Case Study

Barcoding: Modernizing Warehouses to Lighten the Workload

Warehouse rehabilitation is essential for implementation of barcoding, but once this pre-requisite is in place, a barcode enabled warehouse management system can easily be replicated at the provincial level.

"USAID support for modernization and rehabilitation of the Central Warehouse, turning it into a center of excellence with automated warehouse management, will go a long way."

—Dr. Shafqat Jawaid, Director General, Population Program Wing, Planning & Development Division

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Until recently, Pakistan's Central Warehouse, which provides contraceptive supplies to the entire country, followed labor-intensive manual processes for all its transactions. A new automated warehouse management system is changing this and eliminating many of the problems that can arise from tracking commodities by hand, such as delays in reporting and distribution, wastage from expiries, and stock keeping errors.

This new innovative system is making it much easier for warehouse staff to manage the commodities. So far, the work load has been reduced by approximately 25-30 percent by introducing an automated system, and this percentage could increase to as much as 50 percent when everyone is fully trained, enabling the current staff to keep up with the growing demand for family planning products.

Additionally, the number of errors reported has decreased drastically, and the time it takes to produce reports has decreased by 40-50 percent. Previously, it was very difficult to track individual dispatch records, but now they are available at the click of a button. All of these changes have made a tremendous difference in the ability of the Central Warehouse to serve provincial warehouses and other clients.

The rehabilitation and automation of the Central Warehouse is one of the key interventions implemented by the USAID | DELIVER PROJECT, in partnership with the Government of Pakistan (GoP). To automate shipments, distribution, and inventory, the project developed a barcode enabled warehouse management system (WMS) in consultation with Central Warehouse management. This allows all transactions to be handled through barcode scanning.

A barcode is an optical machine-readable representation of data relating to the object to which it is attached. Barcodes are scanned by special optical scanners called barcode readers, and scanners and interpretive software are integrated into desktop computers and smartphones.

Barcode labels are printed using special barcode printers, and they contain all the information relevant to an item, including item name, lot number, manufacturing date, expiry date, and quantity per carton. This makes it easy for staff members to locate items in the warehouse, along with all the necessary information.

To implement a barcode enabled WMS, the project provided the Central Warehouse with new hardware and software, including servers, desktop computers, barcode scanners, and printers. The new system provides—

- improved management of the large volume of shipments received

- easier and faster distribution of commodities to the districts

- improved management of expiries

- improved location management of a large warehouse

- easier tracking of shipments and dispatches to various districts

- improved control of pilferage and theft

- faster reporting of logistics data to the federal level

- improved information visibility for all staff at the warehouse.

Inauguration of the rehabilitated Central Warehouse in Karachi. By introducing an automated system, the work load for staff at the Central Warehouse has been reduced by approximately 25-30 percent so far.

Key staff involved in warehouse operations received training on generating, printing, and scanning barcodes, as well as on how to receive, issue, and adjust stock, and create invoices using barcodes. Motivating staff to embrace the changes and experience the benefits of the new system is critical for successful implementation of barcoding. Ongoing staff training with standard operating procedures, job aids, and supportive supervision and monitoring have a positive impact on system implementation and can counter the challenges of moving existing staff to a new system, as well as staff turnover and other changes.

Warehouse rehabilitation and computer literate human resources are essential for implementation of barcoding at the provincial level. Rehabilitation requirements include installation of warehouse equipment, such as a pallet racking system; a stacker or lifter; and trolleys. Once this pre-requisite is in place, barcode enabled WMS can easily be replicated from the Central Warehouse system.

The USAID | DELIVER PROJECT and the GoP are encouraging the provinces to rehabilitate and integrate their warehouses. The project hopes to provide study tours for provincial warehouse staff to observe operations at the Central Warehouse and plans to help with rehabilitation assessments of provincial warehouses where needed.