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Building the Capacity of Health Professionals in Monitoring and Evaluation in a Public Health Institution: Experience of the National Institute of Public Health (NIPH) of Côte d'Ivoire

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Abstract

Background: In the context of the fight against HIV, a lack of skills in monitoring and evaluating the personnel in charge of activities has been identified at the national level. It was the subject of a priority axis of the national plan for monitoring and evaluating the fight against HIV (2006-2010) that was aimed at strengthening the capacities of actors in this area. To increase the critical mass of competent human resources in the short term, the National Institute of Public Health (NIPH) of Côte d'Ivoire organized monitoring and evaluation training sessions for healthcare professionals from 2011 to 2016. **Methods:** A single case study with multiple levels of analysis was carried out, combining a qualitative survey and a literature review. An evaluation was carried out six months after each training session. In addition, the results of the pre- and post-tests and of the daily and final evaluations that accompanied the various training sessions were used to provide further information. The qualitative data collected were analyzed using INVIVO 15 software. **Results**: Some 89 health professionals (69% men and 31% women) working at the national level (51% at the central level, including 58% in health programs) and in development partner agencies (37%) participated in this capacity building program. Most participants were senior health managers (56%), data managers

(23%), and statisticians and computer scientists (10%). Almost all the trainings were financed by 16 technical and financial partners (85%), mainly the MEASURE Evaluation project (27%). **Conclusion:** M&E training, despite all its imperfections, has made it possible to identify M&E training needs at the national level and to increase the critical mass of national skills and to have some culture in M&E.

Keywords

Short-Term Training, Capacity Building, Monitoring and Evaluation, Health Professional, Africa, Côte d'Ivoire

1. Introduction

Capacity building in monitoring and evaluation (M&E) is essential to build the critical mass of experts needed to achieve convincing results and establish a genuine M&E culture [1] [2]. In fact, it helps to improve knowledge and make informed strategic choices [3]. As a result, M&E capacity building is an important pillar in achieving a robust, high-performance M&E system [4]. It is with good reason that countries advanced in the implementation of national M&E systems have made it their battle path and the spearhead of their policy [5]-[7]. As in all African countries, the concept of M&E was little known in Côte d'Ivoire in the 80s and 90s. It was not taught in any Ivorian training school or university, and no national structure was exclusively dedicated to it. However, at the time, doctors working in rural health bases had learned the rudiments of surveillance from expatriate doctors specializing in public health, by notifying cases and drawing up activity reports to inform the hierarchy [8]. These activities laid the foundations for public health, with the creation of the General Directorate of Public Health and the National Institute of Public Health (NIPH). From the 2000s onwards, program M&E as a method of accountability emerged with the demands of donors of the major diseases' malaria, tuberculosis and HIV [8].

Subsequently, as part of the fight against HIV/AIDS, Côte d'Ivoire became eligible for the US Government's Presidential Emergency Plan for AIDS Relief (PEPFAR) in 2003 [9]. A Ministry for the Fight against AIDS was created and equipped with a national M&E system with a single five-year M&E plan (2006-2010) of which one of the priority areas was the strengthening of the capacities of actors involved in the field of M&E [9]. However, M&E training was conducted outside the country and was often unknown to national stakeholders. In West Africa, for example, M&E training was organized only by the Centre d'Études Supérieurs Africain en Gestion (CESAG) in Dakar, Senegal. Although Ivorians were requesting this training, its cost, travel and accommodation expenses were a barrier to the participation of a greater number of health professionals (Joseph KB Matovu, 2011). Given this clear need for training of Ivorian actors in M&E and in order to increase a critical mass of competent human resources in M&E, the training in

M&E of HIV/AIDS programs provided at CESAG was relocated to the NIPH in Côte d'Ivoire. This strategy made it possible to train professionals in the Ivorian health system in the short term and to create a certain culture of M&E that contributed to improving health indicators in several areas (HIV, malaria, tuberculosis, maternal and child health, nutrition, etc.). This study, which is the first in the Ivorian context, aims to document the process, challenges, lessons learned and limitations of the NIPH training experience in M&E in order to inform people with similar objectives for their institution.

2. Methods

2.1. Definitions of Concepts

In the context of a policy, project or program, monitoring and evaluation allow for the measurement of the achievement of objectives and the attainment of expected results. However, they have different objectives, methodologies, approaches, and tools.

Monitoring is a continuous process of systematically collecting information, according to pre-selected indicators, to provide managers and stakeholders of an ongoing development action with information on the progress made, the objectives achieved and the use of allocated funds [10] [11].

Evaluation is defined as a systematic and objective measurement, of the results of a project, program, or policy, with a view to determining its relevance and coherence, the efficiency of its implementation, its effectiveness, its impact, and the sustainability of the effects obtained (World Bank, n.d.). It thus provides an overview of a project or program to judge its relevance and to draw lessons that will enable future operations to be improved. It aims at determing the efficiency, effectiveness, impact, sustainability, and relevance of the project's objectives [10] [11].

Monitoring and evaluation (M&E) is the term used to describe the combination of monitoring and evaluation to obtain the information and reflection needed for a good project management and to meet overall upward and downward accountability requirements. It is defined as the processes of planning, collecting, and synthesizing information, and reflecting and reporting on the means and skills needed to ensure that the results of monitoring and evaluation make a useful contribution to project decision-making and capitalization [10] [11].

Project is a series of activities with specific objectives, designed to produce specific results within a specific time frame [10].

Program consists of several projects with specific missions to achieve common global objectives. The program approach allows governments to articulate national priorities and achieve sustainable human development goals within a coherent and participatory framework. It is more than a means of bringing together implemented projects; it is a logical approach that integrates the planning and management processes of any national development effort, at the macro, meso and micro levels. The program is a set of concrete actions carried out to achieve

national policy objectives on a given target [10].

2.2. Case Study and Literature Review

We carried out a single case study with several levels of analysis combining a qualitative survey and a literature review. The case was M&E training, and the levels of analysis were central and decentralized.

A post-training evaluation was carried out after each training session, using questionnaires sent to participants electronically six months after the training. Participants indicated the extent to which the M&E training they had received had contributed to improving their performance in their day-to-day work. They described their current M&E responsibilities, and reported any job changes or promotions obtained after the training. They identified the workshop sessions and training modules that were most useful in their work, with supporting evidence.

In addition, we used data from the agreement document and training reports, the results of pre- and post-tests, as well as those of the daily and final evaluations that framed the various training sessions. The evaluations focused on the workshop and session progress, the content of the training curricula, the time allocated to the modules, the training objectives, the andragogy method used by the facilitators, the new knowledge and skills acquired, and so on.

2.3. Process and Steps

MEASURE Evaluation Project in Côte d'Ivoire

It is a USAID implementing agency with an office in Côte d'Ivoire. Its team, with many years of experience in implementing M&E systems in host countries and in M&E training, has worked extensively to instill the M&E culture at the centralized and then decentralized levels of the Ivorian health system with USAID/PEPFAR funding. She contributed to the establishment of a national M&E system with a national committee and technical working groups on behalf of the MLS. It supported the Directorate of Information, Planning and Evaluation (DIPE) in strengthening the Management Information System to produce national reports and the National Strategic Plan for the Fight against HIV (2011-2015) [9]. In addition, it supported the DIPE in revising data collection tools and national indicators. It worked to facilitate the development of the second National Health Development Plan to serve as a basis to produce policy documents for national programs and institutions. It has contributed to data quality by providing trained and motivated staff to manage HIV databases on site. In addition, it has conducted several assessments of the performance of the Health Information System using the PRISM, DQA and RDQA tools, which have led to improvements in governance, planning, training, financing, and supervision at the organizational level and in the information culture [12] [13]. This led to the development of the National Monitoring and Evaluation Plan (2006-2010) and the National Strategic Information Plan (2011-2015) [14]. This team assessed the M&E system for HIV interventions that had been in place since 2005 using the 12-component tool and

identified its strengths and weaknesses. It then provided institutional support to the Cabinet of the Ministry of Health to instruct it on the profile of people who should lead the M&E and introduced M&E at the deconcentrated level of the health pyramid. This dynamic team was mobilized to accompany the NIPH in the delivery of M&E training in Côte d'Ivoire.

National Institute of Public Health (NIPH)

The Head Office of the NIPH is in Abidjan. It is responsible, among other things, for training and retraining in public health all persons involved in the health and social protection of the population. It is therefore the structure of the Ministry of Health in charge of training health professionals. It includes a monitoring and evaluation department attached to the sub-directorate in charge of Public Health Training and Biomedical and Socio-Sanitary Research. The head of this department has received several training courses in M&E, including one at CESAG in Dakar (Senegal). In addition, the NIPH has a pool of experienced researchers and teacher-researchers from several disciplines who are pursuing careers as researchers and teacher-researchers. These are physicians, pharmacists, sociologists and university professors, all specialists in public health and experts in specific fields. Consequently, the NIPH was chosen by mutual agreement with the Ministry of Health to host training in M&E of HIV/AIDS programs. For this purpose, an agreement was signed between the MEASURE Evaluation project and the NIPH. Thus, the NIPH management designated its M&E department head as the training coordinator and identified trainers from its pool of researchers according to their skills, availability, and interest in M&E. The NIPH, in agreement with the MEASURE Evaluation project, identified external facilitators from the central directorates, PEPFAR and the HIV/AIDS programs (Table 1).

Table 1. Distribution of facilitators according to the structures of origin.

Number	Structure
3	Measure-Evaluation
16	NIPH
2	Central directorates (DIPE, PSP)
6	Health programs (PNPEC, PLS-PHV, PNLTB, OVC, PNLP)
1	PEPFAR
2	JHU.CCP
1	UNICEF

Learners (Participant)

The main criterion for selecting participants was involvement in the M&E activities of HIV/AIDS programs and development projects. However, it was also necessary to find a source of funding for the training fees. Unfortunately, the country experienced an unprecedented post-election crisis (2010), which resulted in the suspension of all financial aid to the Ivorian government and the withdrawal

of all development partners. The NIPH, adjacent to a military camp in Abidjan, became risky [was transformed into a place of risk]. All its services and offices were looted and ransacked. As a result, the resumption of activities was difficult. The administrative staff and services of the Training and Research Sub-Directorate were housed in a small annex building under construction without any working equipment or amenities. Despite these difficult working conditions, the NIPH staff got back to work despite their psychological damage secondary to the socio-political crisis. Many health actors were very interested in the M&E training but could not pay the participation fees due to lack of funding. Indeed, given the extent of the damage caused by the post-electoral crisis, health training was not a priority for the government in place or for development partners. So, the NIPH opted for an external training course at a promotional price (350,000 CFA francs) with financial support from the MEASURE Evaluation project. In the second year, another promotional price (850,000 CFA francs) was decided for residential training in a post-crisis context with the timid return of PTFs. The third year saw a single training session, with one residential option (1,500,000 CFA francs) and another external (1,000,000 CFA francs).

2.4. Preparatory Steps

NIPH organized a workshop to adapt and validate the M&E training curriculum for HIV/AIDS programs in the Sud Comoé health region, with technical and financial support from partner MEASURE Evaluation. The content of the M&E training curriculum developed by CESAG was reviewed in the presence of the facilitators. The modules adapted to our context were selected and other modules were identified for addition. Finally, a national curriculum for a two-week short course was proposed and validated. It included core M&E modules, modules related to the M&E systems of national HIV/AIDS programs, and additional modules [11] [13] [15]-[17] (**Table 2**).

An andragogy training course for NIPH trainers was then run by an andragogy specialist from the Abidjan's Felix Houphouet Boigny University, with the participation of two MEASURE Evaluation technical advisors. Andragogy refers to the methods and principles used in adult education. Adults use their own experiences and those of others to better understand the subject being taught [17]. It enabled NIPH trainers to build their capacity to use the M&E training curriculum for HIV/AIDS programs in adult training, and to validate the content of the training manuals. The training materials for each module were harmonized with the training manuals. Brochures and forms to promote the training were produced and distributed to partner institutions and national structures (central directorates, national health programs, regional and departmental directorates, etc.) through a comprehensive communication plan.

A training meeting defined the roles and responsibilities of the facilitators and ensured their availability. Letters of information and invitation were sent to the Minister of Health, to the partner structures for facilitation and to each of the

health centers selected for the field visit. After several consultations, the conference room of the Direction Régionale Lagune 2 located in Plateau (downtown Abidjan) was chosen for the training in order to facilitate access for all participants. At the end of the first session, one of the major recommendations was to improve andragogical methods, favoring practical exercises and the active participation of participants through the sharing of field experiences.

Thus, another training curriculum revision workshop was organized with technical and financial support from MEASURE Evaluation in Adzopé (located in southern Côte d'Ivoire, 105 km from Abidjan) with the participation of INSP facilitators. All modules were reviewed based on the results of the auditors' evaluations, and the curriculum was then adapted [18] [19]. The daily and final training evaluations were also revised and adapted.

Table 2. Modules delivered according to the M&E training curriculum.

Fundamental modules	
- Introduction to M&E concepts - Organizational Framework for a Functional National HIV/AIDS M&E System According to the 12 Components - Introduction to the M&E Plan and Developing an M&E Plan - Role of Strategic Information in Decision Making and Use of Data - M&E Frameworks - Data Sources for M&E of National HIV Programs - Routine Information System and Linkage to M&E	- M&E indicators, - Data analysis and interpretation, - Data presentation, dissemination, and use + GIS - Planning: developing an action plan - Data quality and data quality assessment tools coupled with a field visit with practical application in a health center - Methods for monitoring projects/ programs, - Impact evaluation methods - Qualitative evaluation methods
Modules related to HIV/AIDS programs M&E	
- HIV situation in the world, in Africa, in Côte d'Ivoire and the role of M&E in HIV/AIDS programs - M&E of OVC care and support programs - M&E of PMTCT programs - M&E of care and support programs, - M&E of care and treatment programs	- Monitoring of ARV procurement and use by patients - M&E of voluntary counseling and testing programs - M&E of programs for vulnerable groups - M&E of BCC programs, M&E of TB/HIV programs
Additional modules	
- 2nd generation monitoring - DHS/EIS - Leadership and Communication	

2.5. The Actual Course of the Formation

The first week of training was devoted to the basic M&E modules and a practical

exercise in a health center. The second week was dedicated to modules related to the M&E systems of national HIV/AIDS programs and additional modules. The late afternoons were planned for group work to develop a comprehensive M&E plan that was presented in plenary at the end of each session. The trainers emphasized group work, case studies, applied exercises for each session, and sharing of experiences, as in other training experiences [20].

The first M&E training session for HIV/AIDS programs took place in 2011 in the city of Abidjan, and NIPH took the opportunity to train 6 agents from its pool of researchers. The two sessions in 2012 and the one in 2013 were held in Krindjabo in southeastern (123 km from Abidjan in Côte d'Ivoire). Healthcare professionals from West and Central Africa were very interested in this training from the second session onwards, but were only able to attend the third session for financial reasons and social stability. From the second session onwards, the partner MEASUE-Évaluation, who coached the facilitation of the whole training, did so only for the first week.

2.6. Data Analysis

Qualitative data from questionnaires completed by participants were grouped into meaningful themes through content and thematic analysis using NVivo 15 software. An in-depth analysis of each theme was undertaken using a three-step approach: "describe, compare, relate". Data from individual interviews were cross-referenced with data from literature reviews to select the most relevant information.

2.7. Ethical Considerations

Anonymity and confidentiality were respected; initials and numbers were used instead of names. In addition, approval for the study was granted by the internal Scientific and Ethical Committees of the Institut National de Sante Publique d'Abidjan Côte d'Ivoire.

3. Results

This study reports on the experience of capacity building of health professionals in M&E at the National Institute of Public Health of Côte d'Ivoire. Four short training sessions were conducted from 2011 to 2013 and were attended by 89 (69% men and 31% women) health professionals from Côte d'Ivoire (85), Senegal (1), DRC (1), and Congo Brazzaville (2).

The majority of participants were male (69%), employed at national level (63%), including 51% at central level. Most of the senior health managers (50%) who took part in the training sessions were physicians (51%) (**Table 3**).

Almost all participants in the various training sessions were financed by technical and financial partners (85%). The national side covered only 9% of participation costs (**Table 4**).

Table 3. Distribution of participants by demographic characteristics.

Participants	2011 (n = 26)	Juin 2012 (n = 27)	Nov. 2012 (n = 11)	2013 (n = 25)	**Total** (n = 89)
Genre					
Male	16	16	9	20	61 (**69%**)
Female	10	11	2	5	28 (31%)
Structure					
National	20	21	2	12	55 (**63%**)
Partner/NGO	6	5	9	13	33 (37%)
National Level					
Central (NHP)	14 (9)	19 (11)	2 (1)	10 (5)	45 (**51%**)/ 26 (58%)
Region	0	0	0	2	2 (2%)
District	5	2	0	1	8 (9%)
Participant profile					
Statistician/ Computer scientist	3	3	1	2	9 (10%)
Physician	17	15	6	7	45 (**51%**)
Pharmacist	0	1	0	2	3 (3%)
Dentist	2	0	0	0	2 (2%)
Demographer	1	0	1	0	2 (2%)
Sociologist	0	1	0	1	2 (2%)
Data/Program Manager	0	6	1	13	20 (23%)
Other	3	1	2	0	6 (7%)

*NHP = National Health Program.

Table 4. Sources of funding for M&E training participants.

Source of funds	2011 (n = 26)	Juin 2012 (n = 27)	Nov. 2012 (n = 11)	2013 (n = 25)	**Total** (n = 89)
Measure Evaluation	**19**	**3**	**1**	**1**	**24** (27%)
PEPFAR		**9**			**9** (10%)
HAI	**1**		**1**	**1**	3 (3.3%)
ICAP	**1**				1 (1%)
URC	**2**	**4**			6 (7%)
SEV-CI	**1**			**2**	3 (3.3%)
Ariel Glaser		**2**	**4**	**4**	**10** (11%)
Heartland Alliance		**3**			3 (3.3%)
FHI 360		**1**	**1**		2 (2.2%)
UNFPA		**1**		**2**	3 (3.3%)

Continued

JHUCCP				**2**	2 (2.2%)
FM Tuberculosis				**4**	4 (5%)
WWARN, Senegal				**1**	1 (1%)
PATH, DRC				**2**	2 (2.2%)
NGO SAS			**2**		2 (2.2%)
UNAIDS			**1**		1 (1%)
Ministry of Health*		**3**	**1**	**4**	**8** (9%)
Own funds	**2**	**1**		**2**	**5** (6%)

*Ministry of Health includes 2 participants from the National AIDS Control Program of Congo Brazzaville.

According to the results of the pre- and post-tests, the improvement in M&E knowledge through the acquisition of new concepts was estimated at 78% in 2011, 93% in June 2012, 91% in November 2012 and 96% in 2013 (Figure 1).

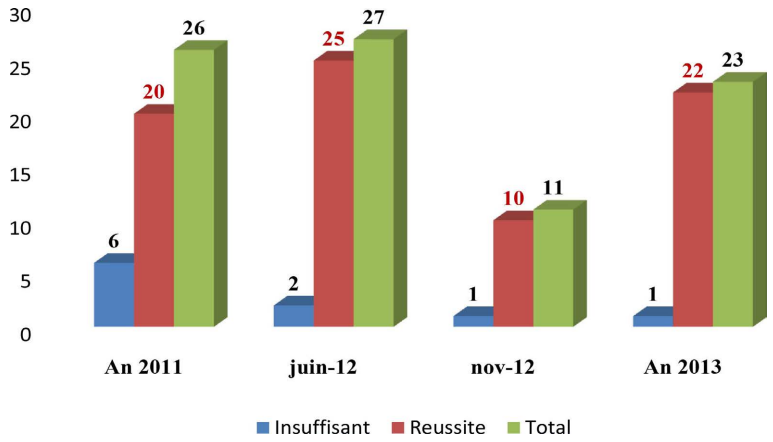

Figure 1. Number of participants who improved their knowledge at the various M&E training sessions.

The results of the daily and final evaluations showed that the majority of participants were satisfied with the training objectives and content. The evaluations focused on the achievement and relevance of the training objectives, the application of the newly acquired knowledge and skills, the content of the training curriculum and the time allocated.

Some participants did not have a good understanding of M&E concepts before the training, although they work in the field, but acquired knowledge on the subject during the various training sessions [20]. Many participants said that the training increased knowledge and filled gaps in M&E. Almost all participants were confident in applying the new knowledge and skills they had learned. They said that the training gave them a better understanding of what they were doing daily at their workstations, according to some comments "*the training has increased my knowledge*, *I now understand what I was doing on a daily basis in my program*,

my M&E gaps have been filled". However, they were all counting on the support of the facilitators to capitalize on what they had learned and put it into practice on site, because "Indeed, "*many areas of knowledge are acquired but not yet very clear*, *there are problems of confusion*", according to some participants. All participants felt that the M&E-related topics presented were delivered in a logical order and with an appropriate methodology and that all objectives were met. They stated that they learned a lot from the practical group work and the exchange of field experiences. In addition, the field visit coupled with the application of the RDQA tool to assess the quality of the data collected and the exercise to develop an M&E plan were very instructive experiences that were appreciated by all participants.

On the other hand, participants found the time devoted to the core modules and group work insufficient; for example, a 2011 participant said, "*the training was very satisfactory except that there was not enough time*". They found the duration of the training sessions too short, and the facilitation of group work insufficient.

The training curriculum was dense and participants learned too many new things in a record time of two weeks. At the same time, health services couldn't afford to have their staff away from their workstations for long periods. So, it would make sense for the INPH to develop a modular on-the-job training program based on the model implemented in Uganda [13]. This model had the advantage of spreading the curriculum over a long period and splitting up the training modules. In addition, it enabled practical contextual training, in modules, in the workplace that drew on practical needs, gaps and challenges identified on site through a highly participatory process of all stakeholders [13]. The said model developed prospects for the sustainability of training achievements within the national structure. This training model was subsequently successfully tested in the areas of leadership and program management [16] [21] [22], HIV [23], routine vaccination [24], sanitation and hygiene [25], science of implementation [18] [19] [26] and mental health [27].

The results of the post-training follow-up using a survey questionnaire [24], showed that the core M&E modules were much more useful to the participants in their work. The training did enable all participants to better organize their work and place a greater emphasis on teamwork. They felt more confident in performing their tasks and improved the focus of their research activities, in this case impact evaluations. They have used their routine data to plan their missions and interventions and to make informed decisions about the the smooth functioning of their structures. They were now aware of their role as M&E officers in the health facility, in the words of the participant 1 (June 2012 session) "*Now I not only understand the M&E files better and faster*, *but I can even simplify them for a better adaptation to the public health context*".

They correctly formulated indicators and paid particular attention to data quality. they drew up operational action plans for their health structures, and contributed

qualitatively to the policy documents of their departmental directorates (strategic plans and M&E plans). They have a better understanding of the policy documents of national health programs and partner institutions. As a result, they have improved collaboration with their superiors and stakeholders

Participant 2 (June 2012 session) corroborated these results: "*The training has encouraged a lot of sharing of experience. Links have been forged and today enable us to exchange with each other at all levels to improve our performance and better achieve the objectives set by the various structures and beyond, to meet the country's needs*".

Other participants in the 2013 session reinforced this by saying: "*These sessions allowed me to understand the terms used in the daily work; to have a good understanding of all the steps involved in the development of a monitoring plan. This helped facilitate our monitoring activities in the Health Programs. I also understood in a practical way the importance of leadership and especially communication in the smooth running of an enterprise or an intervention.*" (Participant 1). The second participant stated that "*Thanks to this workshop, I was able to correct certain deficiencies in our organization and in my abilities*" (Participant 2). They especially understood the need to budget for M&E activities for their effective implementation, according to participant 3 (session 2013): "*The training sessions allowed me to reframe the M&E activities and require a budget for the project's M&E activities.*" Indeed, M&E remains the poor relation of the Ivorian health system because of its lack of awareness and the lack of an accountability culture. There was no budget line for M&E activities, which were only mentioned at the end of interventions to satisfy donors.

In generale, the various M&E training courses allowed participants to better organize their work and place greater emphasis on teamwork. Indeed, they were able to 1) write and validate quality activity reports, 2) develop and implement tools, methods and procedures for M&E activities by involving stakeholders, 3) develop and finalize M&E plans with a particular emphasis on the formulation of indicators and the accuracy of data sources, 4) monitor and evaluate action plans, health program and project interventions, 5) analyze, interpret and present programmatic data, 6) monitor and evaluate the implementation of quarterly operational work plans of the antennas and coordination plans, 7) set up a coherent and efficient M&E System integrating the General Coordination, provincial antennas and partner entities (in DRC), 8) initiate studies and evaluations planned within the framework of the project, 9) control the quality of data produced, 10) participate qualitatively in the elaboration of policy documents (strategic and operational plans, M&E plan, dashboard), 11) make decisions informed by the data produced. In sum, the training gave a professional character to the activities they were carrying out as amateurs. In doing so, they moved into positions of responsibility and were promoted to other functions, according to participant 3 (session 2013): "*The workshop allowed me to learn a new job with the STEP Project through the development of its M&E Plan. During the hiring test, I was asked to develop the*

results framework, the logical framework, and the results chain for the project. It was a test based not only on M&E knowledge but also and especially on experience in the field. I passed this test with flying colors thanks to Krindjabo's M&E training in 2013. *The STEP Project is a large Stabilization for Peace project after several decades of war in DRC. So, I became a NATIONAL M&E EXPERT in this Project based in Kinshasa and funded by the World Bank to the tune of* 100 *million dollars spread over five years. I am now in the Economic Sector and Good Governance. Furthermore, the M&E training allowed me to design and implement a coherent and efficient results-based M&E system in the said project.*"

However, according to some participants, they were confronted with certain difficulties in putting the training into practice in their workplaces: "*the training allowed me to be more attentive to the quality of the data; however, I am not able to apply the RDQA to the action plan that I must follow and evaluate because of the multiplicity and diversity of the activities included in this plan.*" (Participant 4, Session 2013)

Comparing the results of the different cohorts, we have noted that they have improved over the years. Indeed, they were much better in the class of 2013 as four participants changed positions six months after the training (for one of them only one week after the training), one participant got a consulting position in addition to his usual work position and six other participants were promoted. In addition, participants were more expressive in applying their learning than other promotions.

These results highlighted the appropriation of the modules by the trainers. They also showed an improvement in participants' professional skills, increasing their visibility and competitiveness on the job market thanks to M&E training [16]. It should be noted that by the second training session, former participants have joined the ranks of facilitators [19].

LIMITATIONS/Challenges to Implementation

Consistently designing and delivering high-quality M&E training at national level in the public sector has faced many challenges. This is especially true when the training is in an area that is new to national actors, entangled in old habits, and rapidly changing and developing. Facilitators need to be regularly reinforced to keep up with the times and the modules need to be revised considering the evaluations of each training session and new developments in the topic [19].

The second challenge concerns the mentoring that should accompany such innovative training in a new field at national level [13] [16] [18] [19] [21] [24]-[27] and also the remote assistance of participants at their workplace. Communication channels (phone, Skype, email, Zoom, WhatsApp, etc.), national meetings, conferences and scientific gatherings, national workshops should also be used for regular exchanges between the pool of trainers, mentors and their mentees [7] [4]-[6] [28]-[32].

These strategies will have the advantage of fostering the emergence of national M&E champions or torchbearers who will inspire and attract more people into

the field [6].

The NIPH should budget for regular field visits to supervise and coach participants in a process of continuous capacity building. These visits will allow for the correction and rectification of any misunderstandings or errors in understanding during the training. They will also allow for case-by-case treatment of each participant's M&E difficulties in the field [13] [23] [33].

A small proportion of participants (7%) were financed by the Ivorian national party, in this case the national health programs. Some national agents participated in the training at their own expense (6%).

No funding mechanism has been put in place for the training of health professionals in the national health system, in order to create a critical mass of people trained in M&E, from whom mentors and champions will emerge to ensure the sustainability of this innovative initiative.

The Ministry of Health and the NIPH should seek partnerships for training grants to train and strengthen the M&E capacities of all its actors [13] [16] [19] [21] [25] [26].

In addition, the national administration should manage M&E training with much more accountability, rigor, and transparency. It should develop innovative and bold efforts to remove any kind of administrative block in the organization of training. For example, it should streamline the fundraising process and properly pay for training facilitation and coordination fees. In doing so, the NIPH would focus on the institutionalization and financial sustainability of the training [27].

4. Discussion

Our experience in building the capacity of health professionals highlights the successful relocation of a Francophone M&E training program for HIV/AIDS in Côte d'Ivoire. This training program was well received by national stakeholders, some of whom paid for the training with their own funds, and by development partner agencies, 85% of which financed participation in the training sessions. According to the participants' statements, our training program achieved all the objectives set. Indeed, it improved their M&E knowledge and strengthened their ability to develop and implement M&E activities or interventions. They now had a better understanding of day-to-day tasks and were able to carry them out successfully. They now had the ability to correct the mistakes they made and to take up the challenges of routine interventions. They enjoy the satisfaction of a job well done, and share their M&E expertise with their colleagues. They conducted their activities according to budgeted action plans that they elaborated for the efficiency of their structure. The practical fieldwork experience of using the RDQA tool to control the quality of data produced in a health center was beneficial to them. In that they experienced and understood all the quality issues related to data collected at the production sites. As a result, they made a point of producing and collecting quality data to make informed decisions. More importantly, they were much better equipped to address real-world workplace issues that impede the production

of quality data for effective services to improve population health. The training enabled participants to acquire the expertise needed to change jobs and specially to work with TFP agencies and at the international level.

However, our program was not accompanied by on-site visits and mentoring. Also, although the learners successfully developed M&E plans during the group work training, those on the national side were unable to repeat the exercise in their various structures. This result seems to be related to the organization of the health system services. This result could be linked to the organization of health system services. The unforeseen but priority activities of the hierarchy and technical and financial partners disrupted the execution of the participants' operational action plans. As a result, certain actors at the implementation level no longer saw any point in elaborating a specific action plan. In addition, the mobility of participants after training limited the national health system, which found itself in a vicious circle of eternal repetition of capacity building for its agents. At the same time the national system does not mobilize funding for capacity building of these agents.

5. Conclusion

The M&E training provided by NIPH, despite all its imperfections, was an asset, as it enabled us to meet the training needs identified in M&E at national level, and to increase the critical mass of national M&E skills from year to year, at lower cost. It has generated national and sub-regional interest. It has enabled more health professionals to be trained nationwide in record time. The main challenge remains the retention of the skills and knowledge acquired within national structures and institutions to ensure sustainable results. It would therefore be advisable for the national stakeholders to develop a genuine plan for financing M&E activities and retaining trained staff.

Ethical Approval

The study protocol was approved by the internal scientific committee of the National Institute of Public Health in Abidjan. We analyzed and used data from pre- and post-tests, daily and final evaluations of the training sessions and the results of post-training follow-up to inform the readership of the lessons learned. No personally identifiable information is presented in this document. In all cases, permission to use the training data was obtained in the context of the organisation of the monitoring and evaluation training seminars according to the agreement between NIPH and MEASURE-Evaluation. All procedures performed in this study involving human participants were in accordance with the ethical standards of the national ethic review committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Availability of Data and Materials

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Authors' Contributions Acknowledgements

All authors (EEML, MNM, BACEL, KE, TEO, YSO, CS, KYE, YW, OAS, YTJM, AJ) developed and led the set of capacity building activities. EEML managed many day-to-day activities and provided expertise in coordinating the training sessions. EEML led the post-training follow-up of participants and analysed data from the daily and final evaluations. EEML and GL were the major contributors in writing the manuscript. But EEML made substantial contributions to conception and design, acquisition of data, analysis, and interpretation of data, wrote the first draft of the paper, and was responsible for the final submission of the paper. All other authors mentioned in this article contributed directly to its writing, they read and approved the final manuscript. The contents of the manuscript have never been published.

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Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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Abbreviations

CESAG: Centre d'Études Supérieurs Africain en Gestion de Dakar in Senegal [*African Center for Higher Studies in Management of Dakar in Senegal*]

DIPE: Direction de l'Information de la Planification et de l'Evaluation [*Directorate of Information, Planning and Evaluation*]

MLS: Ministere de la Lutte contre le SIDA [*Ministry of the Fight against AIDS*]

OEV: Orphelins et Enfants rendus Vulnérables du fait du VIH/sida [*Orphans and Children Made Vulnerable by HIV/AIDS*]

PCCC: Programme de Communication pour un Changement de Comportement [*Behavior Change Communication Program*]

PLSPHV: Programme de Lutte contre le Sida chez les Populations Hautement Vulnerables [*Program to Combat AIDS among Highly Vulnerable Populations*]

PNPEC: Programme National de prise en charge médicale des personnes vivant avec le VIH [*National program for medical care for people living with HIV*]

PNLS: Programme National de Lutte contre le Sida [*National Program for the Fight against AIDS*]

PNLT: Programme National de Lutte contre la Tuberculose [*National Tuberculosis Control Program*]

PNLP: Programme National de Lutte contre le Paludisme [*National Malaria Control Program*]

PSP: Pharmacie de la Santé Publique [*Public Health Pharmacy*]

SEV-CI: Santé Espoir Vie Côte d'Ivoire [*Health Hope Life Côte d'Ivoire*]