Training and Service in Public Health, Nigeria Field Epidemiology and Laboratory Training, 2008 – 2014

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Abstract
The health workforce is one of the key building blocks for strengthening health systems. There is an alarming shortage of curative and preventive health care workers in developing countries many of which are in Africa. Africa resolutely records appalling health indices as a consequence of endemic and emerging health issues that are exacerbated by a lack of a public health workforce. In low-income countries, efforts to build public health surveillance and response systems have stalled, due in part, to the lack of epidemiologists and well-trained laboratories. To strengthen public health systems in Africa, especially for disease surveillance and response, a number of countries have adopted a competency-based approach of training - Field Epidemiology and Laboratory Training Program (FELTP). The Nigeria FELTP was established in October 2008 as an in-service training program in field epidemiology, veterinary epidemiology and public health laboratory epidemiology and management. The first cohort of NFELTP residents began their training on 20th October 2008 and completed their training in December 2010. The program was scaled up in 2011 and it admitted 39 residents in its third cohort. The program has admitted residents in six annual cohorts since its inception admitting a total of 207 residents as of 2014 covering all the States. In addition the program has trained 395 health care workers in short courses. Since its inception, the program has responded to 133 suspected outbreaks ranging from environmental related outbreaks, vaccine preventable diseases, water and food borne, zoonoses, (including suspected viral hemorrhagic fevers) as well as neglected tropical diseases. With its emphasis on one health approach of solving public health issues the program has recruited physicians, veterinarians and laboratorians to work jointly on human, animal and environmental health issues. Residents have worked to identify risk factors of disease at the human animal interface for influenza, brucellosis, tick-borne relapsing fever, rabies, leptospirosis and zoonotic helminthic infections. The program has been involved in polio eradication efforts through its National Stop Transmission of Polio (NSTOP). The commencement of NFELTP was a novel approach to building sustainable epidemiological capacity to strengthen public health systems especially surveillance and response systems in Nigeria. Training and capacity building efforts should be tied to specific system strengthening and not viewed as an end to them. The approach of linking training and service provision may be an innovative approach towards addressing the numerous health challenges.

Introduction
The health workforce is one of the key building blocks for strengthening health systems[1]. There is an alarming shortage of curative and preventive health care workers in developing countries many of which are in Africa. The continent has an estimated 2.3 health care workers per 1000 population, compared with the Americas, where there are 24.8 health care workers per 1000 population[2]. Africa resolutely records appalling health indices as a consequence of endemic and emerging health issues that are exacerbated by a lack of a public health workforce. In low-income countries, efforts to build public health surveillance and response systems have stalled, due in part, to the lack of epidemiologists and well-trained laboratories[3]. Weak surveillance systems coupled with untimely and uncoordinated response to disease outbreaks have continued to be a challenge in many African countries. Emerging pandemic threats require development of worldwide capacity for public health surveillance and response especially given the increased travel and urbanization. Good international public health surveillance and response, which is the basis of International Health Regulations (IHR) of 2005, cannot exist sustainably without good domestic surveillance and response operated by competent public health workers in core public health positions at national and sub-national levels with a focus on disease prevention. To achieve this, there is need to address several interrelated factors on human resources, disease surveillance and
In January 2007, CDC initiated negotiations with the Federal Ministry of Health (FMOH) to establish the Field Epidemiology and Laboratory Training Program (FELTP). The Nigerian National FELTP description is need to build epidemiological capacity for both human and animal health leaders and practitioners that can strengthen and lead public health surveillance and response staff at lower levels of the health system[12]. New programs have incorporated a veterinary component to address animal health issues necessary for meaningful collaborations between the animal and human health sectors. It is estimated that the need for field epidemiologists is about 6,600 graduates of FELTP/FELTPs per one million inhabitants in a country[4-11].

Many countries have adopted a tiered approach of training with the 2-year training of FELTP being at the apex and aimed at developing public health leaders. This is augmented with competency-based short courses to build necessary epidemiological capacity among the frontline surveillance and response staff at lower levels of the health system[12]. Nigeria with a population of over 170 million people in 36 states and 77 Local Government Areas (LGAs) suffers from several recurrent disease outbreaks including cholera, avian influenza, infectious multi-diseases and other threats are of zoonotic origin necessitating a human animal collaboration. New programs have incorporated a veterinary component to address animal health issues necessary for meaningful collaborations between the animal and human health sectors. It is estimated that the need for field epidemiologists is about 6,600 graduates of FELTP/FELTPs per one million inhabitants in a country[4-11].

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reporting capacity in an integrated and sustainable approach that enables the development of public health workforce capacity in order to achieve public health surveillance and response systems that have a sustainable and adaptable capacity to address evolving public health needs (4).

To strengthen public health systems in Africa, especially for disease surveillance and response, a number of countries have adopted a competency-based approach of training modeled after the >60 year-old United States (U.S.) Centers for Disease Control (CDC)’s Epidemic Intelligence Service (EIS) program. EIS has been responsible for developing the U.S. public health surveillance and response systems at the federal and State levels. In the 1980s, CDC formed a partnership with the World Health Organization (WHO) to establish the Field Epidemiology Training Programs (FETPs). These training programs (and their allied programs such as Public Health Schools Without Walls) have shown to be a successful way to strengthen public health systems by providing a critical component of the public health workforce that is needed to operate public health surveillance and response systems to implement 1HR (2005). Residents and staff of these programs provide services such as epidemiologic surveillance, outbreak investigations, and evaluations at a county’s Ministry of Health (MoH) while building competency in applied epidemiology. In Nigeria, once the FETP was implemented, it recruited other specialties including laboratory and management expertise. The first FETP to add a laboratory component was the Kenya Field Epidemiology and Laboratory Training Program (FELTP). Since majority of the emerging threats are of zoonotic origin necessitating a human animal collaboration, newer programs have incorporated a veterinary component to address animal health issues necessary for meaningful collaborations between the animal and human health sectors. It is estimated that the need for field epidemiologists is about 1 graduate of FETP/FELTPs per one million inhabitants in a country(4-11).

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1. Vision, Mission and Goal and Multi-year Objectives of the program (24)

Mission: NFELTP exists to develop, implement, and strengthen an effective and efficient staff at lower levels of the health system who are equipped with the necessary competencies to respond to emerging health threats. It is a 2-year program for a total of 207 residents as of 2014. The target of the program is to have at least one graduate from NFELTP per 200,000 population operating a multi-disease surveillance system(24). In addition to the degree awarding 2-year masters course, NFELTP also offers a series of short courses meant to strengthen the epidemiological capacity of various public health practitioners at the Federal, State and Local Government Areas (LGAs) levels. The Program has a broad base of implementing partners, who include the FMoH, FMARD, AUBU, UI, CDC and African Field Epidemiology Network (AFEMEN). All these organizations are represented in a multi-agency Steering Committee that is headed by the FMoH-based Program Director: The Steering Committee meets bi-annually to guide the implementation of the program, evaluate its progress and mobilize resources for the program.

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Discussion

The commencement of NEFELP was a novel approach to building sustainable epidemiological capacity to strengthen public health systems in Nigeria. NEFELP had a strategic aim to support the Nigerian Federal Government in its goal of eradicating polio. The program’s success is evidenced by its ability to mobilize human and material resources to support surveillance and response in Nigeria and other African countries. NEFELP has contributed to the strengthening of public health surveillance and response in Nigeria and other African countries.

Involvement in polio eradication initiative

The program has created a National Surveillance Task Force to support the Nigerian Federal Government’s efforts in the polio eradication initiative (PEI) as part of the surge capacity of the National Polio Eradication Program (NPEP) of the Federal Ministry of Health (FMoH). The program’s efforts in reaching underserved population with basic primary health care services, and surveillance and response to public health emergencies is bearing fruits.

Setting priority research agenda

In an effort to support evidence-informed policy making, the program has worked with the Ministry of Health to identify priority research areas.

Networking

During the 2012 flooding an emergency operation center was created by the Federal Ministry of Health to coordinate surveillance and response to the flooding in the country. The flooding affected 15 states. The residents were involved in post flood assessment, response to health emergencies and dissemination of information. The program is a member of the AFEWNET, TEPHENET and African Program for Advanced Research Education Training (APARET) which allows its residents and graduates to network with other programs. With creation of the Nigeria Centre for Disease Control (NCDC) for graduate students to work as the frontline public health workers to operate surveillance and response in same way other programs did. Other programs that are providing these public health services to their national public health institutions.

Competing interest

The authors declare no competing interests. All the authors have read and approved the final version of the manuscript.

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specific gaps that need to be addressed to ensure robust surveillance system and timely effective response to public health emergencies [10, 21, 29, 30].

control efforts The program is also working on other disease specific programs including HIV/AIDS, tuberculosis, and malaria to improve national capacity for evaluation and improvement. Residents are currently working on data analysis, assessment of HIV risk factors for most at risk populations (e.g. prisoners, Men who have sex with men, and commercial drivers). Each year at least three residents work on malaria related projects involving surveillance, data analysis, surveillance evaluation, and rapid test kits validation [31].

Involvement in polio eradication initiative : The program has created a National Neuropsychiatry Task Force to support the Nigeria Federal Government’s efforts in the polio eradication initiative (PEI) as part of the surge capacity of the National Polio Eradication Program (NPEP). The program has played an active role in polio training efforts in underserved population with basic primary health care needs such as surveillance, laboratory implementation, immunization activities, surveillance, routine immunization and research. Priority questions to guide program implementation are being developed by graduates and residents of the program and this has allowed them to build local capacity and leadership for PEI at the state and local government areas in thematic areas such as micro planning, supplemental immunization activity, data analysis, vaccine cold chain management, demand creation, informatics (use of smart phones and Geographic Information System to report disease and monitor implementations); and surveillance. The program has supported activities of the National and State Polio Eradicators. The NSTOP has offered public health service in public health emergency response strategy implementation in selected Local Government Areas of Kaduna state. Annuals of Nigerian Medicine. 2013; 7: (1) 1-6.

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