USAID | DELIVER PROJECT

Task Order 7 Completion Report

FEBRUARY 2017

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.

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U.S. PRESIDENT'S MALARIA INITIATIVE

Task Order 7 Completion Report

USAID | DELIVER PROJECT, Task Order 7

This document was prepared by staff of the USAID | DELIVER PROJECT, Task Order 7, which was funded by the U.S. Agency for International Development (USAID) under contract number GPO-I-00-06-00007-00, order number AID-OAA-TO-11-00012, beginning on March 28, 2011. Task Order 7 was implemented by John Snow, Inc., in collaboration 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 Population Services International.

Task Order 7 supported USAID's goal of reducing the malaria burden in sub-Saharan Africa by procuring and delivering safe, effective, and high-quality malaria commodities; providing technical assistance and on-the-ground logistics expertise to strengthen in-country supply systems and build capacity for managing commodities; and improving the global supply and long-term availability of malaria commodities.

Recommended Citation

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Abstract

This report describes the activities and achievements of the USAID | DELIVER PROJECT, Task Order 7, which ran from March 2011 to February 2017. The project worked to improve the lives of men, women, and families by strengthening the supply chains that deliver health commodities, developing sustainable national capacity and ownership for operating the supply chain, and cultivating enabling environments for malaria products.

Cover photos (from top, left-right):

- Women with their new long-lasting insecticide treated bed nets in Madagascar during a nationwide net distribution. 2010. USAID | DELIVER PROJECT.
- Health clinic worker dispensing ACTs, Zambia. 2010. USAID | DELIVER PROJECT.
- A pharmacist in Chokwe, Mozambique, dispenses Coartem®, and tells a mother how to administer the prescription to her child who has malaria. Photographer: Arturo Sanabria for USAID | DELIVER PROJECT.
- Women with their new long-lasting insecticide-treated bed nets in Madagascar during a nationwide bed net distribution. 2010. USAID | DELIVER PROJECT.
- A nurse in Cotonou, Benin, fills out daily records during a February/March routine LLIN distribution to health facilities throughout the country. Photographer: Tenly Snow for USAID DELIVER | PROJECT.
- A pharmacist explains how to take artemether-lumefantrine 6x1 to a patient at the Marrere Health Center in Nampula, Mozambique. 2015. Photographer: Arturo Sanabria for USAID | DELIVER PROJECT.
- Local staff unload a boat of long-lasting insecticide-treated bed nets. 2013. USAID | DELIVER PROJECT.
- A pharmacist explains how to take artemether-lumefantrine to a patient in Mozambique. 2015. Photographer: Arturo Sanabria for USAID | DELIVER PROJECT.
- During the rainy season in Zambia's Western province, the Mwanawina Rural Health Center becomes inaccessible by motor vehicles, and the district health office must hire an ox cart to get drugs and medical supplies to the health center. 2014. USAID | DELIVER PROJECT.

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Contents

Acronyms

ACT	artemisinin-based combination therapy
AL	artemether/lumefantrine
AS/AQ	artesunate-amodiaquine
DDIC	Direct Delivery and Information Capture
DRC	Democratic Republic of Congo
eLMIS	electronic logistics management information system
EUV	End-Use Verification
IA	interim approach
LLIN	long-lasting insecticide-treated bed net
LMIS	logistics management information system
LMU	logistics management unit
NMCP	national malaria control program
PMI	U.S. President's Malaria Initiative
PPMRm	Procurement Planning and Monitoring Report for malaria
RDT	rapid diagnostic test
SP	sulfadoxine-pyrimethamine
TO Malaria	Task Order Malaria *(used interchangeably with Task Order 7)*
TO7	Task Order 7 *(used interchangeably with Task Order Malaria)*
USAID	U.S. Agency for International Development
USG	U.S. Government

Overview of Task Order 7

Products for the prevention, diagnosis, and treatment of malaria are needed for malaria programs to meet the goal of reducing malaria-related morbidity and mortality. Strong health programs cannot function without well-designed, well-operated, and well-maintained supply chain systems to manage and move those products. From 2006 to 2016, the USAID | DELIVER PROJECT (the project) worked to strengthen the supply chains that deliver health commodities, improve supply chain visibility and accountability, and build local capacity to sustain system performance. Task Order 7 (TO7), also called Task Order Malaria (TO Malaria), under the USAID | DELIVER PROJECT indefinite quantity contract with John Snow, Inc., focused specifically on procuring and delivering malaria commodities and strengthening the in country supply chains to manage those commodities. Task Order 7 was launched in March 2011 and closed in February 2017. This report summarizes the accomplishments of TO7.

Task Order 7 had three main objectives:

1. Improve, implement, and expand USAID's provision of antimalarial commodities to country programs.
2. Strengthen in-country supply systems and their capacity for managing antimalarial commodities.
3. Improve global supply and the availability of antimalarial commodities.

TO Malaria was part of the U.S. Government's (USG) effort to reduce malaria in sub-Saharan Africa through the U.S. President's Malaria Initiative (PMI). The initiative works in 19 sub-Saharan African–focus countries and the Mekong region, and supports USAID malaria programs in USAID malaria countries.

Building on the success of Task Order 3 (TO3), TO7's predecessor, TO7 supported PMI's goals of halving the burden of malaria (morbidity and mortality) in 70 percent of the at-risk populations of sub-Saharan Africa, thereby removing malaria as a major public health problem and promoting development throughout the African region (PMI 2009–2014 strategy). TO7 also laid the groundwork for supply chains to continue to support the goals of PMI as described in the 2015–2020 strategy:

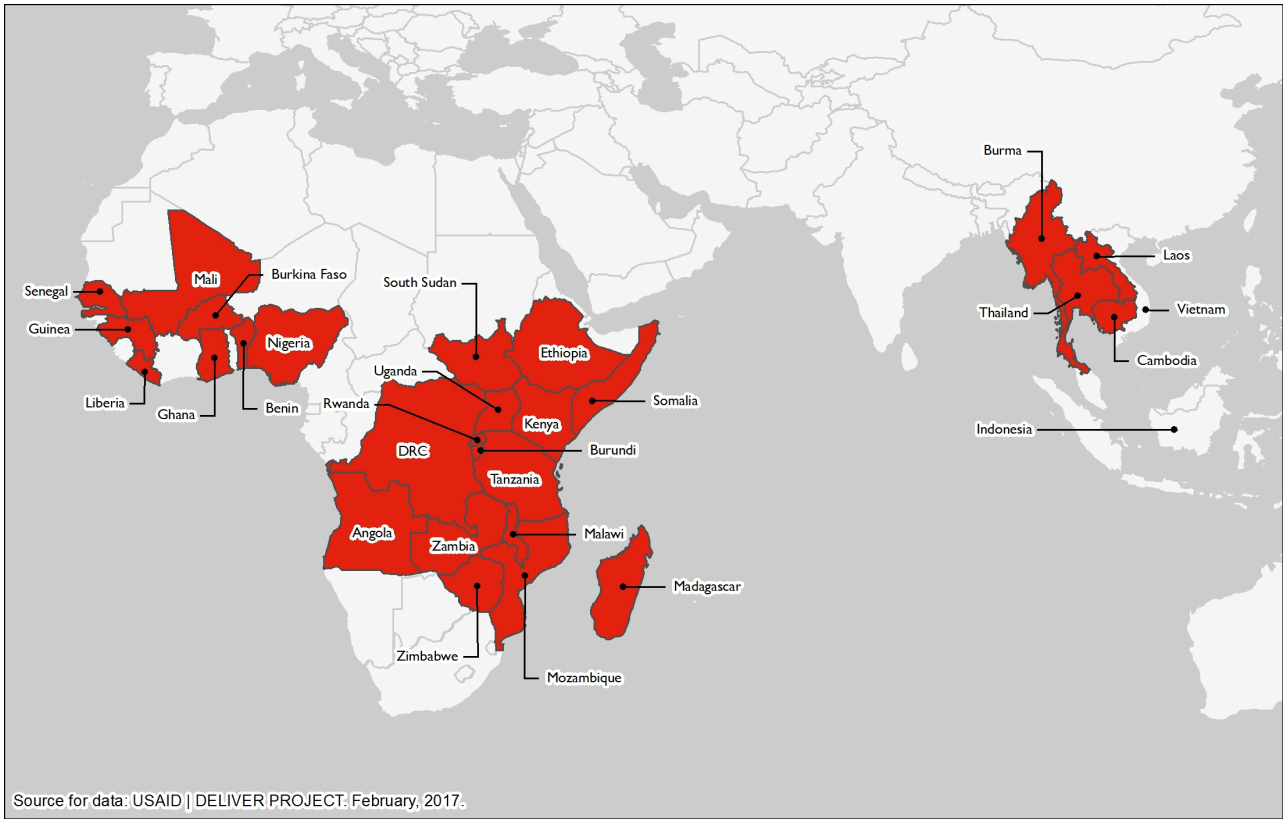
1. Reduce malaria mortality by one-third from 2015 levels in PMI-supported countries, achieving a greater than 80 percent reduction from PMI's original 2000 baseline levels.
2. Reduce malaria morbidity in PMI-supported countries by 40 percent from 2015 levels.
3. Assist at least five PMI-supported countries to meet the WHO criteria for national or sub-national pre-elimination.

To achieve these objectives, TO Malaria worked 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 Diagnostics; Social Sectors Development Strategies, Inc. (SSDS); VillageReach; and Population Services International.

Task Order 7 worked in 29 countries over 10 years, procuring and delivering malaria products, providing technical assistance, and/or having long-term presence with field offices. Task Order 7:

- Procured commodities for 27 countries.[1]

Figure 1. TO7 Procurement

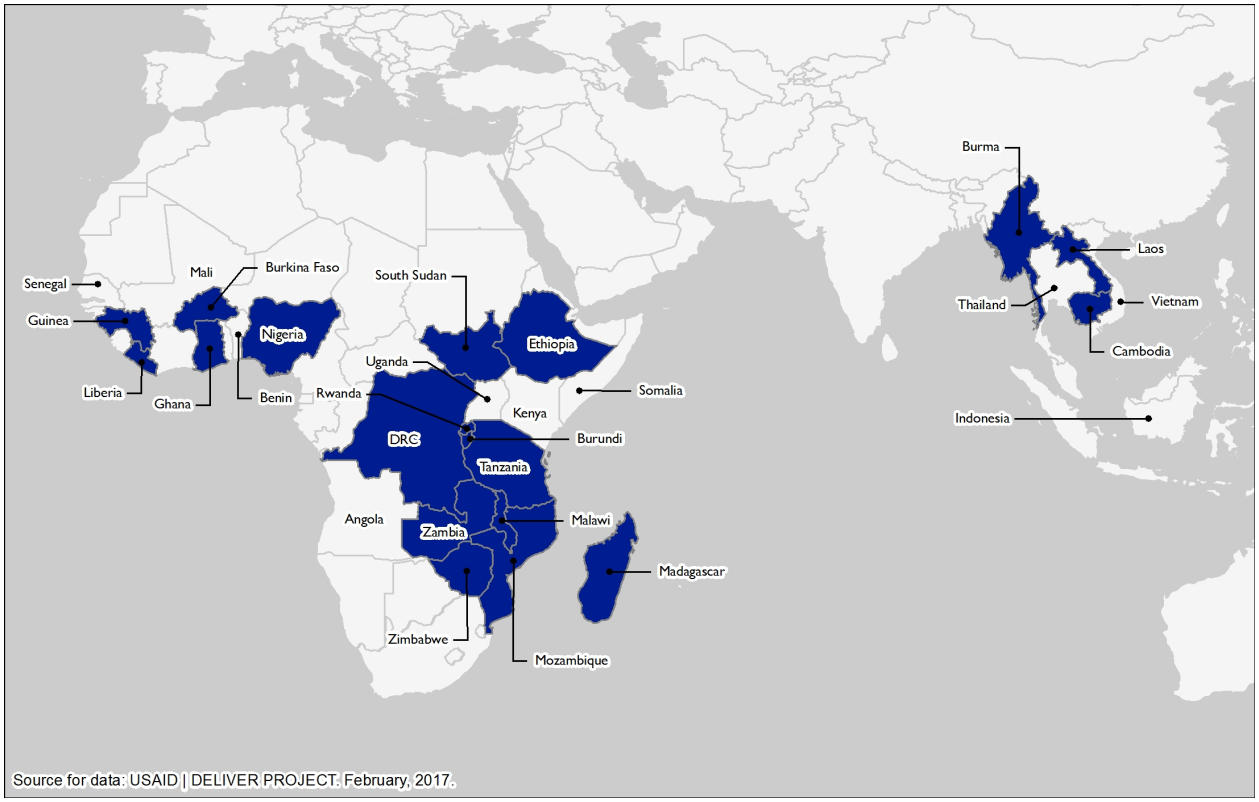


- Had a long-term presence in 13 of the PMI-focus countries (Democratic Republic of Congo [DRC], Ethiopia,2 Ghana, Guinea, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Tanzania, Zambia, and Zimbabwe); the Regional Development Mission Asia—including Burma, Laos, and Cambodia; and the three USAID malaria countries (Burkina Faso, Burundi, and South Sudan).

[1] TO7 procured malaria products for Angola, Benin, Burundi, Burkina Faso, Burma, Cambodia, DRC, Ethiopia, Ghana, Guinea, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Somalia South Sudan, Thailand, Tanzania, Uganda, Zambia, and Zimbabwe.

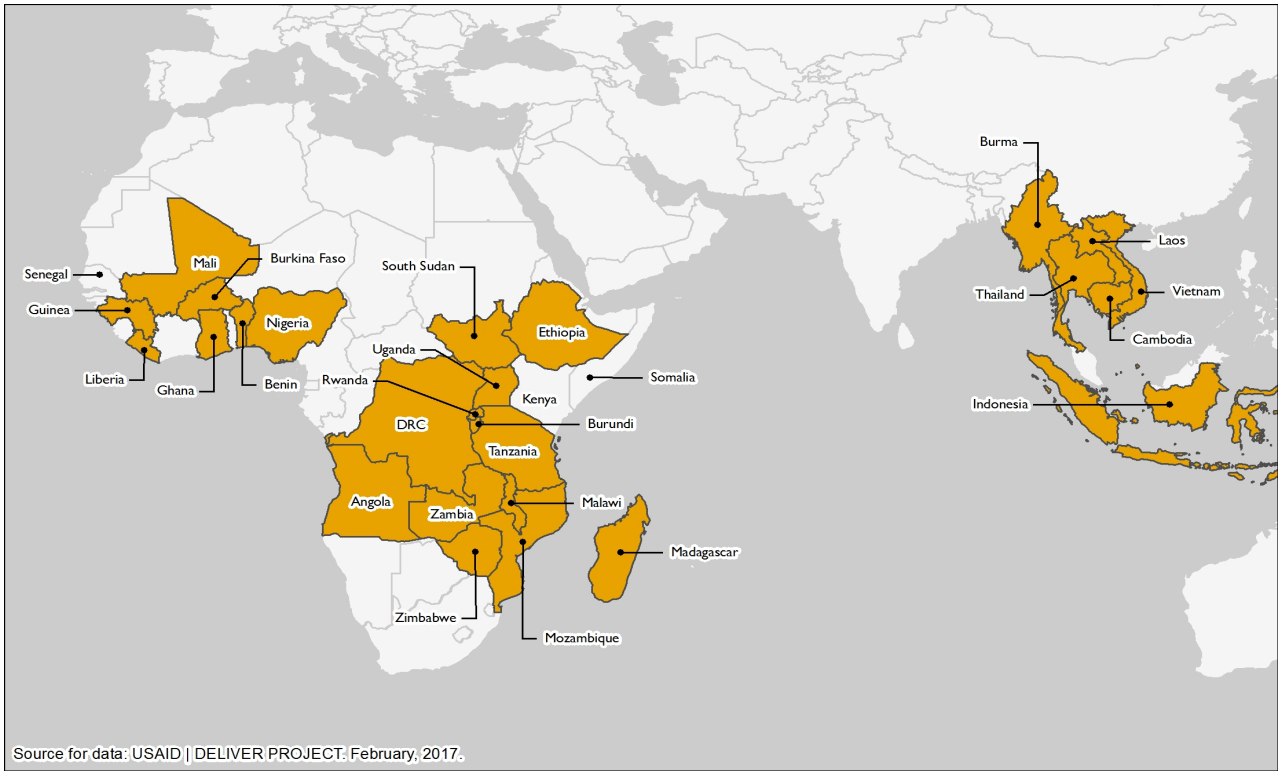
[2] Malaria activities in Ethiopia were funded through Task Order 4.

Figure 2. TO7 Long-term Presence Countries



Provided technical assistance in 26 countries (including those with long-term presence).

Figure 3. TO7 Countries Receiving Short-term Technical Assistance



Established PMI's Global Supply Chain for Malaria Products

Timely, Transparent, Cost-Effective Procurement of Malaria Commodities

A principal activity of TO7 was to support PMI by procuring malaria commodities in response to USAID Missions; the requests are based on the needs outlined in the yearly Malaria Operational Plans (MOPs).

Procured commodities worth over $936 million.

Since the beginning of TO Malaria in 2007, the value of procurements conducted by the project increased exponentially each year. TO7 invested four-times the amount as TO3 in malaria product procurement, spending in total more than $936 million. Procurements were conducted for 27 countries.

From 2011–2016, TO7 procurement included:

- $103 million to procure 280 million RDTs.
- $455 million to procure 148 million long-lasting insecticide treated nets (LLINs).
- $6 million dollars to procure 6.8 billion sulfadoxine-pyrimethamine (SP) tablets.
- $242 million dollars to procure 326 million artemisinin-based combination therapy (ACTs).

The value of procurements by product is shown in figure 4. The quantities of ACTs, rapid diagnostic treatments (RDTs), and LLINs procured, is shown in figure 5.[3]

[3] Procurement numbers dropped in FY16 as it was the close-out year for the project, so TO7 was responsible for procurement of only a portion of the countries' commodity needs.

Figure 4. Value of Product Procured by Fiscal Year, TO3 & TO7

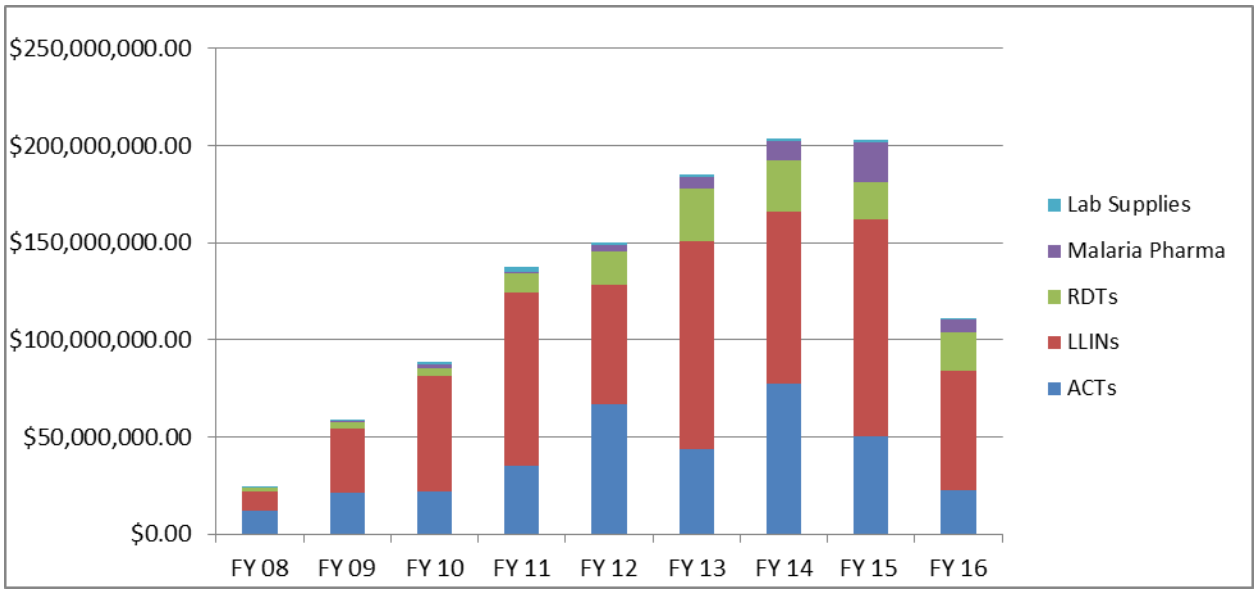
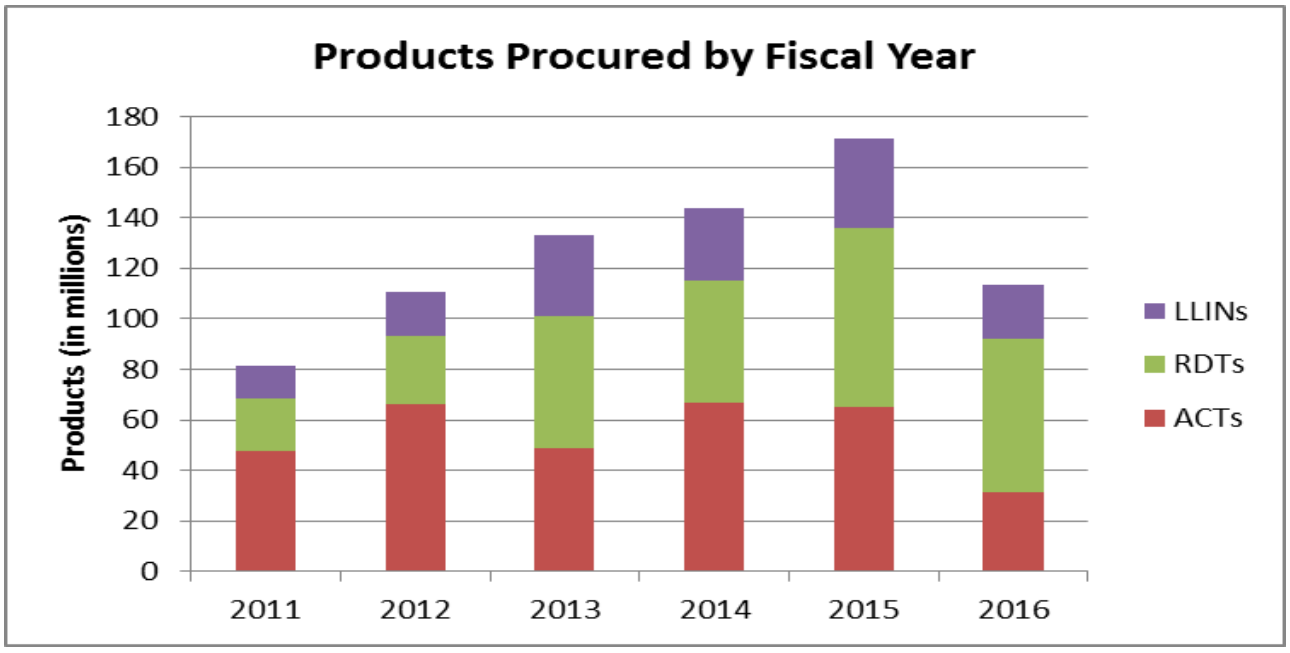


Figure 5. Quantity of Product Procured by Fiscal Year TO7



Compared to TO3, TO7 procured more than three-times as many ACTs, nine-times as many RDTs, 51- times as many SP tablets, and nearly five-times as many LLINs.

In addition to the extraordinary increase in procurement volume since TO7 began, there was a dramatic increase in the number and type of commodities procured. As more countries implemented testing before treatment, the demand for RDTs rose and ACTs comparatively declined. After 2014, Figure 5 depicts at the TO7 scale this global pattern of increasing RDT procurement and decreasing ACT procurement. The market for malaria commodities has evolved rapidly in the past several years, and the project worked with PMI and international partners including WHO, Roll Back Malaria, and the Global Fund at the forefront of this dynamic environment. The project managed this surge in activity, rapidly scaling up operations while maintaining its constant emphasis on the quality of its operations.

Photo credit: USAID | DELIVER PROJECT, 2015.

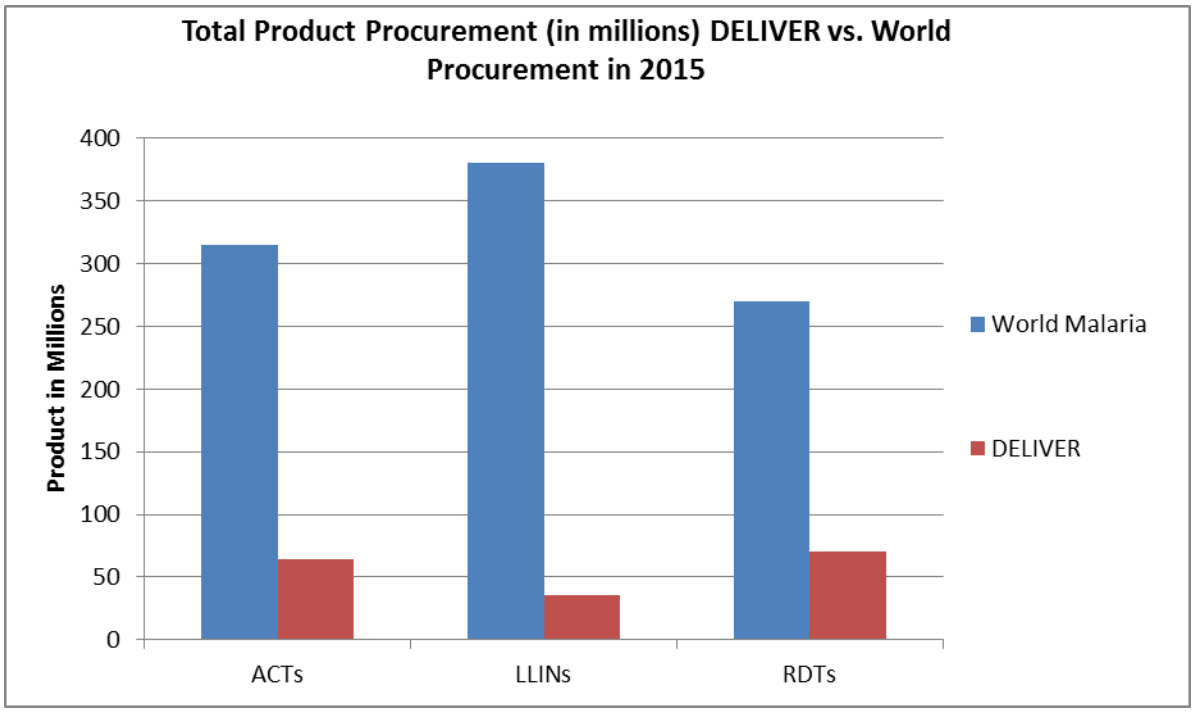
A health care worker undertaking physical inventory in a health facility at Kinondoni District, Tanzania.

Task Order 7 procured a wide range of products to meet country needs, supporting PMI goals for essential malaria commodity availability. The task order worked directly with in-country partners to refine product specifications and design processes to ensure maximum transparency throughout the procurement cycle.

In 2015, the DELIVER project procured 20.4 percent of ACTs, 26.2 percent of RDTs, and 10 percent of LLINs worldwide,[4] as shown in figure 6.

[4] World Health Organization; World Malaria Report 2016 figures compared to USAID | DELIVER historical procurement figures.

Figure 6. Total Product Procured by TO7 vs. World Procurement 2015



While LLINs, SP, ACTs, and RDTs comprised the bulk of product procured and delivered by the project,
TO Malaria procured a range of other pharmaceuticals and equipment. Over the life of the project, TO7 invested $47 million dollars in essential medicines, additional malaria pharmaceuticals, and laboratory equipment.

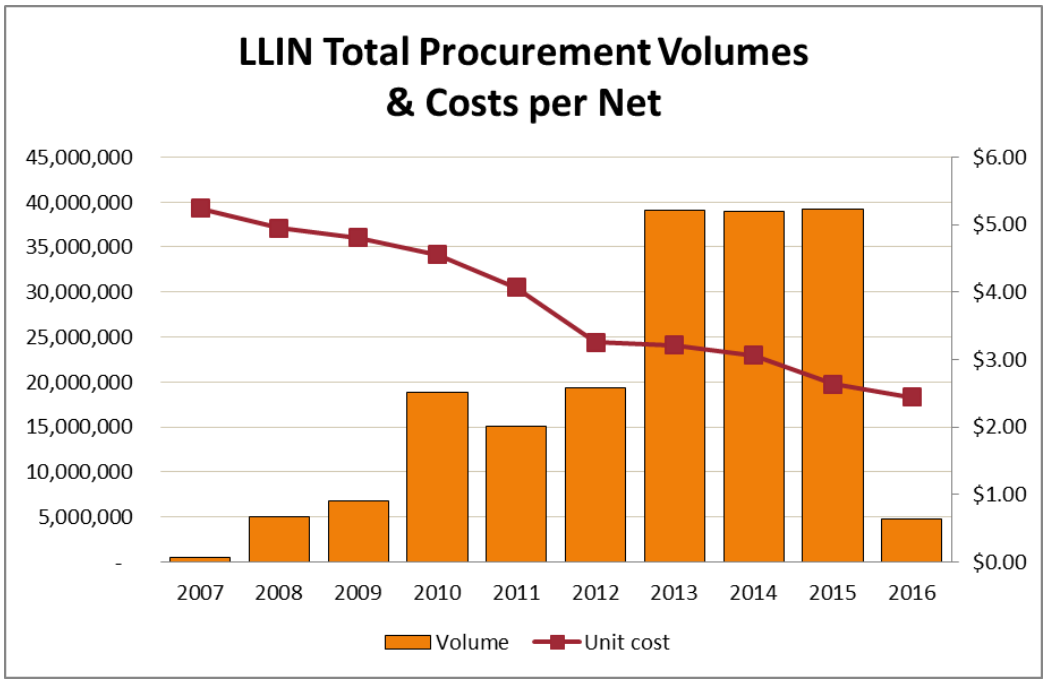
Quality Assurance

The quality assurance processes implemented by TO7, including a sophisticated model for product testing and rigorous internal controls across the various aspects of the project's supply operations, ensured that high-quality products were procured and delivered to meet client needs in the most efficient and transparent manner, meeting or exceeding international standards.

As a global malaria procurement leader, TO7 influenced commodity pricing.

Under TO7, the project received procurement requests from 27 countries. The project was able to negotiate better pricing due to increased volumes and stronger relationships with vendors. Average LLIN prices dropped from $5.42 in 2007 to $3.34 in 2012 to $2.45 in 2016, as shown in figure 7.

Figure 7. Procurement Volumes and Average Unit Cost per Bed Net per Calendar Year



Management Information Systems

Through the project's management information system, information on order status, funding, and shipment updates was available to clients and partners, maximizing transparency and coordination.

Implemented rigorous monitoring to improve system performance.

Over the life of the task order, the project monitored system performance on a monthly basis using a scorecard to show procurement results. These results were then aggregated to show yearly procurement performance. The scorecard allowed the TO7 team to identify areas needing improvement and focus on areas of the supply chain where we could influence the drivers of performance. The project also used a Performance Monitoring Plan, which provides a more in-depth picture of performance, incorporating data from the scorecard as appropriate.

Near the end of TO3, the project increased the target level of the indicator of on-time delivery rate "on or above target" from 70 to 85 percent. Task Order 7 strove to meet and exceed this indicator, though the overall on-time delivery results fluctuated, partially due to the increased levels of procurement activity throughout the five years of the task order, especially in last year of the project. Additionally, fluctuations in the ever-changing international market for malaria commodities affected on-time delivery. Over the life of TO7, 75 percent of all deliveries were on-time. Of the 25 percent that were late, 42 percent were due to manufacturing or production delays; 26 percent due to pre-clearance delays; 12 percent due to vendor delays; 8 percent were due to quality assurance delays; 4.5 percent to Mission delays; 4 percent to shipping or freight delays; 2 percent to import waiver delays; and 8.5 percent were due to other reasons such as political unrest, extreme weather, and consignee delays.

The project used constant monitoring and strong procurement team-vendor relations to respond as these changes occurred. Several external factors in the global supply chain for malaria products

affected the project's ability to meet target levels. TO7 remained flexible and responsive, seeking solutions to the challenges, including increasing the number of suppliers from 21 at end of TO3 to 45 by the end of TO7; consolidating orders; preparing supply plans far in advance; and establishing a stockpile to meet emergency supply needs.

Freight Forwarding

The project's freight forwarding operations managed complex shipments, sometimes hiring private security to provide oversight during ground handling operations to ensure smooth delivery of high-value life-saving commodities.

Established stockpile to respond to emergency requests.

TO7 managed stockpile of ACTs at the UPS Roermond, Netherlands and Singapore warehouses, which were key to responding quickly to emergency ACTs, including artemether/lumefantrine (AL) and artesunate-amodiaquine (AS/AQ).

Photo credit: Arturo Sanabria for USAID | DELIVER PROJECT, 2015.

Testing for malaria using RDTs at Marrere health clinic, Nampula, Mozambique.

Emergency orders are defined as unscheduled but necessary procurements not previously identified by Missions or country teams, typically in response to funding problems in-country, civil unrest, and/or natural disasters/ phenomena. Between 2010 and 2016, TO7 responded to 89 emergency orders (of 1,839 orders processed), as shown in figure 8.

Because the project managed its own inventory, it was able to address countries' emergency orders quickly, obtain better pricing, and mitigate supplier production risk. The project collaborated with partners and donors to monitor the supply and demand situation across countries to most effectively use the stockpile to meet identified need. The decrease in the number of emergency orders from 2012–2016 illustrates the success of the project in advanced planning and effective organization using accurate data for decision making.

Figure 8. Percent Emergency Order Response by Fiscal Year

Fiscal Year	% of emergency orders responded to fiscal year
2010	11/11=100
2011	11/11=100
2012	19/19= 100
2013	11/11= 100
2014	16/16= 100
2015	13/13= 100
2016	8/8= 100

Strengthened In-Country Supply Systems and Capacity for Effective Management of Malaria Commodities

Strengthening in-country supply systems and building capacity for improved management of malaria commodities at the local level were critical to the success of TO Malaria and to reaching the goals of PMI. These actions ensured that commodities procured and delivered by TO7 and other key malaria partners reached those in need. TO7 worked to improve system performance; improve visibility of data at all levels; strengthen supply chain accountability; bridge gaps between programs and key supply chain entities such as national malaria control programs (NMCPs) and central medical stores; and build capacity to sustain performance.

We provided technical assistance in 26 countries and established long-term presence in 19 countries.

TO7 also provided core-funded technical assistance in the development of tools that incorporated lessons from a range of countries, and through the management of the End-Use Verification (EUV) activity and the Procurement Planning and Monitoring Report for malaria (PPMRm).

By improving the availability of key malaria products, TO Malaria supported improvements in malaria case management and malaria outcomes.

The project documented the highlights of our technical work in countries through the Country Stories Series— impact-oriented, data-driven, and based on country-specific data sources that show the accomplishments of the project. Supply chain as well as malaria indicators are included to show the link between investments in supply chain and improvements in malaria prevention, diagnosis, and treatment.

Country Technical Assistance

Over the course of the task order, we worked to strengthen the performance of in-country supply chains to ensure availability of essential malaria supplies. We found

Photo credit: Arturo Sanabria for USAID | DELIVER PROJECT, 2015.

Explaining how to hang and use LLINs to health facility staff at Marrere Health Center in Nampula, Mozambique.

solutions and adapted private sector practices such as vendor-managed inventory, results-based financing, network optimization and modeling, and outsourcing, across our technical work. We worked with a range of global and in-country partners to provide this technical assistance, which is described in this section.

Built digital systems and improved data for decisionmaking.

We worked with countries to improve the availability and use of data throughout the supply chain. Through a consultative process with stakeholders and partners, TO Malaria built and implemented electronic logistics management information systems (eLMISs) in several countries, including Rwanda, Tanzania, Zambia, and Zimbabwe, among others.

In Tanzania and Zambia, a set of requirements was agreed upon for joint implementation of an LMIS through a series of stakeholder workshops facilitated by the project. The eLMIS computerizes the collection and reporting of essential logistics data to reduce the paperwork burden on health facility staff and increase the visibility of data to all stakeholders and decisionmakers. The eLMIS gives health staff evidence to make better supply chain management decisions, and has led to reduced stockouts and better health outcomes.

In Zambia, the eLMIS increased visibility of malaria commodities data, which are managed through the Essential Medicines Logistics Improvement Program. Over time, Zambia has seen declining stockout rates of ACTs and RDTs at Essential Medicines Logistics Improvement Program facilities (figure 9). Figure 10 describes the benefits of eLMIS in Zambia.

Figure 9. Improved Product Availability in Zambia

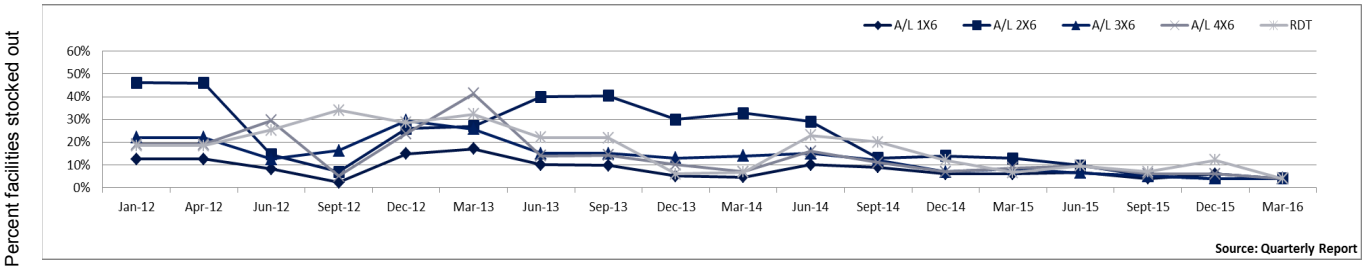
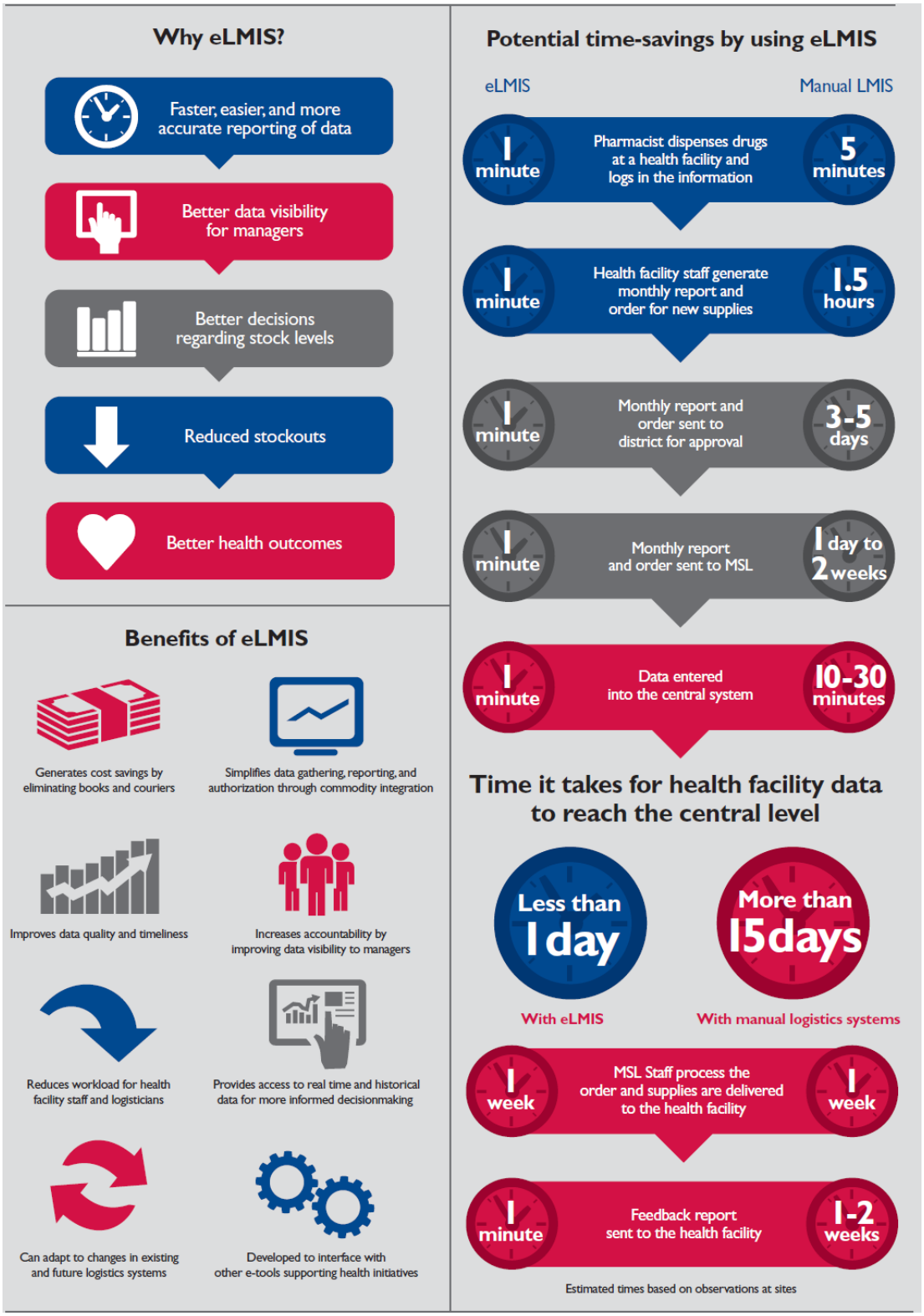


Figure 10. Benefits of Zambia's eLMIS

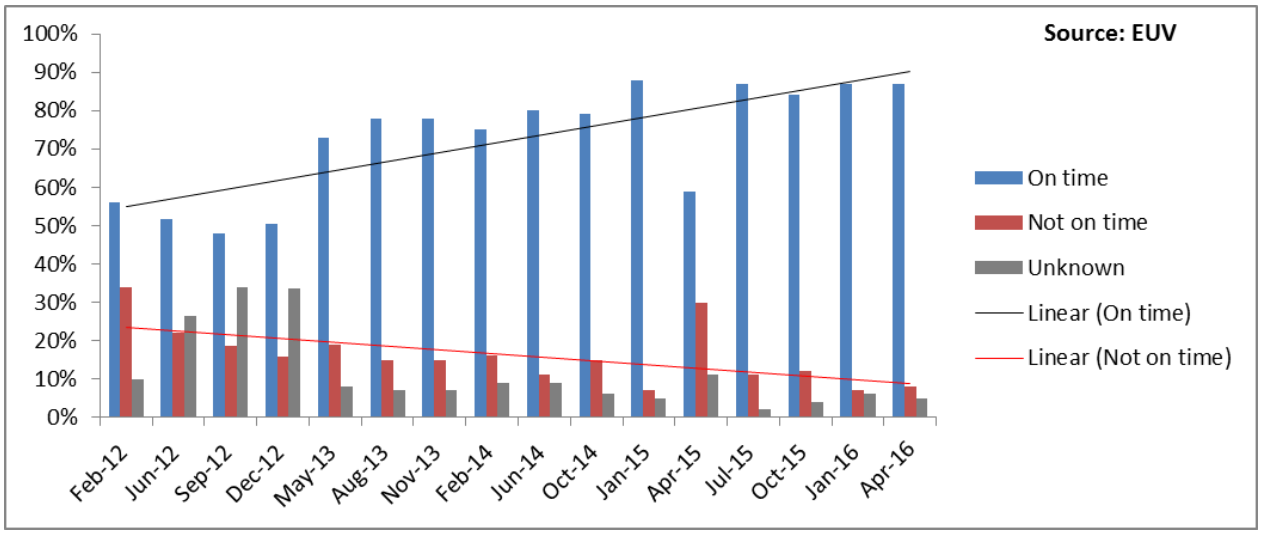


Created logistics management units and trained leaders to manage and sustain them.

Recognition of and investments in human resources and management structures are key to building and managing sustainable logistics systems. A logistics management unit (LMU) is a structure responsible for organizing, monitoring, and supporting all activities within the logistics system. Through a pattern of continuous improvement, the LMU identifies supply chain problems, and develops and implements interventions to remedy them. The LMU is the communications hub for the entire logistics system— facility, intermediary, and central levels, and across partners. The LMU coordinates activities among different organizations and agencies involved with logistics system activities. In cases where certain logistics functions or activities are outsourced, the LMU monitors the performance of these outsourced entities. TO7 funding was used to design, implement, and/or support LMUs in Ghana, Liberia, Nigeria, Madagascar, Guinea, Rwanda, Tanzania, Zambia, and Zimbabwe.

In Tanzania, the LMU and the eLMIS were instrumental in significantly improving reporting rates from 2012 to 2016.

Figure 11. Improved Reporting Rates in Tanzania

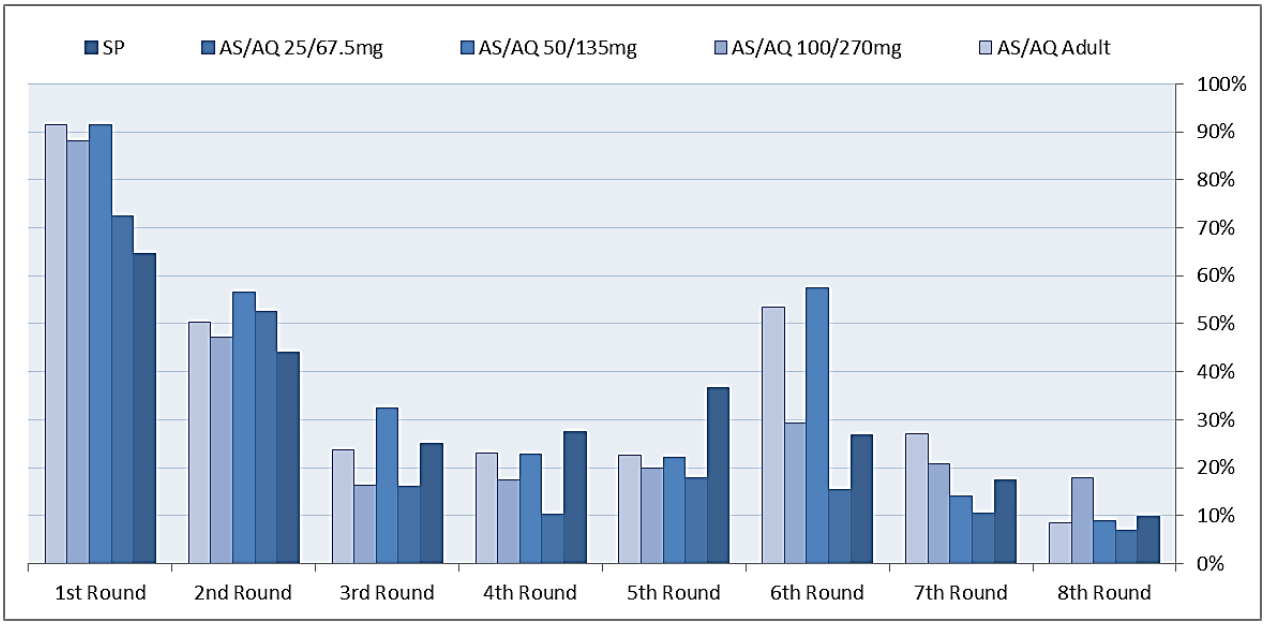


Helped countries design and implement better performing supply chains.

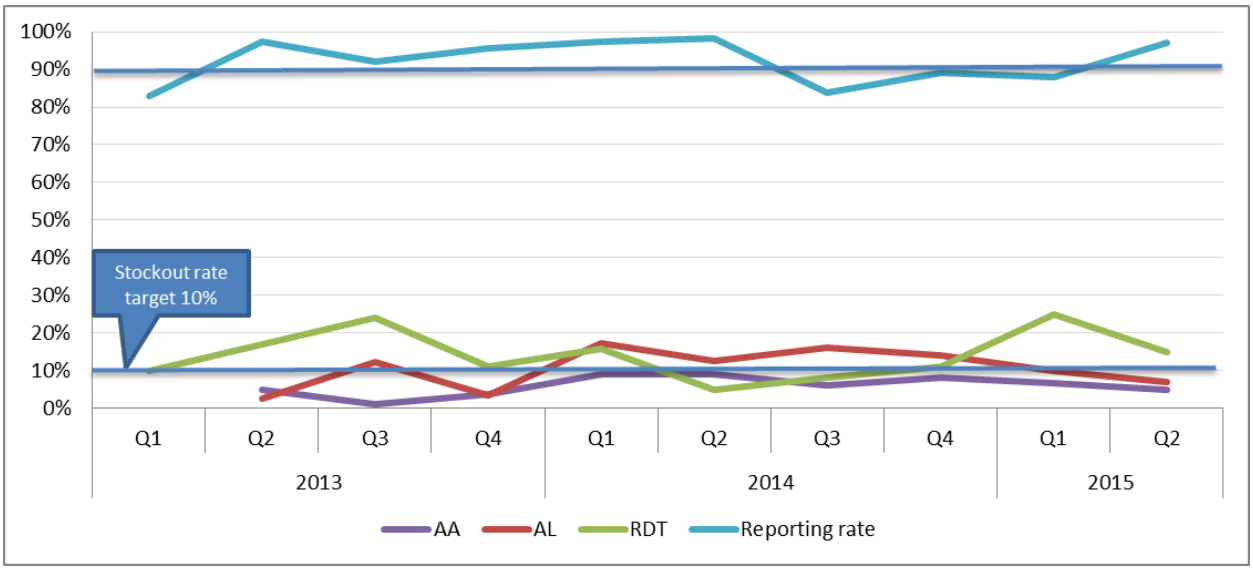
Building on the work of TO3, TO7 strengthened routine logistics systems in several countries (Burkina Faso, Rwanda, Tanzania, Zambia, and Zimbabwe), and completed direct distribution of malaria commodities including ACTs and RDTs in Angola, Ghana, Liberia, Malawi, Laos, Mozambique, Nigeria, and South Sudan when existing public sector systems were inefficient or ineffective. The parallel or augmented systems that TO7 established and maintained in these countries was supported by the MOH and relevant supply chain partners and focused on building local private sector capacity in warehousing and distribution. This support contributed to reductions in stockout rates of ACTs and RDTs, as shown in the examples below.

In Liberia, the project implemented the Interim Approach in 5 counties. The percent of facilities stocked out of ACTs declined over eight rounds of the Interim Approach, despite the emergence of the Ebola virus disease.

Figure 13. Sustaining Low Stockout Rates in Nigeria



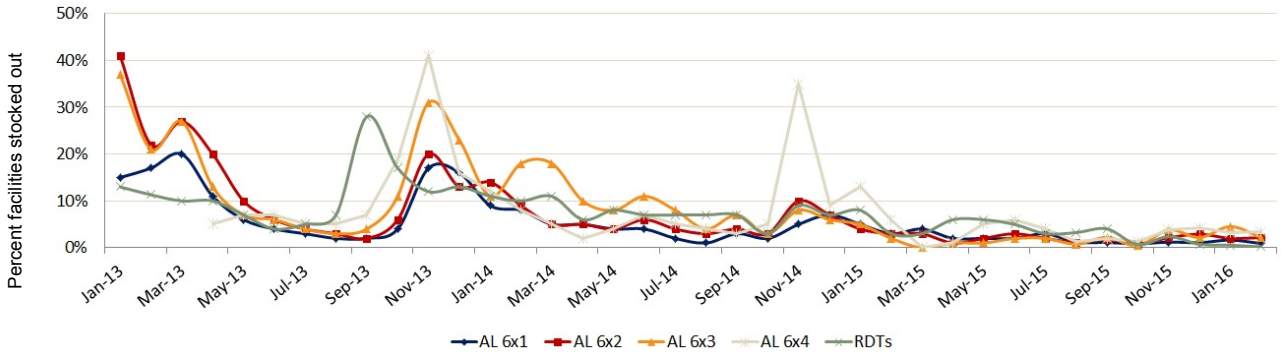
In four Nigerian states, the project managed the Direct Delivery and Information Capture (DDIC) logistics system, a data collection and resupply system based on vendor-managed inventory principles. Under DDIC, stockouts of ACTs and RDTs remained low while reporting rates remained high. [5]



[5] The reporting rate target is at or above 90% reporting.

In Rwanda, the project received monthly LMIS reports from 593 health facilities and 30 district pharmacies. Stockout rates for AL and RDTs decreased since January 2013 and remained low through the beginning of 2015 and into 2016. As of February 2016, stockout rates across all malaria commodities were at or below 3 percent. Similarly, reporting rates for malaria commodities were high overall, averaging approximately 93 percent at the facility level between 2013 and 2014 and averaging about 90 percent in the first three quarters of 2015.

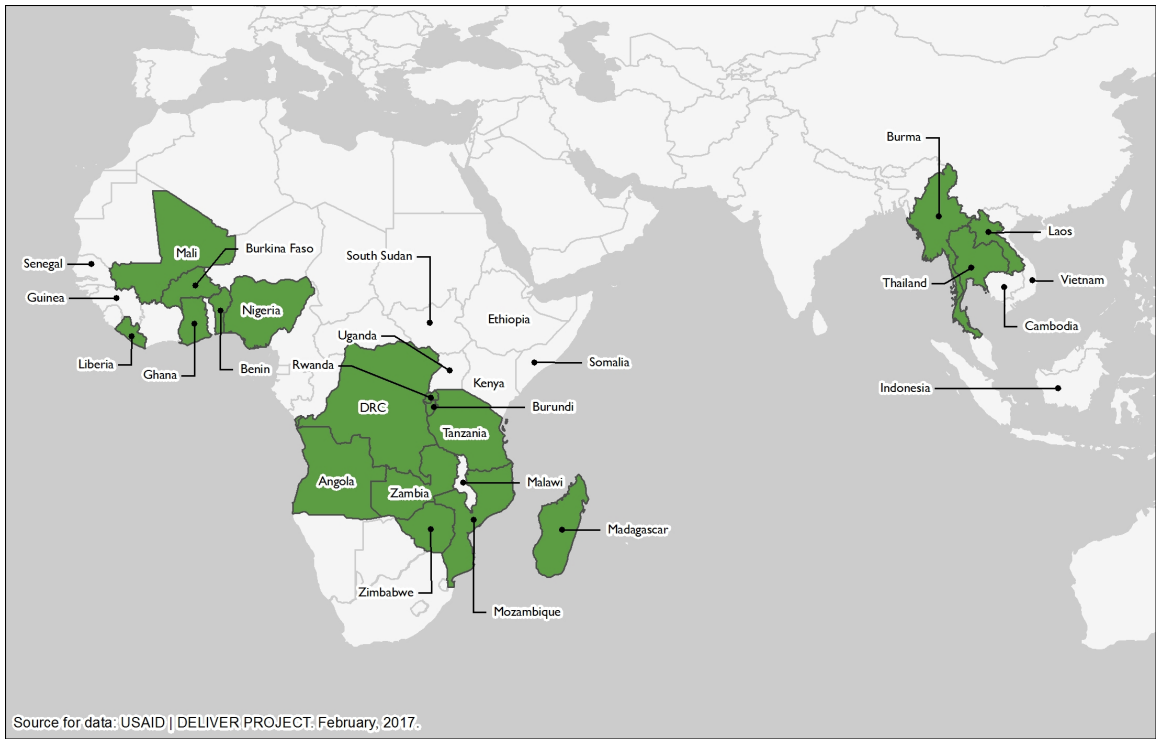
Figure 14. Low Stockout Rates in Rwanda



Distributed LLINs in 18 countries, often at community level

From the beginning of TO3 until the close of TO7, the project procured 187.5 million nets. From 2011–2016, the project procured approximately 148,000,000 LLINs, helping malaria-endemic regions dramatically scale up their LLIN activities and reducing the malaria burden on those most vulnerable. The project distributed nearly 104 million LLINs through mass campaigns and continuous distribution; in some cases advising governments and providing logistics expertise and tools to support distribution, while in others directly distributing nets. TO7 supported LLIN distribution activities in Angola, Benin, Burkina Faso, Burma, Burundi, DRC, Ghana, Laos, Liberia, Mali, Madagascar, Mozambique, Nigeria, Rwanda, Tanzania (mainland and Zanzibar), Thailand, Zambia, and Zimbabwe.

Figure 15. Map of LLIN Distribution Activities



Fostered collaboration among stakeholders, including establishing logistics committees and technical working groups in-country.

Coordination and collaboration groups, or supply chain technical working groups (TWGs), were a key activity in which program and supply chain staff participated. The working groups convened stakeholders for the explicit purpose of collaborate on all aspects of supply chain decision-making and management. Meeting discussions included information on stock status, status of planned shipments, quantification results, resource mobilization, upcoming supply chain activities, technical capacity building needs, and solutions to common supply bottlenecks and challenges. TO7 routinely facilitated these meetings in almost all countries that had a project presence.

Helped countries determine which supplies they needed and mobilized resources to procure them.

In almost all project countries, the project supported routine quantifications and quantification updates. Quantifications allow NMCPs and CMSs to review available data, make necessary adjustments, agree on assumptions, and develop a forecast and supply plan to keep

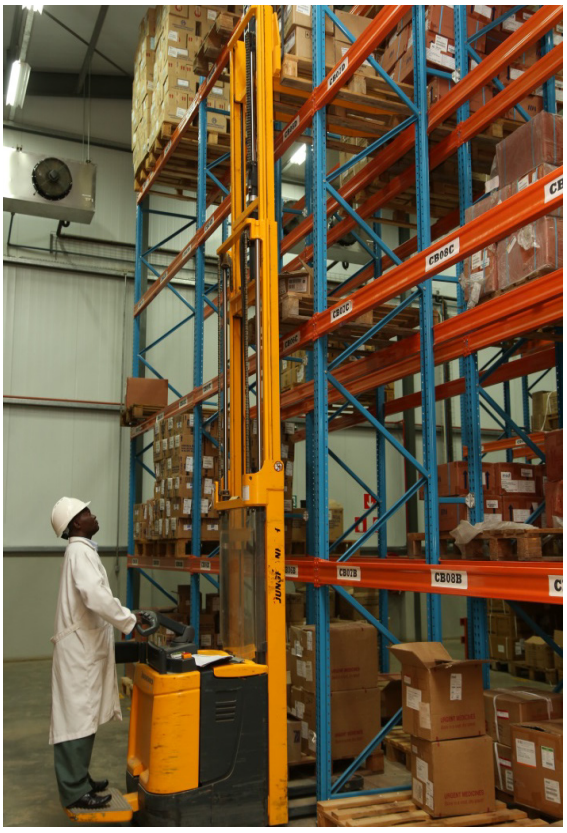


Photo credit: USAID | DELIVER PROJECT

A worker in Tanzania accesses malaria products in the central warehouse.

programs between minimum and maximum stock levels. Each country has different data sources, with related strengths and weaknesses, which are collected, analyzed, and adjusted for completeness and quality prior to a forecast. The project developed a standardized approach to quantification in which consumption-, services-, and demographic-based forecasts are completed and PipeLine software is used for procurement planning and shipment scheduling.

Built sustainable human resource capacity through pre- and post-service training.

In many countries, health professionals such as nurses, pharmacists, and pharmacy technicians manage most public health system supply chain functions, such as tracking consumption and stock status of health products and ordering commodities. However, since supply chain management responsibilities often are not recognized as part of health professionals' job responsibilities, those who conduct these tasks are unlikely to have formal training in these areas, which can lead to stockouts of essential health commodities. To address the root of this problem, the project met with technical school curriculum committees and university professors in Ethiopia, Malawi, Rwanda, Tanzania, Zambia, and Zimbabwe to implement relevant curricula tailored to the countries' unique needs.

Core-funded Work

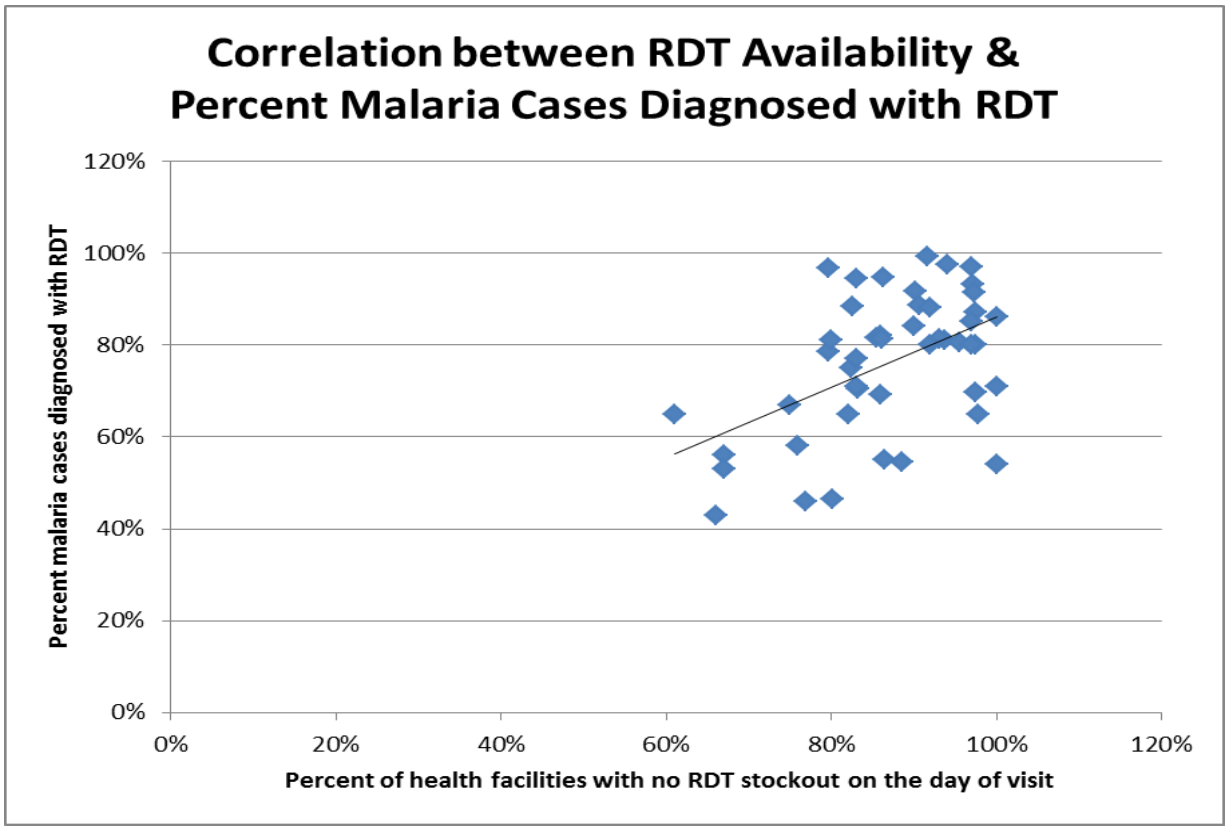
In addition to country-level technical assistance, TO7 used core funding to support technical activities to ensure quality standards in a range of countries.

End-Use Verification: improving visibility and use of malaria supply chain and case management data

TO7 implemented the PMI EUV activity, a survey that regularly captures information about malaria product availability, other supply chain indicators, and malaria diagnosis and treatment at public-health facilities. The data generated provided visibility of important logistics and case management information that otherwise is often unavailable to decisionmakers. The EUV was routinely implemented by the project in Burkina Faso, Ghana, Liberia, Malawi, Mozambique, Nigeria, Tanzania, Zambia, and Zimbabwe.

Analysis of EUV data over time demonstrated the relationship between product availability and case management. Figure 16 shows the positive correlation of RDT availability and the percent of malaria cases diagnosed with an RDT over time, across countries, using EUV data (correlation coefficient = 0.493004306; $p < .001$). When a facility had an RDT in stock on the day of the visit, it was more likely that malaria cases would be diagnosed using an RDT.

Figure 16. Correlation between RDT Availability and Percent Malaria Cases Diagnosed with an RDT



Procurement Planning and Monitoring Report for Malaria

The PPMRm provides quarterly visibility of country-level stock levels of ACTs, SP, and RDTs in 24 countries. The report details stock levels in the country—if available, additional levels of the supply chain beyond central may be included—regardless of the source of supply (e.g., host government, GFATM, or PMI). The report also covers key commodity security updates in-country, such as reporting on finance and capital, procurement, and logistics committees, and providing a detailed quarterly snapshot of activities and accomplishments. Data from eight countries are reported on the Systems for Improved Access to Pharmaceuticals and Services project and 14 countries supported by project staff. Two countries report though USAID bilateral projects.

The PPMRm can address stockout situations and other critical commodity-related issues by providing key in-country stock status data for quick decision-making. In addition, countries can highlight particular actions or issues requiring attention, thus providing another avenue for early detection of problems expedited responses.

Figures 17, 18, and 19 show the number of countries/Nigerian states stocked out of A/L, AS/AQ, and RDTs/SP from 2010–2016.

Figure 17 Countries reporting stockouts of A/L products

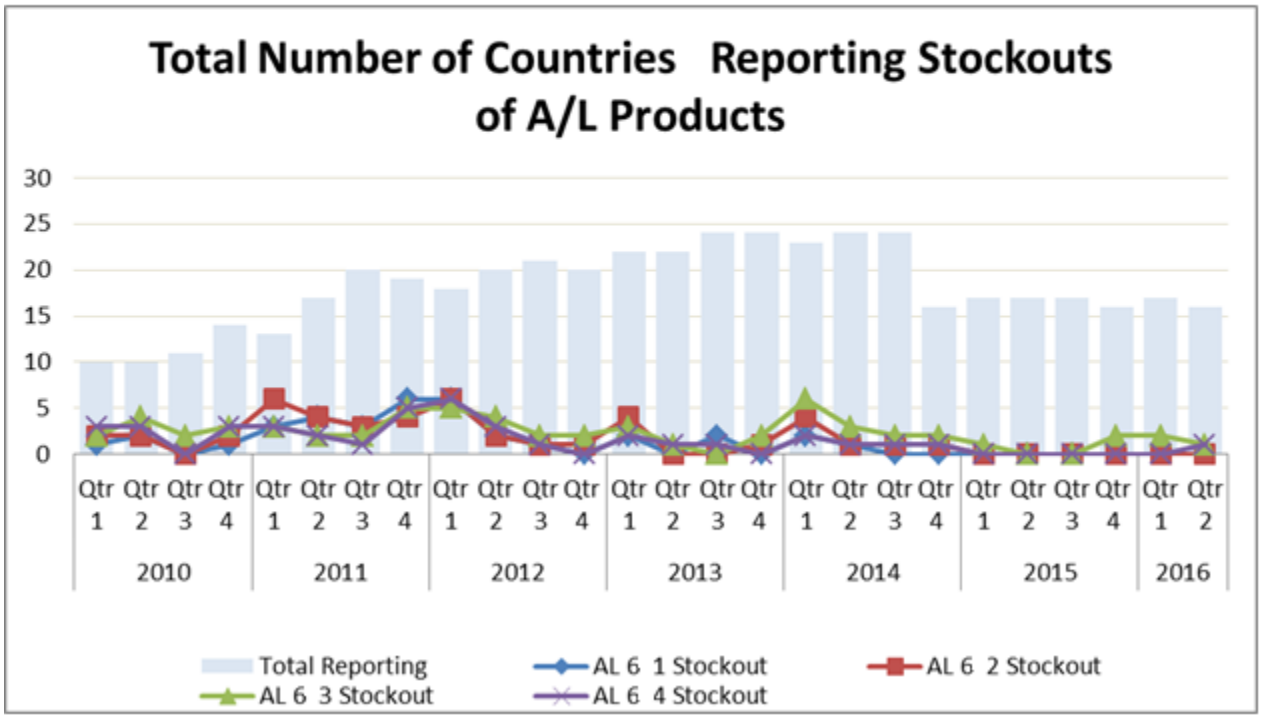


Figure 18. Countries reporting stockouts of AS/AQ products

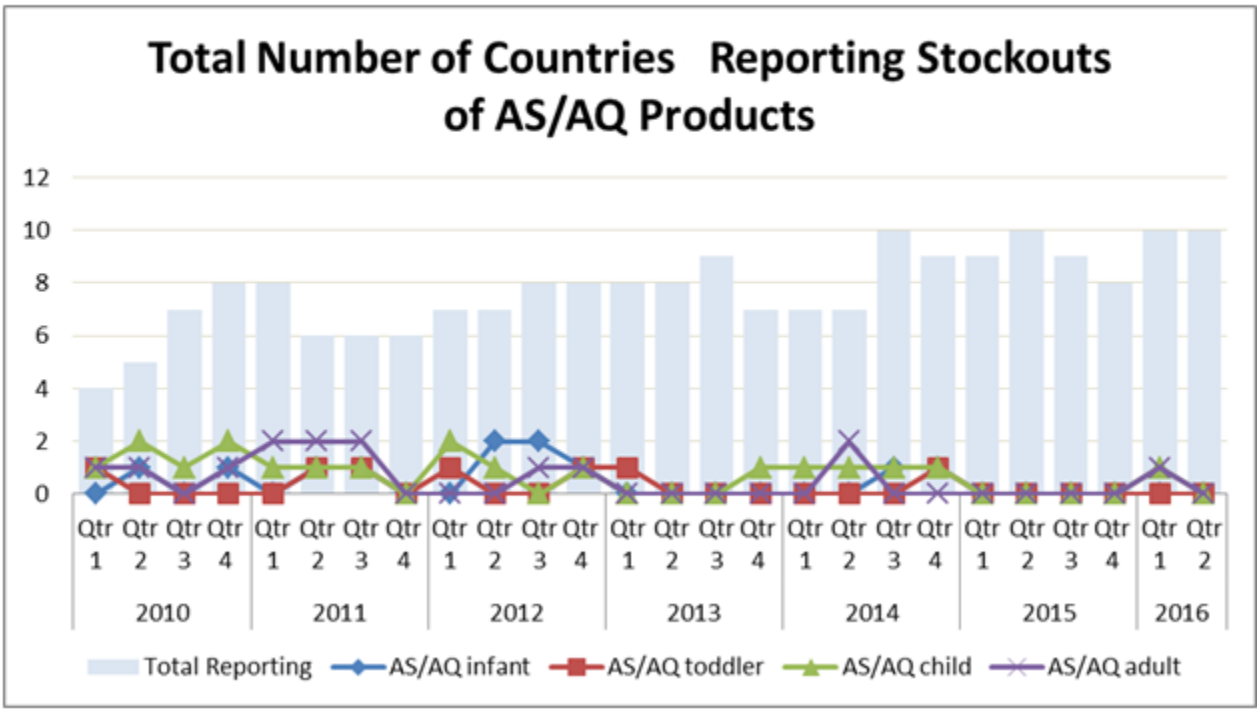
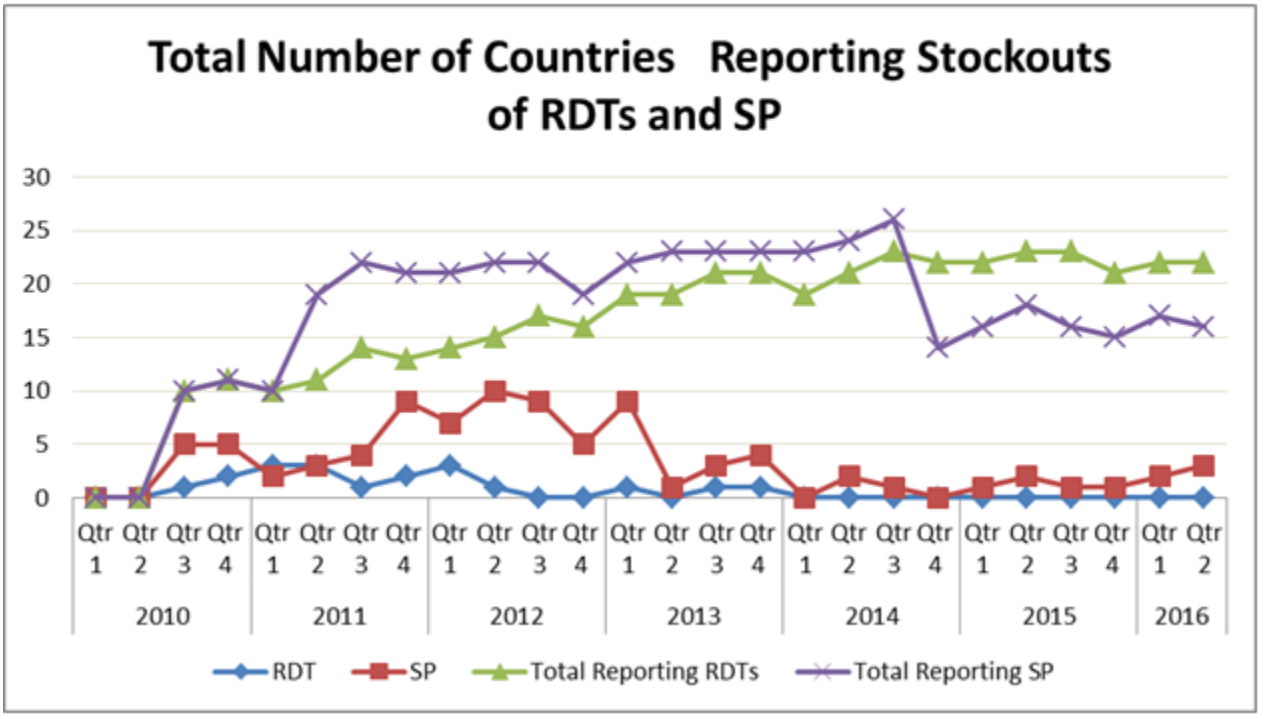


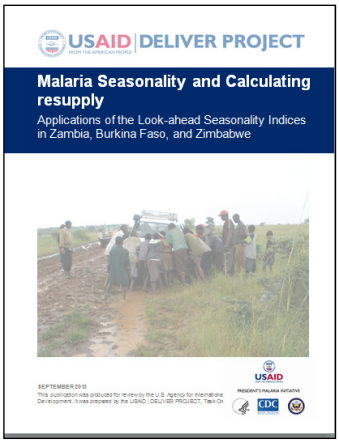
Figure 19. Countries reporting stockouts of RDTs and SP



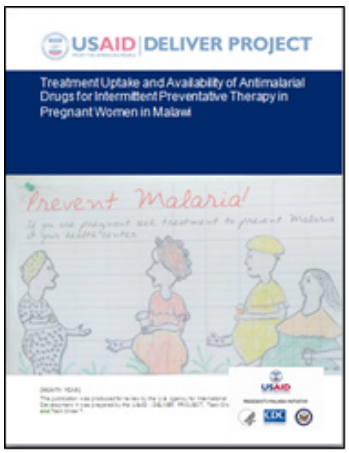
Built a body of knowledge to guide future work.

TO7 distilled the lessons from our depth and breadth of malaria supply chain strengthening efforts to create global technical guidance documents and tools. Detailed examples:

- **Malaria Seasonality and Calculating Resupply: Applications of the Look-ahead Seasonality Indices in Zambia, Burkina Faso, and Zimbabwe (2013).** The task order worked with a senior academic researcher to develop an alternate calculation for resupply, based on seasonality patterns, which resulted in fewer stockouts at the facility level. We identified an approach for enhancing the simple average monthly consumption (AMC rule)—used 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. The approach 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. In all country case studies, the LSI performance was recommended as inventory replenishment and forecasting methods. In all cases, the LSI approach outperformed the simple AMC rule for addressing seasonality.



- **Treatment Uptake and Availability of Antimalarial Drugs for Intermittent Preventive Therapy in Pregnant Women in Malawi (2014).** The task order explored the relationship between SP availability and uptake among pregnant women by examining trends between SP logistics data, antenatal care data, and Demographic Health Survey and Malaria Indicator Survey data on intermittent preventive therapy (IPT) coverage among pregnant women. The quantitative data, along with qualitative, contextual knowledge, support the hypothesis of a correlation between SP availability at the facility level and IPT uptake. Malawi's health services data show that despite strong IPT coverage as reported in household surveys, trends from one quarter to the next demonstrate a vulnerability to fluctuations in product availability.



- **Costing Malawi's Parallel Supply Chain- Analyzing an Outsourced Distribution Model (2014) and Evaluation of the Zimbabwe Assisted Pull System (2015).** Understanding the cost of malaria supply chains is critical to monitoring cost effectiveness and identifying options to reduce costs. TO7 costed Malawi's project-managed Parallel Supply Chain and conducted a cost-benefit analysis of an outsourced distribution model. In Zimbabwe, a cost analysis was conducted of the Zimbabwe Assisted Pull System. Zimbabwe had four different distribution systems to manage its health commodities in the public sector; each with a unique structure, associated costs, and level of performance. To determine whether a unified system would be simpler to manage, cost less, and produce similar performance levels, Zimbabwe designed a single assisted pull system and piloted it in one province. The pilot assisted pull system was compared to the four other supply chain systems in terms of performance and cost. The results found that the assisted pull system maintained supply chain performance at a lower overall cost and more efficiently. Specifically, reporting rates were maintained at 100 percent. Malaria product availability improved from 79 percent to 93 percent. Despite the significant increase in throughput in the integrated system, annual supply chain operational costs fell substantially, from $1.73 million for the baseline systems to $1.51 million under the pilot system. Zimbabwe is in the process of rolling out the pilot system nationally.

Other examples:

- Strengthening Accountability of In-Country Malaria Supply Chain (2012).
- Addressing In-Country Supply Shortages of Malaria Commodities (2012).
- Bridging Malaria Programs and Supply Chains (2013).
- Long-Lasting Insecticide-Treated Bed Net Packaging Considerations (2014).
- Procurement Options for Addressing Long-Lasting Insecticide Treated Bed Net Packaging Waste Infographic (2014).
- Availability of Malaria Products at the Last Mile: Analysis of Facility and Community Level Data (2014).
- Supply Chain Considerations for Long-Lasting Insecticidal Net (LLIN) Delivery through Antenatal and Immunization Clinics (2014).

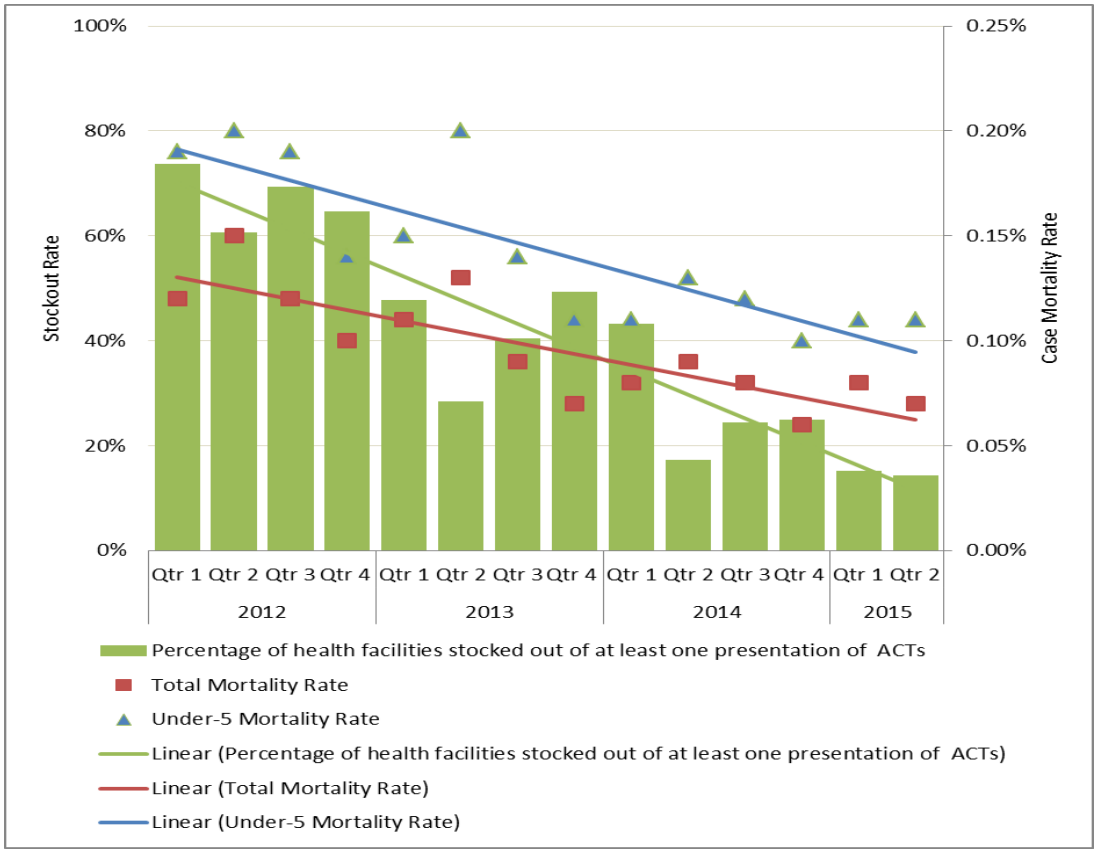
Workers in Burma count LLINs in the MEBS warehouse (above), and unloading product during a delivery of LLINs to Madaya (right). Photo credit: Chris Warren, 2015.

Improving Malaria Case Management and Outcomes

Our supply chain strengthening activities contributed to increased availability of key malaria commodities, including ACTs, RDTs, and SP. Greater product availability has led to better malaria case management.

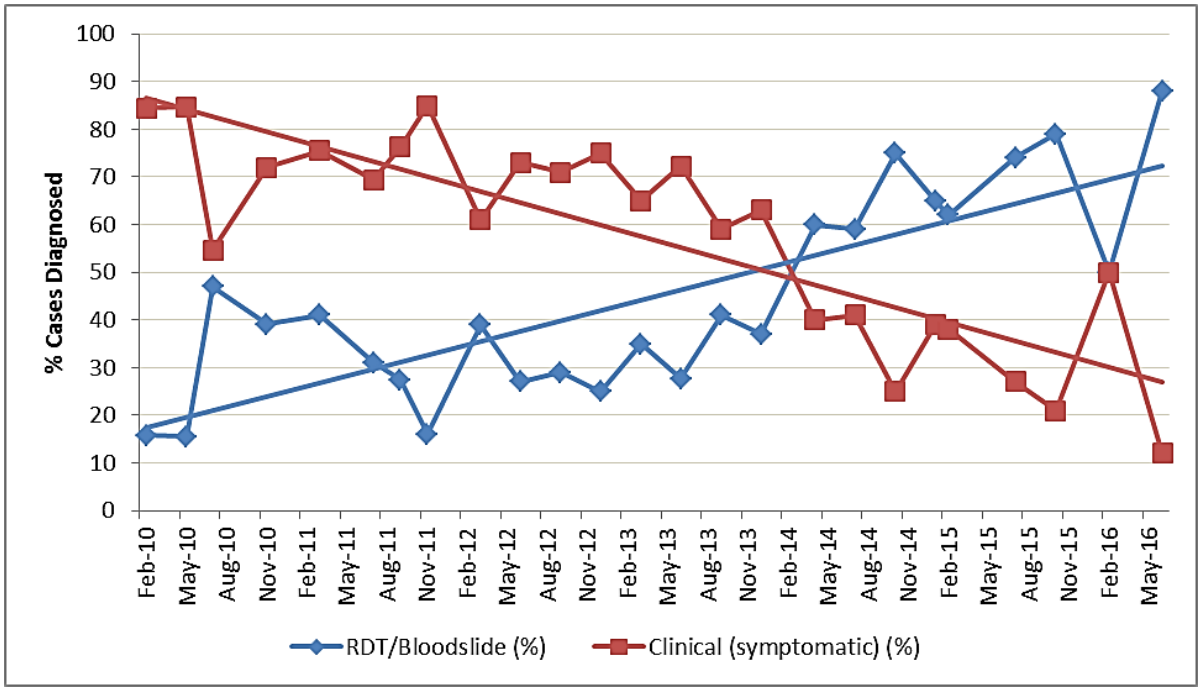
In Burkina Faso, stockouts of ACTs decreased, the malaria mortality rate also decreased, both in the overall population as well as in those under-5, as shown in figure 20.

Figure 20. Improved Product Availability Supports Reduction in Case Fatality Rates



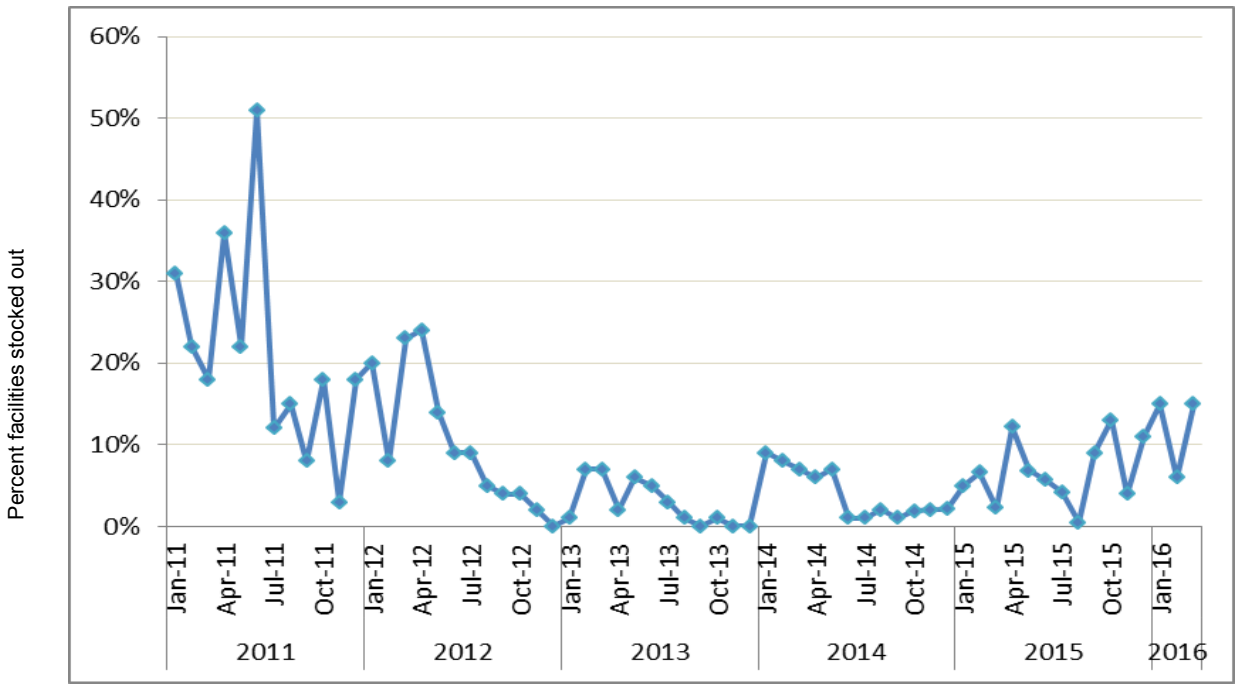
In Ghana, the percent of malaria cases diagnosed by RDT or blood slide continued to increase while those diagnosed symptomatically decreased, as shown in figure 21.

Figure 21. Improved RDT Availability and Increase in Cases Diagnosed with RDTs



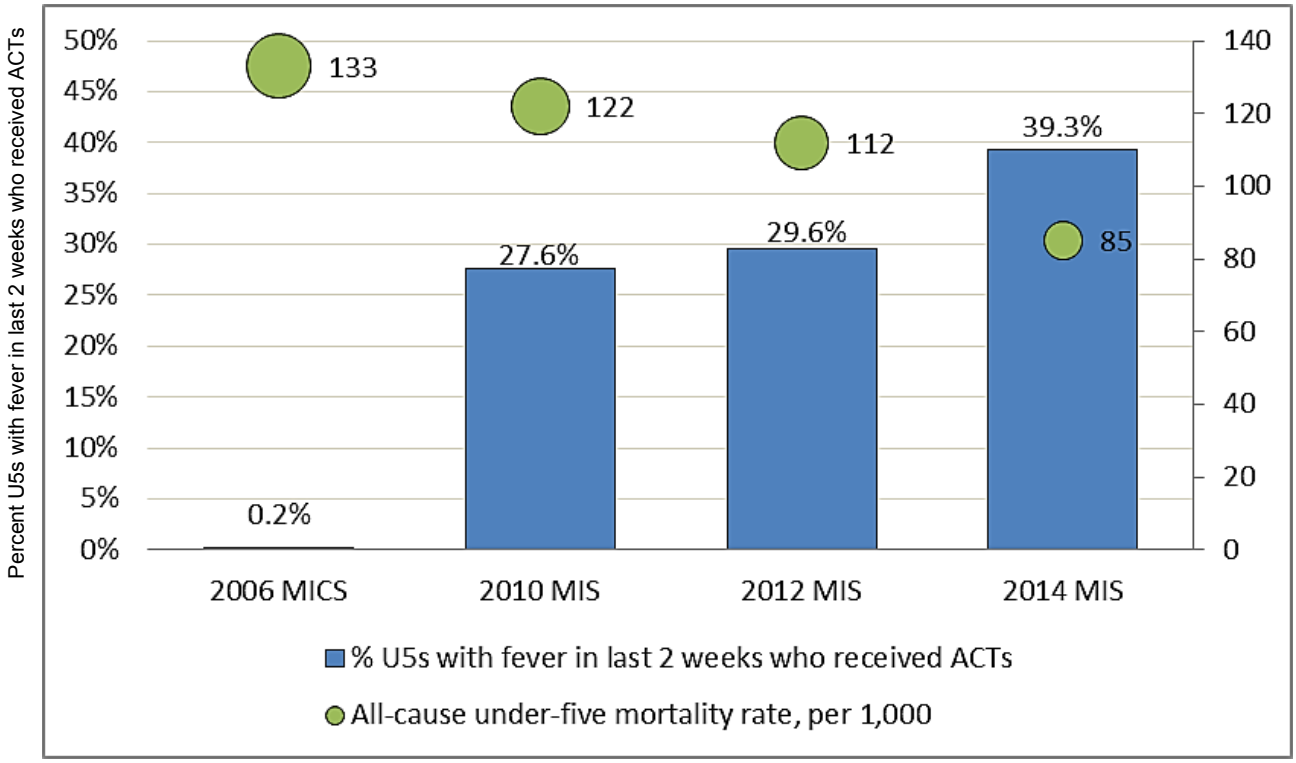
In Malawi, stockout rates declined.

Figure 22. Declining Stockout Rates of ACTs in Malawi



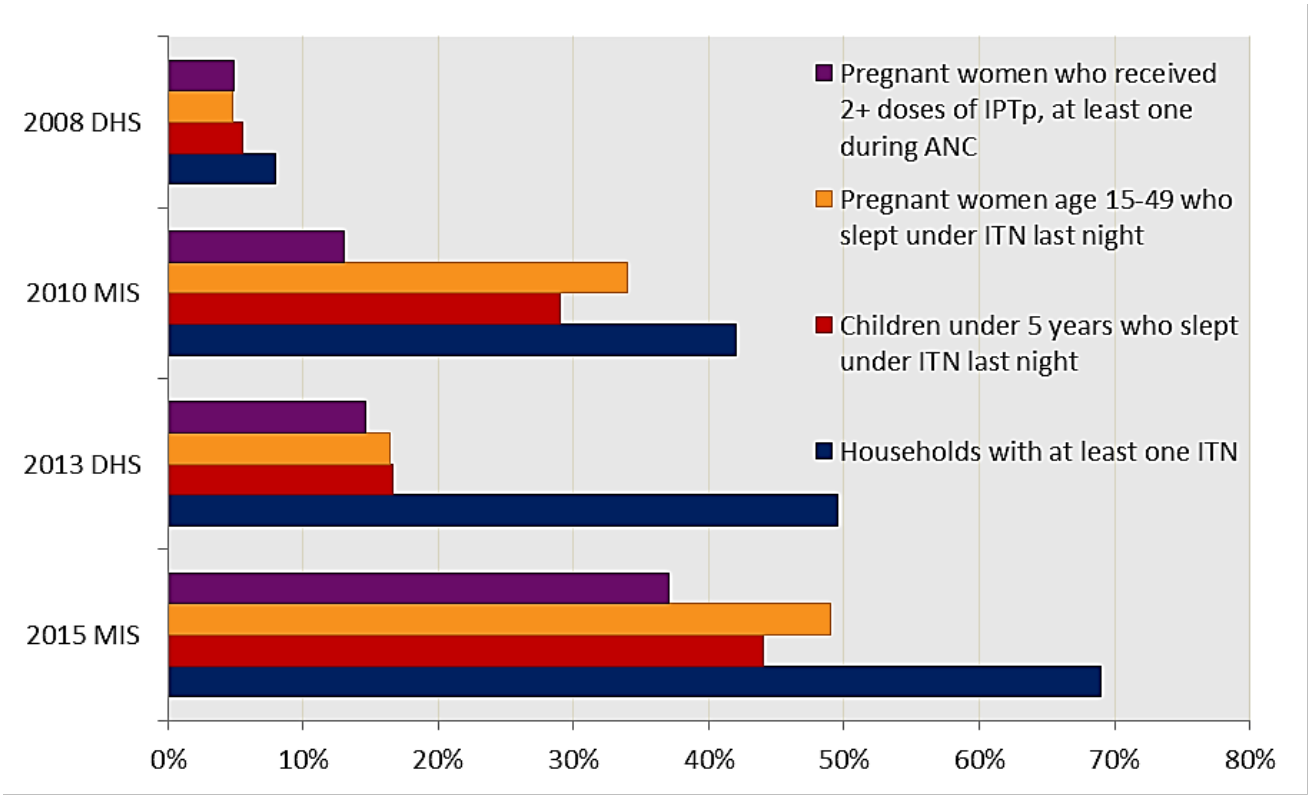
At the same time, mortality rates decreased, and greater numbers of children under 5 were treated with an ACT.

Figure 23. Increase in Percentage of U5s Treated with an ACT, and Declining All-case under-5 Mortality



In Nigeria, TO7 procured and delivered more than 32.4 million LLINs over the span of the project. The country showed significant improvements in LLIN ownership and SP use as shown in figure 24.

Figure 24. Nigeria LLIN Ownership Increases



The Way Forward

Significant progress has been made in achieving the global targets of reducing malaria-related morbidity and mortality. According to the WHO's World Malaria Report 2016, "the incidence rate of malaria is estimated to have decreased 41 percent globally between 2000 and 2015, and by 21 percent between 2010 and 2015." Similarly, mortality rates have declined "by 62 percent globally between 2000 and 2015 and by 29 percent between 2010 and 2015." This progress would not have been possible without the strengthening of the supply chains that manage and move malaria products, improving product availability, which supports improvements in malaria outcomes.

There has been significant progress in coverage of LLINs, particularly for the most vulnerable. In 2015, 53 percent of the at-risk population slept under an ITN, compared to 30 percent in 2010). In 2015, 31 percent of eligible pregnant women received three or more doses of IPTp, up from 6 percent in 2010. NMCP RDT roll-out resulted in an increase in the proportion of suspected malaria cases who receive a parasitological test in the public sector, from 40 percent in the WHO African Region in 2010 to 76 percent in 2015. Finally, countries have introduced ACTs, which has increased access at the community level.

Despite these significant gains, there are still an estimated 212 million cases of malaria worldwide. The WHO has developed the Global Technical Strategy for Malaria 2016–2030, outlining ambitious goals for 2030: "to reduce malaria incidence and mortality rates globally by at least 90 percent compared with 2015 levels; to eliminate malaria from at least 35 countries in which malaria was transmitted in 2015; and to prevent re-establishment of malaria in all countries that are malaria free."

To reach these goals, continued investments are needed. Funding has grown significantly for malaria control and elimination, from US$0.06 billion in 2010 to US$2.9 billion in 2015. However, the Global Technical Strategy 2020 target is US$6.4 billion. Funding can increase coverage of effective existing tools, including LLINs, SP for IPTp, RDTs, and ACTs. Funding can also support the development of new tools for vector control, diagnostics, and effective medicines, which we need to sustain the gains made so far. The development of an effective vaccine would—if not eradicate—eliminate malaria. We need stronger surveillance systems to predict and respond to malaria outbreaks. Artemisinin-resistance has been detected and is a threat that must be closely monitored.

Strong systems save lives. Strong supply chains get health products to clients, wherever and whenever needed. As the global malaria community strives for the goals set by the Global Technical Strategy for Malaria, we must not forget that investments in supply chain strengthening increase product availability; help prevent, diagnose, and treat malaria; and ultimately reduce malaria case outcomes.

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

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