



USAID | DELIVER PROJECT
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Annual Progress Report October 2014–September 2015

USAID | MCH Program: Component 4 Health
Commodities and Supply Chain



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Annual Progress Report October 2014–September 2015

**USAID | MCH Program: Component 4
Health Commodities and Supply Chain**

Year PY09
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Abstract

This annual progress report describes the work of the USAID | DELIVER PROJECT (component 4, USAID Maternal and Child Health Program) in Pakistan to help strengthen the health supply chains and policy environment for family planning and vaccine products. Managed by John Snow, Inc., and funded by the U.S. Agency for International Development (USAID), the project provides technical assistance to the Government of Pakistan and also offers procurement assistance for USAID-financed health commodities.

Cover photo: Delivery at the last mile—skilled government staff extending essential family planning services to women at the grass-roots level.

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Acronyms

AMC	average monthly consumption
AMT	AIDS, malaria and tuberculosis
cLMIS	contraceptive logistic management information system
CLR	Contraceptive Logistics Request
COC	combined oral contraceptive
CWH	Central Warehouse
CYP	couple-years of protection
DEO	data entry operator
DGHS	Director General Health Service
DHIS	district health information system
DHMPT	District Health Management Population Team
DMPA	Depo-Provera
DOH	Department of Health
DQA	data quality assurance
DSV	district superintendent for vaccines
E2E	end-to-end
ECP	emergency contraceptive pill
EOC	Emergency Operation Center
EPI	Expanded Programme on Immunization
FATA	Federally Administered Tribal Areas
FEFO	first-to-expire, first-out
GAVI	Global Alliance for Vaccine and Immunization
GFATM	Global Fund for AIDS, TB and Malaria
GHSC	Global Health Supply Chain
GIS	geographical information system
GOP	Government of Pakistan
GOS	Government of Sindh
GS1	Global Standard 1
GTIN	Global Trade Item Number
HCP	health care professionals

HR	human resource
HSS	health system strengthening
ICT	Islamabad Capital Territory
IFB	Invitation for Bids
IQMS	International Quality Management System
ILR	ice-lined refrigerator
IRMNCH	Integrated Reproductive Maternal, Newborn, Child Health & Nutrition Program
ISO	International Standards Organization
IT	information technology
IUD	intrauterine device
LHW	Lady Health Worker
LMIS	logistics management information system
KPK	Khyber Pakhtunkhwa
KPPRA	Khyber Pakhtunkhwa Procurement Regulatory Authority
M&E	monitoring and evaluation
MCH	maternal and child health
MCHIP	Maternal and Child Health Integrated Program
MNCH	maternal, newborn, and child health
MoNHSR&C	Ministry of National Health Services, Regulations and Coordination
MOS	months of stock
MSD	Medical Stores Department
OJT	on-the-job training
PBS	Pakistan Bureau of Statistics
PMP	performance monitoring plan
POP	progestogen-only pill
PPRA	Public Procurement Regulatory Authority
PPHI	Peoples Primary Healthcare Initiative
PPW	Population Program Wing
PWD	Population Welfare Department
PY	project year
RHCS	Reproductive Health Commodity Security
RMNCH	reproductive, maternal, newborn, and child health
SDP	service delivery point
SOP	standard operating procedure

SRS	Software Requirement Specification
TA	technical assistance
TAG	technical advisory group
TSV	tehsil superintendent vaccines
UC	Union Council
UNICEF	United Nations Children’s Fund
UNFPA	United Nations Population Fund
UPS	uninterrupted power supply
USAID	U.S. Agency for International Development
USG	U.S. Government
vLMIS	vaccine logistic management information system
VSSM	vaccine supply stock management
VVM	vaccine vial monitor
WHO	World Health Organization
WMS	warehouse management system

Executive Summary

The project made impressive gains from October 2014–September 2015. This annual report details the progress made by the USAID | DELIVER PROJECT (the project) during the reporting period—with a focus on strategic, policy-level interventions undertaken to strengthen the coverage of family planning in all 143 districts and routine immunization services in 83 districts of Pakistan—including polio high risk districts. It is estimated that 8,004,309 couple-years of protection (CYPs) were generated during the year; and 2,305,241 pregnancies averted because of USAID’s contraceptive commodity support.

The reporting year was characterized by the announcement of the Global Health Supply Chain (GHSC) contract award and the subsequent extension granted to the project for an additional year—until September 2016 for the final closeout. The project struggled to adjust operations to accommodate the changed project landscape, and to make the project’s impact more meaningful, sustainable, and effective. With this in mind, and in accordance with the project year (PY) 09 and the project objectives, efforts during the year focused on strengthening supply chain and commodity security in-country, and its institutionalization and sustainability beyond the adjusted project time frame.

Most significant, several bold steps were taken to enhance the utility of technology for its diverse users. Under the vaccine logistics management information system (vLMIS) scale-up efforts in Sindh—at the request of the Sindh Expanded Program on Immunization (EPI)—a new reporting format for monthly consumption reporting was introduced; it includes logistics, as well as service indicators, and a logbook of children outside the union council.

Similarly, in collaboration with the Health Systems Strengthening (HSS) project a substantive amount of planning was undertaken to integrate the fragmented health information systems—currently active in the country—into a consolidated information system that can offer policymakers analytical dashboards, reports, and geographical information systems (GIS) maps.

This USAID-supported intervention is expected to present the benefits of a harmonized framework that will allow all information systems to share resources and, to visualize and analyze data for decision making, to speak a single language for data interchange.

Similarly, Global Standard 1 (GS1) barcoding implementation also started with the Federal EPI warehouse. The Pakistan LMIS now has web services that enable the system to communicate with other interfaces. The Reproductive Health Interchange (RHI) web services have been tested and can now be used as a prototype. Additionally, the dashboard’s Software Requirement Specification (SRS) and design document were prepared and shared with the technical team. This technology solution (pilot) provides end-to-end visibility to the global and Pakistan health logistics environments on performance and market dynamics by interfacing the Pakistan contraceptive logistic management information system (cLMIS) with United Nations Population Fund (UNFPA) Global RHI. The prototype supports the availability of information for supply planning; and enables policymakers and managers to assess the size of financing, procurement, and the timeline for new procurements, making adjustments to the health commodity pipelines.

During the reporting year, the project also enhanced the cLMIS to accommodate the Population Welfare Department (PWD) performance reports. To accomplish this, after consulting the PWD teams of Sindh, Punjab, and Khyber Pakhtunkhwa, the cLMIS graduated to sub-district level reporting.

Several other important initiatives were consolidated in the reporting year. The technical assistance (TA) given to the Federal EPI started in the 2nd quarter to reform the institution and establish systems; transforming the project facility's systems, infrastructure, and staffing; which visibly increased the efficiency and effectiveness for its national operations. Today, the Federal EPI data and vaccine storage capacity status is totally reliable and accessible. To benefit at the last mile, it is now imperative to institutionalize and cascade reforms to every link in the EPI supply chain.

Also, during the 3rd quarter, with steady project follow up, the Finance Department, Punjab, finally released the public funds and civil work to rehabilitate the Medical Stores Depot (MSD) in Lahore. Under an agreement with the Department of Health (DOH), Punjab, efforts included civil repair work and project support for operationalizing the MSD by providing equipment and training the staff in standard warehousing practices. The rehabilitation is scheduled to be completed by November 2015.

The overall reporting rate for districts in the cLMIS during the reporting year was 80 percent; and for the vLMIS, it was 85 percent. During PY09, joint monitoring with relevant stakeholders was initiated to build capacity of the government and develop their ownership of monitoring-related observations in the field. This matured and evolved to include data quality assurance (DQA) with the regular facets of capacity building at the district- and sub-district-levels through supportive supervision. The DQA was included to highlight the levels of data transition that require focus and capacity building for the entire system; it aims to ensure accountability and improve performance. Two types of monitoring exercise have been conducted during PY09—process monitoring and data validation. Monitoring tools were developed to cater to the changing needs in the supply chain environment. These covered all essential aspects of routine monitoring and data quality assessment. Tools were honed through a series of field testing, analysis, and reporting; and, eventually, only included the essential indicators that need to be monitored. This will ensure a sustainable monitoring environment that can transition into the public sector and, in turn, ensure overall sustainability for the LMIS. During 2014–2015, the focus of monitoring has been on the Sindh and Punjab provinces.

Complementing the distribution of hardware across Pakistan, technical trainings for a range of government officials remained paramount during the reporting period. The trainings were extended along different tiers of the government and included topics, such as CLM, c/vLMIS, procurement, etc. Internal project staff were also trained on *Why Logistics?* A total of 2,121 individuals received training during all of PY09. This training will possibly be the single most important asset within the country; it will determine the quality of sustainability and impact from project interventions.

In Punjab, the Health and Population departments finalized contracts with successful bidders in the first week of April 2015; most of the supplies from local, as well as international manufacturers, reached the central warehouse in Karachi. In Khyber Pakhtunkhwa (KPK), technical bids were opened on June 25, followed by the technical evaluation and opening of financial bids for technically qualified bidders. Meanwhile, bids were advertised in Sindh in March; but, despite two calls, there were no responses. The Chief Minister of Sindh has endorsed the summary for releasing U.S.\$7 million, but because of the FY2014–2015 closure on June 30, 2015, procurement was postponed until FY2015–2016.

Because of the various maternal and child health (MCH) interventions in the provinces to achieve Millennium Development Goals 4 and 5, the demand for MCH medicines is likely to increase. To ensure the availability of essential life-saving medicines for MCH at the primary and secondary healthcare facilities, the DOH Punjab and Sindh wanted to prioritize and put the life-saving medicines for quantification and costing on a short-list. To achieve the objective, at an initial consultation in April 2015, a draft MCH priority medicines list—based on the World Health Organization (WHO)/ United Nations Children’s Fund (UNICEF) MCH priority medicines list—was prepared and shared with officials in Punjab and Sindh, and with the MCH partners. For Sindh, the final list was endorsed in March 2015, followed by endorsement for Punjab in August 2015.

The first meeting of the Sindh Reproductive Health Commodity Security (RHCS) committee was held on September 14. The forum was briefed about the contraceptive procurement process for 2015–2016. The commodities are expected around March 2016. Participants at the meeting were told about the distribution barriers and recommendations, as per CPT 2014, which is valid until December 2015. Similarly, the Interprovincial Coordination/National RHCS Working Group meeting was held on August 17, during which important decisions were made on the level of months of stock (MOS) required at different levels, and the difficulties the federating units are facing in understanding financing mechanics. The ministry agreed to eliminate any confusion by enabling all PC-1’s to be synchronized to secure CS. Based on the current pipeline, the Federal ministry will continue the Contraceptive Logistics Request (CLR)-6–based distribution to all 143 districts of Pakistan, until December 2015.

Despite all the efforts made during the year, commodity security remains an uphill task. While the project made inroads into changing how staff view reporting data into the LMIS, the data quality—despite trainings and hardware—remains an unachieved target, as does the issue of transportation of contraceptives to the health department for Sindh and KPK.

Internally, the project continues to adapt to the new PY10 work plan, up to June 2016; and will invest in resource mobilization for the time beyond 2016.

Introduction

Component 4—Health Commodities and Supply Chain, under the USAID Maternal and Child Health (MCH) program, implemented by the USAID | DELIVER PROJECT—includes technical assistance to the health- and population-sector for sustainable strengthening of logistics and supply chain management systems for the Government of Pakistan (GOP). This component focuses on the contraceptive and vaccine supply chains for the public sector, with procurement assistance to U.S. Government (USG)–financed health commodities.

The project includes a comprehensive package of software and hardware technical assistance for the sustainable strengthening of supply chain and logistics systems for the public sector, as well as partial contraceptive commodity security for social marketing and nongovernmental organizations. During four years of technical assistance (2010–2014), all major stakeholders began reporting family planning performance on a single reporting platform—the logistics management information system (LMIS).

The project has been granted an extension of one year, with the administrative completion now in September 2016. Project year (PY) 10 i.e. 2015-2016, is the project’s closeout year; therefore, the focus in the remaining time is (1) delivering results for committed activities; sustaining what is possible from the past and continuing technical assistance within the GOP setup; and (2) transitioning project interventions to GHSC, while assisting the mission as they continue the GOP-owned supply chain activities beyond the technical closeout in June 2016.

The objectives, interventions, activities, and key outcomes are listed below.

Objective 1: Improve and Strengthen In-Country Supply Chains

Key interventions:

- Strengthen warehousing and distribution.
- Maintain and support health logistics information systems.
- Sustain vaccine and cold chain logistics system using logistics manuals and information technology (IT) support.
- Monitor and evaluate, and support supervision.
- Develop sustainable human resource capacity.

Objective 2: Strengthen Environments for Commodity Security

Key interventions:

- Improve procurement capacity.

- Strengthen the environment for commodity security.

Objective 3: Increase Knowledge Management and Dissemination

Key interventions:

- Document challenges and the way forward beyond June 2016.
- Document project achievements and future roadmap beyond September 2016.

Expected Key Results: By the end of September 2016 the project plans to—

- Operationalize the Federal Expanded Program on Immunization (EPI) warehouse for better storage and distribution by installing two additional cold rooms. Based on the Central Warehouse (CWH) experience, improve the performance of two Medical Stores Department (MSD) barracks in Lahore for the Department of Health (DOH)/Punjab, and introduce good warehousing practices.
- Achieve significant progress in actualizing public-sector–financed contraceptive and improved procurement capacity with Punjab, Khyber Pakhtunkhwa (KPK), and Sindh provinces.
- Transform Pakistan vLMIS to Pakistan EPI information system with end-to-end (E2E)/ Global Standard 1 (GS1) power.
- Increase LMIS data utility to improve family planning/reproductive health performance management at the federal-, Sindh-, and Punjab-levels; and consolidate deployment inputs to 83 vLMIS and 143 contraceptive logistic management information system (cLMIS) districts.
- Increase the availability of USG-financed family planning products at the service delivery point (SDP) level, while generating a total of 26 million couple-years of protection (CYP) during the entire project period.
- Develop a monitoring and evaluation plan to ensure quality data is entered into the LMIS through data quality assurance (DQA).
- Improve the responsiveness of the supply chain and logistics systems to improve policies, financing, and operations across the public sector.
- Prepare roadmaps for USG’s strategic supply chain investments for follow on.

Section I

Progress against Agreed-to Indicators

The work plan activities are being monitored using a set of indicators in the performance monitoring plan (PMP).

PMP Key Indicators: Current Status

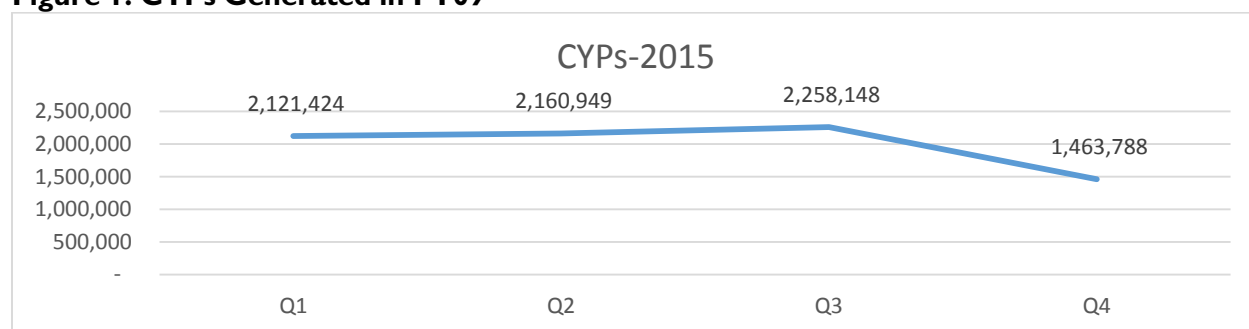
1. Number of Couple-Years of Protection Generated through USG-Supported Contraceptives

Commodity impact—couple-years of protection (CYP)—is calculated based on public sector reported consumption in the cLMIS (see figure 1). Between October 2014 and September 2015, 8,004,309, CYPs were generated; an estimated 2,305,241 pregnancies were averted with USAID’s contraceptives support. Table 1 shows the potential impact of the commodities.

Table 1. Potential Impact of USAID Contraceptive Commodities October 2014–September 2015

Potential Impact	Number
CYPs generated by commodities consumed/dispatched	8,004,309
Number of unintended pregnancies averted	2,305,241
Number of unintended births or abortions averted	2,005,560
Number of unintended births averted	922,096
Number of infant deaths averted	59,014
Number of maternal deaths averted	2,397

Figure 1. CYPs Generated in PY09

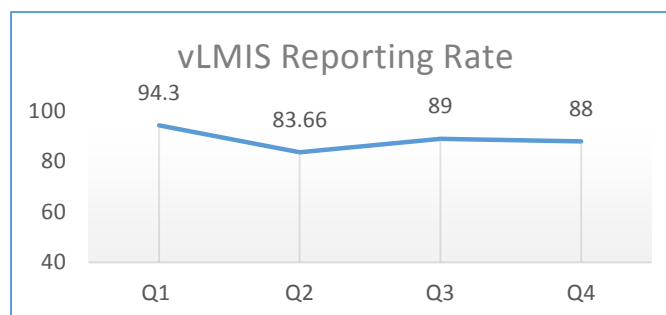


Percentage of USG-Assisted Service Delivery Points (EPI Centers) Using the vLMIS to Manage Vaccine Stock

During the first and second quarters, 54 pilot districts were reporting in the vLMIS; but, after the vLMIS scale up in all the districts of Sindh in May 2015, the total figure climbed to 83 (see figure 2).

The reason for the under 90 percent reporting rate in the last three quarters of PY09 was because of the low reporting rate for the Federally Administered Tribal Areas (FATA). Essentially, this is because of factors, such as the ongoing security situation in the area, which impacts access, mobility, and communications; and the overall infrastructure available in the region (i.e., electricity and Internet connectivity, poor roads and the lack of skilled staff). While the USG-supported initiatives have made many inroads into FATA through useful investments over the years, most of the challenges are beyond the scope of the project.

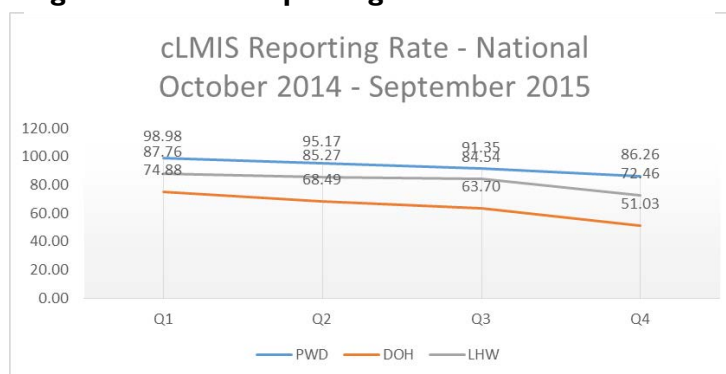
Figure 2. vLMIS Reporting Rate



Percentage of USG-assisted Districts (All Stakeholders) Using the LMIS to Manage the Contraceptive Commodities Stock

Figure 3 shows the reporting rate of the Population Welfare Department (PWD), DOH, and the Lady Health Worker (LHW) program from October 2014–September 2015. The USG technical focus in the Sindh and Punjab provinces has increased the reporting results there, compared to the national numbers. By implication, the overall national rates are lower because of the poorer results elsewhere.

Figure 3. cLMIS Reporting Rate



Section 2

Progress in Project Year 09: October 2014–September 2015

This section highlights the progress made during PY09, under each project objective. The objectives focus on improving and strengthening in-country supply chains; strengthening the environment for commodity security; and increasing knowledge management and dissemination. This report also includes an account of specific activities under the work plan.

Objective 1: Improve and Strengthen In-Country Supply Chains

Key interventions under Objective 1 are to—

- Strengthen warehousing and distribution
- Maintain and support health logistics information systems
- Sustain vaccine and cold chain logistics system using the logistics manual and IT support.
- Monitor and evaluate, and provide supportive supervision
- Develop sustainable human resource capacity.

Principle activities and progress made under each of these key interventions follow—

1.1 Intervention: Strengthening Warehousing and Distribution

Activity 1.1.1: Phaseout monitoring and implementation support to the CWH, Karachi

The CWH is a model for storage and distribution activities, which are increasingly being replicated at the provincial- and district-levels. In May, the Punjab team, including the general manager of the medical stores department (MSD) Lahore, and visited the CWH to learn about and adopt best practices for warehouse management. Several high-level officials from the GOP and public- and private-sector, and other development partners, continued visiting the CWH for orientation and, also, to help strategize the exit plan for the CWH facility.

Warehousing and transportation planning and financing

The CWH, Karachi, has been upgraded and automated, increasing the storage capacity from 18,000 to 50,000 feet². The International Quality Management System (IQMS) was introduced and implemented for the warehouse operations. This successful experience is now being applied to rehabilitate and reinvigorate the MSD storage facility in Lahore, which should be completed later this year. The project also introduced the warehouse management system (WMS), which is part of

the LMIS. USAID's transportation financing to support the government in commodity distribution ensured 100 percent stock availability at all 143 district stores of the country. With the project's technical assistance (TA) support, the Government of Sindh has allocated \$2.12 million to transport commodities during 2014–2019.

The USAID | DELIVER PROJECT provided training to the 46 staff of the CWH and supplied Karachi's various warehouse standard operating procedure (SOP)/manuals developed by the project; including *Staff Health and Safety Procedures*, *Warehouse Standard Operating Procedures*, *Warehouse Procedures Monitoring Checklist*, and the *Warehouse Staff Job Descriptions*. These documents are essential for improving the efficiency of the CWH operations. Additionally, several high-level officials from the GOP and public- and private-sector and development partners visited the CWH for advocacy and orientation tours, as well as for awareness raising of warehouse best practices; partners included members of the Provincial Assembly's Standing Committee on Population Affairs, who visited the CWH on March 26.

Provide support to strengthen the Medical Stores Depot, Lahore

The rehabilitation of the MSD was planned in 2012 as a follow on after the CWH at Karachi was established. The existing MSD (two barracks) were earmarked for rehabilitation/operationalization to convert them into a modern, state-of-the-art warehouse. This was a sign of true partnership with the government of Punjab where the DOH has allocated U.S. \$160,000 and completed the necessary civil works; such as repair and maintenance of MSD Lahore floor, roof, boundary wall, and parking for vehicles (see table 3).

Commodities Received at CWH

Table 2. Contraceptives Received at the CWH in PY09

I	Condoms	193,968,000
2	POP	169,920
3	COC	20,902,640
4	ECP	503,210
5	Copper-T-380A	1,075,800
6	3-month inj.	8,073,500
7	Implanon	20,032
8	Jadelle	175,000

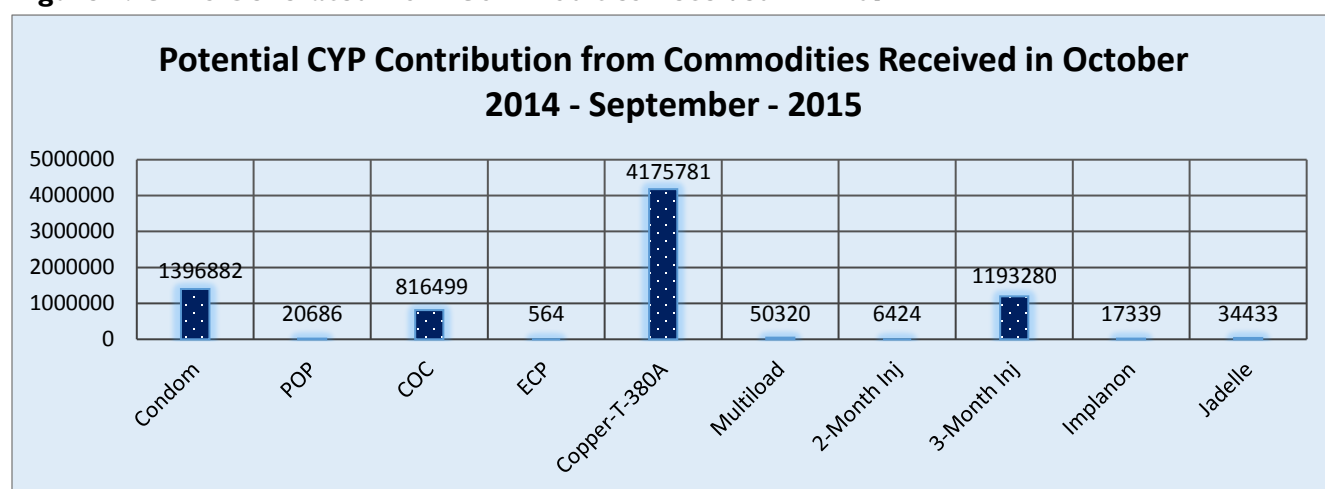
Table 2 includes details of the contraceptives received at the CWH during October 2014–September 2015; figure 4 shows the estimated CYP impact.

Commodities by CWH for Provincial Procurements

Table 3. Products Received by the CWH, Procured by Punjab

Stakeholder			Product	Quantity
Punjab-DOH			ECP	50,000
			3-month inj.	3,358,700
Punjab-PWD	COC	2,300,000		
	ECP	134,610		
	3-month inj.	1,150,000		

Figure 4. CYPs Generated from Commodities Received in PY09



Activity 1.1.2: Provide support to strengthen the MSD, Lahore

The installation of pallets and racks has been completed; warehousing equipment—stackers, hydraulic hand pallet trucks, wrapping machines, scrubber and drying machines, flat deck trolleys, and IT and communication equipment—was purchased and the project turned it over to the MSD Lahore. The project also provided support to establish an administration block with a standard working environment.

The project also developed the first draft of the warehouse SOPs/manuals, including *Staff Health and Safety Procedures*, *Warehouse Standard Operating Procedures*, *Warehouse Procedures Monitoring Checklist*, and *Warehouse Staff Job Descriptions*. Training on how to use these manuals is planned for November 2015.

In the 3rd quarter, the project frequently interacted with Government of Punjab officials to ensure that the pledged funds for rehabilitating MSD Lahore were released and the contract award was fast-tracked. The entire rehabilitation and operationalization of the WMS should be completed by November 2015.

Figure 6. Construction Work at MSD Lahore



Figure 5. Racking System Installed at MSD



Activity 1.1.3: Support Federal EPI Store Systems

In February 2015, the Federal EPI had an extremely grave situation; this led to the discovery of negligence and a complex set of governance issues relating to mismanagement of vaccines, including the loss of 1.3 million doses of pentavalent vaccines. The situation analysis highlighted areas related to poor vaccine handling and warehouse mismanagement, and human resource issues. The entire system at the Federal EPI was vulnerable. The Ministry of National Health Services, Regulations and Coordination (MoNHSR&C), Government of Pakistan, took corrective measures by asking the USAID | DELIVER PROJECT to provide technical support and to create a coordinated response to improve transparency and support logistics at the Federal EPI by identifying why the mismanagement occurred.

The project actively worked with the Federal EPI during the past few months, helping the government improve the vaccine management by implementing the vLMIS. The entire infrastructure of the Federal EPI was refurbished. In collaboration with the Ministry/Federal EPI and other stakeholders, the physical count of vaccines was completed, and the stock was organized using proper inventory management protocols, batch numbers, and expiry dates. This significant undertaking included the physical movement of vaccines. The data obtained were aligned with the vLMIS, after comparing it to the vaccine supply stock management (VSSM) data, and presented to the Ministry/Federal EPI and partners: World Health Organization (WHO), United Nations Children's Fund (UNICEF), and the Japan International Cooperating Agency.

The cold storage has been completely reorganized following WHO standards (see figure 7). Stock was placed based on their relevant antigens, batches, and expiry; this makes it easy to correctly identify, count, observe vaccine vial monitor (VVM)-stage monitoring, and plan for priority vaccine issuance. Expired and damaged stock in the cold stores has been removed from inventory.

Figure 7. Cold Store Before and After Renovation



With the support of the project, the dry store has been completely transformed (see figure 8). Previously, the entire inventory was scattered; after the reforms were complete, the store was reorganized based on commodities and batch/expiry. In the current dry store, inventory can be easily identified/counted. It is also aligned with International Standards Organization (ISO) standards; with the continued support of the project, the dry store ISO certification process will be completed.

Figure 8. Dry Store Before and After Rehabilitation



The project also delivered two USAID-donated forklift trucks and 10 pallet jacks to the Federal EPI; this has significantly increased its material handling capability. The surveillance and monitoring system has been upgraded to 360° web-enabled coverage; 26 additional closed-circuit television cameras were installed in the warehouse.

In addition to the cold store, with the help of the project team, the dry store bins in the vLMIS have also been updated; data can now be compared to the physical count, at any time.

The project also completed another milestone when a GS1 barcode scanning of measles-10 doses and tetanus-typhoid (TT)-20 doses vaccines containing GS1-claimed barcodes was complete. The government can now use this application to easily trace and track vaccines through the supply chain pipeline. A new associated GS1 barcode room maintains the temperature of vaccines during

barcoding and batching. Using scanners, the vLMIS data quality assurance is continuously monitored and improved.

The project team continued to extend their technical support to the Federal EPI well into the 3rd and 4th quarters, including support for issuance and receipt of vaccines and dry store items to the entire country. The project also received vLMIS enhancement tools to make them more user-friendly.

In addition to the problems with the vaccine, the PC-1 for EPI had not been approved for more than three years. The overall performance of the warehouse showed severe negligence of storage practices and operational management, and non-compliance with the SOPs. With the project's help, to optimize performance at the warehouse, the SOPs and job titles and descriptions have been revised. The Ministry of NHSR&C has endorsed the staff health and safety manuals, warehouse staff job descriptions, warehouse monitoring checklists, and SOPs. This is one of the most significant achievements in Federal EPI's history; it would have been impossible without the project's technical support.

Introducing the vLMIS in 83 districts and towns is a major intervention that ensures vaccines and cold chain data visibility, good governance and accountability, and data quality up to the Union Council (UC) level. Being part of EPI reforms, the project, in close coordination with Federal and provincial EPI programs, has also developed an EPI logistics manual to guide the EPI staff on best practices for managing vaccine, dry store, and cold chain, at all levels of the supply chain. Using robust monitoring, the manual covers all the components of the logistics cycle, including planning and forecasting, procurement, inventory management, warehousing, vaccine distribution, cold chain maintenance, vLMIS, and data validation .

Also, with the project's support, a state-of-the-art vLMIS operations room is being built. This will be a center for dissemination within the government and development partners, enabling them to make informed decisions on vaccine management.

I.2 Intervention: Maintenance and Support of Logistics Information System

Activity I.2.1: Provide maintenance and support of vLMIS, cLMIS, and tuberculosis-DMIS/WMS

cLMIS Enhancement

The project has improved the cLMIS to accommodate the PWD performance reports. These reports were generated once a quarter and annually; and are being submitted to the Pakistan Bureau of Statistics (PBS). To meet the PWD requirement and provide a paperless environment, after consulting PWD teams at Sindh, Punjab, and Khyber Pakhtunkhwa in the reporting year, the cLMIS graduated to sub-district-level reporting. In addition to the sub-district-level reporting, new indicators were added to the last mile reporting, including new and old clients for each contraceptive method, contraceptive surgeries and referrals, and pre- and post-natal visits.

Several new reports were also added to comply with the PWD departmental requirements and PBS reporting formats. The sub-district-level reporting has also been piloted in two districts of each of the three provinces for the DOH and the LHW program.

In consultation with the Peoples Primary Health Care Initiative (PPHI) at the provincial level, an enhanced version of the cLMIS was developed and introduced in KPK and Sindh, as well. Facility-

level data in the cLMIS at all PPHI districts will now be uploaded in the updated version; as a result, provincial-level managers now have an improved view of the data being uploaded from the field for decisionmaking and monitoring

Private Sector Data Visibility

The private sector reporting has also been incorporated to ensure a complete national picture and to provide better performance of private-sector service providers (Family Planning Association of Pakistan and Marie Stopes Society); and social marketing program partners (Greenstar) and their contribution in the national statistics.

2. GS1 Barcode Implementation in Central-/Federal-/Provincial-/District-Stores

Efficient and accurate stock tracking and tracing is a key factor in the warehouse/store operations. For this purpose, vaccines and contraceptives currently have preprinted GS1 DataMatrix; vaccines include measles-10 and TT-20 from the Serum Institute of India; Copper T 380A (contraceptives) are being tracked and traced using GS1 DataMatrix barcode scanning with the Motorola MC9200 barcode scanner. Through barcoding, it has been possible to load data on LMIS for stocks received, measles-10 and TT-20 and Copper T 380A shipments.

Vaccines secondary packages and contraceptive tertiary packages have GS1 DataMatrix barcode labels, which includes the Global Trade Item Number (GTIN), batch no., batch expiry, and serial no. Each tertiary/secondary pack is scanned and placed in its respective location; this information is then uploaded in the LMIS, which reflects stock quantities and placement information in the LMIS.

Stock Issuance

While issuing stocks, the first issuance is based on first-to-expire, first-out (FEFO) principle and on the VVM stage for vaccines; and a temporary voucher is created. After the stock issuance planning, the stock is picked and scanned, related information is uploaded to the LMIS, which is eventually followed by the generation and printing of the actual issuance voucher.

cLMIS upgrade to accommodate provincial stocks at the CWH Karachi

During the reporting period, the cLMIS upgrade had to incorporate provincial procurement processes and contraceptives support from USAID. Because all the commodities are now being stored at the CWH Karachi, the record of stocks had to be differentiated and tracked, by province.

The upgrade has helped manage the disaggregated stock position, by provinces, in the information system.

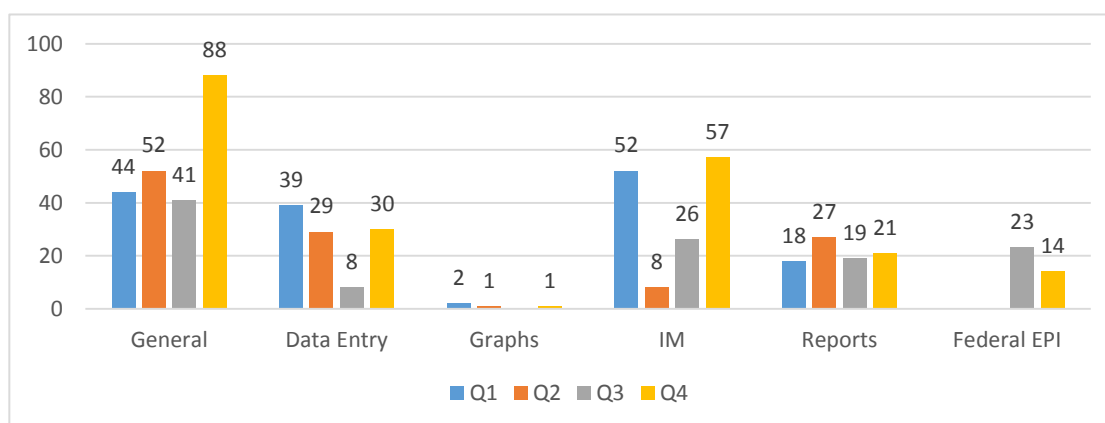
1. Vaccine and contraceptive LMIS support

Provide maintenance and support for the vLMIS, cLMIS, and tuberculosis-DMIS/WMS

The project has developed an effective mechanism to support day-to-day vaccine and contraceptive LMIS operations for all provinces and regions. Support by telephone and email is recorded in the system to quickly resolve any problem, at any tier of the supply chain. A total of 600 calls/emails, in different support areas of the LMIS, were generated and successfully resolved during the year.

Figure 9 shows the number of support calls received in each LMIS module.

Figure 9. Analysis of Support Calls/Emails in PY09



I.3 Intervention: Sustain Vaccine Logistics System through Logistics Manual and IT Support

Activity I.3.1 Sustain vaccine logistics system using the logistics manual and IT support

The distribution process for all the IT equipment was completed during the 2nd quarter. The second batch of IT equipment for upscaling the new districts of Sindh for vLMIS were processed; most of it has been distributed. Complete distribution is expected by November 2015. Field visits to verify compliance and operationalization of IT equipment is ongoing. Every month, using USAID-supported IT equipment, the vLMIS operators at each supply chain level can now compile, as well as upload, data into the system down to the UC level. However, the challenge of retaining the capacity within the government, as well as using data for analysis and decision making, continue to be major obstacles to sustainability.

I.4 Intervention: Monitoring and Evaluation and Supportive Supervision

During PY09, joint monitoring with relevant stakeholders was initiated to build capacity and develop ownership of observations by the government, in the field. Using supportive supervision, this evolved to include DQA with the regular facets of capacity building at the district- and sub-district-levels. Including DQA highlights the levels of data transition that require focus and capacity building for the entire system; it aims to ensure accountability and improve performance. Two types of monitoring exercises have been conducted during PY09. Monitoring tools were developed to cater to the changing needs in the supply chain environment, covering all essential aspects of routine monitoring and data quality assessment. Tools were perfected during a series of field testing, analysis, and reporting; eventually, only the essential indicators required monitoring. This was done to ensure a sustainable monitoring environment that would ensure transition into the public sector and, in turn ensure overall sustainability of the LMIS.

Field Monitoring

The monitoring and evaluation of vaccine and contraceptive supply chains became the focus under the project in PY09. The process of monitoring evolved throughout the last year. Significant human resource (HR) changes and reorganization have been made in the monitoring format. Initially, in September 2014, the primary goal was to analyze the current state of the district stores for both

vaccines and contraceptives, and their respective SDPs. Indicators being considered included storage conditions, inventory management status, stock levels, and consumption levels. A particular focus was on the evaluation of the human resources that were available throughout the various health facilities. Their performance was judged by the condition of their stores and the maintenance of the physical records. During the initial visits, it was noted that the employees working at the various health facilities across Pakistan generally lacked adequate inventory management knowledge and skills. This shifted the monitoring process toward supportive supervision, with hands-on training to improve the recording of stock and consumption levels, including the proper use of inventory management methods.

The most important task of the monitoring teams, however, was to increase the awareness of the LMIS for the public. At every monitoring visit, the need for increased data visibility and its importance to the public health sector was stressed. Although data was being entered into the system, the reporting time was delayed and the quality of the data was questionable. Monthly reports tailored to mirror the LMIS were seldom found at the facilities and storekeepers, with vaccinators, knew little about their use or importance. With support from the project, the format for these monthly reports has been consistently revised, in consultation with the government. Format for the reports are approved and disseminated across the provinces for regular use. While this resulted in increased data visibility; more important, it also led to the acceptance of the LMIS as a dominant health management system; the process of data collection and recording is now routine.

Toward the end of the third quarter, it was decided that monitoring would be made more specific to cover operational—process monitoring—and data validation. The specifics of these two types are included in the following section on indicators being used for the analyses.

Reports, including an in-depth analysis of each district, with issues and recommendations, are shared with local district governments for follow up. In this way, the project has instilled a culture of positive change and accountability.

Overall, the scope of monitoring and evaluation (M&E) has increased—the objective is to strengthen the routine field-based monitoring and supportive supervision to ensure optimal implementation of all the project interventions and to build the capacity of the government counterparts. As mentioned earlier, M&E has been differentiated into two processes: process monitoring and data validation. The indicators used are HR capacity, inventory management and storage conditions, and stock status (average monthly consumption [AMC] and months of stock [MOS]). With the increased data visibility since the LMIS was implemented, the quality of data needs to be ensured. The recent inclusion of gender-based data has added a new dimension to the monitoring process (i.e., doses of vaccines administered to both males and females).

In 2014–2015, the major focus of the monitoring activities has been on the province of Sindh and Punjab. Table 4 shows the number of monitored districts.

Table 4. Process Monitoring and DQA Activities

Details of Process Monitoring and DQA Activities				
Number of Monitored Districts				
Name of Province	Oct-Dec (1st Qtr)	Jan-Mar (2nd Qtr)	April-June (3rd Qtr)	July-Sep (4th Qtr)
CDA	0	0	1	0
ICT	0	1	0	0
Punjab	10	4	6	3
Sindh	9	4	3	3
Balochistan	1	0	3	0
KPK	8	0	0	0
Total	28	9	13	6

See annex 1 for details of the M&E work conducted during the year.

I.5 Intervention: Development of Sustainable Human Resource Capacity

During PY09, the project continued to focus on capacity building and sustainability of the LMIS-trained human resources within the public sector, at all levels (national, province, district, and sub-district) across Pakistan; on contraceptive and vaccine logistics systems; and on storage, requisitioning, and supply, as well as reporting.

Training on Contraceptive Logistics Manual

The rollout trainings on the *Contraceptive Logistics Manual (CLM)* were completed during October–December 2014 for store in-charges and storekeepers in the Health and Population Welfare departments. In total, 141 store in-charges and storekeepers from Sindh, Punjab, Balochistan, KPK, and Gilgit-Baltistan were trained.

Training CWH Staff

Back-to-back trainings for CWH staff on warehousing tools and SOPs were held at Karachi in December 2014. Nineteen officials attended the first training, while the second was attended by 22 officials of the CWH.

Orientation Session on LMIS

An orientation session on release 2.0 of the vLMIS for Federal- and provincial-EPI/GOP officials was held in October 2014 at Lahore; 28 officials from the Federal- and provincial-EPI programs attended (see figure 10). Another orientation session on the LMIS for the district health information system (DHIS) coordinators, DOH, Government of Sindh was held in January 2015 in Karachi; 29 officials from all districts of Sindh attended (see table 5 and 6). At the request of the Population Program Wing (PPW) of the Ministry of National Health Services, Regulations and Coordination, a two-day orientation-cum-training workshop on cLMIS was held for officials of PPW at the field office in June 2015. Similarly, in July 2015, an orientation session on the enhanced version of the cLMIS for district coordinators, Integrated Reproductive Maternal Newborn, Child Health & Nutrition Program (IRMNCH), DOH, and Government of Punjab was held at Faisalabad; 35 officials from all the districts of Punjab province attended.

Figure 10. Orientation session on LMIS



Table 5. Summary of PY09 Trainings and Orientation Sessions

Summary of PY-09 Trainings & Orientation Sessions									
Province/Region wise Details of Health and Population Welfare Departments' Officials Trained / Oriented									
Type of Training	Type of Participant	Federal/ICT	Punjab	Sindh	Balochistan	KPK	GB	FATA	Total
CLM Training	Store Incharge & Store Keeper	0	30	23	24	55	9	0	141
CWH Training	CWH Staff	41	0	0	0	0	0	0	41
LMIS Orientation Sessions	Federal, Provincial and District level Officials	11	40	33	5	4	0	3	96
LMIS Training	DHIS Coordinators	0	0	22	0	0	0	0	22
cLMIS Refresher Trainings	Data Entry Operators	0	144	71	0	81	0	0	296
vLMIS Scale up Trainings	DSV/TSV/Storekeepers/Data Entry	0	0	461	0	0	0	0	461
vLMIS Scale up Trainings (WHO)	WHO Sindh Staff from all Divisions	0	0	67	0	0	0	0	67
vLMIS Scale up Orientation Sessions	Provincial, District and Taluka/Town level Managers/Supervisors/EPI Focal Person	0	0	202	0	0	0	0	202
vLMIS Scale up Trainings (Vaccinators)	EPI Vaccinators	0	0	775	0	0	0	0	775
Procurement (Pre/Post Contractual Activities)	Federal and Provincial Logistics/Procurement Officials	2	6	6	0	6	0	0	20
Grand Total		54	220	1660	29	146	9	3	2,121

Table 6. Summary of PY-09 Trainings, Disaggregated on the basis of Gender

Summary of PY-09 Trainings & Orientation Sessions				
Province/Region wise Details of Health and Population Welfare Departments' Officials Trained / Oriented				
Province / Region	Level of Participants	Female	Male	Total
Federal / ICT	Regional / District	2	52	54
Punjab	Regional / District	58	162	220
Sindh	Regional / District / Sub-District	123	1537	1660
Balochistan	Regional / District	0	29	29
KPK	Regional / District	4	142	146
GB	Regional / District	0	9	9
FATA	Regional / District	0	3	3
Grand Total		187	1,934	2,121

Notification/ training of DHIS coordinators

The Department of Health, Government of Sindh notified DHIS coordinators as focal persons for LMIS at the district level. At the request of the DOH, Sindh, from April 1–3 in Karachi, a three-day training on the LMIS was organized exclusively for DHIS coordinators (see figure 11). The training was attended by 22 officials from DOH Sindh.

Currently, the DHIS coordinators interlink with all data entry points within their relevant districts to ensure timely data entry into the LMIS. DHIS coordinators review the data for quality, including during their M&E visits. The M&E cell at the Director General Health Services (DGHS) office at Hyderabad, Sindh, is the hub for DHIS coordinators; the project is always kept up-to-date. The DHIS coordinators were helpful during the recent vLMIS scale-up activities; since their training, the c/vLMIS reporting rates have significantly improved.

Figure 11. Training of DHIS Coordinators



Refresher trainings on cLMIS

During January–March 2015, refresher trainings on the enhanced version of the cLMIS were conducted for the provinces of Sindh and Khyber Pakhtunkhwa. The trainings were attended by newly inducted and previously trained cLMIS data entry operators (DEO) of the LHW program, DOH, and PWD; 154 DEO were trained on the enhanced features of the cLMIS.

From April–June 2015, refresher trainings on the enhanced version of the cLMIS were conducted at Lahore and Multan for the DOH and the IRMNCH, Government of Punjab. The trainings were attended by 73 newly inducted and previously trained cLMIS data entry operators. Similarly, from July–September 2015, at the request of IRMNCH program, DOH, and the Government of Punjab, another set of refresher trainings on the enhanced version of cLMIS was conducted at Faisalabad. The trainings were attended by 71 newly inducted and already trained cLMIS data entry operators.

Data entry operators receive manual contraceptive data at the districts, on the prescribed format, from all relevant SDPs; they compile it and enter relevant SDP data into the system. As a result, the DOH Punjab has started SDP-level reporting into the cLMIS; contraceptive data reporting has significantly improved.

Training workshop on *Why Logistics?*

A one-day training, titled *Why Logistics?*, was held on June 12 in Islamabad (see figure 12). Project staff from all the provinces and the field office attended the training; it provided a comprehensive overview of the logistics management system. David Paprocki, Technical Advisor for the USAID | DELIVER PROJECT Arlington office facilitated the training.

Figure 12. Participants at the *Why Logistics?* Training



Training Workshop on Pre- and Post- Contractual Activities

A two-day training workshop on pre- and post-contractual activities was held in May 2015 in Islamabad. Twenty GOP procurement officials from MoNHSR&C, Sindh, Punjab, and KPK provinces attended the training; it provided a comprehensive overview on contractual requirements

for public procurement. Todd Dickens, Procurement Specialist for the USAID | DELIVER PROJECT Arlington, facilitated the training.

Sindh—vLMIS scale-up trainings and and orientation sessions

Responding to the scale-up of the vLMIS in the remaining 14 districts of Sindh and 15 towns of Karachi, the project extended technical and IT hardware support to the EPI program/DOH Sindh. This technical support includes capacity building of provincial-, district-, and taluka/town-level—officials of the EPI/DOH Sindh. Trainings and orientation sessions were conducted during the 3rd and 4th quarters.

The data entry operators—storekeepers, computer operators, district superintendent for vaccines (DSV), and tehsil superintendent vaccines (TSV) from all the districts—were trained on the enhanced version of inventory management and consumption reporting. The provincial-, district-, and taluka/town level—EPI/DOH managers and supervisors were oriented on vLMIS analytics; including dashboards, reports, graphs, and maps. Also trained on the vLMIS for monitoring and logistics management of vaccines at the district- and sub-district level were 67 WHO Sindh officials from all divisions of the province. In addition, to ensure timely reporting and quality data, vaccinators from all EPI centers are being trained on paper-based monthly report using short-term trainings at the taluka/town level. See table 7 for the summary.

Objective 2: Strengthen Environments for Commodity Security

Key interventions under Objective 2 include—

- Improving procurement capacity
- Strengthening the environments for commodity security.

The following explains the principle activities and progress made under each of these key interventions.

2.1 Intervention: Improving Procurement Capacity

During the reporting period, the project provided the following technical support to provincial Health and Population Welfare Departments for procuring contraceptives for FY2014–2015.

Public sector financing and procurement of contraceptives (2014–2015 and 2015–2016)

Punjab (2014–2015):

On January 12, 2015, with the project’s technical support, the Health and Population Welfare Departments jointly re-advertised a prequalification notice for procuring contraceptives. The prequalification of firms was completed in February 2015; short-listed firms were invited to bid. Pre-bid conferences were arranged; technical bids were opened on March 13, 2015. A combined evaluation of technical and financial bids was completed and the lowest responsive bidders were issued Advance Acceptance of Bids on March 29, 2015. Both the DOH and PWD departments finalized their contracts with successful bidders in April. As of June 30, PWD had received 100 percent of deliveries of combined oral contraceptives (COC), Depo-Provera (DMPA) (a 3-month

injection), and emergency contraceptive pill (ECP) at the CWH Karachi; 100 percent of condoms, CuT (IUD), and Implanon will be received by December 2015. The DOH has received 50 percent, 40 percent, and 100 percent supplies of COC, DMPA, and ECP, respectively, at the CWH Karachi; whereas 100 percent quantities of condoms, Cu-T, and Implanon will be received by December 2015.

KPK (2015–2016):

After technical support from the project, the DOH and PWD KPK agreed on joint procurement of contraceptives. In January 2015, a summary for the DOH and PWD KPK was developed for this procurement. The chief minister approved the summary in February 2015; technical evaluations and inspection committees were formed in March 2015. Approval for the Khyber Pakhtunkhwa Procurement Regulatory Authority (KPPRA) was sought for open competitive bidding of contraceptives, instead of closed bidding. On March 18, KPPRA allowed the DOH and PWD to adopt the open competitive bidding process. Meanwhile, the project shared draft invitations for bids (IFB) and bidding documents for procurement of contraceptives; the DOH will review and finalize the procurement. An IFB was advertised on May 20, followed by a pre-bid conference on June 4; the project provided technical support. Technical bids were opened on June 25 and the project participated as a co-opted member. Because of the small number of bids, the technical committee decided to re-advertise so that more bidders could participate. Re-advertisement is expected by the end of October and the procurement process may be completed by January 2016.

Sindh (2015–2016)

With the project's technical support, the PWD Sindh—as the focal point for the joint procurement of DOH, LHW, PPHI, and PWD—developed bidding documents in November 2014. The chief minister approved a summary for the release of funds. Bids were advertised in March 2015; but, after two announcements, no response was received. Because of the FY2014–2015 closure on June 30, the procurement will take place in FY2015–2016. PWD has initiated its procurement process, with support from the project; it is expected to be completed by January 2016.

Table 7 shows the overall status of funds allocated/released by Sindh, Punjab, and KPK provinces.

Table 7. Funds Allocation for Procurement of Contraceptives, by Province

Province	Department	Purpose	Allocation (\$million)	
			Total	2014–2015 & 2015–2016
Sindh	PWD/DOH	Procure and transport contraceptives	\$56.00	\$7.00*
Punjab	DOH	Procure contraceptives	\$16.55	\$12.00
	PWD	Procure contraceptives	\$04.00	\$04.00
KPK	DOH	Procure contraceptives	\$02.19	\$02.19^
	PWD	Procure contraceptives	\$00.98	\$00.98^
Total			\$79.72	\$26.17

* Could not materialize in 2014–2015

^ KPK has shifted funds of 2014–2015 to 2015–2016

2.2 Intervention: Strengthening Environment for Commodity Security

Prioritization of essential life-saving maternal, newborn, and child health medicines for the Department of Health, Government of Punjab

Because of various maternal, newborn, and child health MCH interventions in the provinces to achieve Millennium Development Goals 4 and 5, the demand for MCH medicines is likely to increase. To ensure the availability of essential life-saving medicines for MCH at the primary and secondary healthcare facilities, DOH Punjab and Sindh wanted to prioritize and short-list the life-saving medicines for quantification and costing. To achieve the objective, a draft MCH priority medicines list, based on WHO/UNICEF MCH priority medicines list, was prepared and shared with officials in Punjab and Sindh, and with MCH partners, at an initial consultation in April 2015.

For Punjab, a consultative meeting was held on May 20, 2015, in Lahore, where senior government officials, as well as donors, attended. The draft of the *Very Essential Life-Saving MCH Medicines List* for was shared. The following decisions were made: (1) the list should be called a maternal, newborn and child health (MNCH) priority medicines list instead of an MCH priority list; (2) quantification and forecasting of MNCH priority medicines will be conducted jointly by the USAID | DELIVER PROJECT, WHO, and DOH Punjab; (3) items on the list will be added to the medicines forecasting tool developed by TRF for DOH Punjab, if they not on the list; and (4) injectable iron and prostaglandin for induction of labor will be marked for restricted use, under special conditions only. See figure 13.

For Sindh, the final list was endorsed in March 2015, followed by the endorsement for Punjab in

Figure 13. Consultative Meeting on Prioritization of the Very Essential Life-Saving MCH Medicines List in Lahore



August 2015.

To support commodity security in Pakistan by procuring and delivering contraceptives and other public health commodities to the GOP, USAID has provided financial support and technical support through the USAID | DELIVER PROJECT. These donations will help ensure product availability to clients and will strengthen the available health services in the country.

Commodities procurement/customs clearance:

The second batch of vLMIS IT equipment has arrived in-country and an exemption is in the process for customs clearance.

The third batch of IT equipment to upgrade vLMIS in Sindh is in the process of receiving final shipping documents. See table 8 and table 9.

Table 8. Reproductive Health Supplies Handed Over to the CWH Karachi

S. No	Date	Release Order No.	Product	Quantity
1	7 May 2015	RO 5594	COC Pills (cycles)	4,142,160
2	12 May 2015	RO 5559	Jadelle	130,000
3	4 June 2015	RO 5512	Condom	78,519,000
4	25 June 2015	RO 5595	COC pills (cycles)	4,142,160

Table 9. Country-Wide Distribution of Contraceptives to 143 Districts in Pakistan

Countrywide Contraceptive Distribution Summary (October 2014-September 2015)						
PROVINCE		Condoms	POP	COC	IUD	3 Months Injectables
Total In Millions		212.98	0.38	13.93	1.24	6.33
Total In Quantities		212981000	380160	13936320	1244700	6331050
Punjab	PWD	35744200	110160	1260720	360300	391200
Punjab	DOH	8159900	33840	1390320	435600	731600
Punjab	LHW	77912400	0	5186880	0	2099600
Total		121816500	144000	7837920	795900	3222400
KPK	PWD	10493900	65520	530640	184500	375850
KPK	DOH	933000	720	167760	38400	92400
KPK	LHW	21626700	0	1303200	0	755600
Total		33053600	66240	2001600	222900	1223850
Sindh	PWD	18604000	81360	482400	42900	314400
Sindh	DOH	1719000	8640	247680	70800	166000
Sindh	LHW	16574900	0	2129040	0	804400
Total		36897900	90000	2859120	113700	1284800
Balochistan	PWD	1959000	15840	96480	20100	40800
Balochistan	DOH	2346000	0	291600	50400	162800
Balochistan	LHW	12789000	0	516240	0	154400
Total		17094000	15840	904320	70500	358000
AJK	PWD	33000	1440	3600	2100	6000
AJK	DOH	117000	0	4320	4800	3200
AJK	LHW	1122000	0	28800	0	31200
Total		1272000	1440	36720	6900	40400
GB	PWD	0	1440	0	0	12800
GB	DOH	33000	0	1440	300	0
GB	LHW	546000	0	146880	0	61600
Total		579000	1440	148320	300	74400
FATA	PWD	327000	35280	20880	5700	27600
FATA	DOH	78000	18720	18720	7800	24000
FATA	LHW	888000	0	94320	0	49600
Total		1293000	54000	133920	13500	101200
Islamabad	PWD	975000	7200	14400	21000	26000
Total		975000	7200	14400	21000	26000

Objective 3: Increase Knowledge Management and Dissemination

Key interventions under Objective 3 include—

- Document challenges and the way forward beyond June 2016.
- Document project achievements/success stories and future roadmap after September 2016.

Principle activities and progress made under each of these key interventions are outlined below.

3.1 Intervention: Documentation of Challenges and Way Forward Beyond June 2016

The way forward is under discussion with all major stakeholders, including the USAID mission and the project's home office. During the transition, the project has tried to diversify the funding base and increase resources to sustain work beyond the new extension from USAID, which ends in 2016.

All supply chain management interventions carried out by the project are being strengthened. The project has a clear work plan, and is involved in concrete actions to address the sustainability of current investments—capacity building (including at the SDP level), advocacy, promotion and application of logistics manuals, infrastructure (MSD rehab, IT equipment), etc.—all to address gaps in supply chain strengthening and contribute to sustainability.

3.2 Intervention: Document Project Achievements/Success Stories and Future Roadmap Beyond September 2016

Status of project-supported logistics and procurement-related documents

Province-specific documents/manuals were developed and finalized in consultation with the provincial Health and Population Welfare departments. The project also consulted the provincial Public Procurement Regulatory Authorities (PPRAs) for procurement manuals, WHO and UNICEF for essential medicines lists, and the Health Services Academy—Quaid-e-Azam University Islamabad—for certification and three-credit courses. The respective provincial/regional DOH, PWD, and PPRAs endorsed the final documents; publication is complete. A dissemination plan is being finalized, in consultation with the federal- and provincial-governments and the USAID mission. Table 10 provides the status of various project-supported publications/documents developed for the federal-, provincial-, and regional-governments.

Table 10. Status of Various Project-Supported Documents

#	PUBLICATIONS/ DOCUMENTS	SINDH	PUNJAB	KPK	BALOCHI STAN	REGIONS (AJK, GB & FATA)	FEDERAL
1	Contraceptive Logistics Manual (English)	✓	✓	✓	✓	✓	✗
2	Contraceptive Logistics Manual (Urdu)	✓	✓	✓	✓	✗	✗
3	Contraceptive Logistics Manual (Sindh)	✓	✗	✗	✗	✗	✗
4	Essential Medicines List	✓	✓	✓	✓	✗	✗
5	Contraceptive Procurement Manual	✓	✓	✓	✗	✗	✗
6	Medicines & Supplies Procurement Manual	✓	✓	✓	✗	✗	✗
7	Federal EPI Manuals	✗	✗	✗	✗	✗	✓
8	Central Warehouse & Supplies, Karachi Publications	✗	✗	✗	✗	✗	✓
9	Central Warehouse & Supplies, Karachi Videos (one minute and six minutes)	✗	✗	✗	✗	✗	✓
10	Certification Course on Supply Chain Management of Health Commodities	✗	✗	✗	✗	✗	✓
11	Three Credit Course on Supply Chain Management of Health Commodities	✗	✗	✗	✗	✗	✓
12	Training Manuals (Vaccines LMIS)	✓	✓	✓	✓	✓	✓
13	Training Manuals (Contraceptives LMIS)	✓	✓	✓	✓	✓	✓

Participation in the I4 TechNet Conference in Bangkok (May 2015)

The 14 TechNet conference theme was *Immunization Supply Chain and Logistics—Current Challenges, Innovation and Future Prospects*. At the conference, the project explained how it is bringing visibility to

the contraceptive and vaccine public-health supply chains, which will improve MCH by increasing access to and reducing pilferage and wastage of relevant health products.

The project discussed the USAID-supported vLMIS and GS1 barcoding initiatives that the federal- and provincial-EPI programs are deploying; the project also presented a poster entitled, *Improving Pakistan's Vaccine Supply Chain for Better Health Outcomes*. Various online temperature monitoring tools from Turkey and Nextleaf Analytics, which were shared at the conference, were determined to be worthy of replication. It was recommended that the GOP pilot each solution from Turkey and Nextleaf Analytics in one district each to assess their viability for district- and sub-district-EPI facilities.

GSI Conference, Mexico

At the GSI conference in Mexico City on April 21–23, 2015, the project presented a case study—Implementation of GS1 Standards in Pakistan—Results of Piloting in Public Health Sector—via WebEx. The representative shared the challenges of operating in Pakistan, gave the background of the vaccine industry, and emphasized the need for the global community to improve the quality of barcodes on the existing TT and measles vaccines; he also stated that the remaining antigens should be globally GS1 compliant. The opportunity was also used to highlight the need for additional resources to scale up GS1 at Pakistan's major 175 vaccine transaction locations in the near future.

Coordination with the Government of Sindh (GOS), MCH Partners, and Other Stakeholders

The project coordinated with all MCH partners and other donors during the year. Some major activities during the October 2015–September 2015 are as follows:

November 19: The Sindh project team attended a meeting on MNCH centers, technical advisory group (TAG), at the Maternal and Child Health Integrated Program (MCHIP) Office, Karachi. The team advocated for an effective distribution of contraceptives in the related MCHIP districts.

January 26: Conducted orientation of DHIS coordinators of Sindh Province on LMIS at Karachi. DOH, Sindh declared DHIS coordinators as district-level focal persons for LMIS activities. The DGHS has circulated a formal notification on decisions made in the orientation session.

February 11: Attended a meeting organized by the Federal EPI cell to discuss changes in the vLMIS, which the provincial EPI managers—Sindh, KPK, and Punjab—proposed. Agreement was reached on using the revised EPI monthly reporting form, and to include the hepatitis B vaccine birth dose. Both will be included in the vLMIS.

February 17: With the Federal EPI cell, the project IT staff initiated the pilot for the GS1 barcoding for measles vaccine at the Federal EPI store; and two districts of Punjab and Pargana at the CWH, Karachi.

February 24–26: Based on a request from the MoNHSR&C, a study was conducted through project staff to check the bioavailability and bioequivalence facility for contraceptive testing at the public sector's two Karachi-based laboratories (i.e., National Research Institute for Fertility Care and Central Drugs Testing Laboratory) and one Islamabad-based laboratory (i.e., National Control Laboratory for Biologicals, Islamabad).

March 10–11: Training on an enhanced version of cLMIS was held for 46 DEOs from the DOH and LHW program of Sindh, in Karachi.

March 19: A meeting was held at the Ministry of NHSR&C, chaired by the minister, and attended by the Secretary Health Services, Director Health Services, UNICEF, WHO, and project staff to discuss the state of affairs at the Federal EPI, and to agree on a future course of action.

April 28: The MNCH centers TAG meeting was held at the MCHIP office in Karachi; the DGHS Health, Government of Sindh, was the chair. MCHIP updated the group on the scale-up of MNCH centers in the 15 districts of Sindh. The *MNCH Implementation Guide*, family planning and MNCH-related capacity-building plans were shared; the group endorsed the on-the-job (OJT) training packages. Updates were also shared on the progress of the mother's booklet and the midwifery pre-service education in the five districts.

June 4: A provincial consultation for developing the Strategic Framework and Concept Note for the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) health systems strengthening was held in Karachi. The integration of supply chains and information systems to support monitoring and performance, including warehousing, is prioritized for the upcoming GFATM intervention. Integration and upgrading of laboratory services across the province remains a priority.

July 2: Demonstrated the E2E dashboard, via conference call, at the home office in Arlington, to the senior technical advisor USAID Washington, UNFPA, USAID | DELIVER PROJECT Ethiopia team, representatives from the Bill & Melinda Gates Foundation, and others.

July 14: The community package was discussed, in detail, with USAID's MCH partners. During the meeting, the main discussion point was the hiring of health workers for LHW's uncovered areas. These workers will be called community health workers. Questions included how the DOH can retain these workers during the post-project period and what are their roles and responsibilities? Approximately 500 workers will be hired for the 16 MCH districts.

July 24: The cold chain management meeting was held; the government has proposed integrating the AIDS, malaria and tuberculosis (ATM) supply chain to serve the district and all other levels for improved performance, in addition to a central warehousing for ATM at the federal level.

The GNISP meeting was held on July 30. The GOP has owned the USAID-supported vLMIS at all levels; it was agreed to scale-up to remaining 78 locations in the country. Resources still need to be mobilized.

July 30: The project staff participated in the Family Planning Technical Advisory Group (FP TAG) meeting, chaired by the Director General Health Services (DGHS), Government of Sindh. All the USAID | MCH partners and the LHW and MNCH programs attended the meeting.

August 3: Global Alliance for Vaccine and Immunization (GAVI) and GFTAM HSS Applications Synergy: All evolving priorities of the provincial and federal governments were discussed and agreed-to; however, the project emphasized that perceived system's reform for all elements of the healthcare service delivery system is a multi-billion undertaking. It was emphasized that the reform must be targeted to use the resources for the most meaningful impact.

August 17: At the Interprovincial Coordination/National RHCS Working Group Meeting, all provincial and regional governments, with UNFPA and Marie Stopes Society (MSS), participated—except Sindh.

August 17: PPW organized a high-level meeting for provincial secretaries of the PWD; the Federal Secretary, MoNHRS&C, at Karachi chaired the meeting. The meeting was held to plan the way forward for distributing USAID-supported contraceptive commodities; they are available at the CWH, Karachi, for all districts, after weaning-off commodity support. The project presented stock

analysis with options and a proposal for distributing contraceptives. DOH, Punjab, has also endorsed and notified the project-supported *Very Essential Life-Saving MCH Medicines List*. The next step would be to quantify the listed medicines and advocate for allocation of funds by the DOH Punjab. This will have a direct bearing on the availability of essential medicine at the community level.

The GNISP meeting was held on July 30. The GOP has owned USAID-supported vLMIS at all levels; it was agreed to scale-up to the remaining 78 locations in the country.

July 30: The project staff participated in the Family Planning Technical Advisory Group (FP TAG) meeting, chaired by the DGHS, Government of Sindh. All USAID | MCH partners and staff from the LHW and MNCH programs attended the meeting.

The country director participated in a high-level meeting organized by PPW for provincial secretaries of PWD; the Federal Secretary at Karachi, MoNHSR&C, chaired the meeting. The meeting was held to discuss the way forward for distributing the USAID-supported contraceptive commodities; which are available at the CWH, Karachi, for all districts, after they no longer receive commodity support. The project presented stock analysis with options and proposals for the distribution of contraceptives. It was agreed that MoNHSR&C will continue to support provinces and to distribute contraceptive commodities until December 2015.

Annex I

Monitoring and Evaluation, October 2014–September 2015

Data Quality Assurance

Sindh: Sindh was chosen for the first round of DQA. Data entry operators from all the active LMIS districts in Sindh—nine districts and three towns at the time—were invited to Karachi. The project’s provincial team, with the M&E officials from the field office, engaged in a four-day exercise that would involve the live entry of data into the LMIS. Any shortcomings found in the operators’ ability would be remedied with on-the-spot training. This led to the development of a new monitoring mechanism whereby data for other provinces and territories, such as Khyber Pakhtunkhwa (see table 11) and the Islamabad Capital Territory, would be rectified. The primary and secondary errors were accumulated and quantified as *Acceptable* ($0\% < X < 10\%$), *Minor Errors* ($10\% < X < 30\%$), and *Major Errors* ($X > 30\%$) (Unacceptable)

Table 11. Data Quality in KPK

Error Count (€)	Data Quality	% of Facilities in Nowshera	% of Facilities in Mardan	% of Facilities in Peshawar	% of Facilities in Charsadda
$0\% < X < 10\%$	Acceptable	1	23	27	31
$10\% < X < 30\%$	Minor errors	5	21	40	33
$X > 30\%$	Major errors	94	56	33	36

Punjab and Islamabad Capital Territory (ICT) (Rural): Data validation was conducted in district Sargodha (see table 12) of Punjab and ICT (rural).

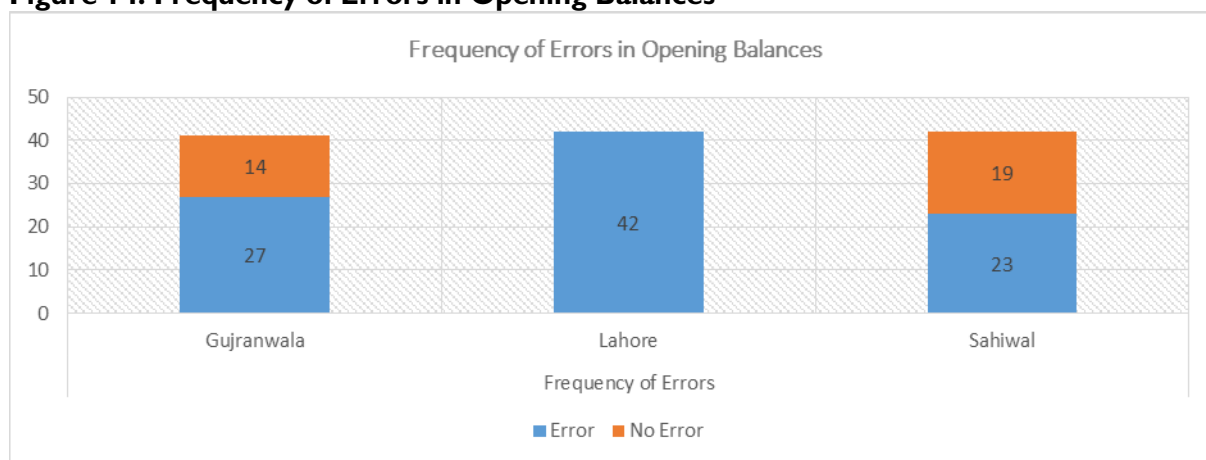
Table 12. Data Quality in Sargodha, Punjab

Error Count (€)	Data Quality	% of Facilities in Sargodha	% of Facilities in ICT (Rural)
$0\% < € < 10\%$	Acceptable	77	27
$10\% < € < 30\%$	Minor errors	7	
$€ > 30\%$	Major errors (unacceptable)	16	73

Punjab: The first DQA visit was from August 1–4, 2015, in Lahore, Gujranwala, and the Sahiwal districts. To meet the new objectives of the team, the checklist used for monitoring the facilities was

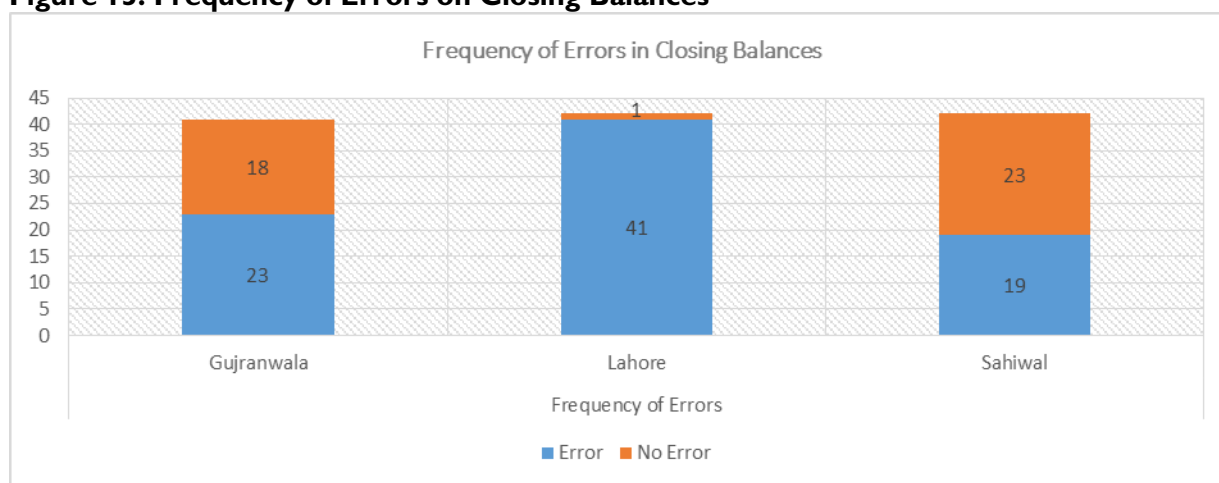
significantly modified from earlier versions. The following figures show the number of errors that were found when stock registers were examined at the various health facilities, at all levels, of the districts. Results have only been displayed for six antigens, including bacillus Calmette-Guérin, BCG, measles, pentavalent, pneumococcal, TT-20, and trivalent oral polio vaccine (tOPV). Errors in recordkeeping for ancillary products, such as syringes and safety boxes, have been excluded because of insufficient data.

Figure 14. Frequency of Errors in Opening Balances



All values observed in Lahore for opening balances were found to have errors when matched with the opening balance values in the LMIS. Gujranwala and Sahiwal did better, with 27 and 23 errors, respectively (see figure 14). However, in both Gujranwala and Sahiwal, there were more errors than accurate values within the LMIS.

Figure 15. Frequency of Errors on Closing Balances



For closing balances, Lahore again performed poorly, with only a single accurate value out of 42 observed values within the LMIS. Gujranwala and Sahiwal, again, fared better with 18 and 23 correct values, respectively. Values for inventory management were also gathered from the facilities. However, no inventory management values were in the LMIS at Gujranwala. Lahore and Sahiwal also had issues with inventory management (see figure 15).

Major Findings

- Data pertaining to inventory management has not been fully entered in several districts.
- No provision has been made for maintaining the buffer stock at either the district- or SDP-level.
- Although cold chain equipment is present and functioning, greater storage space is needed to allow for emergency consumption.
- The stock register and the LMIS have data discrepancies.
- Data for diluents and other ancillary items are inconsistently reported.

Overall Recommendations

- A policy-level initiative is recommended to ensure the inclusion and review of the LMIS during the monthly (DHMP) meetings. This will ensure data utilization at all levels and, eventually, will work toward data quality and sustainability.
- A separate budget for M&E activities for the public sector should be allocated to ensure the seamless transition of monitoring and reporting functionality to the government of Pakistan—similar to that of contraceptive financing.
- The satellite office should follow up and facilitate the government staff to ensure the completeness of inventory management data at the district levels.
- Dedicated DEOs must be available at all levels to ensure the timely and accurate reporting of data within the LMIS.
- Data for inventory management must be entered with the consumption data. This will ensure the integrity of the commodity supply chain and will enable better forecasting in the future.

Sindh Satellite Office Monitoring & Evaluation Report (January–September 2015)

In the reporting period, process monitoring activities in Sindh encompasses field monitoring activities for both the vLMIS and cLMIS, in all districts of Sindh.

The monitoring process used standardized monitoring tools to gather information from various stores/SDPs visited within the respective districts. The data were then collated and analyzed for each stakeholder. Reports outlining the events and results of the project inputs were compiled. To ensure the suggested rectification measures were effective, feedback/debriefing sessions were held with provincial- and district-counterparts. Monitoring activities require mandatory follow up with the relevant stakeholders.

Several issues, identified during the field visits, included inappropriate storage conditions, insufficient inventory control measures, weak stock availability situations, data discrepancies, human resource issues, etc.

The provincial EPI office, DGHS and district health managers were apprised of the observations and weaknesses of the relevant stakeholders, including PWD, DOH, LHW program, PPHI, EPI, etc.

Summary of M&E Activities

The aim of the monitoring activity is to assess the situation of various logistics-related indicators, including storage conditions, inventory management, human resource capacity, commodity security, and quality of logistics reported by the various levels of healthcare professionals (HCP).

Standardized monitoring tools/checklists were developed after thorough discussions, reference checks, and extensive coordination.

The following indicators were used to determine the efficiency of the district health department to manage the logistics of health commodities (vaccines , contraceptives etc.) .

Storage Conditions

Appropriate storage conditions were observed at all the district EPI stores; however, severe electricity backup issues were seen at the SDP-level stores. For contraceptives, overall storage conditions were below minimum standards in the DOH facilities. In PWD and PPHI district and sub-district-level facilities, storage conditions met the minimum standards.

Issues Identified

Inappropriate stacking practices were observed; including the DOH for contraceptives in most of the districts. Some stores were not functional and FEFO was not being followed. Dry stores were not properly maintained, and storage conditions were not up to the standard; however, cold storage conditions for vaccines were satisfactory at all the district- and taluka-stores.

Actions Taken and Recommendations

It is recommended that SOPs on storage, detailed in the *Contraceptive Logistics Manual* guidelines, be followed. Follow-up visits are planned to the districts to confirm that the recommendations are being implemented.

Inventory Control and Stock Availability

For EPI districts stores, discrepancies were observed in the maintenance of stock registers and physical stocks for almost all the antigens at the district- and sub-district-levels.

Contraceptive stores for the DOH, including the LHW program, showed poor inventory control measures were in place. In most of the facilities, bin cards were not available. However, for PWD and PPHi stores, all the inventory control measures were in place at all the stores visited (district- and SDP-level store).

Issues

- Stock registers were not properly maintained in the DOH facilities for contraceptives. Inventory management data for vaccines were not being entered into vLMIS in several few districts/towns. For Sindh, they were entered 100 percent of the time.
- Overstocking and understocking were observed for contraceptives in several district- and sub-district-level facilities.

Actions Taken and Recommendations

It is recommended that the relevant personnel for both vaccines and contraceptives periodically review the inventory documents.

Requisitioning and issuing of commodities, as per the contraceptive logistic manual, will prevent the overstocking and understocking of stores; and will maintain a smooth and equity-based supply of commodities from CWH to the last mile.

The cold chain should be properly maintained. Spacious cold rooms, ice-lined refrigerator (ILR), and cold boxes will ensure that vaccines are available, based on the EPI policy.

OJT was given to improve the quality in all the LMIS components—contraceptives and vaccines.

Human Resource

LMIS operators are jointly responsible for collecting data from the SDPs and for reporting the validated data from the district-level to the provincial-level. Transferring trained district LMIS operators poses a challenge in data reporting. At other places, the capacity of the LMIS operators was found to be deficient. Refresher trainings for the LMIS operators is one answer to address this issue. Rapid turnover of data entry operators, at all levels, should be discouraged. It was ensured that the trained LMIS operators be relocated to their primary positions, by notifications, from the district health managers. During these monitoring visits, data quality was also ensured. Corrections were made where discrepancies were found in the reported data.

Data Entry Exercise and OJT for DOEs

After successfully completing the trainings of master trainers and district/town/EPI staff; the data entry exercise was initiated in all 14 newly inducted vLMIS districts and the 15 towns of Karachi from June 21–July 10, 2015. The USAID | DELIVER PROJECT staff conducted the exercise; they entered reliable data in the vLMIS after proper vaccine inventory, consumption reporting, and logbook data entry.

The schedule to implement the data entry exercise was jointly prepared with the DGHS, EPI, and Emergency Operation Center (EOC); and the field office provided the necessary guidance. To validate and supervise data entry activities at the district- and town-level, a monitoring team comprising project staff from the field office and the satellite office, EPI, EOC, and master trainers; they visited the districts and facilitated the data entry process. Karachi town's related staff was called in provincial EPI to enter the data under the MTs and project staff from the field office and satellite office supervision.

DSVs and TSVs were made responsible for collecting the records from all the EPI centers in their concerned districts/towns/talukas—stock registers, daily and permanent registers—for consumption reporting; the storekeepers brought the stock registers for the district and talukas for vaccine and logistics for inventory management. The teams verified/validated the data from the stock registers, which are maintained at the EPI centers in the district and town/taluka.

After completing these activities, the DOH and EPI sent the directives on issuing vaccines to districts only, if they submitted both inventory and consumption data.

As the provision of hardware (computers, uninterrupted power supply (UPS), scanners, printers, etc.) by the project is still in process, and has yet to reach the districts, therefore data entry operators

are finding it difficult to smoothly incorporate data into the vLMIS. This problem should be resolved on a priority basis.

Punjab Satellite Office Monitoring and Evaluation (January–September 2015)

During the reporting period, process monitoring activities in Punjab include field monitoring activities in 16 districts. The monitoring process consisted of using standardized monitoring tools to gather information from various stores/SDPs visited, within the respective districts. The data were then collated and analyzed for each stakeholder. Debriefing sessions were held with the provincial- and district-counterparts. Follow up with the relevant stakeholders has been an obligatory component of monitoring activities.

Several issues, identified during the field visits, included inappropriate storage conditions, insufficient inventory control measures, weak stock availability situations, data discrepancies, human resource issues, etc.

The district health managers were told about the observations and shortcomings of relevant stakeholders, including the PWD, DOH, LHW program, MNCH, EPI, etc. The major issues were found; the mitigation measures recommended and taken are given below:

Summary of M&E Activities

The monitoring activity assesses the situation of various logistics-related indicators, including storage conditions, inventory management, HR capacity, commodity security, and quality of logistics reported by the various levels of healthcare professionals. Standardized monitoring tools/checklists were devised after thorough discussions, reference checks, and extensive coordination.

The following indicators were used to determine the efficiency of the district health department to manage the logistics of health commodities—vaccines, contraceptives, etc.

Storage conditions: It was observed that at 100 percent of the EPI stores visited, storage conditions were appropriate, although electric backup was not available at the SDP-level stores. For the district stores for contraceptives, storage conditions were either below minimum standards or only a few parameters were met in the DOH (LHW program, MNCH program, Static Health Facility Store).

Issues Identified: In almost all the districts, storage conditions, in general, were not satisfactory in the DOH or for contraceptives. At some places, the stores were not functioning. Proper stacking practices were not practiced and supplies were stacked haphazardly, without demarcation and bin cards.

Actions Taken and Recommendations

It is recommended that the contraceptive stores be reallocated and standard storage SOPs followed, using the *Contraceptive Logistics Manual* guidelines. Follow-up visits to the districts were planned to confirm that the recommended corrective measures takes place.

Inventory Control and Stock Availability

For EPI district stores, stock registers were generally maintained and up-to-date. The EPI antigens do not have standard requisition mechanisms because the vaccine antigens are issued to the district based on monthly targets that are decided at the district- and provincial-level. At the SDP level, inventory control measures were, generally, being met; although errors were noted while reviewing stock registers and monthly consumption/inventory reports. Further, recordings of logistics data for syringes and diluents were missing at 40 percent of the stores visited.

Contraceptive stores for DOH, including MNCH program, LHW program, and Static Health Facilities had poor inventory control measures in place. Stock registers were available at all (100 percent) the stores visited. Missing inventory parameters included poorly updated stock registers, missing IRVs, and unavailability of bin cards. Further, at the SDP level, the standard format was not being used to requisition contraceptives. For PWD stores, all the inventory control measures were in place at all the stores visited—district- and SDP-level store. The stock position of vaccines and contraceptive commodities were assessed based on taking physical inventory of commodities available in the store, and calculating the AMC and MOS at all the district stores visited.

Issues

Maintaining the stock register remained a continuing issue across most of the districts in case of DOH. Data discrepancy between the stock register/monthly reports, and cLMIS data at the district stores showing weak inventory management were observed. In some districts, inflated figures of contraceptive consumption were found, which led to misappropriated data.

Some of the district stores receive contraceptive stocks without demand, despite being overstocked; the same thing is happening in the SDPs. The push system of distribution of supplies leads to an unnecessary strain on the supply chain mechanics.

Actions Taken and Recommendations

A periodic review of the cLMIS and inventory documents by the district managers is recommended. This must be a fixed agenda item during district technical review committee. Requisitioning and issuing of commodities, as per the contraceptive logistic manual, will prevent the overstocking and understocking of stores, and will maintain a smooth and equity-based supply of commodities from the CWH to the last mile. The health authorities agreed that indents from the SDPs will be sought to ensure the correct issuance of commodities to facilities. OJT sessions for the health managers and storekeeping staff was a regular feature of the monitoring and supportive supervision visits by the USAID I DELIVER PROJECT teams.

Human Resource

LMIS operators share the responsibility for collecting data from the SDPs and reporting the validated data from the district- to the provincial-level. Frequent transfers of trained district LMIS operators is a challenge for data reporting. At other places, the capacity of the LMIS operators was also found to be deficient. Refresher trainings of LMIS operators is one of the ways to address these twin challenges.

It was guaranteed that the trained LMIS operators will be relocated to their primary positions through notifications from the district health managers. During these monitoring visits, data quality was also ensured. Corrections were made where discrepancies were found in the reported data.

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