



SUPPLY CHAIN & LOGISTICS MANAGEMENT SYSTEMS

For over 50 years, University Research Co., LLC (URC) has been supporting international public and private sector organizations in their efforts to develop and strengthen their supply chain and logistics management systems for drugs and medical supplies. In doing so, URC has provided technical assistance to Ministries of Health, Social Security Institutes, and local NGOs in countries in Asia, Africa, the Middle East and Latin America.

URC's technical assistance to in-country organizations has been channeled through donor funded health, family planning, and nutrition projects awarded to, and managed by URC. In such endeavors, URC has worked closely with the donor community, including USAID, the Global Fund, UNFPA, UNDP, and WHO to coordinate local and international resources necessary for building local capacity to manage responsible, efficient and effective supply chain and logistics management systems.

URC's assistance has contributed to:

- ◆ Improve forecasting of drugs, contraceptives, and medical supplies;
- ◆ Improve coordination with procurement agents, pharmaceuticals, manufacturers and donor organizations;
- ◆ Enhance transparency and cost-effectiveness of procurement, shipment, and delivery of commodities;
- ◆ Develop local capacity to manage supplies from arrival in-country, including custom clearance, warehousing, and distribution, to last mile delivery to patients and clients;
- ◆ Standardize logistics management processes;
- ◆ Enhance the use of logistics data for planning and budgeting of supplies;
- ◆ Institutionalize logistics management best practices, such as the implementation of biannual nationwide inventories of drugs and medical supplies, including contraceptives;
- ◆ Leverage local and international stakeholders for obtaining best prices

URCs Supported Programs and Products

URC has worked with local organizations to strengthen supply chain and logistics management systems in a variety of health sectors including family planning and nutrition, along with commodities necessary for the diagnosis and treatment of malaria, tuberculosis, HIV/AIDS, and other sexually transmitted diseases such as Chlamydia and Gonorrhea. URC has also supported the procurement of contraceptives, insecticide treated nets, and repellants for Zika-related work in Latin American, and micro-nutrients, fortified foods (RUFT), and re- agents for laboratory testing and equipment.

URC Strengthens Forecasting Capabilities

URC's technical assistance has contributed to strengthening the forecasting capabilities of local institutions. URC has provided intensive training to local counterparts in the application of methodologies to improve forecasting of health commodities. These methodologies range from complex statistical-based regression analysis of historical data and epidemiological profiles of the population to the application of simple methodologies based on consumption patterns and characteristics of the population, such as size, structure, and rate of growth. In support of family planning forecasting, URC has developed the FOCUS model, a computerized and user-friendly application that estimates future needs of contraceptives. This model utilizes the

| 10/25/2012 FORECASTING CONTRACEPTIVE USE (FOCUS) | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| RWANDA | | | | | | |
| INDICATORS | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| W. Sexually Active: | 1,843,200 | 1,894,810 | 1,947,864 | 2,002,404 | 2,058,472 | 2,116,189 |
| Contraceptive Prevalence Rate: | 45.00 % | 45.40 % | 47.80 % | 49.20 % | 50.60 % | 52.00 % |
| Total No. of Contraceptors: | 829,440 | 879,192 | 931,079 | 985,183 | 1,041,587 | 1,100,377 |
| % of Unmet Need: | 27.00 % | | | | | |
| Potential Additional Users: | 497,664 | 511,599 | 525,923 | 540,649 | 555,787 | 571,349 |
| Total Potential Market for Family Planning: | 1,327,104 | 1,390,790 | 1,457,002 | 1,525,832 | 1,597,374 | 1,671,726 |
| Total Potential CPR: | 72.00 % | 73.40 % | 74.80 % | 76.20 % | 77.60 % | 79.00 % |

FOCUS: Sample Screen Estimating Total Potential Market for Family Planning

“What If?” analysis based on changes in the demographic profile of the target population and changes in their desired for specific methods (Method Mix). FOCUS stands for “Forecasting Future Contraceptive Use” and meets primary logistics and financial functions in support of procurement processes.

For logistics purposes, FOCUS provides important advantages over more sophisticated methods such as:

- ◆ Requiring less input data
- ◆ Does not require knowledge or information on fertility, abortion, average age at marriage, exclusive breast feeding or post-partum infecundity.
- ◆ Makes it easier to play “What If?” --very important in every planning process.
- ◆ Takes into consideration COST, the most important programmatic, administrative. and logistics aspect.
- ◆ Separates future requirements by source of family planning services (i.e. public sector, private

NGOs, private physicians, commercial sector), an analysis very useful for implementing alliances within strategies to enhance contraceptive security.

FOCUS was developed to assist program managers not only in the complex process of forecasting contraceptive needs, but also in simulating what could happen to their programs under different sets of conditions and assumptions.

FOCUS is available in English, Spanish, and Portuguese.

Standardizing Supply Chain and Logistics Management Processes

URC’s technical assistance has led to the development of much needed official procurement and logistics management norms for standardizing supply chain management processes, including the estimation of quantities of drugs needed, procurement, warehousing, and distribution. URC has also assisted host country organizations in the institutionalization of important tools for monitoring purchase orders, shipments in transit, customs clearance, warehousing and distribution to the service delivery facilities, and facilitating the scheduling of procurement plans.

The standardization of logistics management practices for pull and push down systems through the development of official guidelines has been instrumental in improving overall stock level of drugs, contraceptives, and other medical supplies.



Sample Logistics Management Manuals designed to standardized logistics management processes for the Ministry of Health of Guatemala

Designing, Developing, and Strengthening Logistics Management Information Systems

URC has an extensive background in supporting the implementation of Logistics Management Information Systems (LMIS). URC has assisted small and large organizations with networks of over 2,000 service delivery points, such as MEDICSTOCK, an LMIS designed by URC for the Ministry of Health in Benin. URC also has assisted in the development of paper-based and fully automated LMIS using state of the art management information system technologies.

Logistics management information systems designed by URC have contributed to strengthening supervision, monitoring, and evaluation functions. These systems are agile and allow managers to identify problems quickly through the integration of tables, charts, and trend graphics, generating an optimal command center for



Sample Med stock LMIS Screens used by the MOH of Benin

overseeing logistics management operations. They also allow supervisory teams to identify sites that most need visiting, saving time and other resources.

The computer-based LMIS helps local counterparts manage the purchasing, warehousing, transportation, and distribution of commodities. It captures information on stock levels, shipments in transit, and consumption patterns. URC has trained logistics units to use LMIS data for decision making and planning.

Building Logistics Management Capacity

URC has provided extensive training in logistics management for drugs and other medical supplies, including contraceptives and micro-nutrients for all logistics personnel of Ministries of Health. URC has also developed curricula to cover all components of the logistics cycle:

- ◆ Needs estimation
- ◆ Financing and procurement
- ◆ Transportation and distribution
- ◆ Warehousing
- ◆ Provision of supplies to clients

Furthermore, in assisting trained personnel to carry out job duties to their best abilities, URC has developed important job aids, including step by step guidelines on how to fill out supply and requisition forms, client registries, and Kardex, or aids designed to serve as constant reminders of upcoming logistics-related deadlines.

Because turnover of logistics management staff remains a challenge in many organizations, URC has developed DVDs for distance training with comprehensive curricula at all levels. Further, URC's on-site coaching has helped ensure that newly acquired skills are correctly applied. URC's capacity building mechanisms, including the use of training workshops, on-site tutoring and coaching, job



DVD developed for distance training in logistics management

aids, and distance learning DVDs have proven practical and cost-effective in upgrading or refreshing the skills of new or existing personnel.

Improving Warehouse Management Skills

URC's managed projects have supported the strengthening of warehouse management skills of local stakeholder staff. In doing so, URC has supported the implementation of warehousing best practices and has institutionalized them through official organizational policies and guidelines.

Improving warehouse management for drugs and medical supplies has contributed to important achievements:

- ◆ Reducing waste generated by the expiration of products, which, due to cluttering and disorganization in the warehouse, usually go undetected



Through URC's technical assistance, Queen Alia Military Hospital in Amman Jordan, implemented a new drug management system, which resulted in a 45% reduction in medication consumption and over \$100,000 in savings one year



Sample logistics management job aid for the MOH of Guatemala



Before and after warehouse remodeling at the MOH of Guatemala. Storage upgrades contributed to the ISO Quality Accreditation in 2010

- ◆ Reducing waste generated by damaged goods that meet water, are stored under inappropriate temperatures, or receive direct sunlight
- ◆ Making the application of “First Expired First Out (FEFO)” supply management practices much easier
- ◆ Improving overall motivation and raising morale among logistics management staff
- ◆ Minimizing maintenance costs

URC has also supported the reconstruction of storage facilities to meet international standards of quality.

Strengthening Procurement

URC has extensive experience in the re-design of procurement processes, re-thinking procurement protocols and procedures for Ministries of Health in several countries. In Guatemala, URC worked in coordination with the MOH to develop guidelines for procurement, which led to standardization across all levels of the MOH, eliminating an array of parallel systems that in the past led to confusion and inadequate allocation of limited resources. The procurement guidelines developed by the project adhere to the latest international standards and comply with local laws and regulations surrounding various procurement modes (open bid, competitive tenders, etc.). This redesign and meeting of ISO standards of quality led to the MOH being awarded ISO’s Quality Certification. This award has contributed to enhancing transparency and responsible use of financial resources for procurement of drugs.

In support of procurement processes, URC has implemented the Pipeline monitoring system (designed by USAID/FPLM project), which has allowed public and private institutions to closely monitor consumption trends of medical drugs and supplies, existing stock levels, and quantities procured in transit. Pipeline’s checks and balances support better estimation of future procurement orders, maintaining proper stock quantities between the



Ministry of Health of Guatemala receiving ISO Quality accreditation for its improvement in the financial, administrative and procurement processes

minimum and maximum-security levels, including a buffer stock for anticipating emergency situations.

URC’s procurement experience is particularly strong for malaria-related products. For example, in Benin, the USAID-Funded Integrated Family Health Project (Projet Integer de Santé Familial or PISAF) provided computer-based health commodity quantification training in support of the procurement of long-lasting insecticide treated bed nets (LLITNs) and Artemisinin-based combination therapy (ACT).

Quality Improvements in Supply Chain and Logistics Management Systems

URC uses a variety of approaches to improve the quality of supply chain and logistics management systems. The fundamental concept underlying the field of quality improvement is that a system left unchanged can only be expected to produce the same results. In Uganda, URC has introduced the collaborative approach to quality improvement at sixteen high-volume MOH hospitals facing serious logistics management challenges. Through the implementation of low-cost innovations, commodity ordering rates for ARVs, HIV test kits, and drugs for PMTCT improved significantly. The low-cost interventions that lead to change include:

- ◆ Identifying one focal person per hospital,
- ◆ On-site logistics training,
- ◆ Development of order checklists, and
- ◆ Text message reminders

URC's Approach for Improving Supply Chain and Logistics Management Systems

URC's provision of technical assistance for improving the Supply Chain and Logistics Management Systems of partner organizations has been channeled through projects managed by and awarded to URC. Meaning, in the past we have not operated under a global project but have included expert logisticians as part of our in-country teams. This has allowed us to provide more consistent support to our counterparts under jointly designed plans for improvement. Through the implementation of gaps assessments, our logistics experts work closely with local counterparts within the public and private sectors to design strategies that contain evidence-based interventions for SCMS and logistics systems improvement. All activities programmed to meet goals and objectives are then carried out jointly, concurrently building team spirit and a sense of ownership of actions and results. This approach has proven to be highly effective for developing successful systems among organizations in countries where we operate, perhaps more so than organizations which depend on technical assistance from overseas experts who are not always available on demand. Furthermore, this approach highly contributes to building logistics management systems that are sustainable in the long run and proves to be more cost-effective than dependence on overseas TA.

USAID Global Health Supply Chain Program

In 2016, URC began working with consortium partners on USAID's Procurement and Supply Management (PSM) Project under the Global Health Supply Chain Program. This program is USAID's single mechanism for providing health commodities and technical assistance to ensure HIV/AIDS, malaria, family planning, and maternal and child health supplies are readily available. The project may reach more than 50 countries and is designed to transform global and national supply chains for essential health commodities into a supply chain that serves all people in need.

Countries Supported by URC's Supply Chain and Logistics Management Technical Assistance

Benin: As part of the Advancing Newborn, Child and Reproductive Health (ANCRE) Program, URC played a critical role in ensuring essential health commodities were available at service and product delivery points. The URC-led team conducted a needs assessment of the health commodity supply chain, provided technical assistance to the MOH to finalize the logistical management information technology master plan, and provided critical trainings to MOH

Managers in: logistical management of health commodities, measuring health commodity stocks, how to quantify health commodity needs, and how to analyze logistical data to ensure the adequate availability of health commodities.

The Integrated Family Health Project (Projet Integer de Santé Familial or PISAF) worked to improve integrated family health services, management systems (including planning and programming, logistics, information systems, and supervision), and community mobilization. URC provided technical assistance on supply chain management for essential family health products, including the adaptation and operationalization of a national distribution system, the provision of computer-based health product quantification training for long-lasting insecticide treated bed nets (LLITNs) and Artemisinin-based combination therapy (ACT), and the distribution of LLITNs through prenatal care. Med stock, a web-enabled LMIS designed and developed by URC, was adopted by the MOH as the official logistics management system.

Nigeria: In Nigeria, URC worked to strengthen and expand HIV/AIDS comprehensive care and treatment services in the State of Enugu. As part of the provision of HIV/AIDS services, URC built local capacity by providing technical assistance on procurement and distribution of supplies and pharmaceuticals and strengthening the laboratory infrastructure.

Uganda: URC's Strengthening Uganda's Systems for Treating AIDS Nationally (SUSTAIN) provided technical assistance to the MOH in strengthening its stewardship role to enhance the coordination of donor support for procurement, distribution, and storage systems. URC played a key role in aligning donor-funded activities under the MOH's official SCMS, eliminating the implementation of parallel structures. Through the implementation of low-cost innovations, availability of HIV-related commodities at sixteen high volume MOH hospitals in Uganda significantly improved, namely, in ARVs, HIV test kits, and medicines for opportunistic infections.



Also in Uganda, URC designed a distribution system for Ready-to-Use-Therapeutic Foods for people living with HIV/AIDS, working with stakeholders from existing Supply Chain Management Systems, ACDI/VOCA, the United Nations World Food Program (WFP), the United Nations Children's Fund (UNICEF), the Clinton Foundation, Uganda's AIDS Support Organization (TASO), and others.

In Uganda, URC's Logistics Advisor worked closely with the MOH's staff in reviewing consumption patterns and filling up supply requisition forms for HIV/AIDS related drugs and laboratory supplies.

Botswana: URC has worked in Botswana since 2008 to improve the quality and availability of HIV prevention and care drugs and medical supplies, particularly for the delivery of routine laboratory HIV testing (RHT) services.

Cambodia: URC's Health Systems Strengthening Project in Cambodia is collaborated with the National Center for HIV/AIDS, Dermatology, and STD (NCHADS) to contribute and identify opportunities for systems improvement in logistics management of HIV/AIDS related drugs.

URC's Malaria Control in Cambodia (MCC) project provided technical assistance to the National Malaria Control Program in assessing the supply chain system for malaria rapid diagnostic tests (RDTs), antimalarial drugs and other supplies and helped identify a solution for common stock outs, unpredictable deliveries, and common bottlenecks generated by existing parallel systems.

In doing so, URC brought together all local stakeholders for joint problem solving. This coordinated approach to supply chain management improvement for malaria related drugs and test kits generated much advocacy, which led to the integration of malaria into the MOH's entire supply chain management system.



In Cambodia, pharmacists checked their stock of drugs and medical supplies for the National Malaria Control Program. This allowed for a continuous gap analysis which resulted in an overall improvement in stock levels of malaria drug supplies and rapid diagnostic tests.

Additionally, because of the hot and humid weather in Cambodia, maintaining a "cool chain" can be a problem. To solve this situation, URC helped the National Centre for Parasitology develop the Cambodia Cooler Box for perishable medical commodities in remote communities.

Niger: URC's Family Health and Demography Project from 1989 to 1995 provided extensive assistance to the government of Niger to strengthen the delivery of family planning services nationwide. URC's logistics advisor developed counterparts' abilities to assess the distribution system for contraceptives, and, based on results, developed and helped implement improvement plans which included cascade training to all MOH logistics staff.

Jordan: Through URC's Jordan Healthcare Accreditation Project, the Queen Alia Military Hospital in Amman formed a Quality Improvement Committee in charge of improving the management of drug use and consumption, as well as improving storage capacity to reduce maintenance cost.

Guatemala: URC has been providing technical assistance to the MOH on all aspects of supply chain management, from forecasting of supply needs and procurement, to financing and distribution down to the network of warehouses. Drug shortages were a common situation, but with URC's assistance, stock levels have been maintained, with over 85% of the MOH facilities adequately stocked between the minimum and maximum levels. URC designed and developed a LMIS for contraceptives only. The success of the system was so well recognized by MOH directors that it was eventually adopted as the official LMIS for drugs, medical supplies, and contraceptives. URC assisted the MOH in scaling up the use of the system nationwide. Further, USAID assisted in the ISO9001 quality accreditation awarded for the MOH's procurement, financial, and administrative processes.