

# The Organization of an Integrated Medicine and Supply Management System in the Dominican Republic: Progress and Challenges<sup>1</sup>

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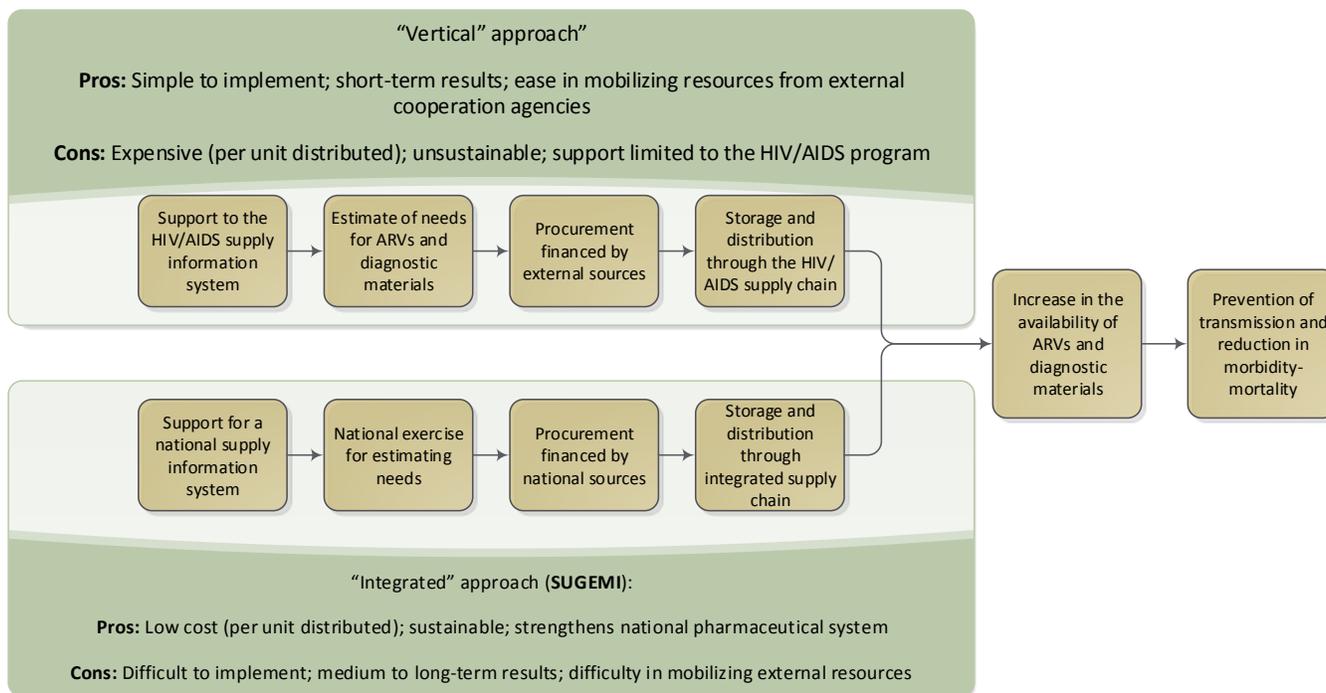
**SIAPS**  
Systems for Improved Access  
to Pharmaceuticals and Services

## Background

In 2008, a rapid study of the status of medicine supply management in the Dominican Republic determined that one of the primary causes of supply inefficiencies and stock-outs was the fragmentation of the supply process into multiple vertical chains organized around disease control programs (DCPs), such as those addressing tuberculosis (TB) and HIV/AIDS.<sup>2</sup> With support provided by technical and financial cooperation agencies, these DCPs relied on individual mechanisms for planning purchases, procurement, and storage, as well as requisition, delivery, and information systems for managing the supply process. Although the 2008 study did not establish the cost of these supply chains, it was apparent that fragmentation had led to high costs and inefficiencies. For example, a number of different requisition forms were completed periodically by the same health facility personnel, resulting in the receipt of uncoordinated shipments from various suppliers.

The results of this study and a proposal for the organization of an integrated pharmaceutical system were presented to health authorities and technical cooperation agencies in 2008. Based on the evidence presented, the Ministry of Public Health asked the US Agency for International Development (USAID) for technical assistance from its pharmaceutical supply management partners<sup>3</sup> in implementing what would subsequently be known as the Integrated System for Medicine and Supply Management (*Sistema Único de Gestión de Medicamentos e Insumos*; SUGEMI). In 2010, political will was officially backed up by the issuance of Ministerial Decree No. 00019-2010 to establish SUGEMI as the institutional mechanism for organizing the pharmaceutical supply system in the public network of health care facilities.

To date, USAID has financed the support provided by its partners with resources focusing specifically on the control of TB and HIV/AIDS.<sup>4</sup> In managing these resources, it was argued that a systemic rather than a vertical approach would be more efficient and sustainable, specifically in terms of improving the supply of medicines and supplies for the diagnosis and treatment of TB and HIV/AIDS (figure 1).



ARV = antiretroviral.

**Figure 1. Alternative approaches for improving the HIV/AIDS program’s supply of medicines and commodities**

## Structure and Functions

SUGEMI was designed within the legal and regulatory framework of the Dominican Republic’s service provision model,<sup>5</sup> with functions distributed among the following entities:

- National Pharmaceutical Management Unit (*Unidad Nacional de Gestión de Medicamentos*; UNGM): Coordinates the selection of pharmaceuticals and supplies, scheduling purchases and deliveries from the central warehouses to Regional Health Services (*Servicios Regionales de Salud*; SRSs)<sup>6</sup>
- Program of Essential Medicines/Center for Logistical Support (*Programa de Medicamentos Esenciales y Central de Abastecimiento Logístico*; PROMESE/CAL): Coordinates the various purchasing modalities; maintains global inventory to satisfactorily address the needs of the entire country; coordinates transportation from its warehouses to the regions
- Regional Pharmaceutical Management Units (*Unidades Regionales de Gestión de Medicamentos*; URGMs): Maintain inventories in their warehouses to satisfy the needs of their respective Health Regions; coordinate deliveries from the regions to health facilities; consolidate and analyze information for the planning of annual purchases
- DCPs: Select pharmaceuticals and establish treatment protocols for the pathologies or conditions for which they are responsible (maternal and child health, vector-borne diseases, TB, HIV/AIDS, immunizations, high-cost diseases); participate in programming exercises coordinated by the UNGM; coordinate deliveries with the UNGM
- Health facilities: Primary Care Units or Specialized Health Care Centers (*Centros Especializados de Atención*; CEAS) that dispense medicines to the patients they provide services to; periodically order

medicines and supplies; maintain an inventory to satisfy the needs of the facility; provide information for the planning of annual purchases

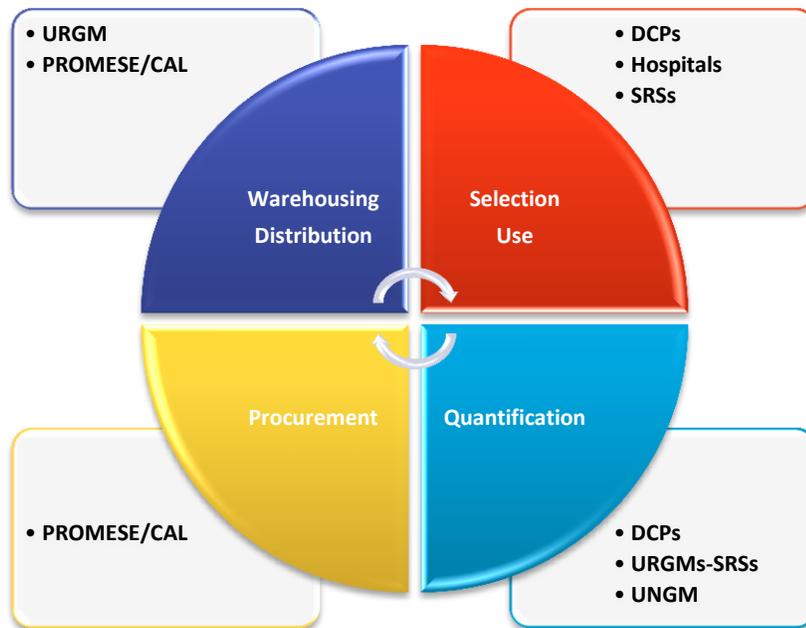


Figure 2. SUGEMI structures and functions

## Implementation Progress and Results

Two distinct phases can be identified in the implementation of SUGEMI since the Ministerial Decree went into effect in 2010:

### Phase 1 (2010–2012): Development of procedures, efforts to secure political-administrative support, and organization of operators

- Preparation and implementation of manuals and procedures for all components of the supply chain: With the participation of personnel who would be responsible for the implementation of SUGEMI, manuals and operating procedures for all components of the supply chain were prepared and tested.<sup>7</sup> Training-of-trainers workshops made it possible to extend the implementation of these procedures to almost 3,500 workers in 1,400 primary care centers, 21 specialized centers, and nine URGMs.
- Management of political-administrative support: SUGEMI was introduced into the health sector reform process, which assigns governance functions to the Provincial Health Directorates (*Direcciones Provinciales de Salud*, or DPSs, which were previously service providers), and the service provision functions to the SRSs. This change in roles was reflected in SUGEMI's organization and required political sensitization and lobbying activities so the political actors involved would be able to understand the relevance and need for SUGEMI and support its implementation.
- Organization and strengthening of one national unit and nine regional units for managing pharmaceutical supply (UNGM and URGMs, respectively): Structures were established for the UNGM and the nine URGMs. Their functions were defined in terms of the implementation and operation of SUGEMI.

## Phase 2 (2012–2014): Implementation, consolidation, and expansion

- Incorporation of two major disease control programs into an integrated system: Incorporation of the supply chains for the TB and HIV/AIDS programs involved the following:
  - Conducting a national inventory and physically transferring products handled by the DPSs to the SRSs, as dictated by the health sector reform process and, accordingly, by SUGEMI<sup>8</sup>
  - Standardizing the instruments for requisitioning pharmaceuticals and supplies from health facilities to the SRSs and from the latter to the central level, where deliveries are coordinated by the UNGM and the DCPs
  - Standardizing delivery procedures and instruments, and transportation routines, to make them consistent with those applicable to other products distributed within the public health network
- Incorporation of additional public sector institutions and components into an integrated system: The following have been, sequentially, incorporated into SUGEMI:
  - The Maternal-Child Health and Protected Diseases programs, but only the component involving the quantification of needs for annual purchasing
  - Five public sector institutions that procure pharmaceuticals through the national joint purchasing process carried out by PROMESE/CAL
  - Laboratory materials and reagents for general use
  - Laboratory materials and reagents for the TB program
- In most cases, incorporation of these elements followed the same systematic methodology:
  - Assessment of the situation prior to incorporation
  - Preparation of operating procedures, based on resolving the problems identified, and with the participation of institutional personnel
  - Personnel training
  - Monitoring and evaluation of results
- Organization of a system of training human resources to secure sustainability: Implementation of SUGEMI was based on the training of personnel in the functioning of operating procedures and the monitoring and supervision of their use. Consolidation and sustainability will depend on the training of a critical mass of professionals with a more in-depth of knowledge of supply management. Toward this end, beginning in September 2014, two certification courses (*diploma*) were organized, from which 37 professionals have graduated, most of whom are working in the public health sector. The combined on- and off-site methodology employed has made it possible for students in the courses to use the workplace to put into practice the theoretical knowledge acquired and to consolidate implementation of SUGEMI.<sup>9</sup>

These interventions have helped increase the availability of pharmaceuticals in the DCPs that have been integrated into SUGEMI. The previously observed chronic stock-outs of antiretrovirals (ARVs) have virtually disappeared.<sup>10</sup> For the remaining medicines used in the public network, the information generated by SUGEMI indicates that persistent stock-outs are no longer the result of supply chain inefficiencies but rather of budget allocations that are insufficient to satisfy needs.<sup>11</sup> This information has helped support lobbying efforts with the Ministries of Health and Finance for the allocation of increased budgetary resources.

## Strategies Used

The organization of an integrated supply system for pharmaceuticals and commodities is a complex task in countries where international technical and financial cooperation, not to mention national institutional organization, promotes *verticality*. Although activities have not been completed in the Dominican Republic, progress recorded to date makes it possible to identify successful strategies with the potential for replication in other countries.

- **Evidence-based decision making:** Policy and technical decisions—from the design for the operation of the integrated system to the incorporation and adaptation of specific components—have been made on the basis of baseline studies. SUGEMI’s supply management information system has made it possible to confirm the impact that interventions have had on medicine consumption and availability. Data have often been provided through policy briefs to facilitate decision making at strategic levels. The timely use of accurate information was key to obtaining administrative support for the implementation and extension of SUGEMI,<sup>12</sup> the management of national and international financial resources for the implementation of specific components,<sup>13</sup> and USAID funding of cooperating partners.<sup>14</sup>
- **Strengthening of critical components of health sector reform and government modernization:** The design of SUGEMI and the preparation of operating procedures took into account critical components of the health sector reform process. The URGMs helped strengthen the government’s process of administrative decentralization. The transfer of pharmaceutical supply management from the DPSs to the SRSs had the effect of consolidating the division of functions between the oversight entity and the service provider, as proposed by the health sector reform process. National purchase programming exercises contributed to government transparency and anticorruption policies. That these items were taken into account in the design and implementation of SUGEMI was key to securing allies at the highest possible political level.
- **Early involvement of institutional personnel in the design and implementation process:** USAID partners have provided technical assistance from the UNGM’s own offices, which facilitated the early involvement of personnel in the initial organization and subsequent implementation. Design of operating procedures was agreed upon with UNGM personnel, and staff from the URGMs and health facilities participated in the validation and implementation of the standard operating procedures. When SUGEMI was extended to all regions of the country, its implementers felt it was a legitimate national initiative.
- **Implementation of components and integration of DCPs in strategic sequence:** Continued existence of political support was contingent on the early demonstration of impact. Toward this end, the first component to be implemented was the strategic supply information system, which would show changes in pharmaceutical availability. Incorporation of the DCPs began with those programs exhibiting the greatest weaknesses and that were the focus of international financial support: TB and HIV/AIDS. In this way, support for SUGEMI implementation has benefited from the evidence of improvements in the availability of ARVs and anti-TB medicines.
- **Involvement of other actors and mobilization of national and international resources:** The systemic approach used in the design and implementation of SUGEMI facilitated the involvement of the following actors, all of whom shared the view that *strengthening of health service facilities* is the best strategy for sustaining their interventions.
  - Based on studies conducted by USAID partners,<sup>15</sup> the TB Control project of the Ministry of Public Health/Global Fund to Fight AIDS, Tuberculosis and Malaria, and the Health Sector Reform Project of the World Bank and the Inter-American Development Bank have invested approximately USD 780,000 to improve the structural conditions of regional warehouses.
  - The National Council on HIV and AIDS (CONAVIHSIDA), the primary beneficiary of the Global Fund, has used SUGEMI-designed information and methodologies to manage financial resources and monitor implementation of the activities supported by those resources.

- PROMESE/CAL implemented a joint national purchasing program, a process mandated by Presidential Decree, using the SUGEMI-designed methodology for estimating needs and programming.
- Other USAID partners (the Centers of Excellence Program and the CapacityPlus Project) used procedures developed by SUGEMI in their training activities. In addition, they financed the enrollment of participants in the certification course (*diploma*) on Pharmaceutical Supply Management.
- Civil society organizations have used information generated by SUGEMI for their political advocacy and lobbying efforts.<sup>16</sup>
- Public and private universities now have available SUGEMI-developed educational modules and learning methodologies that will enable them to organize both basic and specialized courses.

SUGEMI has improved supply chain efficiency and the availability of medicines for DCPs (TB and HIV/AIDS)<sup>17</sup> through the organization of a national supply management system. Although this systemic approach to solving specific problems in the area of supply management did not produce immediate results, it has generated increased supply management efficiency by providing integrated solutions to supply problems not specific to DCPs. In addition, it anticipates the need to have a strengthened pharmaceutical system available when the greatest burden of disease moves toward noncommunicable pathologies.

Moreover, this systemic approach ensures the sustainability of SUGEMI in the absence of external financial support. In the Dominican Republic, the savings resulting from joint national purchasing and revisions made to lists of medicines<sup>18</sup> exceed many times over the investments made by USAID in technical assistance and the resources required to operate the UNGM/URGMs. But beyond financial sustainability, SUGEMI's ongoing operational viability has benefited from the institutional strengthening of the principal implementing entities (the UNGM and the URGMs), the formation of a critical mass of professionals with specialized knowledge of pharmaceutical supply management, the involvement of other significant actors, and the support that SUGEMI has provided to health sector reform and government modernization.

## Challenges

Even with all the progress recorded and results obtained, the task of organizing the national supply system in the Dominican Republic is not yet completed, nor will it be completed in the next few years. Integration, as conceived and practiced in the Dominican Republic, involves the following dimensions:

- **Components of supply management:** All components of a system of supply management should operate under unified guidelines and be seamlessly integrated. The list of essential medicines, for example, should be the point of reference for programming purchases and procurements; the budget should be linked to programming; the purchasing and logistical operator should have available, and use, various procurement modalities to ensure the optimum use of allocated budget funds; the periodic requisitions submitted by individual units should be consistent with the amounts programmed and delivered; and consumption by end users should be in line with health care protocols and consistent with periodic requisitions. SUGEMI has developed and implemented procedures for all components of supply management, with the exception of those applicable to selection and rational use medicines. Over the coming years, emphasis must be given to the organization and operation of pharmacy and therapeutics committees, the review and updating of health care protocols, and promotion of the rational use of medicines.

- **Service provision units and disease control programs:** To date, the network of primary health care facilities, the network of CEAS,<sup>19</sup> and the TB and HIV/AIDS programs have all been incorporated into SUGEMI. The consolidation of SUGEMI during the next few years will be contingent on the incorporation of the remaining DCPs: Maternal-Child Health/Family Planning, Malaria/Vector-Transmitted Diseases, and the Expanded Programme on Immunizations.
- **Products:** SUGEMI first incorporated pharmaceuticals, followed by consumable medical-surgical materials and, more recently, laboratory supplies and reagents. Integration is now complete, but only in the programming for procurement, acquisition, and distribution components. The task for the next few years will involve extension of the process of integration to other components of supply management, particularly selection and use.
- **Health sector institutions:** Within the framework of SUGEMI, all public institutions have been incorporated into the process of joint programming and purchasing of pharmaceuticals. Respecting the autonomy of public sector institutions, the national pharmaceutical system would be strengthened if all health sector institutions would, at a minimum, share and use the same information for supply management decision making. This is an activity that could be supported by SUGEMI in the coming years.

Using the preceding analytical dimensions, the progress recorded in implementing SUGEMI in the Dominican Republic and the challenges are summarized in the following table.

**Table 1. Progress and Challenges in the Implementation of SUGEMI**

Analytical dimension	Integrated elements	Elements pending integration/challenges
<b>Supply management components</b>	<ul style="list-style-type: none"> <li>• Legal framework</li> <li>• Programming of purchases</li> <li>• Procurement</li> <li>• Distribution</li> <li>• Management support (information system; monitoring; supervision)</li> </ul>	<ul style="list-style-type: none"> <li>• Selection</li> <li>• Use</li> </ul>
<b>Service provision units and disease control programs</b>	<ul style="list-style-type: none"> <li>• Primary Care Units</li> <li>• Specialized Care Units</li> <li>• HIV/AIDS Program</li> <li>• TB Program</li> <li>• Protected Diseases Program</li> </ul>	<ul style="list-style-type: none"> <li>• Malaria Program</li> <li>• Maternal-Child Health Program</li> <li>• Immunizations Program</li> </ul>
<b>Products</b>	<ul style="list-style-type: none"> <li>• Medicines</li> <li>• Medical-surgical supplies</li> </ul>	<ul style="list-style-type: none"> <li>• Laboratory supplies</li> <li>• Reagents</li> </ul>
<b>Health sector institutions</b>	<ul style="list-style-type: none"> <li>• Ministry of Health</li> <li>• Social Security</li> <li>• Armed Forces</li> <li>• National Police Force</li> <li>• Social Welfare</li> </ul>	<ul style="list-style-type: none"> <li>• At a minimum, organization of a national supply information system</li> </ul>

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<sup>1</sup> Technical support was provided by Edgar Barillas, SIAPS Portfolio Manager, and Claudia Valdez, SIAPS Lead Consultant, Dominican Republic.

<sup>2</sup> Barillas, E., y C. Valdez. 2009. *Informe técnico: Análisis de la gestión del suministro de medicamentos e insumos de salud del sector público en República Dominicana*. Presentado a la Agencia de los Estados Unidos para el Desarrollo Internacional por el Programa Strengthening Pharmaceutical Systems (SPS). Arlington, VA: Management Sciences for Health.

<sup>3</sup> The programs implemented by Management Sciences for Health (MSH), Strengthening Pharmaceutical Systems (SPS), until 2010, and Systems for Improved Access to Pharmaceuticals and Services, from 2011 to the present.

<sup>4</sup> The greatest single contributor has been the US President's Emergency Plan for AIDS Relief (PEPFAR).

<sup>5</sup> Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS). 2005. *Modelo de Red de los Servicios Regionales de Salud: Una guía para el desarrollo de los servicios de salud para la atención a las personas*. Disposición 00024; SESPAS, Santo Domingo, República Dominicana.

<sup>6</sup> The public network of health services is organized into nine SRSs. The regions are geographical subdivisions that include one or more areas and provinces.

<sup>7</sup> This material is available on the website of the Dominican Republic's Ministry of Health: *Dirección de Desarrollo y Fortalecimiento/SUGEMI*, <http://www.sespas.gov.do/sugemi-inicio>.

<sup>8</sup> Incorporation of the Supply of Antiretrovirals into the Dominican Republic's Integrated Management System for Pharmaceuticals and Medical Supplies, <http://siapsprogram.org/publication/incorporation-of-the-supply-of-antiretrovirals-into-the-dominican-republics-integrated-management-system-for-pharmaceuticals-and-medical-supplies/>.

<sup>9</sup> Combined On- and Off-Site Training Contributes to Strengthening Unified Pharmaceutical System in the Dominican Republic, <http://siapsprogram.org/publication/combined-on-and-off-site-training-contributes-to-strengthening-unified-pharmaceutical-system-in-the-dominican-republic-2/>.

<sup>10</sup> Incorporation of the Supply of Antiretrovirals into the Dominican Republic's Integrated Management System for Pharmaceuticals and Medical Supplies, <http://siapsprogram.org/publication/incorporation-of-the-supply-of-antiretrovirals-into-the-dominican-republics-integrated-management-system-for-pharmaceuticals-and-medical-supplies/>.

<sup>11</sup> National Pharmaceutical Management Unit, Ministry of Public Health. 2014. *Programming the Purchase of Medicines and Supplies in the Dominican Republic's Public Health System*. Santo Domingo, Dominican Republic, July 2014. Presented to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health. <http://siapsprogram.org/publication/programming-the-purchase-of-medicines-and-supplies-in-the-dominican-republics-public-health-system/>.

<sup>12</sup> Disposición Ministerial (000019) in 2010 later Decreto Presidencial 168-13 in 2013.

<sup>13</sup> Information generated by SUGEMI allowed mobilization of financial resources to improve structural conditions of regional warehouses (<http://siapsprogram.org/publication/avance-en-el-mejoramiento-de-las-condiciones-de-almacenamiento-de-medicamentos-en-los-servicios-regionales-de-salud-de-republica-dominicana/>) and to close financial gaps for the purchase of ARVs (Reevaluation of the HIV Financing Gap in the Framework of SUGEMI Planning for 2013 (<http://siapsprogram.org/publication/reevaluation-of-the-hiv-financing-gap-in-the-framework-of-sugemi-planning-for-2013/>)).

<sup>14</sup> Since 2008 the USAID Mission has supported the organization of SUGEMI with annual investments that have not exceeded USD 1 million.

<sup>15</sup> Espinoza, H. 2013. *Avance en el mejoramiento de las condiciones de almacenamiento de medicamentos en los Servicios Regionales de Salud de República Dominicana-versión revisada*. Presentado a la Agencia de los Estados Unidos para el Desarrollo Internacional por el Programa Systems for Improved Access to Pharmaceuticals and Services (SIAPS). Arlington, VA: Management Sciences for Health. <http://siapsprogram.org/publication/avance-en-el-mejoramiento-de-las-condiciones-de-almacenamiento-de-medicamentos-en-los-servicios-regionales-de-salud-de-republica-dominicana/>.

<sup>16</sup> Iniciativa Participativa Anti-Corrupción (IPAC). 2014. *El Ojo Ciudadano*. Boletín del Comité de Seguimiento de la Mesa de Salud de la IPAC. República Dominicana, Enero.

<sup>17</sup> Based on the Quarterly SUGEMI Bulletin, ARV availability in health facilities has increased from 71% in 2013 to 92% in 2014.

<sup>18</sup> The savings resulting from the revision made to the list of high-cost medicines has been estimated at USD 21 million. See Narvárez E, Valdez C, Barillas E. 2014. *Review of the List of High-Cost Medicines Used by the Dominican Republic's Protected Diseases Program and Planning of Purchases for 2015*. Santo Domingo, Dominican Republic, July 2014. Presented to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health. <http://siapsprogram.org/publication/high-cost-medicines-dominican-republics-planning-of-purchases-2015/>.

<sup>19</sup> At year-end 2014, the personnel of the country's 21 biggest hospitals had received training in the implementation of SUGEMI procedures.