

Policy brief

# Shaping national health security in Somalia through field epidemiology training programmes

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## Training public health workforce: a strategy for effective disease surveillance and response

Somalia's unique geographical, physiographical and strategic setting makes it vulnerable to natural and human-induced disasters. Somalia continues to experience the adverse effects of climate change – especially extreme temperatures, salt intrusion into the water table and river erosion. These events predispose the country to large-scale outbreaks of communicable diseases. Moreover, protracted conflict from civil war and the absence of a functional central government between 1991 and 2012 have weakened Somalia's public health system, made it a fragile and vulnerable country, and led to economic marginalization and social exclusion. The situation has forced the migration of skilled health professionals from the country. Today, the country has fewer than 1 doctor/nurse/midwife per 1000 people (1) as a result a failing public health system. This situation not only weakens the outbreak surveillance, detection and response system, but harms the delivery of basic and comprehensive life-saving health interventions. Currently, only 35% of Somalia's population have access to essential health services (2). Concurrent crises such as the coronavirus disease 2019 (COVID-19) pandemic, locusts, flooding and drought continue to be major public health concerns in the country. The ongoing conflict, political instability, and water and food insecurity increase the socioeconomic fragility of the country and the risk of health emergencies.

Somalia's current capacity with regard to the International Health Regulations (IHR) and health emergency preparedness index (a measure of IHR core capacity) is 31 out of 100 (i.e. at level 1 out of a maximum level 5) (3) indicating large gaps in the core capacities to prevent, detect and fully respond to public health threats in the country (4). Somalia's only functioning surveillance system EWARN (Early Warning, Alert and Response Network) is weak and fragmented with extremely low population coverage. This situation, coupled with the low health workforce density, makes Somalia very vulnerable to outbreaks and affects the country's ability to respond effectively and quickly to large-scale outbreaks such as COVID-19. The COVID-19 outbreak has also exposed the country's weakness in safeguarding its national health security because its frontline health workforce lacks the skills and basic field epidemiology competencies required for detection, surveillance and response to large outbreaks and other public health emergencies. To achieve global health security, the IHR 2005 calls for each country to establish core competencies in the areas of surveillance and response through adequately training its public health workforce. A key indicator of a country having a functioning public health surveillance and

response system in WHO’s Joint External Evaluation tool is the presence of a field epidemiology training programme (FETP) at all levels of the health system (5).

The National Action Plan for Health Security, which the Ministry of Health and Human Services of the Federal Government of Somalia developed with technical support from WHO, aims to tackle one of the critical gaps in the country’s IHR (2005) core capacity by establishing a field epidemiology training programme to serve both the immediate and long-term need to improve national health security.

**Training public health workforce: a strategy for effective disease surveillance and response**

The FETP is a global programme initiated by the United States Centers for Disease Control and Prevention in 1980 to equip public health workers with the skills to collect, analyse and interpret data and respond to outbreaks (6). These 2-year applied training programmes focus on learning by doing. More than 19 000 health care workers in over 80 countries have been trained around the world through this initiative (7,8), which has helped build a global workforce of “disease detectives” with the skills to detect, investigate and control disease outbreaks, conduct surveillance, analyse epidemiological data, measure the impact of interventions and carry out epidemiological studies; such information is important for making effective decisions during a public health emergency. It is envisaged that the skills acquired through this workforce development programme (Figure 1) contribute to increased capacity for surveillance, better outbreak detection and evidence-informed decisions-making.

In many countries, FETP alumni and trainees are often called to respond to epidemics in their own countries as they are the trained first responders. The use of FETP graduates in several African countries has led to improvement in surveillance quality (9) and better reporting of IHR notifiable diseases and

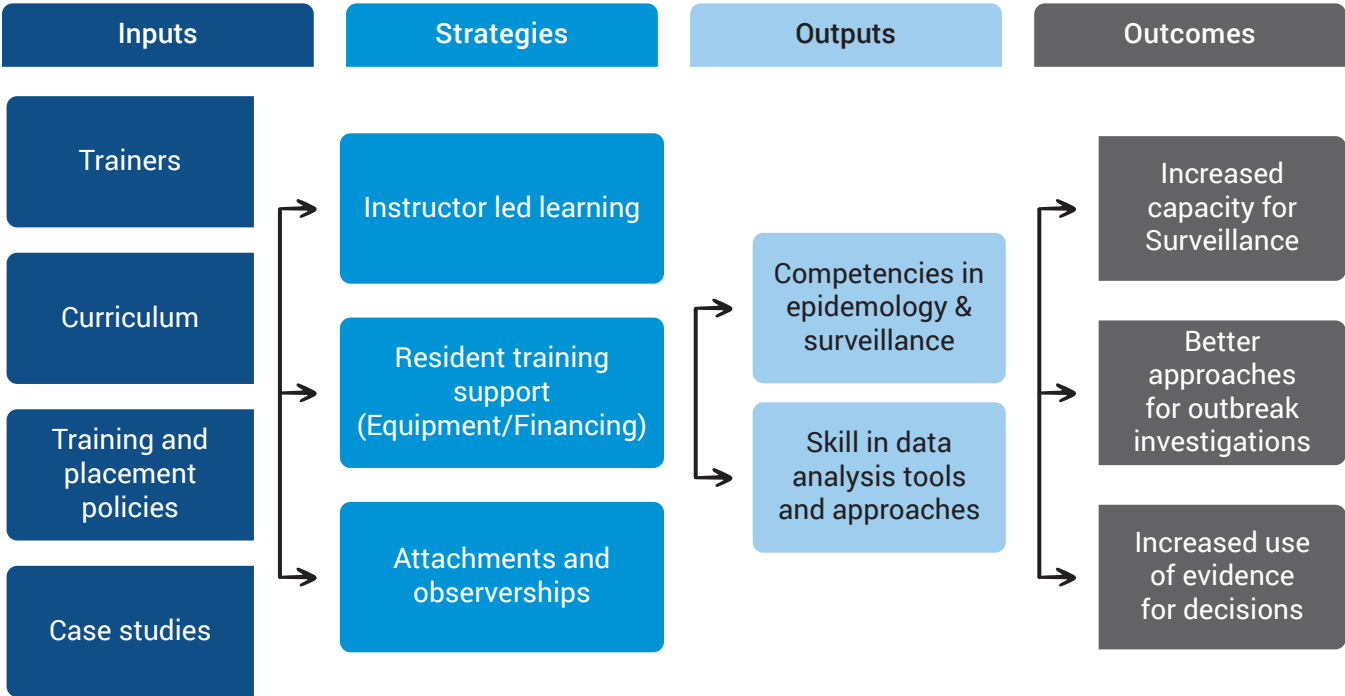


Figure 1: Field epidemiology training programme process

timeliness of reports (10). Since 2008, reporting of diseases has increased two-fold in Kenya, from 40% to 90% (11), and in Tanzania from 4% and 52% (12). The FETP has also contributed to reducing the global shortage of epidemiologists. For strong disease detection systems, the IHR calls for one epidemiologist per 200 000 people (13)<sup>1</sup>, but many countries, including Somalia, have not met this goal. Thus, FETPs help countries build critical global health security capabilities by strengthening their public health workforce.

## Establishing an FETP in Somalia: a tiered approach

An active FETP is not only key to accelerating workforce development by increasing the number of field epidemiologists with required competencies in surveillance and outbreak response, but it is now seen as a pivotal factor to enhance national and global health security in any country. The establishment of a functional FETP in Somalia will meet the targets for field epidemiologists in the country and will accelerate the rate at which the country attains IHR core capacities and a sustainable and effective surveillance and response system.

However, given the urgent need to build the capacity of the public health workforce at all levels in Somalia and the acute shortage of health workers, the country needs to build the capacity of its frontline health workers at the local level first. The best model to do this is the three-tiered FETP-pyramid model (Figure 2). This model has been used in many countries to rapidly strengthen surveillance and epidemiology capacity at all levels of a country's health system. All three tiers use the same approach – condensed classroom instruction (< 25%) followed by field placements (> 75%) to gain experience and competence in field epidemiology.

The lowest tier of this model (FETP frontline; local level) is a 3-month on-the-job training course that covers the critical skills needed to conduct surveillance effectively at the local level. In this tier, didactic

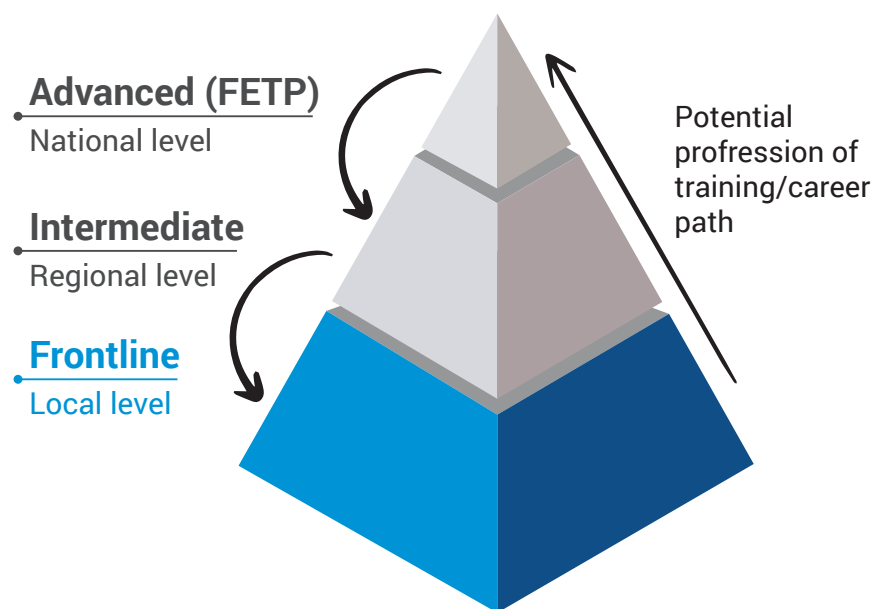


Figure 2: Field epidemiology training programme pyramid model

<sup>1</sup> On estimate suggests that to meet this target, Somalia will need 16 field epidemiologists to be trained every year for the next 5 years at the intermediate and advanced level for a total of 80 field epidemiologists. At the front line, Somalia will need to train 144 surveillance officers a year for the next 5 years with a target of training 720 surveillance officials.



training and experiential learning through practical mentorship and case studies are the foundation of the training activities. The next tier of this training model (FETP intermediate; regional level) is a 9-month on-the-job training programme that covers the skills needed by mid-level health officials at the regional or provincial level to improve epidemiologic capacity to evaluate and strengthen public health surveillance. The top tier (FETP advanced; national level) is a 2-year full-time training programme equivalent to a master's degree for staff at the national level who are expected to take leadership roles in the ministry of health. Typically, 20–25% of this 2-year training is spent in the classroom and is focused on building advanced surveillance and epidemiological skills. In FETP-advanced tier, university instructors train advanced-level epidemiologists, while residents and graduates of the advanced level use their skills to train and mentor trainees in tiers two and one. The frontline trainees can also progress up the pyramid to become advanced epidemiology experts.

Placing FETP trainees in a health security-focused programme within the health ministry enables them to supplement theory and acquire competencies in disease surveillance and response through a practical problem-based approach. Such a programme offers the best outcomes for Somalia. In some East African countries, the pool of FETP graduates is now the source of instructors for the advanced and intermediate training programmes. These graduates are responsible for surveillance activities at their duty station, but are also called on to participate in training activities. This approach is effective in sustainably building a broad-based capacity for disease detection and response.

The ultimate goal of the FETP pyramid model is the establishment of a critical mass of competent epidemiologist and surveillance staff within the ministry of health and other affiliated institutions. However, the FETP frontline tier addresses the critical need for surveillance, data quality and case investigation skills at the community and the lower levels of the public health system, and it is less expensive to manage and sustain such a local system. Thus, scaling up FETP frontline training and building a critical mass of frontline disease investigators at the local level is an effective way for Somalia to fill gaps in IHR core capacities quickly before moving to the other two tiers in the FETP-pyramid model.



## Sustaining FETPs in Somalia: collaboration and phased capacity-building

Somalia rolled out the 12-week FETP for frontline health workers in August 2021, with a training workshop, followed by practical field experience and then a second training workshop to consolidate what had been learnt. This first programme included 25 participants. It was organized by the National Institute of Health of the Federal Ministry of Health and Human Services with support from WHO, the US Centers for Disease Control and Prevention and the Africa Field Epidemiology Network. Based on experiences in some East African countries where the FETP has been introduced, the following approach should be considered to ensure sustainability of the FETP in Somalia.

- **Collaborate with established FETPs in other countries on tier 1 and 2 training.** When starting to introduce the FETP, Somalia could consider sending a group of its qualified trainees to undertake the advanced epidemiology and surveillance training in countries such as Kenya, Rwanda and Uganda which have well developed and functioning FETPs. On their return, these trained individuals could be placed in strategic health programmes and tasked to set up the FETP pyramid model training in the country. Once the local FETP is set up with a clear road map, the Somalia health ministry can collaborate with a local university to sustain such a training programme in the long run.
- **Build institutional capacity of local universities to implement FETP.** Somalia currently recruits trainers for its public health surveillance training programme from other countries. This system is not sustainable in the long run and limits the opportunities for ongoing mentorship. It also makes the FETP frontline course expensive to run and maintain. Evidence suggests that the cost of implementing the FETP frontline course in some other countries varied from US\$ 5000 to US\$ 8000 per student depending on many factors, including the existence of locally trained personnel (6). Furthermore, using external trainers also hinders the establishment of an in-country training programme that is needed for the country to become self-reliant in building its own emergency response health workforce. The health ministry could use experts from other countries to train local experts through courses in local universities, who in turn can run the FETP courses.
- **Instigate learning observerships for by FETP residents in other countries.** The FETP in Somalia can be strengthened through observerships that support the training and mentorship programmes. Incorporating case studies from regional epidemic response activities can enhance learning and assimilation of best practices.
- **Institutionalize FETPs within national governments.** The health ministries should progressively transition FETP management and course delivery to a local university, which would issue certificates to the graduates who complete the course in Somalia. The ministries should also adopt policies to ensure that FETP residents are placed in strategic health departments and subsequently assigned to safeguard national health security goals. In addition, the health ministries should develop and maintain appropriate career paths for FETP graduates. In this way, their contribution to the national health security goal will be maximized, skilled staff will be retained and loss of such personnel from the ministries of health will be reduced.
- **Introduce e-learning and lifelong training initiatives.** Depending on the availability and improvement of computing and Internet infrastructure in Somalia, the health ministry should consider adopting innovative e-learning approaches that allow external instructors to conduct training without having to travel. If this approach is adopted, trainees who enrol in the FETP programme can undertake self-paced e-learning that can lead to certification by a recognized institution. An appropriate blend of e-learning and in-person training could also be considered to ensure that the competency-based practical training approaches are maintained. Theoretical aspects of epidemiology and surveillance can be blended with in-person mentorship, which supports the practical application of epidemiological and surveillance principles through involvement in managing public health events. Expanded online learning can offer life-long learning opportunities.



## Ensuring global health security: pathogens know no borders

In this age of globalization and the emergence of new and resurgent communicable diseases (e.g. Ebola virus disease, Zika virus disease, Middle East Respiratory Syndrome and COVID-19) and the increasing global effects of known diseases (e.g. yellow fever and dengue fever), qualified field epidemiologists are needed more than ever. An outbreak detected anywhere can spread everywhere if not contained at source, as pathogens know no borders. The IHR (2005) requires that each country has a minimum capacity in field epidemiology to rapidly detect, respond to and control public health emergencies and thereby keep its population safe, protects other countries from the spread of illness, and ensures global health security. The FETP pyramid model provides a strong and practical model for building sustained capacity for health emergency response work. Its tiered approach, and blended programme that combines didactic training with hands-on practice (applied field work), and mentorship and peer learning meet the need for lifelong learning. In some countries, veterinary and laboratory sectors have been included in training cohorts to foster local cross-sectoral collaboration and a One Health approach to surveillance and response activities.

The FETP initiative has contributed to enhanced global health security and countries that have implemented it have been able to detect outbreaks sooner, respond faster and, through a quick response, limit the spread of infectious disease outbreaks at the source.



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