



# USAID | DELIVER PROJECT

## Bridging Malaria Programs and Supply Chains



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Long-lasting insecticide-treated bed nets being delivered to recipients in Madagascar.

**National malaria control programs and central medical stores must work together in a coordinated way to achieve improved product availability at service delivery points, where clients access products and services.**

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Products are needed for malaria programs to meet the goal of reducing malaria-related morbidity and mortality. These include products for the prevention, diagnosis, and treatment of malaria. Strong health programs cannot function without well-designed, well-operated, and well-maintained supply chain systems to manage and move such products.

Public health supply chains involve a range of organizations and partners and often include departments of ministries of health ([MOHs], procurement, planning, drug regulatory board, human resources, and health programs such as national malaria control programs [NMCPs]), central medical stores (CMSs), donors, nongovernmental organizations, all levels of the supply chain (regions, districts, health facilities), and teams of community health workers. These partners must work together in a coordinated way to ultimately achieve improved product availability at service delivery points, where clients access products and services.

Public sector health systems are typically organized around a vision for providing services. Logistics management responsibilities are often dispersed among numerous program staff, offices, or locations, which leads to challenges in communication and unclear pathways for resolving problems or making decisions. If no established coordinating body or mechanisms for managing logistics system activities and related financial resources exist, there is a risk that funding may not be used efficiently across the supply chain. Quantifications may be inaccurate, product arrivals may be uncoordinated, and ultimately, products will not reach the end user. This leads to inefficiencies in the supply chain and will negatively affect customer service.

In some countries, the CMS is part of the MOH as is the NMCP; however, these two entities often have a gap in communication, and the roles and responsibilities of each in regard to important logistics management functions are often unclear. This document explores the relationship between NMCPs and CMSs, using country examples, and offers suggestions for how the gaps between programs and CMSs, where they exist, can be bridged, specifically as they affect the collaboration needed to help ensure product availability.



PRESIDENT'S MALARIA INITIATIVE



## Different Roles of NMCPs and CMSs

The goal of any NMCP is to reduce malaria-related morbidity and mortality. To achieve this objective, a combination of various preventive, diagnostic, and treatment interventions are implemented. For all of these interventions, some coordination with the CMS is necessary. Determining the effectiveness of interventions and measuring progress toward the overall goal require that NMCP staff must monitor and evaluate program activities. To meet NMCP objectives, some concerns include the following:

- What is the epidemiological profile for malaria? What populations are most affected?
- What is the current service model? Is it appropriate?
- What is the incidence rate of malaria? How many cases are there of uncomplicated malaria, complicated malaria, and malaria in pregnancy?
- What guidance is offered on case management? Is it being implemented appropriately?
- Is malaria in pregnancy being prevented?
- Are the interventions appropriate for the context, given NMCP goals?
- What products are needed to implement the interventions?
- Are products reaching the end users?



Village health workers at Gomola Rural Health Centre in Zimbabwe practice using malaria rapid diagnostic tests during training.

Products are important to NMCPs, not only for their use in reducing the burden of disease, but also to facilitate the NMCP in meeting its objectives. However, in many cases, NMCPs are burdened by a series of high-profile, high-impact activities. As a result, a focus on the routine flow of products and information or on strengthening the logistics system becomes secondary.

Managing products is the core business of CMSs. There are a range of models for the scope of a CMS. Most often, CMSs are responsible for ensuring the quality of medicines and that medical supplies are securely stored until they can be delivered when and where they are needed, possibly to every public sector facility in the country. CMSs often may have primary operational responsibility for the supply chain, which includes receiving consignments from manufacturers, storage, receiving and processing orders from lower-level facilities, picking and packing facility orders, distribution, and maintaining quality control of products throughout the supply chain. To meet CMS objectives, some concerns include the following:

- When are products arriving and in what quantities?
- Is storage space sufficient?
- What is the order fill rate for facility orders?
- Is the right number of the right kind of vehicles available?
- Is the distribution routing optimal?
- Are there enough warehouses and in the right locations?
- Are the internal processes for picking and packing and order fulfillment efficient?
- Are financial targets being met?
- Is there sufficient staff and human resource support?

## **Aligning Objectives**

As demonstrated in the questions above, there is significant potential for the misalignment of objectives between NMCPs and CMSs. For example, a CMS may be concerned with when products arrive, and in what quantities, so that the necessary storage space can be prepared, while an NMCP may be concerned with whether the right products are arriving in the right quantities, so that clients can be given the products they need. However, it is possible to align objectives across different entities so that there is a compatible vision to ensure consistency in direction within the supply chain. Areas of collaboration and structures to support them are discussed in the next section.

In addition to having differences in objectives, some structural considerations may influence how CMSs and NMCPs relate to each other and determine their respective objectives. CMSs can be parastatal organizations, partially or wholly owned by the public sector (often under the MOH), or they can be outsourced to private sector entities. This can influence how CMSs and NMCPs hold each other accountable, especially if lines of reporting and authority are not clear. For example, in one country, the CMS is governed by its own board of directors and reports directly to the Minister of Health. Meanwhile, the NMCP is under the Department of Public Health, which reports to the Department of Curative Services; this department, in turn, reports to the Chief Medical Officer, who reports to the Permanent Secretary, who then reports to the MOH. Therefore, the CMS may not see its role as providing information to the NMCP, which is under a different branch of bureaucracy.

It is important to clarify who “owns” the products, and who “owns” the information, and what information should be visible across both NMCPs and CMSs. All products in a supply chain are not donated, and MOHs conduct their own procurements. Often, CMSs are given the responsibility to generate revenue and be financially sustainable. Given this, they can execute procurements on behalf of the MOH. The sharing of data with programs such as NMCPs may not be seen as a CMS responsibility.

Another consideration is that the mandates for CMSs vary from country to country. In some cases, the NMCP is responsible for procurement decisions, while in others, the CMS ultimately conducts the procurement. In some countries, the NMCP makes decisions on specific quantities that are distributed, and in others, it is the CMS.

Despite differences in mandates or objectives, each organization is dependent on the other’s success. For example, for an NMCP to reach its goals, products must reach the end user, which relies on the CMS to receive and store products and then distribute them down to facilities. Similarly, the CMS is dependent on the NMCP, which often has the responsibility of ensuring that there are available products in country to distribute.

## **Risks of Not Communicating/Collaborating**

There are considerable risks when CMSs and NMCPs communicate ineffectively or poorly. If CMSs do not share with NMCPs the quantities of stocks on hand, NMCPs cannot make informed decisions on forecasted needs or on how many products to procure. If NMCPs do not communicate to CMSs about products needed for program interventions, CMSs cannot ensure that sufficient quantities of the right products will be made available or secure the requisite storage space necessary to absorb incoming commodities (both centrally and along the supply chain). CMSs must be kept informed of NMCPs’ planned program interventions, so that products that support those interventions can be made available when they are needed.

## Areas of Communication/Collaboration

Collaboration between NMCPs and CMSs is grounded through information sharing. Specific areas of collaboration are described below:

- **Quantification.** Quantification is a critical supply chain activity that links information on services and commodities from the facility level with program policies and plans at the national level. Quantifications are used to inform higher-level decision-making on the financing and procurement of commodities and to provide information on how many of what products should arrive in the country at what time. Input from both programs and supply chain managers is necessary for a robust quantification. CMSs at a minimum provide information on how much inventory is currently on hand and days out of stock that have been experienced. NMCPs provide information on program policies, such as standard treatment guidelines, and interventions, such as the rollout of malaria rapid diagnostic tests. In many cases, NMCPs coordinate the various players that contribute to commodity availability (local governments, President's Malaria Initiative, Global Fund, and others). CMSs should be aware of the total storage capacity across all levels of the supply chain that may be needed for the upcoming year.
- **Shipment scheduling and arrival.** As part of the quantification exercise, a supply plan is developed, which entails coordinating the timing of funding disbursements from multiple funding sources with procurement lead times and supplier delivery schedules to ensure a continuous supply of products and to maintain stock levels between the established maximum and minimum levels. Communication between NMCPs and CMSs is necessary to ensure that all necessary stakeholders are kept informed as to what quantities of what products are arriving at what time. Depending on the procurement terms, CMSs may be required to ensure clearance from the port of entry and to offload containers upon arrival at the warehouse. Without this communication, goods may sit at the port while necessary paperwork is filed, which incurs demurrage charges, uses up limited shelf life of products, and puts the goods at greater risk for theft or diversion. Products being held up can result in end users at the health facility level not receiving the products they need.
- **Planning for intervention implementation.** As mentioned previously, NMCPs identify appropriate interventions designed to reduce malaria-related morbidity and mortality. The products needed for these interventions need to be communicated to the CMS. For example, in 2010, the World Health Organization recommended the use of artesunate injection for the treatment of severe malaria. This marked a change from the previous guidance to use quinine. Many NMCPs have changed their standard treatment guidelines and are in the process of training service providers on the new guidance. Logistics management information system forms must be updated appropriately, and facility staff must be guided on how to order the new product. CMSs must be informed of the change in product, so that they can be prepared to ensure appropriate storage conditions, make any changes to the warehouse management system, prepare for routine distribution, and receive instructions from NMCPs on the roll-out plan. In the introduction of a new product, collaboration between the NMCP and CMS is of heightened importance.
- **Data analysis for decisionmaking.** The purpose of collecting logistics data—consumption, stock on hand, and days out of stock—is to improve customer service (i.e., product availability) by improving the quality of management decisions. To be useful for decision-making, the data must be aggregated and analyzed and then shared with the appropriate stakeholders. Depending on the logistics system operating in country, the CMS may collect key logistics data while the NMCP may also collect logistics data in addition to data on services (number of cases of malaria seen and treated). The stock status of every commodity is important information that allows NMCPs and CMSs to answer critical questions such as these:

- How long will current stocks last?
- Are stock levels between the established maximum and minimum levels?
- Where are the stocks in the pipeline?
- When are additional supplies needed?
- Do stocks need to be moved between facilities or between levels in the system?
- What is the total consumption? Is this in line with the forecast?

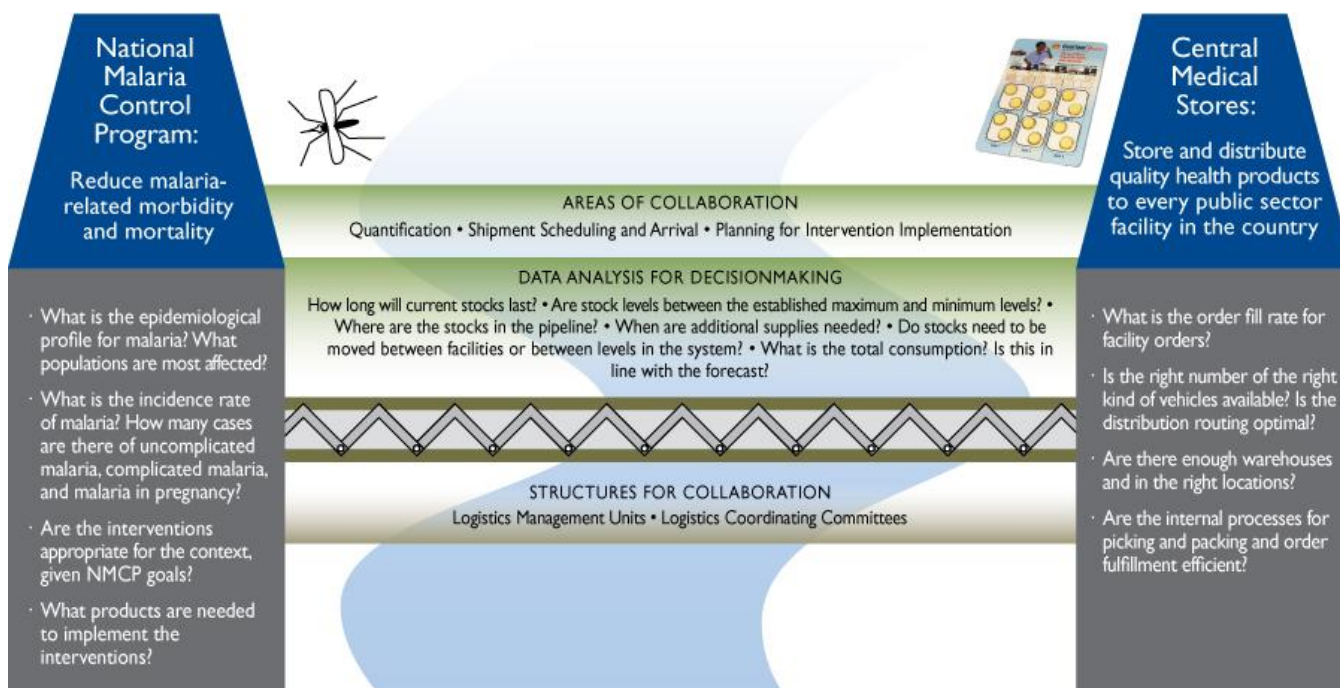
NMCPs and CMSs should be in agreement on the months of stock available in the system so as to have a common basis for making key supply chain decisions.

In some cases, malaria is seasonal, and NMCPs and CMSs may use data to determine how facilities should be resupplied to accommodate the spikes in malaria treatment consumption, while taking into consideration that some facilities may be inaccessible during the rainy season. Does resupply need to be calculated differently at different times of year to accommodate the seasonality of malaria and the accessibility of facilities? If so, when and how should resupply be calculated?

- **Development of Global Fund Procurement and Supply Management Plans.** As part of Global Fund support, recipients must complete and have approved a Procurement and Supply Management (PSM) Plan. This plan outlines how principal recipients will adhere to the Global Fund’s procurement and supply management policies. Although the MOH often procures and owns the medicines, the CMS stores and distributes them. Collaboration between NMCPs and CMSs is necessary to develop the PSM plan and to ensure its successful implementation.

Figure 1 below shows the bridge between NMCPs and CMSs. On either side of the bridge, the concerns of each entity are listed. The bridge is comprised of the areas in which NMCPs and CMSs may collaborate and includes key questions that are used for data-driven decisionmaking. The structures to facilitate and support collaboration also make up part of the bridge. Those structures are listed in the next section.

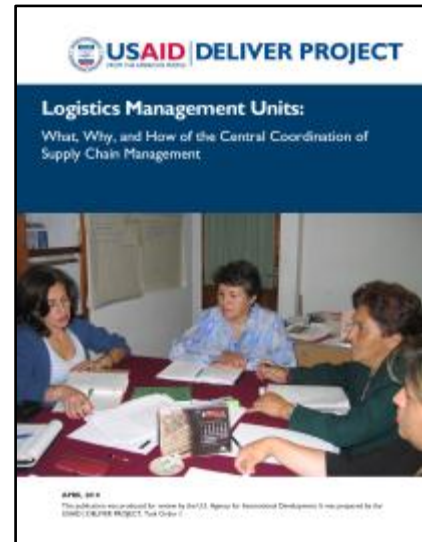
**Figure 1. Bridging National Malaria Control Programs and Central Medical Stores**



# Structures for Collaboration

## Logistics Management Units

There are mechanisms that can facilitate collaboration and communication between NMCPs and CMSs. A logistics management unit (LMU) is a management structure that can be used to organize, monitor, and support all activities within the logistics system. The LMU links the different entities and levels in a supply chain, acting as the communications hub for the entire system: facility, intermediary, and central levels, as well as across partners. The LMU plays a key role in coordinating activities among various organizations and agencies involved in logistics system activities. LMUs may physically be situated at the central warehouses and/or intermediary levels (such as district or province). However, administratively, the LMU can be under the MOH.



### LMUs in practice

Zimbabwe and Zambia have both implemented LMUs. Although their exact mandates may differ, the LMUs in both countries have key responsibilities for information management, analysis, and sharing among stakeholders. Reports and graphs are produced on national stock status, consumption, and stockout data. These reports are shared with all relevant stakeholders and at regularly scheduled meetings.

The LMU can bridge data management needs and act as a liaison between the CMS and the NMCP. By reviewing reports, vetting orders, and approving resupply quantities, the LMU ensures that the CMS is receiving quality data for order quantities. If the LMU is also involved in conducting quantifications, it is able to inform the CMS of the volume of commodities that are expected, along with arrival dates, so the CMS can prepare the necessary space. For the MOH, the LMU can provide critical program management information on consumption trends, national stock status, stockout rates, and loss rates. For more information on designing and implementing LMUs, see the guide *Logistics Management Units: What, Why, and How of the Central Coordination of Supply Chain Management*.

## Logistics Coordinating Committees

Logistics Coordinating Committees ([LCCs] may also be called Logistics Technical Working Groups or similar titles) are regular forums that bring together key supply chain stakeholders—including CMSs and NMCPs—with the explicit purpose of coordination, communication, and collaboration in all aspects of supply chain decisionmaking and management. LCCs are instrumental in effectively managing commodity-related resources across programs and in ensuring that continuous product availability remains a priority, despite the complexities within and across supply chains.

Experience from different models has demonstrated that these kinds of committees are most effective when membership includes MOH managers, CMSs, donors, and implementing partners that are empowered to make decisions and are committed to maximizing product availability by quickly addressing supply chain-related issues



In Zimbabwe, the Ministry of Health and Child Welfare has established the Procurement and Logistics Sub-Committee (PLS). Partners gather monthly to coordinate and collectively manage the commodity pipelines to ensure that there are no stockouts, expiries, or other logistics problems. The PLS is also a platform for sharing experiences and ideas in the proper management of commodities and for overseeing the overall security commodities.

In Zambia, the logistics coordinating committee is the Procurement Technical Working Group (PTWG). PTWG is chaired by the Permanent Secretary of the MOH, which demonstrates the authority given to this group. The PTWG meets every other week; attendees include representatives from the MOH, donors, and implementing partners involved in the procurement and logistics of health commodities in the Zambian public sector.

The committee should have the authority to take action and to make important national-level supply chain decisions, such as swapping of stocks and advancing or delaying planned shipments to prevent stockouts and avoid expiries. As such, this committee is an important strategic mechanism for implementing supply chain interventions that will maintain an efficient and effective supply chain.

Leadership is a critical factor in the success of LCCs and LMUs in the way it contributes to overall performance. Establishing these structures requires relevant partners to recognize and invest in the human resources necessary to manage logistics systems efficiently and effectively; therefore, buy-in from stakeholders must be cultivated. In most cases, it is helpful to obtain commitment for the establishment and support of the LMU from the highest levels of the MOH and from the CMS. For LCCs and LMUs to be successful, LCCs must be under effective leadership to ensure that necessary stakeholders are invited to and attend regularly scheduled meetings and that any follow-up actions made by the LCC are executed.

Both structures must also be explicitly housed, both physically and administratively. Given the logistics data management role assumed by the LMU, it often makes sense for the LMU to be located near the health commodities. LMUs are often physically situated at the central warehouse; in some cases, field staff for the LMU can be placed at zonal, regional, or provincial levels. However, administratively, the LMU can be under the MOH. Such an arrangement can often facilitate the LMU in bridging data management needs and acting as a liaison between the CMS and the MOH.

In the absence of logistics coordination mechanisms or formal structures, the areas of collaboration outlined earlier are key opportunities for cooperation and require input from MOH program staff as well as from CMS staff. Some examples are meetings in which the results of quantifications are presented or forums at which Global Fund applications or activities are discussed. The structures for collaboration presented here can help facilitate the exchange of data and help align objectives.

Although NMCPs and CMSs may be driven by different goals, have distinct objectives, and require discrete data, collaboration and communication between the two entities are necessary for either to be successful. These areas of collaboration are practical and can have a rapid impact on the availability of products at the last mile of the supply chain. As can be seen, some countries have implemented successful structures for facilitating that collaboration.

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

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