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Full Length Research Paper

A tool for quality improvement of field epidemiology training programs: Experience with a new scorecard approach

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Field epidemiology training programs (FETP) are capacity building programs that provide applied epidemiology training to public health professionals for national public health systems, emphasizing evidence-based problem solving. FETP's have been in existence for over 30 years and there are currently 55 programs covering 82 countries. We describe the use of a new tool that assists programs in the assessment of FETP implementation and performance in order to readily identify action steps for program improvement. The FETP facilitated self-assessment used a consensus approach between an external international team and national program staff to score the level of program attainment. The process incorporated a scorecard-like diagnostic tool to summarize a program's status across five key categories (competency-based training, field activities, leadership development, management, and sustainability). Seven country programs participated including 4 from Latin America, 2 from Africa, and 1 from the Middle East. All assessments were completed in less than 5 days and provided a preliminary set of findings and recommendations on the final day. The assessment team was able to quickly identify program areas of strength and weakness and assist programs in developing plans focused on priority areas for improvement. The process of working with an external and international team enhanced political support for the recommendations and helped provide a common vision among programs of the characteristics of a successful FETP. Our approach demonstrated early success in assisting programs in planning and was well accepted perhaps because it was a focused effort, conducted in a short period, producing recommendations and a roadmap with timely final reports. We believe the scorecard approach is a program assessment and improvement process that could be considered for other public health capacity building programs.

Key words: Field epidemiology, public health, training.

INTRODUCTION

Field epidemiology training programs (FETP) are capacity building programs that train public health personnel in applied epidemiology for the public health system in the country, emphasizing evidence-based problem solving for issues of public health concern (Lopez and Caceres, 2008; Jones et al., 2009; Schneider et al., 2012). The primary objective of FETP is to strengthen the ability of the public health system to respond to health threats and develop policies based on scientific evidence. FETPs are also considered as a part of the strategy for building the necessary public health workforce capacity for compliance with the International

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Health Regulations (IHR, 2005). FETP's have been in existence for more than 30 years and now cover 82 countries and most continents (White et al., 2001; Lopez and Caceres, 2008; Nsubuga et al., 2008).

Despite the long existence of these programs and recent rapid expansion, standard approaches to determining success, quality, and sustainability have not been used or evaluated. The only multi-site evaluation of FETPs was in 1998 and despite several individual country evaluations, there has been a lack of consistent terminology and frameworks for evaluation or assessments (Betts, 1998). Recent work has been done by the FETP member organization, Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) and others to consider the key elements that are needed for success of a given program (TEPHINET, 2005; Kandun et al., 2010) but these have been rarely applied or used for program improvement. A recent review of capacity building efforts in public health has highlighted the need for indicators and evaluation criteria for capacity building (Management Sciences for Health, 2010). This review identified no tools used to strategically assess and build program implementation and quality (Management Sciences for Health, 2010).

This paper describes the development and use of a tool that assists programs in the assessment of FETP implementation and performance in order to readily identify the next steps needed for program improvement. The FETP facilitated self-assessment (FSA) uses a consensus approach between an external team and the national program staff to determine the level of attainment for key program areas to help guide improvement efforts. This process is guided by a diagnostic tool that uses a scorecard-like roadmap to summarize progress across key performance and management areas. This model may be useful to other public health capacity-building programs.

METHODOLOGY

We modeled the diagnostic instrument on a scorecard approach that has been used by the Influenza Division at Center for Disease Control (CDC), that is using descriptive scenarios to describe the state of a program within a category along a continuum (http://www.cdc.gov/flu/pdf/professionals/national_inventory_of_core_capabilities.pdf) (Prevention, 2011). The selected domains and indicators were informed though review of TEPHINET Continuous Quality Improvement (CQI) guidelines and consensus discussions with a number of programs (TEPHINET, 2005). The tool includes five domains relevant to successful FETP implementation: training, field work, leadership development, management and sustainability. Each domain has from two to seven specific indicators in which program activities and processes are assessed. The indicators each address some dimension of the program and include four levels of implementation or function. Each level (1 to 4) is described by a scenario that indicates a specific level of achievement. Level 1 is limited functioning or not present and Level 4 represents advanced functioning Example in Table 1. Advancement to a subsequent level is intended to represent meaningful steps toward advanced functioning. Domains and the key questions associated with each element are as follows:

Domain 1: Competency-based training

1. What is the operational status of the curriculum? Is it competency-based?
2. What is the practice for resident/officer assessments?
3. What is the support for mentors/technical supervisors?
4. What is the status of mentors/technical supervisors' assessments? What is the quality of the supervision?
5. What is the quality and availability for the course faculty?
6. What is the status of the field sites or work sites where the residents are assigned?
7. What is the status of program completion by participants?

Domain 2: Public health work/field activities

1. What is the role of the program and trainees in outbreak investigations?
2. What is the role of the program in surveillance?
3. What is the status of public health studies done by the trainees?
4. What is the status of scientific communications by the trainees?

Domain 3: Public health leadership development

1. Have the program graduates moved into public health leadership positions?
2. What is the MOH retention of graduates?

Domain 4: Management

1. What is the status of the policies and procedures for the program?
2. What are the logistics for the program office?
3. What is the staffing for the program?
4. What is the functional status of the program office?
5. What is the functional status of the logistics for the course work?
6. What is the functional status of the logistics for the field work?

Domain 5: Sustainability

1. Does the MOH fully support and "own" the program?
2. Is there an implemented plan for sustainable leadership for the program?
3. What is the status of a graduate network for the program?
4. What is the status of developing and using a strategic plan and yearly work plan for the program?
5. What is the role and strength of partnerships in the program?
6. What is the status of an advisory board for the program?
7. What is the role and strength of advocacy in the program?

Pilot testing

The tool and the process were pilot tested in an established FETP country program and the tool was revised based on the results of this pilot test.

Implementation of the tool and process

The assessment takes place over approximately 4 days. Prior to the visit, the country program will have made 2 major types of preparation: (1) Organizing the agenda, meetings and logistics support for the time in-country, and (2) preparing the documentation

that will be needed for the external international team to review during the visit. An external international team of 3 to 4 members participates in the assessment with the national program staff. The external team to date has generally consisted of the Director or representative of TEPHINET, a representative of the regional FETP network, a program director from another FETP in the region and a representative from CDC.

During the first 2 to 3 days, the external team holds interviews with the FETP program team and key program stakeholders. The key stakeholders vary depending on the program but can include many of the following: Minister or Vice-Minister of Health, University coordinator, National Director for Epidemiology and/or surveillance, FETP current trainees, FETP graduates, FETP supervisors, local World Health Organization representative, or other persons that programs identify.

The purpose of these meetings is to give the external team an opportunity to ask a variety of primarily open ended questions to learn more about the program. These include both individual interviews as well as focus group discussions with specific groups – such as supervisors or trainees. On the third or fourth day, a workshop is conducted with the FETP program staff and others the program may want to include, for example alumni representative, to assess all the elements in the scorecard in a systematic way. Each indicator is reviewed and discussed until consensus is reached by the program on the level of achievement. Because this is considered a facilitated self-assessment, the external team does not rate the program but provides information from the interviews and document review to the program as they consider the assessment. The program is then asked whether this was an area that they wanted to improve and whether this was a short (1 to 3 month), medium (6 to 12 month), or long-term (12+ month) priority for the program. The final day is used for preparing a preliminary report and briefing the Program Director and other key stakeholders at the program's discretion.

RESULTS

Process

Seven programs have participated in the facilitated self-assessment. These represented 4 countries in Latin America, two programs in Africa, and one in the Middle East. At the time of the assessment the programs had been functioning from 6 to 19 years during which time they had graduated from 36 to 121 epidemiologists from the programs. These programs participated because they were the initial programs to request assistance with an assessment as they were interested in improving their programs.

For each assessment, the external team consisted of representatives of the international and regional networks, a neighboring country program, and the CDC. All assessments were completed in less than 5 days and the team provided a preliminary set of findings and recommendations prior to the completion of the visit. A full report was provided to the program within 6 weeks of the visit. The process itself also yielded other benefits for the programs. It provided an opportunity to work with an international and regional team that provided deeper and broader insight into other programs, thus providing learning for both the program staff and the assessment team. The review usually provided an opportunity to interact with Ministry of Health leadership and support program advocacy at a high level. Many programs indicated that the external, international team provided credibility and weight to the process and that their recommendations would be critical in supporting changes that would be needed.

Some program staff was wary of the process at the beginning, as they were concerned that this might be perceived as an external evaluation with possible negative impact with their local stakeholders. However, uniformly the programs indicated that the process had been positive and helpful and they would recommend it for other programs. The majority of programs indicated that the process supported strategic planning for the program's future. While some impacts from the assessment were noted immediately (for example, the recognition of the program within the structure of the ministry, support for the budget), the long range effectiveness of the process and its usefulness to benchmark progress from year to year has not yet been determined.

The implementation had some limitations in assuring a complete view of the programs. These included the lack of available documentation for all program components, the lack of time for site visits to field training sites, and a possible bias in the selection of persons to interview from large or older programs. Additionally, the curriculum was only given a cursory review in this process and the quality of the trainee's work was not assessed directly.

Assessment findings

Review of the minimum and maximum score for each indicator across the seven programs showed a range of values for each indicator. The minimum scores for each indicator ranged from 1 to 3 with a median score of 2. All but 5 of the indicators were scored at level 4 (advanced functioning) for at least one program. No program scored uniformly high or low across all indicators. This demonstrates that the programs had a variety of strengths and weaknesses that could be individually identified with this process. Programs used these findings to advocate and receive more staff, to create more appropriate positions for program graduates and to improve their processes for assuring residents competencies. Examples of recommendations based on the findings that were accepted and at least partially implemented are listed in Table 2. Early review has indicated that while not all the recommendations have been implemented, the report and clear recommendations have been useful for the program planning. Further efforts will continue to assist programs in implementing and maintaining program improvement.

DISCUSSION

Through the use of the tool and the facilitated self-

Table 1. Example of scorecard tool.

Indicators	Public health work/field activities	Level of achievement			
		1	2	3	
	(A) Outbreak detection and response	Residents do not participate	Program residents participate as observers/assistants in outbreak investigations.	Program residents are first responders for local outbreaks.	Prog outb
				Laboratory has participated in outbreaks.	Lab inve
				Investigation results are presented to relevant public health decision makers at site of outbreak.	Out dise
				Investigations are reviewed for quality.	Out qual
	(B) Surveillance	No access or limited access by residents to surveillance data	Some program residents have access to surveillance data and play a role in review and report of data	All program residents have access to and have a role in surveillance data use.	Rec publ syst
				Residents report surveillance work to public health decision makers.	
				Surveillance analyses and reports are reviewed for quality.	Surv stan

assessment process, the program assessment team was able to identify program areas of strength and weakness and assist them in developing plans focused on priority areas for improvement. We believe this approach was successful and well accepted because it was a focused effort during a short time period, leaving the program with a preliminary report and recommendations that served as a roadmap along 5 major categories. Also, the process of working with an external and international team enhanced political support for the recommendations while also helping to provide a common vision between programs of a successful FETP. The process was less threatening because it was perceived as primarily a collaborative process with the program rather than an external evaluation. Lastly, the cost for the activity was usually born by the programs' funders and was generally modest (usually under $10,000 to $20,000) with the major expense being the travel costs for the external team.

The FETP capacity building model is based on the belief that strong institutions with capable staff can design, implement, and sustain quality public health interventions. However, lack of common indicators and standards limit the programs from objectively assessing strengths and weaknesses to allow them to monitor and accelerate their progress toward a quality standard (Mangement Sciences for Health, 2010). We believe this tool and approach provides a method to help guide programs' toward improved quality and sustainability.

There are other benefits to our approach. Emphasizing indicators that relate to field work assignments, mentorship, and field products as part of the FETP "gold standard" serves as a check against programs leaning or evolving towards a more academic, classroom focus – a drift that has occurred when ministries of health are not fully approach em ownership of t Health. The pr with participants countries facilita strengthens rela FETP networks forming over the support and a provides a too programs. Fin assessments co to develop a co dards for accre will likely overla where they sta "gold standard" ability to reach identified.

Table 2. Use of the scorecard assessment results; examples of weaknesses, recommendations and actions taken.

Weakness identified by domain	Recommendation	Action taken
Competency-based training		
Program does not have a systematic process to assure that all trainees complete all required activities**.**	Implement routine tracking of activity completion	The program has begun enforcement of the written record of all program deliverables. For the first time in the program's history, all the completing trainees this year were required to submit copies of all their deliverables.
Public health work/field activities		
While conducting outbreak investigations is an area of strength for the program, the program is not assuring the follow up, local presentation and use of findings.	Develop expectation that outbreak reports will be presented locally (district and/or provincial health teams) as well as find ways to do more to follow up on the use/implementation of outbreak recommendations.	Disseminations meetings now occur every month to report investigation findings to broad range of stakeholders.
Management		
Program staffing inadequate and unstable	Increase numbers and stability of staffing	The scorecard assessment led to increased stability of the coordinating staff. One program created a new position in program for a graduate. Assessment provided institutional visibility and status, which was a key factor in securing financial support for the program
Public health leadership development		
Graduates not employed in appropriate positions in public health system	Develop appropriate positions for epidemiologists within the MOH system	Advocacy plan developed with Ministry of Health Position of provincial epidemiologist developed.
Sustainability		
Lack of strategic planning	Develop strategic plan	The scorecard assessment was the basis for formulation of a strategic plan which included redesign of the curriculum based on the competencies and strengthening of program mentors.

Conclusion

This assessment method has been recently endorsed by leadership of TEPHINET and is recommended for consideration by further FETP programs as part of the quality improvement process for FETP. The tool also is considered valuable to CDC as a principal supporter of FETP development as it provides a standard approach to program improvement. We plan to expand this to other programs and to continue to review and improve the process. While preliminary, we believe this tool is an approach that could be helpful in a variety of other public health capacity building programs. Other types of programs will need to develop indicators and quality steps for their own circumstances. In doing so, they will provide the tools necessary for both baseline assessment and a roadmap for improvement. Our experience has shown these efforts to yield a high return on a modest investment of time and energy. We believe the effort is worthwhile.

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DISCLOSURE STATEMENT

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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