

Certificate Course on Rational Medicine Use in the Dominican Republic



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Background

The Dominican Republic's Ministry of Public Health began establishing an integrated management system for drugs and medical supplies (known as SUGEMI) in 2010 with the help of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program, financed by the US Agency for International Development (USAID). SUGEMI has since progressively incorporated disease control programs into a single supply chain with standard operating procedures. Its rapid expansion to more than 1,000 health facilities relied on short training sessions for the adoption of new work routines. Efforts to strengthen the system were bolstered by a certificate course on pharmaceutical supply management targeted to SUGEMI's strategic operators at the central and regional levels. The course's blended learning method allowed participants to reinforce and apply their theoretical knowledge in the workplace and thereby improve SUGEMI performance.ⁱ By the end of 2015, more than 90 professionals had completed the certificate course, which was conducted in conjunction with public and private universities.

By around 2014, routine information system and operations research data were showing improvements in medicine availability, attributable to SUGEMI in the absence of other variables to account for these differences.ⁱⁱ However, based on consumption and inventory data and data on financial trends, it was clear that, given the budget constraints on the Dominican government, future improvements in access would need to depend on improved medicine use.

Accordingly, in 2014 the Ministry of Public Health launched a series of activities aimed at improving the use of medicines with assistance provided by the SIAPS Program. The Basic List of Essential Medicines (Cuadro Básico de Medicamentos Esenciales, or CBME) was revised in 2014 and published in 2015. Medicines available for purchase were required to meet international standards of safety and effectiveness, which reduced the number of such medicines by 27%.ⁱⁱⁱ The list of high-cost medicines was also revised, eliminating any products of questionable cost-effectiveness. This reduced the procurement budget by USD 62 million in 2015.^{iv}

SUGEMI's impact on access to medicines depends not only on an efficient supply chain, but also on the rational use of available medicines. Toward this end, in 2016 the SIAPS Program designed and implemented a certificate course on rational medicine use to ensure the strengthening and sustainability of this second component.

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The certificate course was conducted by the Universidad Central del Este (UCE). The registration fee was set at USD 650 per participant. USAID covered the registration fees of the first cohort of 32 students, mainly comprising opinion-leading prescribers in major hospitals across the country, members of pharmacy and therapeutics committees (PTCs), and members of the professional staff of the national regulatory agency.

Design

The course consisted of an opening session and five modules with an average duration of three weeks. Each module served as the foundation for the following module or modules, as outlined below:

- **Introduction to the certificate course and virtual platform:** This opening session familiarized the students with the course's methodology, staff of instructors, and use of the virtual platform that facilitated interaction, questions, and presentations during training periods outside the classroom. Depending on their proficiency, the UCE offered extra help to students who needed to upgrade their skills in using the virtual platform.
- **Module 1/General introduction to the certificate course:** In this module, students were provided with hard and electronic copies of the course materials and clarifications on the course's methodology. They received instruction in the preparation of effective PowerPoint presentations and summary technical reports to enable them to share their findings from their on-the-job training as part of the certificate course.
- **Module 2/The pharmaceutical management cycle and integration of supply in the Dominican Republic:** The emphasis in this module was on the concept of *use* as a component of an integrated supply management cycle. Students gained a practical knowledge of the supply management system in the Dominican Republic through a rapid assessment of its performance. As part of this module, students organized Pharmaceutical and Therapeutic Committees (PTCs) at their respective facilities. These committees then proceeded to oversee their on-the-job training, reviewed and discussed their operational research findings, and implemented any resulting recommendations.
- **Module 3/Introduction to rational medicine use:** This module familiarized the students with the theoretical concepts and work process involved in updating the CBME in the Dominican Republic. Students analyzed the safety and effectiveness of the medicines purchased by their respective facilities, identified any medicines not included in the CBME, and established the costs incurred by the facility in using medicines of questionable effectiveness or in failing to prescribe lower-cost therapeutic equivalents included in the CBME.
- **Module 4/Strategies for improving medicine use:** In this module, students analyzed medicine consumption at their respective facilities, identifying those medicines accounting for the largest share of facility spending (based on the ABC method). They also studied medicine prescriptions or case files to familiarize themselves with prescribing practices using basic indicators (e.g., number of medicines per prescription, percentage of prescriptions including antibiotics). These two sources of information helped them identify medicines included in the CBME but with questionable consumption patterns based on the pathologies treated at their respective facilities or compared with consumption patterns at other facilities with similar resolution capacity. A number of these medicines were then subjected to medicine use studies.

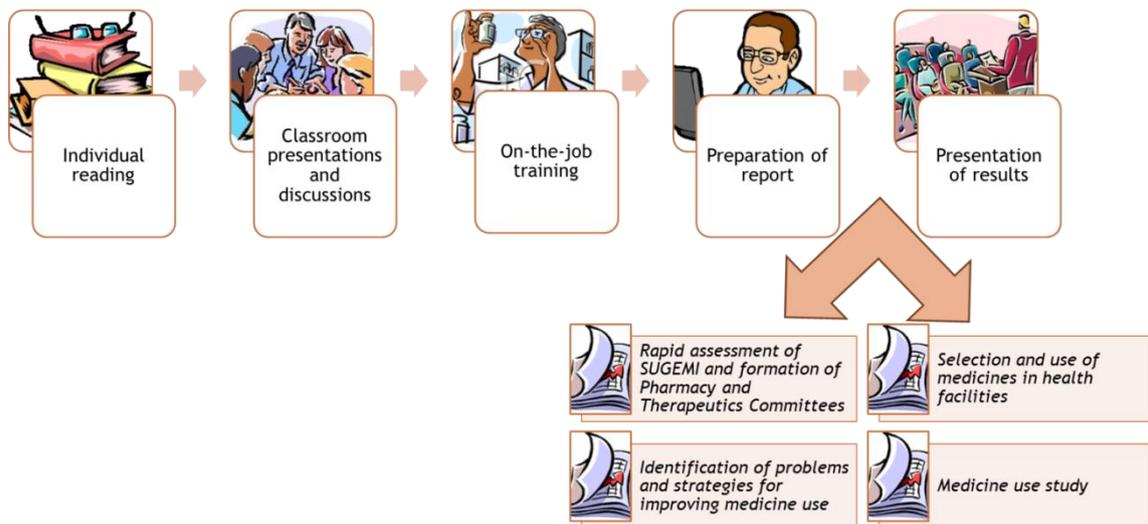
The module also provided theoretical and practical training for addressing detected medicine use problems through educational, regulatory, or administrative means.

- **Module 5/Drug use studies:** In this module, students received theoretical instruction in the conduct of medicine use studies and developed a study protocol for the selected medicine and facility in which they were to complete their on-the-job training based on a predesigned template. The data collected were organized by the students using predesigned electronic tools and presented and discussed at a classroom session to ensure the quality of the data and analyze their preliminary findings. The findings were subsequently presented at the course’s final session and in a technical report.

In keeping with the lessons learned from the certificate course on medicine supply management, design of the certificate course on rational medicine use was based on the premise that theoretical knowledge is reinforced by on-the-job training. Accordingly, course requirements for participants included the following (figure 1):

- **Individual reading:** The students read material on theoretical concepts and operating procedures established by the SUGEMI to improve medicine use.
- **Classroom presentations and discussions:** The students met every other Saturday for the duration of the certificate course (15 weeks) to attend lectures by the instructors designed to strengthen their theoretical knowledge, share and discuss the situation at their respective health facilities, and agree on detailed operating procedures for the completion of their on-the-job training in subsequent weeks.
- **On-the-job training:** Using predesigned work guides, the students documented problems with respect to the use of medicines, devised alternative solutions, and implemented measures designed to address the problems detected.

Figure 1. Training method for the certificate course on rational medicine use



- **Report presentation:** The situational studies and measures implemented were documented in visual presentations and technical reports. The students enrolled in the certificate course submitted the following individual or group reports:
 - **Formation of pharmacy and therapeutics committees (PTCs):** The 32 students assigned to 11 hospitals and two Regional Health Services (Servicio Regional de Salud, or SRS) set up 13 PTCs during the course of the two-week on-the-job training period for this module. To this end, the students met with the directors of their respective facilities, presenting technical and administrative arguments in support of the formation of a PTC. The directors appointed the committee members, who were then trained to perform their duties in keeping with national policies and regulations. No problems were reported with the formation of these committees, with each group of students meeting its goal of installing the committee by the agreed deadline. In the nine weeks following their creation, the PTCs provided the students in the certificate course with technical and administrative assistance in completing the various tasks involved in the remaining course modules, including analyses of medicine purchases and consumption and prescribing practices and medicine use studies. Working with the students and facility officials, the PTCs designed and implemented a variety of measures aimed at addressing the problems detected with respect to the use of medicines.
 - **Analysis of medicine effectiveness, safety, and cost:** On average, 17% of the medicines in use were not included in the CBME (between 15 and 76 medicines per facility). The effectiveness, safety, and cost analysis conducted at each facility was limited to the five medicines accounting for the largest share of facility spending. Six of the medicines were used in common by all the facilities, which brought the total number of products studied down to 38. The medicines not in the CBME purchased most frequently by the 10 facilities were iron sucrose solution for injection, ambroxol ampoules or syrup, and citicoline ampoules. A review of the literature revealed that administration of 11% of these medicines (4 of the 38 products studied) was not recommended because of either their limited or questionable effectiveness or problems with their safety. Eighty-two percent of the medicines with well-documented effectiveness and safety (28 of 34 products) had similar products or equivalents in the CBME, all of which, with the exception of 3, had lower prices. Had the 10 facilities taking part in the study purchased these 28 equivalent medicine products included in the CBME, they would have saved DOP 4.7 million (USD 104,336) in 2015.
 - **Analysis of medicine consumption:** In seven of the studied hospitals, 16% of the medicines and medical supplies consumed in the previous 12-month period accounted for 81% of their budget. On average, 21% of the medicines with the highest consumption value are not included in the CBME. This group includes monoclonal antibodies, last-resort antibiotics in nonapproved concentrations, isopropyl alcohol, injectable levetiracetam, and iron sucrose. These products accounted for 15% of the hospitals' budget during the study period (USD 486,352). Thirty-five percent of the medicines and medical supplies consumed by primary health care facilities operated by two SRSs accounted for 80% of their budget. On average, 33% of the medicines with the highest consumption value are not included in the CBME. Such products accounted for 26% of the SRS budget during the study period (USD 398,946). They include multivitamins, pediatric bronchodilators, and combination antihypertensive medicines.

- **Drug use studies:** A total of 777 case files from 2015 were analyzed at five hospitals and two primary (level one) health care centers. The medicines selected for study at the hospitals were imipenem/cilastatin 500 mg, 20 ml vials; lopinavir + ritonavir 200 mg + 50 mg tablets; ceftriaxone, 1 gram vials; midazolam, 5 mg ampoules; and albumin 20% solution, 50 ml vials. The medicines studied at primary health care centers were amoxicillin + clavulanic acid 250 mg + 62.5 mg suspension, 120 ml vials, and Bromhexine syrup 4 mg/5 ml. One hundred percent of the prescriptions for three of the seven medicines (lopinavir + ritonavir, amoxicillin + clavulanic acid, and Bromhexine) were “nonconforming.” Prescriptions for the antiretroviral medicine and Bromhexine failed to record the posology (dosage, frequency of administration, and length of treatment) in the case files. Amoxicillin + clavulanic acid was prescribed for viral or undetermined diseases in 66% of the cases. The rest of the prescriptions failed to indicate the posology.
- Of the prescriptions for ceftriaxone and albumin, 56% and 90% respectively were “nonconforming.” In the case of both medicines, national and international protocols did not recommend their use for the pathologies or conditions for which they were prescribed in the case files studied. Midazolam was the only one of the seven medicines studied for which 100% of all prescriptions were “conforming.” Total spending for “nonconforming” medicine use was estimated at DOP 3,550,739 (the equivalent of USD 78,905) for one year.

The operational research findings were presented and discussed at regular classroom sessions and the final session of the certificate course. Thirty-two students successfully completed and passed the certificate course in June 2016. Several of the students, including hospital administrators, took immediate steps to correct the problems detected (restricting laboratory representatives’ visits during patient care times and presenting and discussing the study findings at work sessions with prescribers). Subsequent evaluations will help highlight any further impacts of the certificate course and clarify the lessons learned from this first course.

In view of the academic results and the immediate positive impact of the certificate course on the use of medicines, the Universidad Central del Este will conduct a second certificate course during the last quarter of 2016 with technical assistance from the SIAPS Program and USAID funding. The certificate course is open to any interested party meeting the minimum enrollment requirements and having the means to cover the registration fee. However, government services and cooperation agencies are expected to subsidize the registration fee for subsequent cohorts of students until a critical mass of professionals is reached to ensure the sustainability of any measures implemented by the Dominican Republic to promote the rational use of medicines.

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References

¹[http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304317/;](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304317/)
http://pdf.usaid.gov/pdf_docs/PA00K919.pdf

²[http://siapsprogram.org/publication/incorporation-of-the-supply-of-antiretrovirals-into-the-dominican-republics-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/)
http://www.ispor.org/research_pdfs/51/pdffiles/PHP351.pdf

³<http://siapsprogram.org/2015/09/03/la-revision-de-la-lista-nacional-de-medicamentos-esenciales-en-republica-dominicana/>

⁴<http://siapsprogram.org/2015/11/24/estrategias-basadas-en-evidencia-para-la-racionalizacion-de-la-lista-de-medicamentos-de-alto-costo-en-la-republica-dominicana/>

ABOUT SIAPS | The Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program works to assure access to quality pharmaceutical products and effective pharmaceutical services through systems-strengthening approaches to achieve positive and lasting health outcomes. SIAPS is funded by the US Agency for International Development (USAID) and is implemented by Management Sciences for Health.

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