Democratic Republic of the Congo Field Epidemiology Training Program Advanced Level Evaluation Report

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Photo credit: “First meeting of the Congolese Field Epidemiology Alumni Association.” 27 April 2016.

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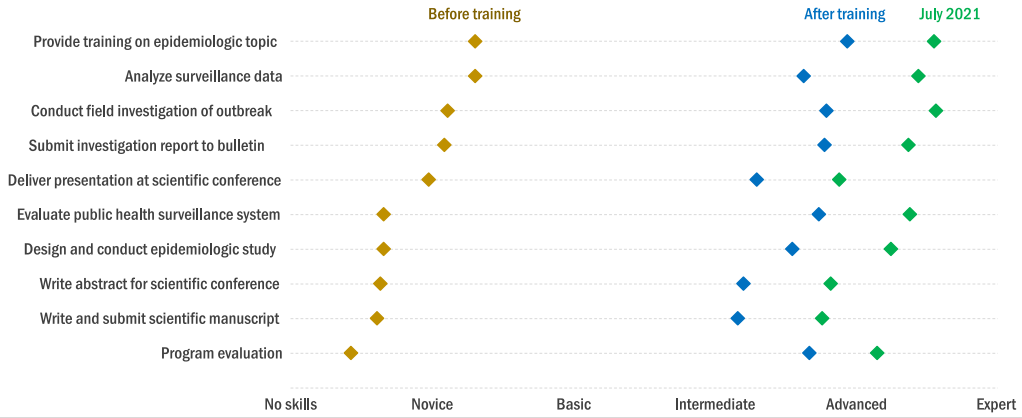
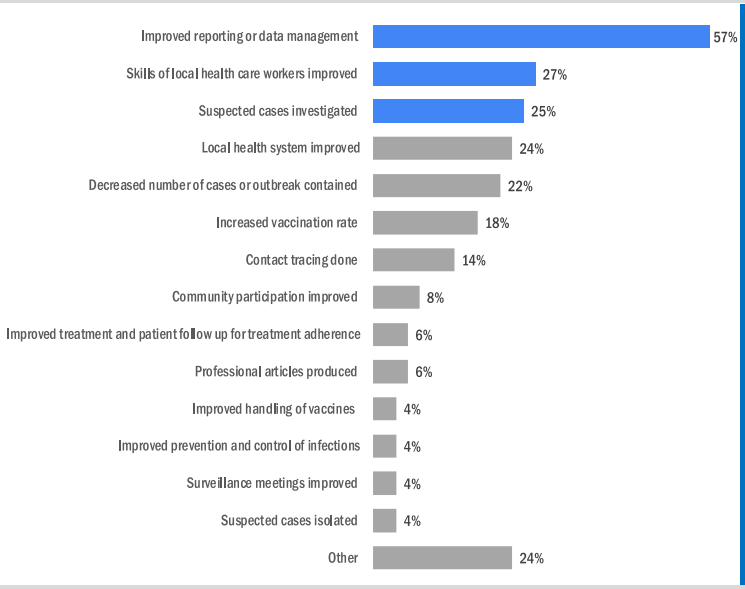
EXECUTIVE SUMMARY

To assess the Advanced Field Epidemiology Training Program (FETP) in the Democratic Republic of the Congo (DRC), the remote evaluation was a non-experimental, mixed-methods design using document review, semi-structured interviews, structured questionnaires, and outcome harvesting. The data were collected between April–July 2021, targeting Advanced graduates, persons who did not complete the training, job supervisors, outbreak response supervisors, program staff, and partners.

On average, FETP-Advanced graduate respondents reported they were at novice skill level before training, intermediate skill level after training, and advanced skill level in July 2021.



Graduate respondents most frequently reported outcomes related to improved reporting or data management, increased local health workforce capacity, and suspected case investigation.



"The technical support provided by the African Epidemiology Network's disease detectives to the various sub-commissions, rapid response teams, and community outreach cells in Bolomba health zone during the 11th Ebola virus outbreak (3 August – 5 November 2020) helped cut the chain of transmission of the virus through more effective, better coordinated, and rapid operations. Indeed, zero probable or confirmed cases of Ebola virus disease were recorded during the 90 days of technical support in the field. Whereas before, the epidemic spread like an oil stain."

Program graduate

Recommendations

Establish and manage a graduate tracking system	**Consider revising the recruitment process**
Implement the Resident-Driven Project Tracking Tool	**Consider altering course schedule to increase field time**
Improve program integration with the MOH	**Collaborate on continuing education opportunities for graduates**
Institutionalize the program in the MOH	**Establish FETP Intermediate level program**
Increase communication and coordination with KSPH	**Consider hiring more staff**

PROGRAM BACKGROUND

The Democratic Republic of the Congo (DRC) is the second largest country in Africa by total area. It is in the center of the continent and shares borders with nine other countries. Its current estimated population is 81,680,000 inhabitants although the last official census was conducted in 1984. The country has high morbidity and mortality from a wide spectrum of infectious diseases. Its physical and human health infrastructure have suffered more than four decades of neglect and decades of conflict and difficult economic conditions. The shortage of sufficiently trained public health workers makes it challenging to address and respond to multiple infectious disease outbreaks in this epidemic-prone country.

The DRC Field Epidemiology Training Program (FETP) started as a partnership between the U.S. Centers for Disease Control and Prevention (CDC); the United States Agency for International Development (USAID); the DRC Ministry of Health (MOH); the DRC Ministry of Fisheries, and Livestock; the African Field Epidemiology Network (AFENET); and the University of Kinshasa, School of Public Health (KSPH).

FETP-Advanced was established in February 2013 as a national-level two-year competency-based training and service program in applied epidemiology. The program helps develop, institute, and implement strong public health strategies to strengthen the quality of public health capacity. In June 2016, DRC launched FETP-Frontline, which trains health professionals at the sub-national (local) level in epidemiologic surveillance over three-months.

DRC FETP envisioned growing into a lead training program that advances the health of the people of DRC and beyond. Its mission includes helping the MOH and the Ministry of Fisheries and Livestock build a sustainable network of highly skilled surveillance officers, field epidemiologists, laboratory managers, and veterinarians who can improve public health services alongside KSPH. The two FETPs use the standard CDC curricula for FETP-Advanced and FETP-Frontline. To provide contextually appropriate training, the materials, methods, modules, and guides were adapted to include relevant elements drawn from seven years of experience with the FETP in DRC. As of September 2020, the Advanced level had 121 participants.

FETP-Advanced sits within the MOH. AFENET and the MOH oversee participants' field activities, while KSPH is responsible for participants' didactic sessions. CDC is responsible for funding the program. The Ministry of Health, Ministry of Fisheries

and Livestock and KSPH oversee the recruitment of candidates for the 24-month program. Candidates are selected through a call for applications by the MOH. Only government employees are eligible to apply. Applicants are screened to meet the admissions criteria and must pass two admissions exams (one written and one oral), after which the best candidates are selected. During this full-time training, residents suspend their previous functions and receive field assignments. The program is geared towards physicians, veterinarians, and laboratorians. Coursework includes laboratory, veterinary, environmental, and One Health modules. FETP alumni, MOH staff, and Ministry of Fisheries and Livestock support trainees' field activities. Successful completion of the following deliverables meets the program completion requirements.

Program deliverables:

- Evaluation of surveillance system
- Evaluation of a program (e.g., tuberculosis control)
- Group outbreak investigation
- Lead an outbreak investigation
- Report at the end of each field assignment (one for each year)

KSPH deliverables:

- End of bloc exams
- Thesis and successful defense of thesis

Program deliverables are evaluated by the resident advisor with input from field supervisors and mentors. Upon satisfactory completion, participants earn a Master of Public Health in Field Epidemiology from the KSPH.

METHODS

The CDC DRC country office commissioned an evaluation of the FETP-Advanced and FETP-Frontline to evaluate the programs' achievements to date and to identify areas for improvement with specific recommendations based on the findings. The evaluation team consulted with CDC's DRC country office to develop the objectives and data collection methods.

For FETP-Advanced, the evaluation assessed the program's implementation and impact by:

1. Describing best practices and challenges related to implementing the Advanced level since program inception.

2. Assessing the program's effectiveness since program inception in imparting practical skills in public health and epidemiology to graduates.
3. Describing and assessing the impact of the involvement of graduates from January 2018 to December 2020 in outbreak and other public health emergency responses.

The evaluation was a non-experimental, mixed-methods design using document review, semi-structured interviews, structured questionnaires, and outcome harvesting. To answer the evaluation objectives, the following data collection methods were used:

- **Document review**: To help provide context to the program and describe best practices and challenges in implementing the Advanced level, we reviewed the following documents provided by the DRC FETP AFENET team:

Collaborative Technical Assistance Process	Work plans
DRC annual reports and presentations	Deployment criteria
Mentor and supervisor presentations	Terms of reference
Criteria selection documents	Training curriculum
Cohort and workshop reports	Handover presentation

We conducted a thematic analysis using Podio, an online project management software.

- **Semi-structured interviews**: To help provide context to the program and describe best practices and challenges related to the Advanced level's implementation, we interviewed FETP staff in French or English, depending on the interviewee's preference. We conducted a thematic analysis using qualitative analysis software, ATLAS.ti (version 8.2.4) and MaxQDA (version 20.4.1).

- **Structured questionnaire**: To answer all three evaluation objectives, we tailored questionnaires previously developed to evaluate FETP-Frontline Senegal and Côte d'Ivoire. Francophone data collectors in Burkina Faso and Côte d'Ivoire administered the questionnaire using WhatsApp. The respondents were Advanced level graduates, their current supervisors, their supervisors during an outbreak or response, persons who did not complete the program, and partners who were independent of but knowledgeable about the FETP. Data were entered in SurveyMonkey, and analyzed in Epi Info (version 7.2.3), Excel (version 2102), and RStudio (version 1.4.1717). Numerical values were averaged, and frequencies calculated, where necessary. We used paired *t* tests to assess self-

reported skill levels across three points in time by comparing the results from before and after training and again from after training to July 2021. We set statistical significance at $p < 0.05$.

- **Outcome Harvesting**: To describe and assess the impact of graduates' involvement in outbreak response, surveillance, and other public health emergencies, we used outcome harvesting. This methodology is particularly suitable here because it works well for complex programming contexts where relations of cause and effect are not clear in advance (Wilson-Grau, 2019; Wilson-Grau & Britt, 2013; World Bank, 2014). Outcomes are defined as changes in the behavior, relationships, practices, policies, or actions of an individual, group, or institution. Outcomes are not activities, or even increased individual competencies. Instead, they are actual changes beyond the training program to which the training has contributed.

  We conducted two online workshops with a sample of graduates. We introduced them to the method, and then trained them to produce outcomes from their own experience in the field. Participants produced the following:
  - **Outcome statements,** which described a single change, when and where it occurred, and who was involved
  - **A statement of significance,** which clarified the importance of the outcome to improved public health
  - **A contribution statement,** which explains how the participant's contributions combined with those of others to produce the outcome

  We talked with participants to clarify and refine the statements, and then proceeded to substantiate them. Evaluators shared the statements with substantiators - outsiders who are familiar with the situation described but were independent of the person who submitted the outcome. Substantiators were asked to what extent they agreed with the statements and if they had additional comments, to clarify them further. Using Excel, we analyzed the outcomes by year, impacts, and diseases affected. Outcome harvesting is a qualitative analysis tool; while these data have been rigorously verified and represent accurate results of the program, they do not lend themselves to statistical analysis due to their qualitative nature.

FINDINGS

Findings are organized by evaluation objective.

Evaluation Objective #1: Describe best practices and challenges related to implementing the Advanced level since program inception.

To answer this question, we used data collected from structured questionnaires administered to graduates, persons who did not complete the training, job supervisors, partners, and program staff. Our response rate for graduates and persons who did not complete the training was 68% (82/121) and 69% (33/48) for job supervisors. We had a 100% (6/6) response rate for partners and 66% (8/12) response rate for program staff. Demographic data for job supervisors is in Appendix 1.

IMPLEMENTATION SUCCESSES

Demographic successes

Advanced level was the first program in the DRC to respond to a need for trained field epidemiologists. Despite the high occurrence of diseases in the country, other public health programs and pathways within the KSPH did not train individuals to respond to outbreaks and public health events. DRC FETP is now filling this gap for field epidemiologists and bringing strong results.

A key implementation success is that 121 health professionals have participated in the Advanced level training. Out of the 82 who completed the structured questionnaire, the majority were male, between the ages of 40–49 years, and trained physicians (Table 1). Respondents' highest education degree was almost evenly split between a master's degree and a doctorate. For a comparison of Advanced level evaluation respondents and the total population of Advanced level participants, see Appendix 1.

Table 1: Sociodemographic, educational, and professional characteristics of DRC FETP Advanced respondents (N=82).

Variable	n	%
Gender		
Male	59	72
Female	23	28
Age group		

31–34 years	6	7
35–39 years	19	23
40–44 years	26	32
45–49 years	27	33
50–54 years	4	5
Highest education degree		
Master's degree or equivalent	43	52
Doctorate (MD, PhD, DVM)	38	46
University degree	1	1
Professional background		
Physician	60	73
Veterinarian	12	15
Biologist	9	11
Laboratory technician	1	1

Most continue to work for the MOH (Table 2). Of the 82 respondents, 44% worked at the provincial health division, and[1] 33% work at a national level office, with 20% as department heads. This is a success for the program, as FETP-trained health professionals will be able to use their knowledge to shape and improve the DRC's surveillance system. Nine percent (7/82) of respondents shared that they are awaiting reassignment (one for as long as 2 years) or are unemployed. With the shortage of well-trained health professionals knowledgeable about epidemiologic surveillance in the DRC, this is troubling. Job titles included in the "other" category are listed in Appendix 3.

Almost half of respondents are early career professionals with 1 to 5 years of work experience, another success as graduates will be able to apply and share their knowledge and skills learned from FETP for the entirety of their public health career. Most respondents worked in human health, with 11% (9/82) working in animal health and none in environmental health.

[1] See Appendix 2 for a description of the different health system levels in the DRC.

Table 2: Job characteristics of Advanced level respondents (N=82)

Characteristic	n	%
Sector of activities		
Public	79	96
Private	3	4
Organization/institution workplace		
Ministry of Health	65	79
Ministry of Fisheries and Livestock	9	11
Other organizations	6	7
Ministry of the Armed Forces	2	2
Health pyramid level		
Provincial health division	36	44
National	28	34
Health zone	14	17
Provincial fisheries and livestock division	2	2
NGOs	2	2
Workplace		
National level office	27	33
Provincial health office	19	23
Provincial hospital	10	12
Health zone hospital	9	11
Provincial animal laboratory	6	7
Health zone office	5	6
AFENET	2	2
Waiting for assignment	2	2
Health center	1	1
National hospital	1	1
Job title		
Department head - national	16	20
Awaiting assignment or unemployed	7	9
Department head - provincial	6	7
Health zone head physician	5	6
Attending physician	5	6
Analyst in charge of supervising and supporting health zones	2	2
Other*	41	50
Work experience (years)		
1–5	37	46

6–10	20	25
11–15	20	25
16–20	4	5
Sector of activities		
Human health	73	89
Animal health	9	11

*Job titles included in the "other" category are listed in Appendix 3.

Respondents reported that they currently work in 68% of the DRC's 25 provinces (Map 1). Kinshasa province has the most graduates (Table 3).

Map 1: Map of Advanced level respondents' current provinces in the DRC

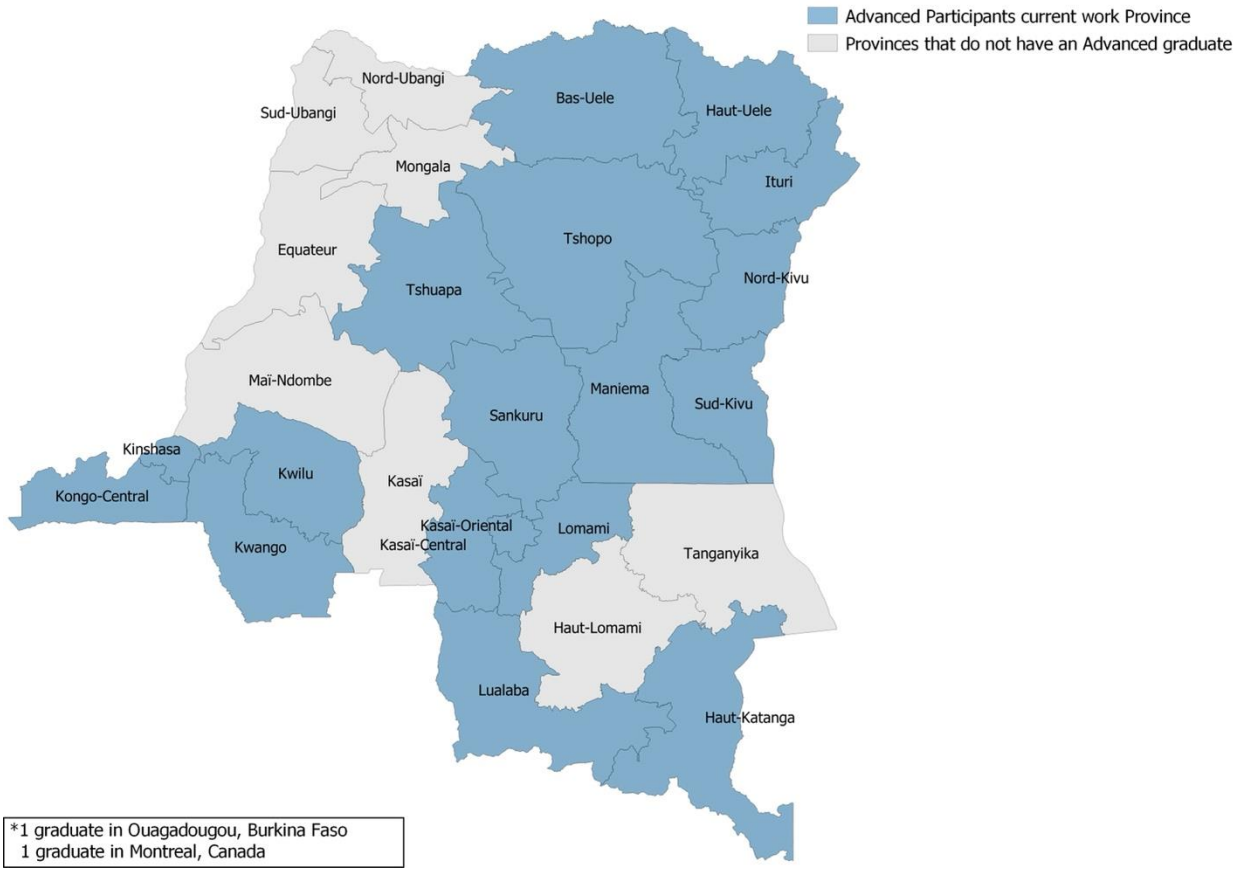


Table 3: Number of Advanced level respondents, by DRC province (N=82).

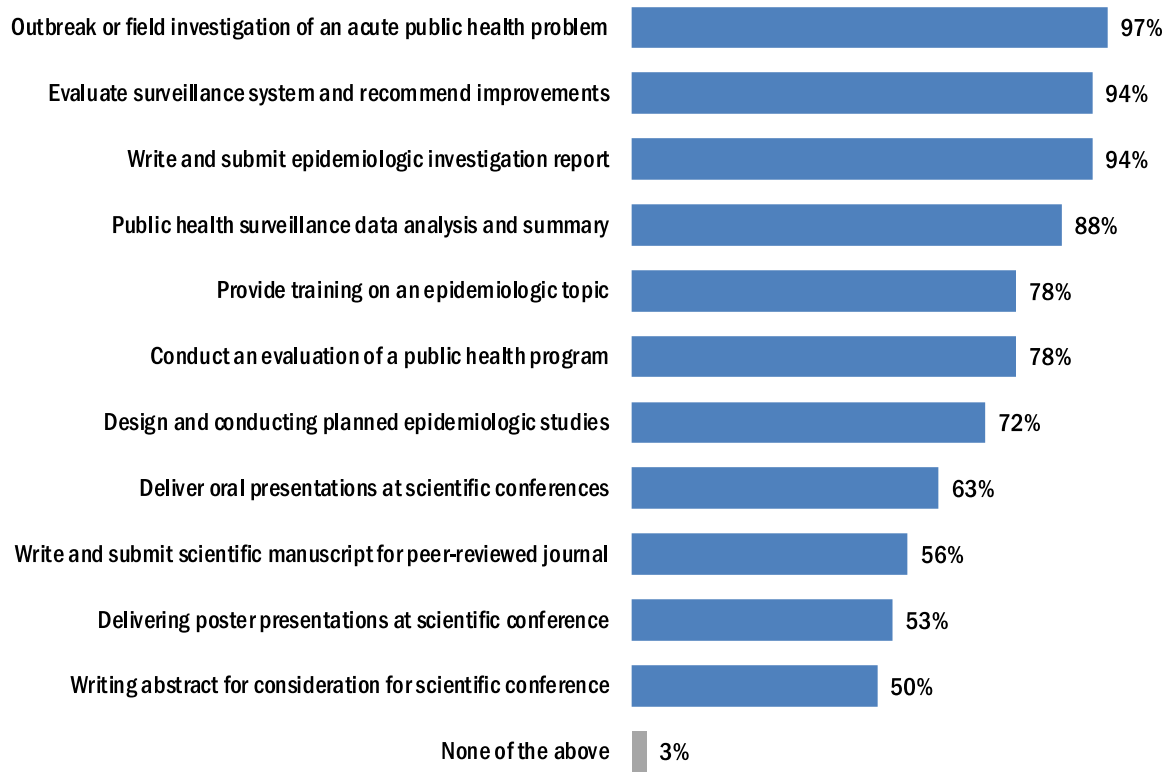
DRC province or other location	Number of Advanced level respondents
Kinshasa	35
Nord-Kivu	5
Haut Katanga	5
Kasai-Oriental	4

Maniema	4
Kongo Central	4
Currently being reassigned	3
Lualaba	2
Kasai-Central	2
Ituri	2
Sud-Kivu	2
Tshuapa	2
Tshopo	2
Kwilu	2
Haut-uele	1
Lomami	1
Sankuru	1
Montreal, Canada	1
Kwango	1
Bas-uele	1
Ouagadougou, Burkina Faso	1
Litouri	1

Curriculum matches graduates' job duties

Another key implementation success is that the Advanced level curriculum matches and is relevant to graduates' current job duties. When asked about the relevance of the curriculum to their work, 96% (78/82) reported that it was either very or extremely relevant to their work. We confirmed this with respondents' job supervisors. A total of 91% (29/32) of them found that the curriculum was either very or extremely relevant to graduates' work. When asked to describe the job duties of graduates whom they supervise, most described job duties closely aligned with the curriculum (Figure 1). Scientific dissemination skills were among the least common responsibilities, but still at least 50%.

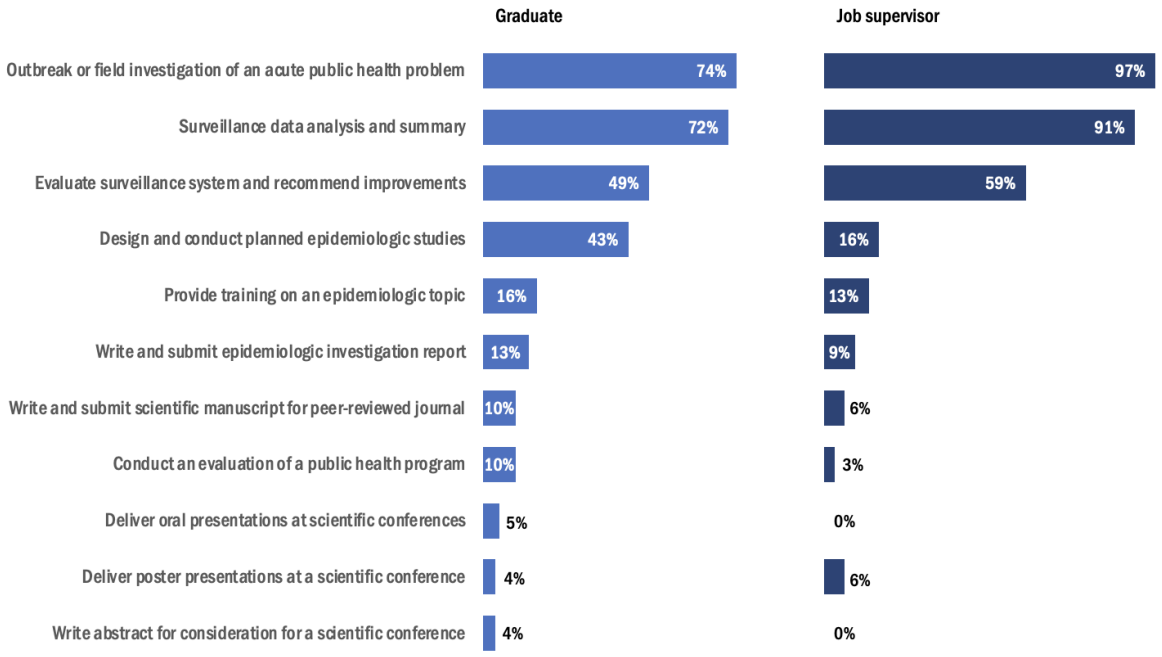
Figure 1: Most Advanced level respondents' job supervisors reported that graduates' job duties related to the Advanced curriculum (N=32*).



*One respondent did not answer the question.

When asked what the most useful competencies were, graduate and job supervisor respondents reported similarly (Figure 2). None of the job supervisor respondents and few graduate respondents found writing abstracts or delivering oral presentations at scientific conferences to be useful competencies. The FETP could use these data to determine which areas of the curriculum might benefit from greater emphasis, or areas that might be suitable for continuing education topics.

Figure 2: Advanced level graduate and job supervisor respondents similarly reported the most useful competencies from Advanced level training (graduate: N=82; job supervisor: N=32*).



*One respondent did not answer the question.

Congolese Field Epidemiology Alumni Association

Another key implementation success is the establishment of the Congolese field epidemiology alumni association (Association Congolaise d'épidémiologistes de terrain) in 2016, co-led by Dr. Leopold Lubula, the focal point for FETP at the MOH. Providing an opportunity for graduates to connect, share, and learn post-graduation is one aspect of effective training design (Thalheimer, 2016). Many graduates asked for continuing education opportunities for skill retention and improvement. This could be an opportunity for the Alumni Association to collaborate with other partner organizations, professional associations, or communities of practice, and to attract new members to the Alumni Association.

Efforts around the One Health approach

As seen in Table 2, 11% (9/82) of graduate respondents work in animal health, contributing to the DRC's One Health approach. For these respondents, we asked about their motivation behind joining FETP, the relevancy of the curriculum and the effect of the training on their work.

Seven of the nine animal health graduate respondents reported that they were motivated to join the Advanced level out of an interest in epidemiology, with four reporting that they joined for the professional development.[2] Eight of the nine animal health graduate respondents reported that the curriculum was relevant to their work, explaining how the training highlighted the connection between human and animal health, particularly around the surveillance of zoonoses.

All the animal health graduate respondents reported that the training had an impact on their work. Respondents shared these examples of the impact:

"[I had not participated in an] epidemiological investigation before the program. During and after the program, I can investigate, write a report, train, and supervise other workers.

"During the program, I learned a lot about biosecurity and the environmental aspect (sustainable), as well as about the risk of animal-to-human transmission."

"Knowing how to take action (investigation) after receiving reports and being able to work in a multidisciplinary team."

"Some indicators that were declining improved and reports were obtained from border crossings that were not sending reports previously."

As none of our respondents worked in the environmental health sector, we recommend including environmental health professionals in the recruitment process. This could increase the number of environmental health professionals, and potentially strengthen DRC's One Health approach.

IMPLEMENTATION CHALLENGES

More time spent in the classroom than the field

Due to the logistical challenges of travelling to the field in the DRC, the Advanced level course schedule was restructured. For each year of the program, participants spent 6 consecutive months in didactic sessions and 6 months gathering practical experience. This reduced program costs and travel time for residents and improved

[2] Respondents could select all answers that applied.

overall program organization. During the 6 months of didactic sessions, residents participate in 1 week of hands-on practical learning after spending 1 week learning the theory behind a topic. See a sample course schedule in Appendix 4. The content of the curriculum was not altered due to this change in schedule.

This change meant less field time for residents. Residents now spend 60.2 weeks in the field over the 2-year program. According to the Training Programs in Epidemiology and Public Health Interventions Network's (TEPHINET) Accreditation[3] Readiness Assessment, the minimum time of fieldwork is 68 weeks (Training Programs in Epidemiolgy and Public Health Network, 2021b). As program staff expressed an interest in accrediting the Advanced level, we recommend that the FETP, the MOH, and KSPH, consider altering the Advanced level course schedule to increase the number of weeks spent in the field. For the full list of TEPHINET accreditation requirements and standards, please see Appendix 5.

Lacking coordination and communication with the KSPH

KSPH staff shared that they would like greater coordination and communication with FETP, particularly when new KSPH staff begin working with FETP. FETP is a complex program, and the learning curve can be steep for new staff. One interviewee shared that "I had to inform myself [about FETP], I had to understand what was expected of me on my own. My counterparts—the funders, including CDC, AFENET and the Ministry—all had the benefit of hindsight, but I was expected to be immediately up to speed. I had to work very hard and do a lot of research to find out what it [FETP] was all about." We recommend regular communication between FETP and KSPH to clarify needs and improve collaboration. This could be solved through more frequent steering committee meetings, with a staff member dedicated to following up recommended action steps.

Increased communication and coordination would also address the issue of the master's degree and CDC certificates. Currently, graduates are supposed to receive both documents, but it is unclear whether all cohorts have received both upon completion. Increased communication between both entities would resolve this question by determining which graduates still need to receive theirs, following up with the MOH to request the documents be signed, and awarding them to those waiting.

[3] "TEPHINET accreditation is an opportunity for field epidemiology training programs (FETPs) to align with common standards that support quality training and increased recognition of their value in supporting country public health priorities" (Training Programs in Epidemiolgy and Public Health Network, 2021a).

Increased communication and coordination could ensure that graduates can defend their thesis in a timely manner. Advanced level has a relatively low dropout rate (9%; 7/82), but four respondents reported that they had not yet defended their thesis. The other three who did not complete the training cited factors outside the program's control. For example, a workplace did not allow a respondent to participate in the training full-time. All seven reported that if given the opportunity, they would be interested in completing their training. We were unable to reach all graduates, so the dropout rate could be higher.

Lack of systematic tracking for participants and graduates

Currently, there is no systematic way in which Advanced level is tracking their participants and graduates. This is a challenge for several reasons. First, the evaluation team encountered serious difficulties in obtaining up-to-date contact information for graduates. Access to up-to-date information is important for future evaluations, recruiting mentors, and outbreak responders.

Interviewees frequently mentioned the great need for epidemiologists in DRC, due to multiple, concurrent, ongoing outbreaks. Yet, graduates and job supervisors shared that some graduates dedicated limited time to surveillance work and wished for opportunities to deploy for outbreak or public health emergency response. For example, 12% (10/81)[4] of graduates reported that they spend 2 days or less per week on epidemiologic surveillance work.

The FETP could consider implementing a process to better track graduates and monitor their integration into surveillance work and the public health system. To understand whether graduates are being employed as hoped, the program could monitor career progression, whether persons are working for the MOH or Ministry of Fisheries and Livestock, and whether they do surveillance work.

A tracking system could also provide timely, up-to-date information to the MOH and the Ministry of Fisheries and Livestock and identify graduates who can respond to outbreaks or public health emergencies in surrounding health centers and health zones.

We recommend implementing a graduate tracking system prior to standing up FETP-Intermediate. While this shorter duration training would produce field

[4] One respondent did not answer the question.

epidemiologists at a faster rate, strategic use of existing human resources (i.e., graduates) would help meet the demand for well-trained epidemiologists to respond to outbreak and public health emergencies.

To track their current Advanced residents, the FETP could consider implementing the Resident-Driven Project Tracking Tool (ReDPeTT), a recently developed tool that helps program staff track participants' activities and progress. This information could also help provide regular feedback to mentors or KSPH teaching staff on residents' activities and areas where they need more support.

Lack of defined MOH career pathway for graduates

While the MOH made strides to emphasize FETP's role, much can be done to strengthen the post-training career pathway for graduates. Currently, participants' positions are permanently filled once they begin the training. After graduation, they often take positions in Kinshasa or with other partner organizations rather than return to improve surveillance in their home province.

The MOH could also recognize graduating from FETP in hiring and promotion considerations. After graduation, graduates may find themselves demoted or assigned to a lower-ranking position than the one they when they started the FETP-Advanced. Combined with the permanent filling of their previous position, these factors could disincentivize future qualified candidates from applying.

Among graduate respondents, 68% (55/81)[5] said that they currently have a different job than the one they had at the start of training. Of these, 18% (10/56)[4] reported that their change in job title was not a promotion. This suggests that the training was not beneficial for some graduates' career progression. One consideration may be for the MOH to formalize a career ladder for field epidemiologists, recognizing FETP training as either a requirement or a selection criterion for hiring and promotion decisions. The need to define a career path for graduates is not unique to the DRC, as discussed in *The Global Field Epidemiology Roadmap* (O'Carroll et al., 2018).

[5] One respondent reported that they have been unemployed since graduating in 2019. The respondent could not answer the first question, thus n=81 and not 82, but answered that their change in job title was not a promotion, thus n=56 and not 55.

Program staffing shortage

The Advanced level was without a resident advisor for 1 year. The Frontline resident advisor tried to do both jobs, in addition to other non-FETP related responsibilities. This staffing shortage adversely affected field activities (i.e., less mentorship coordination, less progress reporting to CDC headquarters, and pausing progress on other previously known areas of opportunity).

More program staff, particularly administrative staff, could assist with various responsibilities such as:

- Provide more support to residents
- Compile program, resident, and graduate data for program monitoring and reporting
- Proactively communicate and follow up with AFENET, MOH, KSPH, and CDC

Increasing the number of mentors would also improve the support residents receive. We recommend decreasing the ratio of mentor to resident, from 1:5 to 1:2. This could improve field work follow-up and validation. With existing logistical challenges of transportation and internet, it can be difficult for mentors in the larger provinces to follow up with residents' field activities in the rural areas. Increasing the number of mentors, spread out over a geographic area, could improve support for residents' field activities.

What can we learn from these data?

Despite the challenges, 121 health professionals participated in the Advanced level, with a relatively low dropout rate of 9% (7/82). Both graduates and job supervisors find the curriculum to be relevant to graduates' current job duties. As the program continues to grow, areas for improvement could benefit not only the Advanced level, but also a future FETP-Intermediate.

Evaluation Objective #2: Assess the program's effectiveness in imparting practical skills in public health and epidemiology to graduates since program inception.

To answer this question, we used data collected from structured questionnaires with graduates, persons who did not complete the training, and job supervisors. Our response rate for graduates and persons who did not complete the training was 68% (82/121) and 69% (33/48) for job supervisors.

Skill level self-assessment

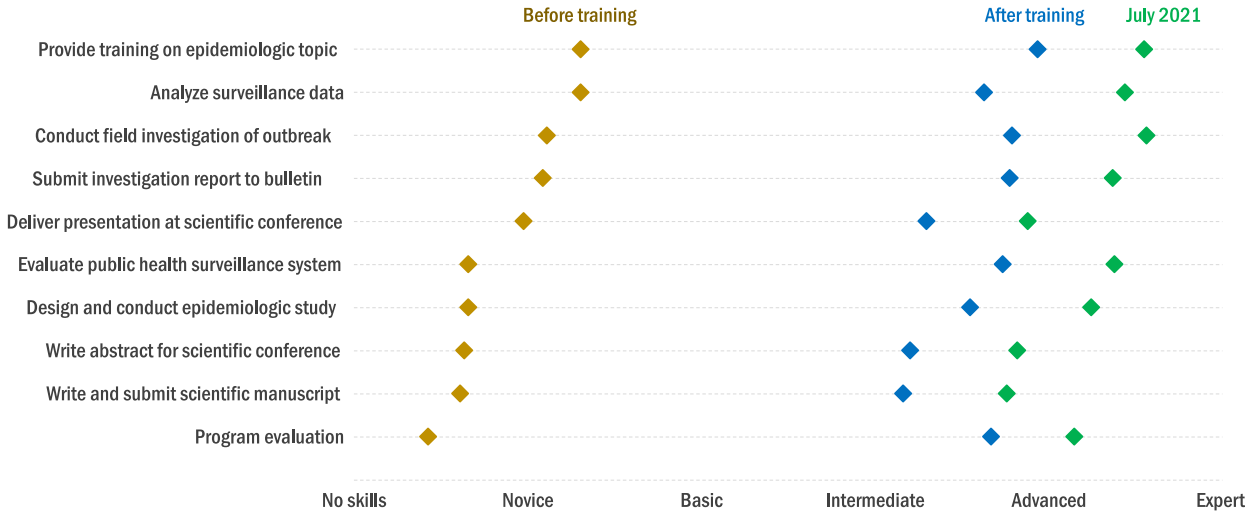
Graduate respondents reported increased skill level from before Advanced training, to after training, to July 2021 (Figure 3). On average, they reported being at novice skill level before training, intermediate skill level after training, and advanced skill level in July 2021. All t-test values were statistically significant ($p < .05$). We asked participants to rate their skill level for 10 skills at three points in time: before the training, after the training, and now, which was June/July 2021. This type of question is arguably more valid than baseline and endpoint assessments, as respondents are aware of the topics and can more accurately assess their knowledge/skill level before and after participation in the course (Klatt & Taylor-Powell, 2005; Pohl, 1982).

Respondents rated their skill level on the following Likert scale assigned the corresponding numerical values in parentheses:

(0) Not applicable to my position at the time.
(1) Basic knowledge of the activity, but no experience.
(2) Limited experience with the activity and still need help performing it.
(3) Can perform the activity independently, but still need occasional help from an expert.
(4) Can perform this activity without assistance.
(5) Expert in this activity and can provide guidance on how to do this activity.

Respondents who did not complete the training (7/82) were only asked to rate their skill before the training and now.

Figure 3: Graduates reported increased skill levels from before training, to after training, to July 2021 (N=82).



Skill application since participation in Advanced level

To determine if and how graduates are applying the skills learned from the training, we asked them if they had used 15 skills since the last time they were in Advanced training. This question was adapted from the success case method (Brinkerhoff, 2006). For each skill, respondents answered on the following Likert scale assigned the corresponding numerical values in parentheses:

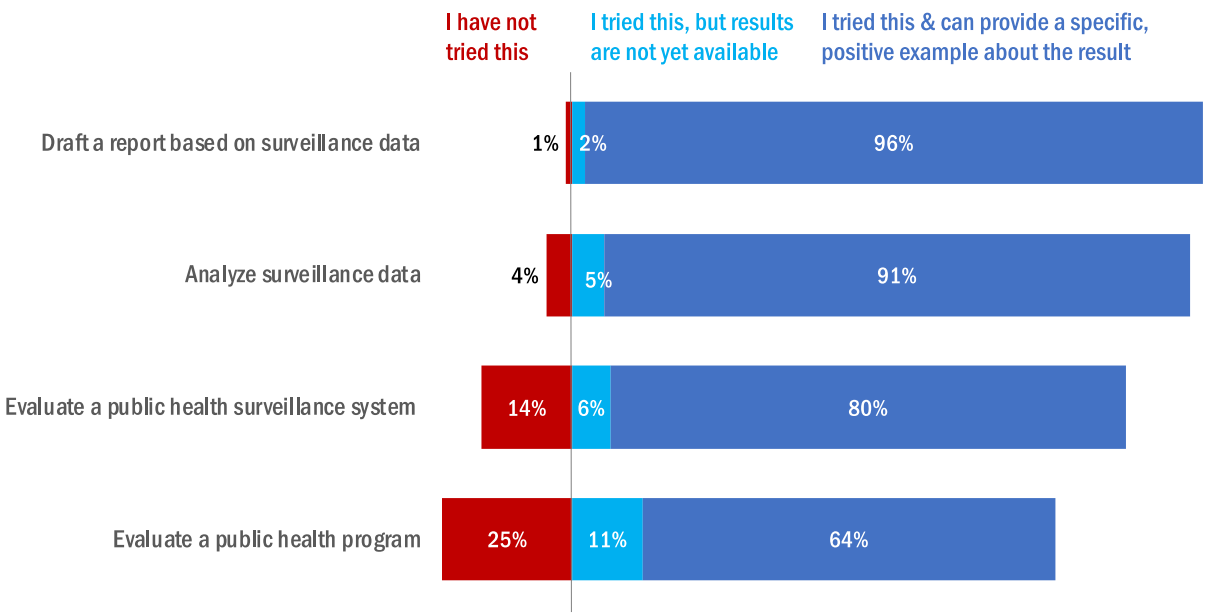
(1) I have not tried this.
(2) I tried this, but it did not work.
(3) I tried this, but results are not yet available.
(4) I tried this and can provide a specific, positive example about the result.

Most graduate respondents reported successfully applying surveillance data skills (Figure 4), field investigation and epidemiologic study skills (Figure 5), and leadership and management skills (Figure 6). Most reported a lack of success or not using scientific dissemination skills (Figure 7). As we'll see later in the report, they have gained much experience working on multiple, ongoing outbreaks and their expertise could benefit the scientific community, if shared through publications or conferences.

RECOMMENDATION

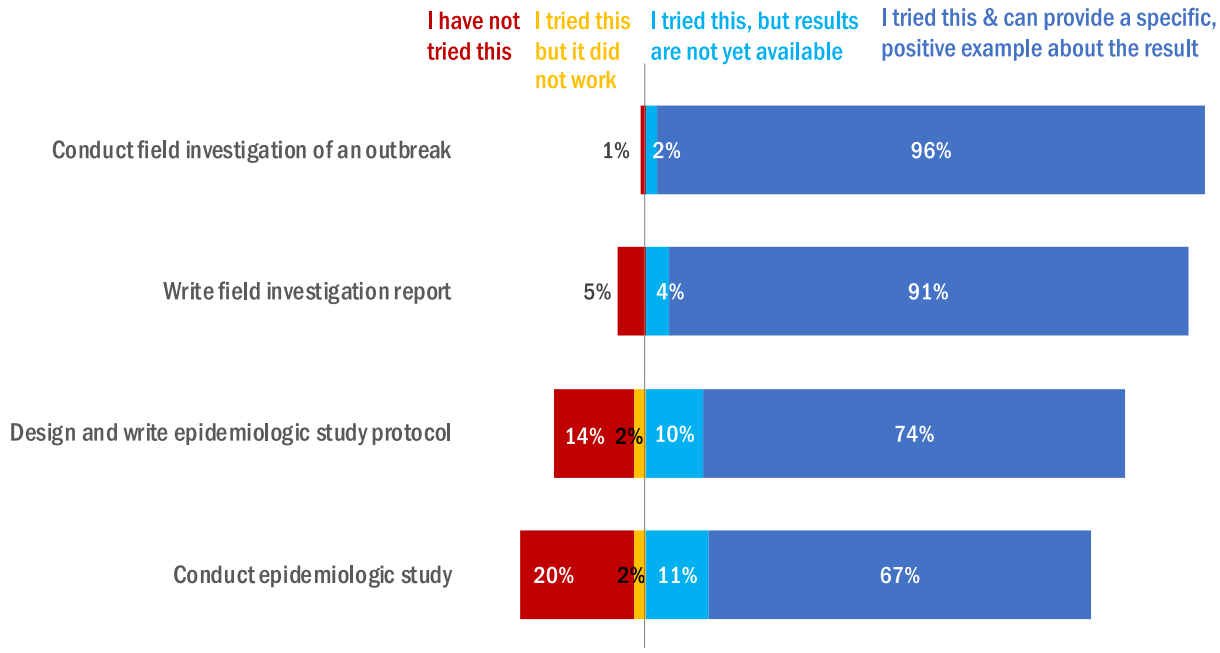
Consider holding a **continuing education workshop on scientific writing** to refresh graduates' writing skills, scientifically correct field projects, and produce manuscripts reporting on results of their surveillance work or response activities. Scheduling such a workshop shortly after graduation would help graduates publish their thesis. This activity could be supported by communities of practice or

Figure 4: Most Advanced level respondents reported successfully applying surveillance data analysis skills (N=81*).



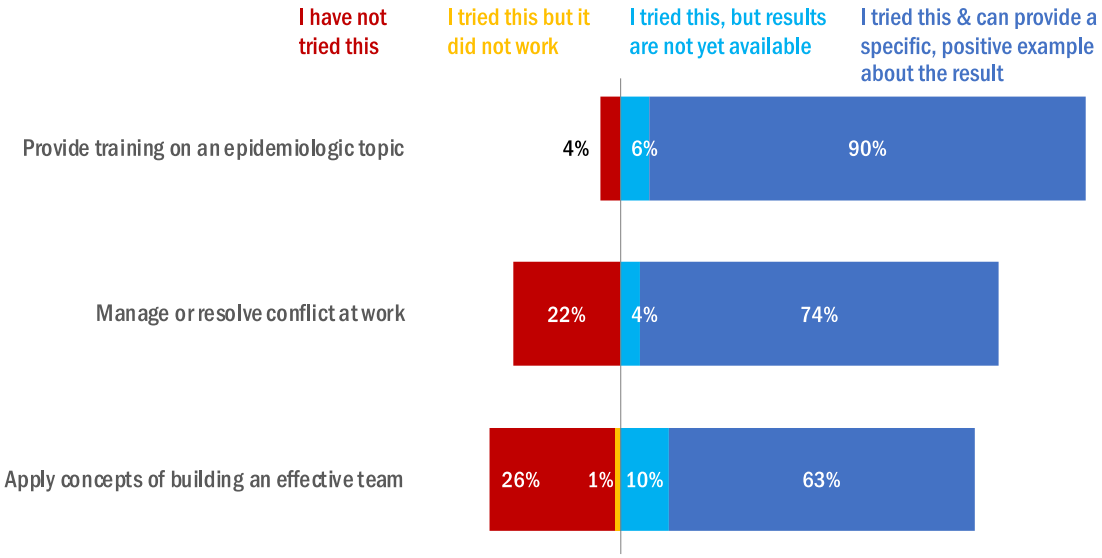
*One respondent did not answer the question.

Figure 5: Most Advanced level respondents reported successfully applying field investigation and epidemiologic study skills (N=81*).



*One respondent did not answer the question.

Figure 6: Most Advanced level respondents reported successfully applying leadership and management skills (N=81*).



*One respondent did not answer the question.

Figure 7: Most Advanced level respondents reported a lack of success or not using scientific dissemination skills (N=81*).

***One respondent did not answer the question.**

When asked to provide examples of successful results achieved after applying skills learned, graduates shared:

"In terms of the Ebola virus disease response, the program allowed us to design tools to improve the investigation methods. It also allowed us to train local personnel to improve the response to different epidemics."

"Acquisition of laboratory management skills; skills required for supervising and training other laboratory workers."

"Multidisciplinary teamwork carried out as part of the One Health approach."

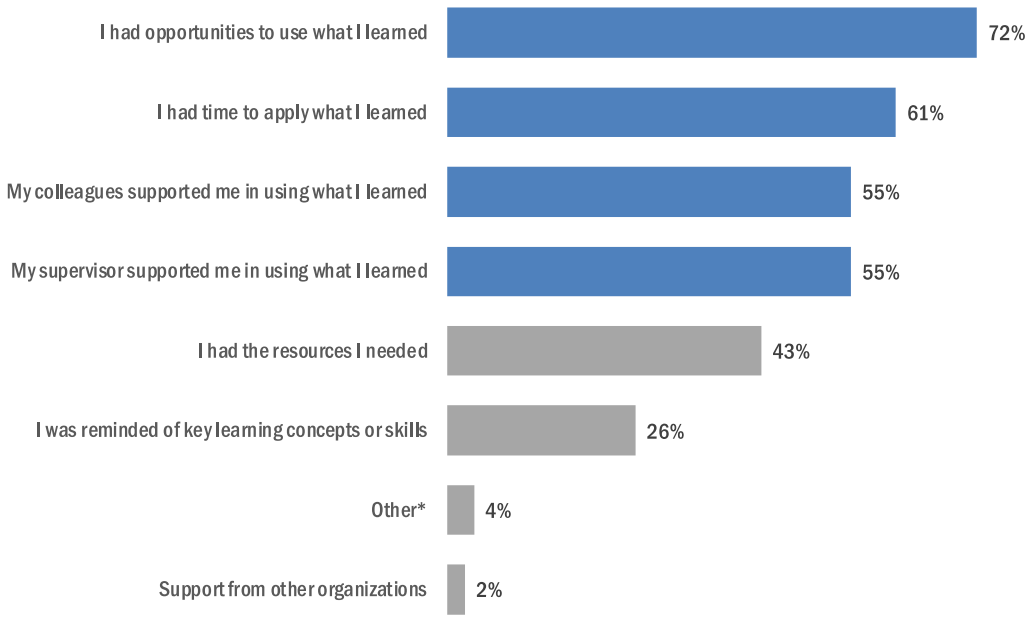
"Training other people to write abstracts for international publication."

Training effectiveness

We asked respondents what helped and hindered their use of knowledge and skills learned from Advanced. These questions were adapted from the CDC's *Recommended Training Effectiveness Questions For Postcourse Evaluations User Guide* (Centers for Disease Control and Prevention, 2019).

The top factors that helped Advanced graduate respondents apply what they learned were opportunity, time, and support from colleagues and supervisors (Figure 8). This aligns with the four pillars of training effectiveness, as outlined by Will Thalheimer: "While some rare learners will rise up and implement their learning without support, a large majority will be successful only if they have additional resources and guidance" (Thalheimer, 2016). For the "other" answer option, respondents reported the following once: no factors helped me use the content; personal motivation; in moments of reassignment.

Figure 8: The top factors that helped Advanced level respondents apply what they learned were: opportunity, time, and support from colleagues and supervisors (N=82).



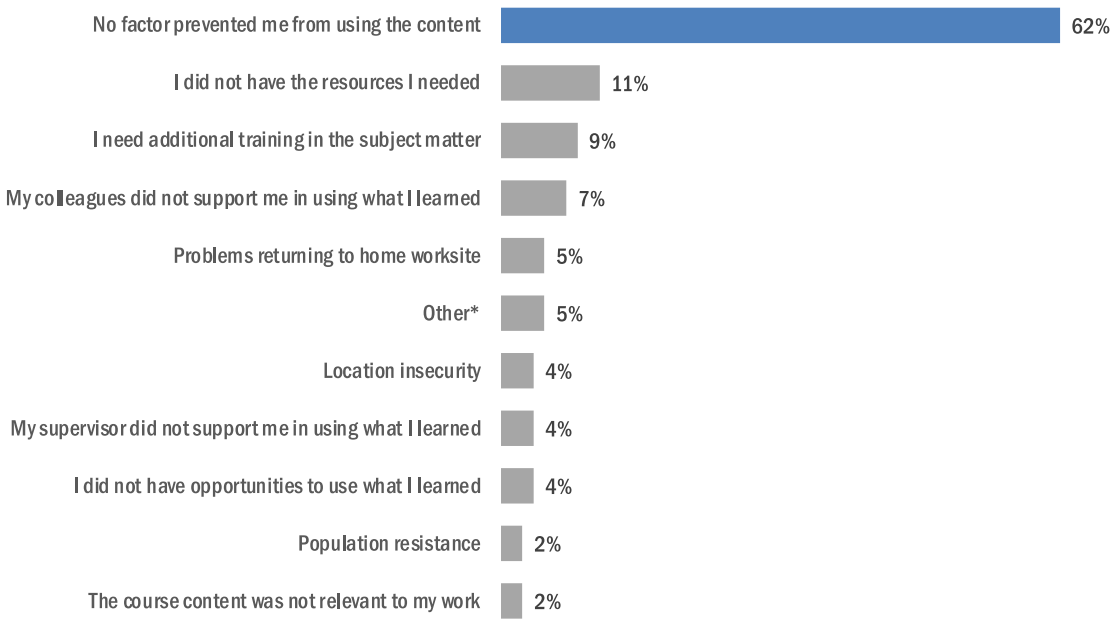
RECOMMENDATION

Consider working with MOH to **formalize a career ladder** for field epidemiologists, recognizing FETP training as either a requirement or a selection criterion for hiring and promotion decisions.

Most graduate respondents did not report any barriers that prevented them from applying knowledge and skills learned from Advanced training (Figure 9). A small percentage reported factors that what hindered their knowledge and skill application included lack of resources (11%), need for additional training (9%), and lack of support from colleagues (7%). Respondents shared barriers such as colleagues fearing that graduates would replace them, trouble integrating back to their home worksites, and re-assignment after graduation. These barriers were also confirmed in the program staff interviews. For the "other" answer option, respondents reported the following once:

- Lack of time
- Underuse of graduates
- Poor internet connection
- Superiors or politics interfering.

Figure 9: Most Advanced level respondents reported that no factors prevented them from applying what they learned in FETP training (N=82).



Job duties

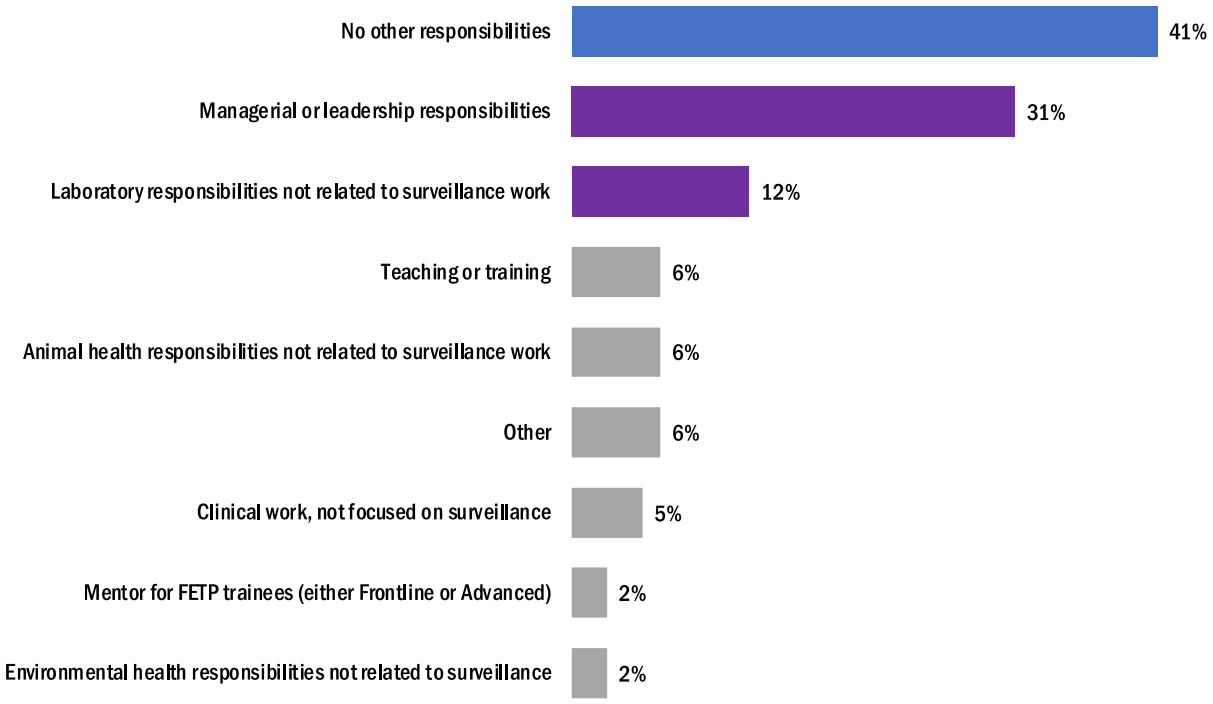
To provide additional context to respondents' reported skill application, we asked them a series of questions about their job responsibilities and the relevance and usefulness of the curriculum. When asked about the relevance of the curriculum to their work, 96% (78/81)[6] of graduate respondents reported that it was either very or extremely relevant to their work. A total of 65% (53/81)[4] of reported that they spend at least 81% of their time (5 days per week) on epidemiologic surveillance. This is an encouraging sign, particularly in responding to multiple, concurrent, ongoing outbreaks. A total of 12% (10/81)[4] reported that they spend 2 days or less per week on epidemiologic surveillance. Engaging such staff could help meet the demand for well-trained surveillance officers in outbreak and public health emergency responses.

When asked about their job duties not related to epidemiologic surveillance, including outside of program evaluation and emergency response activities related

[6] One respondent skipped the questions.

to surveillance, 41%[7] reported that they don't have any other duties (Figure 10). A total of 31% reported that they are involved in management or leadership activities, such as program management or partnership development. Further, 12% reported that they are involved in laboratory activities not related to surveillance. These topics and the ones listed in Figure 10, could be the source of continuing education opportunities for graduates.

Figure 10: 41% of Advanced level respondents have only epidemiologic surveillance responsibilities, while 43% have managerial, leadership, or laboratory responsibilities not related to surveillance (N=81).



[7] One respondent did not answer the question.

Career progression

Thus far we discussed how respondents reported increased skill levels after Advanced level training, how they've applied what they learned in their workplace, and whether the curriculum is relevant to their current job duties. We wanted to know if the training contributed to career progression post-graduation, and for most graduate respondents it was beneficial.

RECOMMENDATION

Consider **implementing a graduate tracking system** to monitor their integration into surveillance work and the public health system. To understand whether graduates are being employed as hoped, the program could monitor career progression, whether persons are working for MOH, and whether they conduct surveillance work.

A total of 68% (55/81)[8] reported that they have a different job than when they started the training. Of those 56 that have a different job, 82% reported that it was a promotion, and 18% reported that it was not. This suggests that for most graduate respondents, the training was beneficial in their career progression. Yet, it is possible that it was not beneficial for a small percentage of respondents' career progression. For the 46 who reported a promotion, 96% attributed it in part to participating in the Advanced level.

Perspective from job supervisors

To mitigate the limitations of self-reported data, we asked graduates and persons who did not complete the training to provide their current job supervisor's name and contact information. Conclusions drawn from job supervisors are limited due to memory recall bias, lack of awareness around their supervisees' behavior, or basing their assessment on personal traits rather than behavior (Schwarz & Oyserman, 2001).

Respondents reported that they supervise, on average, three graduates (range 1–11). Sixty-three percent of job supervisor respondents reported that their supervisees did not face difficulties during the training. Only 16% reported that their supervisees did not have access to the materials and resources needed to complete the field products, such as internet access.

[8] One respondent reported that they have been unemployed for two years, since graduating in 2019. The respondent could not answer the first question, thus n=81 and not 82, but answered that their change in job title was not a promotion, thus n=56 and not 55.

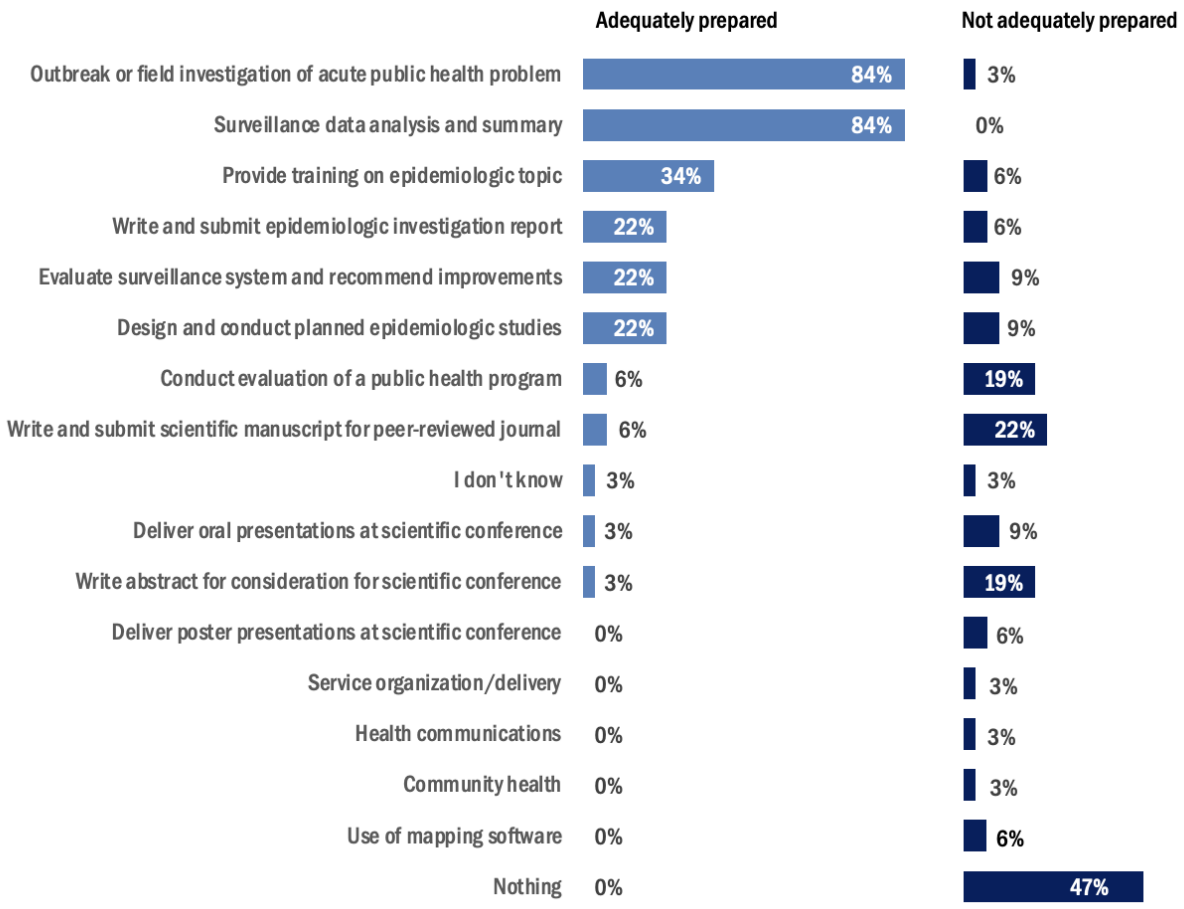
We asked job supervisors which three areas graduates were adequately prepared and not adequately prepared. Job supervisors reported the top three areas where graduates were mostly adequately prepared were data analysis, outbreak investigation, and epidemiologic topic instruction (Figure 11). Almost half felt there were no areas where graduates were unprepared, but some reported that graduates were not adequately prepared in scientific manuscript writing (22%), scientific abstract writing (19%), and program evaluation (19%). This aligns with graduate respondents' low self-reported use of scientific dissemination skills described in Figure 7.

Some job supervisors reported that graduates were inadequately prepared in areas that are not included in the curriculum, including the following:

- Service organization or delivery
- Health communications
- Community health
- Mapping software

Although most did not mention these topics, the FETP could use these data to determine which areas of the curriculum might benefit from greater emphasis, or areas that might be suitable for continuing education topics.

Figure 11: Job supervisor respondents reported the top three areas where graduates were most prepared were: data analysis, outbreak investigation, and epidemiologic topic instruction. The top three areas where job supervisors felt graduates were not adequately prepared were: program evaluation, scientific manuscript writing, and scientific abstract writing (N=32*).



*One respondent did not answer the question.

Job supervisors' perspective on training impact

We asked job supervisor respondents for their perspective on whether the training improved graduates' skills.

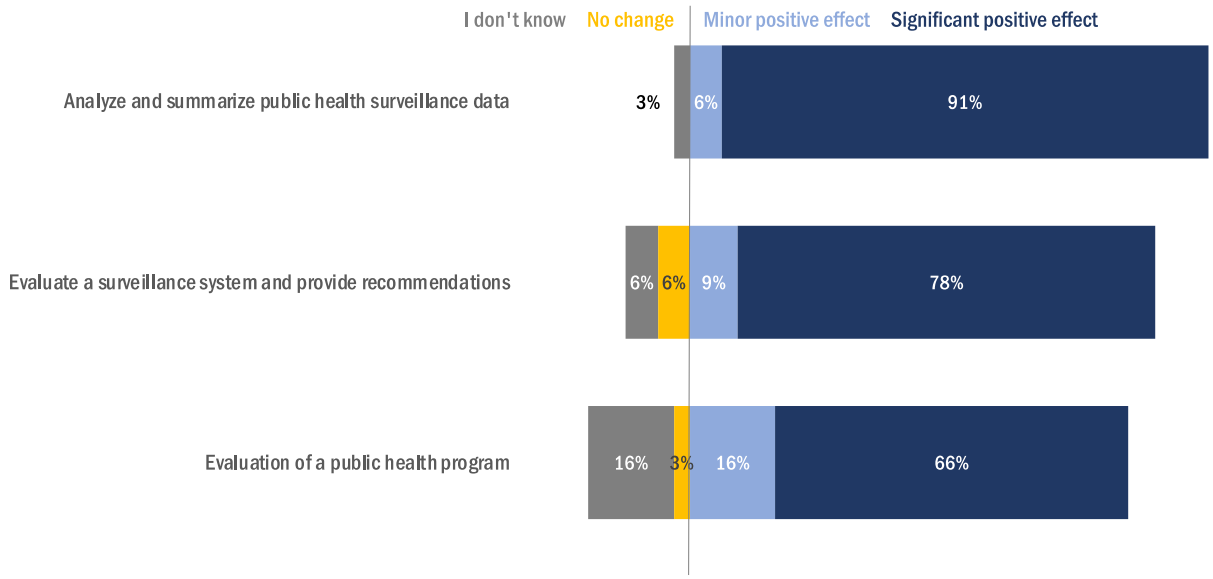
We asked respondents to rate the level of impact of the training on graduates' ability to use 11 skills. For each response, respondents answered according to the following Likert scale (numerical values in parentheses).

(1) I don't know.
(2) Significant negative change
(3) Minor negative change

(4) No change
(5) Minor positive change
(6) Significant positive change

Overall, most reported that the training had a positive effect on graduates' skills around surveillance data (Figure 12), field investigation, epidemiologic study, management, and leadership (Figure 13); and scientific dissemination (Figure 14). Of these three areas, more reported "I don't know" or "No change" regarding graduates' scientific dissemination skills. Regarding suggestions made to improve the surveillance process, 86% (25/29)[9] reported that the suggestions graduates made to improve the surveillance process were implemented.

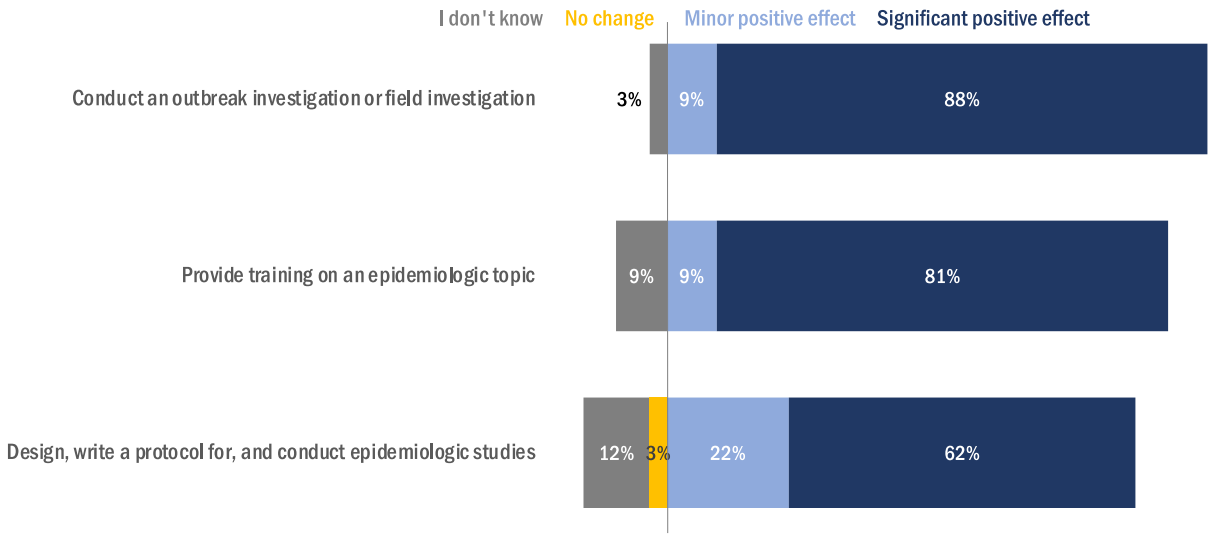
Figure 12: Most job supervisor respondents reported that Advanced level training had a positive effect on graduates' surveillance data skills (N=32*).



***One respondent did not answer the question.**

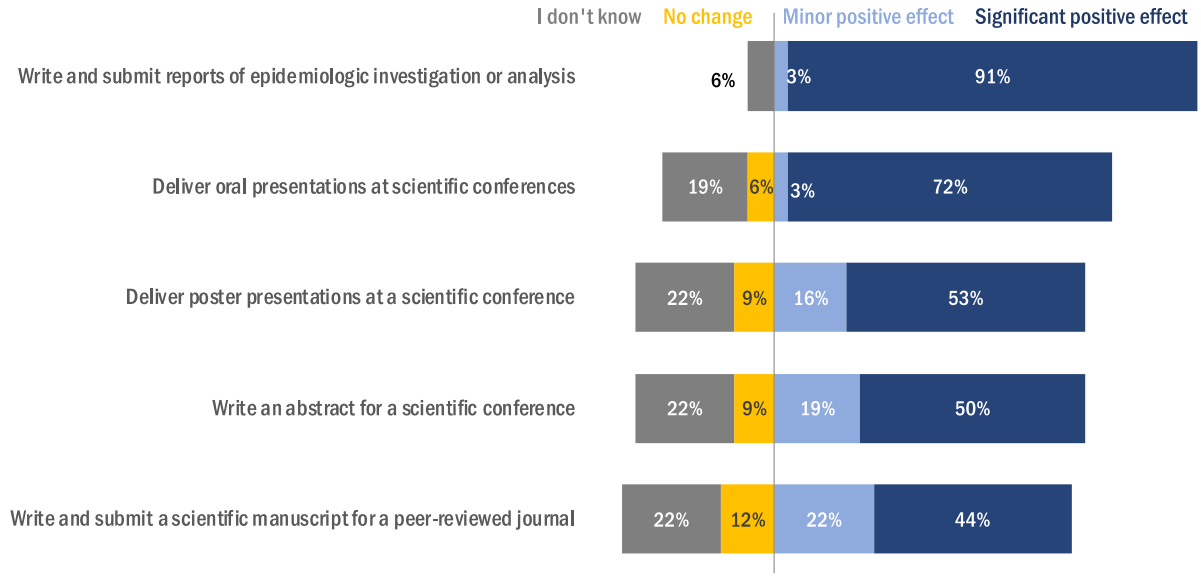
[9] Four job supervisor respondents did not answer this question, so n=29.

Figure 13: Most job supervisor respondents reported that Advanced level training had a positive effect on graduates' field investigation, epidemiologic study, and management and leadership skills (N=32*).



*One respondent did not answer the question.

Figure 14: Most job supervisor respondents reported that Advanced training had a positive effect on graduates' scientific dissemination skills (N=32*).



*One respondent did not answer the question.

What can we learn from these data?

Advanced level training has effectively imparted practical skills in public health and epidemiology to graduates. Graduate respondents reported increased skill level after participating in the training. Except for scientific dissemination skills, respondents also reported successfully applying most of the skills taught. There are many possibilities as to why graduates are unable to apply their scientific dissemination skills (e.g., lack of opportunity, busy schedules, etc.). The FETP could remedy this by providing continuing education opportunities around scientific dissemination to graduates. Job supervisor respondents reported that the training had a positive effect on their worksites, due to graduates' applying their knowledge and skills learned.

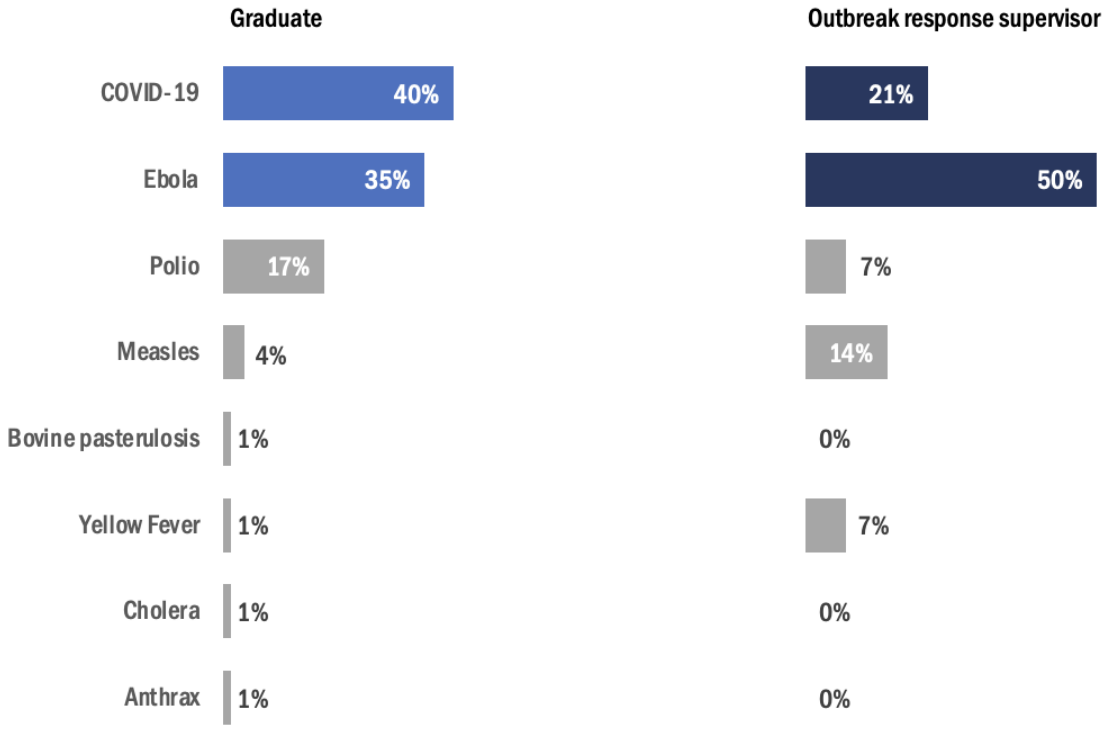
Evaluation Objective #3: Describe and assess the impact of the involvement of graduates in the outbreak and other public health emergency responses, from January 2018 to December 2020.

To answer this question, we used data collected from structured questionnaires with graduates, persons who did not complete the training, and outbreak supervisors, interviews with program staff, and outcome harvesting. Our response rate for graduates and persons who did not complete the training was 68% (82/121) and 61% (14/23) for outbreak response supervisors. Demographic information for outbreak response supervisors is in Appendix 1. Our response rate with program staff interviews was 66% (8/12).

Outbreak responses supported

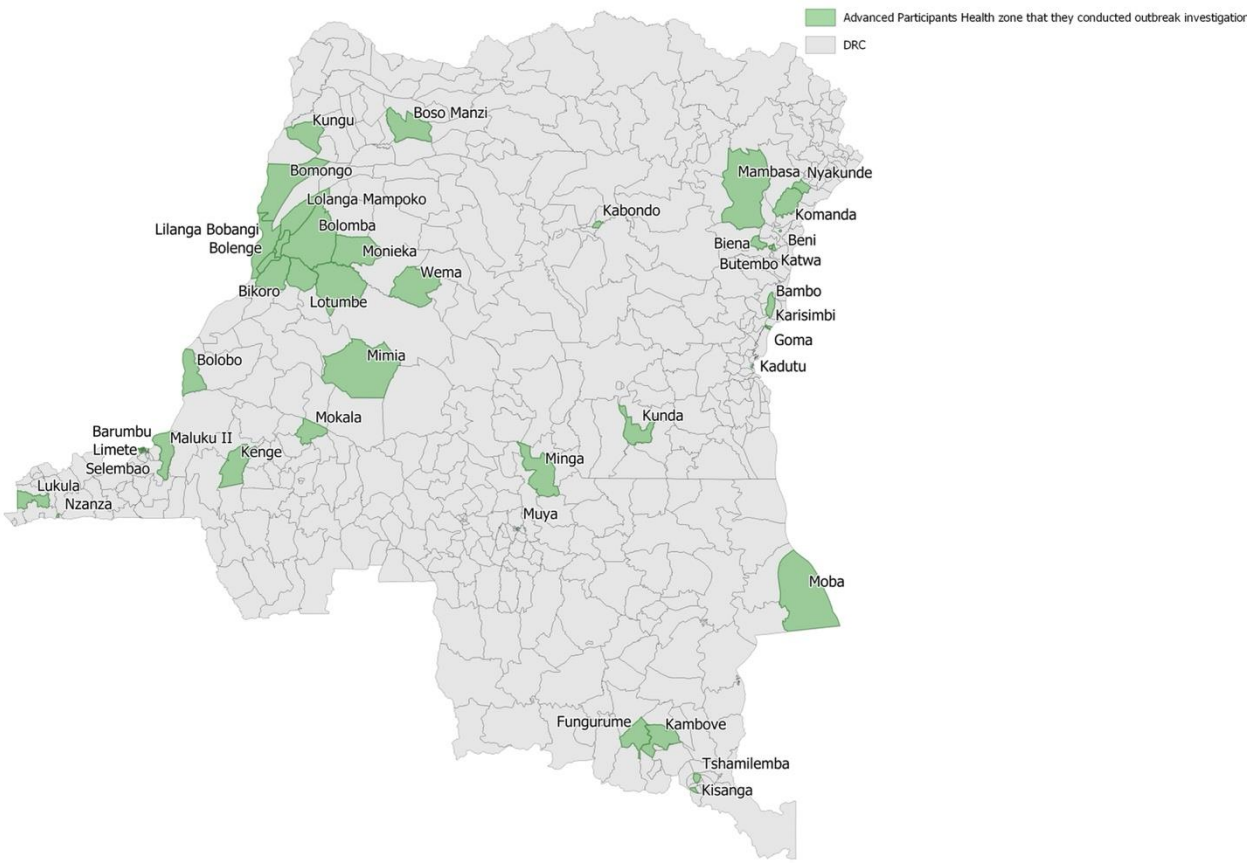
We asked graduate respondents to answer questions about the last outbreak response or public health emergency they participated in. A total of 99% (81/82) reported participating in at least one outbreak investigation or public health emergency between January 2018 and December 2020, with 60% of those outbreak responses occurring in 2020. A total of 68% participated in less than 5 outbreak responses, while 28% participated in between 5 and 10. Respondents most frequently reported participating in COVID-19 and Ebola outbreaks (Figure 15), which was confirmed by outbreak response supervisor respondents.

Figure 15: From January 2018 – December 2020, Advanced level respondents most frequently reported participating in COVID-19 and Ebola outbreaks (graduate: N=81; outbreak response supervisor: N=14).



Fifty-eight percent were deployed between 5–24 weeks for the outbreak response, and 23% were deployed for more than 24 weeks. Respondents reported responding to outbreak or public health emergencies in 11% (59/519) of the DRC's health zones (Map 2). One respondent reported on an outbreak they participated in Niger.

Map 2: Map of DRC health zones where Advanced graduate respondents conducted outbreak investigations



Forty-four percent (35/79)[10] of graduate respondents reported that the MOH selected them to respond to the outbreak, while 33% (26/79) were selected by AFENET. The remaining 23% (18/79) were selected either by Africa Centres for Disease Control and Prevention, the World Health Organization, or the African Union. Fifty-eight percent (47/81) reported being the principal investigator of the outbreak response. Other frequently reported response positions were response activity coordinator (17%; 14/81) and response activity supervisor (12%; 10/81). These data were confirmed by outbreak supervisors. A total of 50% (7/14) reported that graduates were selected to participate in the response by the MOH, and 93% (13/14) reported that graduates were the principal investigator in the outbreak response.

[10] Two respondents did not answer this question, so n=79.

Advanced skills used during the response and skill gaps

For all competencies taught, most agreed that surveillance data skills (Figure 16), outbreak response, leadership and management, and epidemiologic study skills (Figure 17), and scientific dissemination skills (Figure 18) were very useful to their role in the outbreak response. Although the percentage is low, more respondents found scientific dissemination skills not useful to their role in the outbreak response, as compared with other competencies.

Figure 16: Most Advanced level graduate respondents reported that surveillance data skills were useful to their role in the outbreak response (N=81).

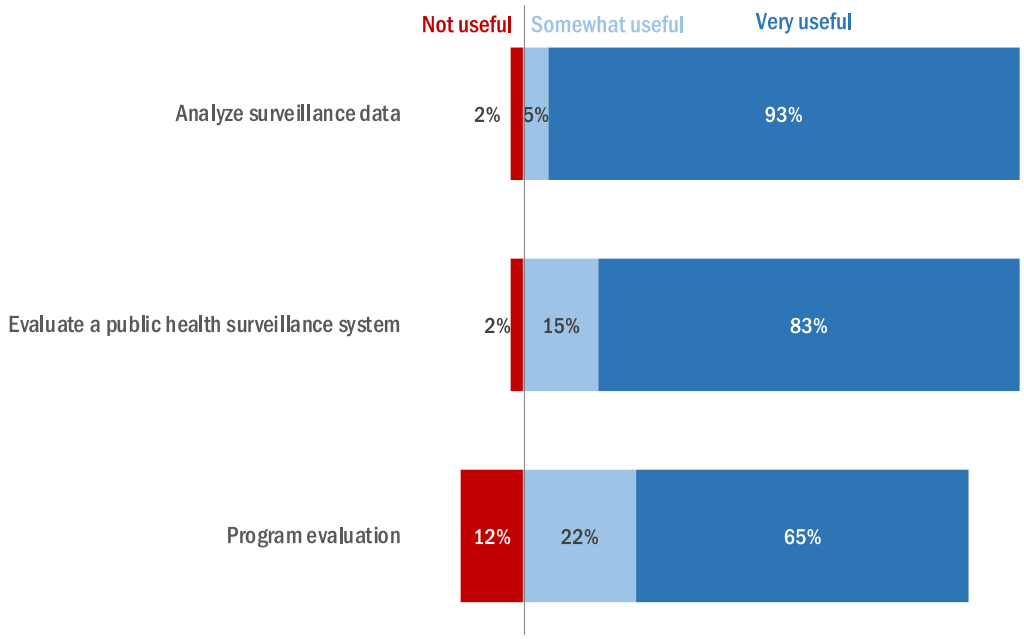


Figure 17: Most Advanced level graduate respondents reported that outbreak response, leadership and management, and epidemiologic study skills were useful to their role in the outbreak response (N=81).

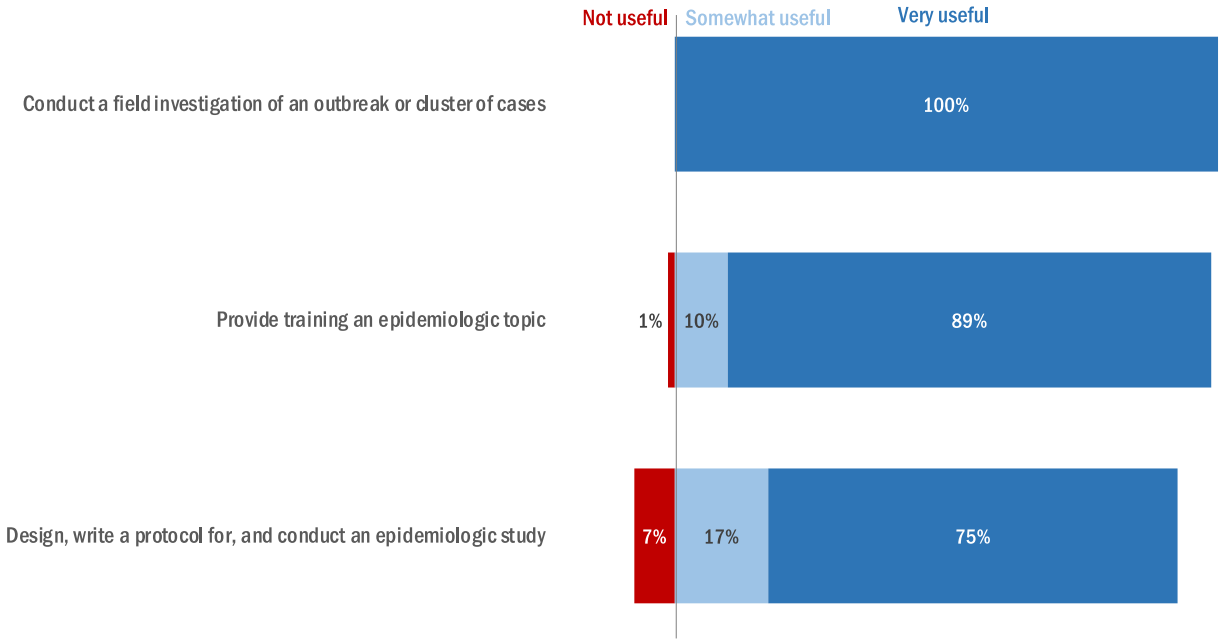
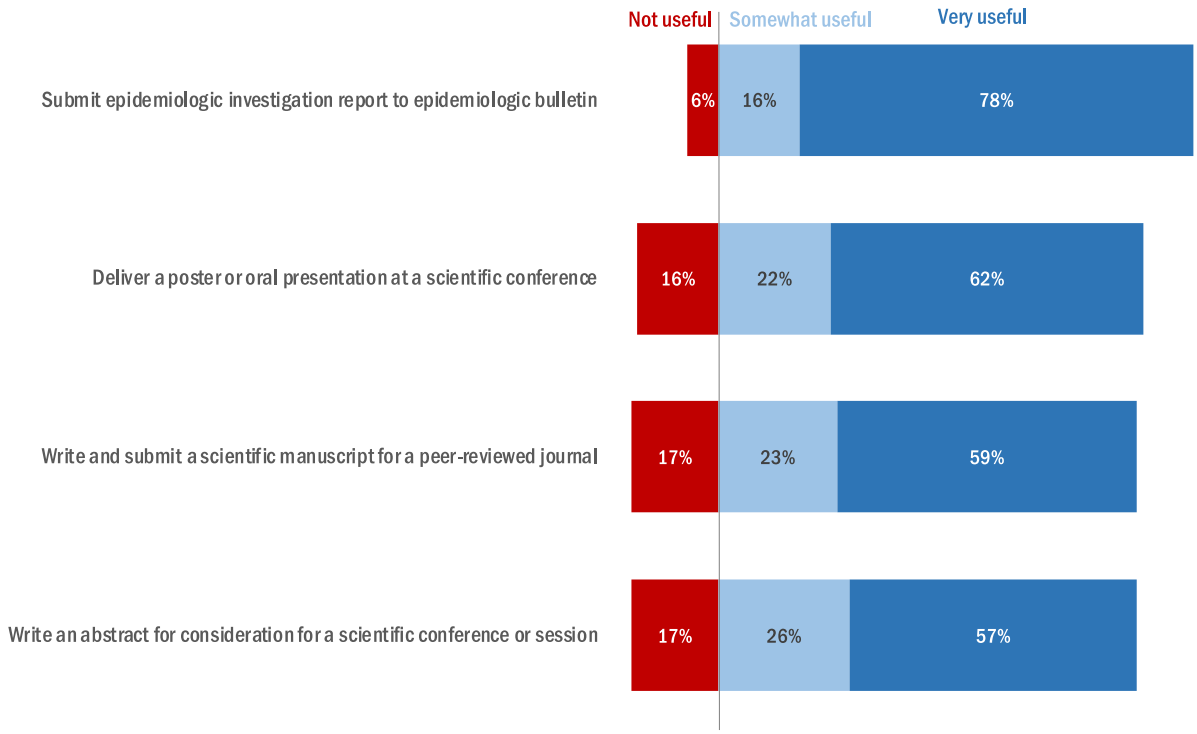


Figure 18: Most Advanced level graduate respondents reported that scientific dissemination skills were useful to their role in the outbreak response (N=81).



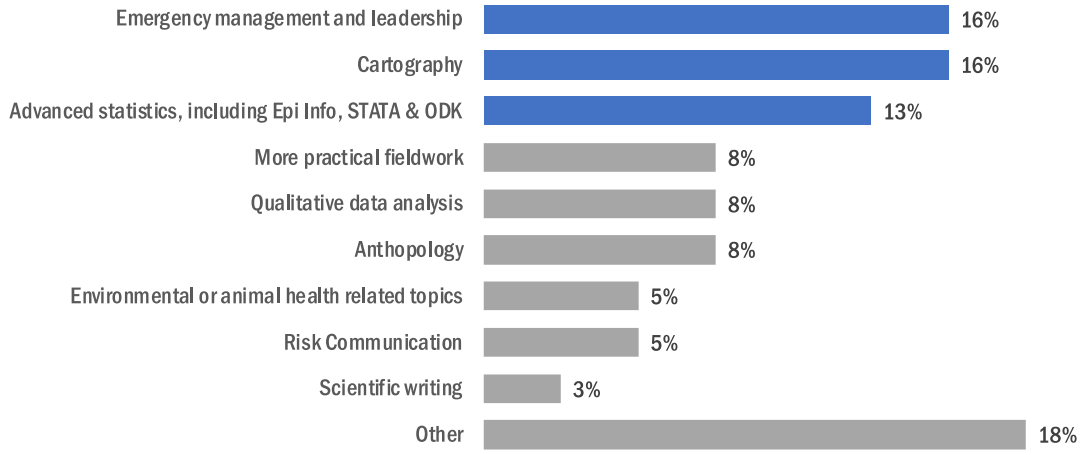
Despite the high reported utility of the skills taught, 48% (38/80)[11] reported that content was missing from training that would have been useful for their participation in the outbreak response. The top three most frequently requested topics were emergency management and leadership, cartography, and advanced statistics (Figure 19). "Other" includes single mentions of English language, security aspects, plant health, humanitarian principles, psychological first aid, follow-up before and after the training, and surveillance of epidemic potential diseases.

RECOMMENDATION

Consider holding a **continuing education workshop on emergency management and leadership, cartography, and advanced statistics,** including Epi Info, STATA, and ODK. This activity could be supported by the Congolese field epidemiology alumni association, communities of practice, or other professional associations.

[11] One respondent did not answer this question, so n=80.

Figure 19: Of Advanced level respondents who reported missing topics in the Advanced curriculum, emergency management, cartography, and advanced statistics were the three most frequently requested topics (N=38).



Sharing their response experience with the scientific community

A total of 70% (57/81) of respondents reported not completing studies, presentations, or publications based on their outbreak response or public health emergency experience. This was confirmed by outbreak response supervisor respondents. A total of 57% (8/14) reported that graduates did not publish studies, presentations, or publications based on their outbreak response experience. This finding aligns with previously reported data that graduate respondents report not using or lacking success with scientific dissemination skills in Figure 7.

RECOMMENDATION

Consider holding a **continuing education workshop on scientific writing** to refresh graduates' writing skills and to produce manuscripts reporting on results of their surveillance work or response activities. Scheduling it shortly after graduation would help graduates publish their thesis. This activity could be supported by communities of practice or professional associations.

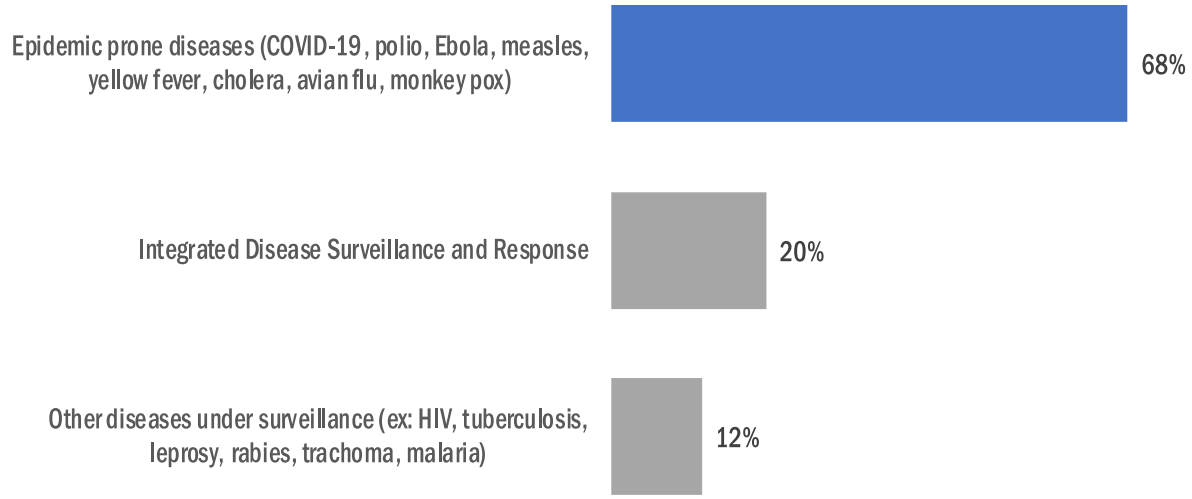
Graduates have gained much experience working on multiple ongoing outbreaks and their expertise could benefit the scientific community, if shared through publications or conferences.

Training respondents received and conferred to others

A total of 73% (59/81) of respondents reported receiving additional training during their outbreak response experience. Of those who received additional training, 68%

(40/59) reported receiving it on epidemic prone diseases during their outbreak response experience (Figure 20).

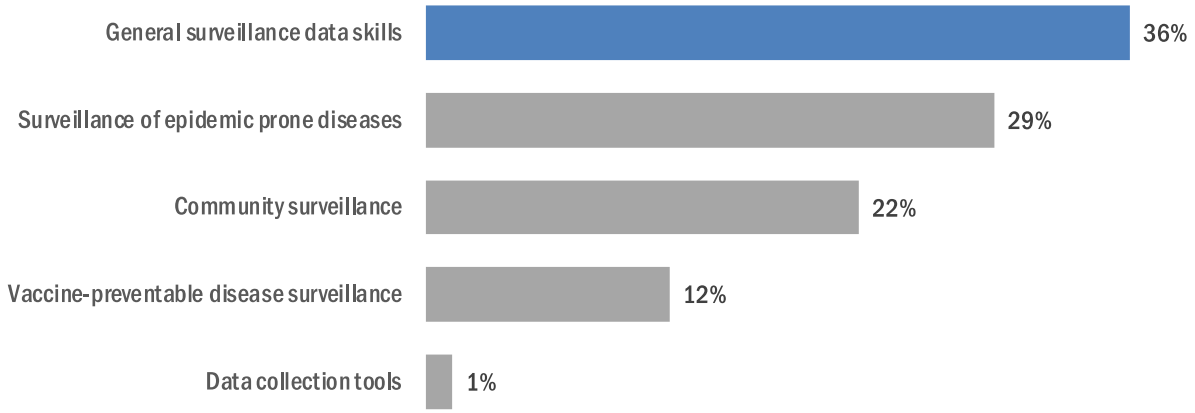
Figure 20: Advanced level respondents most frequently reported receiving specific training on epidemic prone diseases during their outbreak response experience (N=59).



Note: HIV = human immunodeficiency virus

A total of 90% (73/81) of respondents reported providing training to other participants during the outbreak response. The training provided was most frequently general surveillance data skills, such as contact tracing, active case finding, and how to conduct an outbreak investigation (Figure 21).

Figure 21: Advanced level respondents most frequently reported providing training on general surveillance data skills to other outbreak response participants (N=73).



Impact of respondents' participation in a response on their job

When asked what the impact of their outbreak response or public health emergency participation on their job was, 93% (76/81) described a positive impact on their work, such as:

- Acquisition of reliable and comprehensive data on the epidemiological situation in their health zones and the development of a response plan
- Enhancement of the level of data analysis
- Timely detection of contacts and response to contain the spread of the disease
- Enhancement of case notification through case active search and the detection and confirmation of cases at the animal health level

The following are a few examples of graduate respondents' answers:

"My involvement enhanced understanding of the situation on the ground, enabled resources to be managed efficiently and reinforced contact tracing."

"Decreased reticence and behavioral change among the population, who now accept treatment and facilitate our work."

"[I'm] more at ease when coaching and supervising others."

"The impact has been positive. We deliver reliable results that can be used by the health authorities."

Seven percent (5/81) reported no impact on their work, as a result of their participating in an outbreak response or public health emergency but did not explain why.

Perspective from outbreak response supervisor respondents

These respondents were evenly split in the number of graduates they supervised: 50% (7/14) supervised more than 10, and 50% supervised between 1–10. We asked them to think about the last outbreak response where they supervised a graduate. A total of 43% (6/14) were investigation team supervisors during the outbreak response, while 21% (3/14) were activity coordinators. Respondents most frequently discussed outbreaks that occurred in 2020 (54%; 7/13).[12]

Outbreak response supervisor respondents' perspective on graduates' skills

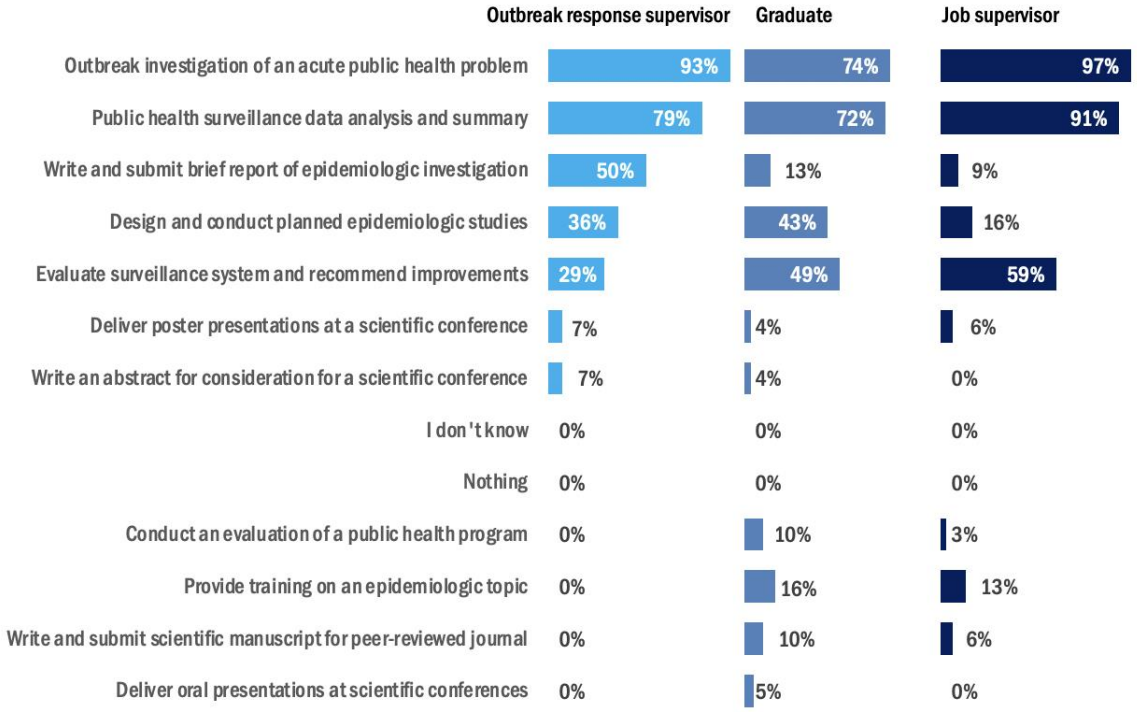
All outbreak response supervisors (14/14) reported that the training was either very or extremely relevant to a graduate's participation in a response.

Respondents reported that the top three most useful competencies to participate in an outbreak response were outbreak investigation, data analysis, and epidemiologic report writing (Figure 22). Two of the three topics align with graduate and job supervisor respondents' responses (Figure 22).

Yet, a much lower percentage of graduate and job supervisor respondents reported that epidemiologic investigation report writing was not as useful than did outbreak response supervisors. Because writing and submitting brief reports of epidemiologic investigations is an essential part of outbreak response investigations, it makes sense that a larger percentage of outbreak response supervisor respondents reported this as useful.

[12] One respondent did not answer the question, so n=13.

Figure 22: Outbreak response supervisor respondents reported that the top three most important Advanced competencies to participate in an outbreak response are: outbreak investigation, data analysis, and epidemiologic report writing (outbreak response supervisor: N=14; graduate: N=82; job supervisor: N=32).



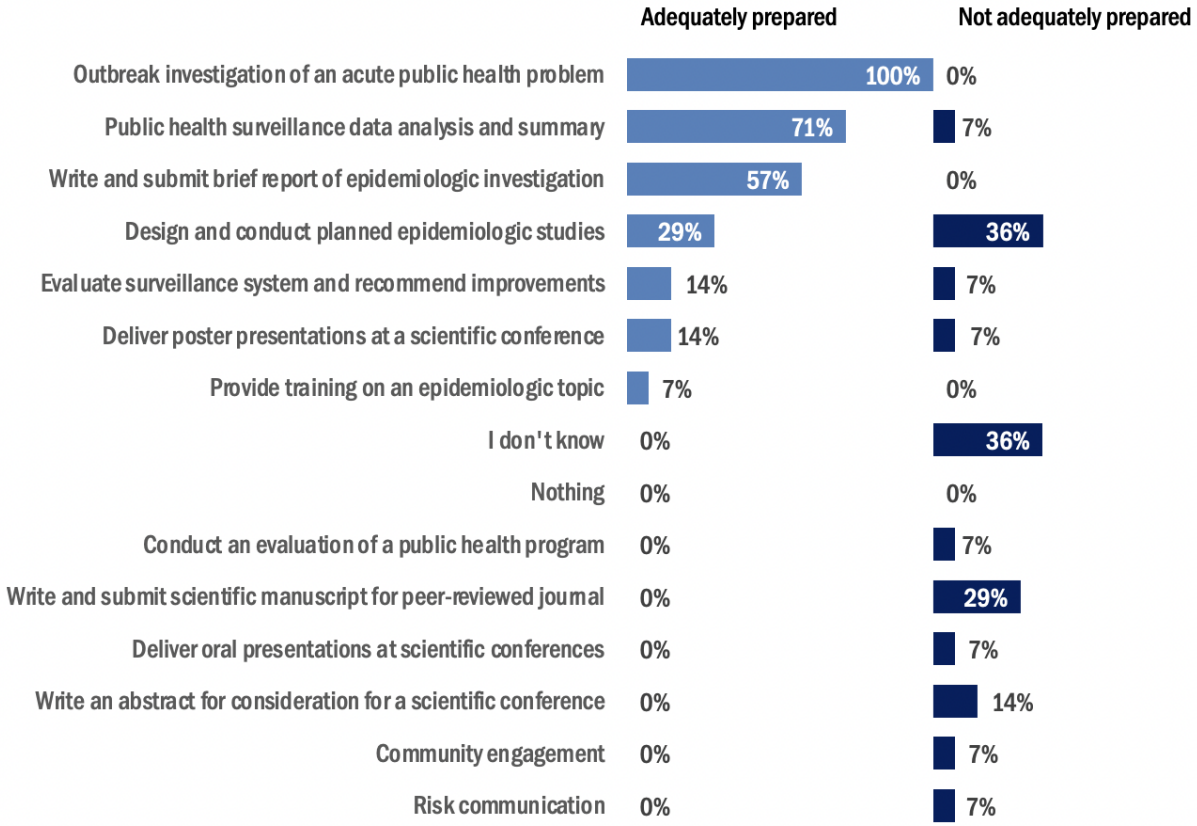
*One job supervisor respondent did not answer the question.

Similarly, outbreak response supervisor respondents reported the same three competencies (outbreak investigation, data analysis, and epidemiologic investigation report writing) as the top three areas where graduates were most adequately prepared (Figure 23). Conversely, they reported conducting an epidemiologic study, scientific manuscript writing, and scientific abstract writing as the top three areas where graduates were inadequately prepared.

Respondents reported mixed feelings on graduates' ability to design and conduct planned epidemiologic studies, as 29% (4/14) reported graduates were adequately prepared and 36% (5/14) reported they were inadequately prepared. This could suggest graduates' varying degree of experience or skill designing and conducting epidemiologic studies.

Respondents did not report that graduates were adequately prepared in scientific dissemination skills, such as writing an abstract, delivering oral presentations at scientific conferences, or writing scientific manuscripts.

Figure 23: Outbreak response supervisor respondents reported the top three areas where graduates were most adequately prepared were: outbreak investigation, data analysis, and epidemiologic report writing (N=14).



Lastly, 72% (10/14) reported they or another staff member provided training to graduates during the outbreak response. Some of the trainings were disease-specific (e.g., Ebola, COVID-19, polio, measles), while other trainings were on the stages of an outbreak investigation, data collection, or mapping tools.

Impact of graduate respondents' skill application on surveillance or outbreak response

To determine the impact of graduate respondents' skill application on surveillance or outbreak response, we used the outcome harvesting methodology to provide a sample of respondents an opportunity to share, in their own words, what knowledge and skills they contributed, the results of their skill application, and the importance of the outcome to improved public health. Outcomes are defined as changes in the behavior, relationships, practices, policies, or actions of an individual, group, or institution. They are not activities, or even increased individual competencies. Instead, they are actual changes beyond the training program to which the training has contributed.

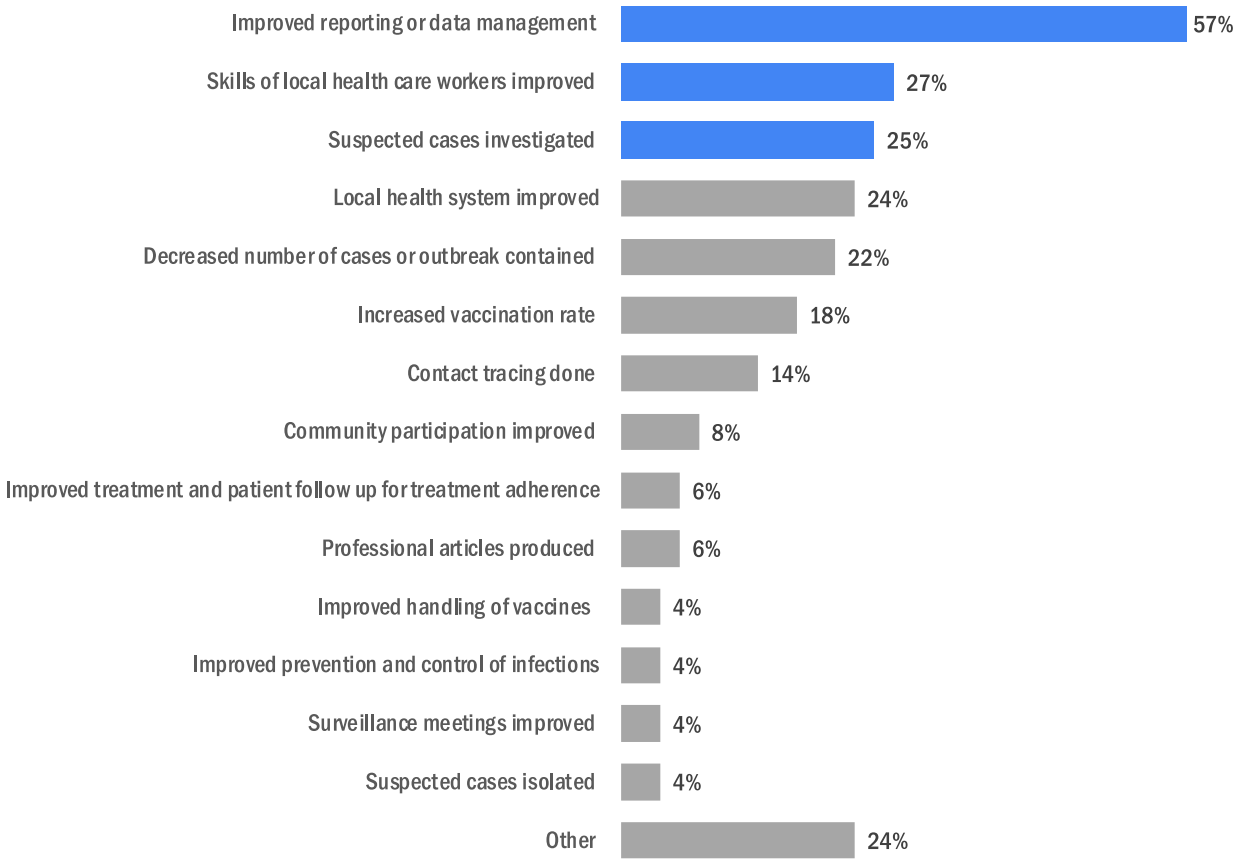
To implement the methodology, we invited 83% (100/121) of the graduates, excluding those who the evaluation thought had not completed the training or were based outside the DRC. A total of 44% (44/100) of invitees attended the two online workshops held over Zoom on 21 and 28 April 2021. These workshops produced 55 outcomes statements, of which 51 were detailed enough to include in the analysis. The general practice is to substantiate 20% of the outcomes. If that many are in fact substantiated by third parties, practice shows that the majority of outcomes are reliable (Wilson-Grau, 2019). In this case, substantiators verified a sample of 14 of 51 (27%) outcomes.

Out of 51 statements, written by 44 graduates, the most frequently reported outcomes were improved reporting or data management, increased local health workforce capacity, and suspected case investigation (Figure 24). Most statements resulted in more than one impact: 120 impacts over 51 outcome statements. "Other" included 12 impacts that were reported once by graduate respondents. A list of "other" impacts is in Table 4.

Table 4: "Other" impacts reported once by graduate respondents

Other impacts
Increased number of notification sites
New approach "Urban Strategies tried with new financing
Improved management of the health zone, transfer of Ebola patients to hospital or health center
Team deployed for Ebola assists with reporting on COVID-19
Improved treatment and follow up of patients for adherence to treatment
Distribution of treated mosquito nets
FETP Advanced trainers evaluated the system of surveillance of animal and zoonotic diseases; created a set of trainers within the Ministry of Fisheries and Livestock
Respect of measures of prevention and control of infections (IPC)
Household sanitation practices improved
Also contract tracing, isolation of cases
Capacity and performance of the Animal and Fish Quarantine Service improved at six border points
Payment to community members for cases detected

Figure 24: Of the 51 outcome statements, Advanced level graduate respondents most frequently reported outcomes related to improved reporting or data management, increased local health workforce capacity, and suspected case investigation (N=51).



The most frequently reported outcome was **improved reporting or data management** of diseases. Following are two typical examples of these outcomes:

Since my return from the FETP training, my collaborator, the data manager at the Lualaba Provincial Coordination, has been able to easily conduct investigations on maternal deaths occurring in the Health Zones in Kolwezi in the Lualaba Provincial Division since the beginning of the year 2021. She collects weekly data on maternal deaths, conducts investigations, and transmits the data to the National Directorate in Kinshasa. Whereas before my return, she was not collecting maternal death surveillance data and was not attending the epidemiological surveillance data analysis meeting held every Wednesday at the Provincial Health Division and was not transmitting the data to the National Directorate.

The second most frequently observed outcome was **improvement in the skills of local health care workers** as a result of the intervention of FETP participants. For example:

> *During the month of December 2020, a briefing of the nurses [infirmiers titulaires] and community health volunteers [relais communautaires] in 23 health areas in the Mwene Ditu health zone in the Lomami provincial division, resulted in the discovery of 10 additional Acute Flaccid Paralysis (*AFP) *cases in the zone. These 10 cases exceeded the 7 cases of AFP reported since January to mid-December. This sensitization has boosted community-based surveillance, as the 10 additional cases were reported by the community volunteers.*

In many cases, graduates were able to **increase the capacity of the local health system** itself, while responding to outbreaks. This improvement often took the form of better coordination among different parts of the system, briefings of staff across the system on current understandings of diseases, or improved use of volunteers and better connections with local authorities. One case in Biakato is typical:

> *During our deployment from October 13 to December 10, 2019 in Biakato in the Mandima Health Zone, Biakoto Health Area, Lalia axis, we improved adherence to treatment from 75% to 100% of high-risk Ebola Virus Disease contacts who became suspects by organizing follow-up of contacts through supervision of community health volunteers during follow-up, and by selecting volunteers chosen by the Lalia axis neighborhood chiefs who could interact with the community.... The accompaniment and supervision of community health volunteers well accepted by the leaders and the community effectively allowed us to detect suspected cases locked in houses whose relatives were very reluctant to collaborate with the response teams.*

Among the top five outcomes were several instances of the most sought-after outcome: **decreased number of cases and outbreaks contained**. The data included 11 cases reporting this outcome. This example from Equateur Province was typical:

The technical support provided by the African Epidemiology Network's disease detectives to the various sub-commissions, rapid response teams, and community outreach cells in the Bolomba health zone in Equateur province in the Democratic Republic of Congo during the 11th Ebola virus outbreak from August 3 to November 5, 2020, helped cut the chain of transmission of the virus through more effective, better coordinated, and rapid operations. Indeed, zero probable or confirmed cases of Ebola virus disease were recorded during the 90 days of technical support in the field. Whereas before, the epidemic spread like an oil stain, generating 12 confirmed cases and 3 probable cases in June and July 2020 in 6 health areas (Bolomba-Likolo, Boso-Mondomba, Boso-Isongo, Boyenge, Yuli, and Boso-Nzala).

Other outcomes, while not frequent, show the range of impacts the program produced. One was the **production of professional or policy documents** by graduates. Between the end of 2020 to April 2021, they helped write, edit, and/or peer review policy documents and articles on Risk Communication Policy against Priority Zoonotic Diseases and Standard Operating Procedures, Integrated Rabies Control Plan, and the One Health Newsletter. The outcome statement noted that staff "have been…interacting with several stakeholders from other sectors than public health who were not part of our collaborators before FETP."

Another example advanced the principle of the **One Health** approach, as FETP veterinarians trained the first cohort of 13 veterinary practitioners from 13 of the 26 provinces from November to December 2020 in Kinshasa for an epidemiological survey. The person who substantiated this outcome clarified its significance:

Capacity building of veterinarians in advanced field epidemiology (FETP) has improved the quality of work (surveillance system) within the Ministry of Fisheries and Livestock. With the help of FETP expertise, the Ministry has evaluated the surveillance system of animal diseases and zoonoses and is now able to produce the weekly bulletin of diseases under surveillance. The FETP advanced level has enabled the Ministry of Fisheries and Livestock to constitute a pool of national trainers for the Veterinary Epidemiology Training Program.

Another related outcome included reform of the operations by a graduate of the Animal and Fisheries Quarantine Service through improved inspections of animal-related products at border crossings.

What can we learn from these data?

Advanced level graduates impacted outbreak responses in the DRC, particularly on the COVID-19 and Ebola outbreak responses. Many also hold positions of leadership, as a majority reported being the principal investigator for the outbreak response team. They have also led various trainings and shared their surveillance knowledge with others on response teams.

Overall, most graduate and outbreak response supervisor respondents agreed that the curriculum was useful when participating in outbreak responses. Scientific dissemination is an area of opportunity for graduates; a larger percentage found those skills to not be useful during an outbreak response, and some outbreak response supervisor respondents reported that graduates were least adequately prepared in scientific dissemination.

Seventy percent (57/81) of graduate respondents reported not sharing their response experience with the scientific community. Additionally, they reported the need for additional training to prepare for participating in an outbreak response, including emergency management and leadership, cartography, and advanced statistics, such as Epi Info, STATA, and ODK. The FETP could consider these areas as opportunities for continuing education, and collaborate with the Congolese field epidemiology alumni association, communities of practice, or other professional associations to host continuing education workshops.

Graduate respondents reported outcomes, as a result of their work in surveillance or an outbreak response, most frequently related to improved reporting or data management, increased local health workforce capacity, and suspected case investigation.

RECOMMENDATIONS

These recommendations are intended for the stakeholders involved in implementing the Advanced level program: AFENET, the MOH, the Ministry of Fisheries and Livestock, the KSPH, the CDC DRC country office, and CDC headquarters.

Figure 25: Overview of recommendations for the Advanced level

	Improve program integration with the Ministry of Health
	Institutionalize the program in the Ministry of Health
	Increase communication and coordination with KSPH
	Consider altering course schedule to increase field time
	Consider revising the recruitment process
	Implement the Resident-Driven Project Tracking Tool (ReDPeTT)
	Establish and manage a graduate tracking system
	Conduct regular evaluations
	Collaborate on continuing education opportunities for graduates
	Consider hiring more staff
	Establish FETP Intermediate level program

Improve program integration with the MOH and define career progression options upon graduation

While the MOH has made strides to emphasize the role of FETP, much can be done to strengthen the post-training career pathway for graduates. Currently, participants' positions are permanently filled once they begin Advanced level training. After graduation, they often take positions in Kinshasa or with other partner organizations rather than return to improve surveillance in their home province.

The MOH could also recognize graduation from FETP in hiring and promotion decisions. After graduation, graduates may find themselves demoted or assigned to a lower-ranking position than the one held when they started FETP-Advanced. Among graduates, 68% said they currently have a different job. Of these, 18% (10/56) reported that their change in job title was not a promotion. This suggests that the training was not beneficial for some graduates' career progression. One consideration may be for the MOH to formalize a career ladder for field epidemiologists, recognizing FETP training as either a requirement or a selection criterion for hiring and promotion decisions. The need to define a career path for graduates is not unique to the DRC, as discussed in *The Global Field Epidemiology Roadmap* (O'Carroll et al., 2018).

Additionally, consider incorporating MOH priorities into FETP fieldwork to inform the MOH's scientific agenda. One program staff explained how, "At the end of each year, the Ministry could submit a report on the problems it is facing to the program and to the School of Public Health so that the problems identified by the Ministry of Health, Environment, Agriculture, etc. can be targeted and included as subjects for study in the program. This might improve research and ensure that FETP has a direct impact on the surveillance system, as graduates could propose solutions to real issues."

Institutionalize the program within the MOH

There is consensus for institutionalizing the program amongst all interviewed target groups, especially because the need for epidemiologists in DRC remains high. An initial step towards this could be to increase the meeting frequency of the steering committee, made up of members from CDC DRC country office, the MOH, the KSPH, and other partner organizations. The committee's expertise could benefit the program. A program staff member should be assigned to follow-up with

recommendations made by the committee. Currently, no system is in place to follow up after meetings.

A critical step for the institutionalization and sustainability of FETP would be to include funding for FETP in the annual MOH budget. While this is difficult given the numerous challenges that the MOH is facing, it would ensure that the program would continue to prevent, detect, and respond to public health threats in DRC (O'Carroll et al., 2018).

FETP, CDC DRC country office, and the MOH could also discuss, collaborate, and negotiate with other partners about funding for the program. The numerous partners that operate in the DRC and benefit from graduates' expertise might consider providing either human or financial resources to support the program.

Increase communication and coordination with KSPH

KSPH staff shared that they would like greater coordination and communication with FETP, particularly when new KSPH staff begin working with FETP. FETP is a complex program, and the learning curve can be steep for new staff. One interviewee shared that "I had to inform myself [about FETP], I had to understand what was expected of me on my own. My counterparts—the funders, including CDC, AFENET and the Ministry—all had the benefit of hindsight, but I was expected to be immediately up to speed. I had to work very hard and do a lot of research to find out what it [FETP] was all about."

We recommend regular communication between FETP and KSPH to clarify needs and improve collaboration. This could be solved through more frequent steering committee meetings.

Increased communication and coordination would also address the issue of master's diplomas and CDC certificates. Currently, graduates are supposed to receive both, but it is unclear whether all cohorts have received both upon completion of the training. Increased communication between both entities would resolve this question by determining which graduates have yet to receive theirs, following up with the MOH to request the documents be signed, and awarding the documents to those waiting.

Consider altering course schedule to increase field time

Due to the logistical challenges of travelling to the field in the DRC, the course schedule was restructured to 6 consecutive months of didactic sessions and 6

months of practical experience. This reduced program costs and travel time for residents and improved overall program organization.

Yet, it resulted in less field time for residents. Currently, they spend 60.2 weeks in the field over the 2-year period, less than the intended 60 weeks over the 2-year period. We recommend that the FETP, along with the MOH and KSPH, consider altering the course schedule to increase the number of weeks spent in the field.

Consider revising the recruitment process

Graduates and supervisors recommended increasing transparency and broadening the recruitment process. Currently, the MOH calls for applicants through social networks, and applicants apply directly to KSPH. They are reviewed based on a list of criteria, and a short list of applicants are invited to two admission exams – one written and one oral interview. The exams are organized by KSPH and MOH, with AFENET and CDC present.

We recommend including animal and environmental health professionals in the recruitment process. This could increase the number of animal and environmental health professionals, as well as include other professional backgrounds such as nurses. It may also strengthen DRC's One Health approach. Out of the graduates that we interviewed, only 11% (9/82) worked in animal health and none worked in environmental health.

We recommend recruiting from geographic areas more vulnerable to outbreaks and public health emergencies. This should align with defining career progression options upon graduation to ensure that graduates have a position to return to in these geographic areas where they are most needed.

Implement the Resident-Driven Project Tracking Tool (ReDPeTT)

ReDPeTT is a recently developed tool that helps FETP staff and track resident activities and progress. This information could also help provide regular feedback to mentors or KSPH teaching staff on residents' activities and areas where they need more support.

Establish and manage a graduate tracking system

We recommend implementing a process to better track graduates and monitor their integration into surveillance work and the public health system. To understand whether graduates are being employed as hoped, the program could

monitor career progression, whether persons are working for the MOH, and whether they do surveillance work.

A tracking system would help the MOH and the Ministry of Fisheries and Livestock identify graduates who could respond to outbreaks or public health emergencies wherever they may occur. This might also ensure that more graduates rotate through emergency responses and be given opportunities to reinforce their skills. Interviewees frequently mentioned the great need for epidemiologists in DRC, due to multiple, concurrent, ongoing outbreaks. Yet, graduates and job supervisors shared that some graduates dedicated limited time to surveillance work and wished for opportunities to deploy for outbreak or public health emergency response. For example, 12% (10/81)[13] reported that they spend 2 days or less per week on epidemiologic surveillance work.

We recommend implementing a graduate tracking system prior to standing up FETP-Intermediate. While this shorter duration training level would produce field epidemiologists at a faster rate, strategic use of existing human resources (i.e., graduates) would help meet the demand for well-trained epidemiologists to respond to outbreak and public health emergencies.

Conduct regular evaluations

Regular evaluations, such as immediately after students graduate or following a set period since their participation in the program, could provide quick feedback to instructors and program staff. These evaluations would also allow participants to share their experience reintegrating into the surveillance system. This could look like distributing a simple online survey or conducting a more expansive evaluation such as this one. During our evaluation, we did not find any such evaluations. It is possible the program conducts such assessments, but they were not provided to us for review. We recommend doing regular evaluations for future Advanced cohorts.

Collaborate on continuing education opportunities for graduates, particularly on scientific dissemination

Graduates have gained much experience working on multiple ongoing outbreaks and their expertise could benefit the scientific community, if shared through publications or conferences. Yet, 70% (57/81) of respondents reported not completing studies, presentations, or publications as a result of their experience on the outbreak response or public health emergency. This was confirmed by

[13] One respondent did not answer the question.

outbreak response supervisor respondents. A total of 57% (8/14) reported that graduates did not publish studies, presentations, or publications as a result of their experience on the outbreak response.

A recommendation is to hold a continuing education workshop on scientific writing to refresh graduates' writing skills and to produce manuscripts reporting on results of their surveillance work or response activities. Scheduling it shortly after graduation would help graduates publish their thesis.

Another recommendation is to review the curriculum and training materials around scientific manuscript writing and scientific communication to ensure that it meets the needs of residents.
Graduates recommended other topics for continuing education, such as various statistical analysis software programs, including STATA, R, ODK, or a mapping software such as GIS. These activities could be supported by the existing Congolese field epidemiology alumni association, partners, communities of practice or other professional associations. Providing opportunities that remind graduates of what they learned is also an aspect of effective training design (Thalheimer, 2016).

Consider hiring more program staff

The Advanced level was without a resident advisor for 1 year, which paused progress on many of the previously known areas of opportunity. More program staff, particularly administrative staff, could help with various responsibilities such as:

- Provide more support to residents
- Compile program, resident, and graduate data for program monitoring and reporting (as in the previously described ReDPeTT)
- Proactively communicate and follow up with AFENET, MOH, KSPH, and CDC
- Increase progress on other recommendations previously described.

Another recommendation is to create an operational level coordination for the daily management of program members, which includes members from the MOH, KSPH, CDC and AFENET.

Increasing the number of mentors would also improve the support residents receive. We recommend decreasing the ratio of mentor to resident, from 1:5 to 1:2. This could improve field work follow-up and validation. With existing logistical challenges of transportation and internet, it can be difficult for mentors in the larger provinces to follow up with residents' field activities in the rural areas.

Increasing the number of mentors, spread out over a geographic area, could improve support for residents' field activities.

Establish FETP-Intermediate program

Most program staff mentioned the need to establish this middle tier of FETP, as it would allow the country to train graduates in a shorter amount of time than the FETP-Advanced, which graduates around 24 people every year.

An FETP-Intermediate would further complement and assist the two existing tiers by better supporting surveillance from a provincial level. Most importantly, this level allows for an in-service option where participants remain in their jobs and generate deliverables relevant to the job they hold.

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APPENDIX 1: COMPARISON TABLE

Table 5: Sociodemographic and job characteristics of FETP-Advanced evaluation respondents (n=82) and the total population of FETP Advanced participants (n=121).

	Advanced respondents		Advanced participants	
Characteristic	N=82	%	N=121	%
Gender				
Male	59	72	90	74
Female	23	28	31	26
Current job title				
Department head - national	16	20	0	0
Awaiting assignment or unemployed	7	9	0	0
Department head - provincial	6	7	0	0
Health zone head doctor	5	6	0	0
Attending physician	5	6	0	0
Analyst in charge of supervising and supporting health zones	2	2	0	0
Other*	41	50	0	0
Epidemiologist	0	0	78	64
Veterinarian	0	0	16	13
Biologist	0	0	15	12
Physician	0	0	10	8
Laboratory technician	0	0	2	2

*Job titles included in the "other" category are listed in Appendix 3.

APPENDIX 2: JOB & OUTBREAK RESPONSE SUPERVISORS

Table 5: Sociodemographic characteristics of job supervisor (n=33) and outbreak response supervisor respondents (n=14) of graduates.

	Job supervisors		Outbreak response supervisors	
Sociodemographic characteristic	N=33	%	N=14	%
Gender				
Male	31	94	14	100
Female	2	6	0	0
Age (year)				
More than 50 years	21	64	5	36
45–50 years	7	21	2	14
Less than 45 years	5	15	7	50
Highest education degree				
Master's and equivalent	17	52	9	64
Doctorate (MD, PhD)	15	45	5	36
University degree	1	3	0	0
Professional background				
Physician	25	73	14	100
Veterinarian	6	18	0	0
Biologist	1	3	0	0
Sociologist	1	3	0	0
FETP graduate				
Not a participant/graduate	27	82	7	50
Advanced level	4	12	5	36
Frontline level	1	3	0	0
Intermediate level	1	3	2	14

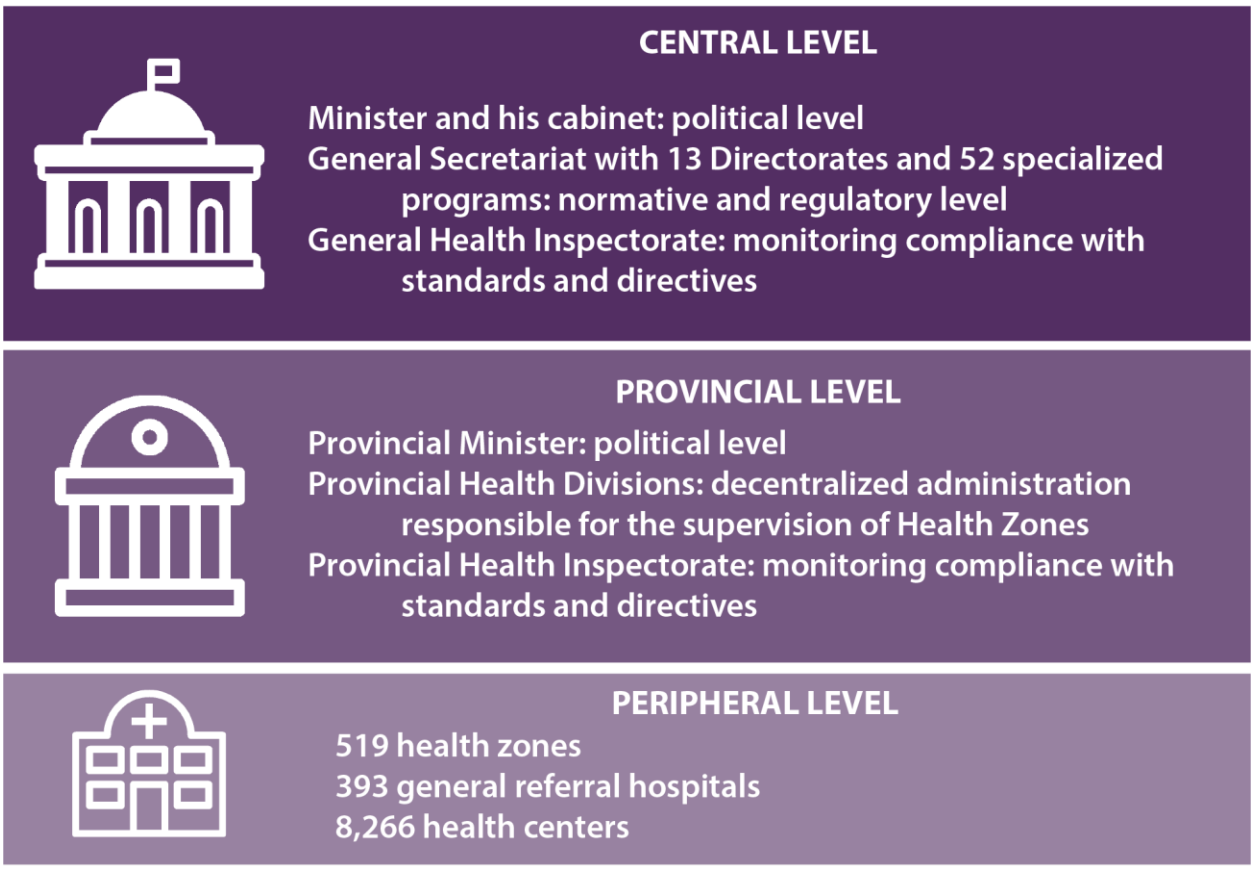
Table 6: Job characteristics of job supervisor (n=33) and outbreak response supervisor respondents (n=14) of graduates.

	Job supervisors		Outbreak response supervisors	
Characteristic	N=33	%	N=14	%
Sector				
Public	33	100	9	64
Private	0	0	5	36
Organization/Institution				
Ministry of Health	25	76	8	57
Ministry of Fisheries and Livestock	7	21	0	0
Ministry of the Interior and Security	1	3	0	0
World Health Organization	0	0	4	29
AFENET	0	0	1	7
Bill and Melinda Gates Foundation	0	0	1	7
Health Pyramid level*				
Provincial health division	18	56	6	43
National level	12	38	5	36
Health zone	2	6	1	7
INGO	0	0	2	14
Workplace				
National level department/office	14	42	5	36
Provincial health department	14	42	4	29
Provincial veterinary laboratory	2	6		
Health zone	1	3	1	7
Emergency operation center - Burkina Faso	1	3		
Health zone hospital	1	3		
World Health Organization	0	0	2	14
Private clinic	0	0	1	7
Bill and Melinda Gates Foundation - Expanded Vaccination Program	0	0	1	7
Years of experience				
More than 10 years	23	70	11	79
5–10 years	8	24	3	21
Less than 5 years	2	6	0	0
Current job title*				
Division head	9	28	1	7
Department/office head	8	25	5	36

Medical director	5	16	0	0
National director	4	13	0	0
Field coordinator for the COVID-19 response for AFRICA-CDC in Burkina-Faso	1	3	0	0
Epi coordinator	1	3	0	0
Veterinary service director	1	3	0	0
Technical assistant	1	3	0	0
Disease surveillance laboratory manager	1	3	0	0
Zone medical officer	1	3	1	7
Consultant	0	0	3	21
Coordinator	0	0	1	7
Program director	0	0	1	7
Program officer	0	0	1	7
Technical manager	0	0	1	7
Years in current position**				
Less than 6 years (after 2015)	20	65	13	93
More than 6 years (before 2015)	11	35	1	7
Sector of work*				
Human health	25	78	14	100
Animal health	7	22	0	0

*One job supervisor respondent did not answer these questions.
**Two job supervisor respondents did not answer this question.
INGO = international non-governmental organization

APPENDIX 2: HEALTH SYSTEM LEVELS



APPENDIX 3: JOB TITLES

Table 7: Advanced level respondents' job titles in the "Other" category

"Other" job titles	Number of respondents
Technical assistant	1
Infection prevention and control analyst at hygiene and sanitation office	1
Analyst in epidemiological surveillance sub-committee	1
Analyst at epidemiological surveillance department	1
Stop polio consultant	1
Technical expert to the ministry of health; epidemiology consultant with the WHO	1
Biological technician	1
Medical analyst	1
Central laboratory director	1
Clinical biology director	1
Provincial medical coordinator	1
Coordinator of the National Fishing and Aquaculture Development Service and assistant at the National Pedagogical University	1
Surveillance data analyst	1
Country supervisor at the National Program to Fight Human African Trypanosomiasis	1
Technical expert in several government departments: directorate of disease control and directorate of epidemiological surveillance	1
Data analyst and provincial health zone supervisor	1
Director of Ituri provincial laboratory	1
DRC FETP-frontline field coordinator	1
Epidemiological supervisor at the Ministry of Health Secretariat	1
Epidemiologist at the provincial health division, responsible for supporting the Goma area	1
Epidemiology consultant	1
Hospital biologist	1
Expert in field epidemiology at the Ministry of Health; support for surveillance of polio and vaccine-preventable diseases for the North Kivu provincial division	1
Laboratory analyst	1
Focal point for surveillance	1
Medical coordinator for epi at Maniema provincial health division	1
Head physician of EPI branch	1
Analyst at the Epidemiological Surveillance Department	1
Provincial coordinator of national border hygiene program	1
Provincial supervisor	1
Provincial laboratory director, responsible for supporting health zone laboratories	1
Provincial supervisor (analyst) at the health zone support office	1
Analyst in charge of epidemiological surveillance	1

Quality manager and resource person for surveillance	1
Public health advisor to the general police commissariat and the national directorate of police health services	1
Senior technical adviser	1
Surveillance analyst at health surveillance office	1
Surveillance officer	1
Technical assistant to the Secretary-General of Health	1
Technical expert to the Directorate of Disease Control	1
WHO consultant	1

APPENDIX 4: SAMPLE COURSE SCHEDULE

ECOLE DE SANTE PUBLIQUE
Université de Kinshasa
Ministère de l'Enseignement Supérieur et Universitaire
REPUBLIQUE DEMOCRATIQUE DU CONGO

CALENDRIER ACADEMIQUE 2020-2021 (Programme FELTP 1ère année)

Dates	Modules	Facilitateurs	CT et Assistants
22/03/2021	Accueil et orientation des apprenants	Services Académiques et Administratifs.	
	Cérémonie d'ouverture officielle de l'année académique	Direction ESP	
23/03/2021**	Visite du SG Santé, DG DGOSS, AFENET, MINISANTE	Invités + CD + Services académiques	
23-26/03/2021**	Initiation-Informatique et recherche sur l'Internet (18H)	Prof Nyandwe	Ass Kashiya et Kanzenza
MODULES DU BLOC I			
29-30/03/2021	Introduction à la Santé Publique (12H)	Prof Kimpanga + Invité	
31/03,01-02/04/2021	Notions de base en Bioéthique (18 H)	Prof Makindu + Invité Prof Onyamboko	
05-09/04/2021	Introduction One Health (30 H)	Prof Kimpanga	Ass Ngweme
12-16/04/2021	Terrain OH (1 semaine)	Prof Kimpanga	Ass Ngweme
19-23/04/2021	Techniques d'apprentissage (30H)	Prof Kidinda	Ass Baulana
26-30/04, 03-07/05/2021	Bio Statistique (60H)	Prof Kokolomami	Ass Bosonkie, Kashiya
10-15*/05,18-21/05/2021	Epidémiologie (60H)	Profs Mashinda	CT Chabikuli, Ass Ngondo
24-28/05, 31/05,01-04/06/2021	Informatique appliquée (60H)	Prof Nyandwe	Ass Mbunga, Egbende
07-11/06, 14-18/06/2021	Méthodes de Recherche (60H)	Profs Lusamba	CT Musema, Ass Bosonkie
21-25/06/2021	Initiation à la recherche qualitative (30H)	Prof Mafuta	Ass Kanzenza
28-29/06, 01-03*/07/2021	Biostatistiques II : Non paramétriques (30 H)	Prof Kimpanga	Ass Mbunga
05-09/07/2021	Surveillance Epidémiologique (30 H)	Prof Lulebo	Ass Mvumbi, Dr Kebela
12-16/07/2021	Terrain : Surveillance Epidémiologique (1 semaine)	Prof Lulebo	Ass Mvumbi, Dr Kebela
19-20/07/2021	Préparation aux évaluations (Modules Tronc commun)		
21-23/07,26-30/07/2021	**Evaluations des performances individuelles : 8 jours**		
06/08/2021	Délibération des évaluations du Bloc I		
MODULES DU BLOC II			
02-06*/08/2021	Gestion des Catastrophes (30 H)	Prof Mapatano	Ass Bosonkie + Invité (1)
09-13/08/2021	Développement Techniques de Formation (30 H)	Prof Kidinda	Ass Baulana
16-20/08/2021	Management et Leadership (30 H)	Prof Ngo Bebe	CT Bwira
23-24/08/2021	Laboratoire de Santé Publique (12 H)	Prof Takaisi	CT Musema
25-27/08/2021	Terrain : Laboratoire de Santé Publique (18 H)	Prof Takaisi	CT Musema
30-31/08, 01-03/09, 06-10/09/2021	Communication Scientifique (60 H)	Prof Akilimali	Ass Baulana
13-14/09//2021	Préparation aux évaluations (Modules du Bloc II)		
15-18*/09/2021	**Evaluations des modules de filière : 4 jours**		
24/09/2020	Délibération (1ère session)		
27-28/09/2021	Préparation aux évaluation 2ème session		
29-30/09,01/10,04-06/10/2021	**Evaluations de la 2ème session : 6 jours**		
12/10/2021	**Délibération (2ème session)**		
24/09/2021-31/03/2022	Stage (29 semaines)		
	Rédaction des rapports de stage		
	Dépôt des rapports de stage		
	Début de la 2è année Feltp		

Note :
(*) : Samedi inclus
Jours fériés : 25 et 31 Décembre, 1er, 04, 16 et 17 Janvier ; 30 Avril ; 1er et 17 Mai ; 30 Juin ; 1er Août

Prof Dr Marie A. ONYAMBOKO **18 Février 2020**
Chargée des Affaires Académiques

ECOLE DE SANTE PUBLIQUE
Université de Kinshasa
Ministère de l'Enseignement Supérieur et Universitaire
REPUBLIQUE DEMOCRATIQUE DU CONGO

CALENDRIER ACADEMIQUE 2021-2021 (Programme FELTP 2e année)

Dates	Modules	Facilitateurs	CT et Assistants
22-26/03,29-31/03, 01-02/04/2021	Toxicologie vétérinaire (30H)	Prof Tuakuila	
	Terrain : Toxicologie vétérinaire (1 semaine)		
05-16/04/2021	Méthodes en Laboratoire (30H)	Prof Lunguya	
	Terrain : Méthodes en Laboratoire (1 semaine)		
19-23/04/2021	Réseau national des Laboratoires (30H)	Prof Ahuka	
26-30/04/2021	Biosécurité (30H)	Prof Mumba	
03-14/05/2021	Gestion de la qualité au laboratoire (30H)	Prof Mumba	
	Terrain : Gestion de la qualité au laboratoire (1 semaine)		
17-21/05/2021	Efficacité de la prévention (12H)	Prof Lulebo	Ass Mvumbi
	Terrain : Efficacité de la prévention (3 jours)		
24-28, 31/05, 01-04/06/2021	Zoonoses émergentes et ré-émergentes (30H)	Prof Masumu	
	Terrain : Zoonoses émergentes et ré-émergentes (1 semaine)		
07-18/06/2021	Epidémiologie II (60H)	Profs Kimpanga, Kokolomami	Ass YambaYamba
21-25, 28-29/06, 01-03/06/2021*	Bio statistiques/Analyses multivariées (60H)	Prof Lusamba	Ass Bonsokie OR Mbunga
05-16/07/2021	Urgences Zoo Sanitaires (30H)	Prof Masumu	
	Terrain : Urgences Zoo Sanitaires (1 semaine)		
19-30/07/2021	Gestion de l'environnement (60H)	Prof Mansiangi	Ass Mukiese, Kyomba
02-06/08/2021	**Terrain : Gestion de l'environnement (1 semaine)**		
09-10/08//2021	Préparation aux évaluations		
11-13,16 -20, 23-24/08/2021	**Evaluations des modules: 10 jours**		
31/08/2021	Délibération (1ère session)		
05-09/09/2021	**Séminaire de finalisation des protocoles de recherche**		
14-16/09, 19-21/09/2021	**Evaluations de la 2ème session : 6 jours**		
27/09/2021	**Délibération (2ème session)**		
31/08/2021 au 04/02/2022	Stage et mémoire (22 semaines)		
	Dépôt des mémoires au service académique		
Février 2022	**Défenses mémoires**		

Note :
(*) : Samedi inclus
Jours fériés : 25 et 31 Décembre, 1er, 04, 16 et 17 Janvier ; 30 Avril ; 1er et 17 Mai ; 30 Juin ; 1er Août

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APPENDIX 5: TEPHINET ACCREDITATION READINESS

FETP Advanced Accreditation Readiness

Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) accreditation is an opportunity for field epidemiology training programs (FETPs) to align with common standards that support quality training and increased recognition of their value in supporting country public health priorities. For definitions of the requirements, please see the *TEPHINET Accreditation Readiness Assessment 6th cycle*.

Basic accreditation eligibility requirements
The program is equal to or greater than 21 months. Typically, this refers to an advanced program.
At least two cohorts of residents have completed the program within the past five years, and at least 75% of the total residents who started the program also completed it.
It is documented that most of the residents' time (minimum 68 weeks) is spent in field work.
Management, infrastructure & governance requirements
An advisory board, expert committee, or similar formal mechanism provides general guidance or oversight on the program's goals and operations.
The program is officially recognized as a component of the MOH(s) or public health institution(s).
The program has office space, supplies, and equipment.
Residents have access to current public health or medical literature
The program has access to laboratory testing for outbreak investigations.
The program has documented standard operating procedure/manual or similar guidance that is available to all residents, staff, and technical supervisors.
Within one month of starting the program each resident receives an orientation to the program.
The program promotes scientific integrity standards.
Integration with the public health service requirements
Government or public health authority provides financial or human resource support (note: regional programs may be hosted by another country's government).
The field placements are in service to the country's public health system(s) and allow residents to acquire the core competencies of the program
Residents develop investigations and reports addressing the country's public health priorities and routinely present results from their activities to the MOH(s) or public health authority.
Staffing and supervision requirements
The program has a director and/or coordinator who provide leadership and oversight to the program.
The program has qualified technical staff who perform programmatic training functions such as oversight of residents' orientation, classroom training, field assignments etc.
The program has technical supervisors that provide supervision of field activities, are involved with residents' work, and provide timely feedback.
The technical supervisors/staff are given orientation in order to provide technical assistance and supervision to residents in the field.
Selection and training of resident requirements
Residents are selected based on documented criteria.
The program has well-defined, documented core competencies (around which the curriculum was developed) that include associated activities and deliverables that are explicit for all residents and supervisors.
Program provides regular monitoring (at minimum every six months), evaluation, and tracking with timely feedback of resident activities and experiences toward completion of program requirements (core competencies).
Residents who complete the program have met all required core competencies.
A minimum of 75% of residents complete the program within the expected time frame as defined by the program.
Continuous quality improvement of the program requirements
The program has a quality improvement process.
The program has implemented quality improvement activities.