Sierra Leone Journal of Biomedical Research

(A publication of the Sierra Leone Field Epidemiology Training Program)

©SLJBR Vol.15(2), December Edition, 2024 ISSN (Print), ISSN (Online First)

BUILDING A NEW GENERATION OF RESEARCHERS THROUGH THE FIELD EPIDEMIOLOGY TRAINING PROGRAM

Authors:

Gebrekrstos Negash Gebru[1,4], Alhaji U. Njai[2], James Squire[3], Mohamed A. Vandi[1,2], Aiah Gbakima[2], Monique A. Foster[5], Foday Sahr[3]

Affiliations:

[1]Sierra Leone Field Epidemiology Training Program

[2]University of Sierra Leone

[3]National Public Health Agency

[4]African Field Epidemiology Network,

[5]Centers for Diseases Control and Prevention, Sierra Leone

EDITORIAL

Correspondence: ggebru@afenet.net

The 2014/15 Ebola outbreak in West Africa revealed the weakness of the public health systems in the three most affected countries: Sierra Leone, Liberia, and Guinea[1]. These inherent weaknesses led to delayed detection and response to the Ebola Virus Disease in these countries, leaving over 11,000 people dead [2]. During this crisis, Sierra Leone faced a shortage of trained public health professionals capable of effectively managing disease surveillance and addressing emergencies [3]. The absence of a skilled field epidemiological workforce significantly hindered timely detection and response [4]. This situation underscored the urgent need for a well-trained cadre of public health professionals in Sierra Leone to enable prompt identification and effective responses to health threats.

As part of the post-Ebola recovery efforts to enhance public health systems, the United States Centers for Disease Control and Prevention (CDC), in collaboration with its partners, mainly the African Field Epidemiology Network (AFENET), supported the Sierra Leone Ministry of Health. Through this partnership, Sierra Leone established the Frontline Field Epidemiology Training Program (FETP) in June 2016, a three-month in-service training program, followed by the Intermediate FETP, a nine-month program in 2017[5].

The FETP is a competency-based applied epidemiology training program recognized by the World Health Organization as an effective global strategy for building a public health workforce. Countries are required to establish FETP to implement the International Health

©SLJBR Vol.15(2), December Edition, 2024 ISSN (Print), ISSN (Online First)

Regulations (IHR) 2005 core capacities. This is assessed through the Joint External Evaluations (JEE), which are indicated in the human resource technical area, particularly in the D3.3 indicators of the JEE [6][7].

The program was established in Sierra Leone to enhance the capacity of the public health workforce to detect disease threats and respond effectively [5]. Trainees spend approximately 25% of their time in classroom training and 75% in the field. This hands-on approach focuses on developing core competencies, including investigating disease outbreaks, responding to public health emergencies, improving disease surveillance, and designing and implementing epidemiological studies and surveys [8] [9].

This supplement documents the epidemiological studies and field activities of the Sierra Leone FETP (SLFETP). It presents 13 papers authored by SLFETP trainees and graduates, addressing various public health concerns. These include investigations and responses to outbreaks and pandemics of national and international concern, electronic surveillance system evaluations, data quality assessments, and descriptions of the trends and patterns of several priority diseases.

The first section of the supplement comprises three papers describing the investigation and response to outbreaks of schistosomiasis, Lassa fever, and anthrax. The first paper describes an outbreak of confirmed schistosomiasis in the Koinadugu District, particularly among school-aged children, where 264(63%) of the 421 suspected cases were positive for schistosome haematobium; the paper highlights contaminated local water as a source of the outbreak which implies that Sierra Leone remains vulnerable to water-borne diseases. The second paper in this group reports an investigation of a Lassa fever outbreak in Tonkolili District, a non-endemic Lassa fever district of Sierra Leone. The investigation revealed late detection results in poor clinical outcomes of the infection. Also, this paper provides information for clinicians to increase the Lassa fever index not only for Lassa fever endemic areas but also in non-endemic areas. The third paper in this section highlights the findings of an anthrax outbreak that occurred in Karene District, one of the hard-to-reach districts of Sierra Leone. This investigation confirmed an anthrax outbreak among humans. It was revealed that the possible sources of the infection are processed meat from dead sheep and the handling of contaminated milk.

The second section of the supplement has six papers that document the findings of several disease-specific surveillance data analyses, including meningitis, measles, Lassa fever, Acute Flaccid Paralysis (AFP), and maternal death surveillance and response. These papers on surveillance system analysis describe the trends and patterns of the diseases under review. The paper on maternal death surveillance and response analysis, for example, describes the trends, patterns, and causes of maternal mortality and demonstrates that maternal deaths in Sierra Leone consistently declined from 2016 to 2021. These papers illustrate the importance of surveillance data analysis in addressing global health security issues.

The third section of the supplement contains four papers. Three papers document the findings of surveillance system evaluations and data quality audits, and the fourth paper

©SLJBR Vol.15(2), December Edition, 2024 ISSN (Print), ISSN (Online First)

reports the prevalence of- and factors associated with female genital mutilation (FGM). The first one evaluates the HIV surveillance system within the prevention of mother-to-child transmission. The second paper in this section documents the evaluation findings of the electronic case-based disease surveillance (BDS) in Bombali District. This second paper highlights that the eCBDS has significantly improved the surveillance response mechanism. It documents the experience of Bombali District, one of the pilot districts in implementing the digital diseases surveillance system, achievements, lessons learned, and challenges faced during the implementation process, which can inform similar settings in Africa and beyond to replicate in designing and implementing their digital surveillance systems. The third paper shows the importance of conducting data quality assessments (DAQs) to enhance the integrated surveillance systems in Sierra Leone. This paper highlights the importance of data accuracy, reliability, completeness, and timeliness to enhance integrated disease surveillance and response, particularly at the health facility level. Despite the improvement in the data accuracy, the paper identified some challenges, such as overreported cases and decreased disease-specific reports in the IDSR. The last paper in this section documents the prevalence of- and factors- associated with female genital mutilation.

The papers in this supplement are a testament to the high-quality research and the program's significant impact on building Sierra Leone's public health professionals in research and scientific writing. This supplement vividly demonstrates the program's effectiveness in equipping participants with the skills to design and implement epidemiological studies and surveys and write and communicate scientific findings through publication in peer-reviewed journals.

Funding: *This supplement publication was supported by the Cooperative Agreement Number NU2HGH000034 from The U.S. Centers for Disease Control and Prevention. Its contents are solely the authors' responsibility and do not necessarily represent the official views of the U.S. Centers for Disease Control and Prevention.*

Supplement point of contact: Gebrekrstos Negash Gebru. Email: ggebru@afenet.net

REFERENCES

[1] S. A. Omoleke, I. Mohammed, and Y. Saidu, "Ebola viral disease in West Africa: a threat to global health, economy and political stability," *J Public Health Afr*, Aug. 2016, doi: 10.4081/jphia.2016.534.

[2] S. Helleringer and A. Noymer, "Magnitude of Ebola relative to other causes of death in Liberia, Sierra Leone, and Guinea," *The Lancet Global Health*, vol. 3, no. 5, pp. e255–e256, May 2015, doi: 10.1016/S2214-109X(15)70103-8.

[3] C. Njuguna *et al.*, "Revitalization of integrated disease surveillance and response in Sierra Leone post Ebola virus disease outbreak," *BMC Public Health*, vol. 19, no. 1, p. 364, Dec. 2019, doi: 10.1186/s12889-019-6636-1.

[4] "Factors that contributed to undetected spread." Accessed: Oct. 26, 2024. [Online]. Available:

©SLJBR Vol.15(2), December Edition, 2024 ISSN (Print), ISSN (Online First)

https://www.who.int/news-room/spotlight/one-year-into-the-ebola-epidemic/factors-that-contributed-to-undetected-spread-of-the-ebola-virus-and-impeded-rapid-containment

[5] Gebrekrstos Negash Gebru, "Sierra Leone Field Epidemiology Training Program | TEPHINET," https://www.tephinet.org/training-programs/sierra-leone-field-epidemiology-training-program. Accessed: Jan. 10, 2023. [Online]. Available: https://www.tephinet.org/training-programs/sierra-leone-field-epidemiology-training-program

[6] "9789240051980-eng.pdf."

[7] W. H. Organization, *Joint External Evaluation Tool International Health Regulations (2005)*, 3rd ed. Geneva: World Health Organization, 2022.

[8] "03-FETP-Intermediate-factsheet.pdf."

[9] "05-FETP-Overview-FETP-Frontline-Intermediate-Advanced-factsheet .pdf."