



USAID | DELIVER PROJECT

Logistics Brief

Nepal: Transforming Decision making with Web-based LMIS



At his office in Biratnagar, Pushkar Nath Dhakal, storekeeper at the Eastern Regional Medical Store, updates information in the web-based LMIS.

The LMIS, enhanced with its web-based reporting, is now a credible information system and a major success for the MOHP. It guides logistics activities and helps policymakers establish health sector reform.

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In Nepal, efforts to improve the public health logistics management information system (LMIS) have given policymakers and supply chain managers better tools to ensure that health supplies reach the population. A recent addition—the web-based LMIS—connects decision makers with data that is more timely and more accurate than what was previously available.

In 2008, with the expansion of Internet access in Nepal, the Logistics Management Division (LMD) of the Ministry of Health and Population (MOHP) saw the possibility of transforming decision making within their supply chain by creating a computerized logistics system that could be shared through a web-based interface.

Realizing the benefits of a more integrated system, the LMD took a decisive step to implement a web-based LMIS, as well as an inventory management system with the technical and financial support from USAID funded NFHP II and DELIVER Project. UNFPA and DFID also supported in funding training and procuring computer and accessories for one region. The system now extends from the top of the supply chain to the country's 75 district stores.

The increased data sharing has established a better logistics network among the two central stores, the five regional medical stores (RMSs), and the 75 district public health office (DPHO) medical stores, contributing to a decline in stockouts at health facilities in recent years.

Key Achievements

- Nepal has a national LMIS producing reliable logistics data for decision making at all levels of the health system.
- Policymakers accept LMIS data as credible and use it to make nationwide policy and operational decisions.
- LMIS reporting has improved storage practices, reducing waste and expiry of commodities.



Implementing Web-based LMIS

The information captured in the web-based LMIS mirrors the paper-based quarterly reporting from the health facilities, but districts now generate updated logistics information monthly as opposed to quarterly. The inventory management system at the district level is linked to the web-based LMIS in such a way that once the storekeeper updates data in the inventory management system, the information required in the web-based LMIS can be uploaded with the click of a button. This saves the storekeeper from typing information into the web-based LMIS, reducing the risk of inaccuracies.

Linking the inventory management system to the LMIS has helped the LMD monitor the stock levels in all 75 districts, and it can now supervise and guide districts on key issues of inventory management. This process also helps maintain the practice of updating inventory data regularly in the districts.

As part of the implementation, districts were supplied with networking accessories to set up reliable high-speed Internet connections. Some DPHOs even contributed by installing Internet access at their own cost. The district storekeepers received computer training, and most of them responded very positively to the innovative approach of using an online logistics information system. It gave them and their co-workers the opportunity to learn about computers and the Internet.

Because district storekeepers are frequently transferred, the flow of the quarterly LMIS and monthly web-based LMIS reports is sometimes delayed. To improve reporting and strengthen the web-based LMIS in the 75 DPHOs, the USAID | DELIVER PROJECT subcontracted with a private-sector partner to provide training over a ten-month period. DPHO staff welcomed the support, and the effort resulted in 100 percent reporting from the districts. In a few districts, monthly LMIS reporting can be delayed because of Internet outages; when this happens, staff try to find other ways to report, sometimes using their own mobile phones. Figure 1 shows one of the data display screens of the web-based LMIS.

Figure 1. Data Display Screen in Nepal’s Web-based LMIS

LMIS Stock Status of Bhaktapur - Aswin - 2068										
संकेत नम्बर Itemcode	सामानको नाम Itemname	इकाई Unit	गत महिनाको बँको मोज्दात Last Month Stock Balance	यस महिनामा जम्मा प्राप्त Received Quantity	यस महिनाको जम्मा निकास Issued Quantity	मोज्दातमध्ये प्रयोगमा ल्याउन नमिल्ने मिति नाथेको तथा अन्य Not Useable/Expired	यस महिनाको बँको मोज्दात Stock Balance	कैफियत / ६ महिना भित्र म्याद गुट्ने परिमाण Remarks/Expired within 6 Months	मोज्दात कति महिनालाई पुग्छ MoSoH	
FAMILY PLANNING PROGRAM										
10010000	Condom रुम्बुङ्ग	Piece रोटा	54,200	48,000	10,200	0	92,000	-	22	
10020000	Pills पिल्स	Cycle साइकल	15,888		1,350	0	14,538	-	13	
10031000	IUD CuT 380A आई.यु.टी. क्युए टी ३८० ए	Set सेट	335		50	0	285	-	5	
10040000	Implant (5 yrs effectiveness) मार्गनापट्ट सुम्सापट्ट	Set सेट	90	100	40	0	150	-	6	
10050000	Depo (DMPA-Injectable) with syringe डेपोभेरा - (इन्जेक्टेबल)	Vial भायल	5,800	10,000	1,900	0	13,900	-	8	

LMIS—The Foundation of Web-based LMIS

The web-based LMIS enhances Nepal’s existing paper-based LMIS, which was designed and implemented in 1994 as part of the MOHP Logistics System Improvement Plan. The system was pilot tested in four districts of the Eastern region, and by 1997 it was used nationwide.

Throughout the implementation, the LMD led the effort to create a well-functioning LMIS, with technical support from JSI Research & Training Institute, Inc. and USAID under the Logistics and Child Health Support Services Project. The Nepal Family Health Program (NFHP) and the USAID | DELIVER PROJECT have continued to provide technical assistance to the LMD's LMIS unit since 2001. Joint technical support visits by NFHP and the LMD to health facilities also help to improve the LMIS, and the LMD and NFHP continue to provide logistics training for existing staff and newly recruited storekeepers.

Today, the LMIS is an integrated system, tracking 206 items at the district level, including family planning, maternal and child health, vaccines, cold chain accessories, and surgical and miscellaneous items from nine different programs:

- Family Planning Program (five contraceptives)
- Expanded Programme on Immunizations (eight vaccines plus immunological agents)
- Malaria/Kala-Azar Program (five anti malarial drugs)
- Tuberculosis (TB) Program (23 TB drugs as well as glass slides and sputum containers)
- Control of Diarrheal Disease Program (oral rehydration salts and zinc sulphate)
- Acute Respiratory Infection Program (Cotrim Pediatric and Cotrim)
- Nutrition Program (vitamin A, iron tablets, and albendazole)
- Leprosy Program (four leprosy drugs)
- Essential Drugs (56 standard plus other essentials drugs).

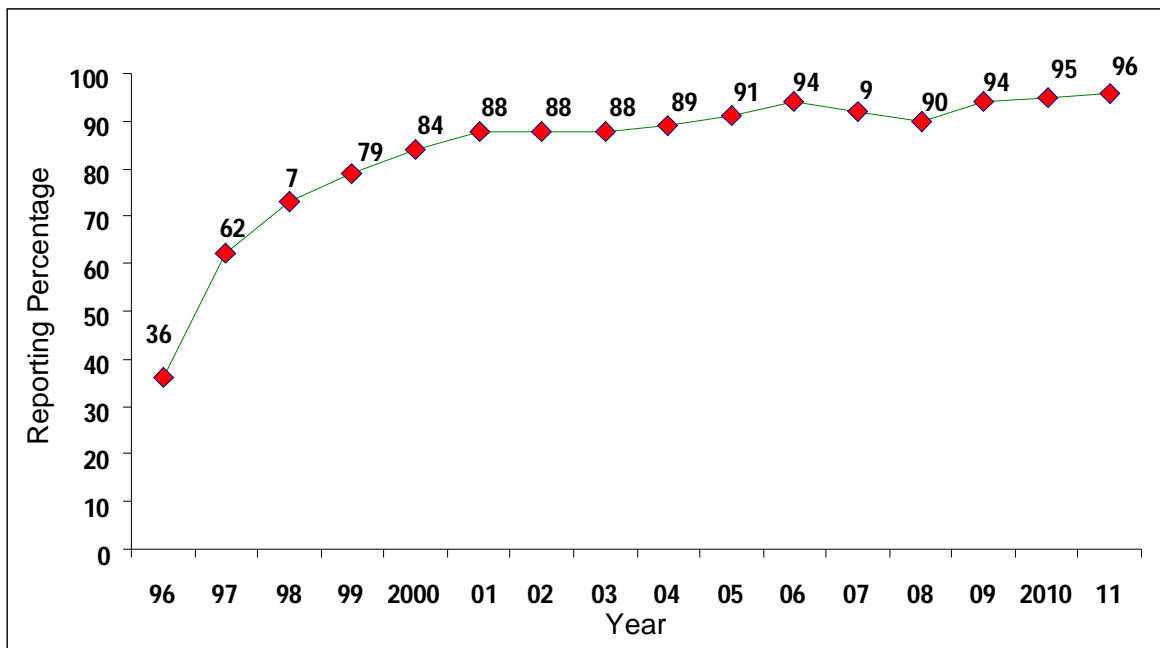
At the central level, the LMIS unit at the LMD compiles the data, generates various reports, and distributes them to different divisions at the Department of Health Services and external donor partners. LMIS data is used extensively for key logistics decision making, such as forecasting, procurement, and distribution of health commodities. At the national level, policymakers used LMIS data (stockouts of health commodities) for indicators in the Nepal Health Sector Programme II, a plan that will guide the country's health sector improvement activities from 2010–2015. The plan includes activities to strengthen the inventory management system and the LMIS.

Reporting within the LMIS has improved significantly over the years. The percentage of LMIS forms regularly submitted by health facilities on time has increased from 36 percent in 1996 to 96 percent in 2011 (see Figure 2). Both health facilities and districts are increasingly using the LMIS data; districts use the data to monitor the fluctuation of stocks for supply decisions, and health facilities use it to decide how much product to order from the districts.

The LMIS is used to make decisions in a variety of areas, including—

- Forecasting and quantification
- Procurement
- Calculating authorized stock level and emergency order point at health facilities
- Inventory management at the field level
- Monitoring program performance
- National pipeline monitoring.

Figure 2. Percentage of Health Facilities Submitting LMIS Data



Using Data to Support Decision making

A strategic approach, good collaboration among the various levels and actors in the supply chain, and strong commitment from the Government of Nepal have been key components in the success of the LMIS. Even during a decade of Maoist-movement (1996–2006), support for the health sector continued from both sides of the conflict. Access to timely and relevant logistics data enables coordinating bodies along the supply chain to make the right decisions in support of product availability. Each year, the LMD conducts a regional-level logistics review meeting to discuss LMIS reporting, stockouts, and other logistics-related activities, as well as the impact these activities have on increasing reporting and reducing stockouts.

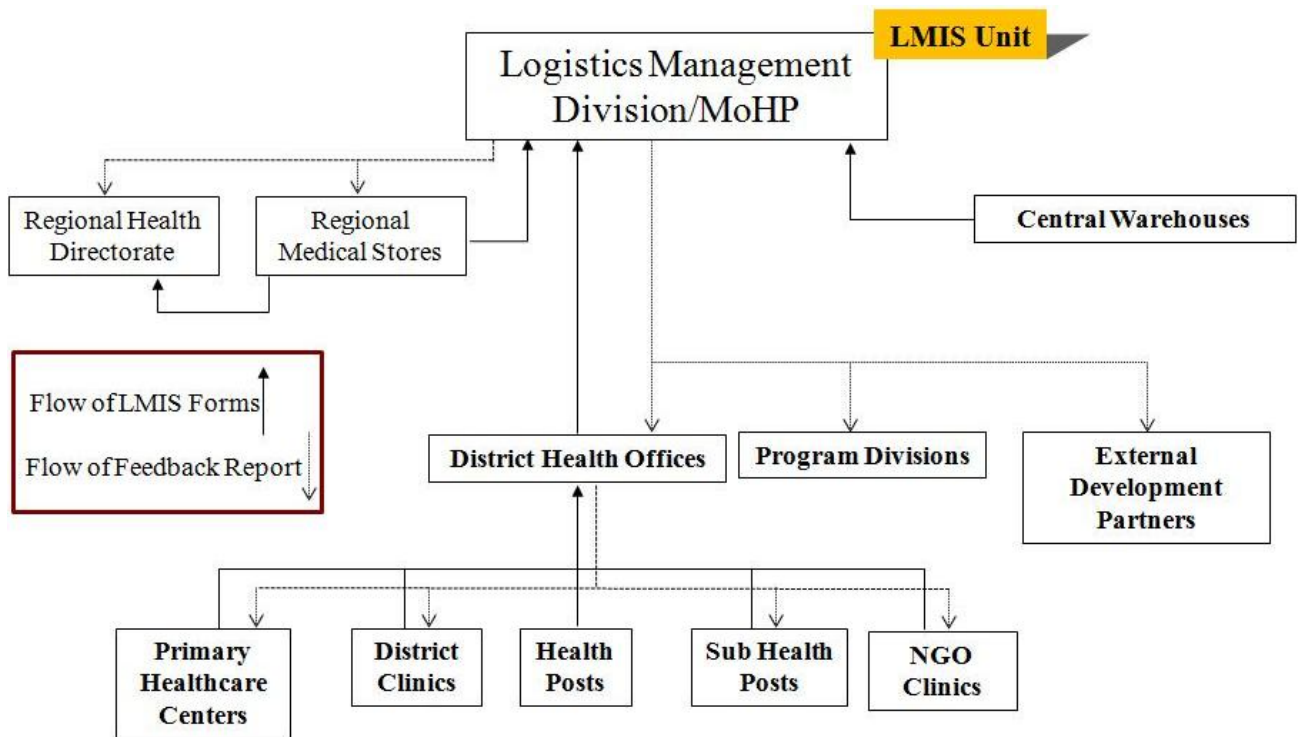
In 2001, the LMIS unit created a logistics data bank by archiving all previous years' LMIS data. The data is compiled to show trends over time, which can provide powerful insights for decision makers at the national level. The information is used by different program divisions for long-term forecasting and quantification of health commodities on a semi-annual and annual basis. It is also used extensively to monitor the stock situation for seven key commodities at district and health facility levels.

Using the LMIS, the LMIS unit and the LMD monitor the flow of commodities at the national level, the RMSs monitor it at the district level, and the DPHOs monitor it at the field level. The LMIS unit sends the monthly reporting status to all 75 districts and RMSs and sends the quarterly feedback report to districts and regions. The flow of LMIS data is shown in Figure 3.

Securing Family Planning Supplies with LMIS

At the beginning of 2010, the MOHP contracted with a supplier to provide condoms over a three-year period. After supplying the first shipment of 15.5 million condoms, the supplier withdrew from the contract, citing an increase in the cost of raw materials. Without immediate action, facilities would soon begin to stock out of condoms. By using information from the LMIS, the LMD was able to identify how many condoms were needed until a new procurement could be established. With a combination of moving stocks at the district level and placing an emergency order through a donor agency, they averted a nationwide condom stockout.

Figure 3. Flow of LMIS Data



The most common reporting problem has been discrepancies in the quarterly opening balance. When such a problem is identified, the LMIS unit notifies the supervisor and health facility of the error, and staff provide on-the-job training at the facility to correct the report.

NFHP and its district staff assist in monitoring the LMIS but the system is mostly operated by the government in the country's more than 4,000 health facilities. NFHP and the USAID | DELIVER PROJECT staff help maintain the quality of reporting and provide on-the-job training to new staff in the districts.

While the MOHP is committed to supporting the LMIS and recognizes its value, sustained long-term donor support is needed until the MOHP is able to fully absorb the LMIS unit into the MOHP's structure and assume full management and funding responsibility for the system. Options for the future include—

- Advocating with government to create civil service positions for the staff of the LMIS unit (currently donor supported)
- Approaching other donors who can fund the LMIS unit
- Advocating with government and donor partners to contract out the LMIS unit to the private sector using development funds or other resources.

Key Achievements

The improvements in the LMIS and the addition of web-based reporting have led to profound changes in the way information is used and shared throughout Nepal's public health supply chain. With commitment from the Government of Nepal and support from its partners, the following results have been achieved:

- Nepal has a national LMIS producing reliable logistics data for decision making at all levels and functions of the health supply chain, including forecasting, inventory management, distribution, pipeline monitoring of key health commodities, and prevention of stockouts.
- Policymakers accept LMIS data as credible and use it to make nationwide policy and operational decisions.
- LMIS reporting has improved storage practices, reducing waste and expiry of commodities. The system is used to establish actual quantity needed, and facilities and districts can order supplies according to authorized stock level(ASL)and emergency order point (EOP), reducing the incidents of excess stock and waste due to expiry.
- Improvements in LMIS made it possible to successfully introduce the demand-based supply system (also known as the pull system) for essential drugs. With the insertion of data elements like ASL, EOP, and Quantity to Order in the LMIS form, the system can easily generate ASL and EOP for the health facilities and districts and calculate the stock needed for resupply. The pull system has generated a consistent reduction of stockouts since its introduction in 2005.
- At all levels of the government health system, managers are able to make supply decisions based on accurate and timely logistics data generated by the LMIS.

The MOHP now recognizes the LMIS as one of its main information systems, along with the country's health management information system. The LMIS has become a key information source, raising the level of visibility throughout the supply chain. With a web-based LMIS, the center, regions, and districts are empowered to make evidence-based logistics decisions, ultimately ensuring year-round availability of key health commodities and essential drugs to the end user.

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