USAID | DELIVER PROJECT, Task Order 4
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USAID | DELIVER PROJECT, Task Order 7
This document was prepared by staff of the USAID | DELIVER PROJECT, Task Order 7, which is funded by the U.S. Agency for International Development (USAID) under contract number GPO-I-00-06-00007-00, order number AID-OAA-TO-11-00012, beginning on March 28, 2011. Task Order 7 is implemented by John Snow, Inc., in collaboration with 3i Infotech, Inc.; Crown Agents USA, Inc.; FHI 360; Foundation for Innovative New Diagnostics; Logenix International, LLC; The Manoff Group, Inc.; MEBS Global Reach, LC; PATH; Imperial Health Sciences; Population Services International; Social Sectors Development Strategies, Inc.; UPS Supply Chain Solutions, Inc.; and VillageReach. Task Order 7 supports USAID's goal of reducing the malaria burden in sub-Saharan Africa by procuring and delivering safe, effective, and high-quality malaria commodities; by providing technical assistance and on-the-ground logistics expertise to strengthen in-country supply systems and build capacity for managing commodities; and by improving the global supply and long-term availability of malaria commodities.

Recommended Citation

Abstract
This report summarizes the work carried out by the USAID | DELIVER PROJECT in Ghana from 2009–2016. The project provided technical assistance in malaria prevention and treatment by strengthening the health supply chains and improving the environment for commodity security.

Cover photo: School-based distribution of bed nets in Ghana.
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Project Overview and Context
Project Overview

The USAID | DELIVER PROJECT (the project) strengthens global, regional, and in-country supply chains to improve and expand the delivery of public health commodities to the people that need them. Since 2006, the project has implemented initiatives to meet the objectives of the U.S. Government and Government of Ghana (GOG) to improve health outcomes. These initiatives have contributed to strengthening the in-country health commodity supply chain system by—

- improving product availability through the timely procurement and delivery of high quality health commodities
- strengthening systems to ensure health products are available when and where they are needed
- improving visibility at all levels and strengthening system accountability
- strengthening the policy environment for commodity security and bridging the gap between the Ministry of Health (MOH), Ghana Health Service (GHS), and partners to improve core supply chain functions.

Furthermore, the project assisted the MOH and GHS to develop a five-year Supply Chain Master Plan (SCMP), which provides a set of guiding policies and interventions to address systemic challenges in the supply system.

Since 2006, the project has provided support to improve the availability of family planning, malaria, and nutrition-related commodities to implement national programs.
Since 2006, the USAID | DELIVER PROJECT has increased the availability of essential health supplies, including contraceptives, condoms, and malaria commodities by providing procurement services and strengthening the integrated supply chain. The project invested in health commodities and technical assistance, including the following strategic interventions—

- forecasting, procurement planning, and pipeline monitoring
- building capacity in supply chain management through in-service training (IST), pre-service training (PST), and on-the-job training (OJT)
- developing policies, strategies, and guidelines to strengthen the environment for commodity security
- monitoring, central-level coordination, systems assessments, and supportive supervision
- developing a web-based/short message service (SMS)-based early warning system to improve data-driven decisionmaking
- building capacity and partnering with the private sector to improve warehousing and distribution
- designing logistics systems and defining reporting lines and standards.
Family Planning

Modern methods contraceptive prevalence rate (mCPR) and couple-years of protection have increased over the past decade, while the unmet need has decreased. Collaborative efforts by stakeholders have helped Ghanaian women delay, space, and limit pregnancies for a healthy outcome for women and children.

Since 2006, the project has provided technical and financial support to improve the availability of commodities for implementing the national family planning program. Through strategic interventions—annual quantifications, advocacy, stakeholder coordination, institutional capacity building, and development of policies and guidelines—the country has seen continuous improvements in funding for contraceptives.

<table>
<thead>
<tr>
<th>Modern Methods Contraceptive Prevalence Rate and Unmet Need, 2003 and 2014</th>
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<td>GDHS 2003</td>
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<td>GDHS 2014</td>
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</table>

USAID | DELIVER PROJECT Shipments provided 16.4 million couple years protection (CYP)

- 4 million Unintended pregnancies prevented
- 86 million Infant deaths prevented
- 52,000 Child deaths prevented
- 13,000 Maternal deaths prevented
HIV and AIDS

While HIV prevalence in Ghana is low at 2 percent (GDHS 2014), some population subsets have a higher prevalence: 1.1 percent for female sex workers and 17 percent for men who have sex with men.

To help address prevalence among key populations, the project supported in-country partners to develop the National Condom and Lubricant Strategy (2016–2020) to improve access to condoms and lubricants for key populations.

The project assisted the National AIDS Control Program (NACP) to strengthen coordination among HIV and AIDS partners, monitor supply pipelines, and supervise logistics management in health facilities to improve product availability. The project also supported the NACP in implementing the National HIV/AIDS strategic plans.

Project-supported annual quantifications of HIV and AIDS supplies were conducted to enable the NACP to consistently determine the country’s HIV and AIDS commodity needs in alignment with scale-up targets, which were then used to mobilize the required resources from partners, including the GOG.
The project provided technical assistance and procured malaria commodities to assist the National Malaria Control Program (NMCP) in protecting the country’s population against malaria, which is the leading cause of morbidity and mortality across all age groups. From 2006 to 2014, the mortality in children under five years fell from 111 to 60 per 1,000 live births (MICS 2006; GDHS 2014).

The project’s interventions enabled the NMCP to implement the prevent, test and treat strategy for malaria case management, to improve access to quality antimalarial drugs at service delivery points (SDPs) and to improve the ownership and use of long-lasting insecticide-treated bed nets (LLINs).

Percentage of Children under Five Who Received ACTs during a Fever and Percentage of Women Who Received Two or More Doses of IPTp
The project supported the MOH and GHS to improve the nutritional status of vulnerable groups by integrating nutritional services into healthcare programs targeted at malnourished children, pregnant women, and people living with HIV and AIDS.

The project supported the procurement and distribution of nutritional commodities for implementation of MOH/GHS-led interventions, as well as USAID-funded nutrition projects.

Interventions were government-led by the nutrition department of the GHS, in partnership with several donors and nongovernmental organizations (NGOs). As with many program activities, government contributions were mainly through providing national policy guidelines, infrastructure, and the health sector workforce.

From 2006–2016, the project procured nutrition-related commodities for a total of U.S.$1.78 million.

Nutrition-related commodities included—

- vitamin A
- water purification tablets
- therapeutic milk
- Plumpy’Nut
- iron and folic acid prenatal supplements
- Equipment, including weighing scales, height boards, hemocue analyzers, and mid-upper arm circumference tapes.
Technical Assistance Overview

Delivering high-quality healthcare to patients and clients requires that health facilities and dispensaries have a full supply of medicines and other health products. This necessitates a well-functioning supply chain.

Using best practices and innovative approaches, the USAID | DELIVER PROJECT develops and implements robust logistics solutions, fosters supportive commodity security environments, procures and ships health commodities, and partners with local organizations to build sustainable capacity.

In Ghana, these interventions include:

**Strengthen Logistics System Performance**
- Stock Status Visibility Improvement through the Early Warning System
- Private Sector Partnership for Warehousing and Distribution of Commodities
- Long-lasting Insecticide-treated Bed Nets Distribution

**Increase National Commitment to Commodity Security**
- Central-Level Coordination for Commodity Security
- Strengthen Forecasting and Quantification
- Enhance the Policy Environment for Commodity Security

**Build Sustainable Capacity**
- Capacity Building in Supply Chain Management
- Monitoring, Supervision, and OJT to Improve Supply Chain Performance
- Pre-service Training for Pharmacy and Nursing Schools
Strengthen Logistics System Performance

To improve health outcomes in the countries where we work, the USAID | DELIVER PROJECT increases the availability of health products by strengthening supply chains and creating global commitment. These efforts are guided by the project’s supply chain integration framework.

In the public health setting, an integrated supply chain links everyone involved in managing essential health commodities into one cohesive supply chain management organization, ultimately helping clients access quality health care services and supplies.
Strengthen Logistics System Performance

Improving Stock Status Visibility through the Early Warning System

Early Warning System alerts have enabled managers to restock when supplies are low and ensure that commodities are available at health facilities.

The project, in collaboration with GHS and the USAID Focus Regions Health Project (2009–2014) developed the Early Warning System (EWS) with Dimagi Inc., a technology service provider.

The EWS, an SMS/web-based system, improves information flow and visibility into the stock status of a tracer list of essential public health commodities at SDPs.

An assessment of the EWS in 2013 showed that the system provided real-time data on stock status, which guided decisions and improved recordkeeping in facilities.

Interviews with service providers revealed that the EWS created awareness about stock levels and encouraged providers to ensure that commodities were available for use at all times.

“Before EWS, when we did not have certain medicines we would not bother to get them, but with EWS, we have to ensure that we have these drugs available; otherwise, we’ll get stock out messages and everybody will know that we don’t have drugs. It has helped to manage medicines quantities”

—Staff member, Ashiam Community-based Health Planning and Services, Ghana
Private Sector Partnership for Warehousing and Distribution of Commodities

Using private-sector services for storage and distribution ensured an uninterrupted supply of health commodities after the Central Medical Stores was destroyed.

In January 2015, a fire destroyed the entire Central Medical Stores (CMS) in Ghana. In response to this national crisis, the project leveraged in-country private sector resources for the warehousing and distribution of health commodities.

The project partnered with Imperial Health Services, a warehousing and transport services provider, and MEBS Global Reach, a transport services provider, to warehouse and distribute health supplies for the MOH and GHS.

Under this arrangement, private-sector vendors warehoused and distributed health supplies procured with USAID funds to regional medical stores (RMS) and teaching hospitals (TH) on a quarterly basis. Nutrition commodities were distributed separately to districts in the Northern and Upper East regions.
Distribution of Long-lasting Insecticide-treated Bed Nets

Mass distribution of long-lasting insecticide-treated bed nets (LLINs) at health facilities and schools contributed to significant improvements in LLIN distribution as shown in the graph below.

The NMCP in Ghana distributes LLINs as a key strategy to improve access and sustain the use of LLINs for the prevention of malaria. Beginning in 2011, the project procured and distributed more than 10.8 million LLINs to support the NMCP’s efforts toward achieving universal ownership and use in Ghana. The project supported the NMCP in distributing LLINs to households through nationwide mass distribution campaigns, as well as health facility and school-based distributions.

The project’s efforts contributed to an increase in the number of households with at least one LLIN, as well as increases in the numbers of pregnant women and children under 5 sleeping under an LLIN. The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), Department for International Development (DFID), President’s Malaria Initiative (PMI), United Nations Children’s Fund (UNICEF), the project, and other USAID-funded projects partnered in these efforts.
Increase National Commitment to Commodity Security

Commodity security (CS) exists when every person is able to choose, obtain, and use quality contraceptives and other reproductive health products whenever s/he needs them. Strong supply chains alone cannot ensure availability of or access to these commodities.

To help countries create an enabling environment for reproductive health commodity security, the USAID | DELIVER PROJECT, in collaboration with its counterparts, undertakes a variety of policy and advocacy activities at the global, regional, and country levels.
Central-Level Coordination for Commodity Security

Central-level coordination helped strengthen the supply chain system and ensure essential medicines and health commodities are stocked, available, and accessible to all.

The project played a key role in providing technical leadership and sponsorship to strengthen the in-country environment for commodity security.

To ensure coordination among supply chain stakeholders, the project created forums: the Interagency Coordinating Committee for Commodity Security (ICC/CS); the HIV and AIDS, Drug Resistance and ART Technical Working Group; the MOH Procurement & Supply Management (PSM) coordination meeting, and others.

These forums allowed for sustained and coordinated advocacy and actions with MOH/GHS program actors and partners to channel concerns and challenges to authorities. Having these collaboration mechanisms also allow the government to share strategic plans and direction with partners to mobilize the required resources.

In an environment where multi-sector support is crucial to guaranteeing the uninterrupted delivery of health commodities for all clients, the establishment and operationalization of these mechanisms have been key in catalyzing program results and coordinating the efforts and resources of governments and partners.

Participants in these forums include GFATM, USAID, United Nations Population Fund (UNFPA), DFID, implementing partners, social marketing partners, and civil society organizations.

The project’s main solutions to ensure central coordination included—

- Supporting and facilitating the flagship ICC/CS meetings, which monitor logistics and funding data to advocate for adequate and timely funding for contraceptives.
- Sustaining the HIV Drug Resistance/Antiretroviral Therapy Technical Working Group, hosted by the National AIDS Control Program to address HIV- and AIDS-specific supply chain challenges.
- Establishing MOH Procurement and Supply Management Coordination meetings to provide an integrated approach for addressing supply chain challenges in all public health programs.
- Conducting national-level peer review meetings with central- and regional-level stakeholders to assess system performance, compare results, and adopt common strategies to improve outcomes.
Strengthen Forecasting and Quantification

Strengthening forecasting and supply planning improved rational use of resources to meet client needs.

The USAID | DELIVER PROJECT supported the health system in Ghana by preparing accurate forecasts and supply plans for the procurement of public health commodities. This process enabled the government, donors, and development partners to better target their resources and support to the health system to meet client demands. National-level quantifications of malaria, HIV and AIDS, family planning, and nutrition commodities were conducted from 2006–2016.

To institutionalize this process, the MOH, with support from the project, launched the National Quantification Team in 2011 to guide in-country quantifications. In addition, the project provided technical assistance to develop and implement Ghana-specific national quantification guidelines to provide the MOH with the framework for carrying out quantifications. The guidelines include a systematic, step-by-step approach to quantifying health commodity requirements and costs, how to disseminate findings, and how to update results with new data. The regularly conducted quantifications help limit random procurements and they promote the rational use of resources to meet client needs.

Results

Quantifications allowed the MOH/GHS to acquire donor funds for malaria, family planning, HIV, and nutrition-related commodities.

Ghana-specific national quantification guidelines provided the MOH with a framework for carrying out quantifications using a systematic, step-by-step approach to quantifying health commodity requirements and costs, disseminating findings, and updating results with new data.
Increase National Commitment to Commodity Security

Enhancing the Policy Environment for Commodity Security

Strategies helped create an enabling environment to improve clients’ access to health commodities.

In partnership with the MOH, the project strengthened the policy environment for commodity security by developing and rolling out three major national-level policies.

Health Commodity Supply Chain Master Plan

In 2012, the project assisted the MOH in developing a five-year Supply Chain Master Plan (SCMP) to address weaknesses in the public health supply chain, which was documented in a number of internal and external assessments. Implementation of the SCMP encountered a number of challenges, including the 2012 national general elections, frequent changes in MOH leadership, and resistance and lack of commitment from key stakeholders. In the last two years of the project, sustained efforts were made to advocate for adopting and implementing the SCMP. The project facilitated the establishment of a steering committee, chaired by the Deputy Minister, which reviewed and updated the SCMP. An interim management team was established to develop a charter, a five-year implementation plan and budget, and a transition plan to establish a Supply Chain Management Agency. The project also supported the modeling of several public-private partnership scenarios to help the steering committee evaluate the most effective and cost-efficient warehousing and distribution options for the new system.


Working with the ICC/CS, the project facilitated the review of the 2004-2010 Reproductive Health Commodity Security (RHCS) strategy and assessed the implementation under the five pillars of quality, financing, partnership, efficiency, and monitoring and evaluation. Based on this review, a new strategy was developed that expanded the scope from contraceptive security to reproductive health commodity security. The new strategy provides the MOH with a roadmap to influence the policy and socio-cultural environment, increase access to and demand for reproductive health commodities, enhance coordination among stakeholders, and strengthen the logistics system through 2016.

National Condom and Lubricant Strategy, 2016–2020

The National Condom and Lubricant Strategy (C&LS) was developed to promote commodity security for condoms and lubricants across the family planning and HIV and AIDS programs. The strategy uses a total market approach and reflects inputs and resources from all sectors, including social marketing and the commercial sector. This activity was conducted in collaboration with UNFPA.
An essential component of a robust health supply chain is the staff that implements logistics tasks. To run effectively, public health supply chains require motivated, trained, and skilled staff, with competency in the various essential logistics functions and who are empowered to make decisions that positively impact health supplies and supply chains.

The goal of the USAID | DELIVER PROJECT’s capacity building activities is to strengthen human resources in public health supply chain systems in the developing world. A focus on developing a superior workforce allows organizations and individual staff to accomplish their customer service goals, ensuring higher performance among public health personnel and, therefore, increased availability of essential health products.
Capacity Building in Supply Chain Management

Capacity building in supply chain management strengthened the management of health commodities at all levels of the supply chain.

The project supported the MOH/GHS in implementing interventions that strengthened human resource capacity for supply chain management in warehouses and health facilities. The project provided IST for staff of the MOH/GHS and worked with educational institutions to provide sustainable PST programs for students in the health field. Between 2012–2016, IST reached more than 1,400 health personnel at the MOH/GHS central, regional, and SDP level.

To maintain the integrity of health supplies in storage, the project worked with the MOH/GHS to improve warehouse management and distribution. A nationwide assessment provided a comprehensive overview of infrastructure, systems, and human resources needed to support warehouse operations and management. Following the assessment, to improve warehouse management, the project trained central- and regional-level staff of the MOH/GHS in warehouse dejunking and reorganization.

Results from dejunking at the RMSs include freed-up warehouse space, reorganized inventory for greater efficiency, and the removal of expired and damaged stock so it does not, accidentally, end up in the hands of consumers at SDPs, or for sale on the black market.

Also, to standardize warehouse operations management, the project supported the development of a standard operating procedures (SOP) manual in 2014 to guide operations at the CMS and RMSs.

Capacity Building Interventions

- Developed SOP manual for the logistics management of public health commodities.
- Provided IST for personnel at health facilities to perform supply chain management tasks in their place of work.
- Provided PST in supply chain management for health personnel in training to prepare them for roles in supply chain management.
Monitoring, Supervision, and OJT to Improve Supply Chain Performance

Supportive supervision visits contributed to strengthened performance at health facilities by monitoring key performance indicators and identifying challenges.

Monitoring, supportive supervision, and OJT were key project interventions that improved the supply chain management functions in health facilities. Since 2009, more than 2,000 SDPs have received project-sponsored monitoring and supportive supervision visits. During these visits, key indicators were monitored, tasks were reviewed, and gaps and challenges were identified for program planning and interventions.

Results from monitoring and supervision visits were shared through reports, regional debriefings, and peer-review meetings that highlighted key findings and expected areas of improvement. The results were used to inform the redistribution of commodities between health facilities, resolve stockouts, and trigger emergency procurements during critical situations.
Introducing PST nationwide ensured a sustainable pipeline of health workers trained in logistics.

PST in supply chain management was introduced in 2013 as a more sustainable and less costly approach to preparing health workers and logisticians for future supply chain management tasks.

Since 2015, all students in nursing and pharmacy schools across the country have received PST in supply chain management. Supply chain training is available as part of the curriculum in all three universities that offer a pharmacy degree and in 109 nursing and midwifery schools, as well as four other health institutions. Pharmacy students have received supply chain management training since 2014, with approximately 440 students graduating each year. By October 2015, an estimated 15,600 nurses and midwifery students received formalized supply chain management trainings.

The project collaborated with the MOH, GHS, and professional health councils to update the supply chain management course content for nursing and midwifery training institutions and to incorporate the updates into the existing curricula. For pharmacy schools, the project developed a complete supply chain management curriculum as a stand-alone two-credit course, which requires a hands-on visit to an RMS, local clinic, or other health facility as part of the successful completion of the course. The project helped roll out the new curricula through orientations for lecturers and training-of-trainers workshops.

PST in supply chain management is offered at—

- pharmacy schools of the Kwame Nkrumah University of Science and Technology
- University of Ghana
- Central University
- 109 MOH-accredited nursing and midwifery schools
- four other health institutions.
The Way Forward

After the SCMP was signed in September 2012, occurrences within the MOH and GHS have hindered full-scale implementation of the strategy. However, through a collaborative effort, the leadership of the MOH—with support from the project—has implemented parts of the strategy, including capacity building, system assessment, and supervision.

Various constituencies in the health sector, however, protested against the implementation of the SCMP and, instead, proposed strengthening the already existing system as the way forward.

The various protests have created a sense of uncertainty around implementing the SCMP.

The MOH appointed a steering committee to roll out full implementation of the SCMP. The committee, as part of its work, met in March of 2015, and developed a roadmap for the SCMP. This included revising the SCMP strategy and immediately appointing members of an interim management team to supervise the SCMP implementation.

It is important for the MOH to keep this plan to ensure implementation is achieved for a sustainable, reliable, responsive, efficient, and well-coordinated supply chain.

A non-functional logistics management information system (LMIS) and poor reporting by facilities (consumption, stock on hand) affects the quantification for health commodities, data used for decisionmaking and for commodity distribution. The SCMP has recommended a roadmap to strengthen the LMIS and improve the flow of information through the use of modern technology. The MOH should, therefore, prioritize implementation as a major solution to the current non-functional LMIS.

Attrition and the transfer of trained personnel who implement logistics management throughout the supply chain creates a need for continuous training. The MOH should sustain the implementation of the PST in SCM in universities and nursing training institutions to ensure a continuous availability of trained personnel with the requisite skills in SCM. In addition to pursuing a strategy of incorporating logistics training in PST curricula for health workers, supportive supervision and OJT must be strengthened, with results focused on sustaining capacity building.
<table>
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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>ART</td>
<td>antiretroviral therapy</td>
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<td>C&amp;LS</td>
<td>Condom and Lubricant Strategy</td>
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<td>CMS</td>
<td>Central Medical Stores</td>
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<td>DFID</td>
<td>Department for International Development</td>
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<td>EWS</td>
<td>Early Warning System</td>
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<td>GFATM</td>
<td>Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
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<td>GHS</td>
<td>Ghana Health Service</td>
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<td>GOG</td>
<td>Government of Ghana</td>
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<tr>
<td>ICC/CS</td>
<td>Interagency Coordinating Committee for Commodity Security</td>
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<td>IPTp</td>
<td>intermittent preventive treatment in pregnancy</td>
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<tr>
<td>IST</td>
<td>in-service training</td>
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<tr>
<td>JSI</td>
<td>John Snow, Inc.</td>
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<tr>
<td>LLIN</td>
<td>long-lasting insecticide-treated bed net</td>
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<td>LMIS</td>
<td>logistics management information system</td>
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<td>mCPR</td>
<td>modern methods contraceptive prevalence rate</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>NACP</td>
<td>National AIDS Control Program</td>
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<td>NGO</td>
<td>nongovernmental organization</td>
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<td>NMCP</td>
<td>National Malaria Control Program</td>
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<td>OJT</td>
<td>on-the-job training</td>
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<td>PMI</td>
<td>President’s Malaria Initiative</td>
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<td>PSM</td>
<td>procurement and supply management</td>
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<td>PST</td>
<td>pre-service training</td>
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<tr>
<td>PMTCT</td>
<td>preventing mother-to-child transmission</td>
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<td>RHCS</td>
<td>reproductive health commodity security</td>
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<td>RMS</td>
<td>regional medical store</td>
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<td>SCMP</td>
<td>Supply Chain Master Plan</td>
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<td>SDP</td>
<td>service delivery point</td>
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<td>SMS</td>
<td>short message service</td>
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<td>SOP</td>
<td>standard operating procedure</td>
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<td>TH</td>
<td>teaching hospital</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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</table>
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Further Reading


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