# USAID MEDICINES, TECHNOLOGIES, AND PHARMACEUTICAL SERVICES (MTAPS) PROGRAM

*Improved Access. Improved Services. Better Health Outcomes.*


A warehouse employee in the Supply Chain Management Service using eLMIS for encoding commodity deliveries, inventory management, and dispatches. Photo credit: Armando Jr. P. Enriquez, MTaPS Philippines

# Strengthening Health Commodity Procurement and Supply Chain Management in the Philippines

Technical Brief | December 2023 | The Philippines

## Implementing an Electronic Logistics Management Information System

## Background

With the enactment of the Universal Health Care (UHC) law in 2019, the Government of the Philippines formalized its strong commitment to ensuring access to quality health care for its over 113 million citizens who live across more than 2,000 islands. To help the Philippines achieve its health objectives, the US Agency for International Development Medicines, Technologies, and Pharmaceutical Services (USAID MTaPS) Program (2018–2024) is supporting the country in establishing and institutionalizing an integrated health commodities supply chain. This integrated supply chain contributes to ensuring the population's sustainable access to essential medicines, vaccines, and other health technologies and to pharmaceutical services.

## Problem Statement

Procurement and supply chain management (PSCM) systems help ensure sustainable access to safe, effective, quality-assured, and affordable essential medical products and efficient pharmaceutical services. When MTaPS began its work in the Philippines in 2018, the existing PSCM system for pharmaceuticals and health commodities did not meet the country's needs. Without a unified supply chain information system, it was impossible to see where all stocks of a given pharmaceutical were stored or when they would expire, or to monitor consumption or utilization rates. This ultimately led to poor forecasting and procurement of health commodities. When data was available, it was often inaccurate and delayed because most of the

logistics operations were carried out manually. The country relied on at least 10 separate siloed information systems with varying degrees of logistics management capabilities and implementation. The data management challenges hampered decision-making for a steady and sufficient supply of health commodities in the country, resulting in rampant stockouts, overstocks and expirations. An analysis in 2018 revealed that almost 50% (in value) of health products for family health, degenerative diseases, and infectious diseases stayed at the central warehouse for more than 180 days without moving—a portion of the inventory expired shortly, indicating that a significant opportunity for optimizing resources and distribution was being missed.[1] The Philippines Department of Health (DOH) recognized the gaps and, in 2019, took the step of introducing an end-to-end electronic Logistics Management Information System (eLMIS) that allows sharing of accurate data across all stakeholders for supply chain decision-making. The COVID-19 pandemic underscored the need for an end-to-end eLMIS to support effective and efficient distribution of vaccines and related supplies.

## Technical Approach

MTaPS provided technical assistance to the Philippines DOH in developing and implementing a strategy to introduce a unified supply chain information system to address its PSCM challenges. The information system would enable end-to-end data visibility to inform health logistics managers on the status of inventory in the warehouse, stock distribution, and other logistics information. The system would work at all levels and accommodate all medical products and would serve as a single information source to collect and analyze supply chain data to be used for operational, strategic, and policy decisions that contribute to more efficient supply chains, decreased risk of stockouts and product wastage, and improved access to necessary health commodities across the country. The strategy, as illustrated in figure 1, laid out the key building blocks required to transform the supply chain from its "current state" to a more effective and efficient "future state."

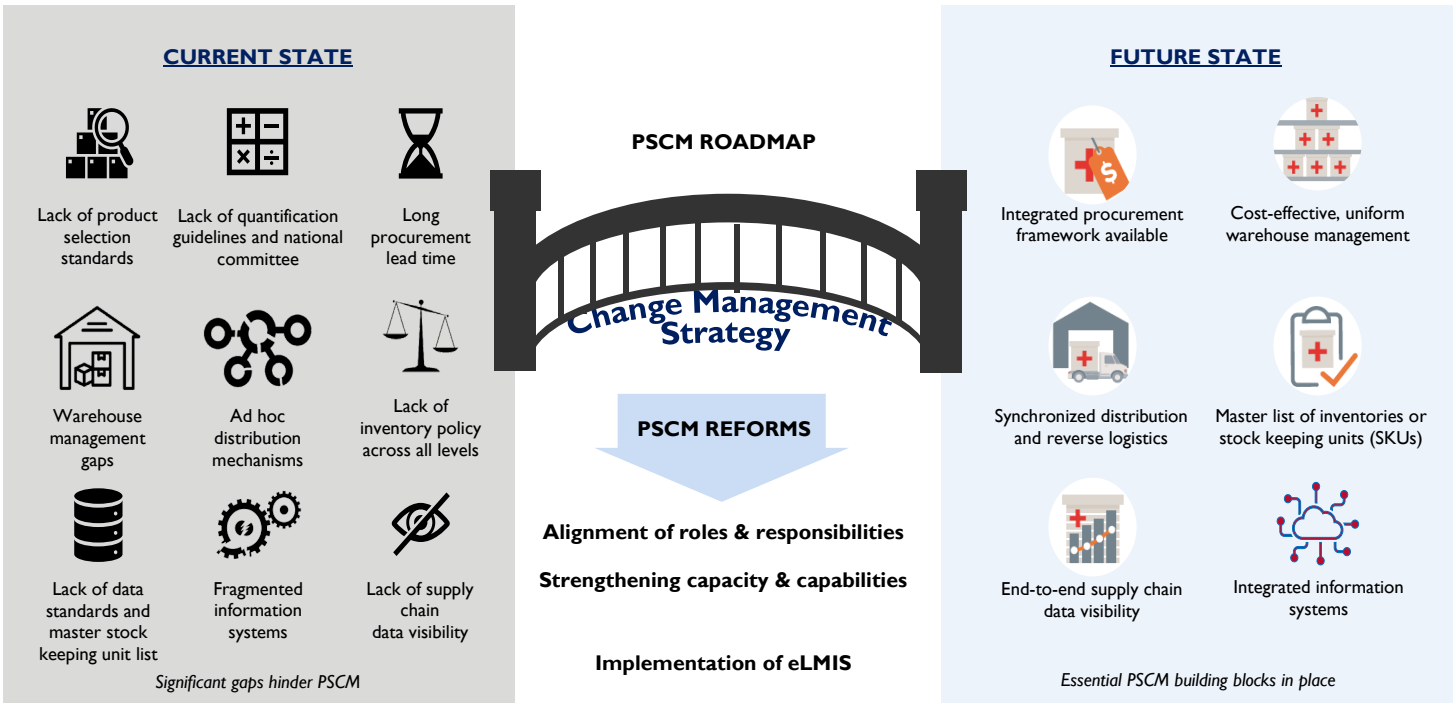


Figure 1: Implementation of an end-to-end eLMIS represents a key step in strengthening procurement and supply chain management in the Philippines

[1] USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program 2019. USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Rapid Diagnostic Report: Health Commodity Procurement, Supply Chain Management, and Pharmacovigilance in the Philippines. Submitted to the US Agency for International Development by Management Sciences for Health. https://pdf.usaid.gov/pdf_docs/PA00Z8B8.pdf

## Stakeholder Engagement

In developing and implementing the eLMIS, MTaPS has collaborated closely with various DOH bureaus, regional and local stakeholders, donors, and implementing partners to ensure ownership and sustainability. The DOH's Supply Chain Management Service (SCMS) has been engaged as the main proponent bureau, information user, and implementer, while the Disease Prevention and Control Bureau (DPCB) is an information user. The Knowledge Management and Information Technology Service (KMITS) has been providing the necessary information technology (IT) technical support in the deployment and implementation of the system. Regional and provincial warehouses and service delivery points are involved as end users of the system. Philippines Business for Social Progress (PBSP), which is the Global Fund principal recipient, as well as the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), and various USAID implementing partners, were engaged during the development and implementation process and advocated and mobilized resources for eLMIS implementation.

## Intervention

The following stepwise approach was employed in the process of introducing the eLMIS:

### Laying the foundation

- MTaPS supported the DOH in:
  - Developing a National Strategic Plan for PSCM, in which one of the key strategic objectives was to institutionalize a "Unified Information System for PSCM at all Levels"
  - Identifying the PSCM components that need to be included in the country's implementing rules and regulations (IRR) for UHC to ensure the appropriate legal framework was in place for PCSM
  - Accommodating eLMIS as one of the required information systems for inclusion in the UHC IRR and identifying, acquiring, and deploying a standard, off-the-shelf, and end-to-end eLMIS at all levels of the PSCM system as priority intervention.
  - Developing policy documents, such as joint Administrative Order of the DOH, Department of Interior and Local Government, and Department of Information and Communications Technology; policies on PSCM reform and data standardization; and guidelines on the master list of SKUs to facilitate implementation.
- MTaPS also provided support to the DOH in drafting recommended eLMIS governance structures with terms of references (TOR) describing roles and responsibilities of different government stakeholders. These recommended structures and related TORs will form the basis for an Administrative Order or Department Personnel Order to officially communicate with various offices and associated personnel for implementation. The development and eventual signing of these policies are vital institutionalization strategies. Once established, the new eLMIS governance structure will oversee implementation and scale-up of eLMIS across all levels of the supply chain and will ensure that the necessary people, processes, and technology are in place, aligned, and standardized to support the scale-up and operation of the eLMIS.

### Developing, introducing, and scaling-up implementation

Once the decision was made to introduce an eLMIS, MTaPS supported the DOH in undertaking preparations and then rolling out the system.

*Preparatory phase (beginning in March 2021)*

- Held a series of meetings to bring all stakeholders together.
- Gathered user and system requirements in collaboration with the DOH and conducted an international exposition inviting selected local and international solution providers. MTaPS presented user and system requirements, and solution providers demonstrated their off-the-shelf products. The outcome from the international exposition was used as input to develop detailed requirements to identify and select appropriate solutions.
- Validated requirements of the DOH to ensure that the selected platform meets requirements.
- Developed TOR and identified resources.
- Conducted an international bidding process and selected a suitable off-the-shelf standard eLMIS system. This included providing technical assistance to the DOH's PSCM team and the KMITS to develop detailed user and system requirements for an eLMIS, assess existing DOH information systems, and review off-the-shelf eLMIS systems against the agreed TOR.

- Held a co-creation workshop to develop an eLMIS roadmap. The workshop brought together different stakeholders, including the DOH, WHO, and the Global Fund principal recipient, PBSP. The resulting costed five-year roadmap describes the implementation approach, phases, timelines, roles, and responsibilities of various partners as well as associated costs.
- Supported the configuration of the eLMIS to meet the identified user and systems requirements—a web-based system with the capability to operate offline when the internet is not available and with warehouse management, inventory transaction, and reporting features as well as a dashboard displaying key logistics indicators through an interactive visualization.
- Developed a master product list for the eLMIS to help ensure a uniform and standard product profile across the system, promote end-to-end visibility, and track inventory information uniformly. The master product list will continue to be updated as eLMIS is rolled out in more sites.
- Migrated data into eLMIS. This included both master data and transactional data from existing systems as well as data from the monthly inventory tool (which had been introduced as a stopgap tracking method).

| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 |
|---|---|---|---|---|---|
| OBJECTIVE | • Rollout eLMIS real-time transactional system to central and select regional warehouses | • Rollout eLMIS real-time transactional system to remaining regional warehouses | • Rollout eLMIS real-time transactional system to:<br>○ Select local government unit (LGU) warehouses (universal healthcare integration sites (UHC-IS))<br>○ Commission on Population and Development (POPCOM) warehouses<br>○ Data aggregation tool in rural health units (RHUs) through public health pharmacists | • Rollout eLMIS real-time transactional system to:<br>○ Additional LGU warehouses (UHC-IS)<br>○ Select RHUs | • Rollout eLMIS real-time transactional system to:<br>○ All LGU warehouses<br>○ All RHUs<br>○ Additional types of service delivery points (SDPs) |
| ACTIVITIES | • Rollout plan finalized and disseminated<br>• Capacity building provided to intended users<br>• User accounts disseminated<br>• Implementation lessons gathered<br>• Continuous adjustments | • Rollout plan finalized and disseminated<br>• Capacity building provided to intended users<br>• User accounts disseminated<br>• Implementation lessons gathered<br>• Continuous adjustments | • Rollout plan finalized and disseminated<br>• Capacity building provided to intended users<br>• User accounts disseminated<br>• Implementation lessons gathered<br>• Continuous adjustments | • Expand the real-time transactional system to the rest of the UHC-IS LGUs<br>• Expand the real-time transactional system to the rest of the RHUs<br>• Implement consolidated data transaction encoding tool to other SDPs, such as the Programmatic Management of Drug-Resistant Tuberculosis health facilities and HIV clinics | • Continue the real-time transactional system expanding to the rest of the LGUs<br>• Continue expanding real-time transactional system to other types of SDPs<br>• Other SDPs with internet and resource issues can use either the consolidated data transaction encoding tool or offline module |
| OUTPUT/ MILESTONE | • All central warehouses to go-live on real-time transactional system<br>• 4 selected CHDs to go-live on real-time transactional system | • All the remaining 13 CHDs to go-live | • The following to successfully go-live on real-time transactional system:<br>○ At least 2 LGU warehouses<br>○ 6 POPCOM warehouses<br>○ Consolidated data transaction encoding tool for RHUs through the public health pharmacists interface | • Selected LGU warehouses and RHUs go-live on real-time transactional system<br>• Other selected SDPs start using the consolidated data transaction encoding tool | • All LGU warehouses and SDPs go-live on real-time transactional system<br>• Other SDPs use consolidated data aggregation tool |

Figure 2: eLMIS implementation phases in the Philippines


Team members from the Department of Health Central Office and selected regional offices take part in user acceptance testing as part of Phase 1 implementation. Photo credit: Estelamarie Papa/MTaPS

- Trained 22 staff from DOH bureaus and selected regions (also referred to as Centers for Health Development (CHDs)) to allow them to provide eLMIS technical support to users.

Following these preparatory steps, MTaPS supported the first three phases of a five-phase implementation process for the eLMIS (figure 2).

*Phase 1: Preparation for rollout and rollout to 11 facilities (May 2022 to December 2022)*

- Developed an eLMIS deployment checklist and an inventory/opening balance-capturing template for selected eLMIS sites to assist with rollout preparation. Used this checklist as a rapid assessment tool to gauge the readiness of each potential eLMIS target site's warehouses, IT infrastructure, and human resources (HR) to rapidly implement the platform in their facility.
- Developed a site-readiness survey covering warehouse operation processes, HR, internet connectivity, and hardware availability, and distributed it to all CHDs. Engaged SCMS in site selection, based on survey results and SCMS' knowledge of the CHDs' previous performance in information system implementation. As a result, four regions were selected to participate in Phase 1 implementation: Central Luzon, Western Visayas, Northern Mindanao, and Davao.
- Held a user acceptance test workshop to test the system using actual scenarios in handling/processing COVID-19 vaccines and other health commodities and make necessary adjustments.
- Identified eLMIS master trainer candidates, including DOH staff from the SCMS, DPCB, and KMITS, as well as from pilot regions.
- Conducted a training-of-trainers session to build a pool of trainers at the central level and engaged the new trainers to conduct end-user training to build capacity for eLMIS users on the day-to-day use of the system for supply management. Moving forward, trainers will be trained at the CHD level to conduct cascade training for the local government units (LGUs) and service delivery points.
- Rolled out the eLMIS in seven DOH-owned and contracted central warehouses and four regional warehouses (Regions 3, 6, 10, and 11).
- Gathered lessons learned based on implementation experiences.
- Conducted learning sessions with key partners to process the monitoring results and lessons learned to make improvements in the future implementation approach.

*Phase 2: Rollout (February 2023 to March 2023)*

- Trained over 200 staff from 11 sites on eLMIS. In preparation for the rollout to additional regions, sites were selected based on the site selection survey tool. During the training, UHC implementation sites developed site-level action plans for eLMIS implementation in their respective areas and identified activities to be executed and challenges to be addressed to operationalize the eLMIS.
- Revised rollout plans to create a schedule for eLMIS introduction to additional regions.
- Completed successful rollout of eLMIS in 12 CHDs out of the 17 in the country in Phase 2.

*Phase 3: Rollout (Beginning April 2023)*

- Began support of rollout to select LGUs, service delivery points, and Commission on Population and Development warehouses. The DOH will continue Phase 3 scale-up to more sites at the local level in all regions after the MTaPS Program has ended.

## Results and Achievements

As a result of the collaboration between MTaPS and the DOH, the Philippines has an eLMIS adapted to the country's needs. A total of 2,586 staff from stakeholder organizations, including the DOH, CHDs, LGUs, and service delivery points, have been trained on the eLMIS. The development and implementation processes of the eLMIS are documented in the user manual, facilitator manual, participants guide, system administration manual, database administration manual, and deployment manual. As of December 2023, the eLMIS is being implemented in all 7 DOH central warehouses, 28 CHD warehouses across the country's 17 regions, 59 LGU warehouses, and 112 service delivery points serving the entire population. Currently, 3,577 SKUs are being managed in the system, with a total of 2,054 active users. The introduction and rollout of the eLMIS have enabled staff to generate inventory reports with just a click of the mouse and to reduce the burden of manually preparing paper reports. The eLMIS also allows managers to see inventory data online in real-time and use it to make informed decisions.

**eLMIS Grand Launch Event: "Integrating and Strengthening the Health Supply Chain Towards Achieving Universal Health Care for Filipinos," Roxas City, Capiz Province**

On June 20, 2023, an eLMIS grand launch event at El Circulo Convention Center in Roxas City, Capiz Province, brought together local leaders, including the provincial governor and city mayor. The event marked a significant milestone in the digitization of the supply chain in the country and reflected the local governments' commitment to eLMIS as an important step in improving access to quality health care in the Philippines.

*"[This event is] a dream come true … we welcome and support this innovation."*

Honorable Ronnie Dadivas
Mayor of Roxas City


Hon. Fredenil "Oto" Hernaez Castro, Governor of Capiz Province, and Hon. Ronnie Dadivas, Mayor of Roxas City, sign the "commitment wall" indicating their support for eLMIS implementation. Photo credit: Chesa Desano/MTaPS


Officials complete the "commitment wall" for eLMIS implementation during the eLMIS Grand Launch. Left to right: Dr Adriano Suba-an, CHD 6 Director; Ms. Willa Pressman, USAID Philippines Office of Health Acting Director; Hon. Fredenil Hernaez Castro, Governor of Capiz Province; Dr. Ramon Alex T. Nolasco, Provincial Health Office Head; and Ms. Ma. Carolina V. Taino, Undersecretary, Department of Health. Photo credit: Chesa Desano/MTaPS

The DOH is empowered with the information it needs to continue adjusting the system based on the initial implementation and has a roadmap in place to guide scale-up of the eLMIS to additional facilities. This roadmap will contribute to the overall objective of ensuring the population of the Philippines can access the quality pharmaceutical products they need in a timely manner.

## Lessons Learned

***Capture lessons learned in every step of the process and adapt plans.*** MTaPS and the DOH encountered many challenges in the rollout, captured the lessons learned in detail, explored feasible options to address the issues, and improved implementation. For example, once their physical inventory count was completed and encoded into the eLMIS, warehouses were expected to immediately cease conducting stock transactions through the manual system and instead conduct them through the eLMIS. However, some warehouses did not do so and instead continued to conduct some transactions using the manual system. This meant they had to manually recount the inventory again before they could begin conducting transactions through eLMIS. Following this experience, MTaPS helped the training team better highlight the need to begin using the eLMIS for stock transactions immediately after physical inventory is completed.

***Consider off-the-shelf eLMIS.*** Acquiring an eLMIS proved extremely challenging for several reasons, including bottlenecks in the process and disruptions caused by COVID-19. After expending significant effort in identifying an eLMIS system, the DOH in the end found itself in the position of needing to move forward with an easily configurable off-the-shelf eLMIS. Off-the-shelf solutions with minimal customization facilitate the introduction and rollout of the system.

***Advocate/work carefully with partners to plan for human resources availability.*** DOH rollout team members were sometimes busy with other obligations when they were needed for "Go Live" activities. Additionally, DOH eLMIS staff are not dedicated 100% to eLMIS and are not always available to sufficiently support eLMIS users. These gaps were identified during Phase I rollout. MTaPS and the DOH worked together to address these issues before launching Phase 2, when rollout to additional sites could overwhelm the eLMIS support system and discourage system users.

***Identify and address data inconsistencies to ensure information is meaningful.*** For example, the smallest unit of allocation for one item might be a "pack" and for another a "kit"; this can cause difficulties in tracking stock. Similar inconsistencies exist with product codes used on the regional level. To address such issues, the DOH carefully monitored the situation and took action to ensure different SKUs were assigned based on unit of measurement and product codes to prevent confusion.

***Implement at the central level first, course correct, and tweak; only after that, roll out to the regional level.*** Some issues in system operation and design will become visible only once rollout begins. In the Philippines, the DOH and MTaPS attempted to roll out simultaneously to select facilities on the national (central) and regional (CHD) level, and issues that arose had to be addressed at both levels concurrently. This spread the implementing team too thin and led sites to lose their focus as rollout schedules had to be extended to address the issues.

***Complete training for all staff who will use eLMIS before rollout begins.*** This includes warehouse staff and staff from other involved offices, including health programs. The need for DOH master trainers to train staff during the rollout process caused delays in Phase I. To prevent such delays in Phase II, MTaPS reiterated with the DOH that all future eLMIS users should be trained before rollout.

## Pathway to Sustainability

At every step of eLMIS adaptation and implementation, MTaPS worked in lockstep with the DOH to ensure DOH ownership and full understanding of the eLMIS development and implementation process. MTaPS supported the DOH in preparing a multi-year transition and sustainability plan comprising costing for acquisition, configuration, deployment, and maintenance. This is the roadmap for sustainable transition, which is currently being finalized in consultation with the DOH and other key stakeholders. MTaPS has prepared a corps of master trainers who can train staff at additional facilities as the eLMIS is further rolled out in the country.

Additionally, MTaPS engaged in advocacy with the DOH and donor partners to leverage funding for implementation. Following MTaPS' advocacy efforts, the PBSP, the principal recipient of the Global Fund for TB, WHO, and other stakeholders have leveraged just over USD 2.1 million (equivalent to 122 million Philippine Pesos) to support eLMIS rollout, including webhosting, through the end of 2023.

To institutionalize training for eLMIS and ensure that additional training is available, especially for new or newly assigned staff, MTaPS is working with the DOH to make eLearning platforms available. The online training proved very popular with learners, especially staff who might not be able to take time during the workday to attend in-person training.

During the remaining life of the project, MTaPS will work with the DOH to finalize the governance structure for eLMIS implementation and delineate each stakeholder's roles and responsibilities. MTaPS will also support the finalization of an eLMIS transition and sustainability plan and will hand over the source code and facilitate knowledge transfer of the code base, and all the documents and tools, to the relevant DOH departments. The DOH will need to continue to roll out and operationalize the eLMIS countrywide. Under direct contract with the DOH, Sri Lankan partner Bileeta, which brings expertise in e-solutions for supply chain management, will provide ongoing technical assistance to the DOH in eLMIS rollout. Before winding down its work in the Philippines, MTaPS will organize follow up meetings with the DOH and partners (USAID implementing partners, Global Fund principal recipients, WHO, UNICEF, and Asian Development Bank) to garner additional commitments from them to support continued eLMIS implementation. At the end of FY23, MTaPS will package and hand over all the relevant eLMIS documentation and tools to the DOH to use in the continuation of scale-up of eLMIS to more LGUs. Implementation research on eLMIS, currently underway under the guidance of another USAID implementing partner, will synthesize lessons learned and provide guidance for the Philippines when it rolls out its Phase 4 eLMIS activities (focused on implementation at the LGU level) beginning later in 2023.

## Conclusions

In developing and implementing the Philippines end-to-end eLMIS, MTaPS worked with the DOH to ensure that critical enabling factors were in place, including:

- A policy provision through the UHC Act to introduce eLMIS.
- Ownership and commitment by the DOH, LGUs, and other stakeholders.

Despite the challenges in introducing the eLMIS to the Philippines—from the lack of working governance mechanisms compounded by the COVID-19 pandemic to HR and IT obstacles—the DOH, with MTaPS support, as of December 2023, has a functioning end-to-end eLMIS in 216 sites. The eLMIS is being implemented in all central (7) and regional (28) warehouses serving the entire country, 59 LGU warehouses, and 122 service delivery points, and detailed plans and tools are in place to scale up the system to more local government warehouses and service delivery points.

As MTaPS winds down its activities in the country, it will leave the DOH with a full package of documents and tools, the software system with the source code, a roadmap for future implementation, and a sustainability plan for the eLMIS that relies on committed funds from a combination of the DOH and international partners. With the eLMIS, the Philippines is on its way to fully digitizing the supply chain in the country, which will bring enhanced availability and visibility of supply chain data for improved procurement and cost-effective, uniform warehouse management and will allow the DOH to make sure that Filipinos can access the quality drugs they need.

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**About USAID MTaPS:**

The USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program (2018–2024) enables low- and middle-income countries to strengthen their pharmaceutical systems, which is pivotal to better health outcomes and higher-performing health systems. The program is implemented by a consortium of global and local partners, led by Management Sciences for Health (MSH), a global health nonprofit.