

# Polio infrastructure strengthened disease outbreak preparedness and response in the WHO African Region



Koffi Kouadio<sup>a</sup>, Joseph Okeibunor<sup>a,\*</sup>, Peter Nsubuga<sup>b</sup>, Richard Mihigo<sup>a</sup>, Pascal Mkanda<sup>a</sup>

<sup>a</sup> World Health Organization, Regional Office for Africa, Brazzaville, Congo

<sup>b</sup> Global Public Health Solutions, Atlanta, GA, USA

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## ABSTRACT

**Introduction:** The continuous deployments of polio resources, infrastructures and systems for responding to other disease outbreaks in many African countries has led to a number of lessons considered as best practice that need to be documented for strengthening preparedness and response activities in future outbreaks.

**Methods:** We reviewed and documented the influence of polio best practices in outbreak preparedness and response in Angola, Nigeria and Ethiopia. Data from relevant programmes of the WHO African Region were also analyzed to demonstrate clearly the relative contributions of PEI resources and infrastructure to effective disease outbreak preparedness and response.

**Results:** Polio resources including, human, financial, and logistic, tool and strategies have tremendously contributed to responding to diseases outbreaks across the African region. In Angola, Nigeria and Ethiopia, many disease epidemics including Marburg Hemorrhagic fever, Dengue fever, Ebola Virus Diseases (EVD), Measles, Anthrax and Shigella have been controlled using existing polio Eradication Initiatives resources. Polio staffs are usually deployed in occasions to supports outbreak response activities (coordination, surveillance, contact tracing, case investigation, finance, data management, etc.). Polio logistics such vehicles, laboratories were also used in the response activities to other infectious diseases. Many polio tools including micro planning, dashboard, guidelines, SOPs on preparedness and response have also benefited to other epidemic-prone diseases. The Countries' preparedness and response plan to WPV importation as well as the Polio Emergency Operation Center models were successfully used to develop, strengthen and respond to many other diseases outbreak with the implication of partners and the strong leadership and ownership of governments. This review has important implications for WHO/AFRO initiative to strengthening and improving disease outbreak preparedness and responses in the African Region in respect to the international health regulations core capacities.

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## 1. Introduction

Outbreak response activities have been extremely challenging in Africa due largely to the weak health systems. Over the years, the polio eradication initiative (PEI) in the African Region mobilized and trained both health workers and volunteers with specializations on surveillance, social mobilization, supplementary immunization activities (SIAs), data management and coordination of response [1]. With the improvements in implementation of outbreak preparedness and response strategies, transmission of wild poliovirus had been effectively contained in the region. This achievement has been attributed to impressive amount of

resources, approaches and practices generated and put in place for meeting the eradication targets [1,2]. Circulation was interrupted in three countries with re-established transmission Angola, the Democratic Republic of the Congo, and Chad by the end of 2012. The 2008–2010 outbreaks in West Africa were rapidly contained.

Polio outbreak preparedness and response resources have in the recent past being deployed to containing the transmission of other disease outbreaks in many African countries the region, including Angola, Nigeria and Ethiopia. For instance, Polio funded staff and resources played a significant role during the outbreak of Marburg hemorrhagic fever and Dengue fever outbreaks in Angola in 2005 [3,4] and 2013 [5] respectively. In Nigeria, the successful response and containment of the Ebola Virus Diseases (EVD) was also attributed to polio resources and infrastructures [6,7]. Similarly, in

\* Corresponding author.

E-mail address: [okeibunorj@who.int](mailto:okeibunorj@who.int) (J. Okeibunor).

Ethiopia, polio funded staff is usually involved in the response to other diseases outbreaks such as the massive outbreak of measles reported 2011 and recurrent outbreak of cholera.

The continuous deployments of polio resources, infrastructures and systems for response to other disease outbreaks in many African countries including Angola, Ethiopia and Nigeria has led to a number of lessons considered as best practice that need to be documented for strengthening preparedness and response activities in future outbreaks [8]. We summarized lessons learned from the Polio eradication Initiative infrastructures on the preparedness and response to epidemic-prone diseases in Angola, Ethiopia, and Nigeria.

## 2. Methods

### 2.1. Design

The documentary research design was employed to preparing this paper. We reviewed and described how GPEI strengthened disease outbreak preparedness and response in three countries, namely Angola, Ethiopia and Nigeria (Fig. 1), which were documented as part of the polio best practices documentation in the WHO/AFRO. Evidence from these countries demonstrate the contribution of polio resources and infrastructure to the preparedness and response of the health systems to disease outbreaks in these countries.

### 2.2. Implementation of polio best practices

In Angola polio human, financial and material resources were deployed to strengthen outbreak preparedness and response. The polio assets including, tools, vehicles and personnel supported the preparedness and response to many other vaccine preventable diseases. They were used for other disease surveillance (i.e., measles, yellow fever, tetanus) in an integrated manner and also for case investigation, contact tracing, social mobilization activities during outbreak. Polio assets were also used for monitoring and supervision activities as well, in particular at peripheral levels. Polio staff and assets were managed daily at all levels within the Ministry of Health (MoH) and key immunization partners agencies, particularly WHO and UNICEF (Fig. 2).

In Ethiopia, PEI infrastructure and resources (i.e., financial, human and logistical resources) were used to support other public health activities such as outbreak control, strengthening of routine immunization program, strengthening of the national surveillance. Weakness of health system in many African countries including outbreak preparedness and response system contributes to the noncompliance to the IHR core capacities facilitating the evolution of infectious diseases outbreaks. PEI assets contributed in strengthening the health system in general and outbreak investigation and response in particular. Other outbreak prone diseases programmes have benefited from the support of WHO Polio officers in preparing integrated annual work plans, in training health

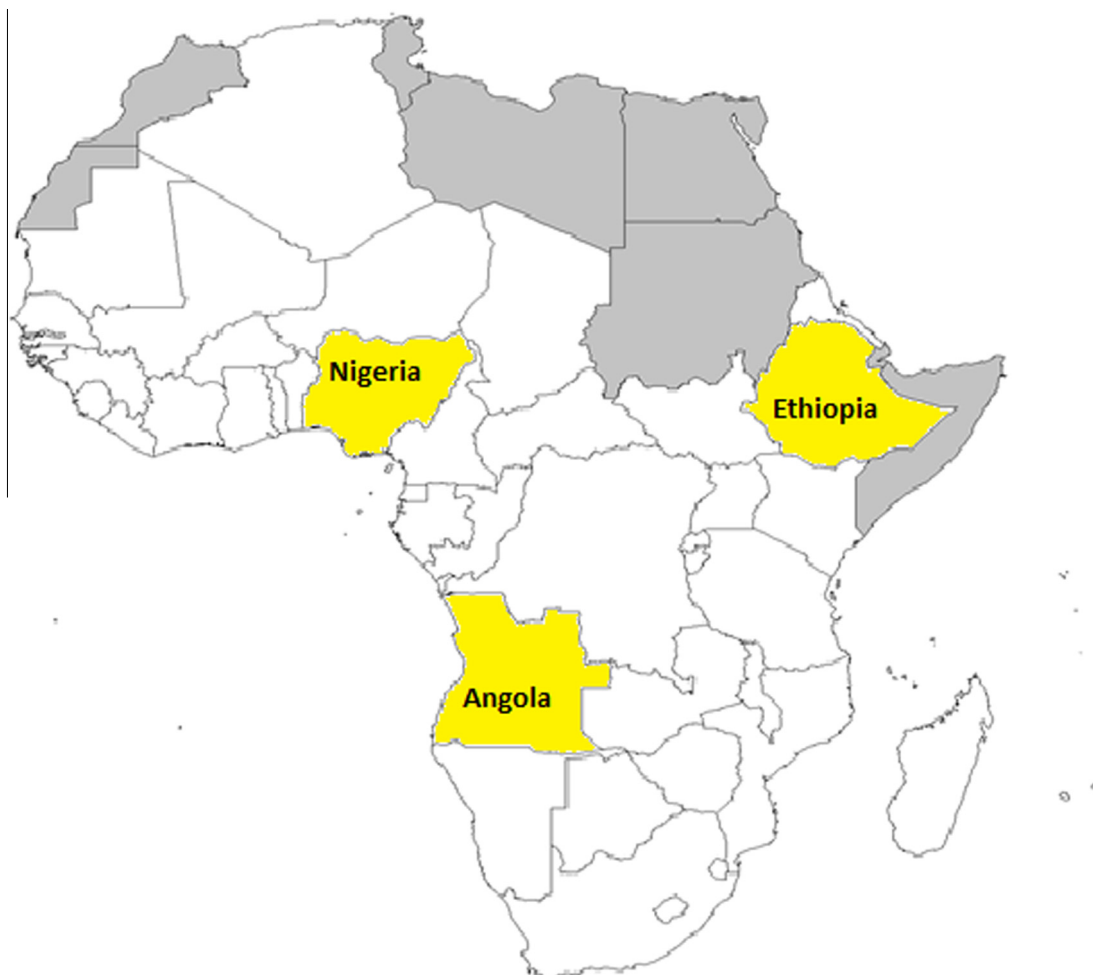


Fig. 1. Countries where impact of polio infrastructure on other diseases preparedness and response was documented (in yellow).

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