Assessment of the Pharmaceutical Management System in Cameroon

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December 2011

This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number GHN-A-00-07-00002-00. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SPS

The Strengthening Pharmaceutical Systems (SPS) Program strives to build capacity within developing countries to effectively manage all aspects of pharmaceutical systems and services. SPS focuses on improving governance in the pharmaceutical sector, strengthening pharmaceutical management systems and financing mechanisms, containing antimicrobial resistance, and enhancing access to and appropriate use of medicines.

Recommended Citation

Eghan, Kwesi and Daniel, Gabriel. December 2011. *Assessment of the Pharmaceutical Management System in Cameroon.* Submitted to the US Agency for International Development by the Strengthening Pharmaceutical Systems (SPS) Program. Arlington, VA: Management Sciences for Health.

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ACRONYMS AND ABBREVIATIONS

ACT	artemisinin-based combination therapy
ART	antiretroviral therapy
ARV	antiretroviral
AS/AQ	artesunate-amodaiquine
CAPR	Centre d'Approvisionnement Pharmaceutiques des Regionaux (Regional Medical Store)
CEML	Cameroon Essential Medicines List
CENAME	Centrale Nationale d'Approvisionnement en Médicaments Essentials et Consommables Médicaux (Central Medical Store)
CFA Francs	unit of money in Cameroon
DPM	Directorate of Pharmacy Services
DTC	Drug and Therapeutics Committee
EML	essential medicines list
Global Fund	Global Fund to Fight HIV/AIDS, TB and Malaria
GOC	Government of Cameroon
HF	health facility
HIV	human immunodeficiency virus
LANACOME	National Quality Control Program of Cameroon
LMIS	Logistics Management Information Systems
MOH	Ministry of Health
MSH	Management Science for Health
NGO	nongovernmental organization
PHP	public health program
PMIS	pharmaceutical management information system
RDF	revolving drug fund
RDU	rational drug use
SPS	Strengthening Pharmaceutical Systems
SOP	standard operating procedure
STG	standard treatment guideline
TB	tuberculosis
USAID	United States Agency for International Development
VEN	vital, essential, or nonessential
WHO	World Health Organization

ACKNOWLEDGMENTS

The study team would like to convey its deepest gratitude to the officials at the Cameroon Ministry of Public Health for their support of this project. The team would especially like to thank—

- Dr. Jean Rollin Ndo, Director of the Department of Pharmacy and Drugs
- Dr. Gervais Ondobo Andze, Director of Public Health Programs
- Dr. Oussoumanou Taousse, Managing Director, CENAME

In country consultant-

- Dr. Marie Louise Ngoko Pharmacien-Consultant Independent, Yaounde

And all the data collectors—

- Mrs. Sabine Njuenwet
- Mr. Mark Bisal Tsoame

The study team would also like to acknowledge the professionals of CENAME, CAPRs, and health facilities in the field for their excellent contributions.

The external team was composed of Mr. Kwesi Eghan and Mr. Gabriel Daniel from SPS/USA.

We thank the HKI/Cameroon offices in Yaounde and Garoua for organizing providing office base and logistics support during the visit.

Thank you,

On behalf of all the team members

EXECUTIVE SUMMARY

This study is part of the US Agency for International Development's (USAID) support for the ministries of health of developing countries to improve and reinforce pharmaceutical management systems. It is in response to the concerns of the Cameroon Ministry of Health (MOH) on the issue of constant availability of essential medications at the Centrale Nationale d'Approvisionnement en Médicaments Essentiels et Consommables Médicaux (CENAME; Central Medical Store), the Centres d'Approvisionnement Pharmaceutiques des Régionaux (CAPRs), and health care delivery points.

USAID has given the Strengthening Pharmaceutical Systems (SPS) program the task of analyzing the pharmaceutical management capacities in Cameroon with a view to improving and strengthening the access of the Cameroonian population to essential medicines.

The assessment examined several aspects of the pharmaceutical sector and focused on—

- Governance
- Delivery of pharmaceutical services including procurement
- Distribution
- Storage and use
- Information systems
- Financing
- Human resources

The assessment identified both strengths and weaknesses and proposed recommendations. Previous assessments conducted by SPS and WHO more or less concur with the findings of this assessment.

The CENAME and the CAPRs, in fact, display proven institutional capacities in the areas of procurement, inventory management, and distribution of medicines and medical supplies in support of the health facilities (HFs).

The assessment showed that, although there was willingness to manage properly at the central and provincial levels, some chronic problems persist in the HFs. The assessment identified both strengths and weaknesses in the different aspects of the pharmaceutical sector. The immediate concerns of the drug management system are the following—

The pharmaceutical sector faces a number of challenges, key among them are—

- A weak information management system that cannot provide timely and reliable medicine consumption data, e.g., lack of stock cards, incomplete records, poor reporting

- Nonstandard inventory control forms being used at various levels and by different partners

- Inadequate storage facilities at most facility levels
- Lack of suitably qualified pharmaceutical personnel at lower levels
- Weak legislation and enforcement mechanisms to regulate the practice of pharmacy and assure safety and effectiveness of pharmaceuticals; poor link between the DPM and the regional pharmacy system
- Weak rational use of medicines programs
- No standards Treatment guides across the country
- Delay in disposal of expired and unusable products

For the Directorate of Pharmacy Services (DPM) to accomplish its mission of assuring safe and effective pharmaceutical supplies and services for the public, it is imperative that an efficient, comprehensive, and robust system be supported by political will as well as by substantial financial support from the government and donors.

METHODOLOGY

The assessment was conducted by a team of five professionals from MOH (2), SPS, (2) and an independent local consultant (1). Information was collected through a combination of desk review, field visits and interviews with health sector policy makers and practitioners. The assessment examined most technical areas of the pharmaceutical management cycle with special emphasis on policy/regulations, selection, quantification, procurement, distribution, inventory control, logistics information, use, and systems including staffing and training. The assessment targeted the central (1), regional (6), and district levels (20); MOH/DPM; hospitals; primary health care centers; CENAME; and private pharmacy outlets.

The assessment was carried out in the cities (regions) of Yaounde (Central), Bertoua (East), Douala (Littoral), Beua (West), Ngoundere (Adamawa), and Garoua (North).

A list of tracer drugs was prepared to assess availability of essential drugs, antiretrovirals (ARVs), and tuberculosis (TB) and malaria drugs at public HFs, stores, and private outlets. Prices of selected tracer drugs were also collected to determine variations and to compare the public and private sectors.

Observations and recommendations in the report are based on interviews, visits, and documents reviewed.

The assessment report is structured around five building blocks that can be used as guides for intervention design and planning. The five blocking blocks are governance, information, human resources, service delivery, and financing.

BACKGROUND

Socioeconomic Context of Cameroon

Cameroon, a Central African country with approximately 19 million inhabitants, is composed of 230 ethnic groups. With an area of 475,650 square kilometers, it shares its borders to the west with Nigeria, to the northeast with Chad, to the east with the Central African Republic, and to the south with Equatorial Guinea, Gabon, and the Democratic Republic of Congo. The majority of its population is rural (approximately 57 percent) and young (56 percent under 20 years). The governance structure of the country includes 10 administrative regions, 58 departments, 289 arrondissements, and 339 territorial communities. The number of departments and arrondissements is currently being increased.

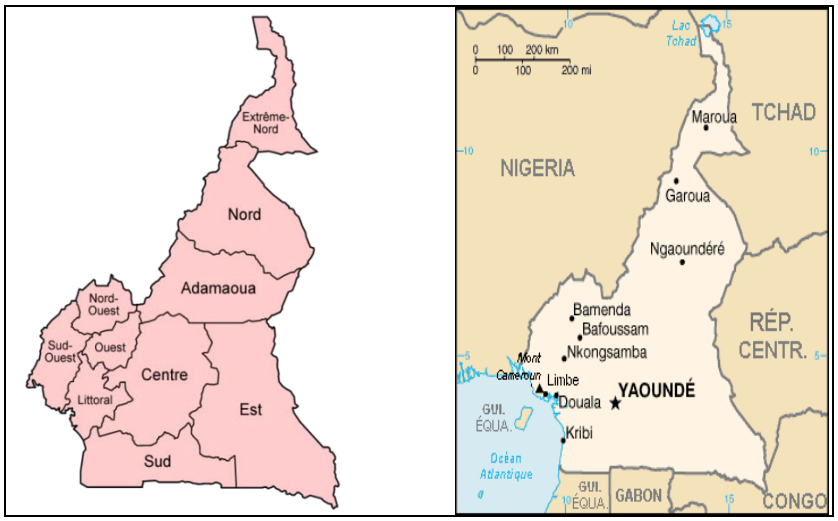

Figure 1. Maps of Cameroon

The health situation of the Cameroonian population is characterized by a high mortality rate estimated at 413 per 1,000 adults both sexes. The number of deaths for under fives attributable to malaria is 19 per 1000[1], followed by acute respiratory infections and diarrhea at 18 each.

The total number of doctors and pharmacists in the country is about 3,120; around 600 are pharmacists with most of them operating in the private sector[2]. About 57 percent of the qualified personnel are located in the Center, Littoral, and West regions. There are over 300 private pharmacy outlets.

[1] WHO –Cameroon Health Profile, 2010. www.who.int/gho/countries/cmr
[2] Discussions with the DPM October 2011

Health Context

In its *Déclaration de Politique Nationale de Lutte contre le Paludisme* (Declaration of National Policy on Malaria Control), the Government of Cameroon (GOC) indicates that malaria accounts for 40 to 50 percent of medical visits, 50 percent of morbidity in children under the age of five, and 35 to 40 percent of all deaths in HFs. Cases of acute respiratory infection in children under the age of five accounted for 35 percent of visits and diarrhea 22 percent. Some epidemic diseases, such as cholera, measles, and cerebrospinal meningitis, continue to be constant threats to the health of the Cameroonian population. Other diseases, such as HIV/AIDS, TB, and neglected tropical diseases—lymphatic filariasis, schistosomiasis, trachoma, onchocerciasis, and soil-transmitted helminthiasis—remain endemic in Cameroon and typically affect rural and marginal populations, who tend to be poor and lack access to safe water, basic health services, and essential medicines.

Organization of the Health System

The national policy and development strategies for the health sector implemented in recent years involved decentralizing the system and increasing access to quality medicines.

The health sector has several partners that support various aspects of the service. The following chart shows the main players in the various vertical programs.

Table 1. Partners Mapped to Health Programs

Programs and products	Partners
ARVs	CARE, Clinton health initiative, Global Fund, WHO, World Bank, German Bank for Development, ESTHERAID, CENAME
Essential drugs	UNITAID, UE, J&J, CENAME
AMDs	Global Fund, WHO
TB	Global Fund, WHO, Global Drug Facility, CENAME
Opportunistic infections	Global Fund, Clinton health initiative
HIV reagents	World Bank, UE, UNITAID
Reproductive health, family planning, condoms	FNUAP, CENAME, German Bank
Neglected tropical disease drugs	APOC, WHO, USAID, Helen Keller International, Sightsavers, IEF
Vaccines	UNICEF

ASSESSMENT FINDINGS AND GAPS

General Overview of Health Services

Following the adoption of the Bamako Initiative, the GOC took excellent steps to promote generic essential medicines and consolidate the operation of the cost-recovery system to ensure constant supply.

Each region has a CAPR, which is the de facto pharmacy department of the region. The operation of each CAPR varies from region to region. There is plan to annex all CAPRs to the CENAME. However, CAPR staff fear that their role may be limited to supply management if pharmacy services, such as rational drug use (RDU), are removed.

The HIV/AIDS program is guided by the national AIDS commission, and the day-to-day operation is the responsibility of the national AIDS manager. The manager is responsible for quantification of national need, policy and strategy, training, etc. ESTHERAID is a French nongovernmental organization (NGO) providing technical assistance in HIV/AIDS. ARVs are provided free of charge to patients in the public sector. Atripla is available only in the private sector for a fee.

ARVs are procured by CENAME. Once received, they are distributed to CAPRs. CAPRs distribute to antiretroviral therapy (ART) sites on the basis of consumption. At CENAME there are stand-alone stores for Clinton Foundation-provided ARVs and ARVs procured by CENAME. There is a satisfactory pharmaceutical management system (PMIS) for receipts, issues, balance batch numbers, and expiry dates. Some HFs store ARVs in the ART unit and their storage is poor (for example, in the regional hospitals in the North and East Regions). The patient medication registers are well maintained and computerized. ESTHERAID has provided software and training in how to use them. Tests for HIV are done at the facilities, and tests for viral load are referred to Yaounde.

The regions have HIV/AIDS units/departments that report to the regional delegue. They produce reports of uptake and drug use with data they receive from the ART service delivery points. The drug supply system for HIV/AIDS is coordinated by the program. Quantification is done by the regional program. Drugs flow from the CAPR direct to the ART centers without going through the pharmacy. The storage in some of the ART centers is inadequate. Stock cards and treatment registers are maintained. Software is used in most of the facilities. ESTHERAID is one of the NGOs providing technical assistance to the sites.

There are 124 ART clinics, and ARVs are provided only through these HFs.

Although efforts against malaria were intensified in 1995 with the creation of the National Programme for the Fight against Malaria, several studies indicate that this disease remains the leading cause of mortality and morbidity in Cameroon. Government policy is to reduce mortality and morbidity by 50 percent among the most vulnerable populations of children under 5, pregnant women, and those who spent more than two years in non-endemic areas. To achieve these targets, a vector control policy has been adopted and consists of providing treated mosquito

nets to the population, indoor residual spraying and treatment of malaria during pregnancy, and the administration of the combination-therapy treatment. Artemisinin-based combination therapy (ACT) in the form of artesunate-amodaiquine (AS/AQ) is the first-line drug for malaria in Cameroon.

The cost of treating a single malaria attack is now CFA Francs 70 for a child, and about CFA Francs 1000 per adult. Two dosage forms of AS/AQ for children, paracetamol 100 mg and sulfadoxine-pyrimethamine for intermittent preventive treatment, are provided free, but are also available through the private CENAME mechanism.

The TB program is managed similar to the HIV/AIDS program. Drug supply flows from CAPR to either the pharmacy or direct to the TB treatment center.

General Overview of the Pharmaceutical Sector

Pharmaceutical activities in Cameroon are dominated by the public sector, the private sector, and traditional pharmacopoeia. There are concerns of the growing threat from the illegal medicine market. The public pharmaceutical sector, SYNAME (Système National d'Approvisionnement en Médicaments Essentiels) is coordinated around CENAME, the CAPRs, and public HF pharmacies.

The MOH entrusted the DPM with full responsibility for the regulation of pharmaceutical activities in Cameroon. Among other obligations, the DPM is responsible for—

- Establishing, coordinating, and monitoring the implementation of the national policy on the supply of medicines, medical biological reagents, and medical devices in collaboration with other departments

- Establishing and implementing the legislation, regulations, and standards in the area of pharmaceuticals and biological analysis, in collaboration with the Litigation Division and other departments

- Approving medical biological reagents and medical devices as well as medicines for human use, which are imported or manufactured locally

- Coordinating and assessing the activities of pharmaceutical product manufacturing, packaging, storage, and distribution facilities

DPM has two branches: the Sub-Directorate of Pharmacy and Laboratories and the Sub-Directorate of Drugs. The DPM has a staff of 26 people: 5 pharmacists, 5 pharmacy technicians, 2 nurse managers, 2 lab technicians, 10 administrative staff members, 1 pathologist, and 1 information technology specialist. DPM has mechanisms to regulate the sale of medical products (wholesalers, pharmacies, public HFs), as well as means of controlling the promotion of medicines based on WHO ethics criteria. The DPM is also responsible for monitoring donations of medicines; donors are required to obtain in advance the consent and requirements of the

beneficiary, and to ensure that medicines have a valid authorization for sale, in the absence of which the WHO quality certification system is used. DPM is also responsible for preparing the approval application files, quality control and organization of the pharmacovigilance system. Procurement is guided by a decree that requires among other documents a copy of the operating license issued by the competent authorities in the country of origin, certifying that the manufacturing unit is approved in accordance with the Good Manufacturing Practices recommended by the WHO. The authorization for sale is granted by the Minister of Public Health on the advice of the National Medicines Commission.

The National Medicines Commission is composed of 15 members including the directors of DPM and LANACOME. The commission is divided into specialized committees whose responsibilities are to work on approval applications, pharmacovigilance and traditional pharmacopoeia, and selection and review of the national essential medicines and vaccines list, national formulary, and national treatment guidelines.

LANACOME is responsible for controlling medicine quality, has legal status, and enjoys financial autonomy. Its basic mission is to guarantee human health protection. Its principal responsibilities are to—

- Control the quality of all medicines and pharmaceutical products imported or manufactured locally and intended for local consumption
- Conduct assessments, studies, analyses, and tests to promote the pharmaceutical sector, cosmetic products, and any other product for human and veterinary medicine
- Control the quality of agro-food products, beverages, drinking water, and industrial water treatment systems
- Give an opinion on compliance with manufacturing, packaging, storage, distribution, and laboratory standards

It must be noted, however, that LANACOME does not have the full technical capacity and all the resources necessary to fulfill its mission, in particular biological tests. The country uses LANSPEX from Niger and/or the Clermond Ferrand CHMP (Medical Pharmaceutical Humanitarian Center in France). CENAME requested the analysis of 259 product lots in 2006 and 233 lots in 2007. Of this total, LANACOME analyzed 52 percent of the lots and LANSPEX 48 percent. All products underwent quality testing.

There are five manufacturing plants of which one is for IV fluids and another for essential medicines. The remaining three are involved in natural products research and development.

The Private Pharmaceutical Supply System

The private sector is made up of importers, distributors, and retailers. The private sector outlets vary, from sophisticated operations that use bar codes to those with the barest minimum of retail

capabilities. The problem of hawkers who sell drugs of unknown origin in the markets is widespread. Control of these has become a problem due to the limited capacity of the inspectorate general.

The private pharmaceutical sector contains two subsectors: (a) the private for-profit, which represents approximately 40 percent of the pharmaceutical market in Cameroon and includes distributor wholesalers such as LABOREX, BIOPHARM, UCPHARM, PHARMACAM, and SDPP, and approximately 400 private pharmacies; and (b) the private nonprofit, which includes faith-based Catholic, Reformed, and Islamic organizations and NGOs. The for-profit private sector was not considered in this study. However, it should be noted that the pharmaceutical sector in Cameroon is an excellent model of cooperation between the public and private sectors, thanks to the partnership between international backers and CENAME, which in turn maintains good commercial relations with faith-based HFs, NGOs, and private distributor wholesalers. For CENAME's sales in 2007, faith-based hospitals alone represented over 18 percent of the purchases.

The Public Pharmaceutical Supply System

Inadequate management of the Office National de la Pharmacie (ONAPHARM) and the Centrale Intérimaire d'Approvisionnement en Médicaments Essentiels (CIAME) led to the restructuring of the system and the creation of CENAME. CENAME began its operations as a project arising from the cooperation between the GOC, the Kingdom of Belgium, and the European Union. CENAME is a key element in the implementation of the national pharmaceutical policy. It is under the direct authority of the prime minister with dual leadership, falling under both MOH and the Ministry of Finance. The statutory bodies of CENAME are the Executive Board (which defines the general policy of the institution, establishes objectives, approves the annual plans of action, and determines the procedures for contracting the supply of essential medical devices and medicines) and the General Management (which prepares budgets, annual financial statements, plans of action, and activities reports; generally supervises the activities of the institution; and assesses the attainment of the objectives and performance). CENAME also has an Assembly of Users, which is an advisory body that can issue opinions on any issues related to the social purpose of the institution. CENAME has a central (Yaounde) and a branch operation (Ngaoundere). CENAME is an independent public agency with legal status and financial autonomy. The operating resources of CENAME are provided by subsidies and contributions from the government, resources allocated by development partners, and income from the provision of its services. In practice, however, these funds come mostly from the recovery of costs on the sale of the institution's own products.

The primary missions of CENAME are to—

- Ensure the availability and accessibility of essential medical devices and medicines
- Guarantee the quality of the essential medical devices and medicines, which it distributes in accordance with quality standards
- Supply the CAPRs with essential medical devices and medicines at the best quality/price ratio

In addition to its own assets, CENAME manages the products of the public health programs (PHPs), almost all of which are subsidized. From an original area of 3,500 square meters, the CENAME facilities currently total 8,004 square meters. This space is divided among the Yaoundé warehouses with 6,604 square meters, including the central warehouses, administrative offices, and three warehouses at the train station, and 1,400 square meters for both Ngaoundéré warehouses in the northern part of the country. CENAME includes a total of 17 warehouses, 2 of which are currently undergoing reconstruction. Because of the overcrowding of the current warehouses, plans exist to relocate the administrative departments on the upper floors of the buildings under construction and use the current administrative space to decentralize the existing warehouses. All the warehouses visited are equipped with up-to-date thermometers and extinguishers; however, the data collectors did not note devices to measure the moisture level.

CENAME includes four major sections covered by the General Management: PHPs, the Purchasing Office, Commercial and Inventory Office, and Administration and Finance Office. These offices are supported by an Internal Audit Unit and a Communications Unit. The administrative staff and secretary's office are independent of the Administration and Finance Office and fall under a management assistant who reports to the general office. One should note the special situation of the PHPs; although they are part of CENAME, they are managed in parallel. CENAME carries out purchasing on the local and international levels; however, once the products arrive in the warehouses, management of the distribution and inventories is not included in the functions of the Commercial and Inventory Office.

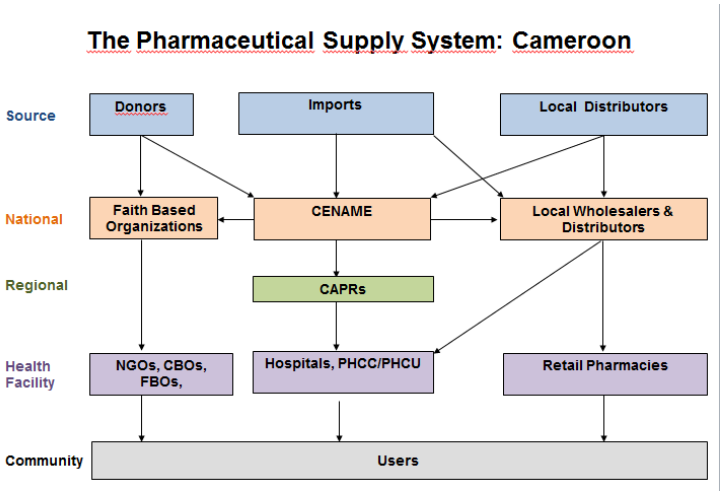

Figure 2. Pharmaceutical supply system in Cameroon

The assessment findings and recommendations are structured to reflect the SIAPS results framework (figure 3). The framework shows five health systems building blocks (governance, human resources, information, financing, and service delivery) with a medical products building block overlay to provide technical focus and identify substantive areas of concern and related corrective interventions.

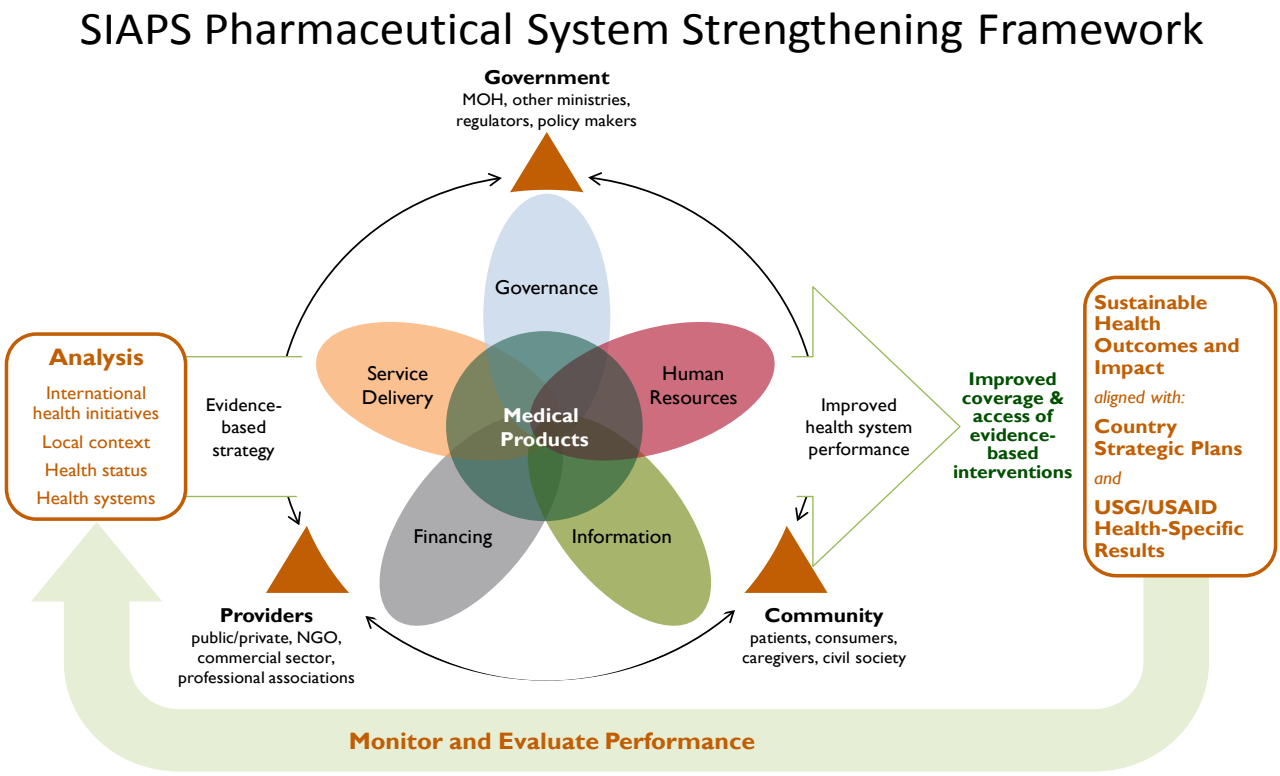

Figure 3. SIAPS pharmaceutical system strengthening framework

Governance

Under governance, the assessment examined the structures, functions, and relationships s of the pharmaceutical system. The approach to improving governance and accountability will focus on establishing transparent management systems grounded in policies based on best practices, legislation supported by the rule of law, and regulation supported by appropriate technology and capacity.

A ministerial order was issued in November 2008, mandating that MOH to develop and operationalize guidelines to govern the pharmaceutical sector. The order sought to ensure that all aspects of pharmaceutical services, including medicines supply management (including procurement, storage, distribution, quality assurance, and rational use) are adequately addressed. It seeks to ensure effective medicines regulations and control to minimize entry and circulation of substandard and counterfeit products, including veterinary medicines and supplies. Furthermore, recognizing the contribution of traditional medicine practice in the overall health care delivery service of Cameroon, the policy also makes provision for harnessing the benefits of traditional medicines with due consideration to safety and efficacy. Several regulatory instruments have been drafted and implemented as measures to streamline the services. These include: the Cameroon Essential Medicines List; standard treatment guidelines (STGs) for

various levels; guidelines for donations of medicines, medical supplies, equipment, and supplies; guidelines for licensing and registration of pharmaceutical businesses; guidelines for importation of pharmaceuticals; and related standard operating procedures (SOPs) and implementation. A comprehensive list of registered medicines has not yet been developed. Vacant positions in directorate are not yet filled. The number of pharmacies and drug stores operating in Cameroon is currently not known as some are operating without licenses. Guidelines, structures, and a system for drug registration and marketing authorization have not yet been made fully operational.

DPM is one of 10 directorates within GOC's MOH. DPM is currently not structured to address all areas concerned with pharmaceutical policy and practice, quality assurance, stores and supply, and rational medicine use. The current structure of DPM needs to be reviewed for re-engineering, reorganization, and strengthening so that roles and responsibilities are better defined, tasks are executed efficiently, and checks and balances are instituted.

Human Capacity (Staffing and Training)

There is major shortage of pharmaceutical manpower in Cameroon. Until recently, the country did not have a training institution for pharmacists and mid-level pharmacy personnel. Hence, the pharmacy service in the public sector is mainly provided by non-pharmacy professionals.

The management of pharmaceuticals by non-pharmacy professionals could reflect compromised professional services which could result in substandard and potentially harmful services. The discipline of pharmacy has key areas of expertise in rational use, compounding, selection, quantification, expiry tracking, pharmacovigilance, and quality assurance that cannot be replaced by task shifting or assigning non-pharmacy professionals. There are currently about 600 pharmacists in the public and private sectors and NGOs in the country. The ratio of population to facilities is approximately 75,000 per health center, 14,000 per health unit, and 400,000 per hospital.

At MOH, there are several vacancies in the directorate. Only six regions have registered pharmacists as directors of CAPR; in the districts, there are no appropriately trained focal persons for pharmaceutical management. At the HF level, staff handling medicines has little background training in pharmaceutical management. In a number of regions, the "commis"—staff dispensing medicines at public HFs including hospitals—are community-selected lay people with a limited amount of knowledge and education. They do have adequate technical training in medicines handling, use, and counseling. They are literally medicine sellers, offering little rational use counseling when dispensing. The pharmacy personnel at the HF level, who are either nurses, health assistants, and, in some cases, pharmacy technicians, are limited to heading the pharmacy store. They are called "major". Their main work is to order medicines from CAPR, store them, and issue to commis. Some pharmacy majors are also responsible for collecting sales from commis and depositing the money in the CAPR account. They don't play any supervisory, training, or monitoring roles for the dispensing unit. They are also not active in Drug and Therapeutics Committees (DTCs), which are practically nonexistent. The DTCs are facility-based committees made of prescribers, dispensers, and hospital administration staff who meet to

set standards of prescription, dispensing, and procurement in accordance to agreed standards. The commis sell drugs to patients who come with prescriptions from other places outside the HF. There are instances where commis sell drugs on the basis of an oral request from people who want to buy medicine, because the price of drugs at the HFs is controlled and inexpensive because they are sourced from CENAME.

This situation turns pharmacy into a pure trading venture; practices like RDU and accountability become very weak or nonexistent. Of great concern was the observation that HFs did not keep filled prescriptions. After being filled, the prescriptions are not kept at the facility but patients are allowed to keep the filled script. This practice could lead to irrational use or recycling of prescriptions to buy the same medicine another time, although refill has not been approved.

It is urgent that the capacity of the workforce is built throughout the country and that in-service and external training initiatives address the problem of having enough trained pharmaceutical personnel to manage the policy, regulatory, supply, and service aspects of the sector. The improved workforce is urgently needed.

It is recommended that the number of pharmacy professionals be increased to meet the increasing demand. Where there is no pharmaceutical technical staff, their recruitment and retention must be facilitated.

Strategies

- Define human resources and training needs for the pharmaceutical sector
- Develop staff attraction and retention mechanisms
- Establish training institutions for pharmacists and pharmacy technicians
- Develop in-service training, task shifting, and career development plans for the pharmaceutical sector
- Identify external training opportunities in undergraduate and graduate studies in diverse pharmacy disciplines
- Establish personnel standards and needs of the different levels and recruit staff to fill vacant positions
- Conduct training, including developing trainer and training of trainers capacity (manuals), including logistics

Pharmaceutical/Logistics Management Information System

To improve information systems, pharmaceutical data collection, processing, and presentation of information must be integrated to help staff at all levels make evidence-based decisions for managing health and laboratory commodities and pharmaceutical services. In addition, the

information system must be harmonized with the tools being used by different partners and the government. The proper functioning of the pharmaceutical management cycle is based on the constant availability of reliable data that can guide managers and decision makers in planning, quantification, allocation of resources, and monitoring and assessment of management operations. In Cameroon, there is a disparity in PMIS tools being used at various levels within the SYNAME and by different partners.

CENAME has high-performance management software—SAARI—used by almost all purchasing centers in West Africa. SAARI/Cameroon includes the key pharmaceutical management functions. It enables users to negotiate competitive bidding, manage purchases and vendors, monitor orders, and manage the receipt of products. With regard to the storage of products and management of inventory, the software has functions facilitating the geographic addressing of products. In addition, the software uses lot numbers and expiration dates to allow users to obtain information in real time on stock levels in the warehouses. To forecast needs, CENAME has data and information on the distributions it makes, but not on the actual consumption and services provided to the clients. The CAPRs use standard order forms with distribution data and requisition quantity.

Stock and bin cards are found in most facilities but they are not always up to date, and there is no supportive supervision to monitor their use. Reporting on stock status and treatment uptake is weak. The lack of organized storage in many places becomes a challenge to using bin cards on shelves. Data aggregation and reporting was weak across the system; however, several ART sites had very organized data collection and reporting systems in operation. Some facilities have run out of the registers while others had but were not using them anymore.

Prescription management is in dire need of change and standardization. The current practice doesn't ensure use of standard prescription papers by prescribers. Pieces of paper with incomplete information pervade the whole system.

The other alarming situation is returning the pieces of paper with the prescriptions on them to the patients after the prescriptions have been filled. This leaves no trace of prescribed medicine in the facility. There is no way of knowing what was dispensed and, hence, the accountability system for audits is weak. There are no records on which to conduct prescription reviews, drug utilization review and to undertake rational use determinations such as ABC, VEN, polypharmacy, interaction, etc.

There were large discrepancies between the consumption data at the facility and CAPR levels and the patient data at the regional focal-persons level. This appears to be the challenge across all health programs and ultimately has an impact on the forecasting and quantification of procurement amounts for the pharmaceutical system.

Analysis of malaria data in one region indicates that there are major challenges in completeness and timeliness of reporting from districts to the region.

Table 2. Reporting Rates, Completeness, and Timeliness (WHO)

District	Average % completeness	Average % timeliness
1	25	13
2	52	43
3	85	15
4	55	50
5	34	35
6	23	6
7	83	40
Average	**51**	**29**

As can be seen from the table above, about 50 percent of the time reports are not received from the districts at all. On average, a timely report is received only 29 percent of the time and only half are complete. Such reporting patterns don't provide for good planning.

The development of a responsive PMIS strategy that defines information needs at the central, state, county, and HF levels is key to the success of any pharmaceutical supply system.

To ensure uniform record keeping, inventory control, and consumption data, mechanisms should be instituted at all levels to ensure complete, accurate, and timely functioning of information systems. To bring logistics and information systems up to date, the following should be accomplished—

- Assess existing state of PMIS/logistics management information systems (LMIS)
- Develop a P/LMIS strategy that includes overall strategy and detailed approaches for the information to be generated at both the central and peripheral levels; the process for developing the PMIS strategy will include an information-needs assessment, which will define the form and sources of data for reports, etc.
- Develop P/LMIS program specifications, infrastructure requirements, data communication procedures, and other documents that lead to development of LMIS/PMIS SOPs and potential automation of LMIS and selected components of PMIS
- Establish systems and capacity for PMIS and monitoring and evaluation to optimize utilization of information and inventory control
- Implement systems for PMIS with appropriate data collection, analysis, reporting, and communication lines

- Design and agree on recording and reporting formats, schedules, coordination, aggregation levels, and other elements of the LMIS, recognizing that short-term steps lead to longer-term vision for the LMIS

- Standardize treatment registers, LMIS tools, reporting forms, and schedules to be used by all levels

- Print, disseminate, and provide inventory control and medicines use materials

- Train staff in LMIS and PMIS at all levels

- Harmonize use of PMIS/LMIS to be used by donors and partners involved in the pharmaceutical sector

- Identify comprehensive PMIS software that will help the various enterprise operations such as procurement, warehousing, distribution, transport, and accounting at CENAME and its branches

Financing

CENAME was initially capitalized by donor partners and the government. Its current operations are financed through government sources and revenues from the sales of medicines. For sales of medicines to its various clients, including the CAPRs, CENAME applies a charge of 18 percent for its management fees; the CAPRs resell to the HFs with a surcharge of 36 percent; the HFs in turn sell the products to patients by adding 15 percent. Patients in the Littoral and Beua regions generally pay out-of-pocket, but there is a growing health insurance scheme that includes drug benefits. The CAPRs have the obligation of establishing and maintaining high-performance operating mechanisms enabling them to replace their capital to meet their resupply requirements. The sale price of the medicines to patients in the HFs is established by MOH and must be displayed at the points of sale. CENAME updates its own lists, which are sent to the various clients with standardized purchase orders. For its imports, the fees paid by CENAME total nearly 6 percent.

One of the methods for financing medicines is a revolving drug fund (RDF) in which, after an initial capital investment, drug supplies are replenished with monies collected from the sales of drugs. Their objective is to sell essential medicines with low mark-ups, thereby bridging the gap created by stock-outs in public HFs and the exorbitant prices charged by private pharmacies. As depicted in the diagram below, the RDF system in Cameroon begins with the supply of products by CENAME to various downstream levels, the major recipient being the CAPRs. The other CENAME outlets are the faith-based facilities, central hospitals, and local wholesalers that supply selected products to the private pharmacies. The prices of the products to these downstream mechanisms are fixed. There is a management and oversight structure that runs from the center to the community (central, state, district, and community representations) and this ensures involvement and ownership by all concerned.

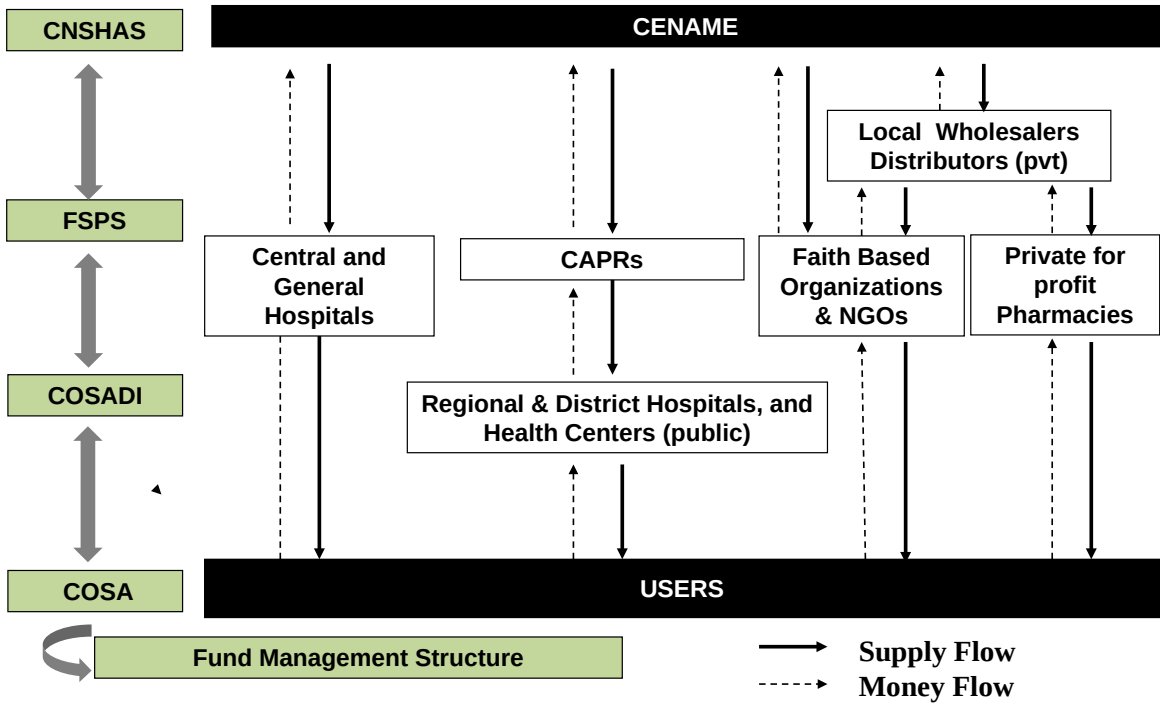

Figure 5. Drug supply and revolving fund scheme for Cameroon

All PHP products are procured by CENAME and managed at its warehouses. CENAME applies 10 percent for its management fees, which are paid from the Global Fund budget. ARVs and ACTs are purchased from the Global Fund budget. TB drugs are provided at no charge by the Global Drug Facility. Although ARVs and TB medicines are given to patients at no charge, ACTs are sold at subsidized prices. Although two types of ACTs are used (AS/AQ and artemether + lumefantrine), only AS/AQ is subsidized. Because they are sold, ACTs receive special consideration.

Challenges observed in the RDF system include the potential of debt accumulated at the different levels due to nonpayment or delayed payment, which creates capital erosion. The accumulation of expired drugs due to either poor stock management or supply of near-expiry products also results in capital erosion. Unscrupulous individuals at the lower levels sometimes divert CENAME-provided supplies to the private sector for personal gain because the prices of products from CENAME are much cheaper than their equivalents in the private market. Although the aim of the system is to improve access, selling drugs to individuals without prescriptions and selling drugs to patients with prescriptions from outside the facility (as the authenticity of these prescriptions cannot be validated) creates uncontrolled access and stock-out problems.

Other challenge is the focus on commodity sales and not on pharmacy services. Hence, concerns of rational use are not taken into consideration. The commis buy and sell; they are not trained to prescribe the correct medicines, monitor expiry, and counsel patients on compliance/adherence. The commis are not employees of the government—they are selected by the community to run the pharmacies. Their salaries are paid by the community from the sale of drugs.

RDF Facility-Level Transaction

Drugs are ordered by the pharmacy unit from CAPR. In the case of hospitals, the pharmacy head (who is called the "major") submits an order on a standard requisition form to CAPR. Each commis in a facility has his or her own lockable drug cabinet. For example, in Adamawa Hospital, there are five commis, each operating a drug cabinet. This is said to ensure that each is responsible for the security and management of the drugs he or she has signed for. At the end of the day, each commis is supposed to total the money collected and either transfer it to the head of the pharmacy or the accounting department or put it in the escrow drop-cash safe. The money collected money by the pharmacy unit or accounting department is deposited every day to the CAPR account. In the case of the drop-cash safe, the money is collected by the CAPR supervisor on a monthly basis. The CAPR supervisor comes with a duplicate safe key and, in the presence of the commis, opens the safe, counts and collects the money, and gives the commis a receipt.

In yet another model, the drugs in the facility are considered the property of CAPR, which is operated with money from the drug fund. Money from medicine sales is deposited into the CAPR account; CAPR replenishes products based on the money collected. CAPR maintains close scrutiny of the system.

The routine transaction and monitoring of the RDF system seems well organized and functions as planned. Some commis are provided with a computer and simple accounting software and operate an electronic system for managing the RDF.

RDF Models in Cameroon

Scenario 1

- Managed by the community committee
- CAPR provides seed stock
- Pharmacy of facility requests drugs with a standard requisition form
- Drugs stored in HF store
- Commis selected by the community are assigned to manage dispensing
- Commis make a request for their needs from the store on a standard requisition form
- An HF can have 1-6 commis, each with his or her own lockable drug cabinet
- Prices are posted in a public place in the facility and are uniform in all facilities
- The commis are allowed to add a margin
- The commis are paid from the proceeds of the sale of the drugs
- At the end of the day, the commis hand over the sales to either the pharmacy chief (major) or to accounting who deposits the money to a CAPR account; or the commis drop the sales into a safe which is opened at the end of the month when the CAPR supervisor makes his rounds to collect the sales; the safe is opened jointly because the keys are held by the CAPR and the community

Scenario 2

- CAPR provides drugs to the facility on the basis of a memorandum of understanding
- The staff managing the drugs are employees and not commis
- CAPR has a close management and monitoring role
- CAPR considers the stock at the HF its property and periodically tracks consumption and cash

Assessment of private sector pricing showed that all the assessed outlets get their supplies from local distributors, some of them directly from CENAME.

An assessment of indicator prices of selected tracer drugs at ten private outlets showed significant variation as shown below.

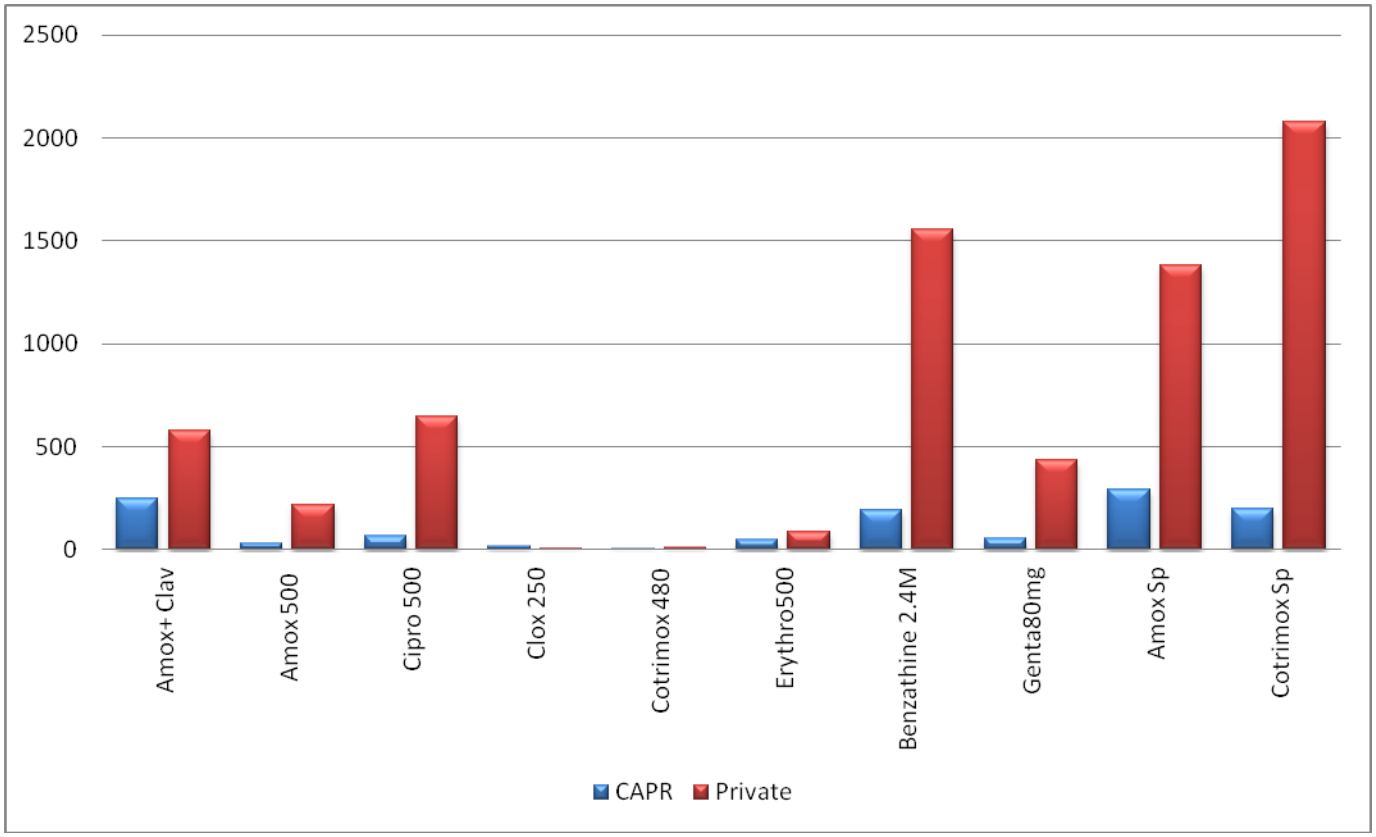

Figure 6. Price comparison of selected antibiotics at CAPR and private suppliers

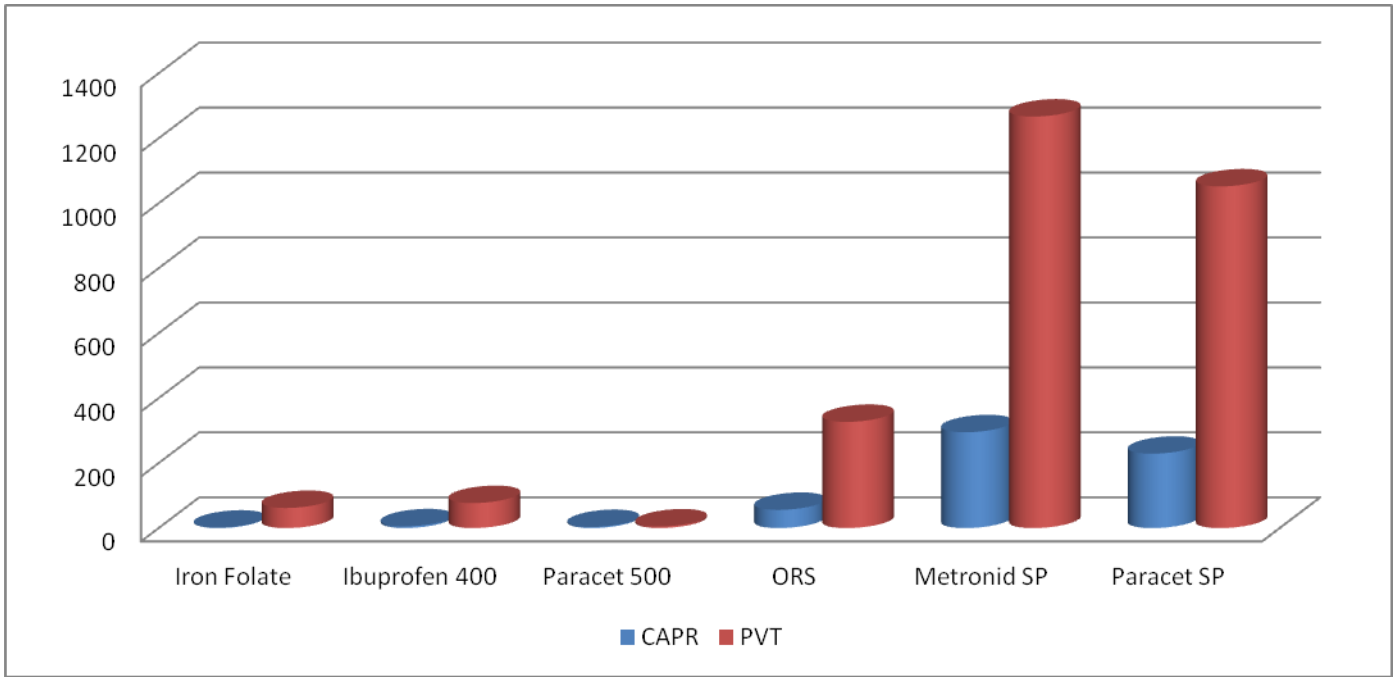

Figure 7. Price comparison between CAPR and private suppliers

To better manage the RDF and pharmaceutical services, a comprehensive and balanced approach should be taken into consideration—

- Conduct an option analysis in the management of the RDF program
- Support the development of guidelines and SOPs to operate the RDF at all levels
- Develop a training plan to equip commis to provide basic pharmacy services such as rational dispensing, counseling, and expiry tracking
- Introduce strict prescription use practice
- Keep all prescriptions after they are filled in the facility for accountability and drug use review purposes
- Assign a pharmacy professional responsibility for the entire pharmacy's services and make the commis accountable to the pharmacy professional

Service Delivery

One of the building blocks of the pharmaceutical framework is improved pharmaceutical services. The strategy for improving services is not limited to only assuring product availability. The holistic approach strives to ensure that patients receive medications optimized to their

clinical needs, in doses that meet their individual requirements, for an adequate time, and at the lowest cost to them and their community. To ensure services that will result in optimal treatment outcomes, we will build systems to train health professionals and providers, provide medicine information and counseling, conduct drug utilization reviews, formulate policies and regulations for improved pharmaceutical care, and disseminate information and educational materials to promote public health.

Selection and Quantification

Uninterrupted supply of drugs is the goal of any supply system. The scientific approach for quantification involves estimates based on consumption data (the most dynamic variable), past distribution, morbidity, and other considerations such as buffer stocks, emergency requirements, service expansion considerations, etc.

Availability of adequate, safe, and efficacious medicines and other health supplies is key and fundamental in the delivery of health services. All other health service delivery efforts will be in vain if there are no effective and efficient systems for appropriate selection, procurement, distribution, and storage of pharmaceuticals and health supplies.

CENAME is responsible for coordinating the selection and quantification of pharmaceutical sector needs and initiating requests for pharmaceutical procurements. CENAME, however, faces challenges in meeting the demands of its clientele. Lack of reliable consumption and morbidity data from facilities makes quantification for procurement extremely challenging.

CENAME refers to the Cameroon Essential Medicines List (CEML) for its purchases. A list of emergency medicines is attached to the CEML. CENAME has also established a list of tracer products for which satisfaction indexes are calculated each month. This index is searched on the basis of selection and orders placed by the pharmacies of the HFs, which are ultimately supplied by CENAME.

Quantification methods and systems are inadequate, in large part because they are not based on historical consumption data from the HFs. This data includes adjusted consumption at user levels, valid morbidity and service utilization data for the vertical program, current stocks, adjustments, and losses, etc. A weak pharmaceutical/logistic system to collect consumption and use data is a challenge to determine actual and projected needs.

It is challenging for a public system to sustain a universal, free medicines supply without constraining access and quality. Even with the current free system, the public will always need to get many drugs from the private sector for a fee. Although there are historical and economic reasons for such a practice, it is important that pertinent studies and alternate mechanisms are considered in the long term to ensure a sustainable supply of medicines.

It is highly recommended that a PMIS/LMIS that will provide accurate data for quantification and use be designed and implemented. The data recording and reporting on consumption and morbidity for quantification needs to be strengthened. It is recommended that a national

quantification exercise using a quantification tool such as Quantimed be conducted. Training in quantification and use of the tool is also advised.

Procurement

CENAME conducts open international competitive bidding every three years for its procurement. Any interested vendor must guarantee the quality of the products it intends to offer by obtaining a certificate awarded by the DPM; the certificate authorizes sale following receipt of quality control test results conducted on samples and analysis of the required files supporting the application.

CENAME has a list of approved suppliers with which it deals, and it establishes its contracts in accordance with the recommendations of the procedures established by the institution. Most of the medicines distributed in Cameroon are imported from Europe. CENAME obtains a portion of its products from eight local pharmaceutical companies: AFRIPHARMA, LABOTHERA, KAMSUKOM, AFRICAPHARM, SIPP, GENEMARK, Trade Pharmaceutical Co., and Camdiagnostics. SIPP (Société industrielle de produits pharmaceutiques), which specializes in producing solutions, is the largest company and accounts for 25 percent of CENAME's purchases.

The procurement system is a pyramid with CENAME controlling supplies to the CAPRs, which in turn, deliver to the HFs. CENAME has a distribution monopoly for the public sector. However, outside procurements are possible in the event of a stock-out at CENAME. It manages about 400 items, all categories combined, which it distributes to more than 75 clients. About 52% of CENAME sales are to CAPRs. CENAME sells 30 essential drugs to private wholesalers who in turn sell to private pharmacies. The price of these products is fixed by the government and the aim is to ensure access of safe and affordable medicines to the public through private channels.

CENAME established purchase orders, which are more like price catalogs, for the clients of the nonprofit private and public sectors and the distributor wholesalers and special catalogs for ACTs and biochemistry, hematology, and CDA reagents.

CENAME purchases in 2010 were about CFA Francs 12 million and sales were about 15 million. By category, about 30 percent of the procurement goes to ARVs and about 30 percent of sales are antibiotics. About 30 percent of sales are also represented by parenterals. This indicates a high level of injection giving which may need a closer look.

To harmonize and coordinate procurement, the following recommendations are presented—

- Conduct an assessment of current functionality and capacity of public, private, and NGO procurement systems

- Develop an action plan for transitioning procurement of all neglected tropical disease drugs to CENAME

- Develop a procurement plan for all health products

- Develop and implement procurement and ordering SOPs for all levels
- Develop procurement management information system for tendering, selecting, tracking, quality assurance, clearance, receipt, etc.

- Design and implement a training program for procurement/ordering management for all levels

- Create a functional pharmaceutical procurement and coordination committee for quantification, procurement, and distribution planning; share consumption and morbidity data and harmonize needs

- Create a mechanism for partners to submit their procurement and distribution plans to CENAME, so it can review the country's total pharmaceutical supply requirements

Distribution, Transport, and Storage

CENAME is responsible for distribution of medicines and medical supplies to Cameroon's ten regions. CENAME distributes medicines and medical supplies to the Ngaoundéré branch, the CAPRs, and other facilities. The principal CENAME clients are CAPRs (50 percent of sales), faith-based institutions (18 percent), large hospitals (17 percent), PHPs (9 percent), and other miscellaneous clients (approximately 6 percent). CENAME uses the pull system for the delivery of medicines. A quarterly schedule was established but is not yet adhered to. The standard purchase order put in circulation by CENAME is used for this purpose. To ensure deliveries to the CAPRs, CENAME has a pool of two 26- and 15-ton trucks and four other vehicles for its administrative and coordination activities.

In general, distribution from CENAME to the Ngaoundéré branch and to the CAPRs is efficient, translating into an average of 90 percent of the products available can be found in the CAPRs. Public display of medicine prices in accordance with MOH requirements occurs in many HFs.

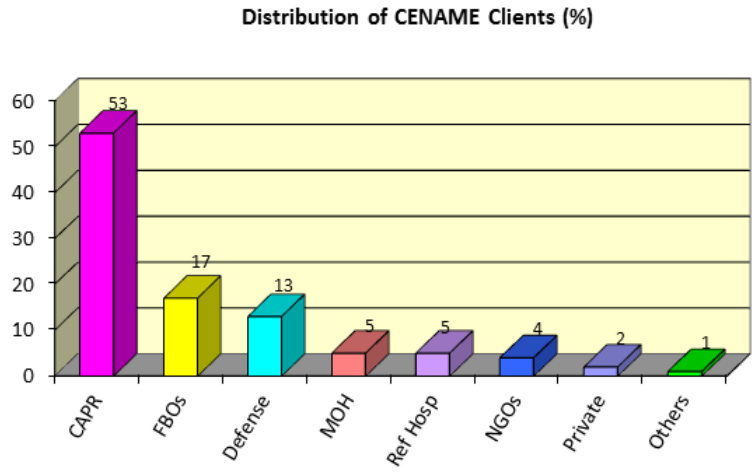

Figure 8. Distribution (%) of CENAME clients

CENAME warehouses are appropriately maintained and clean; thermometers, which are checked twice a day, and extinguishers, which are checked periodically, are present; a hand-operated pallet truck and two working lifting trucks are also available. The warehouses have pallets and shelving that are used in accordance with good storage and preservation practices. CENAME warehouses have their own computers. Despite the existence of the network, warehouse managers can monitor only their own inventory. Addressing the merchandise (geographic identification of the storage) and management of merchandise expiration dates and lot numbers are some of the functions of the SAARI software used at CENAME. A regular physical inventory of the products stocked is carried out (periodic and annual inventories, physical counts, and use-by dates).

The condition of storage facilities varies. Some, like the CAPR in Bertou, are in very good condition and well organized while others, like the CAPR in Admawa, are in need of better organization. A new store was built for handling program products. The region has two trucks for delivery and supervision; 80 percent of its orders are filled by CENAME and the rest from private suppliers. In the North Region, with one pickup truck and one station wagon, it is difficult to deliver and supervise the whole region. Both are old. Ngoundere receives its shipments by train. Because HFs do not make payments on time, CAPRs are forced to send vehicles to each facility every month to collect money. Carrying cash back from facilities is a security concern.

The CAPR stores in Beau are in excellent condition, and the data in the computer system in the stores matches the physical stock figures for tracer items on the day of the visit. The level of professionalism at the Beau CAPR was recommendable. Stock cards were duly updated on all the tracer items on the day of visit. The region had developed, printed and distributed its own treatment guides since there was none available at the national level.

Inappropriate (left and center) and appropriate (right) storage conditions

The CAPRs conduct analysis of satisfaction by calculating the number of orders and the rate the orders are complete. Table 3 shows such an analysis and the average rate of satisfaction of orders by CENAME is below 60 percent, which means there is a lot of room for improvement.

Table 3. CENAME Performance: Satisfaction Rate

CAPR location and period	No. products ordered	No. products fully supplied	No. products partially supplied	No. products not supplied	Satisfaction rate (%)
East/Bertou July 2011	171	106	0	65	62
Adamawa July 20, 2011	64	20	11	33	48
Center August 2011	75	32	12	28	59
Average satisfaction rate					56

The following are key recommendations for the distribution system—

- Strengthen forecasting systems, procurement planning, budgeting, and contracting/procurement for the most essential pharmaceutical items
- Strengthen distribution practices, streamline delivery schedules and route planning, and establish medicine supply-management coordinating mechanism
- Integrate distribution of all health commodities into one supply chain
- Develop and facilitate implementation of SOPs for good storage, transport, and warehouse management practices, including procedures for managing overstocks, expiries, and shortages
- Regularly monitor performance of suppliers

Availability of Tracer Drugs

Analysis conducted on availability of tracer products shows significant variation by category and type of products. It is necessary to review procurement, consumption, and morbidity patterns to ensure uninterrupted availability of these tracer products.

For HIV/AIDS products, the average availability is 60 percent, which is a concern as the interruption of ARVs is not acceptable. It was found that when such situations occur, prescribers change the regimen based on availability, a practice that can lead to resistance development as the change is not based on rational grounds.

The availability of antimalarials is also not satisfactory with 40 percent for Coartem and 60 percent for AS/AQ for adults. This again forces prescribers to use non-approved formulations or to send patients to buy from the private sector at higher prices and potentially lower quality.

TB and reproductive products are also in the 60 percent availability range, which requires corrective measures to ensure availability at all levels and at all times.

Although availability of essential drugs is in the 100 percent range, there is problem in the availability of antibiotics and other key essential drugs that have implication on morbidity and public health.

Table 4. Percentage Availability of Tracer items

Type of drug		Total (*n* = 9) CAPR (*n* = 5) Regular hospital (*n* = 4)	% Availability
HIV/AIDS	EFV 200 mg tabs	1/5	20
	EFV 600 300 mg tabs	1/5	20
	NVP 2000 mg tabs	3/5	60
	NVP Sp	3/5	60
	Douvir tab	3/5	60
	Douvir N	3/5	60
Malaria	Coartem adult	2/5	40
	AS/AQ adult tabs	3/5	60
	AS/AQ child tabs	5/5	100
	Quinine 300 mg tabs	5/5	100
TB	4FDC - HRZE tabs	3/5	60
Family planning/ maternal and child health	Microgynon pills	3/5	60
	Depo-Provera	3/5	60
	Condoms	4/5	80
	Iron/folic	4/5	80
	Oxytocin	2/5	40
Antibiotics/ antiparasitics	Albendazole	2/5	40
	Mebendazole	2/5	40
	Praziqauntel	3/5	60
	Metronidazole	4/5	80
	Amoxycillin caps	5/5	100
	Amoxycillin Sp	4/5	80
	Cotrimox 480 mg tabs	4/5	80
	Cipro tabs	5/5	100
	Benzathine pen	5/5	100
	Gentamycin inj	3/5	60
	Acylovir tab	2/5	40
	Fluconazole	5/5	100
Essential medicines	Alum hydroxide	3/5	60
	ASA	5/5	100
	Paracetmaol tab	5/5	100
	Ibuprofen	5/5	100
	Phenobarb	5/5	100
	Dexamethasone	5/5	100
	Ringer’s lactate	5/5	100
	Glucose 5%	5/5	100

Disposal of pharmaceutical waste, such as expired and unwanted medicines, is another challenge at all levels of the supply chain. Staff not only lack clear guidelines on procedures, but also the incineration facilities for appropriate disposal. Pharmaceutical waste management is not handled according to international standards. Most disposals of expired and obsolete pharmaceuticals is done in an ad-hoc manner with potential environmental consequences. No waste disposal facility exists at the state level.

CONCLUSIONS AND RECOMMENDATIONS

The essential drugs concept is central to a national medicines policy because it promotes equity and helps to set priorities for the health care system. The core of the concept is that use of a limited number of carefully selected drugs based on agreed clinical guidelines leads to a better supply of drugs, more rational prescribing, lower costs, and less wastage. Problems in prescribing, dispensing, patient use, and self-medication limit the achievement of intended outcomes. The use of drugs irrationally compromises safety and effectiveness. Over- and under-prescribing cause adverse drug events and promote antimicrobial resistance. Wrong drugs and improper instructions for use can lead to life-threatening situations. The assessment showed that RDU is at its infancy at all levels. There is neither a guideline nor a requirement for establishing DTCs at facilities.

Pharmacy outlets in hospitals and health centers are almost totally run by community-selected, assigned people with training limited to buying and selling drugs and reporting on stock status, sales, and transfer of funds. They are paid from the proceeds of medicine sales. There is a weak structure for technical supervision, except what they get from the CAPR which is predominantly to check stock status against sells and collection of funds. This leaves a major gap in ensuring proper use of medicines enshrined in the National Pharmacy Policy of Cameroon.

To promote RDU and increase better health outcomes, it is recommended to develop, update, disseminate, and train service providers on methods that promote rational medicine use. In addition, the establishment of DTCs at various levels of the health care system to initiate and oversee rational medicine use interventions should be enforced. RDU should be facilitated and actively promoted through sound prescribing, good storage and dispensing practices, and appropriate training of health professionals. The practice of commis works against the concept and principles of RDU and needs to be addressed as a matter of urgency. The work of the commis must be guided and supervised by pharmacy professionals. The number of pharmacy professionals working in HFs needs to be increased.

The following are representative recommendations for promoting RDU—

- Develop RDU, antimicrobial resistance, and pharmacovigilance frameworks for safe and effective use of medicines
- Revise and update STGs
- Develop a guideline requiring hospitals to establish DTCs
- Strengthen the capacity of health professionals to implement DTCs through training and provision of tools and equipment
- Develop and provide training to prescribers and dispensers in rational prescribing, rational dispensing and counseling
- Develop information, education, and communication materials to promote RDU

- Establish drug information services at hospitals
- Update EML based on those medicines that are of greatest importance, basic, indispensable, and needed to satisfy the health needs of the majority of the population; the present list may need to be expanded
- Revise and disseminate EML/STG to all HFs and health workers, relevant NGOs, and others who have need of it
- Ensure the availability and use of a standard prescription form at public HFs
- Encourage practitioners to prescribe generic drugs
- Define, promote, and implement adequate dispensing practices and patient counseling
- Develop terms of reference for, train, establish, and support DTCs at hospitals and large health centers
- Review existing medication registers and make them available at all HFs as a tool for monitoring rational use and inventory control
- Develop and implement facility-level antimicrobial resistance and pharmacovigilance interventions including tools, training materials, and adverse drug reaction reporting
- Renovate and provide tools for dispensing units to provide adequate and appropriate counseling and dispensing services
- Provide guidelines and training on the management of kits (kit drug prescription and dispensing guidelines, supply, and redistribution management)
- Provide, train, and adhere to donations guidelines

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