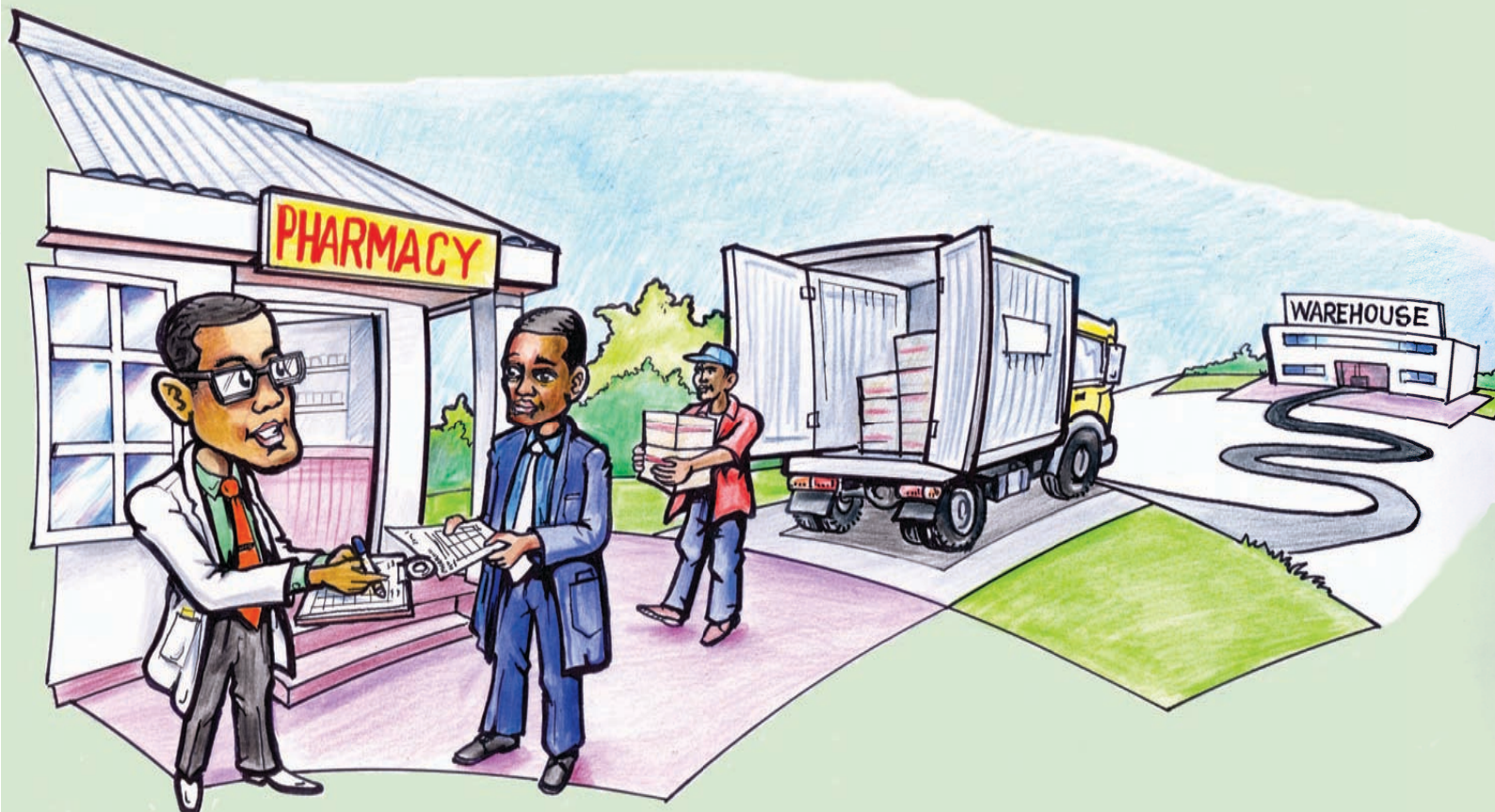


Pharmalink

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Effective pharmaceutical supply chains



On the road in low income countries

About Ecumenical Pharmaceutical Network (EPN)

Ecumenical Pharmaceutical Network (EPN) is an independent, not-for-profit, Christian organization whose mission is to support churches and church health systems provide and promote just and compassionate quality pharmaceutical services for all. The work of EPN is not just aimed at having quality pharmaceutical services provided by church institutions, but also at working towards services that allow no discrimination and guarantee equal access to all.

About the cover image

This image illustrates certain aspects of supply systems required to support continuous availability of quality and affordable medicines. The illustration is part of the EPN guidelines for effective and efficient pharmaceutical services which are intended as a tool for health facility managers, pharmaceutical personnel and all those involved in pharmaceutical service delivery, to guide them on the areas they need to pay particular attention to if they wish to provide a high level of service.

Illustration by David Radoli.

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Editorial

From manufacturer to patient, that is the road medicines need to take all over the world. In some cases it's a short distance. For most patients in developing countries, the road is very long. From manufacturer to central medical warehouse, to local supplier, to every small depot, health centre and dispensary, it's a long road with many bumps and potholes.

In this edition of Pharmalink, some of the players in the field of medical supply chain explain problems and challenges to do with forecasting, selection and procurement, inventory management, storage, shelf life and distribution. Some problems are country-specific, but many cut across almost all low-income countries. The various ways through which these challenges manifest at patient level, range from facilities being understocked or experiencing stock-outs which endanger patient's lives and compromise adherence to treatment; to facilities being overstocked with subsequent expiries.

You will also discover how specific technologies can help overcome some of the problems in the pharmaceutical supply chain. Several ICT initiatives and innovations are helping stakeholders ensure a more adequate supply of health commodities. Mobile phones for data transfer and even mobile money services, electronic tools, specialized software and databases can help, provided that the underlying problems in the supply chain have been clearly identified.

A few remarkable innovations in distribution are also changing the way the industry looks at delivery. Finally, one of EPN's member organizations explains its efforts to supply medicines to some of the most remote locations in Central African Republic.

Elisabeth Goffin

Letters to the editor

Inquiries or comments about this edition of Pharmalink should be directed to: communications@epnetwork.org.

The editor also welcomes author's initiatives for future editions.

Harnessing technology to strengthen health commodity supply chains

Mike Frost, Sarah Hiller, Ashraf Islam, Naomi Printz, Marasi Mwencha, and Mimi Whitehouse

A few months ago, a pharmacist working at a rural hospital in sub-Saharan Africa was wondering how to improve his medicine supply chain management given his limited resources. Although supported by pharmacy technicians, he is the only pharmacist at the primary hospital, responsible for managing the supplies of thirteen clinics and health posts located far away. Many pharmacists in developing countries face the same situation. Often, paper reports sent by health facilities come slowly, if at all, and are of questionable quality. By the time pharmacists learn about dwindling supplies, it's already too late to prevent a stock-out.

This pharmacist reached out to the online community IAPHL (International Association of Public Health Logisticians) for support. In response, a technical adviser from the USAID | DELIVER PROJECT and IAPHL member shared how reporting on and supplying of health commodities are done in his country. As the adviser explained, in his country the primary objective is to implement a structure that is simple and efficient, to support the need for timely data at all levels of the health system.

An effective supply chain is characterized by the timely, reliable movement of health commodities and data up and down the supply chain: from the service delivery point (such as health posts, clinics, and hospitals where health commodities are dispensed) to the district, regional, and national levels and back. Indeed, data from the service delivery point are the most relevant for supply chain managers to make informed decisions of how much, and what type of health commodities should be delivered. In paper-based logistics management information systems, as mostly used in low income countries, the right

data doesn't normally get to the right persons at the right time. Supply chains based on information and communications technology, or ICT, on the contrary offer the potential to accelerate data transmission, transmit data to multiple stakeholders simultaneously, and reduce reporting burdens.

John Snow, Inc. has worked in health supply chain management for 30 years, and has been using ICT to do so for nearly 10 years. The company assists country governments, multilateral, and bilateral donor agencies, non-governmental organizations, and private companies to improve supply chain efficiency and effectiveness and ensure the availability of their health supplies. JSI has implemented projects in 104 countries, and currently operates from eight U.S. and 81 international offices. With its partners, JSI has successfully used ICT to address the challenges of ensuring data is collected, transmitted and analyzed in a timely fashion, and providing data to all of the diverse decision makers in the supply chain.

Challenge #1: ensuring data is timely

Decisions can only be as good as the data that inform them. When data is transmitted to decision makers quickly, they can make well-informed assessments so that inventories are maintained at sufficient levels, stock-outs are avoided, emergencies are quickly addressed, and important trends are detected. When data is old or inaccurate, decisions may not reflect the current supply and needs, leading to a sustained period of stock-out while overstocked health commodities expire. In resource-limited environments where inventories are routinely maintained at low levels, a slight change in demand can quickly result in a stock-out. The



As part of the USAID | DELIVER PROJECT, health facility staff in Zambia use mobile phones loaded with EpiSurveyor to conduct a supply chain survey, 2009.
Photo credit: Mike Frost

Based on the delivered quantities calculated by the AutoDRV, the delivery team leader records the data from a carbon copy report as part of the Delivery Team Topping Up system in Zimbabwe, 2011.
Photo credit: USAID | DELIVER PROJECT

combination of rapidly changing needs and slow data transmission in paper-based reports makes responsive and rapid decision making for resupply rather challenging.

Case in Point: “ILSGateway” project

In 2010, the USAID | DELIVER PROJECT, supported by the U.S. Agency for International Development and implemented by John Snow, Inc. and its partners, developed a pilot programme using mobile phones to satisfy the need for timely data within Tanzania’s Integrated Logistics System (ILS). Using SMS (Short Message Service) technology, the pilot programme known as the ILSGateway provides real-time, detailed information on the inventory of essential health commodities to decision makers throughout the supply chain. Accelerating the information flow from facilities to central medical storehouses facilitates informed decision making and ultimately improves product availability at service delivery points.

Facility staff use their personal mobile phones to receive text messages about product deliveries and to send text messages to report stock levels, any losses and adjustments for 20 essential medicines in addition to information about supervision frequency and reporting status. The staff send these text messages to a toll-free, five-digit short code. Data is then immediately available on an interactive, password-protected web site, with varying access levels, to allow for decision making. Monthly SMS and e-mail summary reports are also e-mailed to district, regional, and central level decision makers.

Challenge #2: providing all stakeholders with access to data

Even real-time data is useless if it doesn’t get to the right people. The stakeholders in supply chain management are often numerous and varied, spanning the service delivery points to district, regional, and national levels in the Ministry of Health, the central medical stores, commodity suppliers, NGOs, multilateral institutions, donors, and other partners. Sharing information between organizations and across long distances can be resource intensive in a paper-based logistics management information system, especially when trying to provide each stakeholder with customized access to the data based on privacy concerns and the type of data they need. Further, in paper-based systems, data is often reported only up to the next level, where it is aggregated and then passed up to the next level where it is aggregated further. In such systems, details of individual health post activity can be lost and therefore unavailable to the stakeholders who need it. Using ICT, information from individual health posts can be shared and managed in a database, which can then produce aggregated or individual reports, tailored to provide decision makers with the right level of information.

Case in Point: delivery team topping up

In Zimbabwe, the USAID | DELIVER PROJECT and the Supply Chain Management System (SCMS) initiative support the Delivery Team Topping Up (DTTU) system, a logistics system which manages condoms, contraceptives, and HIV commodities such as test kits and anti-retroviral medicines for the prevention of moth-

Lessons learned

As the case studies illustrate, ICT can transform the transfer of data to ensure the adequate supply of health commodities. However, any plan to integrate ICT into a supply chain system should be developed with great care. Consider just a few of JSI’s lessons learned:

- Take time to review and streamline procedures first. **Automating broken procedures will not fix them.** For example, if facilities are collecting the wrong data, it does not matter if it comes in on paper or electronically, it is still the wrong data. Automating is appropriate for systems that work both structurally and content wise.
- State and define which problem will be fixed by the ICT project. There must be a clearly defined problem (agreed upon across stakeholders) that automation is trying to fix. **Don’t automate for automation’s sake.** More specifically, mobile solutions should be chosen based on careful evaluation of the system that leads to the well-defined problem.
- **Plan for the future.** An initiative may be technologically possible, but the sustainability and scalability must also be considered.
- **Consider a phased approach** with periodic reviews to decide whether to proceed. Mobile solutions should be piloted and then compared against pre-determined measures of impact before scaling up. As such, it is okay for a pilot to fail. This provides an opportunity to look at what caused the failure, diagnose problems in the system, and rework approaches to apply mobile solutions successfully.
- During the design phase, project developers should seek out and incorporate recommendations from the potential users and implementers of the supply chain. **Consensus from interested stakeholders should be sought at every stage of the process.**

er to child transmission. In the DTTU system, facility staff do not place orders; rather, every facility is visited once per quarter by a delivery truck, which acts as a rolling warehouse. On the truck is a delivery team leader, who works with facility staff to collect basic logistics data, including physical inventories, any days out-of-stock, and any losses or adjustments. This data is entered into customized software called the AutoDRV (Automatic Delivery/Receipt Voucher) on a laptop. The software calculates resupply quantities, and facilities are “topped up,” or resupplied, to their maximum level. Upon return from a delivery, data from the laptops is synchronized to the Top Up software at the central level, to generate national-level stock status and other programme management data. These reports are shared with stakeholders at regularly scheduled coordination meetings. The Top Up software also calculates the total quantity delivered; these data are used to determine the quantities of products that will be needed for the next delivery round.

The DTTU system reduces the burden on health care providers and ensures reliable, quarterly data is speedily available on demand at the central level. The DTTU, which serves all public sector service delivery points in the country along with community based distributors, averages a 99% coverage rate of these service delivery

points during each delivery run. Stock-outs have also been significantly reduced; under DTTU, there is more than 95% availability of contraceptives and condoms for HIV prevention. 🍏

The USAID | DELIVER PROJECT is funded by the U.S. Agency for International Development (USAID) under contract number GPO-I-00-06-00007-00. Malaria-related activities of the project are supported by the President’s Malaria Initiative. The authors’ views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

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Constraints to effective supply chain of ARVs in Tanzania

Wema Kamuzora

Tanzania is one of the countries in sub-Saharan Africa that is highly hit by the HIV and AIDS pandemic. According to Mkondya, S et al¹, Tanzania has a generalized epidemic with a prevalence rate of 6.2%. As of December 2009², about 200,000 people in need of treatment had been enrolled. Therefore ensuring an uninterrupted, reliable supply of quality ARVs in the right quantities, at the right price and delivered to the right place at the right time is key to ensuring the success of care and treatment programmes. For an effective ARV supply chain, selection, quantification, procurement, storage and distribution functions³ are equally important and interdependent to ensure that good quality ARVs are promptly available at the service delivery points.

In Tanzania, there are various challenges that form hurdles to the effective supply management of ARVs, both at the national level and the health facility level. The National AIDS Control Programme (NACP) of the Ministry of Health analyzes the commodity situation in the country and sources funds for procurement of ARVs. The Medical Stores Department (MSD) has the mandate to procure, store and distribute ARVs which are then sent to the zonal stores, to supply to the districts, where they are eventually distributed to the health facilities (faith-based organizations and government institutions) in the respective districts.

In spite of the involvement of national institutions, all the above mentioned components of the ARVs supply chain are subject to challenges, affecting the timely availability of ARVs in the health facilities and consequently care and treatment programmes in the country.

Selection

Selection takes into account efficacy, safety, costs, product storage requirements and shelf life. Selection of ARVs should also take into account WHO's recommended 1st and 2nd line regimens for both adults and children and their toxicities.



The challenge experienced in ARV selection is that policy makers overlook certain supply chain factors such as formulations and cold chain requirements, ignoring the fact that the supply of electricity is unreliable and even absent in many areas. This jeopardizes the quality of ARVs which are temperature sensitive. In addition, meetings among ART stakeholders such as product selection committees and ART managers from all levels should be more frequent so as to review the ARVs on the national essential medicines list, based on growing evidence and experience with treatment in resource limited settings.

Quantification

Quantification means estimating the quantities of ARVs consumed and forecasting patients' needs, considering also the costs of products, service delivery capacity and supply pipeline



requirements. The challenge here is that the Medical Stores Department has to rely on data from the country's health facilities on the consumption of ARVs. This data is often poor quality due to wrong calculations in the daily dispensing registers, stores ledgers and logistics reports (report and requisition forms which are sent to the MSD) at health facilities, a problem that leads back to issues with training, staff rotation and workload, among others. Health facilities also experience challenges reporting on newly enrolled patients or follow-up patients that are lost. This lack of appropriate forecasting and quantification can lead to facilities being understocked or overstocked but may also lead to stock-outs at the national level.

Procurement

Procurement is a very essential but complex process that differs between countries based on funding sources, recipients and the regulations in place. In Tanzania, procurement entities abide by the Public Procurement Act.

The challenges faced in procurement include

- Lack of effective coordination and communication between stakeholders such as donors and government, involved in funding, procuring and quantifying national needs.



- Lengthy and inflexible procurement procedures with very long lead times leading to frequent stock-outs, for example long time lapses between tenders and deliveries, and inflexible supplier contracts.

Delays in procurement of ARVs affect the shelf life of the products. A report from the Ministry of Health and Social Welfare in 2008⁴ shows that ARVs in the market generally had a shelf-life of only two years.

For the MSD Central Store, the lead time for deliveries is between 3 and 8 months, depending on whether they come in by airport, seaport or over land. Lengthy clearing and custom procedures, inspection time and documentation processes further delay the delivery.

Storage and dispensing

The major challenge experienced in storage, both at the national and health facility level is poor inventory management. The storage rooms in most of the health facilities, particularly in the rural areas, lack the facilities that are conducive for the storage of ARVs. Most of the rural areas in Tanzania still do not have electricity, thus affecting ARVs which are temperature-sensitive. Furthermore, at the moment Tanzania is experiencing power rationing in urban areas. Power rationing makes it impossible to guarantee that ARVs will be kept at the optimal storage temperatures, as there are not even enough generators at the national level to cater for all warehouses. At the national level where ARVs are stocked for storage and distribution to the health facilities there are not enough cold rooms to preserve the required temperature for cold chain items and they may even be rendered therapeutically ineffective because of this. In addition, most health facilities do not have thermometers and temperature charts for temperature monitoring.

In many health facilities, the storage rooms also do not have shelves, racks and other equipment for appropriate storage and handling of ARVs. Unstructured storage may lead to accidents in the store resulting in injuries, long dated stock being dispensed earlier than shorter dated stock, and expiries not being noticed hence expired ARVs being inadvertently issued to clients. Poor arrangement may also make it difficult for the facility staff to know exactly where a certain ARV is and prompt placements of unnecessary emergency orders.



A related HR issue is that most health facilities also lack staff with a pharmacy background, to handle ARVs. When dispensing staff are nurse attendants, for example, they may not understand the abbreviations of the medicine names, or have sufficient knowledge to give directions on the dosage.

Distribution

Distribution is also an important component in the supply chain of ARVs that has a lot of challenges at both the national and health facility levels in Tanzania. ARVs may be procured according to the plan, received at the Medical Stores Department without any delays and properly stored, but if the distribution to the service delivery points such as zonal medical stores or districts is substantially delayed, stock-outs will arise.

As revealed by the 2008⁴ study of the MOHSW, the biggest challenges during distribution of supplies from MSD to health facilities are lack of vehicles, high cost of transportation and poor condition of the vehicles. Most of the districts also do not have sufficient vehicles to distribute ARVs to the health facilities. Distribution is further hampered by the poor road networks and infrastructure especially in remote areas.



Solutions

Some recommendations to resolve these issues are for NACP and MSD to have a comprehensive procurement, storage and distribution plan for ARVs and to coordinate and strengthen communication among all stakeholders involved in the supply chain of ARVs in the country so that all the challenges mentioned can be properly addressed. Such a collaborative approach can improve availability of ARVs at the service delivery points, retain patients on care and treatment and reduce the numbers of those lost to follow up. Human resource capacity and skills in ARVs supply chain management also need to be strengthened at all levels across all supply chain functions. The availability of appropriately qualified staff is clearly a cross-cutting issue in the supply chain from national to local level. Competent staff should be involved in procurement, storage and inventory management and distribution. Furthermore, procurement planning and procedures should be coordinated with other key supply chain functions such as financing, quantification and inventory management to avoid unnecessary interruptions that affect the prompt availability of ARVs in the health facilities. 🇹🇿

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Innovations in pharmaceutical supply chains in sub-Saharan Africa

James Mwenda Riungu

Since the discovery of penicillin, numerous effective medicines for treatment and prevention of diseases have been developed and produced. However, access to essential medicines and medical supplies remains a real problem in developing countries due to challenges at the lower level (downstream) supply chain, such as lack of appropriate supply chain planning approaches, inadequate information for decision making and poor physical infrastructure.

To improve health supply chains performance, information is crucial and efficient and cost effective approaches for information sharing are needed. The right information needs to be obtained and downstream (service delivery points) planning needs to be improved. The key to this is modern information technology. Inexpensive technologies such as mobile telephones, provide us with a new range of options to organize distribution, to collect information about service delivery point consumption and to monitor the flow of commodities along the distribution channels.

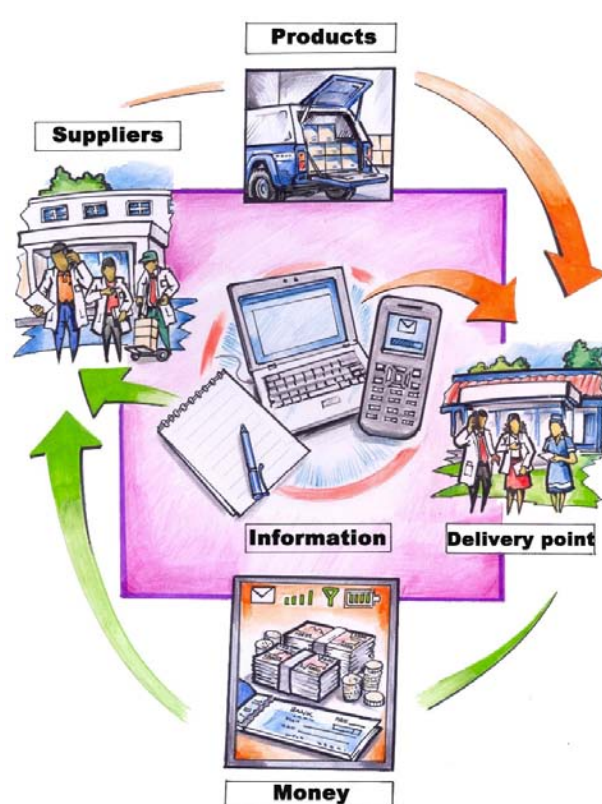
Mobile phone technology

Mobile phones have become affordable and readily available in Africa, making communication between the rural health facilities and their suppliers in large towns quite easy. Information on consumption can be transmitted by health workers in the clinic to the central logistics management unit for consolidation. This technology is not only being used for communication, but has been widely applied in financial transactions also. For example, in Kenya, M-Pesa¹, a mobile money service provided by Safaricom (a mobile telephone company) is being used to transfer money at the click of a button. You do not need to have a bank. The phone is

your bank. You can receive and send money at your convenience and in the comfort of your clinic or pharmacy. All you need is a mobile telephone and access to a mobile cash agent or automated teller machine to collect or deposit the cash. The good news is that such agents can be found in almost every shopping centre in both urban and rural areas. M-pesa is in use by millions of people in Kenya and East Africa, and three other mobile telephone providers have recently started to offer similar services.

Mission for Essential Drugs and supplies (MEDS) in Kenya, a faith-based pharmaceutical distributor that serves over 1500 facilities, embraced the use of SMS to receive orders from clients as well as receive payment for supplies in 2009. This has largely improved communication with the health facilities and reduced transaction costs for both MEDS and its clients. Orders received via SMS are consolidated and uploaded in the Enterprise Resource Planning (ERP) system. After packing, the clients are advised via SMS on delivery schedule and time.

Specifically developed to improve access to essential malaria medicines in rural areas in Africa is SMS for Life², an innovative public-private partnership, initiated by the Roll Back Malaria Partnership, that harnesses everyday technology. It uses a combination of SMS messages and electronic mapping technology to track weekly stock levels at public health facilities in order to eliminate stock-outs, increase access to essential medicines and reduce the number of deaths from Malaria. SMS for Life was initially piloted across three districts in Tanzania, covering 129 health facilities and 226 villages, representing 1.2 million people. When launched in 2009, 26% of all health facilities had no ACTs in stock, but by the end of 2010,



99% of the target facilities had at least one ACT dosage form in stock. In addition, 888,000 people in the three pilot districts had access to all malaria treatments at the close of the pilot, versus 264,000 people at the start, which helped to reduce the number of deaths from malaria. A similar initiative covering five pilot districts was started in Kenya in September 2011 by the Division of Malaria Control (DOMC), and it is hoped such impressive results will be realized. The system used for SMS for Life stores each health facility's registered phone number and location and sends a weekly information request message to each health facility. A standard message format is used for capturing requested information and the system handles formatting errors through follow-up handshake SMS messages with the facility. Health facility workers send their stock message or surveillance message at zero cost to a free short code number. This service does not require phones to have credit, but requires mobile phone connectivity at or near the health facility.

Electronic tools

Electronic tools too, have greatly improved information sharing between the central supply points and service delivery points in the periphery. Health facilities transmit relevant data on consumption and demand to the suppliers who in turn give feedback to the facilities as necessary. Data received is used in demand and supply planning to optimize health commodity security in the country. This flow of information is critical for both the public and

private health sectors, since it informs both planning and budgeting for health commodities. The challenge is low internet connectivity in rural areas. In Kenya, the government is planning to avail computers to all district hospitals to improve on consumption data reporting. An example of such a tool is the Inventory Tracking Tool (ITT)³ developed by Management Sciences for Health (MSH). ITT is an electronic bin card that tracks the health commodities received in a store as they are distributed to the points of use. The Inventory Tracking Tool facilitates the management of commodities at the programme or store level by consolidating information on requirements and consumption, expected deliveries, expired and short date stocks, among others. SMS gateway is a GSM enabled feature integrated into the ITT and allows data entry in the computer by the use of mobile phone's short text. This acts as a link between the database and the mobile phone.

Innovations in distribution

In Africa, health workers are few and the distances between service delivery points and the suppliers of health commodities are vast. To mitigate this challenge, suppliers have embraced innovative approaches of delivery of orders through use of third party logistics service providers, also known as 3PL. They have been in use for a long time in private sector supply chains in developed countries and are now gaining acceptance in the pharmaceutical industry in Africa, where they are expected to improve the efficiency and lower the cost of distribution of medicines and supplies. 3PL service providers allow pharmaceutical suppliers to focus on doing what they know how to do best and let the logisticians deliver medicines to customers. This frees time for both the suppliers and the health workers who would otherwise have been involved directly in logistics at the expense of service delivery.

In some countries such as Benin in West Africa, health supply chains are leveraging on Coca Cola distribution to improve supply chains for health commodities. As opposed to many medical and pharmaceutical supplies, Coca Cola is available in every village and at the right condition for the consumers. Such expertise can be applied to improve distribution of essential medicines to clinics in remote areas. Coca Cola's expertise



The Cola Life AirPod for distribution of medical products

and distribution success have been solicited in the creation of a public-private partnership to expand access to health care products. The partnership is called Cola Life⁴ and its mission is to use the Coca Cola distribution channels to move 'social products.' An "AirPod" container was created to fit between the bottles in a standard crate of Coca Cola. The AirPod container can then be filled with social products like oral rehydration salts, vitamin A or water purification tablets. As a result of the AirPod, local NGOs or social product manufacturers can 'piggy-back' on the strong Coca Cola distribution channels and can have SMS tracking of their products in remote areas.

The above approach has been found successful during the pilot in West Africa but its sustainability in its current design is in doubt. Mechanisms of giving financial incentives to the Coca Cola distributors will be needed and someone will have to fund the initiative. Thus the extent to which the system will be rolled out to other countries is uncertain.

Constant Monitoring

Monitoring of the products along the supply chain is crucial. Logistics firms are using technology to track and trace goods along the distribution chain. Use of Radio frequency identification (RFID) is one such approach. A RFID tag is incorporated in the medicine box and aids in tracking movement of the trucks during transportation of commodities to the health facilities. The problem is the prohibitive cost of this technology. Where RFID is not feasible, mobile telephones have been used to ensure constant communication between the supplier and the trucks delivering products so

that remedial measures can be taken in the event of problems such as trucks breaking down or getting stuck.

Conclusion

The above examples demonstrate that it is possible to maintain operational supply chains for improved access to medicines and supplies in remote clinics in rural settings in sub-Saharan Africa by embracing new innovative technologies and approaches.

Cost remains the main limitation to the use of innovative technology in health supply chains. There is no obvious approach to addressing the cost challenges especially for the small health facilities. But there is hope that the faith-based health sector players through their organized structures will pool resources to meet the cost of simple information systems. Data consolidation and analysis will have to be centralized to remove the cost burden from the individual health facilities. Organized groups should be able to access donor funds or pool resources to address information challenges within their networks. Other community-based health care outlets can embrace community-based financing mechanisms such as Savings and Credit Societies (SACCOs) to finance such initiatives. In addition, donors and government can provide support in terms of technical and financial aid to organized groups to improve medicines supply chains and hence realize better health outcomes for the citizens.

Overall, health care managers and policy makers will need to focus on ways of improving availability and affordability of essential medicines in such resource limited settings in sub-Saharan Africa. There is a clear need for concerted efforts to realize effective and efficient health supply chains in developing countries. Everyone has a role to play in realizing this goal: the private, public and faith-based health sectors. 🌱

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Going the last mile Delivering medicines to remote places

Noel Ningalao

ASSOMESCA is an ecumenical association of Church health services in Central African Republic (CAR). The association serves 107 health institutions, both catholic and protestant, dispersed over the entire territory of CAR.

Importing

ASSOMESCA has been engaged in procurement of pharmaceutical products since 1989. The association has a support unit for medicines procurement, and an agreement with the government, allowing it to obtain a waiver from Customs to import medicines for the benefit of its members. The current mode of purchase is relatively simple and managed by the "Bureau for purchase and transit". The health institutions send their orders to ASSOMESCA who brings them together and electronically sends the pooled order to the supplier IDA, in the Netherlands. The parcels of medicines, prepared accord-

ing to their destination, are sent by boat in a 20 feet or 40 feet container. Customs clearance is done in Douala in Cameroon at the entry of the CEMAC zone (Communauté Economique et Monétaire de l'Afrique Centrale).

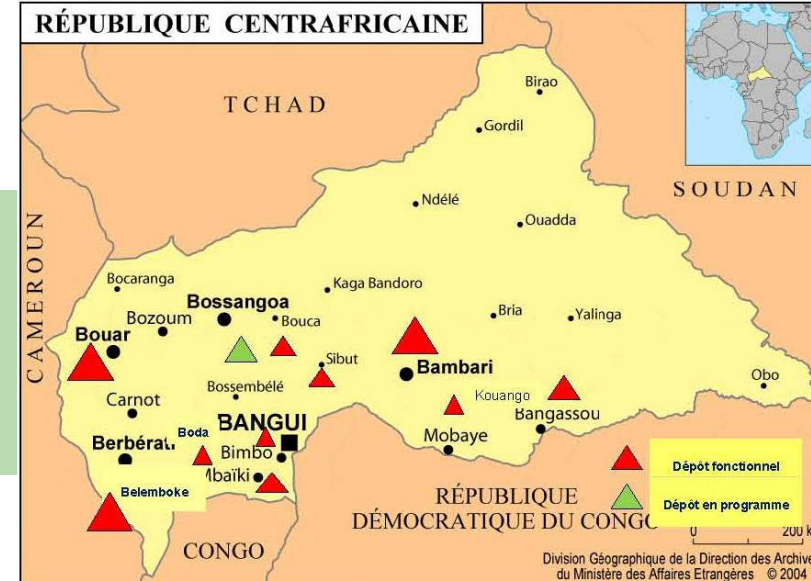
The members involved pay ASSOMESCA 1% of the value of their order and a flat rate of 1.5 USD/kg for the costs from clearance at Douala to the final destination in CAR. In 2010, ASSOMESCA imported a total of 41 000 kg medicines for its members, in four containers for a total value of 292 344 USD. The advantage of importing is that the medicines are good quality (quality control done by IDA) and the net cost of the medicines is much lower than the prices used by wholesalers in CAR's capital. The total expenses are composed of three types of costs:

- 80% = purchase cost
- 11% = transport
- 9% = other costs (administrative, customs clearance, transit)

Distribution

ASSOMESCA organizes transport of the products from Douala to CAR, having signed a service contract with a transporter. Depending on the merchandise, part of it can be immediately offloaded in Bouar; the other parcels are transported to Bangui or Bambari. From these three warehouses, the other smaller depots or health centres can pick up their parcels.

The main pharmaceutical warehouses of ASSOMESCA all belong to the various dioceses and are for ASSOMESCA members. Eight out of nine of the dioceses in CAR have a pharmaceutical warehouse and there are also two sub-depots, all supplying essential medicines to the



faith-based health institutions, both catholic and protestant, to community-based health institutions and, on their request, also to the public health institutions. These should get their supplies from the government warehouses in the different districts, supplied by a para-statal central store. Unfortunately, many of these warehouses are not functioning, and if they are, they experience recurrent stock-outs because the central store is no longer able to respond to all of the health institutions' needs.

The last mile

The biggest problem is to get the essential medicines to the health institutions in the most remote locations. The state of the roads in rural areas is a major handicap to delivering medicines from Cameroon to the different destinations. This situation is more aggravated during the rainy season, further increasing the delay and difficulty of getting the deliveries to the most remote places.

In 2003, a pilot experiment was launched on a community-based initiative in the sub-prefecture Ngaoundaye. 23 community-based health posts were created around a public health centre that functions as referral hospital. The crucial condition for their functioning being the availability of essential medicines, the 23 health posts came together in an association named Pharmacie Rurale Communautaire (PRC- rural community pharmacy), which obtained the legal status of NGO in 2004. The PRC organizes a General Assembly twice a year and is managed by a Board and an executive bureau, composed of a manager-accountant, a director and a supervising nurse who visits the health posts to guarantee the quality of care and supports the committees with management issues.

The PRC procures its essential medicines from the diocese warehouse. In order to get the medicines from the warehouse situated 230 km away, the PRC has been renting a vehicle from the Catholic Mission for a long time, but now has a private vehicle in order to increase its autonomy. The selling prices in the warehouse have been fixed at different levels to guarantee a benefit of 15% to the diocese warehouse, 34% to the PRC and 50% to the health posts.

The order of medicines from the health posts has to transit through the public health centre where the doctor in charge verifies the need and gives his written consent for the order. The doctor is also the technical adviser to the Board, he regularly receives supervision reports and ensures the legal responsibility of the care offered by the health posts. The health posts, all situated in an area of 60 km around the PRC, send their nurse or a member of the committee to pick up the medicines by bicycle.

This system has worked well for 8 years and at the end of the year, the PRC gets a 10% discount on its purchases from the diocese warehouse. For several years, the PRC has also been able to organize trainings and refresher courses for the community health care workers, with the profit from the sales and in collaboration with the health centre's doctor.

With help from its partners, ASSOMESCA would like to further improve the situation by transforming its purchase and transit bureau into a central store. This would mean having a permanent buffer stock of essential medicines capable of responding to the needs of its warehouses in the periphery, diversifying the suppliers and favouring competition between the manufacturers and suppliers, and organizing an efficient distribution network in the rural areas so as to improve access to quality essential medicines at a reasonable price. This would allow ASSOMESCA to improve the public-private partnership and to play a more dynamic role in the pharmaceutical sector.

About the Author

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