Capacity building in Public Health Professionals: the Experience of the Dominican Republic

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Abstract

This paper describes the experience on the capacity building for health professionals in the Dominican Republic. It explores the processes and strategies associated with the capacity building considering the role of funding sources and lessons learned.

Keywords: capacity building, public health, Dominican Republic

Individuals, organizations and societies can all gain from building high levels of cooperation, reciprocity and trust as members of the community for the social benefit (Gillies, 1998). These social assets can be heightened when it involves international funding agencies and the cooperation of different countries. The implementation of capacity building programs is one strategy, in which international funding agencies, countries, societies, organizations, and individuals can help to enhance social benefits. There are many variations of capacity building program, as it varies in terms of the scope (i.e., a single workshop on a particular subject, a well thought cohesive curriculum to increase knowledge and skills in a set area of competence); the targeted audiences ranging between the individual, organizations, and systems (CDC, 2009); communities and entire nations (Sajiwandani, 1998); the public or private sector such as the Education and Health Departments or private companies; variations on the topic (i.e., health education, research methodology, management); variations on the provider (i.e., individual consultants, community leaders, health educators, universities); and on approaches taken to build the capacity such as the manager's approach (White, 2002), the bottom up or down approaches (Crisp, Swerissen, & Duckett, 2000), and funding agency's approaches (CDC, 2012). This paper discuss the Center for Diseases Control (CDC) framework for capacity building (2009), in light of an educational effort aimed at increasing capacities of public health professionals in the Dominican Republic. Faculty from the University of Puerto Rico through a collaborative agreement with the CDC of Atlanta in the United States implemented the project, referred as UPR-DR here after.

PEPFAR in the Dominican Republic

As part of the initial United States President's Emergency Plan for AIDS Relief (PEPFAR Phase I, 2009), the United States Department of Health and Human Services (US DHHS), through the Health Resources and Services Administration (HRSA) and Centers for Disease Control and Prevention (CDC), funded several implementing partners to rapidly scale up HIV care and treatment in several countries carrying a high burden of HIV. One of these countries was the Dominican Republic that received United States Government (USG) funding to deliver HIV related services in resource-limited settings.

Since 2004, the Global Fund, PEPFAR, and the World Bank's MAP (i.e. the big three) have been providing large volumes of new money for HIV/AIDS programs to the Dominican Republic. By 2005, the three funders were transferring (i.e. disbursing) more than $3 billion per year at the international level with over 70% of this total coming from PEPFAR, establishing itself as the largest funder for global HIV/AIDS (Bernstein & Sessions, 2007). In addition to the uniquely large scale of its funding, PEPFAR makes legal commitments for one year and disburses funding to many different types of recipient organizations, the majority of which are non- government entities. The program described herein was implemented from October 2010 to September 2014 as an initiative of the Center for Diseases Control (CDC) under the United States President's Emergency Plan for AIDS Relief (PEPFAR) through a collaborative grant awarded to the University of Puerto Rico, Rio Piedras Campus (UPR-RP).

Partner country: the Dominican context

The University of Puerto Rico Capacity Building Project in the Dominican Republic (UPR-DR) took place in response to the need to strengthen the knowledge and skills in epidemiology, of health professionals and improve the quality of surveillance data collected in the Dominican Republic (DR), being the ultimate aim the improvement of health practices in the country.

At the start of the project in 2010, the Dominican Republic had a population of ten million people that shared two-thirds of the Caribbean island of Hispaniola with Haiti. Approximately one quarter of the population lived below the poverty level (31.6%); the population growth was 1.30% (2010-2011) given the country's estimated birth (21.89 births/1,000 population) and death (6.07 deaths/1,000 population) rates and an infant death rate of 26.9 per 1,000 live births (PAHO, 2012). The DR's Epidemiology Department of the Ministry of Health was mainly responsible for developing and implementing a strategic plan for the training of all public health professionals, determining the public health research agenda, and for conducting research that was relevant to the country's needs. Faculty, investigators, and care treatment specialists in the Dominican Republic had made important and significant contributions to teaching and community intervention activities. However, the contributions both in teaching and development of evidence-based interventions had lagged behind (Masters level training in public health was offered only at two higher education institutions, the Universidad Autónoma de Santo Domingo (UASD) in the capital city of Santo Domingo and the Universidad Central del Este (UCE) in San Pedro de Macoris in the south east part of the country. There were a number of institutional barriers that limited the universities' capacity to train and sustain a continuing education program to cover the needs for trained professionals nationally. These barriers included: lack of economic resources, low salaries and incentives for the teaching and research, limitations on the acquisition of technology, academic isolation, and scarcity of returning professionals trained abroad to teach the new methods and technologies, due, in part, to lack of competitive salaries and benefits. In addition, there were no sustainable continuing education programs for those working for the Ministry of Health (MOH). The goal of our project was precisely, to help the country fill the educational gap for public health professionals in the area of HIV/AIDS, STIs, TB, and all other infectious diseases at the local, regional, and national level in the Dominican Republic. It focused on the training of public health professionals that were in charge of surveillance, outbreak reports and conducting research at the Ministry of Health. The University of Puerto Rico (UPR) is a major public institution of higher education that enrolls over 63,000 students and has over 5,200 faculty members (Vice President for Research and Technology, n.d.). The UPR is the largest higher education system and trains more Latinos that any other university on the US. It alone accounts for one out of every 17 Hispanic in higher education on the United States. This project represented a unique opportunity to effectively partner with the INTEC and the UASD, two of the finest higher institutions, and several dependencies of the Ministry of Health in support of HIV/AIDS and other STI capacity training.

The PEPFAR's frameworks to capacity building

Several definitions for capacity building in the health field (Crisp, Swerissen and Duckett, 2000; White, 2002) call for a strict application of the concept to those interventions, which have changed an organization's or community's ability to address health issues by creating new structures, approaches and/or values. Indeed, the President's Emergency Plan for AIDS Relief (PEPFAR), one of the largest funders for AIDS relief, has revised its framework and definitions for capacity building over the years. The first stage framework (2009), also called The Partnership Frameworks I, guided our capacity building efforts from 2010 till 2015. This framework emphasize on the collaboration with host countries through a partnership approach.

This approach represented in itself a new focus, from an emphasis on antiretroviral therapy (ART) to deal with the emergency of the newly acquired cases of HIV/AIDS pandemic to an emphasis on collaborative responsibilities. The second stage framework, which is the current guiding approach (2015 – 2020), has a greater emphasis in sustainability of the efforts by the partner countries. The UPR-RD project was funded under the first stage framework (2009).

In the following section we discuss how the PEPFAR frameworks (phases I and II) are pertinent to the understanding, applicability and further discussion of the experience in the planning, implementation and evaluation of the UPR- RD project implemented in the Dominican Republic. PEPFAR guidelines (2012) defined capacity as "the ability of individuals and organizations or organizational units to perform functions effectively, efficiently and sustainably" (pag. 1) and capacity building as " an evidence based process of strengthening the abilities of individuals, organizations and systems to perform core functions sustainably, and to contribute to improve and develop over time" (pag. 1). The purpose of a partnership framework was to provide guidance that could be adapted to regional structures and contexts, for cooperation between the USG, the partner government, and other partners to combat HIV/AIDS in the country through technical assistance and support to service delivery, policy reform and coordinated financial commitment (pag. 3). At the end of the funding period, country government were to be better prepared to assume the primary responsibility for the national response to HIV&AIDS. Indeed, the goal of UPR-DR, project was to increase the capacity in public health professionals so that at the end of the funding period these professionals, alongside the National Ministry of Health of the country, could be in a better position to assume the responsibility for the surveillance and for setting up appropriate interventions. In comparison to other definitions and framework for capacity building, the PEPFAR definitions emphasizes the sustainability and ability to improve and develop over time of the partner country after the conclusion of the external funding The partnership framework, as defined by PEPFAR, involves strengthening the relationships between organizations or groups of people who might otherwise have little or no working relationship was another approach to building capacity that proved to be fruitful for the implementation of our program. Partnerships can result on the exchange of resources required to implement the training program. Thus, community leaders, health advocates and health professionals can facilitate the training efforts. In our case, the success of the training program was made possible through a collaborative agreement between the University of Puerto Rico (UPR) and the Centers for Disease Control (CDC) and the Ministry of Public Health of the Dominican Republic (MOH), in response to the need to strengthen the knowledge in epidemiology of health professionals and improve the quality of surveillance data collected in the country. In addition, further partnerships were established with the University of Puerto Rico Graduate School of Public Health, Medical Sciences Campus, the Universidad Autonoma de Santo Domingo (UASD) and the Instituto Tecnológico de Santo Domingo (INTEC).

The PEPFAR partnership framework offers several guiding principles that can be embrace when implementing a program, namely: 1) country ownership, 2) sustainability, 3) support for country coordination of resources, 4) USG interagency collaboration, 5) strategic framework, 6) progress towards policy and increased financial accountability, 7) integration of HIV/AIDS into health agenda, 8) monitoring and evaluation, 9) collaborative but not contractual, 10) transparency, and 11) do no harm.

In the following section, we discuss the guiding principles behind the Partnership approach and how each of these principles was applied to the UPR-DR project. At the end of this section, we will also discuss the challenges and successes on the implementation of this framework.

Country ownership. For PEPFAR, this means, that local government are placed at the center of the decision-making, leadership and management of their HIV/AIDS program. In order to accomplish this goal, two main criteria are pivotal: 1) country´s ability to identify health needs, and 2) country`s commitment at the international level with a public policy for increasing capacity of health professionals.

The U.S. Global AIDS Program which is part of the President's Emergency Plan, and the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (HHS/CDC) had made a committeemen to the Dominican Republic to fund several projects with aimed to decrease the spread of AIDS and other diseases. Several meetings were held between the Direccion General de Epidemiologia (DIGEPI) of the MHO and the CDC, to plan for ways in which the CDC could be of help to the Dominican Republic's health needs. In 2009, the CDC published a public call for proposal aimed at increasing capcacities in the Dominican Republic.

Investigators from the University of Puerto Rico submitted and were granted a collaborative agreement contract to deliver such services in the Dominican Accordingly, members of the CDC's Office in the Dominican Republic met with MOH official from the Dominican Republic to identify the country's needs on health issues and to confirm the country's commitment with international policies on improving the capacities of health professionals. Prior to the meetings with the CDC, the Dominican Republic had agreed to follow the Panamerican Health Organization health plan (2009), promoting programs for the improvement of the abilities and knowledge of health professionals. The CDC followed these meetings putting forward a request for proposal for an experienced institution capable of implementing a capacity building project for health professionals. The request outlined in details the strategies and objectives of the program in alignment with the Partnership Framework (2009), authored by the CDC.

The University of Puerto Rico, Rio Piedras Campus, was granted the collaborative agreement to develop and implement the capacity building training program at the Dominican Republic. A history of earlier collaborations needed to have taken place in order to obtained the contract from the CDC (collaborations through grants from the Office of the UPR President's Office since 1995 to support academic and research partnerships in the Caribbean with INTEC, the UASD, and community based organizations (Mendez, 2010). Important formal institutional collaborative agreements to support the academic exchanges between Puerto Rico and the Dominican Republic had also been signed in 1993 and 2009 by the Governor of Puerto Rico that established a policy of collaboration with the Dominican Republic. This *Dominican Republic - Puerto Rico Strategic Alliance* was renewed in the context of U.S.-Dominican relations in 2015 (Joint Declaration of Cooperation between the Commonwealth of Puerto Rico and the Dominican Republic, 2015). In order to establish the capacity building project, the UPR needed a platform, with legal and administrative status in the DR, to launch this project. For this project, and based on the earlier collaborations between the UPR and INTEC, The UPR was able to partner with INTEC to assume the administrative responsibility of the project in the DR. INTEC is a well-organized private university that has a demonstrated interest in the teaching of health issues.

In accordance with the CDC framework the UPR-DR project was able to align its own goals and objectives with those of the strategic plan developed by the MOH of the Dominican Republic. After several meetings with CDC officials and leaders of the Epidemiology Department of the MHO and a steering committee of key stakeholders, the following main activities were agreed upon: (1) To contribute to the development of an strategic plan for capacity building in field epidemiology of public health professionals at the Epidemiology Department in the DR (Dirección General de Epidemiología - DIGEPI), (2) To train, at the basic level 250 professionals in field epidemiology at the basic level (150 in field epidemiology and 100 in field epidemiology for laboratory professionals), and (3) To provide further training to 60 professionals of these 250 professionals at the intermediate level. Once awarded the grant, the following stages were adapted from guidelines of the Field Epidemiology Training Program Development Handbook (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention [CDC], 2006).

Sustainability. For PEPFAR, this means supporting the partner country in increasing its capacity to lead, manage and ultimately finance its health system.

Support for country coordination of resources. This means that any efforts should be fully in line with the national HIV/AIDS plan of the country alongside the efforts of sustainability. These two principles (sustainability, and support of resources) were obtained through the following steps:

1. Establishment of a working relationship with stakeholders. Several meetings were held to: (a) establish a commitment from Instituto Tecnologico de Santo Domingo (INTEC) for the subcontract of the administrative part of the project and (b) establish collaborations with the Dominican Republic Ministry of Health Departments (National Direction of Laboratories "Dr. Defilló", and the Dirección Nacional de Epidemiología (DIGEPI) to become part of the decision - making process regarding the development of the training program and the curricula (i.e, strategies for recruitment of ideal candidates, topics to be included in curriculum, potential sites for field placement, etc.).

2. Development of a strategic plan. Revision of documents and results of round table meetings with important stakeholders (i.e., head of epidemiology department, head of human resources from the Health Department, representatives of CDC, and important members of the major NGO's) were taken into account for the development of a Strategic Plan for public health training. This plan identified the design, and the educational strategies and curricula tailored to the Dominican Republic culture and public health professionals' needs.

3. Participation in the implementation of program. During the of participants' recruitment phase, members of the steering committee were involved in the selection of participants. During the implementation of the program, some of the members of the steering committee were part of the faculty, alongside, the University of Puerto Rico's faculty.

USG interagency collaboration. Refers to the interagency actions of the US Department of State (US Global AIDS and country`s US Embassy) to support the partner country's efforts. This goal was attained through the integrated work shown by the Global AIDS Office in the Dominican Republic to draft and maintain the country`s agenda in the national efforts to deal with the HIV/AIDS. To this end, several meetings, were held to discuss and agreed upon a country´s agenda. Participated in these meetings the UPR-DR project coordinator, representatives from the CDC Global AIDS in the Dominican Republic, and representatives from PEPFAR in the Dominican Republic.

Engagement and participation. Refers to the engagement of the multisectorial agreement in the fight against HIV/AIDS. This goal was obtained by becoming part of a Steering Committee which had the main responsibility of ensuring that the development and implementation of the educational program remained on track, both in terms of time, content, and intentions. This committee was composed of representatives from the CDC global AIDS in the Dominican Republic, UPR, Panamerican Health Organization (PAHO), MHO departments (National Registry of Laboratories, DIGGESSITS, DIGEPI and Human Resources Department). This committee was convoked by the DIGEPI and scheduled to meet once a month.

Strategic framework. It refers to the activities, implementation plans and objectives of the program. The following actives were put into place.

1. Curriculum development. Three curricula were adapted, updated and/or developed to accomplish our goal. The curricula were developed, for the basic courses in field epidemiology and field epidemiology for laboratory technicians, and one for the intermediate level course in field epidemiology. The adaptation, update or development took into account several sources of information: (a) results from round table conducted by the DIGEPI which led light into the workforce capacity needs, (b) the Field Epidemiology Training Program Standard Core Curriculum already adapted for its use in Guatemala, (c) the experiences obtained in Guatemala adapting and implementing the FETP, (d) the University of Puerto Rico´s Graduate School of Public Health curriculum, and (e) standards for translating, adapting, tailoring, and implementing culturally appropriate programs and curricula, such as those already developed by the CDC Office of Global Health and the experiences at University of Puerto Rico Graduate School of Public Health, the Department of Psychology and the Research Institute for Psychological Research (IPSI). In addition, learning objectives, course schedule, recruitment of candidates, and development of manuals were developed with the participation of the Steering Committee mentioned above.

2. Field placement. All participants complied with a field placement of a full time week (40 hours) with the Dominican Republic's Ministry of Health the DIGEPI or at any of the other MOH programs (i.e., the TB program, the Programa Ampliado de Inmunizacion (PAI- the National Vaccine Program). The main purpose of the internship was to offer an opportunity for a face-to-face training to develop all of the key competencies. For all field experiences, a mentor in the field supervised the trainees.

3. Implementation of the curricula. It is thought that having a core of well - trained individuals decreases reliance on external consultants and increases local capacity to sustain efforts when funding ends (Herman & Bentley, 1992). During the implementation of our program, we indeed, used this strategy to train a cadre of health service providers at the MOH. The program was implemented following a pyramidal format: 1) Basic level courses (comprised of 112 classroom hours, and 124 hours of field work—five months) and 2) Intermediate level courses (comprised of 240 classroom hours and 168 hours of field work — 9 months). The courses were taught on weekends (Thursday-Saturday). The basic level course was comprised of five modules. We trained a total of 190 health professionals at the basic level during the four years of duration of the grant. The intermediate level course was composed of nine modules, and was offered in three waves (of 20 participants each). At this level we trained a total of 59 health providers. The basic level courses was accredited by the Universidad Autónoma de Santo Domingo (UASD – Dominican Republic State University) for a total of 9.5 graduate credits; its graduates received a Diploma signed by the UASD, UPR and the MOH. The intermediate level graduates received a certification of participation signed by the UPR and the MOH.

Considerable investments in the training process, how trainees were selected, trained and provided with opportunities to utilize their newly acquired skills and knowledge was crucial to us, (Rist, 1992; Godlee, 1995). We wanted to make sure that health providers were going to contribute to the betterment of the health of their constituency by applying the newly acquired skills in the development and implementation of health programs more responsive to the needs of their communities (Hall and Best, 1997). Thus, we put into place a structured system to guarantee accurate and proper recruitment of participants. We used the Admissions Registry Form, created by our project. For our internal control to collect data from those soliciting admissions to the program, all participants who responded a public announcement were asked to send their curriculum vitae, a photo identification card, a letter of interest, and a letter of the supervisor authorizing their personnel to take the training, copies of their diploma, and copies of their official practicing license.

4. Evaluation of curricula delivery and long term results. On-going monitoring and evaluation of the program took place every year to determine impact of the program and effectiveness of the various components of the program. The M&E activities accomplished the following: 1) documentation of the success of the program toward achieving its goals and objectives, and 2) identification of areas in need of strengthening. A logic model developed by the CDC was used for M&E purposes. As described in this model, the monitoring of inputs, processes, outcomes and impact were continuously assessed for the implementation of the program and for constant feedback for the improvement of program design and activities. The results of the evaluation process will be presented in a different article.

Flexibility. It refers to the recognition that different approaches to partnerships are appropriate for different settings. In our case, the approach taken by PEPFAR was to provide funding to an external entity outside of the Ministry of Health, such as the University of Puerto Rico, which goal was to strengthen the health system of the partner country.

Progress towards policy reform and increased financial accountability. It refers to the emphasis that must be put into the promotion of key policies and effective sustainability. This approach involves the involvement of decision making stakeholders in the coordination and planning of the capacity building program and a re-organization of infrastructure resources. The training of health providers (particularly of the epidemiologists in regular posts) was identified as a priority by the head of the Epidemiology Department (DIGEPI) of the MOH in the Dominican Republic, and became a policy of the agency as well as part of their strategic plan. In fact, the Human Resources Administration at the MHO made a commitment to take into account the successful compliment of the program for job promotion purposes. The DIGEPI named a head of training for the department, who collaborated in the coordination, planning and implementation of the program. The steering committee, composed of the head of the DIGEPI, the person in charge of training at the DIGEPI, a representative of the Human Resources Department of the MOH, the director of the in-house capacity building program from the UPR, and representatives of the CDC, and PAHO, were all part of the coordination, planning and implementation of the capacity building training program. Participation in the program required a commitment from the participants themselves, and from the MOH. For recruitment purposes, we required that participants asked permissions from their head of their Department in writing. If admitted to the program, participants were given a paid leave (for the six or twelve working days depending on the course level) for their attendance to the training program. It also required the participants' commitment for their non-pay days of training. Finally, participants at the basic level were given a Diploma and 9.5 of credits for continuing education. Participants at the intermediate level were given a certificate of participation.

Integration of HIV/AIDS into strengthened health systems and a broader health and development agenda. It refers to the contribution towards strengthening the HIV/AIDS services within the context of the broader health system in the country. It is exemplified in our experience by the active participation of the director of the UPR-DR Project (first author of this article) in the National Committee for Public Health of the DR Ministry of Health. The planning and further implementation of the capacity building program described in this article was outlined in the Educational Strategic Plan (date) developed by the National Committee for Public Health of the DR´s Ministry of Health. The nature of planning cycle described by White (2002) was also observed during the implementation phase in the DR. Several meetings among stakeholders took place until the public health strategic plan for the DR was developed following the resolution CE 126.R18 (June 2000) of the Pan-American Health Organization (PAHO)) Counsel on public health of the Americas, of which the DR is a member.

These strategies were summarized into ten public health basic services that every member country should provide, these include: (1) Monitoring by the state to identify community health issues, (2) Conducting research to identify health issues and risk factors in the community, (3) To provide information, education and empowerment to the community on health topics, (4) To mobilize community based organizations in the identification and resolution of health issues, (5) To develop policies that support individual and collective initiatives, (6) To comply with laws and regulations developed ensure the general health, (7) To deliver health services to all communities, particularly those that do not receive such services (8) To guarantee the availability of a cadre of health professional trained in public health, and service delivery, (9) To evaluate individual and collective services in terms of its efficacy, accessibility and quality of services, (10) To research new approaches to deal with health issues, and (11) To lower the impact of emergencies and disasters on the general health.

Monitoring and Evaluation. Personnel from the CDC in the Dominican Republic provided training and consultation on the logic model and on the strategies to obtain and provide useful information for monitoring the progress of the project and for evaluating the outputs of the project. To monitor and evaluate the progress of this project we established a system that collected information about the program. It was composed of: (1) Admissions Registry Form, (2) Curriculum Evaluation Form, (3) Interview Guidelines, (4) Interview Form, (5) Computer Literacy Test, (6) Epidemiology General Test, (7) Psychological Test, (8) Candidate´s Evaluation Form, (9) Letter of admissions, (10) Graduation Checklist Data base composed of the following documents: (11) Attendance sheet, (12) Post Test results, (13) Homework and exercises results, (14) Outbreak Investigation Report, (15) Scoring Sheet for Surveillance Presentation, (16) Scoring Sheet for Surveillance Report (17) Tutoring Tracking Sheet and (18) attendance to the 40-hour internship. An Admissions Registry Form was used to collect data from those requesting admission to the program.

A curriculum evaluation form was used to review the curriculum sent by the each candidate; points were assigned for each of the criteria agreed upon by the Steering Committee (i.e., experience, national and international presentations, etc.). Candidates were then asked to come to our offices for an individual interview. The interview took about half an hour and was composed of several questions. Members of the steering committee using the Interview Guidelines designed for such purposes by our project conducted the interviews. Results of the interview were scored quantitatively; this score was transferred to the Interview Form. Participants were then to take a computer literacy test (i.e., Microsoft Word and Excel) to measure their skills in these programs. This test took about 15 minutes to complete. The general concept of the test was adapted from the Field Epidemiology Training Program (FETP) (CDC, 2008). The contents and administering procedure were developed by our project. The General Epidemiology Test took about 15 minutes to complete; it was self-administered, and contained approximately 10 items. It was created by the FETP and covered general information from the "Principles of Epidemiology" textbook. We used the same test used by the Ministry of Health to evaluate their employees. It was a Composite of Personality Factors (CPF) of the Industrial Venezuelan Psychological Test (PIV). It took about half an hour to complete and it included 38 items. Once completed it was sent to the Human Resources Department of the Ministry of Health for scoring. All these results were then combined into one single admission score.

A list of candidates was generated and presented to the Steering Committee for final admissions. A letter of admissions was sent to all admitted candidates. Those admitted who could commit to the attendance of the training were then enrolled in the program. Once enrolled, their names were transferred to our Graduation Checklist Database, where we kept close monitoring of their progress. Attendance to the modules was collected for each day of classes using a daily Attendance sheet. Participants signed in front of project`s personnel. Pre and Posttest results were collected individually for each participant for each module. Participants filled in the test individually under the supervision of the professor in charge of the class and the project´s personnel. Participants were also expected to hand-in results of an outbreak investigation, in collaboration with the Province or region epidemiologist usually in charge of this task. Personnel from the DIGEPI and the National Laboratories (where internships took place) kept an attendance record of the trainees. We were informed of their attendance to the internship by the Training coordinator. All documentations were collected for each of the participants, where project´s personnel were in charge of collecting, entering and analyzing the information. All of this documentation and data were kept in the project´s office in locked files. We used the Module Evaluation format, adapted from Guatemala FETP form, to collect and report module activities, results and improvements for each course.

We also conducted two feedback meetings with trained participants to identify strengths and weaknesses of the program and sent our feedback questionnaire to all past trained participants to assess program's impact. Level of satisfaction of course offerings, classroom activity and staff performance was continuously obtained from participants with an instrument designed for such purposes. In general (see other results are published elsewhere), the feedback received from participants was excellent (on a scale of 1 through 5, 80% of the participants gave scores of 5). They seemed satisfied with the topics covered in each of the modules and with the materials given to them. They were very satisfied with the high quality of the teaching in the classroom, of the classroom facilities, and with staff performance.

Project Strategy

Several steps were taken to develop and implement this project. The Field Epidemiology Training Program Development Handbook (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention [CDC], 2006) was used as the basis for some of the following strategies. The strategies and pittfalls of each strategy are discussed in the following section.

1. Early collaborative projects between faculty in Puerto Rico and in the Dominican Republic.In order to establish this project in the Dominican Republic, earlier collaborations needed to have taken place: 1) collaborations between faculty through grants from the Office of the UPR President's Office had been developed since 1995 (1995-1996, 1996-1997, 2003-2004, 2005-2006)to support academic and research partnerships in the Caribbean with INTEC, the UASD, and community-based organizations on the evaluation, design and systematization of projects to prevent HIV/AIDS in the Dominican Republic and 2) several important formal institutional collaborative agreements support the academic exchanges between Puerto Rico and the Dominican Republic. In 2001, the Governor of Puerto Rico established a policy of collaboration with the Dominican Republic. This policy was set forth in a document entitled "Declaration of Cooperation between the Commonwealth of Puerto Rico and the Dominican Republic". Two of these main policies were to promote, 1) the development of scientific research and 2) the University alliances internationally. Even though, these early collaborations and policies were previously obtained, it was the first time for the University of Puerto Rico to obtain a collaborative grant from the CDC to be implemented in a different country.

2. Development of a proposal. The first step was the development of a proposal submitted and granted to the U.S. Global AIDS Program which is part of the President's Emergency Plan, and the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (HHS/CDC). Just as it is the case for the development of any proposal, several meetings took place between the PI from Puerto Rico and the collaborative partners in the Dominican Republic. These meetings served the purpose of getting to know the needs of public health in the Dominican Republic and obtaining written support for the submission of the proposal. The public health needs of the Dominican Republic were gathered through previous meetings between the CDC-Dominican Republic officals and officials from the Ministry of Health of the Dominican Republic. The result of these round tables became the basis for the call for proposal put forth by the CDC.

3. Establishment of a working relationship with stakeholders. Once awarded the grant, We were able to establish the projected liaisons with most of the proposed stakeholders: 1) we obtained a signed sub-award contract between the University of Puerto Rico and INTEC for the local financial management of the project; 2) collaboration with the UASD was established; UASD's personnel became part of the steering committee, and awarded the project the academic accreditation for the basic level courses; 3) as a result of joint collaboration with the Department of Epidemiology of the Ministry of Health (Dirección General de Epidemiología - DIGEPI), a draft version of the "strategic plan" was developed, discussed and delivered to the Steering Committee on March 2013; 4) a strong relationship with MOH personnel in charge of laboratories and the DIGEPI were established and a 40 hours Internship program was developed for participants; 5) Dominican MA graduates from Guatemala's FETP program were engaged in the training program; and became part of the cadre of faculty and tutors for the training program; 6) the project became part of the steering committee in charge of making decisions related to content, recruitment and logistics of the project; the committee met at least once and month and was composed of representatives of the CDC, PAHO, UASD, and the Ministry of Health (Human Resources Department, Directorate of Provincial Health Centers (DPS) and Regional Health Centers (REDES) [Dirección de Fortalecimiento], and DIGEPI).

4. Setting up the the project. A formal structure for the implementation of the training program was established. The formality created by the UPR-RD Project includes the establishment of: 1) the infrastructure for the delivery of the courses (an office and two fully equipped classrooms with intelligent blackboards and personal computers), 2) the academic logistics, 3) the adaptation and revision of curricula, materials, and monitoring and evaluation tools from the Guatemalan FETP program, and 4) procedures for awarding certificates of completion and graduation. The project also developed additional materials needed for the proper functioning of the program, such as: 1)course syllabus, 2) training evaluation strategies, 3) course calendar, 4) participant's guide for completion for the program (roles and responsibilities), and 4) a protocol for monitoring and evaluation, which includes a survey tool for participants feedback.

5. Development of a strategic plan. Results of round table meetings and revision of documents were taken into acount for the development of a Strategic Plan for public health training. This plan identified the design, and the educational strategies and curricula tailored to the Dominican Republic culture and public health professionals' needs.

4. Becoming part of a Steering Comitte. Representatives from the CDC Global AIDS in the Dominican Republic, UPR, OPS, MHO departments (National Registry of Laboratories, DIGGESSITS, DIGEPI, Human Resources Department) were all part of the Steering Committee which had the main responsibility of ensuring that the development and implementation of the educational program remained on track, both in terms of time, content, and intentions. This committee was convoked by the DIGEPI and scheduled to meet once a month.

5. Curriculum development. Three curricula were adapted, updated, and/or developed to accomplish our goal. The curricula were developed, for the basic courses in field epidemiology and filed epidemiology for laboratory technicians, and one for the intermediate level course in field epidemiology. The adaptation, update, or development took into account several sources of information: (a) results from round tables conducted by the DIGEPI which led light into the workforce capacity needs, (b) the Field Epidemiology Training Program Standard Core Curriculum already adapted for its use in Guatemala, (c) the experiences obtained in Guatemala adapting and implementing the FETP, and (d) the University of Puerto Rico´s Graduate School of Public Health curriculum, and (e) standards for translating, adapting, tailoring, and implementing culturally appropriate programs and curriculums, such as those already developed by the CDC Office of Global Health and the experiences at University of Puerto Rico Graduate School of Public Health and the IPSI. In addition, learning objectives, course schedules, recruitment of candidates, and development of manuals were developed with the participation of the Steering Committee.

6. Field placement. All participants complied with a field placement of a full time week (40 hours) with the Dominican Republic's Ministry of Health at the DIGEPI or at any of the other MOH programs (i.e., the TB program, the PAI). The main purpose of the internship was to offer an opportunity for a face-to-face training to develop all of the key competencies. For all field experiences, a mentor in the field supervised the trainees.

7. Implementation of the curricula. Three modalities for implementing the curricula were used: a) face-to-face (traditional) course format, b) a field experience/practicum for each core in the curriculum, and b) on-going mentoring and supervision. The traditional courses were offered at our own offices rented for such purposes under the administration of INTEC. The program was implemented following a pyramidal format: 1) Basic level courses (comprised of 112 classroom hours, and 124 hours of field work—five months) and 2) Intermediate level courses (comprised of 240 classroom hours and 168 hours of field work —9 months). The courses were offered on weekends (Thursday-Saturday). The basic level courses were comprised of five modules of classes (average of 24 hours per weekend). These were taught in approximately 9 waves with 25 participants each to reach 190 trained health providers in the four years duration of the grant. The intermediate level course was composed of 9 modules (average of 24 hours of classes), and was offered in three waves (of 20 participants each) to reach a total of 59 health providers at this level. The basic level courses were accredited by the UASD for a total of 9.5 graduate credits; its graduates received a Diploma signed by the UASD, UPR, and the MOH. The intermediate level graduates received a certification of participation signed by the UPR and the MOH.

8. Evaluation of curricula delivery and long term results. On-going monitoring and evaluation of the program took place every year to determine impact of the program and effectiveness of the various components of the program. The M&E activities accomplished the following: 1) documentation of the success of the program toward achieving its goals and objectives, and 2) identification of areas in need of strengthening.

A logic model developed by the CDC was used for M&E purposes. As described in this model, the monitoring of inputs, processes, outcomes, and impact were continuously assesed for the implementation of the program and for constant feedback for the improvement of program design and activities.

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Following on the initial emergency response from 2004-2009, the second phase of PEPFAR 2009 – 2013 emphasizes country ownership and sustainability (PEPFAR, 2012). The United States signed a Declaration in Paris on aid effectiveness which stated that "the capacity to plan, manage, and implement and account for results, is critical for achieving developing objectives" (PEPFAR, 2012, page. 1). Thus, the 2009 – 2013 frameworks was intended to help host country partners and key stakeholders to strengthen the host country capacity to respond efficiently and effectively to the HIV/AIDS epidemic through more capable government agencies and service delivery, civil society organization, private companies, and research and academic communities. To this end, we can firmly state that the development of a platform for the training program in Field Epidemiology was probably one of the biggest achievements of this project. The formality created by the UPR-DR project included the establishment of: 1) the infrastructure for the delivery of the courses, 2) the academic logistics, 3) the adaptation and revision of curricula, materials, and monitoring and evaluation tools from the Guatemalan FETP program, and 4) procedures for awarding certificates of completion and graduation. The project also developed additional materials needed for the proper functioning of the program, such as: 1)course syllabus, 2) training evaluation strategies, 3) course calendar, 4) participant's guide for completion for the program (roles and responsibilities), and 4) a protocol for monitoring and evaluation, which includes a survey tool for participants feedback. Once our funding period ended (December, 2014), the Department of Epidemiology at the MOH in the DR was granted the funds to continue with the capacity building efforts, thus echoing the PEPFAR's framework emphasis on country ownership and sustainability. We believe that this collaborative effort that lasted four years between the University of Puerto Rico and Department of Epidemiology at the MOH in the DR was a key element to continuing with the country's goals in the capacity building of health professionals.

Conclusions

Investing in a well-focused capacity building effort, guided with the principles drawn by the CDC (2009 and 2012) is worth doing. For all parties involved, the funding agencies, public sector, public and private universities, investing in capacity building offer the possibility of sustainable long-term improvements in health outcomes. Most importantly, it provides with the opportunities for an exchange of ideas, and resources at the local and the international level through the development of network between agencies that can only produce positive and long lasting changes.

In our case, it involved making adjustments to adhere to the funding agency's framework guiding principles. The development of a partnership among several agencies was pivotal to the success of this project and became was one of the biggest challenges. Although the PI was a Dominican born researcher with professional previous professional ties to the DR, it took some time to obtain total acceptance. The team from the University of Puerto Rico was seen as an outsider entity that brought with them new ways for establishing and implementing the program. The team from the Dominican Republic brought with them the expertise in implementing previous programs and knew firsthand what worked and did work in the past. Thus, the biggest challenge was to reach common ground for working together, on one hand the Dominican team needing to embrace the international collaboration and the PR team needing to respect and adjust the cultural standards of the neighboring country. What was most advantageous was the both neighboring countries share the same language and similar codes of culture. Thus, the involvement of key stakeholders in the planning of the program (outlined in the Strategic Plan developed by the government`s MOH) was crucial and made possible due to the changes in policies at the national and international level and legislatures at the national level that propel such initiatives. In our case, it helped that the building of capacity was specified by the funding agency, and that some of the strategies were already outlined for us. All in all, this effort leads us to our long-term goal, which was the development of a cadre of a total of 249 well-trained professionals in the public health area in the Dominican Republic. Suffice to say, that the approaches and strategies taken proved to be effective to address health issues by creating new structures and values in the context of the Dominican Republic.

One of the biggest challenges was the development of a formal structure for the implementation of the program. First of all, we needed proper classroom space to implement the project, which INTEC was not able to provide. At the realization that we were not going to be able to have the space at INTEC that met our requirements we decided to rent office and classroom space outside of INTEC facilities though maintaining all of the administrative services through them. The second challenge was the establishment of a proper platform that included the academic logistics and procedures for the monitoring and evaluation of the implementation of the project. Just like in many third world countries, the everyday challenges facing the country (the incidence major illnesses, the occurrence of natural disasters without proper planning or resources to deal with the aftermath), the scarcity and proper management of resources that characterize many countries, poor planning to prevent incidences, and a culture of spontaneity makes it very hard to plan and maintain agendas and schedules in developing and implementing projects. Thus, on one hand the UPR team needed to make adjustments to the calendars and objectives as a result of countries, but on the other, agencies and professionals of the DR team also needed to make adjustments with regards to the new procedures and formality put forth by the UPR team. All in all, with a true understanding of these issues paired with the commitment of the people and agencies involved in the project, we were able to implement the project in a successful manner. The PEPFAR mandate to transition to local partners is laudable and effective. As donors, there is a need to recognize local indigenous organizations (i.e., the MHO, the UASD or any other local university) as true owners of their health programs. As such they are deserving of resources that include ongoing technical assistance to assure quality outcomes that successfully sustain vital antiretroviral therapy (ART) care and treatment programs.

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