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About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

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ACRONYMS AND ABBREVIATIONS

ACT  artemisinin-based combination therapy
AIDS  acquired immunodeficiency virus
AS/AQ  artemether/lumefantrine
BTU  British thermal unit
CHT  County Health Team
CQ  chloroquine
DHS  Demographic and Health Survey
EML  Essential Medicines List
EUV  end use verification
GoL  Government of Liberia
HFS  Health Facility Survey
HIV  human immunodeficiency virus
iCCM  Integrated Community Case Management
IPTp  intermittent preventive treatment in pregnancy
KVa  kilovolt ampere
LISGIS  Liberia Institute of Statistics and Geo-Information Services
LLIN  long-lasting insecticide-treated net
LMHRA  Liberia Medicines and Health Product Regulatory Authority
LMIS  logistics management information system
M&E  monitoring and evaluation
MoHSW  Ministry of Health and Social Welfare
mRDT  malaria rapid diagnostic test
MTG  Malaria Treatment Guideline
NACP  National AIDS Control Program
NDS  National Drug Service
NGO  nongovernmental organization
NHP  National Health Policy and Plan
NMCP  National Malaria Control Program
NTGL  National Therapeutic Guidelines for Liberia
PBL  Pharmacy Board of Liberia
PMI  President’s Malaria Initiative
PSACTTWG  Private Sector ACT Technical Working Group
RDT  rapid diagnostic test
SCMU  Supply Chain Management Unit
SDSI  Sustainable Drug Sellers Initiatives Project
SIAPS  Systems for Improved Access to Pharmaceuticals and Services [Program]
SOP  standard operating procedure
SP  sulfadoxine-pyrimethamine
SPS  Strengthening Pharmaceutical Systems Program
TB  tuberculosis
TFR  total fertility rate
ToT  training of trainers
TWG  technical working group
USAID  US Agency for International Development
USD  US dollars
USG  US Government
WHO  World Health Organization
BACKGROUND

Liberia, which continues to recover from more than a decade of civil war, has made significant progress in improving basic health services delivery. In 2003, at the end of the war, the country’s infrastructure was in ruins, with the majority of roads, bridges, and water and power supplies destroyed. The health system did not escape the destruction. The majority of hospitals and clinics were looted and heavily damaged: of the 550 prewar health facilities, only 354 were providing basic services,1 most of which were operated by nongovernmental organizations (NGOs). Fewer than 200 doctors remained in the country, mostly in Monrovia.

The 2007 Demographic and Health Survey (DHS)2 (covering 2002–2006) reported appalling statistics: Maternal mortality was at 994/100,000. Only 37% of women gave birth in a health facility, while only 46% of women had a skilled attendant at delivery. The total fertility rate (TFR) had decreased from previous decades but was still high, at 5.2 children per woman. Child mortality was extremely high, with one in every nine children (110/1,000 live births) dying before their fifth birthday. Infant mortality was also high, ranging from 69/1,000 live births in Monrovia to 142/1,000 live births in some rural areas. Only 39% of children aged 12–23 months had received all recommended vaccinations for that age. Communicable disease indicators also demonstrated the appalling status of the health systems in Liberia. Malaria was the leading cause of death. The prevalence of malaria parasitemia in children under five was 66%,3 with ownership of nets (treated or untreated) ranging from only 9% in the northwest to 39% in the southeast. HIV prevalence was 1.8% and 1.2%, respectively, among women and men aged 15–49.2

The Liberian Ministry of Health and Social Welfare (MoHSW) has been making great strides in improving the health status of the country. The MoHSW’s four-year National Health Policy and Plan (NHP),4 which was published in 2007, introduced a basic package of health services (BPHS)—a package of high-impact interventions for the entire population—as well as improvements in human resources for health, infrastructure development, and decentralization to the county level. Since the implementation of the NHP, there have been significant improvements in the country. All hospitals and clinics, many of which have been rebuilt, are up and running. Training facilities for nurses, midwives, and physicians are in operation, which is increasing the number of skilled health professionals available in the country. In 2011, the MoHSW developed a new National Health and Social Welfare Policy for the country5 and introduced an essential package of health services, (EPHS) increasing the number of health interventions provided to the population.

Despite these improvements, many challenges persist. Liberia remains one of the lowest-ranking countries (174th out of 187 countries) on the United Nations Development Programme’s Human Development Index.6 Health services standards remain low; there are few available drugs, a continuing lack of trained health professionals, and consistently poor health outcomes. The 2013 DHS7 reported improvement in some areas while other areas declined. The TFR dropped slightly, from 5.2 to 4.7 births per woman. Infant mortality and under-five mortality both declined but remain unacceptable at 54/1,000 and 94/1,000 live births, respectively. The number of women who delivered in a health facility rose to 56% (up from 37% in 2007), but the maternal mortality rate remains unacceptably high, at 770/100,000 live births (data from the World Health
Malaria remains the leading cause of death in Liberia. Although the prevalence of malaria has fallen over the past decade, from 66% in children under five (2005 Malaria Indicator Survey) to 32% in 2009 and 28% in 2011, the entire population of 3.8 million people is at risk year-round. Preliminary results from the 2013 DHS report show that the percentage of households with nets (treated or untreated) has increased to 57%, but only 10% of households have been sprayed with residual insecticide. Among children under five who had experienced fever in the two weeks before the DHS, only 24% took artemisinin-based combination therapy (ACT), and of those, only 16% took an ACT within 24 hours of developing fever.

The MoHSW, through the activities of the Liberia’s National Malaria Control Program (NMCP) and its partners, has made progress in decreasing malaria-related morbidity and mortality. Based on the 2009 Health Facility Survey (HFS), which showed that malaria accounted for 35% of outpatient attendance and 33% of inpatient deaths, the NMCP prioritized increasing and improving access to case management of malaria, with a target of 80% of the population. As there are not enough public health facilities or sufficient staffing to reach such high coverage, the NMCP is expanding access through Integrated Community Case Management (iCCM) of childhood malaria and through the private sector.

Although still nascent, the private sector’s role in health and medical care is gradually increasing in Liberia. Improving access to malaria commodities through the private sector presents many challenges, including managing irrational use of medicines, ensuring safe use of rapid diagnostic tests (RDTs) and disposal of used kits, implementing infection control practices, and providing adequate supervisory support. The NMCP also recognizes that the availability of monotherapies and the quality of medicines are important problems in Liberia. As part of its private sector strategy, the NMCP and Pharmacy Board of Liberia (PBL) are working on a policy provision banning the importation of all antimalarial monotherapies. They are promoting the increased availability and use of malaria diagnostic tools and ACTs as first-line treatment in all public health facilities, at the community level, and in the private sector.

In 2008, Liberia became the eighth country to receive support under the President’s Malaria Initiative (PMI). PMI activities were launched through the Strengthening Pharmaceutical Systems (SPS) Program, the predecessor to the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. SPS was tasked with strengthening the pharmaceutical supply system: building human resources capacity in malaria case management and pharmaceutical management for malaria, and strengthening the capacity of the NMCP, the National Drug Service (NDS), and their partners to ensure an uninterrupted supply of malaria commodities.

In 2011, the US Agency for International Development (USAID), under PMI, funded the SIAPS Program to take over support to the NMCP, building on the solid foundation established by SPS. Over a period of two years, USAID obligated a total of $1,028,000 for support to the pharmaceutical system. Years 1 and 2 funding was $663,000 and $365,000 respectively. The main goal of the SIAPS program in Liberia was to improve the supply, quality of services, and
use of malaria commodities and other key pharmaceuticals in the three select counties of Bong, Nimba, and Lofa. SIAPS activities focused on the following technical objectives:

1) Pharmaceutical sector governance strengthened
2) Capacity for pharmaceutical supply management and services increased and enhanced
3) Pharmaceutical information for decision making available
4) Pharmaceutical services improved to achieve desired health outcomes
THE SIAPS APPROACH

The USAID-funded SIAPS Program focuses on achieving positive health outcomes by assuring the availability of quality pharmaceutical products and effective pharmaceutical services. As shown in the pharmaceutical system strengthening framework (figure 1), SIAPS takes a holistic approach that looks beyond product availability to include other essential components of access, such as strengthening the availability of quality pharmaceutical services, ensuring rational use for improved health outcomes, and strengthening the ability of the patient to access both products and services.


**Figure 1. SIAPS pharmaceutical system strengthening framework**

SIAPS provides next-generation technical leadership and assistance in pharmaceutical system strengthening, with a deliberate focus on patient-centered services and health outcomes. The SIAPS technical approach emphasizes Global Health Initiative principles, especially country ownership, health system strengthening, capacitating local governments and organizations, prioritizing sustainability, and improving metrics and monitoring and evaluation. To support these principles, the SIAPS framework and results areas are grounded in the dynamic interrelationships among five health system building blocks, an approach that helps provide technical focus and identify substantive areas of concern and related corrective interventions. The ultimate objective of the SIAPS work in Liberia was to improve coverage of and access to evidence-based
interventions that would ensure sustainable, country-owned health outcomes in line with the Government of Liberia (GoL) priority areas and US Government (USG) strategic objectives.

SIAPS undertook in-depth assessments and gap analyses within the local context of the five building blocks of health systems: governance, human resources, information, financing, and service delivery. Based on the findings, and with the consensus of key stakeholders, evidence-based intervention strategies were developed. Implementation of these strategies was carried out with full collaboration of all stakeholders: the GoL, the MoHSW, public and private partners, and the communities.
ACHIEVEMENTS

Pharmaceutical Sector Governance Strengthened

Making sure that quality medicines and supplies are available requires improving pharmaceutical policies, enforcing compliance with policies and procedures, and addressing the regulatory system for the public and private sectors of the health system. SIAPS aimed to improve medicines policies and regulations in three USAID focus counties—Lofa, Nimba, and Bong—as well as the at the national level where applicable, through the following activities in year 1 of the SIAPS program in Liberia:

- Launch, dissemination, and orientation of the revised National Therapeutic Guidelines for Liberia (NTGLs), Essential Medicines List (EML), and Malaria Treatment Guidelines (MTGs)

- Support to the Liberia Medicines and Health Products Regulatory Authority (LMHRA) Strategic Plan development

Dissemination and Orientation of Treatment Policies

In 2010, with PMI support, SPS supported the MoHSW, its Pharmacy Division, the Pharmacy Board of Liberia (PBL), the LMHRA, and the Liberia Medical and Dental Board at the central level in the revision of the Liberia standard treatment guidelines, now known as the National Therapeutic Guidelines for Liberia, and the Essential Medicines List. The NTGL support the National Malaria Strategic Plan for confirmatory diagnosis of all uncomplicated cases of malaria. Also in 2010, John Snow International (JSI), SPS, and the MoHSW Supply Chain Management Unit (SCMU) together revised and updated the national public sector logistics management information systems tools.

Under SIAPS, in coordination with the MoHSW, the revised NTGL, EML, LMIS, and MTG were rolled out to all health facilities and pharmacies in Nimba, Lofa, and Bong counties. The rollout of these tools in Montserrado County was done in coordination with the SCMU and the Pharmacy Division of MoHSW. The goal of the rollout was to orient health care workers on the updated standard treatment guidelines, and to promote the rational use of medicines and increase the quality of care provided.

SIAPS collaborated with the Pharmacy Division and the health team of each county to provide a one-day orientation and training to the representatives from each functioning health facility in the counties. Through the orientation/training session, all public health facilities were instructed by the MoHSW/SIAPS to ensure compliance with the revised guidelines for managing malaria cases. Each facility representative and other attending health workers were given a copy of the revised NTGL and EML, in accordance with the distribution plan from the Pharmacy Division. Table 1 details the number of health professionals oriented.
Table 1. Orientation and Training on National Treatment Guidelines for Liberia

<table>
<thead>
<tr>
<th>County</th>
<th>Participants oriented and trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bong</td>
<td>59 representatives from 39 health facilities</td>
</tr>
<tr>
<td>Lofa</td>
<td>82 representatives from 56 health facilities</td>
</tr>
<tr>
<td>Nimba</td>
<td>141 representatives from 63 health facilities</td>
</tr>
<tr>
<td>Montserrado</td>
<td>147 representatives from 122 health facilities</td>
</tr>
</tbody>
</table>

Representatives included officers in charge, dispensers, clinical supervisors, district health officers, district supervisors, doctors and pharmacists, and health service administrators.

Suggested recommendations from the training participants included:

- Provide a copy of the NTGL and EML to all licensed health practitioners in the country.
- Strengthen the Pharmacy Division, focusing on reducing stock-outs of essential medicines.
- Institute a monitoring committee to ensure compliance with the NTGL and EML.
- Improve supply chain activities for commodities and increase the effectiveness of the county supply chain managers.
- Set up a National Therapeutic Committee and have subcommittees in every county to monitor compliance and development of plans to sustain and promote the NTGL.
- Conduct regular follow-up trainings those who have been trained.
- Conduct regular supportive supervisions to help identify gaps and provide interventions.
- Regularly resupply the tools required for the standard operating procedures (SOPs) to enhance the LMIS, help sustain the supply system, and avoid stock-outs.

Upon completion of year 1 of the program, SIAPS had met the objective of disseminating and providing orientation in the updated treatment policies to health officials in the three USAID focus counties, with additional support for dissemination in Montserrado County. The National Therapeutic Committee was set up in 2012; however, subsequent SIAPS funding did not allow for support of this activity.

Support to the Liberia Medicines and Health Products Regulatory Authority

The LMHRA was established in 2010, with the support of PMI, to increase access to safe, effective, and good quality medicines. A study completed at that time showed that nearly half of all antimalarial medications did not pass basic screening tests.

Working closely with the USAID-funded Promoting the Quality of Medicines Program, the World Health Organization (WHO), and a number of independent consultants, SPS, the predecessor to SIAPS, supported the drafting of the LMHRA Act, which resulted in the
Sustainable access to medicines and other health technologies critically relies on the availability of skilled workers to provide and manage pharmaceutical services and systems. Liberia suffers from poor management capacity at all levels of the health and pharmaceutical management systems. Previous assessments of the pharmaceutical management and supply system in Liberia identified a significant lack of skills and capacity to accurately order, receive, dispense, or quantify medicines and related commodities.

Building further on the capacity building work done under the SPS Program, SIAPS aimed to build the capacity of the health and pharmacy professionals (officers in charge, pharmacists, and medicine store dispensers) in pharmaceutical management.

**Enhanced Individual, Institutional, and Organizational Capacity for Malaria Case and Commodities Management**

The management of essential medicines and related supplies, including antimalarials, is a vital element in the delivery of quality, integrated health services. Effective malaria case management in Liberia depends on a well-trained and active malaria staff at the country and community levels in both the public and private sectors.

**Pharmaceutical Management Training**

SIAPS Liberia developed a pharmaceutical management training manual and provided in-depth pharmaceutical management trainings to officers in charge and dispensers in Bong, Lofa, and Nimba counties. The pharmaceutical management training took place over five days and covered proper methods for store management, inventory management, LMIS, rational use of medicines, and monitoring and evaluation. The training was tied to the rollout of the newly developed SOPs for supply chain management (developed by USAID | DELIVER), which is part of the overall LMIS.

During the training, participants together created a monitoring training plan, which supported them in identifying and taking action on pharmaceutical management challenges at their own facilities. This plan is tied to a comprehensive follow-up plan developed by the county pharmacist. The training was interactive and included a practicum in which participants visited local facilities to apply the skills learned. Table 2 details the number of health professionals trained in each of the target counties.
Table 2. Pharmaceutical Management Training for Officers in Charge and Dispensers

<table>
<thead>
<tr>
<th>County</th>
<th>Officers in charge</th>
<th>Dispensers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bong</td>
<td>66</td>
<td>75</td>
<td>141</td>
</tr>
<tr>
<td>Lofa</td>
<td>68</td>
<td>73</td>
<td>141</td>
</tr>
<tr>
<td>Nimba</td>
<td>47</td>
<td>56</td>
<td>103</td>
</tr>
</tbody>
</table>

Suggested recommendations from the participants included:

- Regular supportive supervision to help identify gaps and provide support, especially on the LMIS
- Support to the Nimba County Drug Depot to improve its supply chain activities
- Regular resupply of SOP tools to avoid stock-outs and enhance proper use of the LMIS

To follow up on the pharmaceutical management trainings and reinforce the acquired skills, SIAPS, in coordination with the NMCP and the county health teams, conducted a total of three supportive supervision visits to the counties. These supportive supervision visits focused on meeting staff needs for management support, logistics capacity, and on-the-job training and supervision. Based on outputs from the supportive supervision, USAID approved the renovation of the Nimba County Drug Depot (discussed below).

*Malaria Case Management Training*

With the introduction of RDTs for malaria (mRDTs) into the private sector in 2011, many safety concerns were raised, specifically in regard to waste management and adherence to treatment. Because of the introduction of the mRDTs, SIAPS, in coordination with the NMCP and the Mentor Initiative, updated the malaria case management training-of-trainers (ToT) materials originally developed under SPS. In July and September 2012, the updated ToT was repeated at the national level for 120 dispensers from private medicine stores and pharmacies in the Paynesville and St. Paul areas of Greater Montserrado County. SIAPS used the results of the Sustainable Drug Seller Initiatives (SDSI) mapping of medicine stores and pharmacies to select the accredited outlets for malaria case management training.

*Support to the National Private Sector ACT Technical Working Group*

SIAPS was instrumental in establishing the Private Sector ACT Technical Working Group (PSACTTTWG) and provided regular support to NMCP to host the meetings. Active members include SIAPS, the Mentor Initiative, Populations Services International (PSI), Clinton Health Action International (CHAI), LMHRA, the Montserrado County health team, the PBL, and the MoHSMW. The group is tasked to guide and direct the overall private sector ACT program in Liberia. SIAPS provided key technical inputs into the deliberations, which guided the private sector rollout of ACTs, and supported the development of a common platform and mechanism to implement the information and education campaign, the overall private sector strategy, monitoring and supervision strategies, and the streamlining of partner roles and responsibilities.
Pharmaceutical Information Available for Decision Making

Public health facilities receive ACTs, RDTs, and other malaria-related products, including quinine (injectable and tablets) and sulfadoxine-pyrimethamine (SP) from the NDS through the county drug depots. The continuous availability of these malaria-related commodities at health facilities is critical to ensuring good malaria case management. However, there are frequent stock-outs of much-needed ACTs, coupled with a lack of information on the causes and extent of the problem of stock-outs. In addition, adherence to recommended malarial case management protocols at the health facility level is weak and the much-needed information on the extent of non-adherence is also not readily available.

End Use Verification Surveys

To assist in monitoring the use and availability of malaria commodities in the public sector and to enhance the availability of information for decision-making purposes, SIAPS focused on implementing quarterly end use verification (EUV) surveys. The EUV process was developed by the PMI to assess the availability of malaria commodities at the end-user level, as well as provide a snapshot of how malaria is being diagnosed and treated at a given set of health facilities. EUV is designed to ask specific questions to solicit answers that will guide decision makers in strengthening malarial control programs.

Table 3 details the key findings of and recommended interventions from each EUV survey that was implemented over the project life.
Table 3. EUV Survey Key Findings

<table>
<thead>
<tr>
<th>County and Date</th>
<th>Key Findings</th>
<th>Recommendations and Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nimba, Lofa, and Bong</td>
<td>1. Storage conditions were poor in the county depots (particularly Nimba); more than 50% of facilities did not meet storage standards</td>
<td>1. Renovation of Nimba County Health Depot to improve storage of all medical commodities</td>
</tr>
<tr>
<td>34 facilities January 2011</td>
<td>2. Fixed-dose artemate/aminquaiine (AS/AQ) has reached most facilities and health workers are using it as first-line treatment of uncomplicated malaria, but there is confusion on the dosage</td>
<td>2. Pharmaceutical management training, including provision of information on the new fixed-dose AS/AQ combinations and guidelines for their use</td>
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<td></td>
<td>3. 30% of facilities had a stock-out of AS/AQ for infants 2–11 months of age</td>
<td>3. Additional roll out of SOPs for logistics management</td>
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<td></td>
<td>4. Clinical diagnosis is the most common; most facilities do not have microscopy facilities</td>
<td>4. More supportive supervision visits by NMCP and county health team (CHT), in collaboration with SPS/SIAPS</td>
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<tr>
<td></td>
<td>5. Only 63% of facilities had SOPs for management of medicines, and 75% of facilities had treatment guidelines for malaria case management</td>
<td>5. Coordination of all partners managing facilities to ensure one supply management system is being followed across facilities</td>
</tr>
<tr>
<td></td>
<td>6. 88% of facilities had received logistics/inventory management supervision, but only 69% had received supervision that included direct observation of malaria case management</td>
<td>6. Dissemination of EUV survey results to key stakeholders</td>
</tr>
<tr>
<td></td>
<td>7. No standard supply chain management system, as facilities were managed by different MoHSW partners</td>
<td></td>
</tr>
<tr>
<td>Grand Gedeh and River Gee</td>
<td>1. Fixed-dose AS/AQ has reached all facilities but stock levels are low, most facilities had a stock-out of AS/AQ for infants 2–11 months age</td>
<td>1. Pharmaceutical management training, including information on the new fixed-dose AS/AQ combinations and guidelines for use</td>
</tr>
<tr>
<td>26 facilities May 2011</td>
<td>2. Guidelines for using fixed-dose AS/AQ not available</td>
<td>2. Follow-up of requisitions with NDS, SCMU, and NMCP until supplies are delivered to the county</td>
</tr>
<tr>
<td></td>
<td>3. Only 54% of facilities had SOPs for management of health products</td>
<td>3. Creation of short-term, mid-term, and long-term strategies for improving storage conditions</td>
</tr>
<tr>
<td></td>
<td>4. No standard supply chain management system, as facilities were managed by different MoHSW partners</td>
<td>4. Coordination of all partners managing facilities to ensure one supply management system is being followed across facilities</td>
</tr>
<tr>
<td></td>
<td>5. 75% of facilities had received logistics/inventory management supervision, but only 63% had received supervision that included direct observation of malaria case management</td>
<td>5. Regular provision of SOPs to all facilities</td>
</tr>
<tr>
<td></td>
<td>6. 50% of facilities did not meet adequate storage standards</td>
<td>6. More supportive supervision visits by NMCP and CHT, in collaboration with SPS/SIAPS</td>
</tr>
<tr>
<td></td>
<td>7. Lack of training in logistics and stock management</td>
<td></td>
</tr>
<tr>
<td>Grand Bassa and River Cess</td>
<td>1. All facilities are managing all four fixed-dose AS/AQ, and 78% of facilities have updated treatment guidelines</td>
<td>1. Immediate action: SPS/SIAPS in coordination with CHT and SCMU arranged for emergency requisition of ACTs and RDTs to prevent stock-outs</td>
</tr>
<tr>
<td>24 facilities October 2011</td>
<td>2. Shortage of SOPs and LMIS tools for management of health commodities at many facilities</td>
<td>2. CHTs constructed a drug depot in River Cess and provided additional pallets and split units to the Grand Bassa depot</td>
</tr>
<tr>
<td></td>
<td>3. Poor record keeping at facilities</td>
<td>3. NMCP conducted malaria case management training with a focus on RDTs in Grand Bassa</td>
</tr>
<tr>
<td></td>
<td>4. 82% of facilities do not meet adequate storage standards</td>
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<tr>
<td></td>
<td>5. 90% of Grand Bassa facilities and the depot have had stock-outs of the fixed-dose combination ACT for children 6–13 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Private facilities are not adhering to the treatment guidelines for</td>
<td></td>
</tr>
</tbody>
</table>
### County and Date | Key Findings | Recommendations and Interventions
--- | --- | ---
**Maryland and Grand Kru** 24 facilities April 2012 | 1. 45% of health facilities and both county depots had stock-outs of fixed-dose AS/AQ for infants aged 2–11 months 2. Majority of facilities kept poor records 3. A shortage of updated LMIS tools at most facilities 4. Lack of training in pharmaceutical management | 1. Immediate action: emergency requisition of AS/AQ to the SCMU was placed 2. SIAPS provided additional on-the job training in malaria case and pharmaceutical management 3. SCMU rolled out the LMIS

**Gbarpolu and Sinoe** 17 facilities June 2012 | 1. 29% of facilities (including Gbarpolu depot) were stocked out of all presentations of AS/AQ; 24% of facilities had only two AS/AQ presentations available 2. Records were not updated and available tools not properly used 3. 48% of facilities not reporting on time due to lack of updated LMIS tools 4. Lack of training on RDTs | 1. SIAPS followed up with SCMU on requisitions and commodities were supplied 2. SIAPS conducted on-the-job training 3. County pharmacists requested SCMU to roll-out the LMIS to Sinoe and Gbarpolu counties 4. NMCP conducted malaria case management training in Sinoe

**Bomi and Cape Mount** 24 facilities June 2013 | 1. Stock-outs were found at the Grand Cape Mount Drug Depot and the majority of health facilities 2. Only 43% of health workers performing RDTs were trained 3. Stock records were not updated and LMIS tools not properly used 4. Poor storage conditions were found; for example, the Grand Cape County Drug Depot had poor ventilation, no cooling system, lighting, or electricity | 1. Immediate action: SIAPS followed up with SCMU, NMCP, and NDS on the requisition to be placed 2. NMCP and CHT to conduct malaria diagnostic training for health workers in both counties 3. SCMU resupplied LMIS tools and conducted training workshop for all dispensers on commodity management in collaboration with CHTs 4. Immediate action: USAID and SIAPS provided a 5.5-KVA generator to Cape Mount and a 12,000-BTU split unit to Bomi

**Montserrado** 40 facilities September 2013 | 1. 53% facilities were not providing antenatal clinic services or long-lasting insecticide-treated nets (LLINs) 2. Only 72% of health workers performing RDTs were trained 3. 82% of the facilities are providing intermittent preventive treatment in pregnancy (IPTp) 4. Supply chain records showed that the lead time needed for ensuring supply lasted for more than three weeks 5. 58% of facilities were stocked out of LMIS tools 6. High stock-out rates (and understocked facilities) for artemether injections; this is an expected finding, as the NMCP and MoHSW phase out artemether and introduce artesunate as a replacement | 1. The NMCP, CHT, and partners will scale up antenatal clinic provision of LLIN distribution in December 2013 2. NMCP and CHT to conduct malaria diagnostic training for health workers in both counties in December 2013 3. NMCP and CHT will begin to scale up IPTp to all facilities in Montserrado by December 2013 4. NMCP will coordinate requisitions from facilities and liaise with the CHT and SCMU to fast-track the processing and delivery of supply to facilities 5. SCMU will resupply the tools and conduct LMIS training workshop for health workers from the county
Prior to implementing the EUV surveys, SIAPS shared the PMI methodology and selected regions and dates together with the NMCP, the SCMU of MoHSW, and USAID for inputs. At the end of each data collection exercise, the EUV team held in-county meetings with the County Health Team to present the preliminary findings and to generate and agree on immediate corrective actions, with a particular focus on expeditiously addressing any stock-out observed at the facility level. Subsequently, SIAPS and NMCP held an EUV review meeting with all stakeholders to disseminate and discuss the EUV report and findings.

Renovation of Nimba County Depot

The Nimba County Drug Depot is located in Sanniqullie City, Nimba County. The depot was constructed by the Nimba County Health and Social Welfare Team and partners. The purpose of the depot is to provide storage and serve as the management and distribution center of medications and equipment to 56 health facilities (four referral hospitals, four health centers, and 48 clinics) serving a population of 230,000 people. The depot also serves as the central storage and distribution center for the management of the commodities necessary for the vertical MoHSW programs, which include commodities for malaria, HIV and AIDS, and TB, and essential medicines, as well as the expanded program on immunization (EPI).

Based on the EUV report findings and the observations of the poor state of storage of essential medicines in Nimba during supportive supervision visits, USAID requested an evaluation of the Nimba County Drug Depot, specifically looking at storage capacity and conditions.

The assessment revealed a variety of poor conditions, including substandard windows incapable of supporting the cooling system to provide the appropriate temperature required for storage conditions; insufficient shelving, lighting, refrigerators and air-conditioning; insufficient ventilation; and very poor sanitary conditions. The security of procured essential medicines was also weak because the doors and windows did not have secure locks. With the approval of USAID and the PMI, SIAPS supported the Nimba County Health Team in renovating the depot using project funds. The scope of the renovations (shown in figure 2) included:

- Installation of 21 double sliding-glass windows, screens, and security bars
- Electrical installation (rewiring and installation of 38 energy-saving light bulbs)
- Painting (interior and exterior of the building, including the ceiling)
- Refurbishing the reception room: placement of ceramic tiles and procurement of desk and chairs
- Provision of additional shelving

Following standard procurement mechanisms, the renovation work began on November 8, 2012, and was successfully completed on December 15, 2012, with an official handover to the county health team in January 2013.
Logistics Management Information System

To improve information flow on commodities in the public sector, SIAPS conducted LMIS tool trainings in three USAID counties: Nimba, Lofa, and Bong. Beneficiaries included 181 Officers in Charge of health facilities and 204 dispensers from a total of 158 health facilities.

It was also envisaged that ACTs and RDTs would be supplied from the public sector to the private sector through an accredited wholesaler. The decisions on the quantity of supply, stock dispensed, and when to procure would require the availability of a simple information system able to aggregate data on number of clients seen, quantities of RDTs and ACTs used, stocks remaining, and amount to be reordered. Since such a system did not yet exist, SIAPS worked with the NMCP and the private sector TWG to develop the logistics management tools necessary to capture the needed information for timely decision making. These tools included commodity management ledgers, client record ledgers, referral forms, monthly reporting forms, and commodity distribution forms.

Pharmaceutical Services Improved to Achieve Desired Health Outcomes

Nearly 46%\textsuperscript{13} of the Liberian population uses the private sector for services, including malaria treatment. A survey implemented by the SDSI project demonstrated that none of the private sector outlets were using RDTs and only 47% of the patients reporting to those outlets were
Achievements

managed with AS/AQ, the recommended first-line treatment for malaria. Nearly 53% of patients were being treated with quinine and SP.

Establishment of ACT and mRDT Private Sector Distribution System

In 2011, USAID and the PMI requested SIAPS to focus support to expanding access to ACTs in the private sector. One of the first tasks for SIAPS was to work through the issues surrounding a consignment of PMI-procured generic AS/AQ. Many problems had arisen with this shipment, including incorrect branding and delayed distribution to the private sector pharmacies. SIAPS, in collaboration with the NMCP, worked with Sanofi-Aventis for a local rebranding of the AS/AQ to include MoHSW stickers and the USAID/PMI logo, and SIAPS procured over 350,000 stickers.

Once the ACTs were correctly branded, SIAPS focused on establishing a private sector distribution system. The SIAPS private sector model, shown in figure 3, required the appointment of a private sector wholesaler by MoHSW. SIAPS, in coordination with the NMCP and PBL, developed and signed memoranda of understanding with the NDS Pharmacy 1 outlet, and private sector outlets for the rollout of ACTs and RDTs.

Unfortunately, after the MoHSW was appointed Principal Recipient for the Global Fund grant, they decided that they needed to have led the selection of the distributors and readvertised for a national level distributor. During these delays and discussions, SIAPS was closing out the program was therefore no longer involved in distributor selection.

Note: ACTS and mRDTs will be distributed to up to at least 90 of the 120 mapped and accredited medicine shops whose dispensers have been trained. Distribution will be rolled out in three phases:

- Phase 1, February–April 2013: 30 shops
- Phase 2, May–June 2013: 60 shops
- Phase 3, June–September 2013: 90 shops

Figure 3. SIAPS private sector model for distribution of ACTs and mRDTs
The private sector rollout was focused on the Paynesville and St. Paul River districts of Montserrado County, which have an urban-rural mix. To strengthen the capacity of the private sector dispensers in these counties, prior to the distribution of commodities SIAPS trained 120 medicine store and pharmacy dispensers in malaria case management, with a focus on ACTs and mRDTs. In addition, SIAPS provided safety-disposal boxes and gloves to each medicine store and pharmacy where trainings had taken place.

**Study on the Feasibility of ACT and mRDT Use in the Private Sector**

In early 2012, as the NMCP prepared to roll out RDTs to the private sector, USAID and the NMCP asked SIAPS to explore the feasibility and willingness of private sector pharmacies and medicine shops in the Greater Monrovia and rural Montserrado areas of Montserrado County to perform RDTs and select appropriate products for malaria treatment to recommend to customers for purchase.

The study was conducted in October 2012 using qualitative research techniques in the community and at the provider level. Community members in the urban areas were more likely to use medicine stores and pharmacies than those in the rural areas, as the public facilities in the rural areas were considered better because their services were free and they appeared more professional.

Chloroquine (CQ) and AS/AQ are available for sale at the medicine stores and pharmacies at a price of 15–40 Liberian dollars (LRDs); AS/AQ costs only 50% more than CQ. AS/AQ is often dubbed “I must die quick” because of the product’s perceived side effects, yet the majority of respondents consider it to be the most effective treatment for uncommon malaria. Most providers and community members were very accepting of a test to diagnose malaria; however, some providers were not supportive of an intervention requiring a positive test before treatment.

The overall conclusion from the study was that medicine stores and pharmacies are a valuable source of treatment and that a mechanism should be developed to determine price ceilings for ACTs and RDTs, both to encourage diagnostic testing prior to treatment and to prevent providers from overcharging.

Unfortunately, the NMCP has retained its position of continuing with the current set of prices without creating incentives to promote the use of RDTs. This view diverges from that of USAID and PMI and resulted in the Mission’s decision to withdraw SIAPS support to the private sector in Liberia.
CHALLENGES AND RECOMMENDATIONS

Several highlights of key challenges (bold) and recommendations (bulleted) follow.

**Private sector procurement did not adhere to branding guidelines, causing delays in commodity distribution**

In 2010, USAID approved the procurement of ACTs through the USAID/DELIVER Project for use by SPS in the private sector. The Commodity/Contraceptive Procurement Information Request (CPIR) was for the procurement of branded AS/AQ, distinct from the unbranded form procured for the public sector. After more than a year’s delay by the supplier, the commodities delivered at the end of 2011 were not branded as required—they were unbranded, the same as the public sector consignment. This raised concerns of potential leakage from the public sector into the private sector. After an additional year of deliberations among SPS, NMCP, Sanofi-Aventis, and USAID, it was finally agreed to rebrand the commodities locally, and SIAPS and NMCP were tasked with obtaining formal permission from the suppliers. Funding was made available under the 2012 SIAPS budget for the rebranding procedure. Rebranding the commodities involved the design and printing of stickers and labeling strip of AS/AQ, as well as the box they came in, with the sticker bearing the MoHSW logo.

- In the future there is a need to ensure that the government program, procurement agents, and suppliers are all aware of USAID/PMI branding guidelines and the private sector specific branding requirements. The correct branding of the commodities needs to be confirmed prior to shipment.

**NMCP private sector policy change**

During the delay in AS/AQ delivery and subsequent arrival of nonbranded ACTs, the WHO (and country) policy on the use of ACTs changed. WHO recommended—and Liberia adopted—a policy mandating confirmatory diagnosis of malaria before use of an ACT, meaning that the AS/AQ for the private sector could not be rolled out without being accompanied by an RDT. Prior to this new policy, RDTs had not been used in the private sector pharmacies or medicine shops. USAID insisted that the AS/AQ distribution to the private sector be held back until adequate training on RDT use, safety measures, and disposal of blood products had been put in place. SIAPS worked with USAID and partners to design a strategy for rolling out ACTs and RDTs to the private sector. The model included capacity building; contracting with an incinerator for environmentally friendly disposition of used RDTs and blood waste products; quantification of RDTs needed per consignment of AS/AQ distributed per age group; and LMIS tools to track both RDTs and AS/AQ use in the private sector.

- There is a need for better anticipation of public health policy changes by SIAPS. Perhaps an option could have been to use the RDTs only in the public sector.
Delays in finalizing commodity distribution mechanism

The rollout of the AS/AQ in the private sector by SPS and then SIAPS was meant to be a pilot program to test the country’s readiness for a national rollout of ACTs in the private sector. After many delays—including late delivery, then delivery of unbranded stocks of AS/AQ, and the need to restrategize the approach to include RDTs (with the associated precautionary measures)—the MoHSW was appointed as the Principal Recipient of the Global Fund grant with a mandate to roll out ACTs and RDTs in the private sector to all counties in the country. This led to further delays and the misunderstanding of who was responsible for selecting and appointing a distributor. Although the SIAPS Program had completed an earlier process of selecting and appointing two distributors, the MoHSW advertised for a new national distributor and called for a rationalization of the appointment of distributors. At a meeting of the PSACTTWG, it was agreed that the MoHSW distributor—one of the two distributors appointed through SIAPS—be selected as the national distributor, but because that distributor was not yet ready, SIAPS had already requested the NDS Pharmacy 1 private sector outlet be appointed a distributor of the existing stock until new Global Fund stocks for the private sector program arrived. The NDS distributed the AS/AQ for a period of two months, until the MoHSW requested that it stop. At this time, another distributor had been selected by the MoHSW further complicating the process.

- The MoHSW should not only be involved but lead any selection of agencies/organizations that will be involved in county and national distribution.

Feasibility of including RDTs in the private sector

With the change of malaria diagnostic and treatment policy by WHO and the GoL, the availability of RDTs, the costing of RDTs, and the distribution of AS/AQ in the private sector was put on hold. USAID asked SIAPS to support the NMCP and MoHSW to undertake an evidence-based assessment of the private sector’s readiness to use RDTs and confirm the price at which they could be sold. SIAPS provided technical assistance, in collaboration with the International Review Board–University of Liberia–Pacific Institute for Research and Evaluation (IRB-PIRE), NMCP, and PSACTTWG, to draft the questionnaire and conduct the feasibility study. Upon completion of the feasibility study, results were shared and the input prices for RDTs and AS/AQ were reset and agreed on by all except the NMCP. The NMCP insisted that since another project, the Mentor Initiative, had already started rolling out branded AS/AQ—known as Coarsucam, in the private sector at much lower fixed prices, those prices be used. Unfortunately, the prices adopted by Mentor were not in line with the feasibility study results and USAID decided to curtail its support to the private sector rollout of ACTs. This curtailment also ended SIAPS support to the NMCP and the GoL.

- Increased coordination of partners and a consensus on the pricing between stakeholders on commodities and timing of the rollout could have been reached.
SIAPS staff turnover

The SIAPS Program suffered from the untimely departure of its Country Project Director (CPD). Following the CPD’s departure, funding was reduced from 653,000 US dollars (USD) to USD 300,000 because of reduced funding to USAID Liberia. This reduced funding did not allow for SIAPS to recruit additional technical staff to support work in both the public and private sectors. One technical person was not enough in private sector management.

- There is a need for increased funding for recruitment of technical staff on such innovative activities.
REFERENCES


