \$243,184.50 | 935325 |
| South Sudan | 19-Jun-13 | RDTs | \$243,184.50 | 935325 |
| Tanzania | 24-Sep-13 | Alu generic | \$615,400.00 | 510000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|----------|-----------|----------------------------|----------------|----------------|
| Tanzania | 24-Sep-13 | Alu generic | \$1,442,787.20 | 1195680 |
| Tanzania | 24-Sep-13 | Alu generic | \$754,987.20 | 625680 |
| Tanzania | 23-Apr-13 | Coartem | \$11,322.00 | 30600 |
| Tanzania | 23-Apr-13 | Coartem | \$27,337.50 | 36450 |
| Tanzania | 23-Apr-13 | Coartem | \$66,739.20 | 37920 |
| Tanzania | 23-Apr-13 | Coartem | \$30,345.60 | 27840 |
| Tanzania | 29-Aug-13 | Coartem | \$277,555.50 | 750150 |
| Tanzania | 29-Aug-13 | Coartem | \$168,750.00 | 225000 |
| Tanzania | 30-Sep-13 | Coartem | \$111,055.50 | 300150 |
| Tanzania | 30-Sep-13 | Coartem | \$180,225.00 | 240300 |
| Tanzania | 18-Jul-13 | Coartem | \$141,070.50 | 300150 |
| Tanzania | 18-Jul-13 | Coartem | \$395,082.00 | 420300 |
| Tanzania | 18-Jul-13 | Coartem | \$197,541.00 | 210150 |
| Tanzania | 18-Jul-13 | Coartem | \$141,070.50 | 300150 |
| Tanzania | 18-Jul-13 | Coartem | \$391,909.50 | 833850 |
| Tanzania | 18-Jul-13 | Coartem | \$220,383.00 | 234450 |
| Tanzania | 28-Jan-13 | LLINs | \$1,857,856.00 | 510400 |
| Tanzania | 28-Jan-13 | LLINs | \$187,500.00 | 30000 |
| Tanzania | 28-Jan-13 | LLINs | \$85,000.00 | 20000 |
| Tanzania | 6-Jun-13 | Malaria Pharmaceuticals | \$1,164,000.00 | 600000 |
| Tanzania | 4-Sep-13 | RDTs | \$89,375.00 | 162500 |
| Tanzania | 17-Apr-13 | RDTs | \$43,200.00 | 72000 |
| Tanzania | 24-May-13 | RDTs | \$71,500.00 | 130000 |
| Thailand | 13-May-13 | LLINs | \$11,649.60 | 11649.6 |
| Thailand | 13-May-13 | LLINs | \$80,900.00 | 80900 |
| Thailand | 13-May-13 | LLINs | \$4,530.40 | 4530.4 |
| Thailand | 13-May-13 | LLINs | \$1,618.00 | 1618 |
| Thailand | 13-May-13 | LLINs | \$35,596.00 | 35596 |
| Thailand | 13-May-13 | LLINs | \$3,236.00 | 3236 |
| Thailand | 13-May-13 | LLINs | \$122,968.00 | 122968 |
| Thailand | 13-May-13 | LLINs | \$2,588.80 | 2588.8 |
| Thailand | 13-May-13 | LLINs | \$323.60 | 323.6 |
| Thailand | 13-May-13 | LLINs | \$323.60 | 323.6 |
| Thailand | 13-May-13 | LLINs | \$11,326.00 | 11326 |
| Thailand | 13-May-13 | LLINs | \$22,652.00 | 22652 |
| Thailand | 13-May-13 | LLINs | \$7,442.80 | 7442.8 |
| Thailand | 13-May-13 | LLINs | \$2,588.80 | 2588.8 |
| Thailand | 13-May-13 | LLINs | \$1,618.00 | 1618 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|----------|-----------|---------------------------|----------------|----------------|
| Thailand | 13-May-13 | LLINs | \$647.20 | 647.2 |
| Thailand | 13-May-13 | LLINs | \$323.60 | 323.6 |
| Thailand | 13-May-13 | LLINs | \$37,537.60 | 37537.6 |
| Thailand | 13-May-13 | LLINs | \$647.20 | 647.2 |
| Thailand | 13-May-13 | LLINs | \$5,501.20 | 5501.2 |
| Thailand | 13-May-13 | LLINs | \$323.60 | 323.6 |
| Thailand | 13-May-13 | LLINs | \$1,618.00 | 1618 |
| Uganda | 30-Aug-13 | Coartem | \$268,650.00 | 358200 |
| Uganda | 30-Aug-13 | Coartem | \$481,344.00 | 441600 |
| Uganda | 12-Aug-13 | LLINs | \$1,617,000.00 | 550000 |
| Uganda | 16-Aug-13 | LLINs | \$4,501,500.00 | 1500000 |
| Uganda | 20-Aug-13 | LLINs | \$4,132,500.00 | 1450000 |
| Uganda | 20-Aug-13 | LLINs | \$4,275,000.00 | 1500000 |
| Uganda | 8-Nov-12 | RDTs | \$194,250.00 | 525000 |
| Zambia | 2-Nov-12 | Coartem | \$123,876.00 | 334800 |
| Zambia | 2-Nov-12 | Coartem | \$138,528.00 | 216450 |
| Zambia | 2-Nov-12 | Coartem | \$162,000.00 | 216000 |
| Zambia | 2-Nov-12 | Coartem | \$78,397.44 | 84480 |
| Zambia | 2-Nov-12 | Coartem | \$123,876.00 | 334800 |
| Zambia | 2-Nov-12 | Coartem | \$162,000.00 | 216000 |
| Zambia | 2-Nov-12 | Coartem | \$162,000.00 | 216000 |
| Zambia | 2-Nov-12 | Coartem | \$123,876.00 | 334800 |
| Zambia | 2-Nov-12 | Coartem | \$55,062.00 | 65550 |
| Zambia | 2-Nov-12 | Coartem | \$565,324.80 | 415680 |
| Zambia | 5-Nov-12 | Coartem | \$141,070.50 | 300150 |
| Zambia | 5-Feb-13 | Coartem | \$420,000.00 | 300000 |
| Zambia | 5-Feb-13 | Coartem | \$524,582.40 | 345120 |
| Zambia | 6-Dec-12 | LLINs | \$2,153,964.45 | 770925 |
| Zambia | 4-Apr-13 | LLINs | \$1,306,620.00 | 510000 |
| Zambia | 4-Apr-13 | LLINs | \$2,433,900.00 | 950000 |
| Zambia | 3-Sep-13 | LLINs | \$1,484,203.90 | 498055 |
| Zambia | 30-Jan-13 | Malaria Misc. Commodities | \$540.00 | 40 |
| Zambia | 30-Jan-13 | Malaria Misc. Commodities | \$720.00 | 40 |
| Zambia | 30-Jan-13 | Malaria Misc. Commodities | \$61,860.00 | 40 |
| Zambia | 30-Jan-13 | Malaria Misc. Commodities | \$240.00 | 40 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------|-----------|-----------------------------|---------------|----------------|
| Zambia | 30-Jan-13 | Malaria Misc. Commodities | \$300.00 | 40 |
| Zambia | 21-Dec-12 | RDTs | \$153,700.00 | 530000 |
| Zambia | 21-Dec-12 | RDTs | \$580,000.00 | 2000000 |
| Zambia | 8-Mar-13 | RDTs | \$270,000.00 | 1000000 |
| Zambia DFID | 4-Feb-13 | Coartem | \$121,378.50 | 328050 |
| Zambia DFID | 10-Sep-13 | Coartem | \$ 38,961.00 | 105300 |
| Zambia DFID | 10-Sep-13 | Coartem | \$ 176,736.00 | 126240 |
| Zambia DFID | 10-Sep-13 | Coartem | \$ 332,232.00 | 304800 |
| Zambia DFID | 26-Sep-13 | Coartem | \$ 19,480.50 | 52650 |
| Zambia DFID | 26-Sep-13 | Coartem | \$ 105,504.00 | 75360 |
| Zambia DFID | 26-Sep-13 | Coartem | \$ 73,771.20 | 67680 |
| Zambia DFID | 23-Jan-13 | Coartem | \$183,141.00 | 436050 |
| Zambia DFID | 23-Jan-13 | Coartem | \$183,141.00 | 436050 |
| Zambia DFID | 29-Aug-13 | Coartem | \$855,820.80 | 563040 |
| Zambia DFID | 29-Aug-13 | Coartem | \$296,352.00 | 705600 |
| Zambia DFID | 25-Jul-13 | Essential Medicines | \$17,160.00 | 30000 |
| Zambia DFID | 25-Jul-13 | Essential Medicines | \$1,216.00 | 160000 |
| Zambia DFID | 6-Aug-13 | Essential Medicines | \$6,750.00 | 50000 |
| Zambia DFID | 25-Jul-13 | Essential Medicines Malaria | \$63,000.00 | 36000000 |
| Zambia DFID | 25-Jul-13 | Essential Medicines Malaria | \$73,440.00 | 24000000 |
| Zambia DFID | 25-Jul-13 | Essential Medicines PH | \$33,300.00 | 15000000 |
| Zambia DFID | 25-Jul-13 | Essential Medicines PH | \$64,000.00 | 32000000 |

| Country | PO Date | Sub Category | Total Value | Total Quantity |
|-------------|-----------|---------------------------|----------------|----------------|
| Zambia DFID | 29-Jan-13 | LLINs | \$546,000.00 | 200000 |
| Zambia DFID | 12-Aug-13 | LLINs | \$90,000.00 | 30000 |
| Zambia DFID | 3-Sep-13 | LLINs | \$124,996.10 | 41945 |
| Zambia DFID | 25-Jul-13 | Malaria Misc. Commodities | \$37,430.00 | 19000000 |
| Zambia DFID | 15-Jan-13 | Malaria Pharmaceuticals | \$52,150.00 | 35000 |
| Zambia DFID | 25-Jul-13 | Malaria Pharmaceuticals | \$21,612.00 | 1200 |
| Zambia DFID | 25-Jul-13 | Malaria Pharmaceuticals | \$181,250.00 | 25000 |
| Zambia DFID | 25-Jul-13 | Malaria Pharmaceuticals | \$38,800.31 | 168697 |
| Zambia DFID | 21-Dec-12 | RDTs | \$580,000.00 | 2000000 |
| Zambia DFID | 21-Dec-12 | RDTs | \$153,700.00 | 530000 |
| Zambia DFID | 21-Dec-12 | RDTs | \$580,000.00 | 2000000 |
| Zambia DFID | 8-Mar-13 | RDTs | \$270,000.00 | 1000000 |
| Zimbabwe | 4-Oct-12 | Coartem | \$137,966.40 | 78390 |
| Zimbabwe | 4-Jan-13 | Coartem | \$22,311.00 | 60300 |
| Zimbabwe | 4-Jan-13 | Coartem | \$51,637.50 | 68850 |
| Zimbabwe | 4-Jan-13 | Coartem | \$295,008.00 | 210720 |
| Zimbabwe | 4-Jan-13 | Coartem | \$177,888.00 | 163200 |
| Zimbabwe | 12-Apr-13 | LLINs | \$2,714,060.00 | 699500 |
| Zimbabwe | 1-May-13 | Malaria Pharmaceuticals | \$93,312.72 | 948300 |
| Zimbabwe | 1-May-13 | Malaria Pharmaceuticals | \$24,869.64 | 567800 |
| Zimbabwe | 21-May-13 | RDTs | \$313,890.00 | 1046300 |
| Zimbabwe | 21-May-13 | RDTs | \$31,176.25 | 89075 |

Appendix B

DFID-Funded Procurement

| Item Description | Sub Category | PO# | PO Date | Quantity (Packs) | Commodity Value | Delivery Status |
|--|--------------------------------------|-------------|-----------|------------------|-----------------|---|
| Test, Rapid Diagnostic Malaria, Ag Pf , Cassette,[SD Bioline] Kit 25 tests | Rapid Diagnostic Test Kit | PO-PUP-1147 | 21-Dec-12 | 80000 | \$580,000.00 | Delivered March 2013 |
| Benzylpenicillin 5mu/vial | Malaria Pharmaceuticals | PO-PUP-1198 | 15-Jan-13 | 35000 | \$52,150.00 | Delivered July 2013 |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | PO-PUP-1187 | 23-Jan-13 | 14535 | \$183,141.00 | Delivered May 2013 |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | PO-PUP-1188 | 23-Jan-13 | 14535 | \$183,141.00 | Delivered August 2013 |
| Bed Net, Polyethylene, Permethrin, 150 dn, (160 x 180 x 170 cm), White, Rectangular, piece | Long-Lasting Insecticide Treated Net | PO-PUP-1194 | 29-Jan-13 | 200000 | \$546,000.00 | Delivered July 2013 |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | DN-2278 | 4-Feb-13 | 10935 | \$121,378.50 | Delivered April 2013 |
| Chlorpheniramine, 4mg, 1000 tablets | Essential Medicines Malaria | PO-PUP-1422 | 25-Jul-13 | 36000 | \$63,000.00 | Order placed for January 2014 availability |
| Acetylsalicylic Acid 300mg, 1000 tablets | Essential Medicines Malaria | PO-PUP-1424 | 25-Jul-13 | 24000 | \$73,440.00 | Order placed for December 2013 availability |
| Ferrous Sulphate 200mg, sugar-coated, 1000 tablets | Essential Medicines PH | PO-PUP-1421 | 25-Jul-13 | 15000 | \$33,300.00 | Order placed for November 2013 availability |
| Folic Acid 5mg, 1000 tablets | Essential Medicines PH | PO-PUP-1422 | 25-Jul-13 | 32000 | \$64,000.00 | Order placed for January 2014 availability |

| Item Description | Sub Category | PO# | PO Date | Quantity (Packs) | Commodity Value | Delivery Status |
|--|--------------------------------------|-------------|-----------|------------------|-----------------|---|
| Salbutamol, 2 mg tablet, 1,000 tablets per bottle | Malaria Misc. Commodities | PO-PUP-1422 | 25-Jul-13 | 19000 | \$37,430.00 | Order placed for January 2014 availability |
| Chlorpromazine Injection, 25mg/1ml ampoule, 10 ampoules per pack | Malaria Misc. Commodities | PO-PUP-1422 | 25-Jul-13 | 3000 | \$17,160.00 | Order placed for January 2014 availability |
| Mebendazole, 100 mg tablet, 100 tablets | Malaria Misc. Commodities | PO-PUP-1422 | 25-Jul-13 | 1600 | \$1,216.00 | Order placed for January 2014 availability |
| Aminophylline Inj 25mg/1ml in 10ml amp | Malaria Pharmaceuticals | PO-PUP-1422 | 25-Jul-13 | 1200 | \$21,612.00 | Order placed for January 2014 availability |
| Oral Rehydration Salts 20.5g/l POS sachet | Malaria Pharmaceuticals | PO-PUP-1425 | 25-Jul-13 | 25000 | \$181,250.00 | Expected to arrive November 2013 |
| Ceftriaxone 250mg/vial | Malaria Pharmaceuticals | PO-PUP-1426 | 25-Jul-13 | 168697 | \$38,800.31 | Order placed for January 2014 availability |
| Adrenaline Injection (Epinephrine), 1mg/1ml ampoule, 100 ampoules per pack | Malaria Misc. Commodities | PO-PUP-1436 | 6-Aug-13 | 500 | \$6,750.00 | Expected to arrive November 2013 |
| Bed Net, Polyethylene, Permethrin, 150 dn, (160 x 180 x 170 cm), White, Rectangular, piece | Long-Lasting Insecticide Treated Net | PO-PUP-1439 | 12-Aug-13 | 30000 | \$90,000.00 | Order placed for January 2014 availability |
| Artemether/Lumefantrine 20mg/120mg, tablets, 6x4 Blister Pack, 30 treatments | Coartem | PO-PUP-1461 | 29-Aug-13 | 18768 | \$855,820.80 | Order placed for December 2013 availability |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | PO-PUP-1461 | 29-Aug-13 | 23520 | \$296,352.00 | Order placed for December 2013 availability |
| Artemether/Lumefantrine 20mg/120mg, tablets, 6x3 Blister Pack, 30 treatments | Coartem | PO-PUP-1461 | 29-Aug-13 | 14704 | \$555,811.20 | Order placed for December 2013 availability |

| Item Description | Sub Category | PO# | PO Date | Quantity (Packs) | Commodity Value | Delivery Status |
|---|--|---------------------|-------------------|------------------|-----------------|---|
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | PO- PUP- 1462 | 29- Aug- 13 | 26340 | \$292,374.00 | Order placed for August 2014 availability |
| Bed Net, Polyethylene, Permethrin, 150 dn, (160 x 180 x 170 cm), White, Rectangular, piece | Long-Lasting Insecticide Treated Net | PO- PUP- 1469 | 3-Sep- 13 | 41945 | \$124,996.10 | Order placed for January 2014 availability |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | DN- 2463 | 10- Sep- 13 | 3510 | \$ 38,961.00 | Arrived end of September 2013 |
| Artemether/Lumefantrine 20mg/120mg, tablets, 6x4 Blister Pack, 30 treatments | Coartem | DN- 2463 | 10- Sep- 13 | 4208 | \$ 176,736.00 | Arrived end of September 2013 |
| Artemether/Lumefantrine 20mg/120mg, tablets,6x3 Blister Pack, 30 treatments | Coartem | DN- 2463 | 10- Sep- 13 | 10160 | \$ 332,232.00 | Arrived end of September 2013 |
| Artemether/Lumefantrine 20mg/120mg, Pill, Dispersible, 6x1 Blister Pack, 30 Treatments | Coartem | DN- 2488 | 26- Sep- 13 | 1755 | \$ 19,480.50 | Expected to arrive November 2013 |
| Artemether/Lumefantrine 20mg/120mg, tablets, 6x4 Blister Pack, 30 treatments | Coartem | DN- 2488 | 26- Sep- 13 | 2512 | \$ 105,504.00 | Expected to arrive November 2013 |
| Artemether/Lumefantrine 20mg/120mg, tablets,6x3 Blister Pack, 30 treatments | Coartem | DN- 2488 | 26- Sep- 13 | 2256 | \$ 73,771.20 | Expected to arrive November 2013 |

Appendix C

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, |
| | | | | |
| ICT | Malaria Pf Cassette | HRP2 | Pf | |
| | | | | |
| Orchid Biomedical | Paracheck Pf Device | HRP2 | Pf | |
| | | | | |
| Premier Medical | First Response Mal Ag | HRP2 | Pf | |
| | First Response Mal Ag Combo | HRP2/pLDH | Pf/PAN | |
| | | | | |
| Span Diagnostics | ParaHIT f Device | HRP2 | Pf | |
| | ParaHIT f Dipstick | HRP2 | Pf | |
| | ParaHIT Total Device | HRP2 | Pf/Pan | |
| | | | | |
| Standard Diagnostics | Bioline Malaria Ag Pf | HRP2 | Pf | |
| | Bioline Malaria Ag Pf/PAN | HRP2/pLDH | Pf/PAN | |
| | Bioline Malaria Ag Pf/Pv | HRP2/pLDH | Pf/Pv | |
| | Bioline Malaria Ag Pf | HRP2/pLDH | Pf | |
| | | | | |

Appendix D

Preselected LLIN Manufacturers

| Brand | Manufacturer | Polyester | Polyethylene | Polypropelene | Denier | Pesticide | Whopes Status |
|---------------|----------------------------|-----------|--------------|---------------|-----------------------|--------------------|---------------|
| Interceptor ® | BASF | √ | | | 75 & 100 | Alpha-cypermethrin | Interim |
| DuraNet ® | Shobikaa Impex Private Ltd | | √ | | 145+/- 5% (138 – 152) | Alpha-cypermethrin | Full |
| Olyset ® | Sumitomo Chemical | | √ | | 150 | Permethrin | Full |
| Olyset ® | A-Z Textile Mills Ltd | | √ | | 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 |
| Netprotect ® | Bestnet | | | √ | 115 | Deltamethrin | Interim* |

* The Netprotect ® WHOPES Interim recommendation was withdrawn on October 29th after the close of FY2013.

Appendix E

WHO-Prequalified Manufacturers of ACTs

| Manufacturer | Product | Details |
|----------------------------|-----------------------|--|
| Novartis Pharma AG | Coartem® FDC | Artemether/Lumefantrine, 20mg/120mg |
| Sanofi Aventis/Africasoins | Winthrop® FDC ASAQ | Artesunate+Amodiaquine, four dosage presentations |
| CIPLA Ltd | Generic ALu | Artemether/Lumefantrine, 20mg/120mg |
| IPCA Laboratories Ltd | Generic ALu | Artemether/Lumefantrine, 20mg/120mg |
| Sigma Tau | Eurartesim® - PQP+DHA | Piperaquine tetraphosphate + dihydroartemisinin 160/20 mg, 320/40 mg |

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) (Source: EUV)

| Country | Date | Percent Stocked out of All ACTs | N | Comments |
|------------|-----------------|---------------------------------|----|---|
| Ghana | Oct-Dec 2012 | 14% | 49 | |
| | Jan -Mar 2013 | 16.7% | 42 | |
| | Apr-June 2013 | 20% | 35 | |
| | July-Sept 2013 | | | Results from this round of data collection are pending as of the writing of this report |
| Malawi | Oct-Dec 2012 | 2% | 56 | |
| | Jan -Mar 2013 | 6% | 56 | |
| | Apr-June 2013 | 2% | 55 | |
| | July-Sept 2013 | | | Results from this round of data collection are pending as of the writing of this report |
| Mozambique | Oct-Dec 2012 | 12.5% | 8 | |
| | Jan -Mar 2013 | NA | NA | Data collection was initiated, but impeded by flooding and then unavailability of NMCP |
| | April-June 2013 | 25% | 12 | |
| | July-Sept 2013 | | | Results from this round of data collection are pending as of the writing of this report |
| Nigeria | Oct-Dec 2012 | 0% | 61 | MAPS supported states |
| | Oct-Dec 2012 | 45% | 11 | Sokoto state |
| | Oct-Dec 2012 | 42% | 12 | Bauchi state |

| | | | | |
|----------|-----------------|-----|-----|--|
| | Jan-Mar 2012 | NA | NA | Nigeria conducts EUV on a semiannual basis |
| | April-June 2012 | 2% | 95 | All PMI support states: Benue, Bauchi, Cross River, Ebonyi, Kogi, Nassarawa, Oyo, Sokoto, Zamfara |
| | April-June 2012 | 1% | 71 | MAPS support states: Benue, Cross River, Ebonyi, Kogi, Nassarawa, Oyo, Zamfara |
| | July-Sept 2013 | NA | NA | Nigeria conducts EUV on a semiannual basis |
| Tanzania | Oct-Dec 2012 | 9% | 219 | |
| | Jan -Mar 2013 | | | EUV was not conducted during this quarter so as not to conflict with the SPA, as per PMI's request |
| | April-June 2013 | 13% | 214 | |
| | July-Sept 2013 | 11% | 222 | |
| Zambia | Oct-Dec 2012 | 6% | 17 | |
| | Jan -Mar 2013 | 4% | 23 | |
| | April-June 2013 | 0% | 29 | |
| | July-Sept 2013 | | | Results from this round of data collection are pending as of the writing of this report |
| Zimbabwe | Oct-Dec 2012 | 0% | 40 | |
| | Jan-Mar 2013 | 10% | 39 | |
| | April-June 2013 | 3% | 38 | |
| | July-Sept 2013 | | | Results from this round of data collection are pending as of the writing of this report |

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 and Nigeria are an exception, as they reflect the absence of only WHO pre-qualified ACTs for all AL and AS/AQ presentations (FDC and co-blister)

Nigeria collects EUV data only on a semiannual basis, and reports separately for states receiving support from the MAPS project, and those that are not.

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, and Rwanda.

INDICATOR 2

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

October-December 2012

| Commodity | Percent stocked out | N | Countries/States stocked out |
|--------------------------------|---------------------|----|------------------------------|
| AL 6x1 | 5% | 20 | Nigeria-Benue |
| AL 6x2 | 5% | 20 | Zambia |
| AL 6x3 | 15% | 20 | Ghana, Kenya, Mali |
| AL 6x4 | 5% | 20 | Mali |
| FDC AS/AQ 25/67.5mg | 29% | 7 | Ghana, Guinea |
| FDC AS/AQ 50/135mg | 29% | 7 | Ghana |
| FDC AS/AQ 100/270mg, 3 tabs | 29% | 7 | Ghana |
| FDC AS/AQ 100/270mg, 6 tabs | 29% | 7 | Ghana |
| SP | 7% | 14 | Mali |
| RDTs | 13% | 15 | Burkina Faso, Zambia |

January-March 2013

| Commodity | Percent stocked out | N | Countries/States stocked out |
|--------------------------------|---------------------|----|---|
| AL 6x1 | 5% | 20 | Nigeria-Sokoto |
| AL 6x2 | 15% | 20 | Ghana, Nigeria-Nassarawa, Nigeria-Sokoto |
| AL 6x3 | 15% | 20 | Ghana, Nigeria – Sokoto, Zambia |
| AL 6x4 | 10% | 20 | Mali, Zambia |
| FDC AS/AQ 25/67.5mg | 13% | 8 | Guinea |
| FDC AS/AQ 50/135mg | 13% | 8 | Ghana |
| FDC AS/AQ 100/270mg, 3 tabs | 0% | 8 | |
| FDC AS/AQ 100/270mg, 6 tabs | 0% | 8 | |
| SP | 37% | 19 | DRC, Mali, Nigeria – Benue, Nigeria - Cross River, Nigeria – Ebonyi, Nigeria – Nassarawa, Nigeria - Zamfara |
| RDTs | 11% | 19 | Burkina Faso, Guinea |

April-June 2013

| Commodity | percent stocked out | N | Countries/States stocked out |
|--------------------------------|---------------------|----|---------------------------------------|
| AL 6x1 | 5% | 22 | Zambia |
| AL 6x2 | 9% | 22 | Nigeria - Cross River, Zambia |
| AL 6x3 | 18% | 22 | Kenya, Mali, Nigeria – Sokoto, Zambia |
| AL 6x4 | 9% | 22 | Mali, Zambia |
| FDC AS/AQ 25/67.5mg | 0% | 8 | |
| FDC AS/AQ 50/135mg | 0% | 8 | |
| FDC AS/AQ 100/270mg, 3 tabs | 0% | 8 | |
| FDC AS/AQ 100/270mg, 6 tabs | 0% | 8 | |
| SP | 13% | 23 | Benin, DRC, Ghana |
| RDTs | 0% | 18 | |

July-September 2013

| Commodity | percent stocked out | N | Countries/States stocked out |
|--------------------------------|---------------------|----|------------------------------|
| AL 6x1 | 9% | 22 | Myanmar, Mali |
| AL 6x2 | 9% | 22 | Myanmar, Mali |
| AL 6x3 | 5% | 22 | Myanmar |
| AL 6x4 | 5% | 22 | Myanmar |
| FDC AS/AQ 25/67.5mg | 14% | 7 | Guinea |
| FDC AS/AQ 50/135mg | 0% | 7 | |
| FDC AS/AQ 100/270mg, 3 tabs | 0% | 8 | |
| FDC AS/AQ 100/270mg, 6 tabs | 13% | 8 | Benin |
| SP | 18% | 22 | Benin, DRC, Mali, S. Sudan |
| RDTs | 14% | 21 | Burkina Faso, Kenya, Myanmar |

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 | <p>There is a combined Logistics and Statistics data reporting system for malaria activities in Burkina. The stock on hand and consumption data are reported on monthly basis from the health facilities (HF) and from the Community Health Workers (CHW). At the district level, the district data manager enters the HF monthly report data into a database designed for malaria activities reporting, and sends the quarterly report file to the central level through the region by internet. In November 2012 the project provided financial support to review the malaria database and to align it to the recent changes made to the health facility monthly reporting form. The health facility monthly reporting form was revised in order to allow for the collection of new malaria indicators related to ACT management at the community level. The project also funded a training for all data providers on the revised database.</p> <p>The development of the database was funded under GFATM round 7 grants and implemented in all the districts since December 2010 with technical and financial support from the project.</p> <p>The project provided technical and financial support to the NMCP for monitoring the use of the database in the field.</p> |
| Ghana | No | Presently, the LMIS in Ghana cannot be described as functional. What data does arrive at the central level is too late to be used for decision making purposes. |
| Liberia | No | LMIS has been rolled out in various counties, each county is due to report every month, however, and there are still challenges in timely reporting and the use of the tools with some counties. |
| Madagascar | No | <p>Because of restrictions on working directly with the GOM, the Project doesn't directly support the LMIS.</p> <p>The project mainly works with NGOs and is training providers in completing the LMIS forms.</p> |
| Malawi | Yes | 100 % of health facilities in Malawi are integrated in LMIS reporting. The average reporting from July 2012 to March 2013 was 56% and from October 2012 to March 2013 it was 54%. Reporting rates in the last two quarters continued to improve and in September 2013 the reporting rate reached an all-time high of 86% at the facility level. |
| Mozambique | No | Mozambique has an LMIS, but it does not 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. |

| Country | Functioning LMIS | Note |
|----------|------------------|--|
| | | An automated system (SIMAM) has been implemented at the central and provincial levels. 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 | Yes | The Malaria Commodity Logistics System has established procedures for receiving and reporting on stock at the facility level. |
| RDMA | | <p>Cambodia: Yes. The LMIS system collects data down to the health facility and Village Malaria Worker (VMW) level. .</p> <p>Laos: Yes. The LMIS tool gathers two separate streams of data on essential malaria commodities such as ACTs, RDTs and Artesunate at the provincial and district levels on a weekly basis. This information is combined with monthly reports from health facilities to predict consumption, informs forecasts and provide recommendations for resupply.</p> <p>Burma: No. Burma doesn't have an LMIS system that collects data from <i>all</i> SDPs</p> |
| Rwanda | Yes | Rwanda has continued having a functioning LMIS during the reporting period. The project collected, computed, and analyzed malaria commodity data from 30 district pharmacies and on average 555 health facilities. The average reporting rates were 100% for districts and 95% for health facilities. |
| Tanzania | Yes | The integrated Logistics System (ILS) provides for paper-based reporting at all levels of the system. The ILS Gateway is a complementary SMS based data collection tool developed under the USAID DELIVER PROJECT that has been implemented in 3,500 of the 5,000 country's health facilities and is collecting stock on hand data. ILSGateway will be rolled out to all remaining facilities this year. Average reporting rate stands at 81%. |
| Zambia | Yes | EMLIP: Currently active in 27 districts (out of 89) and 627 health facilities. As of the end of FY2013, a total of 1,814 health facility staff has trained in EMLIP i.e. January 2009 to-date. |
| Zimbabwe | Yes | Automated Delivery/Receipt Voucher (AutoDRV) system exists for routine collection of LMIS data from SDPs. Central LMIS (TOP UP) exists for routine analysis and reporting stock status data. |

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 TO7 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 Malaria Operational Plan (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 has completed End Use Verification data collection visits to Nampula, Maputo Province and Maputo City thus far this year. |
| Nigeria | Yes | Nigeria's first EUV activity was conducted in November/December of 2012. Second round of the exercise was conducted in May/June 2013. |
| RDMA | No | No countries in RDMA have been selected to execute EUV surveys by PMI Malaria Operational Plans. |
| Rwanda | NA | Although Rwanda is a TO7 presence country, responsibility for the End-Use activity, is no longer in our mandate as we are strengthening the central level. |
| Tanzania | Yes | Tanzania has been carrying out the End-Use activity quarterly since January 2009. Since 2011, Quarterly EUV from visits to 220 facilities are generated and shared with various stakeholders including NMCP and PMI. |
| Zambia | Yes | Zambia has been carrying out the End-Use activity quarterly since November 2009. The results of this activity provided a quick, adaptable and informative "snapshot" of product availability and malaria case management at the facility level and help identify strengths and weaknesses in the areas of supply chain management of malaria medicines and malaria case management. |
| Zimbabwe | Yes | No ad hoc STTA requests this period. |

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 malaria commodities coordination body named "ACT committee" led by the Director General of the Pharmacy Department. During the first part of this fiscal year, the committee met on a monthly basis and as often as ACT issues arose. The ACTs and other malaria commodities logistics issues are presented, discussed during the meetings and recommendations made to address them. USAID DELIVER PROJECT provides technical and financial supports to the ACT committee to ensure donor and government coordination around malaria commodity supply. CAMEG (Central Medical Stores), NMCP, Pharmacy department, and other partners involved in malaria activities are members of this committee. |
| Ghana | No | The Inter-Coordinating Committee for Contraceptive Security and Technical Working Group for the National Aids Control Program focus on HIV and AIDS. The logistics coordination within the NMCP is largely internal. |
| Liberia | N/A | There is a Supply Chain Technical and Task Force Working Group that meets regularly. As a result of these meetings, the team developed an interim approach document that addresses the query from USAID. |
| Madagascar | Yes | Three functioning coordination committees related to logistics: PMI / Malaria Acquisition, Supply & Stock management committee (GAS/PMI); Roll Back Malaria / Malaria Acquisition, Supply & Stock management committee (GAS/RBM); Logistics Subcommittee / LLIN campaign National Coordination Committee (CNC) |
| Malawi | Yes | In theory there are meant to be quarterly meetings. However, that hasn't worked in practice. HTSS initiated a broader SC coordination meeting covering all programmes in December 2012 that was meant to replace the NMCP meeting. The first meeting was useful and promised to be a good forum for coordination. However, with Godfrey's departure from HTSS and the effective dissolution of his department, this forum has also ceased to function. In September the NMCP monthly meeting revived and NMCP has advised they would like to have it as monthly meeting. |
| Mozambique | Yes | The Malaria Commodities Working Group continues to meet regularly and reports quarterly on pipeline status and potential stock status issues. |
| Nigeria | Yes | Monthly Procurement and Supply Management meetings held at the National level and across 7 PMI focus states (Benue, Cross River, Ebonyi, Kogi, Nasarawa, Oyo and Zamfara). |
| RDMA | | Cambodia: No. At this time there is no formal logistics coordination mechanism in place. Laos: No. Discussions on logistics and commodity management tend |

| Country | Functioning Coordination Committee | Note |
|----------|------------------------------------|--|
| | | to be ad hoc. Burma: No. There isn't a functioning coordination committee for logistics at this time. GF had attempted to get one started but it only met one time and hasn't convened again. |
| Rwanda | Yes | The malaria and other parasites disease division facilitated a stakeholder meeting on a quarterly basis in order to review ongoing malaria related programming activities and upcoming shipments. |
| Tanzania | Yes | The 'ACT working group' meets on a quarterly basis to discuss all areas around malaria programming, procurements, interventions. A larger group from Case Management Unit will replace this working group soon. The project is also supporting the establishment of a Logistics Management Unit that will be responsible for coordinating logistics activities with NMCP. |
| Zambia | Yes | A logistics coordination committee headed by the Malaria Logistics Officer from NMCC is in place. |
| Zimbabwe | Yes | MMSCT Technical and Policy Committees meet quarterly to discuss functioning of the malaria supply chain. |

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 | There is a quantification team for malaria commodities. The quantification exercise is completed every year with a development of a coordinated supply plan integrating all the partners involved in malaria commodities funding/procurement such as USAID/PMI, UNICEF, Principal Recipients of GFATM s, CAMEG,etc. A yearly supply plan is developed 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 funding malaria commodities. |
| Ghana | Yes | Malaria quantification with supply plans was developed in May 2013. The pipeline for commodities is updated quarterly and the quantification will be reviewed in November 2013. |
| Liberia | Yes | There is a supply plan in place. It was recently reviewed against the current stock status and updated. |
| Madagascar | Yes | Newly reviewed supply plan by GAS/PMI, to be shared with RBM: • From FY14 on, PMI partners will request that the annual order for RDT & accessories will be received in four staggered deliveries as follows: 1st delivery to be received in January (32% of the annual amount), 2nd delivery in April (28%), 3rd in July (14%) and 4th delivery in October (26%) |

| Country | Available supply plans | Note |
|--------------|------------------------|--|
| Burkina Faso | Yes | There is a quantification team for malaria commodities. The quantification exercise is completed every year with a development of a coordinated supply plan integrating all the partners involved in malaria commodities funding/procurement such as USAID/PMI, UNICEF, Principal Recipients of GFATM s, CAMEG,etc. A yearly supply plan is developed 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 funding malaria commodities. |
| Ghana | Yes | Malaria quantification with supply plans was developed in May 2013. The pipeline for commodities is updated quarterly and the quantification will be reviewed in November 2013. |
| Liberia | Yes | There is a supply plan in place. It was recently reviewed against the current stock status and updated. |
| Madagascar | Yes | Newly reviewed supply plan by GAS/PMI, to be shared with RBM: • From FY14 on, PMI partners will request that the annual order for RDT & accessories will be received in four staggered deliveries as follows: 1st delivery to be received in January (32% of the annual amount), 2nd delivery in April (28%), 3rd in July (14%) and 4th delivery in October (26%) |
| Malawi | Yes | The supply plan is developed taking into account the quantification and the donor commitment to supply the country in quantified commodities. This covers essentials medicines, TB, Malaria, Diagnostics and Family Planning/Reproductive Health commodities. |
| Mozambique | Yes | In May 2012, a comprehensive project-organized exercise involving MOH, <i>Central de Medicamentos e Artigos Médicos (CMAM)</i> , NMCP, PMI, WHO and other partners, quantified antimalarials and RDT needs for the period of 2012 to 2016, and the corresponding supply plan was developed. Since then, the quantification and supply plan have been adjusted as additional consumption and shipping information becomes available – most recently in conjunction with a GFATM PSM exercise in March. |
| Nigeria | Yes | PPMRm is updated quarterly and there is a PipeLine database for PMI commodities. |
| RDMA | | Cambodia: No. At this time there are no procurement gaps in Cambodia so PMI has not supported commodity for the national program. Laos: Yes; There is a supply plan for Burma: No. At this time PMI is not procuring commodities for the national program in Burma. |
| Rwanda | Yes | Yes, Rwanda has a national malaria supply plan that is prepared internally and submitted to PMI. Technical assistance though evidently needed given the output has not been accepted from partners. |
| Tanzania | Yes | Yes, Tanzania has a national malaria supply plan. The PPMRm is updated regularly, product and funding are tracked and gaps are identified. |

| Country | Available supply plans | Note |
|--------------|------------------------|--|
| Burkina Faso | Yes | There is a quantification team for malaria commodities. The quantification exercise is completed every year with a development of a coordinated supply plan integrating all the partners involved in malaria commodities funding/procurement such as USAID/PMI, UNICEF, Principal Recipients of GFATM s, CAMEG,etc. A yearly supply plan is developed 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 funding malaria commodities. |
| Ghana | Yes | Malaria quantification with supply plans was developed in May 2013. The pipeline for commodities is updated quarterly and the quantification will be reviewed in November 2013. |
| Liberia | Yes | There is a supply plan in place. It was recently reviewed against the current stock status and updated. |
| Madagascar | Yes | Newly reviewed supply plan by GAS/PMI, to be shared with RBM: • From FY14 on, PMI partners will request that the annual order for RDT & accessories will be received in four staggered deliveries as follows: 1st delivery to be received in January (32% of the annual amount), 2nd delivery in April (28%), 3rd in July (14%) and 4th delivery in October (26%) |
| Zambia | Yes | Following the 2013-2016 annual forecast and quantification review exercise for malaria commodities undertaken from 3rd -5th April 2013, a national supply plan for 2013/2014 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 second formalized forecast and quantification for LLINs. |
| Zimbabwe | Yes | National supply plans that inform all MOHCW and partner (including PMI & GFATM) supported procurements updated through December 2014. |

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

| Country | Number of technical tools | Note |
|--------------|---------------------------|--|
| Burkina Faso | 21 | <ul style="list-style-type: none"> - Micro-plan forms for district and Health facility levels (2); - Household census data collection forms (5) - Voucher to give to the households during the household census (1); - LLIN distributions forms (5) - LLIN and voucher stock management forms (2) - Transaction forms and other management forms (5) - Training curriculum for LLIN distribution campaign |
| Core | 1 | Development of LMIS tool |
| Ghana | 4 | <p>The Supply Chain Master Plan was finalized and signed by Ghana's Minister of Health.</p> <p>Report on the National Health Commodity Warehouse assessment has been completed and will be printed Shortly.</p> <p>Landscape Analysis of Supply Chain Management Software Tools in Use</p> <p>Sustainability for the Early Warning System</p> |
| Liberia | 2 | Warehousing SOPs were developed and were implemented by the National Drug Service. |
| Madagascar | 12 | GAS tracking tool; revised NGO/FBO supervision canvas; National gap analysis (cf semi-annual narrative section); 4 supervision technical reports; 4 coordinating meeting reports; NGO collaboration history |
| Malawi | 4 | <p>The PSC was initially developed upon USAID Mission request to ensure the reception, storage and distribution of USG funded commodities. Subsequently, GFATM requested that its malaria commodities in Malawi should also be managed through the same flow. List of PSC standard reports:</p> <ul style="list-style-type: none"> • PSC Monthly stock status report • Malaria commodities monthly distribution plan • Malaria commodities follow up distribution report (every two days during the delivery process) • Proof of Delivery (POD) • POD reconciliation report • Storage monitoring (internal only) • Financial reports to GFATM and USAID/Malawi <p>In addition, the project prepares a monthly stock status report for the MOH/HTSS, Reproductive Health Unit and NMCP, which includes a pipeline projection using both GFATM and PMI procurement plans.</p> <p>Furthermore, the project has supported an LMIS evaluation, which has a technical report and the pre-service trip report is also available.</p> |

| Country | Number of technical tools | Note |
|------------|---------------------------|---|
| Mozambique | 2 | Annual report (Relatório Anual), quarterly EUV reports, report on first year of NMCP Supervision/End Use (2012) during which all 11 provinces were visited. |
| Nigeria | 5 | <ul style="list-style-type: none"> • End Use Verification Report, • Bi-monthly Facility Stock Report, • Health Facility Stock Reporting Form, • Distribution plan worksheet • State Level Receipt/Report Template for Malaria Commodities. |
| RDMA | 4 | <p>Cambodia: 0</p> <p>Laos: 4; A web based LMIS, a new paper based reporting system for peripheral levels, an SMS Inventory Management System and mSupply</p> <p>Burma: 0</p> <p>Thailand: 0</p> |
| Rwanda | 1 | eLMIS system requirements |
| Tanzania | 6 | ACT Monitoring Reports (2), Quantification Review (1), End Use Verification Reports (4), MSD Strategic Review, Monthly stock counts at all 9 MSD Zones, ILSGateway on availability of any presentation of ACT |
| Zambia | 6 | Tools: SCMgr, Pipeline and Magpi. Reports: PPMRm, End Use verification report and forecast and quantification reports. |
| Zimbabwe | 1 | One tool developed to assess functioning of logistics system for malaria community case management. Three quarterly malaria end-use verification reports compiled and disseminated to malaria stakeholders including MOHCW NMCP and PMI. |

Appendix G

Environmental Monitoring and Mitigation Plan (EMMP)

| List each Mitigation Measure from column 3 in the EMMP Mitigation Plan (EMMP Part 2 of 3) | Indicator | Status | List any outstanding issues relating to required conditions | Remarks |
|--|--|----------|---|---------|
| In cases where the project's role is limited to procurement and delivery to the port of entry, environmental considerations related to the generation and disposal of medical waste will be within the scope of the USAID Mission rather than the Bureau for Global Health. In such instances, the project will seek confirmation of local USAID Mission Initial Environmental Examination (IEE) on file | 1. Documented verification of Mission IEE on file | Complete | None | |
| Consignees for all pharmaceutical drugs and other public health commodities procured under this funding will be advised to store the product according to the information provided on the manufacturer's MSDS | 2. Percentage of orders that included product-specific information documenting disposal requirements | 100% | None | |
| Any grants or monetary transfers of USAID funds (e.g., subgrants) to support TO7 procurement, storage, management and disposal activities will incorporate provisions that the activities to be undertaken will comply with the environmental determinations and recommendations of the PIEE | 3. Number of instances when DELIVER TO7 has been requested to provide guidelines or training. | 0 | | |

| List each Mitigation Measure from column 3 in the EMMP Mitigation Plan (EMMP Part 2 of 3) | Indicator | Status | List any outstanding issues relating to required conditions | Remarks |
|--|---|---------------|--|---|
| If disposal of any pharmaceutical drugs under project control is required, due to expiration date or any other reason, the project will first pursue the preferred method of disposal of returning the product to the manufacturer. If this is not possible, the project will follow the guidelines in the WHO document <i>Guidelines for Safe Disposal of Unwanted Pharmaceuticals During and After Emergencies</i> . | 4. Percentage of disposed products under project control returned to supplier or dealt with according to WHO guidelines | 100% | None | |
| The project will adhere to WHOPEP recommendations and established QA/QC policies when procuring LLINs ⁴ . If there is a change or addition to the class of insecticides (currently pyrethroids) acceptable for use with nets, the project EMMP will be adapted to respond to any changes necessary from the P.I.E.E. | 5. Percentage of LLIN shipments with pre-shipment test reports available | 100% | None | |
| In countries that required that LLINs are registered, all nets procured through TO7 will be registered in the country in which the nets are distributed. | 6. Percentage of LLINs procured that are registered in accordance with country policies (if required by the country) | 100% | None | |
| The project will work with manufacturers to ensure appropriate BCC information concerning proper use and disposal of LLINs will be included when nets are provided, including flyers or other information for individuals during distribution campaigns. | 7. Recorded instances of assistance provided for development/distribution of BCC materials | 0 | | In consultation with PMI, the project created an EMMP annex specific to dissemination of BCC materials during LLIN distribution activities. This annex indicates per country who is responsible for |

⁴ This year the project was asked to update the EMMP to ensure that insecticide treated hammocks were included in the LLIN-specific indicators.

| List each Mitigation Measure from column 3 in the EMMP Mitigation Plan (EMMP Part 2 of 3) | Indicator | Status | List any outstanding issues relating to required conditions | Remarks |
|---|-----------|--------|---|--|
| | | | | <p>implementing and monitoring dissemination of such BCC materials. These annexes are included in this report.</p> <p>Burkina Faso: LN distribution campaign started in July 2013 is still ongoing: 61 out of 63 districts have already completed the LLIN distribution. The LLIN distribution agents use the BCC materials developed by the NMCP and Plan Burkina to sensitize the households on malaria at the LLIN distribution sites during the period of the distribution . Once all the districts complete the LLIN distribution, the Community Health Workers will continue disseminating the BCC materials through routine households visits for monitoring the use of the LLINs.</p> |

| List each Mitigation Measure from column 3 in the EMMP Mitigation Plan (EMMP Part 2 of 3) | Indicator | Status | List any outstanding issues relating to required conditions | Remarks |
|---|---|--|---|---------|
| <p>The project will adhere to the recommendations identified in the Programmatic Environmental Assessment for Malaria Vector control, dated January 2007, for:</p> <ul style="list-style-type: none"> ○ Procurement ○ Storage ○ Inventory Control ○ Use ○ Waste Disposal | <p>8. Completion of EMMP Report on a semi-annual and annual basis</p> | <p>Complete as of this semi-annual report for FY2013</p> | <p>None</p> | |

LLIN Distribution Activities

The following EMMP for LLIN distribution is based on the USAID DELIVER Task Order 7 Malaria EMMP. Format is based on USAID-recommended EMMP template.

[date]

Prepared for: XXXXX Mission, United States Agency for International Development

Prepared by: TO7 of the USAID|DELIVER PROJECT

| Category of Activity from Section 4 of PIEE | Describe specific environmental threats of your organization's activities | Description of Mitigation Measures for these activities as required in Section 5 of PIEE | Who is responsible for implementing | Who is responsible for monitoring | Monitoring Indicator | Monitoring Method and Notes | Frequency of Monitoring |
|--|--|---|--|-----------------------------------|---|---|-------------------------|
| Use, procurement, or storage of pesticides or pesticide containing material. | Used LLINs can contribute to solid waste and potential environmental and toxicological negative impact | Ensure dissemination of appropriate BCC information before or during LLIN distribution that promotes correct and consistent net use | XXX Implementing partner responsible for supportive BCC activities | Health officials, and USAID | BCC for Proper Use Implemented by Designated Partner? (Y/N) | Review of implementing partner roles and workplans (Specific implementing partner for each country to be included in notes) | Annual |

Section 1.01 EMMP Implementation

This EMMP will be implemented by the following USAID/XXXX implementing partners who are directly involved in LLIN distribution. USAID/XXXXX will undertake monitoring of the activities to ensure internal compliance is achieved. These monitoring activities will endeavor to ensure that all the mitigation measures highlighted in the EMMP are being followed.

United States Agency for International Development

USAID is the main development partner in this project and provides all the funds that will be used for the activities outlined in this EMMP including ensuring mitigation measures are in place. The role of USAID will include routine and periodic monitoring of the project activities to ascertain the extent to which compliance to the EMMP is being pursued by the implementing partners. USAID will review reports of monitoring activities submitted by the project to determine the level of compliance and will also undertake periodic field visits to determine the same. Based on the field visits and reports prepared, necessary follow up actions will be undertaken.

Appendix H

Performance Monitoring Plan (PMP)

USAID | DELIVER PROJECT Task Order Malaria
Performance Monitoring Plan

| 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 placed by consignee countries | DelPHi | Semi-annual | The CPIR has been received and the money is available for the order | X | X |
| 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 signifies 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 |
| 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 |
| | 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 |
| | 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 |

| Outcome | Indicators | Numerator / Denominator | Source | Frequency | Comments | Measures project performance | Measures factors beyond project control |
|---|--|--|--|-------------|---|------------------------------|---|
| 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 |
| | 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 DELIVER PROJECT | N/A | Management reports, Delphi3, LMIS, program records/reports | Semi-annual | | X | |
| | 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 | |
| | 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) | | | | | | | |
| 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

TO7-Funded Short-Term Technical Assistance, October 1, 2012–September 30, 2013

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|---------------------|------------------|-------------------|------------------------------|
| Alemayehu, Henok G | Ghana | 01/19/13-02/08/13 | TO Malaria |
| | | | TO Public Health |
| Alt, David | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Public Health |
| Amenyah, Johnnie | Liberia | 01/02/13-01/18/13 | TO Malaria |
| | | | TO Public Health |
| Amenyah, Johnnie | Tanzania | 04/21/13-05/02/13 | TO Malaria |
| | | | TO Public Health |
| Anez, Gloria | Malawi | 05/06/13-05/21/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Baradahana, Lidwine | Senegal | 06/15/13-06/22/13 | TO Malaria |
| Bausell, Loren | Nigeria | 11/12/12-11/30/12 | Supply Chain Management TA |
| | | | TO Malaria |
| Bausell, Loren | Nigeria | 02/09/13-02/26/13 | TO Malaria |
| | | | TO Public Health |
| Bausell, Loren | Nigeria | 06/10/13-06/28/13 | TO Malaria |
| Casciato, Heather | Benin | 02/04/13-02/15/13 | TO Malaria |
| Celhay, Olivier | Cambodia | 09/16/13-09/22/13 | Supply Chain Management TA |
| | | | TO Malaria |
| Chavez, Jennifer | Rwanda | 11/11/12-11/17/12 | TO Malaria |
| | | | TO Public Health |
| | | | TO Malaria |
| Chimnani, Jaya | Ghana | 02/04/13-02/22/13 | TO Malaria |
| | | | TO Public Health |
| Chiyaka, Ignatio | Zambia | 11/26/12-12/07/12 | TO Malaria |
| | | | TO Public Health |
| Chiyaka, Ignatio | Tanzania | 06/05/13-06/28/13 | TO Malaria |
| | | | TO Public Health |
| | | | TO Malaria |
| Durgavich, John | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Public Health |
| Edah, Parfait | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Malaria |
| Eomba, Motomoke | Ghana | 07/29/13-08/09/13 | Organizational Strengthening |
| | | | TO Malaria |
| | | | TO Public Health |
| Felling, Barbara | Tanzania | 06/05/13-06/28/13 | TO Malaria |
| | | | TO Public Health |
| Flomo, Matthew | Ghana | 04/07/13-04/10/13 | TO Malaria |
| | | | TO Public Health |
| Frost, Mike | Nigeria | 06/10/13-06/28/13 | TO Malaria |
| Gonter, Abbey | Zimbabwe | 06/15/13-07/07/13 | TO Malaria |
| | | | TO Public Health |
| Guy, Chris | Kenya | 11/11/12-11/17/12 | TO Malaria |
| Guy, Chris | Switzerland | 05/12/13-05/14/13 | TO Malaria |
| Guy, Chris | Denmark | 08/18/13-08/21/13 | Procurement Planning/CPTs |
| | | | TO Malaria |
| Hare, Lisa | Switzerland | 11/16/12-11/21/12 | TO Malaria |
| Hare, Lisa | Liberia | 01/02/13-01/18/13 | TO Malaria |
| | | | TO Public Health |
| Hare, Lisa | Liberia | 06/08/13-06/20/13 | Program Management |
| | | | TO Malaria |
| Hare, Lisa | Liberia | 07/26/13-08/09/13 | TO Malaria |
| | | | TO Public Health |
| Hauslohner, Peter | USA | 03/05/13-03/08/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|--------------------|------------------|-------------------|------------------------------|
| Healy, Caroline | Nigeria | 05/20/13-06/18/13 | Program Management |
| | | | TO Malaria |
| Healy, Caroline | Nigeria | 07/08/13-07/27/13 | TO Public Health |
| | | | TO Malaria |
| Healy, Micheal | Ghana | 02/04/13-02/22/13 | TO Public Health |
| | | | TO Malaria |
| Hicks, Janne | Zambia | 01/07/13-01/20/13 | TO Malaria |
| | | | TO Public Health |
| Hood, Kinsy | Laos | 03/12/13-03/15/13 | TO Malaria |
| Hood, Kinsy | Burma | 04/01/13-04/06/13 | TO Malaria |
| Hood, Kinsy | Burma | 05/08/13-05/16/13 | TO Malaria |
| Horton, Kelsy | Nigeria | 11/05/12-11/16/12 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Hudgins, Tony | Mozambique | 10/22/12-11/09/12 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Hudgins, Tony | Mozambique | 09/06/13-09/22/13 | Program Management |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Inglis, Andrew | Ghana | 04/01/13-04/12/13 | TO Malaria |
| | | | TO Public Health |
| Jallah, David | Ghana | 04/07/13-04/10/13 | TO Malaria |
| | | | TO Public Health |
| Jankowski, Karlan | Zambia | 04/10/13-05/10/13 | Program Management |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Jankowski, Karlan | Zambia | 09/05/13-10/05/13 | Organizational Strengthening |
| | | | TO Malaria |
| | | | TO Public Health |
| Johnson, Beyan | Ghana | 04/07/13-04/10/13 | TO Malaria |
| | | | TO Public Health |
| Kabanda, Vincent | Liberia | 07/01/13-07/26/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Kabanda, Vincent | Liberia | 08/19/13-09/30/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Kajawu, Louis | Nigeria | 01/08/13-01/23/13 | TO Malaria |
| Kamunyor, Joy | Ghana | 01/19/13-02/08/13 | TO Malaria |
| | | | TO Public Health |
| Kamunyor, Joy | Malawi | 05/12/13-05/24/13 | TO Malaria |
| | | | TO Public Health |
| Kamunyor, Joy | Malawi | 07/22/13-08/09/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Kamutenga, Philip | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Public Health |
| Kezamuryango, Cons | Senegal | 06/15/13-06/22/13 | TO Malaria |
| Kidde, Saul | USA | 02/27/13-03/24/13 | TO Malaria |
| | | | TO Public Health |

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|----------------------|------------------|-------------------|----------------------------|
| Kiema, Moses | Nigeria | 11/05/12-11/16/12 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Kwo, Victor | Tanzania | 07/01/13-07/12/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Lule, Philip | Zambia | 06/03/13-06/14/13 | TO Malaria |
| | | | TO Public Health |
| MacKie, Jane | Tanzania | 09/23/13-10/04/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Martin, Karen | Malawi | 08/01/13-08/23/13 | TO Malaria |
| | | | TO Public Health |
| Matoyo, Dorothy | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| McCord, Joe | Ghana | 02/04/13-02/22/13 | TO Malaria |
| | | | TO Public Health |
| McCord, Joe | Ghana | 07/15/13-07/26/13 | Policy/CS |
| | | | TO Malaria |
| | | | TO Public Health |
| Mendieta, Neil | Tanzania | 10/08/12-11/02/12 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Milky, Negash | Ghana | 07/29/13-08/09/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Mingat, Cedric | Angola | 07/29/13-08/11/13 | Supply Chain Management TA |
| | | | TO Malaria |
| Moriba, Charles | South Africa | 04/17/13-04/27/13 | TO Malaria |
| | | | TO Public Health |
| Mujasi, Paschal | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| Murphy, Sean | Zimbabwe | 08/14/13-08/28/13 | TO Malaria |
| | | | TO Public Health |
| | | | TO Malaria |
| Mutoni, Annie | Senegal | 06/15/13-06/22/13 | TO Malaria |
| Ndayishimiye, Anatol | Senegal | 06/15/13-06/22/13 | TO Malaria |
| Ntakarutimana, Osca | Senegal | 06/15/13-06/22/13 | TO Malaria |
| Nyanyywa, Simbaras | Nigeria | 01/08/13-01/23/13 | TO Malaria |
| Nyenswah, Tolbert | Ghana | 04/07/13-04/10/13 | TO Malaria |
| | | | TO Public Health |
| Nzeyimana, Zacharie | Ethiopia | 09/16/13-09/20/13 | TO Malaria |
| Ouedraogo, Youssou | Liberia | 03/18/13-04/12/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Ouedraogo, Youssou | Liberia | 05/27/13-07/01/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Papworth, David | Malawi | 02/01/13-02/25/13 | TO Malaria |
| | | | TO Public Health |
| Papworth, David | Malawi | 05/12/13-05/24/13 | TO Malaria |
| | | | TO Public Health |
| Papworth, David | Zimbabwe | 07/05/13-07/20/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|---------------------|------------------|-------------------|------------------------------|
| Papworth, David | Malawi | 09/20/13-10/06/13 | Program Management |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Peacock, Kim | Ghana | 07/29/13-08/09/13 | Organizational Strengthening |
| | | | TO Malaria |
| | | | TO Public Health |
| Pearce, Cornelius | Ghana | 04/07/13-04/10/13 | TO Malaria |
| | | | TO Public Health |
| Pehe, Norbert | Tanzania | 09/23/13-10/04/13 | Program Management |
| | | | System Assessment/Design |
| | | | TO Malaria |
| Persoons, Frederick | Burundi | 06/08/13-06/18/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Printz, Naomi | Uganda | 01/21/13-01/25/13 | Procurement Planning/CPTs |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Printz, Naomi | Ghana | 05/20/13-06/06/13 | Supply Chain Management TA |
| | | | TO Malaria |
| Rabelahasa, Eleonor | Mali | 08/05/13-08/09/13 | Program Management |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Rakotomanga, Avotia | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| Roche, Greg | South Africa | 07/04/13-08/18/13 | TO Malaria |
| | | | TO Public Health |
| Roche, Greg | Liberia | 08/18/13-09/07/13 | Organizational Strengthening |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Public Health |
| Rogers-Bloch, Quail | Nigeria | 12/03/12-12/07/12 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Rogers-Bloch, Quail | Nigeria | 07/08/13-07/19/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Rosche, Tim | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Public Health |
| Rosen, Jim | Ghana | 07/15/13-07/26/13 | Policy/CS |
| | | | TO Malaria |
| | | | TO Public Health |
| Ross, Joseph | Nigeria | 11/26/12-12/21/12 | TO Malaria |
| Ross, Joseph | Nigeria | 07/08/13-07/19/13 | Program Management |
| | | | TO Malaria |
| | | | TO Public Health |
| Sanderson, Jeff | Ghana | 12/05/12-12/15/12 | Organizational Strengthening |
| | | | TO Malaria |
| | | | TO Public Health |
| Segatore, Eduardo | Kenya | 11/11/12-11/17/12 | TO Malaria |
| Simpungwe, Gamari | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| Sinkenguburundi, G | Ethiopia | 09/16/13-09/20/13 | TO Malaria |
| Sissoko, Rokia | Ethiopia | 09/16/13-09/20/13 | TO Malaria |
| Smith, Ashley | Liberia | 07/15/13-08/02/13 | Organizational Strengthening |
| | | | Supply Chain Management TA |
| | | | TO Malaria |

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|--------------------|------------------|-------------------|------------------------------|
| Steele, Gary | Ghana | 07/29/13-08/09/13 | Organizational Strengthening |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Stewart, Emma | Malawi | 07/22/13-08/09/13 | TO Public Health |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Sullivan, Audrey | Liberia | 04/17/13-04/30/13 | TO Public Health |
| | | | Program Management |
| | | | TO Malaria |
| Sullivan, Audrey | Liberia | 06/24/13-07/11/13 | TO Public Health |
| | | | Program Management |
| | | | TO Malaria |
| Sullivan, Audrey | Liberia | 09/11/13-09/26/13 | TO Public Health |
| | | | Program Management |
| | | | TO Malaria |
| Takang, Eric | Mozambique | 05/07/13-05/17/13 | TO Public Health |
| | | | Program Management |
| | | | TO Malaria |
| Tecomariam, Lea | Liberia | 07/15/13-08/02/13 | TO Public Health |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Vanden Bossche, Mi | Nigeria | 04/15/13-04/26/13 | TO Public Health |
| | | | Program Management |
| | | | TO Malaria |
| Warren, Chris | Angola | 11/17/12-12/13/12 | TO Public Health |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Warren, Chris | Nigeria | 01/04/13-01/27/13 | TO Public Health |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Warren, Chris | Switzerland | 01/30/13-02/02/13 | TO Malaria |
| | | | SE Asia |
| | | | 02/04/13-03/01/13 |
| Warren, Chris | Nigeria | 03/25/13-04/19/13 | Program Management |
| | | | TO Malaria |
| | | | TO Malaria |
| Warren, Chris | Angola | 05/17/13-06/14/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Malaria |
| Warren, Chris | Mali | 08/05/13-08/09/13 | Supply Chain Management TA |
| | | | TO Malaria |
| | | | TO Malaria |
| Warren, Chris | Malawi | 08/26/13-09/18/13 | Program Management |
| | | | Supply Chain Management TA |
| | | | TO Malaria |
| Waweru, Jayne | Washington, D.C. | 03/09/13-03/20/13 | TO Malaria |
| | | | TO Malaria |
| | | | TO Public Health |
| Westfall, Jennifer | Burma | 02/12/13-02/15/13 | Program Management |
| | | | TO Malaria |
| | | | TO Malaria |
| Westfall, Jennifer | Burma | 04/01/13-04/06/13 | Program Management |
| | | | TO Malaria |
| | | | TO Malaria |
| Wiklund, Mattias | Malawi | 02/01/13-02/25/13 | Supply Chain Management TA |
| | | | System Assessment/Design |
| | | | TO Malaria |
| Wilson, Edward | Zambia | 08/05/13-08/10/13 | TO Public Health |
| | | | Organizational Strengthening |
| | | | Program Management |
| | | | TO Malaria |
| | | | TO Malaria |
| | | | TO Public Health |

Travel Purpose

10/23/2013 12:48:49 PM

Filter Criteria: From 10/1/2012 to 10/15/2013

Sort Order: Name; Dates

Does not show vacations, Does not show canceled

| Name | Destination | Travel Date | Purpose |
|---------------|-------------|-------------------|--|
| Wright, Chris | Malawi | 02/01/13-02/25/13 | Supply Chain Management TA System Assessment/Design TO Malaria TO Public Health |
| Wright, Chris | Malawi | 05/12/13-05/24/13 | Supply Chain Management TA System Assessment/Design TO Malaria TO Public Health |

Appendix J

EUV Summary Table

| | GHANA | MALAWI | MOZAMBIQUE | Nigeria | TANZANIA | ZAMBIA | ZIMBABWE |
|---|--|---|---|---|--|---|--|
| Date of Last Implementation | Sept 2013 | Oct 2013 | Sept 2013 | June 2013 | Aug 2013 | June 2012 | Oct 2013 |
| Number of Surveys Completed | 16 | 14 (12 DELIVER, 2 SPS) | 6 | 2 | 18 | 16 | 6 |
| Frequency of Surveys | Quarterly | Quarterly | Quarterly | Bi-annual | Quarterly | Quarterly | Quarterly |
| Facility Information** | 2460 facilities in the country | Approx. 600 facilities in the country | 1262 facilities in the country | 870 facilities across 9 PMI supported states | 4468 facilities in the country | 1883 facilities in the country | 1409 facilities in the country |
| Methodology | Finalizing last details on creating a nationally representative sample over the course of year, multi-level stratified random sample (by facility type and district). 95% confidence level (p =.05), with the intention for each indicator, aggregated annually, to have a margin of error of approximately 7.5 percent. | Not designed to be nationally representative, however sampling analysis and revisions are planned to create confidence intervals. The EUV is conducted on a random sample of 2 facilities per district in each of the 56 districts countrywide. | Original plan for nationally representative sample was ultimately not approved by the NMCP. Currently, a mix of random and purposeful sampling, covering all provinces over the course of the year. 2 provinces covered each quarter, with 2 districts randomly selected within each. In each district, the district warehouse is selected, plus one urban health unit, 1 rural health center, and 1 CHW/APE. | Nigeria is unique, in that the universe of facilities to be sampled are only PMI-supported facilities. Using an agreed upon sample size of 95, the random selection is stratified by state and facility type (secondary and primary level facilities). | Multi-level stratified random sample (by facility type and district), nationally representative for each quarter. 95% confidence level (p =.05), with the intention for indicators each quarter to have a margin of error of approximately 7 percent. | Not designed to be nationally representative. Three health facilities are randomly selected from each of the ten provinces on a quarterly basis. Revised sampling methodology is planned. | Multi-level, stratified random sample (by facility type and district) across all provinces over the course of four quarters. The sampling plan incorporates a district-level approach into sampling, pulling a proportional selection (proportion to the number of facilities) of random districts from each province, and randomly samples a minimum of 154 treating facilities across these districts, over the course of four quarters. This methodology allows for a 95% confidence level (p=.05), with the intention for indicators, aggregated annually, to have a margin of error of 7.5% |
| Number of Sites | Latest EUV visited 39 treating facilities and 3 warehouses | Latest EUV visited 59 facilities | Latest EUV surveyed 21 facilities | Last EUV surveyed 95 facilities | Latest EUV surveyed 222 facilities | Last EUV surveyed 19 facilities | Last EUV surveyed 37 facilities |
| PMI Involvement | PMI advisor informed about the activity and the selected regions for each round and provided with reports. Advisors have participated in one round of data collection. | The PMI advisor participated in field visits during 2 rounds of EUV data collection. The advisors are very interested in EUV results and contribute to follow-up discussions on issues identified. | Participate in data collection, briefings at HU, District, Province and central level; provide support in supervision report for the provinces and central level; participate in supply chain trainings; and OJT during the supervision when find problems and/or deviations. | The PMI advisor receives and reviews EUV reports. | PMI advisors have once participated in data collection and orientation training. Quarterly, briefings take place during technical working group meetings, and reports are shared. | The PMI advisor receives and reviews EUV reports. | The PMI advisors have attended briefings on implementation of the activity and findings and have expressed in writing their appreciation for the activity and its actionable information. |
| Level of Follow-up | Urgent distribution of stock to regions and SDPs following EUV findings - Identified knowledge gaps in supply chain - Influenced the selection of personnel, facilities, and regions for supply chain trainings and organized trainings - Informed the development of a Supply Chain Master Plan for the entire health sector | In May, the EUV confirmed the increase in facilities stocked out of ACTs. Both project and mission recommended an in-depth analysis of causes and put in place mechanisms to reduce stock outs. | Rebalancing of ACT kits: A policy change is underway that includes distributing RDTs jointly with ACTs and redefining the proportion of ACTs in kits. Regional presence: SCMS and Deliver are engaged in discussion with USAID/Mozambique to put in place regional technical advisors (indeed we are moving on). | Follow up work has focused on improving record keeping, both in stock management and malaria case management, as well as providing standard stock cards & out-patient registers at facilities lacking them. Follow up has also focused on malaria diagnosis using RDTs in the PHCs. | Communication facilitated between respective district pharmacists and MSD Zones to resupply stock. Ensuring ACT commodities arriving in country are cleared on a timely basis, and are pushed down immediately upon arrival to avoid facility stock outs. MOHSW now depends on EUV commodity stock out information for its forecasts, and EUV experience resulted in revisiting the report R&R form and adding a stock out column. | Stock out turnaround time has been reduced. In addition, follow ups by the NMCC have resulted in increased adherence to use of RDTs for malaria case confirmation. Use of microscopy has also been scaled up. | With knowledge of stock outs, redistribution and immediate delivery of commodities to affected facilities took place. Management level discussions have begun among key stakeholders regarding how to better supply facilities and manage malaria cases in the long term. |
| Cost of EUV | \$18,000 per quarter | \$22,000 per quarter | \$25 - \$30,000 per quarter | | | \$46,000 (combined with routine M&E. Funding is split, with PMI funds being used for approx \$4,600) | \$27,500 |
| Other organizations or institutions providing funding for EUV | Costs are split between Task Orders 7 and 4 of the USAID DELIVER PROJECT | NMCP provides vehicles | None | None | Costs are split between Task Orders 7 and 4 of the USAID DELIVER PROJECT | End-Use is carried out as part of routine M&E, funded as follows: PMI/TO7 10%; TO4 81% SCMS 9% | None |
| Other organizations or institutions involved in EUV implementation | Stores, Supplies and Drugs Management (SSDM), NMCP, Pharmacy unit, Disease control unit, Family Health Division (FHD), National Tuberculosis Control Program (NTCP), National AIDS Control Program (NACP) and the Centre for Health Information Management(CHIM). They assist in the data collection on the field, while doing supportive supervision and OJT at the visited facilities. | NMCP | NMCP and Central de Medicamentos e Artigos Medicos (CMAM) both provide data collectors each quarter. NMCP provides supervision of the EUV. | NMCP, MAPS, TSHIP | NMCP and the Pharmaceutical Services Section (PSS) both provide MOHSW personnel on quarterly basis to collect end use data. District malaria focal persons and district pharmacists perform data collection as well. | MOH [Provincial and district medical offices] provide staff to accompany field office staff and are actively involved in data collection. | Ministry of Health Child Welfare (MOHCW) NMCP and MOHCW Directorate of Pharmacy Services, as well as Provincial Pharmacy Managers and Provincial Epidemiology and Disease Control Officers participated in EUV training and tool development; as data collectors, and in discussions of findings. |
| Other products included in survey | Includes malaria, ARV, TB, FP and other commodities. 40 in total. | In addition to malaria commodities: Paracetamol 500 mg, oxytocin, male and female condoms, Uni-gold, Deter HIV | In addition to malaria commodities: Cotrimoxazole, Paracetamol, Micrognon, Microlut, Depo-Provera, IUD, male condoms | All malaria commodities | In addition to malaria commodities, 8 reproductive health commodities and 10 essential medicines | In addition to malaria commodities: male condoms, Depo-Provera, OralconF, Amoxicillin suspension, Benzyl Penicillin inj, Cotrimoxazole 480mg, Metronidazole 200 mg | All malaria commodities |
| Other information | | | | | | | |

Appendix K

EUV Commodities Collected by Country

For more information, please visit deliver.jsi.com.

USAID | DELIVER PROJECT

John Snow, Inc.

1616 Fort Myer Drive, 16th Floor

Arlington, VA 22209 USA

Phone: 703-528-7474

Fax: 703-528-7480

Email: askdeliver@jsi.com

Internet: deliver.jsi.com