

# **Technical Report: Baseline Study of the Status of the Supply of Medicines and Medical Supplies in Specialized Health Care Centers in the Dominican Republic**

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National Pharmaceutical Management Unit (UNGM)  
August 2013



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The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services in order to achieve desired health outcomes. Toward this end, the SIAPS results areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms for improving access to medicines, and increasing the quality of pharmaceutical services.

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## **Key words**

Supply, Specialized Health Care Centers, Integrated System

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## ACRONYMS AND ABBREVIATIONS

ARV	antiretroviral
CBME	<i>Cuadro Básico de Medicinas Esenciales</i> (Basic List of Essential Medicines)
CEAS	<i>Centros Especializados de Atención en Salud</i> (Specialized Health Care Centers)
DOP	Dominican peso
MPH	Ministry of Public Health
MSH	Management Sciences for Health
PROMESE/CAL	<i>Programa de Medicamentos Esenciales/Centro de Apoyo Logístico</i> (Essential Medicines Program/Center for Logistical Support)
PTC	Pharmacy and Therapeutics Committee
SENASA	<i>Seguro Nacional de Salud</i> (National Health Insurance)
SFH	<i>servicio farmacéutico hospitalario</i> (hospital pharmaceutical service)
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SRS	<i>Servicio Regional de Salud</i> (Regional Health Service)
SUGEMI	<i>Sistema Único de Gestión de Medicamentos e Insumos</i> (Integrated System for Medicines and Supplies Management )
TB	tuberculosis
UNGM	<i>Unidad Nacional de Gestión de Medicamentos</i> (National Pharmaceutical Management Unit)
URGM	<i>Unidad Regional de Gestión de Medicamentos</i> (Regional Pharmaceutical Management Unit)
USAID	US Agency for International Development

## INTRODUCTION

The Integrated System for Medicines and Supplies Management (Sistema Único de Gestión de Medicamentos e Insumos; SUGEMI) was created by Ministerial Accord in July 2010. Since that time, the National Pharmaceutical Management Unit (Unidad Nacional de Gestión de Medicamentos; UNGM) of the Directorate for Regional Health Service Development and Strengthening has carried out a series of activities that have made it possible to put in place operating procedures for all components of the supply management system and train staff in their use; implement a strategic information system for decision making; carry out three national pharmaceutical procurement exercises using a standardized methodology; incorporate two disease control programs into the Integrated System; close the financial gap for the purchase of antiretrovirals (ARVs); and improve storage conditions in Regional Health Services (Servicios Regionales de Salud; SRSs).

Before the SUGEMI can be fully implemented, the remaining disease control programs and Specialized Health Care Centers (Centros Especializados de Atención en Salud; CEASs) forming a part of the public network will need to be integrated. The CEASs have participated in the national quantification exercises for procurement, using the SUGEMI methodology. Their complete integration, however, requires compliance with the procedures established for the selection, distribution, and use of medicines and supplies.

The UNGM work plan, developed with support provided by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program and the US Agency for International Development (USAID), contemplates technical assistance for incorporating CEASs of the public health network into SUGEMI. In August 2013, the UNGM conducted a study designed to determine the supply status in the CEASs. The results, presented in this document, will serve to guide those interventions whose implementation is agreed upon as well as to determine the impact of those interventions.

## **OBJECTIVES**

1. To describe the status of supply management in CEAS pharmaceutical services to identify the problems they face
2. To reach an agreement with regard to the interventions that need to be implemented to correct the problems identified in the study
3. To establish baseline indicators to determine the impact of SUGEMI implementation on the CEASs

## METHODOLOGY

In August 2013, a descriptive, cross-sectional, and retrospective baseline study was conducted of the status of supply management in 21 (14 percent) of the Dominican Republic's 150 CEASs. Of these, 5 are national-level general referral hospitals, 9 operate at the regional level and 6 at the provincial level. The CEASs selected are distributed throughout the nine SRSs and account for 85 percent of the monetary amount of medicines and supplies programmed for 2014. They also account for 62 percent of expenditures on medicines and supplies for hospitals operated by the Ministry of Public Health (MPH) and by the Essential Medicines Program and Logistical Support Center (Programa de Medicamentos Esenciales y Central de Apoyo Logístico; PROMESE/CAL).<sup>1,2</sup> (See Annex 1. List of CEASs selected.)

The variables studied were based on the processes and components of the supply management cycle and SUGEMI procedures. The study covered the following processes and components: organization of the hospital pharmaceutical service (*servicio farmacéutico hospitalario*; SFH), selection, programming, procurement, storage, distribution, use, financing, human resources, supervision, information, and coordination with the SRSs.

To gather the requisite information, visits were made to the CEASs between August 7 and 12, 2013. During these visits, information-gathering instruments were administered to key personnel from the pharmaceutical services, medicine warehouses, directors of the tuberculosis (TB) and HIV and AIDS programs, and administrative and purchasing offices.

The following techniques were used to gather information: (a) review of records and documents for each of the supply processes; (b) direct observation (checklist) during the visit to the warehouse; (c) structured interviews with key informants; and (d) physical count of medicines on hand in the warehouse and the SFH.

The data were processed using an MSAccess database. During the week of August 9–13, the UNGM technical team, with support from SIAPS consultants, conducted the analysis and discussion of the results obtained.

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<sup>1</sup> Viceministerio Planificación y Desarrollo, Dirección General de Planificación y Sistema de Salud, Unidad de Cuentas Nacionales en Salud. 2012. *Informe Cuentas Nacionales de Salud República Dominicana: Informe Gasto Público en Salud 2011* (Report on National Health Accounts Dominican Republic: Report on Public Health Expenses 2011). Santo Domingo, DR: Ministry of Public Health.

<sup>2</sup> Ministerio de Salud Pública de República Dominicana, Dirección de Desarrollo y Fortalecimiento de los Servicios Regionales de Salud – DDF/SRS, Unidad Nacional de Gestión de Medicamentos – UNGM. November 2012. *Programación para la compra en el 2013 de medicamentos e insumos médicos en República Dominicana* (Programming for 2013 purchases of medicines and medical supplies in the Dominican Republic). Santo Domingo, Dominican Republic.

## PRESENTATION OF RESULTS

### Selection of Medicines and Supplies

Medicines procured by the CEASs must be included in the Basic List of Essential Medicines (Cuadro Básico de Medicamentos Esenciales; CBME), and only by exception may medicines requested by physician specialists be procured—and then only after being approved by the Pharmacy and Therapeutics Committees (PTC) and authorized by hospital management.

The current CBME dates from 2005 and includes approximately 820 pharmaceutical specialties. This document was available in only 13 (62 percent) of the 21 CEASs studied, and even in those facilities where it was available, staff members interviewed indicated that it was not used as a reference when making purchases. Members of the pharmaceutical staff also indicated the absence of a list or catalog that would provide guidance in the programming and procurement of medical supplies and laboratory materials by health facilities.

In 21 CEASs (100 percent), medicines were found that were not included in the current basic list. The number of pharmaceutical specialties in stock but not included in the CBME varied between 1 percent and 59 percent, with a median of 8 percent. This is a conservative figure, because it does not include medicines procured by the National Social Security (Seguro Nacional de Salud; SENASA) agency or the Protected Diseases Program.<sup>3</sup>

Only 11 CEASs (52 percent) reported having established a PTC, but with only limited functionality, since only 27 percent (3/11) of those CEASs reported that the committee had met at least four times during the preceding year.

### Programming

In 17 CEASs (81 percent), the SFH is responsible for the annual programming of medicines and supplies. Of these, 15 participated in the most recent programming exercise carried out by the UNGM in April 2013 and, therefore, have received training. The remaining 4 CEASs do not conduct programming exercises.

Of the 15 CEASs that participated in the programming exercise, 6 (40 percent) forward their programming forms to the Office of Administrative Management for the allocation of funding. Of these, only 4 used programming forms to submit orders to PROMESE/CAL. The UNGM has not officially forwarded the results of the 2013 programming exercise to the CEASs.

### Procurement

The team evaluated several criteria for application of the law for government purchases and procurements, together with its implementing regulation 543-12. Only 10 percent (2/21) of the

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<sup>3</sup> An MPH program that procures high-cost medicines and supplies for interventions such as kidney transplants, cancer treatment, and renal dialysis.

CEASs evaluated were in full compliance with the following requirements: (a) the Purchasing Unit conducts the procurement; (b) existence of an approved annual purchasing plan; (c) existence of a Purchasing and Contracting Committee; (d) the CEAS refrains from making purchases not previously included in the annual programming plan; (e) list of prequalified providers (government purchasing website); (f) publication of tenders and/or direct purchases on the government's purchasing website. Lack of training does not appear to be a factor having any bearing on this finding, given that 16 CEASs (76 percent) received training during the preceding year by the Ministry of Finance's Public Procurement Directorate.

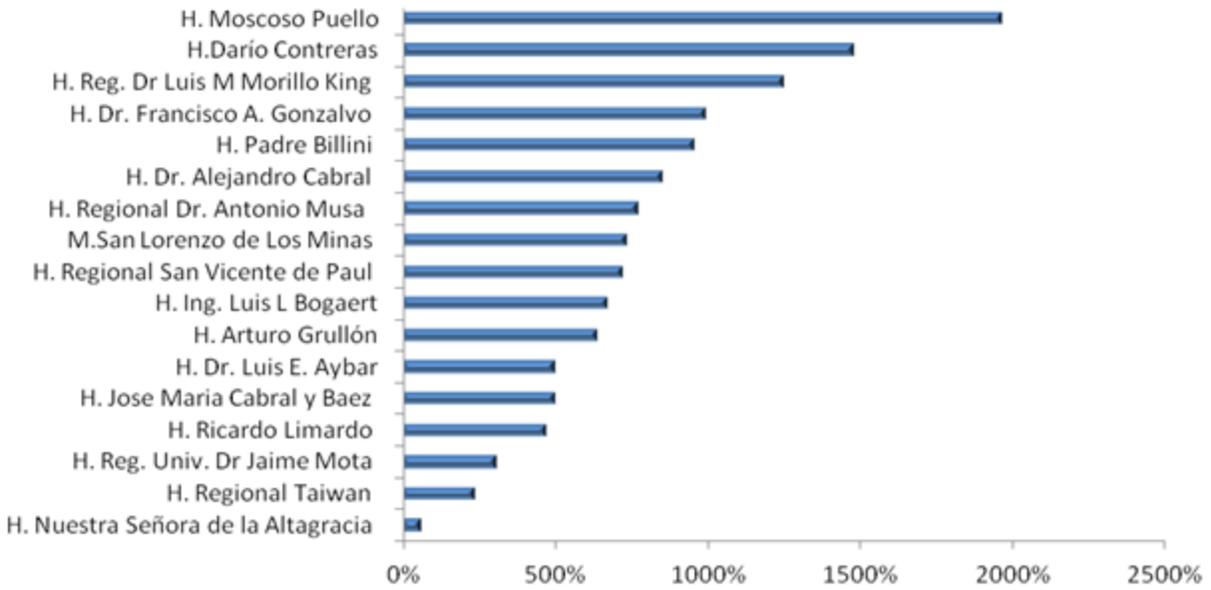
Purchases made by CEASs are from two sources: allocations from PROMESE/CAL and private providers. The individuals interviewed from administrative offices reported that the processes by which CEASs make direct purchases from providers are not planned. Twenty-nine percent (6/21) of the CEASs studied make weekly purchases, 43 percent (9/21) make monthly purchases, and 15 percent (3/21) make purchases as needed. Most of the CEASs (86 percent) do not use reference prices for evaluating quotes received from providers; the process is limited to comparing prices included in quotes received from suppliers, with no knowledge as to whether or not those prices are high.

Purchases from private providers made by 95 percent (20/21) of the CEASs include medicines and supplies included in the PROMESE/CAL price catalog. Some 43 percent (9/21) of the CEASs studied make direct purchases from PROMESE/CAL besides the allocation received from the MPH and SENASA. Ninety percent (19/21) of the CEASs report making purchases from private providers because PROMESE/CAL fails to process their orders.

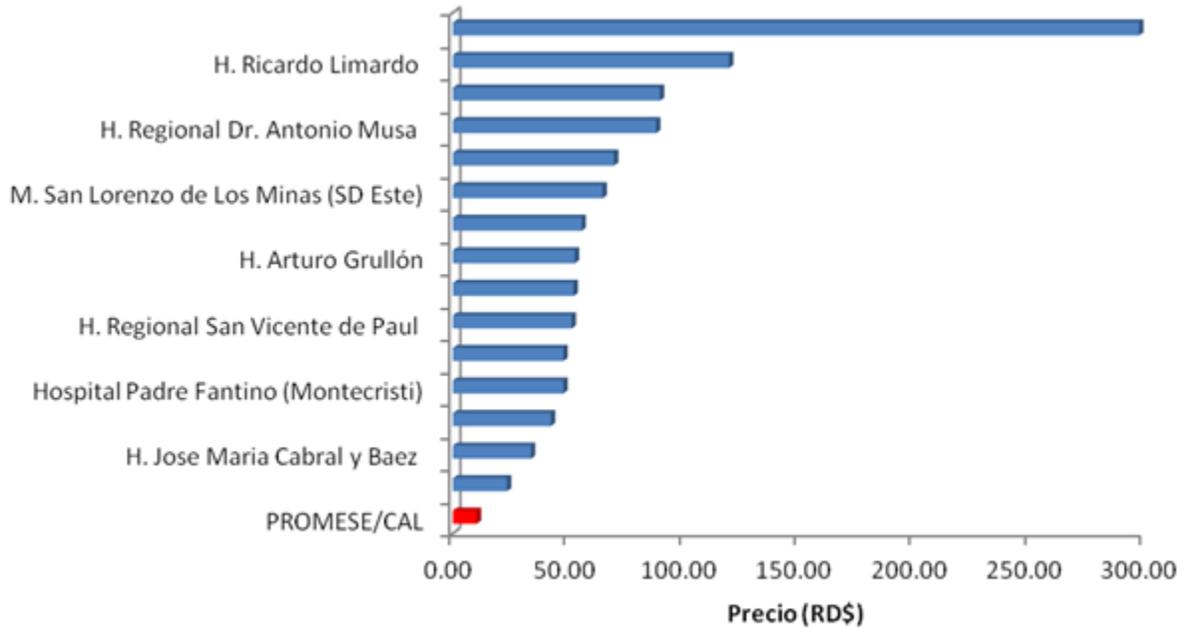
These weaknesses in purchasing processes, the lack of reference prices, and fragmented purchasing affect the prices of purchases made from private providers. These are 722 percent higher<sup>4</sup> than those of the same products procured through PROMESE/CAL, with extreme values ranging from 63 percent to 1,965 percent (figure 1). By way of example, figure 2 illustrates the procurement price for the same product in a number of different CEASs.

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<sup>4</sup> Median for a group of tracer medicines.



**Figure 1. Average percentage variation in prices of medicines, by CEAS**



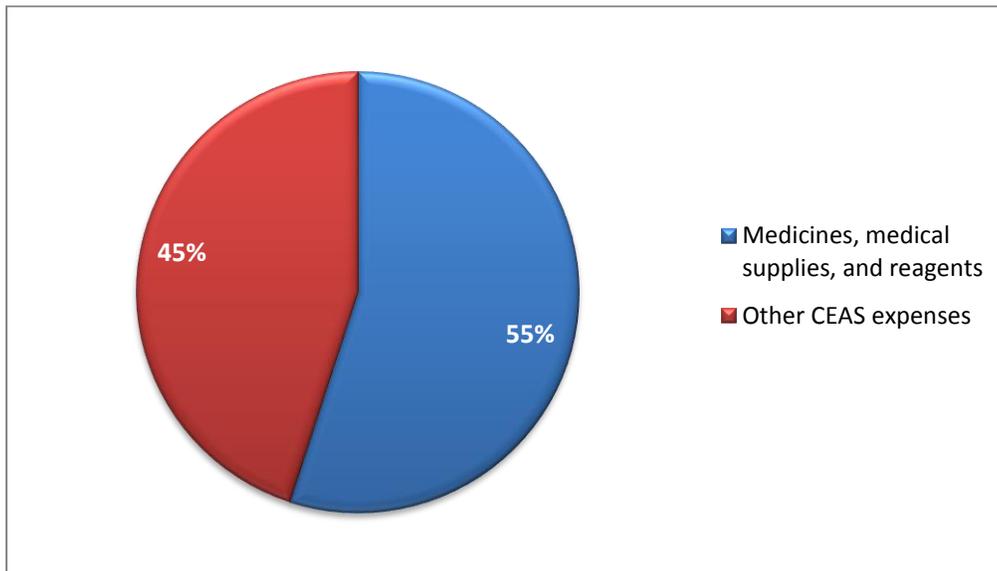
**Figure 2. Purchase prices of hydrocortisone 100 mg/ml injection, by CEAS**

## Financing

Within the SUGEMI framework, two programming exercises have been organized for the purchase of medicines in 2013 and 2014. The programming exercise carried out in 2012 for purchases to be made in 2013 suggested that 60 percent of all products (medicines and supplies) be procured through PROMESE/CAL at an estimated cost of DOP 943,383,129. The remaining 40 percent (either specialized products and/or products not included in the PROMESE/CAL catalog) were to be procured on a decentralized basis by the CEASs at an approximate cost of DOP 435,740,090.<sup>5</sup> Strict observance of this programming would make it possible to meet estimated needs at a cost below or close to MPH budget ceilings.

Figures 3 and 4 show that, in the CEASs studied, of the total overall budget received in 2012,<sup>6</sup> 55 percent (approximately DOP 32,011,186) was spent on the purchase of pharmaceuticals, leaving only 45 percent for other hospital needs: food, maintenance, utility expenses (figure 3). Of the total outlays for the purchase of medicines and supplies in 2012, only 32 percent (DOP 293,738,653.34) was for purchases made through PROMESE/CAL, while 68 percent (approximately DOP 638,272,532.70) went for purchases made through private suppliers.

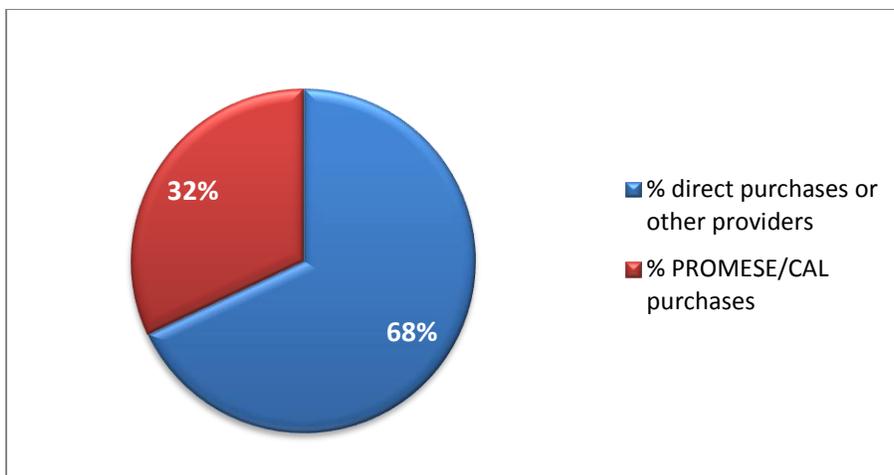
The high prices paid for decentralized purchases from private providers reduce the number of products that can be purchased with the allocated budget, a factor contributing to the supply stock-outs observed over the past six months. As an alternative, efforts are being made to meet needs but, as reported by administrative officials, at the expense of a progressively increasing the level of indebtedness to private suppliers. One might speculate that the prices quoted by these suppliers include payment for servicing an anticipated debt, thus perpetuating the vicious circle of high prices and steadily accumulating debt to suppliers.



**Figure 3. Percentage of global CEAS budget executed in 2012**

<sup>5</sup> *Informe de programación nacional del SUGEMI* (SUGEMI Report on National Programming). 2012. UNGM and SIAPS/USAID.

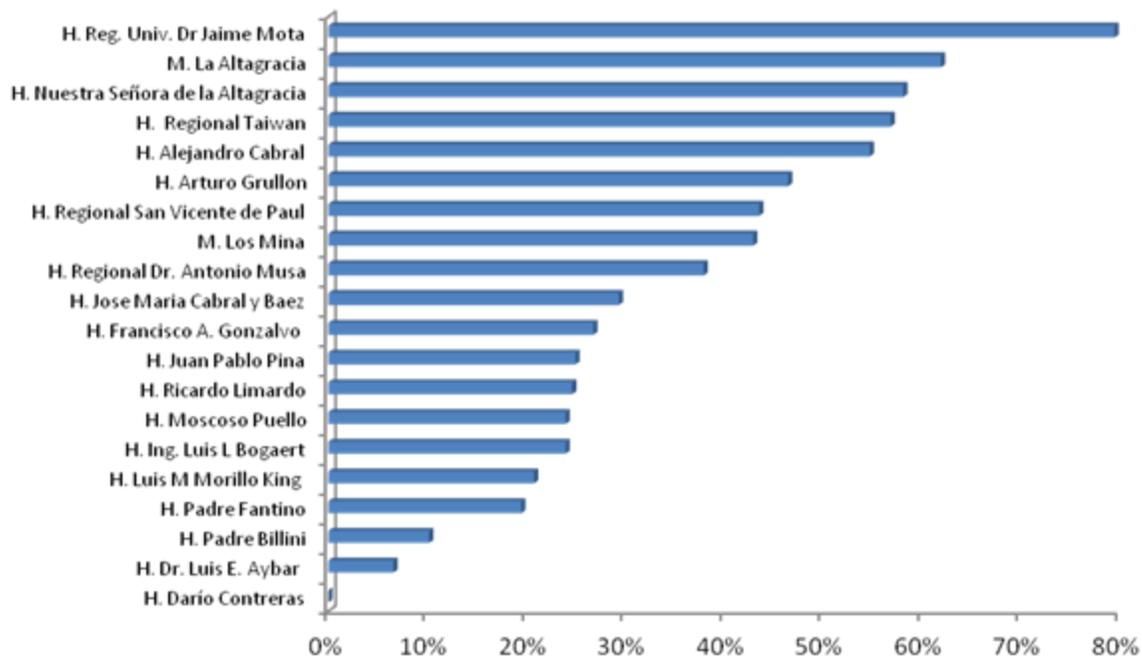
<sup>6</sup> The budget received does not include funds for payrolls.



**Figure 4. Percentage of expenditures on medicines, health supplies and reagents, broken down by provider, in 2012**

### **Requisition and Shipping**

Through the SUGEMI framework, the MPH is making initial efforts to develop a programming process that reflects its needs and provides for purchases approximating the amounts programmed and that ships amounts close to meeting periodic requirements. If this chain of events were to function efficiently, PROMESE/CAL should procure and distribute the total amount of product requirements determined by each CEAS during programming exercises. The current study determined that, on average, monthly shipments by PROMESE/CAL cover only 35 percent of the items and amounts requisitioned by the CEASs (figure 5). Those interviewed reported that monthly requirements are not dispatched in a single delivery. A number of warehouse heads mentioned that as many as four monthly visits to PROMESE/CAL are needed to complete monthly requirements.



**Figure 5. Percentage of shipments that fulfill completely (items and amounts) requisitions submitted by CEASs to PROMESE/CAL in June and July 2013**

Incomplete deliveries of items and amounts requisitioned forces CEASs to complete their requirements with purchases at higher prices from private providers, as mentioned in the preceding section.

### Storage and Transportation

In 76 percent (16/20) of the CEASs studied, responsibility for storage of medicines and supplies falls to the SFH; however, only 65 percent (13/20) receive, store, and distribute medicines for use specifically by HIV and TB Programs. In the remaining 35 percent, these commodities are shipped directly to the program's service facility.

Storage conditions and practices were evaluated against a checklist consisting of 19 variables, including various aspects of internal organization, security, staff, climate control and temperature, and basic equipment. None of the warehouses (0 percent) were satisfactorily in compliance with more than 80 percent of the criteria evaluated. Sixty-seven percent (14/21) of the CEASs evaluated were in compliance with less than 50 percent of the established criteria.

Medicines procured by CEASs from private providers are not subject to quality control. As a result, there are no quarantine areas for storing medicines to which appropriate control measures have not been applied.

During the 12-month period preceding the study, a total of 15 warehouses had supplies of medicines past their expiration date, 9 had supplies of damaged medicines on hand, and 4 had

lost medicines. Most of these medicines were close to their expiration date when donated. Only 19 percent (4/21) apply MPH procedures for the sanitary disposal of unusable products.

## **Availability and Use**

As of the date of the study, the availability of medicines for use at the specialized level<sup>7</sup> ranged between 13 percent and 100 percent, with a median of 54 percent. Those interviewed reported that they had not received medicines in tablet form for oral administration for more than a year, in accordance with orders issued by PROMESE/CAL.

The availability of first-line anti-TB medicines for adults and for prophylaxis<sup>8</sup> ranged between 0 and 100 percent with a median of 75 percent, and the availability of ARVs for adults<sup>9</sup> ranged between 44 percent and 100 percent with a median of 89 percent. The availability of pediatric ARVs ranged between 25 percent and 100 percent with a median of 68 percent.<sup>10</sup>

The lack of a continuous supply of medicines and critical supplies is the most readily apparent result of the problems involving financing, programming, requisitioning, and delivery referred to earlier in this report. The objectives of this study did not include an evaluation of the degree of compliance with current health care protocols, prescribing, dispensing, and adherence to treatment. However, it was determined that 11 CEASs are not in compliance with SUGEMI dispensing procedures, which state that custody and delivery of these medicines is the responsibility of the SFH (not the health care service) and that monthly withdrawal against a prescription must be done by the nurse.

## **Information System**

The data generated by the supply of medicines and other commodities need to be systematized, either manually or electronically, to support the management of the various processes involved. Three (14 percent) CEASs did not keep any type of data records, 4 (19 percent) keep a manual record of inventories, and 14 (71 percent) keep an electronic record, using a number of different applications (table 1). Upon comparison of stock on hand according to either manual or electronic records against a physical count of a number of tracer medicines or supplies, complete agreement was found in only 19 percent of all CEASs.

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<sup>7</sup> A list of 24 tracer medicines was used in accordance with the level of each CEAS.

<sup>8</sup> The medicines used as tracers were RHZE, RH 150/150, ethambutol, and isoniazid 100 mg.

<sup>9</sup> A list of nine tracer medicines for adults was used in accordance with the courses of treatment in use by each CEAS as of the date of the study.

<sup>10</sup> A list of nine tracer medicines for pediatrics was used in accordance with the courses of treatment in use by each CEAS as of the date of the study.

**Table 1. Electronic Applications in Use**

<b>Name</b>	<b>Number of CEASs using the application</b>
Visual Account MATE	4
SIGHO	7
SIGMA	1
Enter SOFT	1
My Soft	1
Total	14

### **Rules, Procedures, and Organizational Structure**

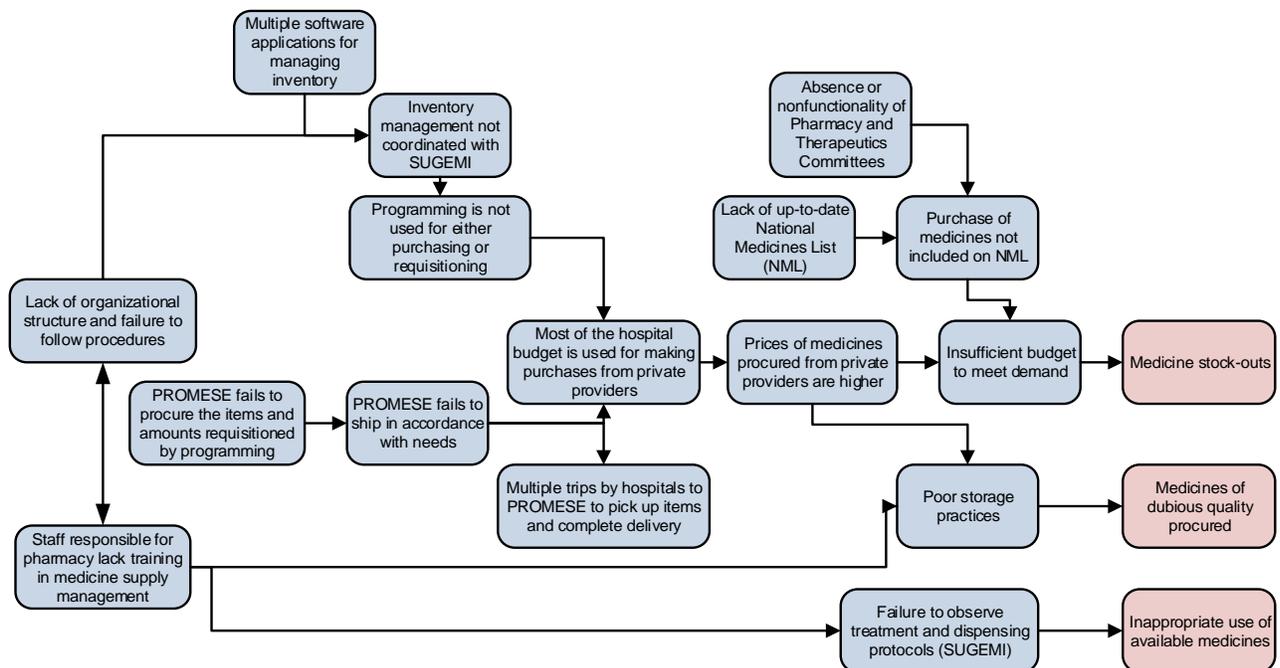
To ensure the efficient management of the medicine and commodities supply system in the CEASs, both the warehouse and the pharmacy need to be located structurally beneath a single administrative unit, which would be the SFH. A structure similar to the one described was found in 16 CEASs (76 percent). In the remaining facilities, the storage of medicines and commodities fall to the Administrative Directorate.

In no CEAS was it possible to find internal procedures establishing administrative and functional relationships among the units involved in supply management: external providers, warehouse, pharmacy, and health care services.

Of the individuals responsible for either the warehouse or the pharmacy, only 20 percent had received training in medicine supply management during the 12-month period prior to the visit. The corresponding figures for personnel in the TB and HIV service units were 15 percent and 17 percent, respectively.

## ANALYSIS AND DISCUSSION OF INTERVENTION ALTERNATIVES

Figure 6 organizes the main findings referred to in the earlier sections of this report using a cause-and-effect tree that leads to three fundamental problems: stock-outs of medicines and supplies, dubious quality of medicines procured and inappropriate use of medicines available. This section analyzes intervention alternatives for addressing these problems.



**Figure 6. Causal chain of problems and effects**

All of the problems previously identified can be addressed by focusing work around three areas of endeavor:

1. Implementation of a national list of medicines, to be used as a mandatory and exclusive reference for making purchases
2. Compliance with all rules and procedures involved in programming, requisitioning, and shipping
3. Implementation of an efficient organizational structure, and compliance with all internal supply management procedures

## **Intervention Alternative 1: Implementation of a National Medicines List as a Mandatory and Exclusive Reference for Making Purchases**

### ***Revision of and Support for a National Medicines List***

The current CBME needs to be revised using public health criteria and taking into consideration the priorities imposed by MPH budget ceilings. The national list must contain levels of care (clinical resolution) and use *vital*, *essential*, and *nonvital* criteria. This will allow requirements to be modified in accordance with budget ceilings when programming purchases. One indicator for evaluating the use of such criteria in the revision of the CBME will be how close it is to the number of products included on the latest version of the World Health Organization's model list.

Once prepared and validated, the CBME must have the backing of a Ministerial Accord mandating its obligatory and exclusive use for the purchase of medicines in the public sector. A technically supported restriction of the therapeutic arsenal available in the public sector will ensure the more efficient use of financial resources while at the same time improve the availability of essential medicines.

For medical-surgical supplies and laboratory materials, it is recommended that the UNGM carry out, using the same criteria, a process of consultation that will lead to the preparation of catalogs that can serve as references for national purchases.

**Technical assistance:** *The CBME is being reviewed with support from the Pan American Health Organization. Its publication is anticipated in the first quarter of 2014. SIAPS is supporting the revision of the national catalog of medicines and medical supplies. Its publication and dissemination are projected for the first quarter of 2014. These catalogs will be used in the programming exercise for purchases to be made in 2015.*

### ***Reorganization of PTCs Based on SUGEMI Procedures***

The PTCs have different functions within the CEASs. For purposes of this document and this section, it should be stressed that these PTCs are responsible for authorizing any exceptional medicine purchases to be made for items not included on the CBME. The documentation accumulated by the PTCs—for both inclusion and exclusion requests—constitutes technical support for the subsequent revision of the CBME.

**Technical assistance:** *With resources provided by USAID, SIAPS can support PTC organization and training. To ensure their efficient operation, PTCs must have support in the form of a CBME that has been duly revised and backed by Ministerial Accord, following the recommendations set forth above, as well as approval of a procedure for purchases to be made by exception.*

## **Intervention Alternative 2: Follow-up to Implementation of Programming, Requisitioning, and Dispatch Procedures**

### ***Introduction of Inventory Management Procedures and Tools***

Appropriate and efficient programming of purchases, and subsequent requisitions, depends on conformity between inventory records, whether manual or electronic, and the number of items physically on hand in CEAS warehouses. Because of the urgent need for accurate and immediately available information, implementation of the following activities, in the sequence suggested, is recommended:

1. Periodic supervision of inventory management in CEASs by Regional Medicine Management Units (Unidades Regionales de Gestión de Medicamentos; URGM) to ensure the exact recording of *reception* and *dispatch*
2. Adaptation of electronic applications currently in use so that they will: (a) generate SUGEMI 1 as a report on items and amounts issued and (b) use SUGEMI's catalog of medicines and supplies
3. Implementation, in those CEASs currently using only a manual system, of one of the already available electronic applications that will best enable making the adaptations recommended in item 2 above
4. Implementation of a standardized inventory management application for all hospitals in the country, *fully aligned* with the URGMs and UNGMs

Note that these interventions are not mutually exclusive and that their sequential implementation will ensure the immediate availability of information while the integrated supply management information systems is being organized.

**Technical assistance:** SIAPS, with resources provided by USAID, has developed a supervisory instrument that will allow the URGMs to implement the activity described in item 1. It can also support activities 2 and 3 to ensure the availability of reliable information on stock on hand, amounts consumed, amounts requisitioned, and amounts dispatched during the first quarter of 2014. Implementation of an electronic system for managing the supply of medicines in the public sector is included in the work plans of the Social Cabinet (Gabinete Social), using resources provided by the Inter-American Development Bank, and the Executive Committee for Health Sector Reform with resources provided by the World Bank. Agreements need to be forged between both sources of technical and financial assistance so that the electronic application developed will strengthen and streamline SUGEMI procedures.

### ***Monitoring of Correspondence between Requisitions and Shipments***

Improvement of inventory recording and reporting procedures in the CEASs will allow monitoring the correspondence between: (a) annual programming and purchases made by PROMESE/CAL; (b) annual programming and decentralized purchases made by the CEASs; (c) annual programming and periodic requisitions submitted by CEASs to PROMESE/CAL; (d) periodic requisitions made by the CEASs and items and amounts dispatched by PROMESE/CAL. The SUGEMI information system—soon to be available via the Internet—has the ability to generate most of these indicators. The UNGM will be responsible for ensuring

provision of this information to decision makers and for creating smoothly functioning coordination mechanisms designed to improve supply.

**Technical assistance:** *With resources provided by USAID, SIAPS is supporting a review of the indicators in the SUGEMI information system and their availability on both an electronic website and via national and regional newsletters. The website will be up and available for consultation in the fourth quarter of 2013.*

### **Adjustments to Purchases and Shipments**

Based on the indicators generated by the SUGEMI information system, it is proposed that the UNGM convene a semiannual meeting (one at the start of the annual exercise for programming purchases and a second one six months later) to analyze any discrepancies still existing between amounts purchased, amounts requisitioned, and amounts dispatched, and to propose interventions for correcting any problems identified. Participants in these meetings should include technical staff and officials from PROMESE/CAL, the SRSs, and the UNGM. The conclusions and agreements reached should be submitted to health authorities.

**Technical assistance:** *With technical resources provided by USAID, SIAPS can support organization of the supporting information to be presented and analyzed at these semiannual meetings.*

### **Intervention Alternative 3: Implementation of an Efficient Organizational Structure for SHFs and Follow-up on Internal Supply Management Procedures**

#### **Updating of Hospital Structures and Procedures and Training of Staff in Their Use**

It is recommended that the results of this study, as well as the intervention alternatives proposed to address the problems identified, be presented at a national-level workshop, with participation by CEAS Directors and staff members responsible for supply.

Hospital organizational structure and procedures need to be reviewed and updated, based on the criteria listed above. Once reviewed and validated, the structures and procedures should be implemented in the CEASs based on a systematic process of training and supervision. This will contribute to the sustainability of the interventions and improve the quality of the pharmaceutical service.

**Technical assistance:** *It is suggested that the UNGM submit a formal request to USAID to allow the partner specializing in human resources development (Capacity Plus) to develop a proposal for an organizational structure for supply management in hospitals; to draw up staff functions and the knowledge and skills required for each specific position; and to support a plan for implementing the proposed structure. SIAPS can then support a review of, and adjustments to be made to, the internal supply management procedures and train all staff in their implementation.*

#### **Introduction of Administrative Disciplinary Measures for Noncompliance**

Once the above-mentioned manuals and procedures have been developed and after staff has received training, strict compliance in their daily use should be supported by the monitoring and supervisory system as well as by administrative disciplinary measures for noncompliance. Of

particular significance to the success of the work plan proposed in this report will be the disciplinary measures applicable to the individuals responsible for (a) the procurement and requisition of medicines and supplies not included on the National Medicines List or in authorized catalogs without first observing the appropriate processes for procurement and requisition by exception; (b) the receipt of medicines and supplies not requested from providers listed in official documents; (c) the prescription of medicines not in compliance with courses of treatment and protocols established in national health care guidelines.

## **Intervention Alternative 4: Improvement of Structural Conditions and Storage Practices**

### ***Evaluation of Structural Conditions***

This study evaluated conditions and practices in CEAS warehouses against a preestablished checklist. To introduce improvements to these warehouses, an assessment must be made of structural conditions, which will in turn lead to proposals for remodeling or other structural adaptations, and construction or transfer of warehouses and pharmacies to other locations within the CEASs, as deemed feasible. Proposals should be accompanied by draft construction and remodeling plans, along with the estimated costs of these interventions.

### ***Mobilization of Financial Resources and Personnel Training***

Properly costed construction and remodeling proposals can provide support for the mobilization of national or international financial resources. This detailed assessment will also make it possible to provide training in storage best practices more specifically oriented to the problems identified.

**Technical assistance:** *SIAPS, implemented by Management Sciences for Health (MSH), can support organization of the assessment of the structural conditions currently existing in CEAS warehouses and pharmacies and, based on the experience acquired with the regional warehouses, facilitate meetings to present the results obtained and to mobilize financial resources. SIAPS can also support a training workshop on storage best practices.*

Figure 7 illustrates the relationship between the problems identified in the previous section and the interventions suggested in this section. The *theory of change* suggests that implementation of these interventions will make it possible to improve the availability, quality, and rational use of medicines.

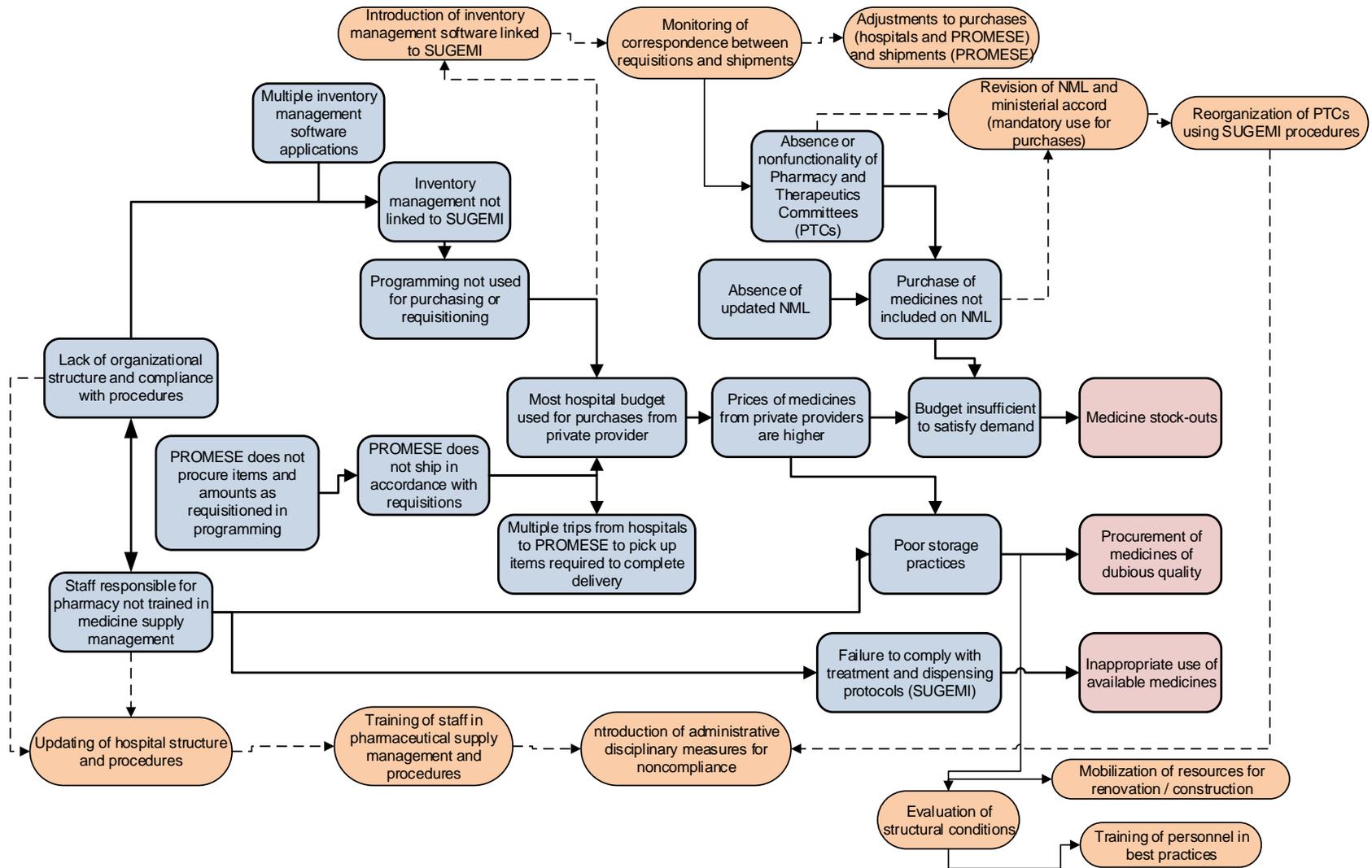


Figure 7. Effects of problems and intervention alternatives

## ANNEX: LIST OF CEAS SELECTED

<b>CEAS</b>	<b>SRSs</b>
Hospital Maternidad Nuestra Señora Altagracia (Santo Domingo)	0
Maternidad San Lorenzo de Los Minas (Santo Domingo)	0
Hospital Dr. Luis E. Aybar (Santo Domingo)	0
Hospital Moscoso Puello (Santo Domingo)	0
Hospital Robert Read Cabral (Santo Domingo)	0
Hospital Padre Billini (Santo Domingo)	0
Hospital Darío Contreras (Santo Domingo)	0
Hospital Juan Pablo Pina (San Cristóbal)	1
Hospital Arturo Grullon (Santiago)	2
Hospital José María Cabral y Baez (Santiago)	2
Hospital Ricardo Limardo (Puerta Plata)	2
Hospital Regional San Vicente de Paúl (San Francisco de Macorís)	3
Hospital Regional Univ. Dr. Jaime Mota (Barahona)	4
Hospital Regional Dr. Antonio Musa (SPM)	5
Hospital Dr. Francisco A. Gonzalvo (La Romana)	5
Hospital Nuestra Señora de la Altagracia (Higüey)	5
Hospital Dr. Alejandro Cabral (San Juan Maguana)	6
Hospital Regional Taiwán (Azua)	6
Hospital Ing. Luis L Bogaert (Valverde de Mao)	7
Hospital Padre Fantino (Montecristi)	7
Hospital Regional Dr. Luis M. Morillo King (La Vega)	8
Total CEASs	21