

Dominican Republic

Training strategy for the organization of a unified pharmaceutical system in Dominican Republic

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ABSTRACT

The organization of an integrated Ministry of Health (MoH) pharmaceutical and commodity supply management system (known as SUGEMI, by the Spanish acronym) in Dominican Republic demanded an innovative training strategy for immediate implementation and long-term sustainability. During its early design, selected MoH personnel participated in the development of SUGEMI standard operating procedures (SOP). This experience provided them with the knowledge of pharmaceutical management basic principles and SUGEMI operational routines, turning them into potential leaders and trainers for the subsequent implementation phase. Formal training of these leaders for the rollout of SUGEMI included pedagogical techniques for the reproduction of training sessions at regional health services (RHS) and health facilities. By the end of 2012, SUGEMI was operating in all health facilities and RHS, and the TB and HIV/AIDS programmes were integrated to it.

The MoH and cooperation agencies supporting SUGEMI soon realized that SUGEMI expansion and long-term sustainability depended on a deeper knowledge of pharmaceutical management theories and practices to integrate additional programmes and components, to assess its results and impact, and to adjust the operational procedures. With this objective in mind, the MoH, with the support of international technical and financial cooperation agencies, designed and implemented two university certified courses (diplomas): one on Supply Chain Management and the other on Rational Use of Medicines. Its on-site/off-site blended methodology provided students with pharmaceutical management knowledge and skills, through the discussion of background documentation, the critical review of SUGEMI implementation and performance in health facilities, and the implementation of corrective interventions.

SUGEMI has improved the efficiency of the pharmaceutical management system, ultimately contributing to an increased availability of essential medicines in health facilities. This goal was achieved through a three-phase training strategy: (1) the participation of selected MoH personnel in the development of standard operating procedures; (2) the participation of these MoH leaders in the training for the national rollout; and (3) the organization of certified courses on pharmaceutical supply management and rational use of medicines.

BACKGROUND

In 2009 the Dominican Republic (DR) Ministry of Health (MoH) requested technical assistance from the United States Agency for International Development (USAID) to contribute to the solution of chronic stock-outs of antiretrovirals (ARVs). A study conducted by MSH/SIAPS demonstrated systemic problems in the public supply chain system, and therefore the organization of an integrated pharmaceutical and commodity supply management system was proposed, known as SUGEMI^a by its Spanish acronym.

SUGEMI's design was supported by a ministerial decree in July 2010. It proposed the progressive integration of disease control programmes (DCP) medicines and commodities (e.g., TB, HIV/AIDS, family planning, etc.) into a single supply chain. Under this system, the recently created National and Regional Pharmaceutical Units would oversee the following:

- the national estimation of needs and programming for procurement exercises,
- a single system for periodic requisition and dispatch to health facilities,
- and a unified information and monitoring system for decision making.¹

Once implemented, SUGEMI would improve the efficiency of the public supply chain and the availability of ARVs, among other medicines for communicable and noncommunicable diseases.

^a Sistema Único de Gestión de Medicamentos e Insumos.

The implementation and sustainability of such a challenging enterprise demanded innovative training strategies.

STRATEGY AND IMPLEMENTATION

The long-term SUGEMI training strategy was to “learn while you implement.” Three sequential approaches were used:

1. **Participatory development of standard operating procedures:** Fourteen standard operating procedures (SOPs) and manuals were developed from 2010 to 2013. MoH staff working on pharmaceutical management (PM) duties at the central and regional levels participated in SOP development. The work sessions included a quick review of PM concepts and tools, a presentation of the baseline study and the agreed SUGEMI design and implementation plan, and comprehensive discussions to get to an agreement on the *what, who, when* and *how* for each SOP. About ten potential leaders for the SUGEMI implementation were trained during the SOP development process.

“I participated then in the development of the SUGEMI standard operating procedures. Everybody contributed with opinions and every suggestion was heard.”^b

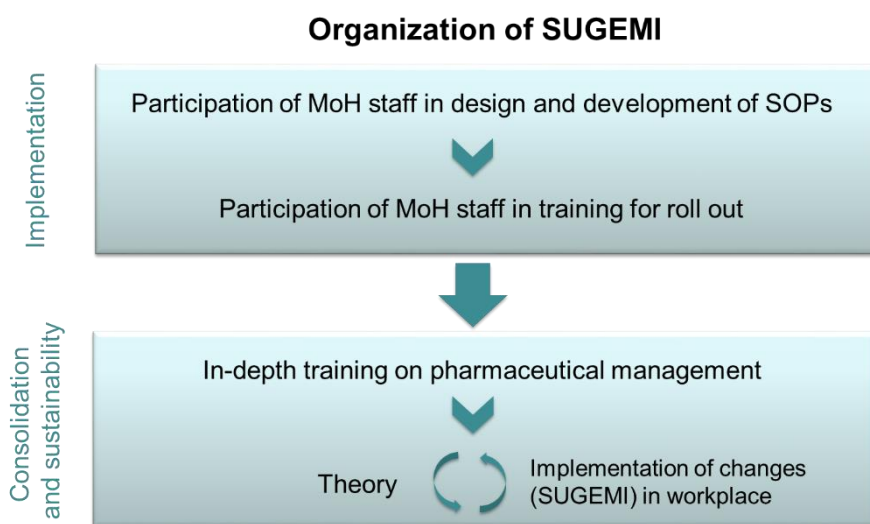
2. **Training of trainers for immediate implementation:** The MoH staff who participated in developing the SOPs and manuals were trained in the rollout of SUGEMI to nine Regional Health Services^c (RHSs) and more than a thousand primary health care facilities. The training workshops focused on pedagogical techniques for the successful delivery of the technical contents. During these workshops, potential trainers practiced all training sessions. Their performance was subject to constructive feedback by their peers. Training materials and copies of the SOPs were distributed to the trainers for implementation of SUGEMI.

“I remember that five of us [co-workers at the MoH regional service] participated on the training to the rest of the personnel. Our bosses warned us that ‘this [SUGEMI] won’t be implemented by now,’ and now you see . . . it is all over the country.”^d

3. **Certified pharmaceutical management (PM) courses using a blended on-site/off-site methodology.²** The participatory development of SOPs and the training carried out by MoH trainers led to the full implementation of SUGEMI in all nine RHSs and 1,347 health facilities by the end of 2011. The HIV/AIDS and TB programmes were fully integrated in a unified system by mid-2012.

Although the MoH personnel acquired the abilities to run day-to-day SUGEMI operations, they lacked in-depth knowledge of PM theories and practices. These skills were needed for the analysis of PM data, the development of technical reports, and the integration of laboratory reagents, the public hospital network and additional disease control programmes to SUGEMI.

Therefore, two certified courses backed by university diplomas were designed and implemented: one on Supply Chain Management and the other on Rational Use of Medicines. The pedagogical



^b Regional Pharmaceutical Unit Coordinator, La Vega. Interviewed 27 April 2017.

^c The Ministry of Health is organized in nine geographical areas: the Regional Health Services.

^d Regional Pharmaceutical Unit Coordinator, La Vega. Interviewed 27 April 2017.

approach was to provide the students with PM knowledge and skills through their participation in the assessment and strengthening of SUGEMI in health facilities. The purpose of a blended on-site/off-site methodology was to reinforce the theoretical concepts through the implementation, critical review and reinforcement of SUGEMI's practices. For the few non-MoH students, a practice site was assigned.

Students spent most of the time reading, assessing the implementation of SUGEMI in health facilities, reporting on the findings and developing interventions to correct operational flaws. Off-site Saturdays were devoted to the analysis and discussion of the readings, the presentation and discussion of rapid assessments and preparations for the next on-site practice.

"We learned through the problems in the provision of health care in our facilities; we then developed a sense of commitment to improve the situation."^e

The curriculum was organized in modules following the PM cycle, and SUGEMI implementation logic: i.e., estimation of needs, followed by procurement, storage, transportation and so on. The professors facilitating the training modules were MoH professionals and cooperation agency consultants with master's degrees and actively participating in the design and implementation of SUGEMI.

The educational modules for both courses were organized in two recurring phases:

- **On-site:** One or two weeks were spent on the health facility on individual reading, rapid operational assessments of a PM subject and the documentation of an intervention implemented by the student. During this phase, the students prepared the presentation and reports to be delivered on the next Saturday off-site session.
- **Off-site:** One Saturday, every week or two (depending on the module), was spent in the university classroom for an open discussion of questions arising from individual readings, the presentation of the assessment conducted in health facilities and the intervention proposed to solve the identified PM problems. By the end of the Saturday session, the facilitator provided instructions for the next site practice.

Until March 2017, three Supply Chain Management courses, and two courses on the Rational Use of Medicines were organized by public and private universities. The first Supply Chain Management course was organized by the Universidad Autónoma de Santo Domingo (UASD), a public university; two additional ones were organized by the Universidad Central del Este (UCE), a private university. The two Rational Use of Medicines courses were organized by the UCE. The tuition fee was US\$570 per student for a 12-week Supply Chain Management course, and US\$450 per student for a 15-week Rational Use of Medicines course. USAID sponsored 80 per cent of available slots. Most of the participants were public health employees. MoH directors and coordinators of national and regional pharmaceutical management units were prioritized for scholarships.

PROGRESS

By the end of 2016, the SUGEMI supply system was fully implemented in all DR primary health facilities and RHSs, along transformations in other pharmaceutical and commodities management components, such as: (a) quantification for procurement for all medicines and commodities is carried out in a single and standardized programming exercise;³ (b) the public logistics agency uses this estimate for the joint national procurement, which has brought down prices of medicines while increasing their availability;⁴ (c) distribution of medicines from central warehouses to the periphery relies on standardized requisition and dispatch forms that feed the SUGEMI information system, and quarterly monitoring communications⁵ that track availability

^e Hospital Director Monte Plata Provincial Hospital, interviewed 26 April 2017.

and consumption in all health facilities; and (d) improvement in storage conditions in health facilities, particularly in the RHSs.⁶



Figure 1. Regional Pharmaceutical Unit Coordinator, checking expiration date of a medicine in La Vega warehouse.

“Five years ago, the medical store was an old house; there were no forms, procedures, . . . nothing. We used to receive and dispatch medicines every day, at any time. We didn’t even have inventory records.”^f

By the end of 2013, two DCPs (HIV/AIDS and TB) were fully integrated into SUGEMI. During 2016, the MoH started integration of the family planning programme, laboratory reagents and materials, and the hospital network. Revised SOPs were developed for the integration of these new

elements.

RESULTS

A study conducted at the end of 2015 showed a correlation between the implementation of SUGEMI and an increase in the availability of medicines for communicable and noncommunicable diseases (from 72% in 2011 to 92% in 2015). In addition, interviews of 122 MoH staff members revealed a significant decrease in time spent on paperwork management of the supply chain.⁷

The key strategy for SUGEMI implementation was the three-phase training. By March 2017, all MoH personnel were trained on the implementation of SUGEMI procedures. Staff who completed certified courses in Supply Chain Management and Rational Use of Medicines supported specialized PM operations. A survey of former participants conducted in March 2017 showed the following:

- **Certified Course on Supply Chain Management:** Ninety-two students completed three courses from 2012 to 2014; 73 (79%) were MoH staff at registration. By the end of 2016, all but one of 17 former participants



Figure 2. New pharmacy at the La Altagracia National Maternity Hospital.

Improvement in medicine storage in La Altagracia National Maternity Hospital

La Altagracia maternity is the largest maternity hospital in the Dominican Republic. The hospital pharmacist and the HIV/AIDS clinic coordinator participated in the 2014 certified course. Through the on-site practice, the participants identified the need to organize a pharmacy in the emergency room to provide 24-hour service. Financial resources for its construction were mobilized through USAID and the MoH. The new pharmacy (Figure 2) was inaugurated in 2015.

interviewed^g remained in MoH positions. Thirteen agreed that the course allowed the introduction of interventions that improved pharmaceutical management practices in their facilities. Specifically, students trained new personnel in SUGEMI SOPs, particularly on inventory management and requisition and distribution practices. Students also introduced good storage practices in their health facilities and mobilized resources to improve the warehouse structural conditions, based on the results of the rapid assessment they conducted during the on-site practice.

- **Certified course on Rational Use of Medicines:** Sixty-four students completed the course from 2015 to 2017; 51 (80%) were MoH staff at registration. By March 2017, all 14 former participants

^f Regional Pharmaceutical Unit Coordinator, La Vega. Interviewed 27 April 2017.

^g A survey was conducted for this case study. A questionnaire was sent to former participants with a registered electronic address. Thirty-one completed questionnaires were received: 17 from the Supply Chain Management Course, and 14 from the Rational Use of Medicines Course.

interviewed remained in MoH positions. Just five respondents said the course contributed to keeping their positions or even a career promotion. Eleven agreed that the course allowed the introduction of interventions that improved rational use practices in their facilities. All students contributed to the organization of Drug and Therapeutic Committees in their health facilities, and to the procurement of medicines in strict adherence to the National Essential Medicines List. In some facilities, students limited the visits of pharmaceutical companies representatives during business hours, and organized scientific meetings, to present the results of the medicine use studies conducted during the course.

“The certified course opened our eyes to problems on rational use. The first intervention was to organize a drug and therapeutic committee to introduce changes in prescriptions, and impose restrictions on institutional marketing of pharmaceutical blockbuster products.”^h

“Based on the quick research conducted during the certified course, we identified high consumption of third-line expensive antibiotics. We organized meetings with prescribers to present the results antibiotic consumption patterns developed for the course and agreed on strategies to reduce the prescription of high-cost third-line antibiotics.”ⁱ

“Through the certified courses, we could see where the money was going to, and the wastage. As part of our practices we identified that Clarithromycin was extensively used in primary health facilities, despite [that] other antibiotics were more effective and less costly for the treatment of illness in primary health facilities. The results of this study were presented to the Regional Director, and with his support we reduced the quantity of this antibiotic for primary health facilities.”^j



Figure 3. Pharmacists checking medicine prescriptions at Monte Plata Provincial Hospital.

CHALLENGES

The major challenge for the SUGEMI training strategy is the insufficient allocation of MoH financial resources for continuing education of personnel. Savings made through the quantification of needs for the national pooled procurement was estimated at more than US\$100 million in 2014.^{8,9,10} The investment in training would be a small fraction of these financial returns.

LESSONS LEARNED

Four lessons can be derived from this experience:

- **Training for an innovative PM system must start during the design phase:** Involving the implementers in the design of the intervention ensured the technical feasibility of SUGEMI and was, simultaneously, a training and sustainability strategy.
- **Training for immediate implementation does not ensure sustainability:** Workshops for implementation of SUGEMI were useful for the immediate rollout. It soon became obvious, however, that comprehensive PM knowledge was needed to replace foreign technical expertise on data analysis, development of reports and integration of additional components to SUGEMI.
- **On-site/off-site blended courses mutually reinforce knowledge and practice for the implementation of a new pharmaceutical system:** The on-site/off-site methodology relied on the health facility to put in practice PM concepts and tools, strengthening SUGEMI in the process. The reports, subject to academic evaluation, included a critical assessment of the situation in the health facilities, and plans for the implementation of interventions to confront problems in SUGEMI implementation.

^h Hospital Director Monte Plata Provincial Hospital, interviewed 26 April 2017.

ⁱ Pharmacy Director, Monte Plata Provincial Hospital, interviewed 26 April 2017.

^j Patria Jerez, Regional Pharmaceutical Coordinator La Vega, interviewed 27 April 2017.

- **Outsourcing the delivery of the courses to academic institutions contributes to the sustainability of the training strategy:** The outsourcing of the certified courses to local universities provided academic backing of the courses, a stable and experienced group of professors, and financial leverage for future iterations of the courses.

INNOVATION

Several countries are integrating multiple *vertical* supply chains into a unified pharmaceutical system. The innovation in the Dominican Republic case was the training strategy. The early involvement of MoH personnel in the overall system design and routine operations led to the formation of a critical mass of trainers for the rollout. This critical mass was further expanded through university-certified courses, where the theory was the SUGEMI background documentation and procedures, and the *testing laboratory* was the health facility.

POTENTIAL APPLICATION

This training strategy may be considered for introducing major transformations in pharmaceutical systems: moving from a *vertical* to an *integrated* supply chain, for instance, or from a public to a private model. Ministries of Health may also consider this strategy to ensure project sustainability when external financial resources run out.

NEXT STEPS

The MoH must prioritize budget for the training of personnel as additional DCPs and components are integrated into SUGEMI and USAID support ends. Sustainability of SUGEMI requires these certified courses for an expansion of a critical mass of highly qualified PM professionals.

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